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	INTR	ODUCTION	1
	1.1 1.2 1.3	Site Description and Regulatory Applicability Annual Report Requirements Professional Engineer Certification	2
2.0	GRO	UNDWATER MONITORING SYSTEM	4
	2.1 2.2 2.3	Current Groundwater Monitoring System Monitoring Well Installation Monitoring Well Decommissioning	5
3.0	GRO	UNDWATER MONITORING DATA	7
	3.1 3.2 3.3	Sample Requirements Groundwater Elevation and Flow Groundwater Sampling Results	8
4.0	DETE	ECTION AND ASSESSMENT MONITORING	13
	4.1 4.2	Detection Monitoring Program	
5.0	ADDI	ITIONAL INFORMATION	15
	5.1 5.2 5.3	Alternative Monitoring Frequency Demonstration of Invalid Statistically Significant Increase Time Extension for Corrective Measures Assessment	15
6.0	CON	CLUSION	17
	6.1 6.2	Summary of Key Actions Completed	

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.

Brian S. Ketchum, PE

Registration Number: 13372

State of Mississippi

1/30/2020

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
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□ 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

Table 6 117 Appendix in Generalities										
40 CFR 257, Subpart D, Appendix III – Constituents for Background and Subsequent Detection and Assessment Monitoring										
Parameter	Analytical Method	C	ontainer	Preservative	Holding Time					
Boron	200.7	Р	500mL	NA	6 months					
Calcium	200.7	Р	500mL	NA	6 months					
Chloride	4500-CI-B	Р	1000mL	NA	28 days					
Fluoride	4500-F-D	P 1000mL		NA	28 days					
pН		Meas	ured and monitor	red in the field.						
Sulfate	4110B	Р	1000mL	NA	28 days					
TDS	2540C	Р	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	Co	ontainer	Preservative	Holding Time				
Antimony	200.8	Р	500mL	NA	6 months				
Arsenic	200.8	Р	500mL	NA	6 months				
Barium	200.8	Р	500mL	NA	6 months				
Beryllium	200.8	Р	500mL	NA	6 months				
Cadmium	200.8	Р	500mL	NA	6 months				
Chromium	200.8	Р	500mL	NA	6 months				
Cobalt	200.8	Р	500mL	NA	6 months				
Fluoride	4500-F-C	Р	1000mL	NA	28 days				
Lead	200.8	Р	500mL	NA	6 months				
Lithium	200.7	Р	500mL	NA	6 months				
Mercury	245.1	Р	500mL	NA	28 days				
Molybdenum	200.8	Р	500mL	NA	6 months				
Selenium	200.8	Р	500mL	NA	6 months				

40 CFR 257, Subpart D, Appendix IV – Constituents for Background and Assessment Monitoring										
Parameter	Analytical Method	Co	ontainer	Preservative	Holding Time					
Thallium	Thallium 200.8		500mL	NA	6 months					
Radium 226/228	901.1	Р	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 x 10⁻⁶ cm/sec, and in many cases 1.0 x 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 x 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 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
								Detec	ction Mon	itoring								
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
								Asses	sment Mo	nitoring								
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.

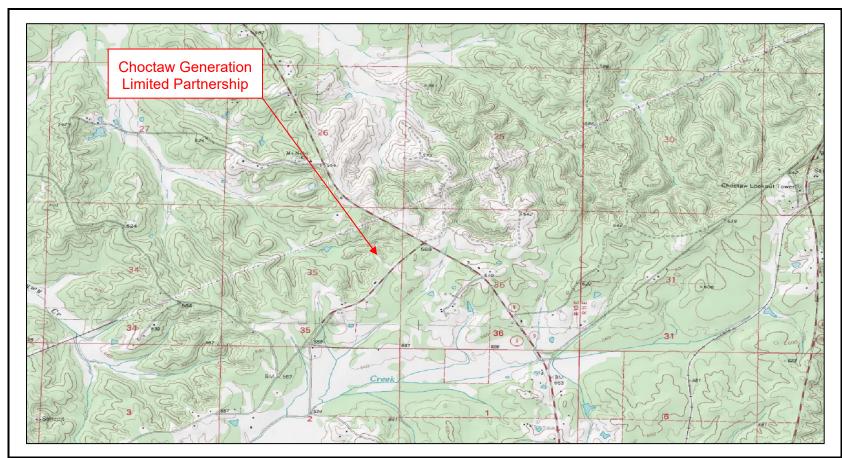
In response to Appendix IV constituents detected at SSL exceeding the GWPS, Choctaw Generation initiated an assessment of corrective measures on January 30, 2019. The ACM was completed on June 29, 2019, after a 60-day extension was granted. Due to evidence that detections of lithium and cobalt at a SSL 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





<u>Legend</u>:

<u>Source</u>: 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



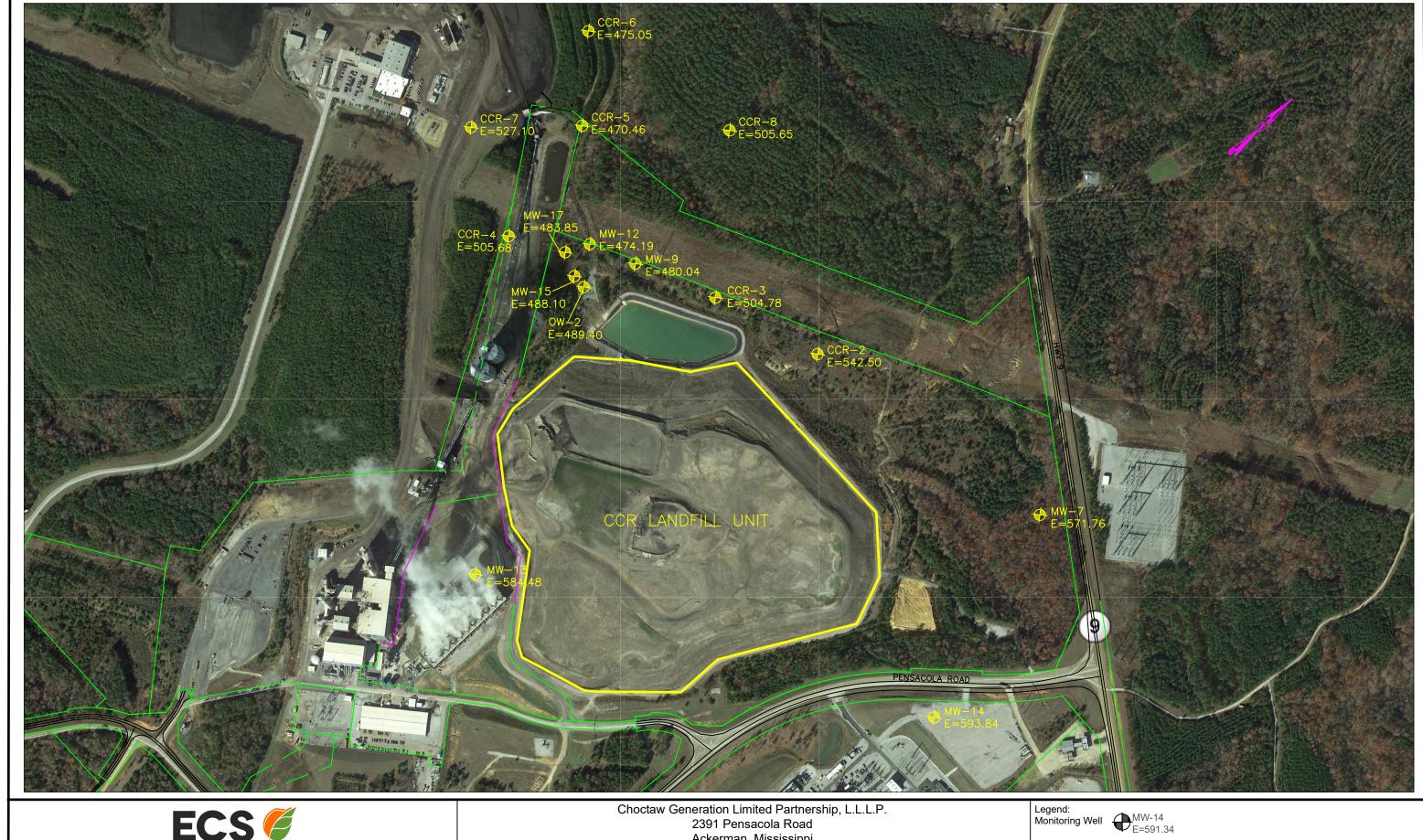
P.O. Box 356

Sherman, Mississippi 38869 (662) 840-5945

Figure 1: Site Location Map

FIGURE 2

FACILITY DIAGRAM





Choctaw Generation Limited Partnership, L.L.L.P. 2391 Pensacola Road Ackerman, Mississippi

Facility Diagram

Figure 2

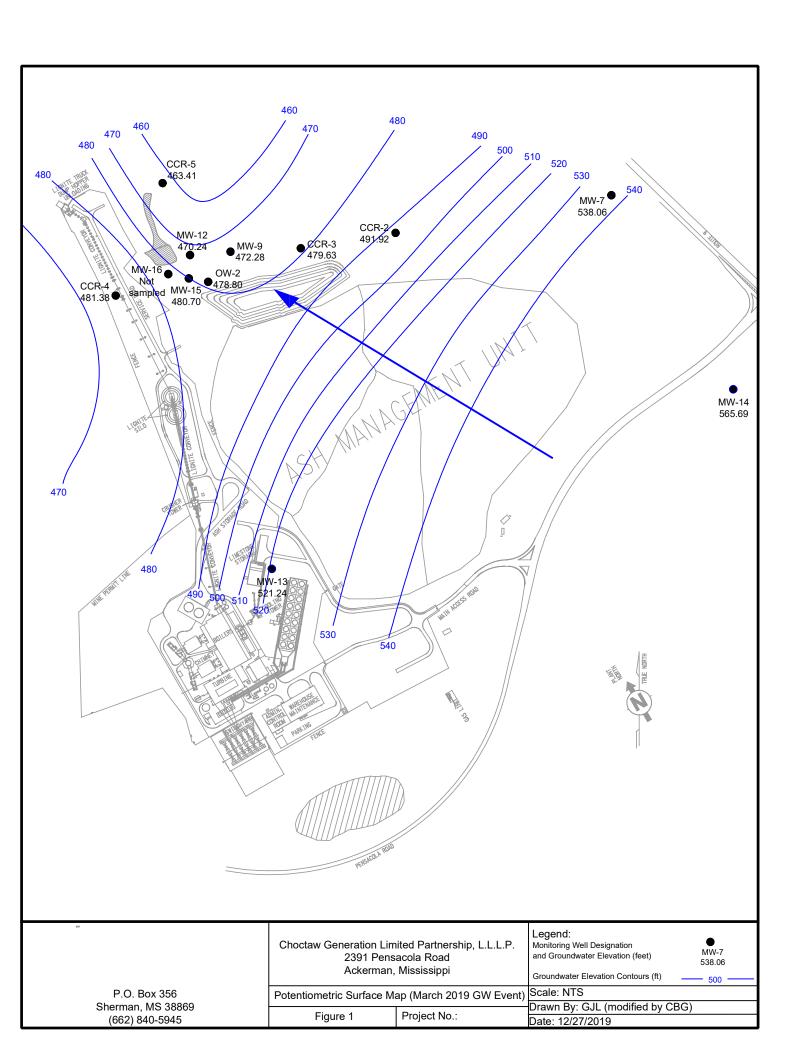
Scale: Not Determined

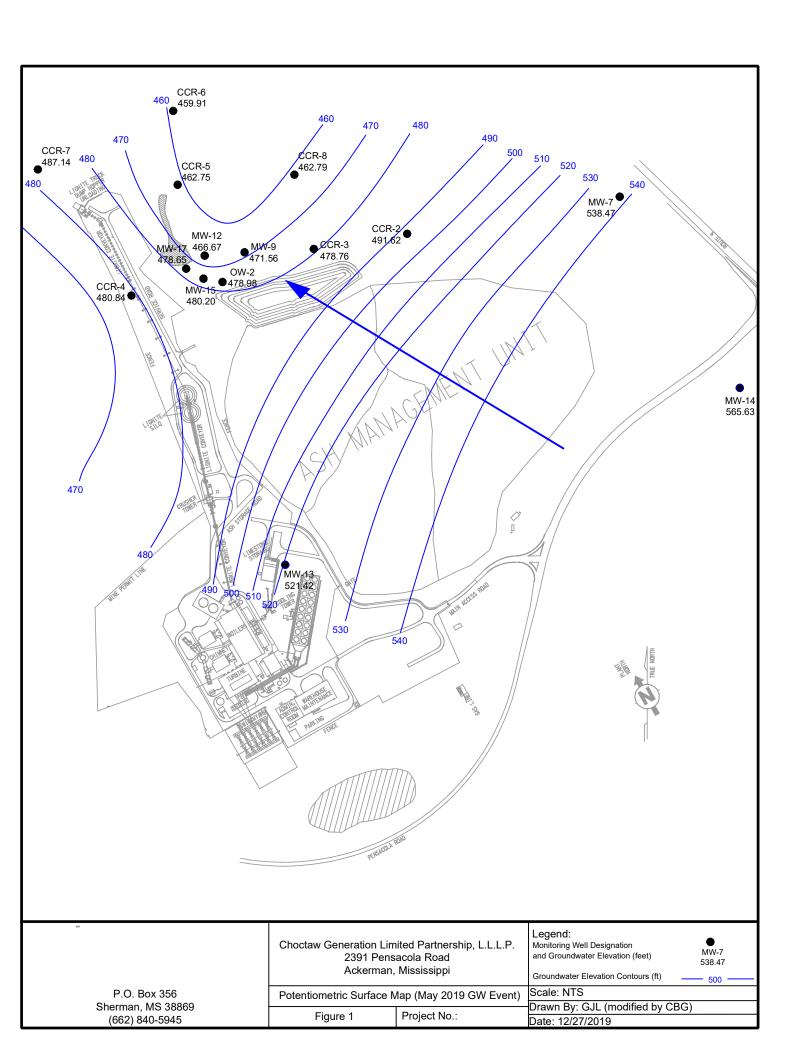
Date: 8/27/2018

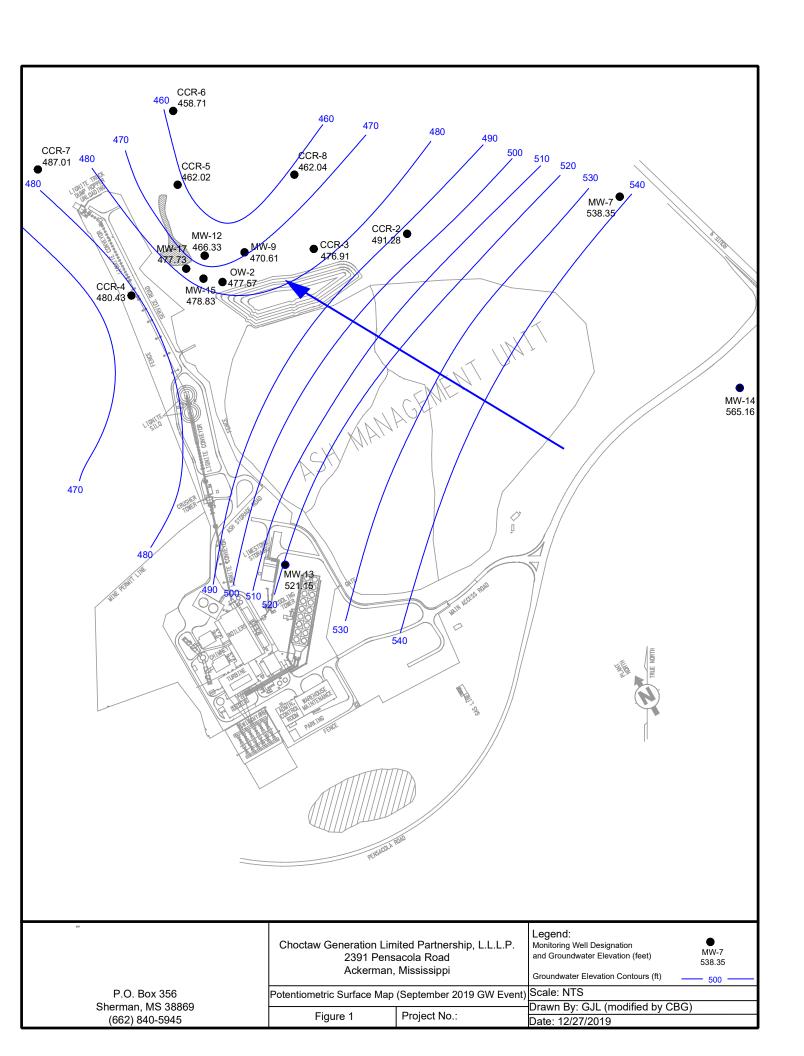
Drawn By: JTB Revised By: CBG Project No.: Date: 12/11/2019

APPENDIX A

POTENTIOMETRIC SURFACE MAPS







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

Hany 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.





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





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	Shipped by: Fed Ex				
Received by: Sarah E. Tomek		Submitted by: Kirk Shelton				
Date/Time Logged: 3/21/2019 9:	22:00AM	Logged by: Sarah E. Tomek				
Cooler ID: #1124		Receipt Temperature: 0.4 °C				
Custody Seals	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					
Cooler ID: #1136		Receipt Temperature: 1.0 °C				
Custody Seals	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					
Cooler ID: #301		Receipt Temperature: _ 2.2 °C				
Custody Seals	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					





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





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

Reported: 04/12/2019 11:14

MW-9

1903401-01 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Par	ameters									
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 SO4	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 Serie	s 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 Serie	s Methods ICP	-MS [Ana	lysis M	ode]						
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	"	"	"	



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 Para	ameters									
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	s Methods ICF	P-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	s Methods ICF	P-MS [Ana	lysis M	ode]						
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			•	



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

Reported: 04/12/2019 11:14

MW-13

1903401-03 (Water)

_	_		_				Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Para	ameters									
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	s Methods ICF	P-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	"	"	II .	ADB	"	"	"	
Calcium	69.1	0.100	"	"	"	ADB	"	"	"	
_ithium	ND	0.050	"	"	"	ADB	"	"	"	
Metals by EPA 200 Series	s Methods ICF	P-MS [Ana	lysis M	ode]						
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	"	"	II .	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"		"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"		"	
_ead [He]	ND	0.00100	"	"	"	ADB	"		•	



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

Reported: 04/12/2019 11:14

MW-7

1903401-04 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Para	ameters									
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 SO4	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	s Methods ICF	P-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	s Methods ICF	P-MS [Ana	lysis M	ode]						
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	"		n n	ADB	"	"	"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	



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

Reported: 04/12/2019 11:14

MW-14

1903401-05 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Para	ameters									
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 Serie	s Methods ICF	P-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 Serie	s Methods ICF	P-MS [Ana	lysis M	ode]						
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	"		"	





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

Reported: 04/12/2019 11:14

Field Blank

1903401-06 (Water)

			_				Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Para	ameters		·	·		·	·			·
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 SO4	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	s Methods ICF	P-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	s Methods ICF	P-MS [Ana	lysis M	ode]						
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	"	"	"	





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

Reported: 04/12/2019 11:14

Duplicate

1903401-07 (Water)

	_						Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Para	ameters							<u> </u>		
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	s Methods ICF	P-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	"	"	II .	ADB	"		"	
Calcium	0.636	0.100	"	"	"	ADB	"	"		
_ithium	ND	0.050	"	"	"	ADB	"		"	
Metals by EPA 200 Series	s Methods ICF	P-MS [Ana	lysis M	ode]						
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	"	"	II .	ADB	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	ADB	"		"	
Cobalt [He]	ND	0.00100	"	"	"	ADB	"		"	
∟ead [He]	ND	0.00100	II .	"	"	ADB			"	



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

Reported: 04/12/2019 11:14

MW-12

1903401-08 (Water)

			_	_		_	Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Para	ameters									
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 Serie	s Methods ICP	P-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	s Methods ICP	P-MS [Ana	lysis M	ode]						
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	"		"	



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

Reported: 04/12/2019 11:14

MW-15

1903401-09 (Water)

					,					
							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Para	ameters									
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	s Methods ICP	P-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	s Methods ICP	-MS [Ana	lysis M	ode]						
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	"		II .	
Cobalt [He]	0.0103	0.00100	"	"	"	ADB			"	
Lead [He]	ND	0.00100	"	"	"	ADB	"	•	"	





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

Reported: 04/12/2019 11:14

CCR-2

1903401-10 (Water)

				•	,					
							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Para	ameters									
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	s Methods ICF	P-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	"	"	II .	ADB	"	"	"	
Calcium	13.9	0.100	"	"	"	ADB	"	"	"	
Lithium	ND	0.050	"	"	"	ADB	"	"	"	
Metals by EPA 200 Series	s Methods ICF	P-MS [Ana	lysis M	ode]						
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	"		"	





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

Reported: 04/12/2019 11:14

CCR-3

1903401-11 (Water)

				• , ,	4.10.7					
	Decult	MDI	Lleite	Dil	Datah	Amalust	Date Time	Date Time	NA-4bd	011:51
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Par	ameters									
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 SO4	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 Serie	s 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 Serie	s Methods ICP	-MS [Ana	lysis M	ode]						
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	"		u u	
Lead [He]	ND	0.00100	"	"	"	ADB	"	"	"	





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

Reported: 04/12/2019 11:14

CCR-4

1903401-12 (Water)

			_				Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Par	ameters									
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 Serie	s 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 Serie	s Methods ICP	-MS [Ana	lysis M	ode]						
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	"		"	



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

Reported: 04/12/2019 11:14

CCR-5

1903401-13 (Water)

Sulfate as SO4											
Result MRL Units Dil Batch Analyst Prepared Analysed Method Qualifiers											
Selection Sele	Analyte	Result	MRL	Units	Dil	Batch	Analyst			Method	Qualifiers
Sulfate as SO4	Classical Chemistry Para	ameters									
15.25 14.00 14.00 14.00 14.00 14.00 14.00 14.45 14.00 14.45 14.00 14.45 14.00 14.45 14.4	Chloride	9.17	0.500	mg/L	1.0	9C26028	DLW			SM 4110B 2011	
Solution Solution	Sulfate as SO4	1400	250	"	50.0	"	DLW	"		"	
Metals by EPA 200 Series Methods ICP-AES	Fluoride	0.70	0.22	"	1.0	9C21022	DLW				
Sarium	Total Dissolved Solids	1985	1	"	"	9C26048	DLW				
Soron 0.058 0.050 "	Metals by EPA 200 Series	s Methods ICP	-AES								
Calcium 245 0.500 " 5.0 " ADB " 03/28/2019 15:07 Inthium ND 0.050 " 1.0 " ADB " 03/28/2019 14:24 " 04/28/2019 14:24 " 05/28/2019 14:24 " 05/28/2019 14:24 " 05/28/2019 14:24 " 05/28/2019 14:24 " 05/28/2019 14:24 " 05/28/2019 14:24 **Charalysis Mode] Recyllium [He] ND 0.00500 " " " ADB " " 05/28/2019 14:54 5.4 **Charalysis Mode] Recyllium [He] ND 0.00100 " " " ADB " " " " ADB Chromium [He] ND 0.00465 0.00100 " " " ADB " " " " ADB " " " " ADB " " " " " " " ADB " " " " " " " ADB " " " " " " " " " ADB " " " " " " " " " ADB " " " " " " " " " " " " " ADB " " " " " " " " " " " " " " " " " " "	Barium	0.028	0.010	mg/L	1.0	9C28006	ADB				
ND ND ND ND ND ND ND ND	Boron	0.058	0.050	"	"	"	ADB	"			
Metals by EPA 200 Series Methods ICP-MS [Analysis Mode] Intimony [HHe] ND 0.00500 mg/L 1.0 9C27030 ADB 03/27/2019 03/28/2019 14:54 EPA 200.8 Rev 14:54 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 " " "	Calcium	245	0.500	"	5.0	"	ADB	"		"	
Antimony [HHe] ND 0.00500 mg/L 1.0 9C27030 ADB 03/27/2019 03/28/2019 EPA 200.8 Rev 09:25 14:54 5.4 Beryllium [He] ND 0.00100 " " " ADB " " " " Chromium [He] ND 0.00100 " " " ADB " " " " Chromium [He] ND 0.00100 " " " ADB " " " " " Chromium [He] ND 0.00100 " " " ADB " " " " " Chromium [He] ND 0.0465 0.00100 " " " ADB " " " " " " " Chromium [He] ND 0.0465 0.00100 " " " ADB " " " " " " " Chromium [He] ND 0.0465 0.00100 " " " ADB " " " " " " " " " " " " " " " " " " "	Lithium					"	ADB	"		"	
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 " " "	Metals by EPA 200 Series	s Methods ICP	-MS [Ana	lysis M	lode]						
Cadmium [He] ND 0.00100 " " ADB " " " Chromium [He] ND 0.00100 " " " ADB " " " " Chromium [He] ND 0.00100 " " ADB " " " " " Cobalt [He] 0.0465 0.00100 " " ADB " " " " " " " " " " " " " " " " " " "	Antimony [HHe]	ND	0.00500	mg/L	1.0	9C27030	ADB				
Chromium [He] ND 0.00100 " " ADB " " " " Cobalt [He] 0.0465 0.00100 " " " ADB " " " "	Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Cobalt [He] 0.0465 0.00100 " " ADB " " "	Cadmium [HHe]	ND	0.00100	"	"	"	ADB	"		"	
CODAIT [He] U.0465 U.00100 ADB	Chromium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
.ead [He] 0.00125 0.00100 " " ADB " " "	Cobalt [He]	0.0465	0.00100	"	"	"	ADB	"			
	Lead [He]	0.00125	0.00100	"	"	"	ADB	"		"	



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

Reported: 04/12/2019 11:14

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: 19034	101-01							
Fluoride	3/21/19 12:55	0.37	0.22	mg/L		0.34			5.91	35	
Matrix Spike (9C21018-MS1)			Source: 19034	101-01							
Fluoride	3/21/19 12:55	1.07	0.22	mg/L	0.800	0.34	91.3	70-130			
Matrix Spike Dup (9C21018-MS	SD1)		Source: 19034	101-01							
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	



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

Reported: 04/12/2019 11:14

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 9C21022 - Default F	Prep GenChem			_	_		_	_	_		
Duplicate (9C21022-DUP1)		Source: 1903	402-04							
Fluoride	3/21/19 14:45	0.41	0.22	mg/L		0.46			10.2	35	
Matrix Spike (9C21022-MS	S1)		Source: 1903	402-04							
Fluoride	3/21/19 14:45	1.56	0.22	mg/L	0.800	0.46	137	70-130			M1
Matrix Spike Dup (9C2102	22-MSD1)		Source: 1903	402-04							
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 F	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			



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

Reported: 04/12/2019 11:14

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 SO4	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 SO4	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: 1903	401-03							
Chloride	3/27/19 12:51	3.92	0.500	mg/L		3.84			2.14	20	
Sulfate as SO4	3/25/19 19:08	7.60	5.00	"		7.54			0.845	20	
Matrix Spike (9C26028-MS1)			Source: 1903	401-03							
Chloride	3/25/19 19:26	43.4	2.00	mg/L	40.0	3.84	98.8	79-119			
Sulfate as SO4	3/25/19 19:26	45.5	20.0	"	40.0	7.54	94.9	43.5-124			
Matrix Spike Dup (9C26028-M	SD1)		Source: 1903	401-03							
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 SO4	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							





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

Reported: 04/12/2019 11:14

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: 1903	401-01							
Total Dissolved Solids	3/25/19 16:15	1344	1	mg/L		1340			0.298	5	
Duplicate (9C26048-DUP2)			Source: 1903	402-04							
Total Dissolved Solids	3/25/19 16:15	569	1	mg/L		561			1.42	5	



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	N 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: 1903	401-01							
Calcium	3/28/19 15:02	105	0.200	mg/L		105			0.288	20	
Duplicate (9C28006-DUP2)			Source: 1903	401-11							
Calcium	3/28/19 14:07	55.4	0.100	mg/L		56.0			0.955	20	
Matrix Spike (9C28006-MS1)			Source: 1903	401-01							
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			



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 DC	N 1017 Rev 8										
Matrix Spike (9C28006-MS2)			Source: 1903	401-11							
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-MS	6D1)		Source: 1903	401-01							
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-MS	6D2)		Source: 1903	401-11							
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	



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 DC	N 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: 19034	01-01							
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			



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 DCI	N 1017 Rev 8			·					·		
Matrix Spike (9C27030-MS2)			Source: 19034	101-11							
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-MS	D1)		Source: 19034	101-01							
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-MS	D2)		Source: 19034	101-11							
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	



Certification Code

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

Analyte

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

Reported: 04/12/2019 11:14

Certified Analyses Included in this Report

Allalyte	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 Wate	•	
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 Project Manager: Jim Ward	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 SO4	C01,C02		
Nitrate as N	C01,C02		

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



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

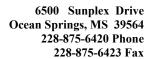
Reported: 04/12/2019 11:14

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 Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication 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 anlayte/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.

Project: Red Hills CCR Project Number: Red Hills

Project Manager: Jim Ward

Reported:

04/12/2019 11:14

Analyst Initials Key

Ackerman MS, 39735

<u>FullName</u>	Initials
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

19034012

Address: 2391 Pensacola Rd. City: Ackerman State: MS Zip: 39735	Purchase Orde	Purchase Order #	der#:			SC	CSRDHER	חבה	SCSRDH6883			•	Our nor	mal turr	around	Our normal turn around time is 10 working days	0 worki	ng days	
Ackerman State MS Zip:	Email	Addros												1000					
		Addies	SS									Next Da	Next Day*	rec ,	All rush order equests must be	All rush order requests must be	U	Phor Mail	Phone Mail
Phone: 662-387-5758	Sampl	Sampler Name Printed	ne Prin		1.11	2		6	1			2nd Day* Other*	Jay*	Ф	prior approved	proved.	1)	Fax Email	vail ×
Fax	Sampl	Sampler Name Signed	ne Sign	112	A	7	12/2	10	L	(2	2		·		-1			L
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Project Name: Red Hills CCR	Preservative) ative	\perp	-	\Box		+	+	\rightarrow		ı iğ		ID#	10±	u	Đ.	-	Matrix:	
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Sample Identification Sampling Matrix Code	# of Co			Sı		Cadmin			otal Rac				***************************************				S = S	S = Solid SO = Soil	
MW-9 3/19/19 12:12 W			\times	X	X	X	X	X			1	-	,	-	-		35	SE = Sediment	nent
W SI-AQIN	7	\prod	X	X	*	#	X	1		1	4	Not	70	2/2	0		D [V - Lidaia	
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MW-13 320/19 11:391 W	4	0	×	X	×	X	X	X	× ,					+			1	or = sinage	re
W 54:11 6/9/2	4	9	X	X	X	X	X		X		+			+					5 <u>90</u>
MW-14 8/20/19 15:26 W	4	0	X	X	\times	X	\exists		X	3 3				+			Pr	Preservation:	ation:
Field Blank 3/2/19 15:05 W	4	0	\times	X	X	X	X		X				1	+			1	1= H2SO4	
Duplicate	4		X	X	X	X	X	$\langle \cdot $	\times					+			2=	2= H3PO4	
MW-12 3/19/19 16:40 W	4	0	X	X	×	X	X	X.	X					+			4=2	4=ZnC4H10O6	006
3/20/19 9:45	4	0	X	X	X	X	X	X	X					+			5=2	5=ZnC4H1006 &	006 &
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Date & Time By:		Sai	Sample		Blank		Cooler)ler		1	*	III Tem	**All Temps are Corrected Values**	orrecte	d Value	** S**	9=NaH	9=NaHSO4	n Ito's
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Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564



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Chain of Custody Record

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

Print Form

Received by Received by Received by	Relinquished by Received by	Received on Ice? Y N Ther	Sample Identification CCR-3 CCR-4 CCR-5	Project Name: Project #:	662-387-5758 Fax:	Address: 2391 Pensacola City: Ackerman State
Tense su	Printed Name Kirl (Shilts / M	Thermometer# Cooler #	Sampling Matrix Date/Time Code 3 6 6 5 12 W 3 20 6 8:58 W	Red Hills CCR		Pensacola Rd. In State: MS Zip: 39735
rah Geneh MM Azyla 075a	Signature Blank Cooler Company Date Time FCS, Th. 03L4/4/905	# Receipt Temp Corrected(°C)	4 4 4 of Co Grab (G	Site (C) Sit		Purchase Order #: SCSRDH6883 Email Address :
	All Temps are Corrected Values 9=NaHSO4	Preservation: 1= H2504 2= H3P04 3=NaOH 4=ZnC4H1006 5=ZnC4H1006 & NaOH 6=HNO3 7-Na32303	Water S = Solid SO = Soil SE = Sediment L = Liquid A = Air O = Oil SL = Sludge	Field Testing ID# ID# ID# ID# Matrix: Field Test Field Test Field Test Field Test DW - Water	prior approved	Turn Around Time & Reporting Our normal turn around time is 10 working days Normal *All rush order Phone Next Day* requests must be Mail

Micro-Methods Issue Date: 11-22-17		ods Laboratory Checklist	DCN: F207 Date Revised: 11-2: Revision: 5	2-17
Client Red HIIS W. Date/Time Received 3	0 1903401	Shipped By // Unpacked/C	Fed EX Checked By	8
Cooler ID Ice Present Yes/No Y	Temperature The (Corrected) 2.2' 0.4' 1.0'	7#4	tody Sealed Cus	stody Seal Intact Yes/No
If not iced, were samples red Temperature Blank Used Multi Cooler shipment: ID o	Yes No	If not, temperature t	aken from cooler	A_X or bottle
Custody Seals on Bottles Pro Containers Intact Proper Containers for Requ		Yes No Yes No No		
Correct Preservation Used for Adequate Sample for Analys	or All Samples sis Requested	Yes X No Yes X No		
Volatile Vials Headspace Gr	eater than 6mm in	Diameter Yes	No N/A 🔀	
Chain of Custody Form Incle Chain of Custody Form Con Chain of Custody Form Pr Field Sheets/Special Instruct Samples Missing on COC of Sample Container Labels Ma	nplete operly Relinquist ctions Included or From Cooler	Yes No_ Yes No_ No_ No_ Yes No_ Yes No_ Yes No_ Yes No_	N/A_ X	
Samples Received Within Ho Dept. Manager Notified of Ru	lding Time Ish/Short Holding			
Does work order meet Micro Note: Samples that do not me Log.	Methods sample a	ccentance criteria V	es X No	le Rejection
Client ContactedClient Instructions: Cancel W Proceed Comments:	with Work Order	(Data will be	mequalified)	

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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

Kaunt Prour

(504)469-0333 Project Manager

Enclosures







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 lowa 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



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



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



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:



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.



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project:	1903401						
Sample: 190 PWS:		Lab ID: 2099351 Site ID:	001 Collected: 03/19/19 12:12 Sample Type:	Received:	03/25/19 10:20 M	Matrix: Water	
Comments:	 Upon receipt at the for radiochemistr 	e laboratory, 2.5 mls of nitrio	c acid were added to the sample to n	neet the sam	ple preservation rec	quirement of pH	
P	arameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	1.22 ± 0.691 (0.731)	pCi/L	04/05/19 10:15	13982-63-3	
Radium-228		EPA 904.0	C:NA T:85% 1.30 ± 0.510 (0.816) C:75% T:85%	pCi/L	04/10/19 12:23	15262-20-1	
Sample: 190 PWS:	3401-02	Lab ID: 2099351 Site ID:	O02 Collected: 03/19/19 09:24 Sample Type:	Received:	03/25/19 10:20 M	Matrix: Water	
	 Upon receipt at the for radiochemistr 		c acid were added to the sample to n	neet the sam	ple preservation red	quirement of pH	
P	arameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	0.404 ± 0.537 (0.862)	pCi/L	04/05/19 10:15	13982-63-3	
Radium-228		EPA 904.0	C:NA T:91% -0.0990 ± 0.372 (0.887) C:74% T:72%	pCi/L	04/10/19 12:23	15262-20-1	
	 Upon receipt at the 		O03 Collected: 03/20/19 11:39 Sample Type: c acid were added to the sample to n			Matrix: Water	
	<2 for radiochemistr arameters	y analysis. Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	0.149 ± 0.474 (0.873)	pCi/L	04/05/19 10:31	13982-63-3	
Radium-228		EPA 904.0	C:NA T:91% 0.341 ± 0.375 (0.784) C:75% T:83%	pCi/L	04/10/19 12:24	15262-20-1	
Sample: 190 PWS:	3401-04	Lab ID: 2099351 Site ID:	O04 Collected: 03/20/19 11:45 Sample Type:	Received:	03/25/19 10:20 M	Matrix: Water	
	Upon receipt at thefor radiochemistr		c acid were added to the sample to n	neet the sam	ple preservation red	quirement of pH	
P	arameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	0.231 ± 0.304 (0.475)	pCi/L	04/05/19 10:31	13982-63-3	
Radium-228		EPA 904.0	C:NA T:104% 0.0141 ± 0.353 (0.816) C:78% T:79%	pCi/L	04/10/19 12:24	15262-20-1	
Sample: 190 PWS:	3401-05	Lab ID: 2099351 Site ID:	005 Collected: 03/20/19 15:26 Sample Type:	Received:	03/25/19 10:20 M	Matrix: Water	
	Upon receipt at thefor radiochemistr		c acid were added to the sample to n	neet the sam	ple preservation red	quirement of pH	
P	arameters	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

-,	903401							
Sample: 1903401-05 PWS:		D: 2099351005		red: 03/20/19 15:26 e Type:	Received:	03/25/19 10:20	Matrix: Water	
	eceipt at the laboratory, 2 adiochemistry analysis.	5 mls of nitric acid	were add	ed to the sample to r	neet the sam	ple preservation re	quirement of pH	
Paramete	rs Me	thod A	ct ± Unc ((MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0		9 ± 0.333 '% T:86%	(0.731)	pCi/L	04/10/19 12:25	15262-20-1	
Sample: 1903401-06 PWS:	Lab Site	D: 2099351006 D:		red: 03/20/19 15:05 e Type:	Received:	03/25/19 10:20	Matrix: Water	
• Upon	we opened and spilled. receipt at the laboratory, 2 adiochemistry analysis.	5 mls of nitric acid	were add	ed to the sample to r	neet the sam	ple preservation re	quirement of pH	
Paramete	rs Me	thod A	ct ± Unc ((MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1		± 0.925	(1.05)	pCi/L	04/05/19 10:3	1 13982-63-3	
Radium-228	EPA 904.0	0.28	A T:82% 0 ± 0.398 3% T:90%	` '	pCi/L	04/10/19 12:24	4 15262-20-1	
	Lab Site ecceipt at the laboratory, 2		Sampl	ed: 03/19/19 00:00 e Type: ed to the sample to r			Matrix: Water quirement of pH	
Paramete		thod A	ct ± Unc ((MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1		9 ± 0.307	` '	pCi/L	04/05/19 10:1	13982-63-3	
Radium-228	EPA 904.0	0.37	A T:100% 2 ± 0.378 I% T:84%	(0.783)	pCi/L	04/10/19 12:23	3 15262-20-1	
Sample: 1903401-08		D: 2099351008		red: 03/19/19 10:40	Received:	03/25/19 10:20	Matrix: Water	
	Site receipt at the laboratory, 2 adiochemistry analysis.			e Type: ed to the sample to r	neet the sam	ple preservation re	quirement of pH	
Paramete	rs Me	thod A	ct ± Unc ((MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1			(0.625)	pCi/L	04/05/19 10:1	13982-63-3	
Radium-228	EPA 904.0	1.01	A T:99% ± 0.439 8% T:78%		pCi/L	04/10/19 12:23	3 15262-20-1	
Sample: 1903401-09 PWS: Comments: • Upon	Lab Site receipt at the laboratory, 2		Sampl	ed: 03/20/19 09:45 e Type: ed to the sample to r			Matrix: Water	
	adiochemistry analysis.						. '	
Paramete				(MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1		± 0.596 A T:84%	(0.215)	pCi/L	04/05/19 10:1	5 13982-63-3	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project:	1903401						
Pace Project		Lab ID. 20002	E4000 Collected: 03/20/40 00:48	Doggived	02/25/40 40:20	Motrice Water	
Sample: 19 PWS:	903401-09	Lab ID: 20993 5 Site ID:	51009 Collected: 03/20/19 09:45 Sample Type:	Received.	03/25/19 10:20	Matrix: Water	
Comments:	 Upon receipt at the for radiochemis 		tric acid were added to the sample to	meet the sam	nple preservation re	quirement of pH	
	Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	1	EPA 904.0	1.08 ± 0.453 (0.737) C:74% T:86%	pCi/L	04/10/19 12:23	15262-20-1	
Sample: 19	903401-10	Lab ID: 20993 5 Site ID:	51010 Collected: 03/19/19 16:08 Sample Type:	Received:	03/25/19 10:20	Matrix: Water	
Comments:	 Upon receipt at the second seco		tric acid were added to the sample to	meet the sam	nple preservation re	quirement of pH	
	Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	i	EPA 903.1	0.373 ± 0.432 (0.660)	pCi/L	04/05/19 10:15	13982-63-3	
Radium-228	1	EPA 904.0	C:NA T:93% 0.831 ± 0.421 (0.741) C:77% T:80%	pCi/L	04/10/19 12:23	3 15262-20-1	
Sample: 19 PWS: Comments:	Upon receipt at the		51011 Collected: 03/19/19 15:12 Sample Type: tric acid were added to the sample to			Matrix: Water quirement of pH	
	<2 for radiochemis Parameters	etry analysis. Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	<u> </u>	EPA 903.1	0.747 ± 0.705 (1.05)	pCi/L	04/05/19 10:15	13982-63-3	
Radium-228		EPA 904.0	C:NA T:98% 1.83 ± 0.597 (0.831) C:75% T:83%	pCi/L	04/10/19 12:23	3 15262-20-1	
Sample: 19	903401-12	Lab ID: 209935 Site ID:	51012 Collected: 03/20/19 08:58 Sample Type:	Received:	03/25/19 10:20	Matrix: Water	
Comments:	 Upon receipt at the for radiochemis 		tric acid were added to the sample to	meet the sam	nple preservation re	quirement of pH	
	Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	}	EPA 903.1	0.730 ± 0.513 (0.623)	pCi/L	04/05/19 10:15	13982-63-3	
Radium-228	1	EPA 904.0	C:NA T:97% 0.473 ± 0.388 (0.778) C:75% T:84%	pCi/L	04/10/19 12:23	3 15262-20-1	
Sample: 19	903401-13	Lab ID: 20993 5 Site ID:	51013 Collected: 03/20/19 10:20 Sample Type:) Received:	03/25/19 10:20	Matrix: Water	
Comments:	 Upon receipt at the second seco		tric acid were added to the sample to	meet the sam	ple preservation re	quirement of pH	
	Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	1	EPA 903.1	0.199 ± 0.318 (0.180)	pCi/L	04/05/19 10:31	1 13982-63-3	
Radium-228	1	EPA 904.0	C:NA T:93% 0.553 ± 0.386 (0.744) C:70% T:84%	pCi/L	04/10/19 12:23	3 15262-20-1	

REPORT OF LABORATORY ANALYSIS

C:70% T:84%

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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.



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

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.



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

Date: 04/11/2019 03:47 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1903401 Pace Project No.: 2099351

Date: 04/11/2019 03:47 PM

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		



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

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

Sample Name: MW-9

Radium, Total 226 & 228 by 901.1

03/29/2019

04/16/2019 09:24

Containers Supplied:

1000mL Plastic (C)

1000mL Plastic (D)

Sample 1D: 1903401-03

Water Sampled: 03/20/2019 11:39 03/29/2019

Sample Name: MW-13

Radium, Total 226 & 228 by 901.1

04/17/2019 11:39

Containers Supplied:

1000mL Piastic (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

1020

Released By

Page 46 of 48

Page 1 of 2



SUBCONTRACT

(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

Sample Name: CCR-2

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

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

04/17/2019 08:58

Containers Supplied:

1000mL Plastic (C)

1000mL Plastic (D) Water

Sample ID: 1903401-12

03/29/2019

Sampled: 03/20/2019 08:58 Sample Name: CCR-4

Radium, Total 226 & 228 by 901.1

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)

Received By

Page 2 of 2

W0#:2099351

Pace Analytical 1000 River St. Rose, L	bend. Blvd., Suite F		Iditio	41 U	Projec	PM: KHB CLIENT: 20-MIC	Due Date: RO	04/16/19
Courier: ☐ Pace Courier ☐ Hire	d Courier 🔲 i	Fed X	<u> </u>	JPS	□ DHL	□ USPS □ Cu	ıstomer	□ Other
Custody Seal on Cooler/Box Present:	[see COC]					Custody Seals i	ntact: 🗆 Yes	□No
Therometer Used: □ Therm Fisher IR 5 □ Therm Fisher IR 6 □ Therm Fisher IR 7	Тур	e of Ice	e: '	Wet	Blue None	/ Samples on	ice: [see CO	C]
Cooler Temperature: [see COC]	Temp sho	uld be	above '	freezi	ng to 6°C	Date and Initials of p	person examin	ing
Temp must be measured from Temperature b	lank when presen	t	_	Con	nments:		-	
Temperature Blank Present"?	□Ye	s 🛮 No	□n/a	1	··	<u> </u>		
Chain of Custody Present:	□Ye	s_□No	□n/a	2				
Chain of Custody Complete:	ØYe	s 🗆 No	_	1				<u> </u>
Chain of Custody Relinquished:	ĽYe	s ∐No	□n/a	4				
Sampler Name & Signature on COC:	□Ye	s 🛮 No	-	+-				
Samples Arrived within Hold Time:		s □No	□n/a	6				
Sufficient Volume:	∐Ye	s □No	 □n/a	7				
Correct Containers Used:		s 🗆 No	□n/a	8				
Filtered vol. Rec. for Diss. tests	□Yes	s ∐No	□n/a	9	· · · · · · · · · · · · · · · · · · ·			
Sample Labels match COC:	∐Yes	s □No	□n/a	10		···		· · · · · · · · · · · · · · · · · · ·
All containers received within manafactur precautionary and/or expiration dates.		s□No	□n/a	11				
All containers needing chemical preserva been checked (except VOA, coliform, & C		No	□n/a	12				, , , , ,
All containers preservation checked foun compliance with EPA recommendation.	d to be in □Yes	. ⊠No	□N/A	13		reserative added? □ ord lot no.: HNO3		
leadspace in VOA Vials (>6mm):	□Yes	□No	□NA	14	un	presero	ed	
Trip Blank Present:	□Yes	□N ₀		15				
Client Notification/ Resolution:						<u></u>		
Person Contacted:						Date/Time:		
Comments/ Resolution:			•					
							<u> </u>	
<u> </u>							<u> </u>	<u> </u>
			_					



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.

Purchase Order #: RDH10815

Ackerman, MS 39735
RE: Red Hills CCR

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

Hany 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.





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





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 8:00:00)AM	Shipped by: Fed Ex	
Received by: Teresa Meins		Submitted by: Kirk Shelton	
Date/Time Logged: 5/31/2019 8:25:0	OAM	Logged by: Teresa Meins	
Cooler ID: #301		Receipt Temperature: 0.6 °C	
Custody Seals	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		
Cooler ID: #400		Receipt Temperature:1.3 °C	
Custody Seals	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		
Cooler ID: #PNMJ		Receipt Temperature:0.1 °C	
Custody Seals	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		
Cooler ID: New #381		Receipt Temperature: 0.2 °C	
Custody Seals	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		





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





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

Reported: 07/03/2019 12:43

MW-9

1905573-01 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Parar	neters									
Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019	06/03/2019 15:33	SM 4500-F C	
Metals by EPA 200 Series	Methods ICP	-AES					12:15	15.33	2011	
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 [Ana	lysis M	ode]						
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	s Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

MW-17

1905573-02 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Pa	rameters									
Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019 12:15	06/03/2019 15:33	SM 4500-F C	
Metals by EPA 200 Seri	es Methods ICF	-AES					12.15	13.33	2011	
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 Seri	es Methods ICF	-MS [Ana	lysis M	ode]						
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 Se	eries Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

OW-2

1905573-03 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Par	ameters									
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	
Metals by EPA 200 Serie	s Methods ICF	P-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 Serie	s Methods ICF	P-MS [Ana	lysis M	ode]						
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 Ser	ies Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

MW-13

1905573-04 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Par	ameters									
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	
Metals by EPA 200 Serie	s Methods ICF	P-AES					12.15	15.55	2011	
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 Serie	s Methods ICF	P-MS [Ana	lysis M	ode]						
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 Ser	ries Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

MW-7

1905573-05 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Para	ameters									
Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019	06/03/2019 15:33	SM 4500-F C	
Metals by EPA 200 Series	s Methods ICP	-AES					12:15	15.55	2011	
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	s Methods ICP	-MS [Ana	lysis M	ode]						
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 Seri	ies Methods C	VAAS								
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	



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

Reported: 07/03/2019 12:43

MW-14

1905573-06 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Pa	arameters									
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	
Metals by EPA 200 Ser	ies Methods ICF	P-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 Seri	ies Methods ICF	P-MS [Ana	lysis M	ode]						
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	"		u u	
Mercury by EPA 200 Se	eries Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

Field Blank

1905573-07 (Water)

				<u> </u>						
							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Par	ameters									
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	
Metals by EPA 200 Serie	s Methods ICF	P-AES					12.15	13.33	2011	
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 Serie	s Methods ICF	P-MS [Ana	lysis M	ode]						
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 Ser	ies Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

Duplicate

1905573-08 (Water)

				. • •• (
				5			Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Parar	neters									
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	
Metals by EPA 200 Series	Methods ICF	P-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 ICF	P-MS [Ana	lysis M	ode]						
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	"	"	n n	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	u u	
Thallium [He]	ND	0.00100	"	"	"	ADB	"	"	u u	
Mercury by EPA 200 Serie	s Methods C	VAAS								
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	



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

Reported: 07/03/2019 12:43

MW-12

1905573-09 (Water)

	_		_	_			Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Pa	rameters									
Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019	06/03/2019 15:33	SM 4500-F C	
Metals by EPA 200 Serie	es Methods ICF	P-AES					12:15	15.33	2011	
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	
Lithium	ND	0.050	•		"	ADB	"	"	4.4	
Metals by EPA 200 Serie	es Methods ICF	P-MS [Ana	lysis M	ode]						
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		"	u u	
Mercury by EPA 200 Se	ries Methods C	VAAS								
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	



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

Reported: 07/03/2019 12:43

MW-15

1905573-10 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Param	neters									
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	
Metals by EPA 200 Series I	Methods ICF	P-AES					12.15	10.00	2011	
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 I	Methods ICF	P-MS [Ana	lysis M	ode]						
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 C	VAAS								
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	





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

Reported: 07/03/2019 12:43

CCR-2

1905573-11 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Para	ameters									
Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019	06/03/2019 15:46	SM 4500-F C	
Metals by EPA 200 Serie	s Methods ICP	-AES					12:15	15.46	2011	
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 Serie	s Methods ICP	-MS [Ana	lysis M	ode]						
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	"		u u	
Mercury by EPA 200 Ser	ies Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

CCR-3

1905573-12 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Parar	neters									
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	P-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	
_ithium	0.107	0.050	"	"	"	ADB	"	"	"	
Metals by EPA 200 Series	Methods ICP	P-MS [Ana	lysis M	ode]						
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	"	"	"	
₋ead [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB	"		"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB	"	"	"	
「hallium [He]	ND	0.00100	"	"	"	ADB	"		u u	
Mercury by EPA 200 Serie	s Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

CCR-4

1905573-13 (Water)

					,					
							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Pa	rameters									
Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW	06/03/2019	06/03/2019 15:46	SM 4500-F C	
Metals by EPA 200 Seri	es Methods ICP	-AES					12:15	15.46	2011	
Barium	0.160	0.010	mg/L	1.0	9F03026	ADB	06/03/2019		EPA 200.7 Rev	
Lithium	ND	0.050		"	"	ADB	10:00	13:37	4.4	
Metals by EPA 200 Seri	es Methods ICP	-MS [Ana	lysis M	ode]						
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 Se	ries Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

CCR-5

1905573-14 (Water)

				<u> </u>						
							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry P	arameters									
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 Sei	ries 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 Sei	ries Methods ICP	-MS [Ana	lysis M	ode]						
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 S	eries Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

CCR-6

1905573-15 (Water)

Classical Chemistry Parameters ND					•						
Classical Chemistry Parameters ND 0.50 mg/L 1.0 9E31012 DLW 06/03/2019 15:46 SM 4500-F C 2011 2:15 15:46 SM 4500-F C 2011 Metals by EPA 200 Series Methods ICP-AES ND 0.010 mg/L 1.0 9F03026 ADB 06/03/2019 10:00 13:43 4.4								Time	Time		
Metals by EPA 200 Series Methods ICP-AES	Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Metals by EPA 200 Series Methods ICP-AES 15:46 2011 12:15 15:46 2011 13:41 14:44 14:	Classical Chemistry Parar	neters									
April	Fluoride	ND	0.50	mg/L	1.0	9E31012	DLW				
No	Metals by EPA 200 Series	Methods ICF	P-AES								
Metals by EPA 200 Series Methods ICP-MS [Analysis Mode] Intimony [HHe] ND 0.00500 mg/L 1.0 9F03027 ADB " 06/04/2019 15:17 EPA 200.8 Rev 5.4 Intimony [HHe] ND 0.00200 " " ADB " " 5.4 Interpollium [He] ND 0.00100 " " ADB " " " Interpollium [He] ND 0.00100 " " ADB " " " Interpollium [He] ND 0.00100 " " ADB " " " Interpollium [He] ND 0.00100 " " ADB "	Barium	0.176	0.010	mg/L	1.0	9F03026	ADB				
Intimony [HHe] ND 0.00500 mg/L 1.0 9F03027 ADB " 06/04/2019 EPA 200.8 Rev 15:17 5.4 ADB " ADB " ADB " ADB " ADB " " " ADB " " " ADB " " " " ADB " " " ADB " " " " ADB " " " ADB " "	_ithium	ND	0.050	"	"	"	ADB	"	"	"	
Arsenic [HHe] ND 0.00200 " " " ADB " " " " ADB " " " ADB " " " " " " " " " ADB " " " " " " " " " " " " " " ADB " " " " " " " " " " " " " " " " " " "	Metals by EPA 200 Series	Methods ICF	P-MS [Ana	lysis M	ode]						
ADB	Antimony [HHe]	ND	0.00500	mg/L	1.0	9F03027	ADB	n			
Cadmium [HHe] ND 0.00100 " " ADB " " " " Chromium [He] ND 0.00100 " " " ADB " " " " " Chromium [He] ND 0.00100 " " " ADB " " " " " ADB " " " " " " ADB " " " " " " ADB " " " " " ADB " " " " " " " ADB " " " " " " ADB " " " " " " " ADB " " " " " " " ADB " " " " " " " " ADB " " " " " " " " ADB " " " " " " " " " " ADB " " " " " " " " " " " " ADB " " " " " " " " " " " " " " " " " " "	Arsenic [HHe]	ND	0.00200	"	"	"	ADB	"	"	"	
Chromium [He] ND 0.00100 " " ADB " " " Sobalt [He] 0.00189 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00435 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00100 " " " ADB " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " " Sobalt [He] ND 0.00100 " " " " " ADB " " " " " Sobalt [He] ND 0.00100 " " " " " ADB " " " " " Sobalt [He] ND 0.00100 " " " " ADB " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " Sobalt [He] ND 0.00100 " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " " " Sobalt [He] ND 0.00100 " " " "	Beryllium [He]	ND	0.00100	"	"	"	ADB	"	"	"	
Schalt [He] 0.00189 0.00100 " " ADB " " " ead [He] ND 0.00100 " " ADB " " " follybdenum [He] 0.00435 0.00100 " " ADB " " " selenium [HHe] ND 0.00100 " " ADB " " " fercury by EPA 200 Series Methods CVAAS Mercury ND 0.002 mg/L 1.0 9F04025 CLV 06/04/2019 D6/04/2019 EPA 245.1 Rev	Cadmium [HHe]	ND	0.00100	"	"	"	ADB		"	"	
ND 0.00100 "	Chromium [He]	ND	0.00100	"	"	"	ADB		"	"	
ND	Cobalt [He]	0.00189	0.00100	"	"	"	ADB	"		"	
ND	_ead [He]	ND	0.00100	"	"	"	ADB		"	"	
ND	Molybdenum [He]	0.00435	0.00100	"	"	"	ADB	"	"	"	
Mercury by EPA 200 Series Methods CVAAS Mercury ND 0.002 mg/L 1.0 9F04025 CLV 06/04/2019 06/04/2019 EPA 245.1 Rev	Selenium [HHe]	ND	0.00100	"	"	"	ADB		"		
Mercury ND 0.002 mg/L 1.0 9F04025 CLV 06/04/2019 06/04/2019 EPA 245.1 Rev	Thallium [He]	ND	0.00100	"	"	"	ADB	"	"		
Mercury ND 0.002 mg/L 1.0 9F04025 CLV 06/04/2019 06/04/2019 EPA 245.1 Rev	Mercury by EPA 200 Serie	s Methods C	VAAS								
	Mercury			mg/L	1.0	9F04025	CLV				





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

Reported: 07/03/2019 12:43

CCR-7

1905573-16 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry Par	ameters									
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 Serie	s Methods ICP	-AES					12.15	13.40	2011	
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 Serie	s Methods ICP	-MS [Ana	lysis M	ode]						
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 Ser	ies Methods C	VAAS								
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	





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

Reported: 07/03/2019 12:43

CCR-8

1905573-17 (Water)

	_						Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst		Analyzed	Method	Qualifiers
Classical Chemistry P	arameters					<u> </u>				
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 Ser	ries Methods ICP	-AES					12.15		2011	
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 Ser	ies Methods ICP	-MS [Ana	lysis M	ode]						
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 S	eries Methods C	VAAS								
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	



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 G	enChem										
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: 1905	573-01							
Fluoride	6/3/19 15:33	ND	1.00	mg/L		ND				35	
Duplicate (9E31012-DUP2)			Source: 1905	573-16							
Fluoride	6/3/19 15:46	ND	1.00	mg/L		ND				35	
Matrix Spike (9E31012-MS1)			Source: 1905	573-01							
Fluoride	6/3/19 15:33	3.25	1.00	mg/L	3.00	ND	108	70-130			
Matrix Spike (9E31012-MS2)			Source: 1905	573-16							
Fluoride	6/3/19 15:46	3.08	1.00	mg/L	3.00	ND	103	70-130			





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										
Matrix Spike Dup (9E310	12-MSD1)		Source: 19055	573-01							
Fluoride	6/3/19 15:33	3.27	1.00	mg/L	3.00	ND	109	70-130	0.613	30	
Matrix Spike Dup (9E310	12-MSD2)		Source: 19055	573-16							
Fluoride	6/3/19 15:46	3.13	1.00	mg/L	3.00	ND	104	70-130	1.61	30	



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

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	0.2 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	1)										
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-M	IS1)		Source: 1905	573-02							
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-M	IS2)		Source: 1905	573-17							
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 (9F030	26-MSD1)		Source: 1905	573-02							
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 (9F030	26-MSD2)		Source: 1905	573-17							
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	



Project: Red Hills CCR
Project Number: Red Hills
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		_								_
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	



Project: Red Hills CCR
Project Number: Red Hills
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	2 DCN 1017 Rev 8						_				
Matrix Spike (9F03027-MS	1)		Source: 19055	573-02							
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	80000.0	109	70-130			
Matrix Spike (9F03027-MS	2)		Source: 19055	573-17							
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	7-MSD1)		Source: 19055	573-02							
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	



Project: Red Hills CCR
Project Number: Red Hills
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	2 DCN 1017 Rev 8										
Matrix Spike Dup (9F03027	7-MSD2)		Source: 19055	73-17							
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	



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

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 24	5.1 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-BSD	1)										
Mercury	6/4/19 15:06	0.005	0.002	mg/L	0.00500		106	85-115	1.87	20	
Matrix Spike (9F04025-N	MS1)		Source: 1905	573-02							
Mercury	6/4/19 15:06	0.005	0.002	mg/L	0.00500	ND	106	70-130			
Matrix Spike (9F04025-N	MS2)		Source: 1905	573-17							
Mercury	6/4/19 15:06	0.004	0.002	mg/L	0.00500	ND	88.0	70-130			
Matrix Spike Dup (9F040	025-MSD1)		Source: 1905	573-02							
Mercury	6/4/19 15:06	0.005	0.002	mg/L	0.00500	ND	104	70-130	1.90	20	
Matrix Spike Dup (9F040	025-MSD2)		Source: 1905	573-17							
Mercury	6/4/19 15:06	0.004	0.002	mg/L	0.00500	ND	78.0	70-130	12.0	20	



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

Reported: 07/03/2019 12:43

Certified Analyses Included in this Report

Analyte	Certification Code	
EPA 200.7 Rev 4.4 in Wat	or	
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 Wat	nr -	
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 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	r		
Mercury	C01,C02		

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



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

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





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

Analyst Initials Key

<u>Initials</u>
ADB
BKM
CLV
DLW
HPH
TKM
TPT



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

Chain of Custody Record

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

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190557

www.micromethodslab.com								
Company Name: Red Hills Power F	Plant	Project Manager:	37.	Jim Ward	g	Ourner	Turn Around Time & Reporting Our normal furn around time is 10 working days	Reporting
Address: 2391 Pensacola Rd.		Purchase Order #:	#	SCSRDH6883	6883	XNormal	*All rush order	Phone
City: Ackerman State: MS	^{Zip:} 39735	Email Address				Next Day* 2nd Day*	requests must be	Mail
Phone: 662-387-5758		Sampler Name Printed:	Printed:	K Sha Hor	~	_Other*		Email
Fax		Sampler Name Signed	Signed: L	1 A Mile	1	QC Level: Level 1	1 Level 2	Level 3
			List Analyses	ses Requested	ed		ing	
Project Name: Red Hills	CCR	servat	nic	71		Field Test Field	Field Test Field Test Field Test	ALC: UNKNOWN
Project #:		G) or	ny, Arse	Mercury Cobalt n, Thallit	bendum elenium adium 22 228			DW = Drinking Water
Sample Identification	Sampling Matrix Date/Time Code	# of Co Grab (Compo	Antimo	Cadmio Lead.	Moly Se Total Ra			SC = Sediment
WA-6	129/9 (2:34 W	4	×	× ×	×			L = Liquid
MW-17		W 4 6	×	× ×	×			0 2
OW-2	H5:11 51/16	W 4	×	X X X	×			SL = Sludge
	130/19 10:30	W 4	×	× ×	×			L .
MW-7	130/19 7:50	W 4	×	× ×	×			Drosentation.
MW-14	130/19 8:45	4	×	×	×			1= H2504
Field Blank	Bolls -	4 6	X	× ×	×			2= H3PO4
Duplicate	5/30/15/9:50	W 4	×	\times	×			3=NaOH
MW-12 S	M 19 10:15	W 4	×	× ×	×			5=ZnC4H10O6 &
	36 19 11:10	W 4 6	××	X X X	× ×			NaOH
CCR-2	29/19 15:45	W 4 6	×	$\times \times \times$	×			6=HNO3
Received on Ice? Y N Thermometer#	# Cooler#		iem	orrected(°C)				8=HCI
Date & Time By:		Sa	SampleBlank	nkCooler		**Ali Temps are	**All Temps are Corrected Values**	9=NaHSO4
Printed Name	ame	Signature		Company	Date Time	Notes:	over Coulers In Ih.	141
Relinquished by Kirl She	ton	Adul	1	CS. Inc	5-20-11/1	1700	100,000	3.30
Received by Tarke M	em &	way	lein	num.	5 31-19 08	200		
Relinquished by	(
Received by								
Relinquished by						256		
Received by				21.5	ī			

Pg. 147

DCN# F316 Rev.#5

Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564

Print Form



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

Chain of Custody Record

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

5

M-M Lab WO#

1905573

www.micromethodslab.com					2				
Company Name: Red Hills Power	r Plant	Project Manager	ger:	Jim Ward	Vard		Our normal t	Our normal turn around time & Reporting	working days
Address 2391 Pensacola Rd.		Purchase Order #:	er#:	SCSRI	SCSRDH6883		Normal	*All rush order	Phone
City: Ackerman State: MS	S Zip: 39735	Email Address	\$				Next Day* r	requests must be	Mail Fax
Phone: 662-387-5758	201	Sampler Name Printed:	e Printed:	". IL Sh	motifum		Other*	7	Email
Fax:		Sampler Name Signed	e Signed:	MAB	Rely	0	QC Level: Level 1	Level 2	Level 3
		A STATE OF THE STA	List Analyses	lyses Requested	ested				
Project Name: Red H	Hills CCR	→ servati	_				ield Test Field Test	Field Test Field Test Field Test	W= Water
Project #:		ontaine G) or osite (0	urid	n, Berylliu er Chrome Mercury	Cobalt n, Thalliu bendum elenium	228	- 09		DW = Drinking Water
Sample Identification	Sampling Matrix Date/Time Code	# of Co		Cadmi	Lithiur Moly Se	Total Ra			SO = Soil SE = Sediment
CCR-3	5/26/15 14:47 W	4	×	×	×	×			L = Liquid
CCR-4	5/30/17 8:52 W	4	×	×	×	×			0 2 2
CCR-5	M F.6 4/94	4	X	X	X X	×			SL = Sludge
CCR-6	129/16 10:45 W	4	X	×	XXX	×			
CCR-7	5/5/15 0:35 W	╀	XX	×	X X X	×			Preservation:
CCX-o	aig ultale	0							1= H2SO4 2= H3PO4
								1	3=NaOH 4=ZnC4H10O6
									S=ZnC4H10O6 & NaOH
Received on Ice? Y N Thermometer#	ter# Cooler#		Receipt Temp Corrected (°C)	Corrected(°					7=Na2S2O3
Date & Time	By:	5	SampleB	Blank Co	ooler		**All Temps are Corrected Values**	rected Values**	9=NaHSO4
Printe	Printed Name	Signature		Company	Date		Notes:		
Relinquished by Kirk Skc	keltor 1	nother		ECSTN	5-30-19	-			
Received by	Meins	Huma	Mens	My Val	5-3119	0860			A,
Relinquished by				ing.					
Received by									
Relinquished by									
Received by									

DCN# F316 Rev.#5

Print Form

Micro-Methods ssue Date: 11-22-17	Micro-Methods Laboratory Log-In Checklist	DCN: F207 Date Revised: 11-22-17
0 11/4	1	Revision: 5
Client W.	O 1905513 Shipped By_ 5-51-19 @ 0800 Unpacked/O	Fedex my /os
Cooler ID lce Present Yes/No	Temperature Thermometer ID Cu (Corrected)	stody Sealed Custody Seal Intact Yes/No Yes/No
#301	0.6 4	Y Y
# 381	0.2 4	{/ 'y
#400 V	1.3 4	/v /v
# PNMJ LI	-0.1	/y //
# 1000 9		
Containers Intact	Yes No	
Containers Intact Proper Containers for Re Correct Preservation Use	quested Analysis Yes No No No No Ves No No No Ves No	
Custody Seals on Bottles I Containers Intact Proper Containers for Re Correct Preservation Use Adequate Sample for Ana Volatile Vials Headspace	quested Analysis Yes No No No No Ves No No No Ves No	
Containers Intact Proper Containers for Re Correct Preservation Use Adequate Sample for Ana Volatile Vials Headspace Chain of Custody Form I Chain of Custody Form	quested Analysis d for All Samples lysis Requested Greater than 6mm in Diameter Yes ncluded Complete Properly Relinquished Yes No Tructions Included Yes No C or From Cooler Yes No	No N/A
Containers Intact Proper Containers for Re Correct Preservation Use Adequate Sample for Ana Volatile Vials Headspace Chain of Custody Form I Chain of Custody Form Chain of Custody Form Field Sheets/Special Ins Samples Missing on CO Sample Container Labels	quested Analysis Yes No No No d for All Samples Ilysis Requested Greater than 6mm in Diameter Yes ncluded Complete Properly Relinquished Tructions Included Yes No C or From Cooler Yes No Match COC Yes No	No N/A
Containers Intact Proper Containers for Re Correct Preservation Use Adequate Sample for Ana Volatile Vials Headspace Chain of Custody Form I Chain of Custody Form Chain of Custody Form Field Sheets/Special Ins Samples Missing on CO Sample Container Labels Samples Received Within Dept. Manager Notified of	quested Analysis d for All Samples llysis Requested Greater than 6mm in Diameter Yes ncluded Complete Properly Relinquished Cor From Cooler Match COC Yes No Yes No No Yes No No Yes No Yes No Yes No Yes No Holding Time Yes No Holding Time	NoN/A
Containers Intact Proper Containers for Re Proper Containers for Re Correct Preservation Use Adequate Sample for Ana Volatile Vials Headspace Chain of Custody Form I Chain of Custody Form I Chain of Custody Form I Samples Missing on CO Sample Container Labels Samples Received Within Dept. Manager Notified o Does work order meet Mi Note: Samples that do no Log. Client Contacted	quested Analysis d for All Samples lysis Requested Greater than 6mm in Diameter Yes ncluded Complete Properly Relinquished Cor From Cooler Match COC Holding Time f Rush/Short Holding Times icro Methods sample acceptance criter of meet acceptance criteria must be doc	No_N/A
Containers Intact Proper Containers for Re Correct Preservation Use Adequate Sample for Ana Volatile Vials Headspace Chain of Custody Form I Chain of Custody Form I Chain of Custody Form I Samples Missing on CO Sample Container Labels Samples Received Within Dept. Manager Notified o Does work order meet Mi Note: Samples that do no Log. Client Contacted	quested Analysis d for All Samples llysis Requested Greater than 6mm in Diameter Yes ncluded Complete Properly Relinquished Cor From Cooler Match COC Holding Time f Rush/Short Holding Times icro Methods sample acceptance criter of meet acceptance criteria must be doc	No_N/A

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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

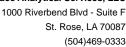
karen.brown@pacelabs.com

Kaunt Prour

(504)469-0333 Project Manager

Enclosures







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 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 Mexico Certification #: PA01457 New York/TNI Certification #: 10888 North Carolina Certification #: 42706 North Dakota Certification #: R-190 Ohio EPA Rad Approval: #41249

Missouri Certification #: 235

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



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



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



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:



PROJECT NARRATIVE

Project: 1905573
Pace Project No.: 20106885

Method: EPA 904.0

Description:904.0 Radium 228Client:Micro MethodsDate: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.



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: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH Comments: <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual Radium-226 EPA 903.1 $1.34 \pm 0.652 \quad (0.697)$ pCi/L 06/26/19 14:40 13982-63-3 C:NA T:95% EPA 904.0 1.39 ± 0.649 (1.12) Radium-228 pCi/L 06/20/19 16:11 15262-20-1 C:67% T:73% Sample: 1905573-02 Lab ID: 20106885002 Collected: 05/29/19 09:07 Received: 06/04/19 10:50 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Qual Analyzed CAS No. EPA 903.1 Radium-226 $0.527 \pm 0.413 \quad (0.485)$ pCi/L 06/26/19 14:40 13982-63-3 C:NA T:85% EPA 904.0 1.39 ± 0.550 Radium-228 (0.865)pCi/L 06/20/19 16:11 15262-20-1 C:76% T:81% 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: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH Comments: <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.</p> Parameters 4 8 1 Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual EPA 903.1 $0.787 \pm 0.522 \quad (0.609)$ 06/26/19 14:40 13982-63-3 Radium-226 pCi/L C:NA T:80% Radium-228 EPA 904.0 0.187 ± 0.445 (0.989)pCi/L 06/20/19 16:11 15262-20-1 C:75% T:74% 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual EPA 903.1 $0.898 \pm 0.596 \quad (0.785)$ Radium-226 pCi/L 06/26/19 14:40 13982-63-3 C:NA T:85% EPA 904.0 $1.12 \pm 0.478 \quad (0.780)$ Radium-228 pCi/L 06/20/19 16:11 15262-20-1 C:79% T:85% Lab ID: 20106885005 Sample: 1905573-05 Collected: 05/30/19 07:50 Received: 06/04/19 10:50 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Qual Units Analyzed CAS No. EPA 903.1 $0.117 \pm 0.324 \quad (0.628)$ Radium-226 pCi/L 06/26/19 14:40 13982-63-3

REPORT OF LABORATORY ANALYSIS

C:NA T:88%



Project:	1905573								
Pace Project No	.: 20106885								
Sample: 19055	73-05	Lab ID: 2010688				Received:	06/04/19 10:50	Matrix: Water	
PWS:	la a a a a a a later de a l	Site ID:		Sample Ty	•	(()			
		aboratory, 2.5 mls of nitric analysis. The samples we						quirement of pH	
Para	ameters	Method	Act ±	Unc (MD	C) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228		EPA 904.0	0.379 ± 0 C:79% 1	0.424 (0. Γ:75%	888)	pCi/L	06/20/19 16:11	15262-20-1	
Sample: 19055	73-06	Lab ID: 2010688	5006 C	Collected:	05/30/19 08:45	Received:	06/04/19 10:50	Matrix: Water	
PWS:		Site ID:		Sample Ty	•				
		aboratory, 2.5 mls of nitric analysis. The samples we						quirement of pH	
Para	ameters	Method	Act ±	Unc (MD	C) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	0.504 ± 0 C:NA T:	0.431 (0.	585)	pCi/L	06/26/19 14:40	13982-63-3	
Radium-228		EPA 904.0		0.442 (0.	952)	pCi/L	06/20/19 16:11	15262-20-1	
Sample: 19055 PWS:	73-07	Lab ID: 2010688 Site ID:		Collected: Sample Ty	05/30/19 00:00 pe:	Received:	06/04/19 10:50	Matrix: Water	
		aboratory, 2.5 mls of nitric analysis. The samples we						quirement of pH	
Para	ameters	Method	Act ±	Unc (MD	C) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1	1.07 ± 0. C:NA T:	.570 (0.4	93)	pCi/L	06/26/19 14:40	13982-63-3	
Radium-228		EPA 904.0		.672 (1.2	5)	pCi/L	06/20/19 19:39	9 15262-20-1	
Sample: 19055 PWS:	73-08	Lab ID: 2010688 : Site ID:		Collected: Sample Ty	05/30/19 09:50 pe:	Received:	06/04/19 10:50	Matrix: Water	
		aboratory, 2.5 mls of nitric analysis. The samples we						quirement of pH	
Para	ameters	Method	Act ±	Unc (MD	C) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1		0.501 (0.	460)	pCi/L	06/26/19 14:53	3 13982-63-3	
Radium-228		EPA 904.0	C:NA T:0 1.19 ± 0 C:79% T	.735 (1.3	8)	pCi/L	06/20/19 19:40) 15262-20-1	
Sample: 19055 PWS:	73-09	Lab ID: 2010688 Site ID:		Collected: Sample Ty	05/29/19 10:15	Received:	06/04/19 10:50	Matrix: Water	
Comments: • U		aboratory, 2.5 mls of nitric analysis. The samples we	acid were	e added to	the sample to m			quirement of pH	
Para	ameters	Method	Act ±	Unc (MD	C) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1		0.445 (0.	439)	pCi/L	06/26/19 14:53	13982-63-3	
Radium-228		EPA 904.0	C:NA T:8 1.83 ± 0 C:81% T	.770 (1.2	5)	pCi/L	06/20/19 19:40	15262-20-1	

REPORT OF LABORATORY ANALYSIS



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: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH Comments: <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual Radium-226 EPA 903.1 $0.662 \pm 0.492 \quad (0.648)$ 06/26/19 14:53 13982-63-3 pCi/L C:NA T:83% EPA 904.0 1.57 ± 0.733 (1.25) Radium-228 pCi/L 06/20/19 19:40 15262-20-1 C:78% T:77% Sample: 1905573-11 Lab ID: 20106885011 Collected: 05/29/19 15:45 Received: 06/04/19 10:50 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Qual Analyzed CAS No. EPA 903.1 Radium-226 0.342 ± 0.553 (0.963) pCi/L 06/26/19 14:53 13982-63-3 C:NA T:78% EPA 904.0 0.536 ± 0.532 (1.10) Radium-228 pCi/L 06/20/19 18:23 15262-20-1 C:78% T:80% 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: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH Comments: <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.</p> Act ± Unc (MDC) Carr Trac Parameters 4 8 1 Method Units Analyzed CAS No. Qual EPA 903.1 $0.905 \pm 0.629 \quad (0.847)$ 06/26/19 14:53 13982-63-3 Radium-226 pCi/L C:NA T:84% 2.42 ± 0.765 Radium-228 EPA 904.0 (0.981)pCi/L 06/20/19 18:23 15262-20-1 C:80% T:80% 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual EPA 903.1 $0.646 \pm 0.402 \quad (0.396)$ Radium-226 pCi/L 06/26/19 14:53 13982-63-3 C:NA T:91% EPA 904.0 1.02 ± 0.836 (1.70) Radium-228 pCi/L 06/20/19 19:56 15262-20-1 C:76% T:79% Lab ID: 20106885014 Sample: 1905573-14 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual EPA 903.1 1.07 ± 0.540 (0.182) Radium-226 pCi/L 06/26/19 14:53 13982-63-3

REPORT OF LABORATORY ANALYSIS

C:NA T:82%



Project: 1905573 20106885 Pace Project No.: 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: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH Comments: <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual Radium-228 EPA 904.0 1.47 ± 0.874 (1.66) pCi/L 06/20/19 19:56 15262-20-1 C:77% T:78% 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units CAS No. Qual Analyzed EPA 903.1 0.399 ± 0.679 (1.20) Radium-226 pCi/L 06/26/19 14:53 13982-63-3 C:NA T:51% EPA 904.0 1.31 ± 0.869 (1.69) Radium-228 pCi/L 06/20/19 19:56 15262-20-1 C:75% T:72% 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: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH Comments: <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual EPA 903.1 $0.661 \pm 0.519 \quad (0.722)$ Radium-226 06/26/19 15:07 13982-63-3 pCi/L C:NA T:86% EPA 904.0 Radium-228 0.980 ± 0.787 (1.59) pCi/L 06/20/19 19:56 15262-20-1 C:76% T:79% Lab ID: 20106885017 Sample: 1905573-17 Collected: 05/29/19 15:35 Received: 06/04/19 10:50 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual EPA 903.1 1.59 ± 0.713 (0.616) Radium-226 pCi/L 06/26/19 15:07 13982-63-3 C:NA T:82%

REPORT OF LABORATORY ANALYSIS

-0.870 ± 0.779 (1.91)

C:77% T:72%

pCi/L

06/20/19 19:56 15262-20-1

EPA 904.0

Radium-228



QUALITY CONTROL - RADIOCHEMISTRY

1905573 Project: Pace Project No.: 20106885

QC Batch: 347172 Analysis Method: EPA 904.0 QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228

20106885001, 20106885002, 20106885003, 20106885004, 20106885005, 20106885006, 20106885007, Associated Lab Samples:

20106885008, 20106885009, 20106885010, 20106885011, 20106885012, 20106885013, 20106885014,

20106885015, 20106885016, 20106885017

METHOD BLANK: 1688509 Matrix: Water

 $20106885001, 20106885002, 20106885003, 20106885004, 20106885005, 20106885006, 20106885007, \\20106885008, 20106885009, 20106885010, 20106885011, 20106885012, 20106885013, 20106885014, \\20106885012, 20106885013, 20106885014, \\20106885013, 20106885014, \\20106885014, 20106885015, \\20106885015, 20106885016, \\201$ Associated Lab Samples:

20106885015, 20106885016, 20106885017

Act ± Unc (MDC) Carr Trac Parameter 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



QUALITY CONTROL - RADIOCHEMISTRY

1905573 Project: Pace Project No.: 20106885

QC Batch: 347402 Analysis Method: EPA 903.1 QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226

20106885001, 20106885002, 20106885003, 20106885004, 20106885005, 20106885006, 20106885007, Associated Lab Samples:

20106885008, 20106885009, 20106885010, 20106885011, 20106885012, 20106885013, 20106885014,

20106885015, 20106885016, 20106885017

METHOD BLANK: 1689537 Matrix: Water

 $20106885001, 20106885002, 20106885003, 20106885004, 20106885005, 20106885006, 20106885007, \\20106885008, 20106885009, 20106885010, 20106885011, 20106885012, 20106885013, 20106885014, \\20106885012, 20106885013, 20106885014, \\20106885013, 20106885014, \\20106885014, 20106885015, \\20106885015, 20106885016, \\201$ Associated Lab Samples:

20106885015, 20106885016, 20106885017

Act ± Unc (MDC) Carr Trac Parameter 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



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

Date: 07/02/2019 04:54 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1905573
Pace Project No.: 20106885

Date: 07/02/2019 04:54 PM

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

SUBCONTRACT ORDER

Micro-Methods Laboratory, Inc. 1905573



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 1D: 1905573-01	Water	Sampled:05/29/2019 12:34		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 b	y 90106/10/201	9 00:01 06/26/2019 12:34		
Containers Supplied:				
1000mL Plastic (C)	1000mL P	lastic (D)		
Sample ID: 1905573-02	Water	Sampled:05/29/2019 09:07		Ship approvide the Co-Co-Li
			***************************************	SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by Containers Supplied:	v 30400/10/201	9 00:01 06/26/2019 09:07		
1000ml. Plastic (C)	1000mL P	lastic (D)		
rozona, riasue (C)	TOOUTIL	many (D)		
Sample ID: 1905573-03	Water	Sampled:05/29/2019/11:54		-SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by	90106/10/201	9 00:01 06/26/2019 11:54	· · · · · · · · · · · · · · · · · · ·	
Containers Supplied:				
1000mL Plastic (C)	1000mL P	lastic (D)	<u> </u>	
6 1 W 1004F-1 0:	***	0 1000000000000000000000000000000000000		
Sample ID: 1905573-04	Water	Sampled:05/30/2019 10:30		SbBaBBeCdCrPbCaCoLi
Radium Total 226 & 228 by	· 90106/10/201	9 00:01 06/27/2019 10:30	•	
Containers Supplied:	1000 1 0		•	
1000mL Plastic (C)	1000mL P	lastic (D)		
Sample ID: 1905573-05	Water	Sampled:05/30/2019 07:50		SbBaBBeCdCrPbCaCoLi
Radium. Total 226 & 228 by	·			OMMODECUCTI BURCULI
Comainers Supplied:	70 KW W 20	× 00,01		
1000mL Plastic (C)	1000mL P	lastic (D)		
· · · · · · · · · · · · · · · · · · ·	10001111111			***************************************
Sample 1D: 1905573-06	Water	Sampled:05/30/2019 08:45		SbBaBBeCdCrPbCaCoLi
Radium.Total 226 & 228 by	90106/10/201	9 00;01 06/27/2019 08:45		and the second s
Containers Supplied:				
1000mL Plastic (C)	1000mL P	astic (D)		

By Date OSC, Received By

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Page 50 of 53

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			The state of the s	DESCRIPTION OF THE STATE OF THE
Containers Supplied:	7010001012019	(M),()1 (M),2 // 2019 (O),(M)		
1000mL Plastic (C)	1000mL Pla	astic (D)		
Totolii Tidade (C)	10001112.116	isite (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 Pla	istic (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 Pla	astic (D)		
	Water	Compled 05/20/2010 15 10		Ch.D. DD. C.d.C. Db. C.a.CL.
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:	LAAAmat Die	· votio (D)		
1000mL Plastic (C)	1000mL Pla	isuc (D)		
ample ID: 1905573-11	Water	Sampled:05/29/2019 15:45	and the second s	SbBaBBeCdCrPbCaCoLi
Radium.Total 226 & 228 by	90106/10/2019	00:01 06/26/2019 15:45	· · · · · · · · · · · · · · · · · · ·	
Containers Supplied:				
1000mL Plastic (C)	1000mL Pla	istic (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 Pla	stic (D)		
Sample ID: 1905573-13	Water	Sampled:05/30/2019 08:52		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by			- H- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Containers Supplied:				
1000mJ. Plastic (C)	1000mL Pia	stic (D)		
		<u> </u>		1
Sample ID: 1905573-14	Water	Sampled:05/30/2019 09:35	<u>andrei de f</u> ilosofia	SbBaBBeCdCrPbCaCoLi
Radium.Total 226 & 228 by	90106/10/2019	00:01 06/27/2019 09:35		
Comainers Supplied:				
1000mL Plastic (C)	1000mL Pla	stic (D)		
Buso Mk	lius (6/3/19 1429		ambient
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teleased By	<u> </u>	Date	Danish and Du	/ J ale 6-9-19 / Date

2 boxes for Delivery

Page 260f 38
Page 51 of 53

SUBCONTRACT ORDER

Micro-Methods Laboratory, Inc.

1905573

Analysis	Due	Expires	Laboratory ID	Comments
C I ID 1005551 15		S. L.1.07/20/2010 10 47		
Sample ID: 1905573-15	Water	Sampled:05/29/2019 10:45		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 b	y 90106/10/201	9 00:01 06/26/2019 10:45		
Containers Supplied:				
1000mL Plastic (C)	1000mL P	astic (D)		
Sample ID: 1905573-16	Water	Sampled:05/29/2019 12:35		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 b	90106/10/201	9 00:01 06/26/2019 12:35		
Containers Supplied:				
1000mL Plastic (C)	1000mL PI	astic (D)		
Sample ID: 1905573-17	Water	Sampled:05/29/2019 15:35		SbBaBBeCdCrPbCaCoLi
Radium, Total 226 & 228 by				STRUMENTAL DESIGNATION OF THE STRUMENTAL STR
•	70 KON 1 (1/20)	7 MAN 1 MARKATA 1000		
Containers Supplied:				
1000mL Plastic (C)	1000mL PI	astic (D)		

Released By Date 1050
Released By Date

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Page 52 of 53

WO#: 20106885 Sample Condition Upon Re PM: KHB CLIENT: 20-MICRO 1000 Riverbend, Blvd., Suite F Proje St. Rose, LA 70087 □ Other □ USPS □ Customer □ DHL ☐ Hired Courier □ Pace Courier Courier: Custody Seals intact: ATES □No [see COC] Custody Seal on Cooler/Box Present: □ Therm Fisher IR 5 Therometer Samples on ice: [see COC] Type of Ice: Ride □ Therm Fisher IR 6 Used: □ Therm Fisher IR 7 Date and Initials of person Temp should be above freezing to 6°C contents: Cooler Temperature: [see COC] Temp must be measured from Temperature blank when present Comments: □N/A 1 Temperature Blank Present"? TYPES INC □N/A Chain of Custody Present: Zixes □No **□N/A** Chain of Custody Complete: □No □N#A Chain of Custody Relinquished: □N/A Sampler Name & Signature on COC: □N/A Yes □No Samples Arrived within Hold Time: ZYes □No **□N/A** Sufficient Volume: Yes □No □N/A Correct Containers Used: ∐Yes ∐No **NA** Filtered vol. Rec. for Diss. tests ÈXYes □No □N/A 10 Sample Labels match COC: All containers received within manafacture's □Yes □No precautionary and/or expiration dates. All containers needing chemical preservation have ∐Yes □N/A been checked (except VOA, coliform, & O&G). 12 If No, was preserative added? ⊔Yes ⊡No All containers preservation checked found to be in If added record lot no.: HNO3 H2SO4 compliance with EPA recommendation. ☐Yes ☐No DINA 14 Headspace in VOA Vials (>6mm): 15 ∐Yes Trip Blank Present Client Notification/ Resolution: Date/Time: Person Contacted: Comments/ Resolution:

MICRO-METHODS

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

www.micromethodslab.com

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

M-M Lab WO#

Print Form

Preservation: 4=ZnC4H10O6 5=ZnC4H10O6 & SO = Soil SE = Sediment DW = Drinking Phone Fax Mail A = Air O = Oil SL = Sludge 7=Na25203 8=HCl 9=NaHSO4 2= H3PO4 W = Water L = Liquid 1= H2504 NaOH Our normal turn around time is 10 working days 3=NaOH Matrix: 6=HNO3 Turn Around Time & Reporting S = Solid Notes: Four Coolers for this Level 3 Field Test | Field Test | Field Test requests must be prior approved. *All rush order **All Temps are Corrected Values** Level 2 Field Testing QC Level: Level 1 Next Day 2nd Day* Normal Other* 1700 Time & 8SS muibeA leto 8SS 5-20-19 muinele2 SCSRDH6883 Molybendum Date List Analyses Requested Jim Ward Shetton Cooler Lead. Mercury. Cobalt Receipt Temp Corrected(°C) Inc Company Blank Antimony, Arsenic Sampler Name Printed: Sampler Name Signed: Fluoride Sample Purchase Order #: Project Manager: Email Address (C) Sissipposite (C) Signature Preservative 0 3rab (G) or 4 4 4 4 4 4 # of Containers Cooler # Matrix Code 3 3 ≥ 3 3 ≥ 3 3 3 3 3 525 1.54 8:45 130/159:50 11:10 130/19 7:50 39735 SIM 19 10:15 12/19 09:01 Date/Time Sampling 130/19 5 24 19 13/15 130/18 Red Hills CCR 5/15/19 5/198/19 135 19 Company Name: Red Hills Power Plant Zip: Shelton Printed Name Thermometer# SIM Address: 2391 Pensacola Rd. ステア Sample Identification Field Blank 662-387-5758 Received on Ice? Y N MW-12 Duplicate MW-14 MW-15 MW-17 MW-13 OW-2 MW-7 Ackerman Relinquished by Relinquished by Relinquished by Project Name Received by Received by Date & Time Received by Project #: Phone: Fax:

MICRO-METHODS.

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

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Chain of Custody Record

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

Print Form

M-M Lab WO#

Preservation: 5=ZnC4H1006 & 4=ZnC4H10O6 SO = Soil SE = Sediment DW = Drinking Phone Email Mail Fax A = Air O = Oil SL = Sludge 7=Na25203 1= H2SO4 2= H3PO4 9=NaHSO4 Our normal turn around time is 10 working days W = Water L = Liquid NaOH Matrix: 3=NaOH 6=HN03 Turn Around Time & Reporting S = Solid 8=HCI Level 3 Field Test | Field Test | Field Test requests must be *All rush order prior approved. #0 **All Temps are Corrected Values** Level 2 Field Testing QC Level: Level 1 Next Day* 2nd Day* Normal Other* Notes: #01 1700 Time & 8SS muibeR latol 8SS 5-30-19 Molybendum, Selenium Tot. SCSRDH6883 Date List Analyses Requested Jim Ward MuilledT, muidlium Cooler Lead, Mercury. Cobalt Receipt Temp Corrected(°C) Ecstne Company irk Blank sarium, Beryllium Antimony, Arsenic Sampler Name Printed: Sampler Name Signed: Flouride Sample Purchase Order #: Project Manager: **Email Address** Sign Inre 0 (O) etisoqmoC B 9 0 Preservative: Grab (G) or 4 4 4 4 # of Containers 4 4 Cooler # Matrix Code 3 3 3 ≥ ≥ 3 8:52 20.51 416 15.3 4.35 39735 15,45 Sampling Date/Time Red Hills CCR 5/30/17 5/25/18 Company Name: Red Hills Power Plant Sheltor 5/35/19 Zip: Printed Name Received on Ice? Y N Thermometer# By: Address: 2391 Pensacola Rd. ハバト Sample Identification 662-387-5758 CCR-8 CCR-3 CCR-4 CCR-5 CCR-6 CCR-7 Ackerman Relinquished by Relinquished by Relinquished by Project Name: Received by Date & Time Received by Received by Project #: Phone: City: -ax

DCN# F316 Rev.#5

Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564



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 Purchase Order #: RDH11984

2391 Pensacola Rd. Ackerman, MS 39735

RE: CGLP CCR

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.

Hany P. Howell



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.





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





Reported: 10/04/2019 10:02

Yes

No

No

No

Yes

Yes

Yes

No

No

No

Sample Receipt Conditions

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

Received by: Sarah E. Tomek

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

COC meets acceptance criteria

Cooler ID: #1106

Logged by: Sarah E. Tomek

Fed Ex

Kirk Shelton

Receipt Temperature: -0.1 °C

Shipped by:

Submitted by:

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

Yes





Cooler ID: #1133	_	Receipt Temperature:0.1 °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		



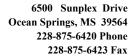


Cooler ID: #1135	_	Receipt Temperature: 0.5 °C	
Cooler Custody Seals Present	Yes	Received on Ice	Yes
Containers Intact	Yes	No Ice, Short Trip	No
COC/Labels Agree	Yes	Obvious Contamination	No
Labels Complete	Yes	Rush to meet HT	No
COC Complete	Yes	Received within HT	Yes
Volatile Vial Headspace >6mm	No	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		





Cooler ID: #1142	_	Receipt Temperature: 0.0 °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		





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		





Project: 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



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

Reported: 10/04/2019 10:02

MW-9

1909216-01 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Parameter	rs									
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 SO4	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 Meth	ods 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 Meth	ods ICP-MS [Analysis M	lode]							
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			"	



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
Classical Chemistry Paran	neters									
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 SO4	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 I	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 I	Methods ICP-MS [Analysis N	lode]							
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	"	"	II .	ADB		"	"	
Molybdenum [He]	ND	0.00100	"	u	"	ADB			"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB			"	



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

Reported: 10/04/2019 10:02

OW-2

1909216-03 (Water)

				•						
	_						Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Param	neters									
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 SO4	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 N	Methods ICP-AES	3								
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 M	Methods ICP-MS	[Analysis N	lode]							
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			"	



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
Classical Chemistry Paramete	ers									
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 Met	thods 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	"	"	II .	ADB			"	
Calcium	20.1	0.100	"	"	"	ADB			"	
_ithium	ND	0.040	"	"	"	ADB				
Metals by EPA 200 Series Met	thods ICP-MS	Analysis M	lode]							
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				
∟ead [He]	ND	0.00100	"	"	"	ADB		"		
Molybdenum [He]	ND	0.00100	"	"	"	ADB			"	
Selenium [HHe]	ND	0.00100			"	ADB				



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

Reported: 10/04/2019 10:02

MW-7

1909216-05 (Water)

					,					
Austra	Doorth	MDI	Lleite	Dil	Datab	Analyst	Date Time Prepared	Date Time Analyzed	B.A. a Alla a .d.	Ovalifia
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Frepareu	Analyzeu	Method	Qualifiers
Classical Chemistry Param	neters									
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 M	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 M	Methods ICP-MS	Analysis N	lode]							
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			"	



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

Reported: 10/04/2019 10:02

MW-14

1909216-06 (Water)

Analyta	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Analyte		IVIIXL	Offics	Dii	Daton	Allalyst	Tropulou	7 tildiy20d	Metriod	Qualifiers
Classical Chemistry Param										
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 SO4	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 I	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 I	Methods ICP-MS	[Analysis N	lode]							
Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	н	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	"	u	"	ADB			"	
Molybdenum [He]	ND	0.00100	"	"	"	ADB			TI .	
Selenium [HHe]	ND	0.00100	"	"	"	ADB			"	



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
Classical Chemistry Param	eters							-		
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 SO4	ND	5.00	"	"	"	DLW			II	
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 N	lethods 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 N	Methods ICP-MS	Analysis N	lode]							
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	*		II	
Molybdenum [He]	ND	0.00100	"	"	"	ADB			n	
Selenium [HHe]	ND	0.00100	"	"	"	ADB			n .	



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
Classical Chemistry Parameter	rs									
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 Meth	ods ICP-AES	3								
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 Meth	ods ICP-MS	[Analysis M	lode]							
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	u	
Molybdenum [He]	ND	0.00100	"	"	"	ADB			"	
Selenium [HHe]	ND	0.00100	"	"	"	ADB			"	



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
,		IVIIXL	Offics	Dii	Daton	Allalyst	Tropulou	7 tildiy20d	Metriod	Qualifiers
Classical Chemistry Param	neters									
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 I	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	"	"	u u	ADB			"	
Lithium	ND	0.040	"	"	"	ADB			"	
Metals by EPA 200 Series I	Methods ICP-MS [Analysis N	lode]							
Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	н	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	"		"	



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

Reported: 10/04/2019 10:02

MW-15

1909216-10 (Water)

				- (,					
	Desir	MDI	Lluita	Dil	Datab	Amalust	Date Time Prepared	Date Time Analyzed	Matter	O lie .
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Frepareu	Allalyzeu	Method	Qualifiers
Classical Chemistry Param	neters									
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 I	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 I	Methods ICP-MS [Analysis N	lode]							
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		"	"	





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

Reported: 10/04/2019 10:02

CCR-2

1909216-11 (Water)

					· · ,					
	Develo	MDI	11.24.	Dil	Detal	A b 4	Date Time Prepared	Date Time Analyzed		0 115
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Frepareu	Allalyzeu	Method	Qualifiers
Classical Chemistry Param	eters									
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	"	u .	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 N	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	"	"	u u	ADB			m m	
Lithium	ND	0.040	"	"	"	ADB			"	
Metals by EPA 200 Series M	Methods ICP-MS [Analysis N	lode]							
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	"	u	"	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			"	



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

Reported: 10/04/2019 10:02

CCR-3

1909216-12 (Water)

					/					
		MDI		D :	D. 1.1		Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Paramet	ters									
Chloride	5.56	0.500	mg/L	1.0	9113031	DLW	09/12/2019 08:30	09/12/2019 20:02	SM 4110B 2011	
Sulfate as SO4	95.2	20.0	"	4.0	"	DLW		09/12/2019 16:45	"	
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	276	1	"	"	9113045	DLW	09/13/2019 15:30	09/16/2019 16:19	SM 2540 C-2011	
Metals by EPA 200 Series Me	thods ICP-AES									
Barium	0.060	0.010	mg/L	1.0	9116040	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 Me	thods ICP-MS [Analysis M	lode]							
Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	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	u	
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			"	



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

Reported: 10/04/2019 10:02

CCR-4

1909216-13 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Paran	neters									
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 I	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 I	Methods ICP-MS [Analysis N	lode]							
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			"	



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

Reported: 10/04/2019 10:02

CCR-5

1909216-14 (Water)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Param	neters									
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 SO4	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 I	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 I	Methods ICP-MS	[Analysis N	lode]							
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	"	



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

Reported: 10/04/2019 10:02

CCR-6

1909216-15 (Water)

			13032	10-13 (446	1101					
Analyta	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Analyte		IVINL	Ullits	ווט	Daton	Allalyst	Troparca	7 thaty20a	Metriod	Quaimers
Classical Chemistry Paran	neters									
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 M	lode]							
Antimony [HHe]	ND	0.00500	mg/L	1.0	9116039	ADB	н	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	"		"	



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

Reported: 10/04/2019 10:02

CCR-7

1909216-16 (Water)

				10 10 (110	,					
Apolisto	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Analyte		IVITAL	UIIIS	ווט	Datui	Anaiyst	. repared	, way 200	Metriod	Qualifiers
Classical Chemistry Param	eters									
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 SO4	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 N	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 M	Methods ICP-MS [Analysis N	lode]							
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	n .	
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			"	



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

Reported: 10/04/2019 10:02

CCR-8

1909216-17 (Water)

					,					
							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Classical Chemistry Parameter	ers									
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 SO4	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 Met	thods 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		"	n .	
Lithium	0.067	0.040	"	"	"	ADB		"	"	
Metals by EPA 200 Series Met	thods ICP-MS [Analysis M	lode]							
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			"	



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 9l13031 - Default Prep GenC	hem										·
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 (9113031-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 (9l13031-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: 19092	216-06							
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 (9l13031-MS1)			Source: 19092	216-06							
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



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 9l13031 - Default Prep Gen0	Chem										
Matrix Spike Dup (9I13031-MSD1)			Source: 19092	16-06							
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 9l13045 - Default Prep Gen	Chem										
Blank (9I13045-BLK1)											
Total Dissolved Solids	9/16/19 16:19	ND	1	mg/L							
LCS (9I13045-BS1)											
Total Dissolved Solids	9/16/19 16:19	94	1	mg/L	104		90.4	82.2-100			
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	
Duplicate (9I13045-DUP1)			Source: 19092	16-01							
Total Dissolved Solids	9/16/19 16:19	1631	1	mg/L		1635			0.245	5	
Duplicate (9I13045-DUP2)			Source: 19092	16-17							
Total Dissolved Solids	9/16/19 16:19	1496	2	mg/L		1498			0.134	5	
Batch 9l16032 - Default Prep Geno	Chem										
Blank (9l16032-BLK1)											
Fluoride	9/16/19 11:37	ND	0.22	mg/L							
LCS (9I16032-BS1)											
Fluoride	9/16/19 11:37	2.05	0.22	mg/L	2.00		103	75-125			



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 GenChen	n										
LCS Dup (9l16032-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: 19092	16-01							
Fluoride	9/16/19 11:37	0.38	0.22	mg/L		0.39			0.519	35	
Duplicate (9I16032-DUP2)			Source: 19092	16-17							
Fluoride	9/16/19 11:41	0.50	0.22	mg/L		0.49			1.83	35	
Matrix Spike (9l16032-MS1)			Source: 19092	16-01							
Fluoride	9/16/19 11:37	3.38	0.22	mg/L	3.00	0.39	99.8	70-130			
Matrix Spike (9l16032-MS2)			Source: 19092	16-17							
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: 19092	16-01							
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: 19092	16-17							
Fluoride	9/16/19 11:41	3.47	0.22	mg/L	3.00	0.49	99.5	70-130	1.45	30	



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

Batch 9I16040 - EPA 200.2 DCN 1017 R	ev 8					Result	%REC	Limits		Limit	Qualifiers
Batch 9116040 - EPA 200.2 DCN 1017 Rev 8											
Blank (9I16040-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 (9I16040-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 (9l16040-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 (9I16040-DUP1)			Source: 19092	16-01							
Calcium	9/26/19 14:57	81.4	0.100	mg/L		83.1			2.03	20	
Duplicate (9I16040-DUP2)			Source: 19092	16-17							
Calcium	9/26/19 16:48	38.6	0.100	mg/L		39.3			1.84	20	
Matrix Spike (9I16040-MS1)			Source: 19092	16-01							
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			



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 9I16040 - EPA 200.2 DCN 1017 Rev 8											
Matrix Spike (9l16040-MS2)			Source: 19092	16-17							
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: 19092	16-01							
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: 19092	16-17							
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	



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 9I16039 - EPA 200.2 DCN 1	017 Rev 8										
Blank (9l16039-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 (9I16039-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 (9I16039-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	



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 9I16039 - EPA 200.2 DCN 1017	7 Rev 8										
Matrix Spike (9l16039-MS1)			Source: 19092	16-01							
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			
_ead [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 (9l16039-MS2)			Source: 19092	16-17							
ntimony [HHe]	9/19/19 23:50	0.098	0.00500	mg/L	0.100	ND	97.6	70-130			
rsenic [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			
ead [He]	9/19/19 23:50	0.102	0.00100		0.100	ND	102	70-130			
Nolybdenum [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 (9I16039-MSD1)			Source: 19092	16-01							
Antimony [HHe]	9/19/19 20:54	0.096	0.00500	mg/L	0.100	ND	95.6	70-130	4.31	20	
rsenic [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	
ead [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	

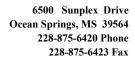


Project: CGLP CCR
Project Number: [none]
Project Manager: Jim Ward

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 9I16039 - EPA 200.2 DCN 1017 Rev 8											
Matrix Spike Dup (9I16039-M	SD2)		Source: 19092	16-17							
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





Certification Code

Choctaw Generation LP 2391 Pensacola Rd. Ackerman MS, 39735

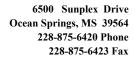
Analyte

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

Reported: 10/04/2019 10:02

Certified Analyses Included in this Report

Analyte	Cerunication 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	
Phosphorus	C01	
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	





2391 Pensacola Rd. Ackerman MS, 39735		Project: CGLP CCR roject Number: [none] pject 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
M 2540 C-2011 in Water	

SI

Total Dissolved Solids C01,C02

SM 4110B 2011 in Water

Chloride C01,C02 Sulfate as SO4 C01,C02 Nitrate as N C01,C02

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



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

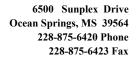
Reported: 10/04/2019 10:02

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 Verfiication
CCV	Continuing Calibration Verification Standard
SSV	Secondary Source Verfication 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.





Choctaw Generation LP Project: CGLP CCR 2391 Pensacola Rd. Project Number: [none]

 2391 Pensacola Rd.
 Project Number: [none]
 Reported:

 Ackerman MS, 39735
 Project Manager: Jim Ward
 10/04/2019 10:02

Analyst Initials Key

<u>Initials</u>
ADB
CLV
DLW
SET
SCH
TKM
TPT

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

Chain of Custody Record

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

200

M-M Lab WO#

Print Form

www.micromethodslab.com			-		
Company Name: Choctaw Generation Limited Partnership LLLP	Project Manager:	Jim Ward	Vard	Turn Around Time & Reporting	porting have
Address: 2391 Pensacola Rd.	Purchase Order #:	KDH 119866RDH6883	H6883	All rush order	Phone
City: Ackerman State: MS Zip: 39735	Email Address :			Next Day* requests must be 2nd Day* prior approved.	Mail
Phone: 662-387-5758	Sampler Name Printed:	led: Kight, She	ton		Email
Fax:	Sampler Name Signed:	ed: M D Jul	A	QC Level: Level 1 Level 2 Le	evel 3
		List Analyses Requested	ested	Field Testing	
Project Name: CGLP CCR	servative:	nic lum		Field Test Field Test Field Test	W = Water
Project #:	G) or osite (C	de, Fluori Sulfate ony, Arse Beron, Beryll Jum, Chromiu	Cobalt thiun ybendum elenium tadium 22 228		Water S = Solid
Sample Identification Sampling Matrix Code	Grab Comp	Antim Barlum Cadn	Li Moi S		SO = Soil SE = Sediment
W SH:11 5/0/12 6-MM	4 X	× × ×	X X X		L = Liquid A = Air
WW-17 P/0/9 14:30 W	4 n X	× × ×	X X X		0=01
OW-2 9/0/19 15:57 W	4 A X	×××	× × ×		SL = Sludge
W 34.71 0/10/19	×	×××	XXXX		
10/19 18:08	4 7 X	X X X X			Preservation:
1111/19	4 G X				1= H2SO4
11/16	X C 4				2= H3PO4
9/1/19 11:58	╁	XX XX XX			4=ZnC4H10O6
WW-12 7107 W	×××	X	X) X) X) X)		5=ZnC4H10O6 & NaOH
\$	4 0 ×	× × ×	X X X		6=HNO3
Received on Ice? Y N Thermometer# Cooler #		Temp Corrected			8=HCl
Date & Time By:	Sample	Blank	Cooler	**All Temps are Corrected Values**	9=NaHSO4
Printed	Signature	Company	Date Time	Notes-	らら
Relinquished by Kirll Shelton the	1 Miles	ECS, Tu	c 09/11/11/183	o suffer and white	
Received by FCd EX	•				
Relinquished by n FRUEX	A As				
Received by XIVIN TOMPAL 800	ran m	W/ MM	4/12/14 075		
Relinquished by	U				
Received by			1		

Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564

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

92082

W-W CBD

Print Form

Company Name: Choctaw Generation I	Choctaw Generation Limited Partnership LLLP		Project Manager:	anager				Jim Ward	War	٩			Turn A	Turn Around Time & Reporting	porting
Address: 2391 Pensacola Rd.	•	اح_	Purchase Order #:	Order		DH 11984-9CSRDH6883	\$	SA	밁	883	1		Our normal Normal	Our normal turn around time is 10 working days Ph	orking days Phone
City: Ackerman State: MS	S ^{Zip:} 39735	Ē	Email Address	dress:			1						Next Day*	requests must be	_Mail
Phone: 662-387-5758		Se	Sampler Name Printed:	Name F	rinted:	3		3	5	2			_Other*	pilor approved.	_Email
Fax:		Se	Sampler Name Signed:	Name S	igned:	Z	7		1	1			QC Level: Level 1	Level 2	Level 3
					List	Analy	YSES		Requested	ď			Field 1	Field Testing	
Project Name: CGLP	P CCR	و عر	- servat	') <u>e</u>	Θ,	ic	Ш	\perp	+	+	8		Field Test Field Tes	ID#	Matrix: W= Water
Project #:		ontaine		DS	e, Fluoric ulfate	ny, Arser	oron, Berylliu m, Chromlun	Calcium,	obalt	nium pendum,	lenium dium 226	228			DW = Drinking Water
Sample Identification	Sampling Ma Date/Time Co	Code # of C	Grab (Antimo		****	C	Moly	Total Ra				S = Solid SO = Soli
CCH-3	9/11/19 9:50	8	4 6) 	^ X	×	×	X	×	X	X	×			L = Liquid
CCR4	10/A 16.81	8	4	<i>∞</i>	×	×	×	×	X	X	X	×			A = Air
CCR-5	9/10/19 17:au	٤	4	۸ در	×	×	×	×	X	×	X	×			SL = Sludge
CCR-6	9/11/19 10:09	٤	4 6	t	×	×	×	×	×	×	×	×			
CCR-7	9/11/19 1:29	٤	4 19	t	×	×	×	X	X	X	X	×			
CCR-8	9/10/19 17:05	٤	4	0	X	×	×	×	×	X	X	X			Preservation:
		4	H	+	T				+	+	+	+			2= H3PO4 3=NaOH
		L	\vdash	\vdash	t			L	H		┞	H			4=ZnC4H1006 5=ZnC4H1006 &
		_	+	+				+	+	╀	+	+			NaOH
Received on ice? Y N Thermometer#	ter#Cooler#	<u> </u>	-	Bec	Receipt Temp Corrected(°C)	S S	orre	ed.		+	+	ŀ			7=Na2S2O3
Date & Time	By:			Sample	ple_	B	Blank	g	ooler		Ш		**All Temps are Corrected Values**		9=NaHSO4
Printer	d Name	111	Signatu	ent			Company	any	0	Date		em	Notes; /	11	
Relinquished by	16 Hon	MI	A	4		K	5	M	4		19 1/1	3	h's	od luinijht to	10
Received by FRA	女上		ľ				,		4	1	+			' 1	
Relinquished by $\int \mathcal{F} \epsilon$	ME XZING										Н		1/22 F	\ -'	11
Received by	MMCK X	ma	K	MA	nes	>	2	M	2	121	0	p			
Relinquished by			C			L				-	_				
Received by							C.							1.01	
DCN# F316 Rev.#5	Phy	Physical Address: 6500 Sunplex Drive, Ocean Springs MS 395	ddress	: 6500	Sunp	lex Dr	ive, O	cean	Sprin	gs M	\$ 395	64	The second secon		

Micro-Methods ssue Date: 11-22-17	Micro-Methods Laboratory Log-In Checklist	DCN: F207 Date Revised: 11-22-17 Revision: 5
Chickau Client <u>GPN</u> W Date/Time Received <u>9</u>	0 1909216 Shipped By 12110 0757 Unpacked/	Fed EX Checked By
Cooler ID Ice Present Yes/No Yes/No	Temperature (Corrected) 0.0°C -0.1°C 0.5°C -0.1°C -0.4°C -0.4°C	yes/No Yes/No Yes/No Yes/No
Tomporature Blank Used	Yes No If not, temperature of samples in coolers that exceed 6°C	re taken from cooleror bottle
Custody Seals on Bottles P Containers Intact Proper Containers for Rec	Yes No_ quested Analysis Yes No_	
Correct Preservation Used Adequate Sample for Ana	I for All Samples lysis Requested Yes No Yes No	
Volatile Vials Headspace (Greater than 6mm in Diameter Yes	No N/A
Chain of Custody Form In Chain of Custody Form C Chain of Custody Form Field Sheets/Special Inst Samples Missing on COO Sample Container Labels	Complete Yes No Properly Relinquished Yes No ructions Included Yes No C or From Cooler Yes No	N/A×
Samples Received Within Dept. Manager Notified of	Holding Time Yes X f Rush/Short Holding Times Yes	NoNoN/A
Does work order meet Mi Note: Samples that do no Log.	cro Methods sample acceptance crite t meet acceptance criteria must be do	ria Yes X No cumented in the Sample Rejection
the second of the second	Contacted ByDa el Work Order(Data w	

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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

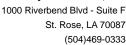
karen.brown@pacelabs.com

Kaunt Prour

(504)469-0333 Project Manager

Enclosures







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



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



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



PROJECT NARRATIVE

Project: 1909216
Pace Project No.: 20121720

Method: EPA 903.1

Description:903.1 Radium 226Client:Micro MethodsDate: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:



PROJECT NARRATIVE

Project: 1909216
Pace Project No.: 20121720

Method: EPA 904.0

Description:904.0 Radium 228Client:Micro MethodsDate: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.



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: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH Comments: <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual Radium-226 EPA 903.1 0.649 ± 0.715 (1.14) pCi/L 10/01/19 14:48 13982-63-3 C:NA T:70% EPA 904.0 0.241 ± 0.629 (1.41) Radium-228 pCi/L 10/02/19 17:34 15262-20-1 C:64% T:77% Sample: 1909216-02 Lab ID: 20121720002 Collected: 09/10/19 14:34 Received: 09/16/19 10:20 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Qual Analyzed CAS No. EPA 903.1 Radium-226 0.160 ± 0.667 (1.27) pCi/L 10/01/19 14:48 13982-63-3 C:NA T:75% EPA 904.0 Radium-228 1.12 ± 0.715 pCi/L 10/02/19 17:35 15262-20-1 C:67% T:74% 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: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH Comments: <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.</p> Parameters 4 8 1 Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual EPA 903.1 $0.324 \pm 0.503 \quad (0.872)$ 10/01/19 14:48 13982-63-3 Radium-226 pCi/L C:NA T:78% Radium-228 EPA 904.0 0.357 ± 0.625 pCi/L 10/02/19 17:35 15262-20-1 C:62% T:77% 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.</p> Analyzed **Parameters** Method Act ± Unc (MDC) Carr Trac Units CAS No. Qual EPA 903.1 1.32 ± 0.807 (1.02) Radium-226 pCi/L 10/01/19 15:01 13982-63-3 C:NA T:82% EPA 904.0 0.829 ± 0.499 Radium-228 (0.936)pCi/L 10/02/19 15:33 15262-20-1 C:70% T:84% Sample: 1909216-05 Lab ID: 20121720005 Collected: 09/10/19 18:08 Received: 09/16/19 10:20 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual

REPORT OF LABORATORY ANALYSIS

pCi/L

10/01/19 15:01 13982-63-3

1.29 ± 0.632 (0.206)

C:NA T:77%

EPA 903.1

Radium-226



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project:	1909216							
Pace Project No.:	20121720							
Sample: 190921	6-05	Lab ID: 2012172	0005	Collected: 09/10/19 18:08	Received:	09/16/19 10:20	Matrix: Water	
PWS:		Site ID:		Sample Type:				
				vere added to the sample to n preserved <2 within the requi			quirement of pH	
Parar	neters	Method	Act	t ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228		EPA 904.0		± 0.589 (1.25) % T:71%	pCi/L	10/02/19 17:41	15262-20-1	
Sample: 190921	6-06	Lab ID: 2012172	0006	Collected: 09/11/19 11:15	Received:	09/16/19 10:20	Matrix: Water	
PWS:		Site ID:		Sample Type:	(()			
				vere added to the sample to m preserved <2 within the requi			quirement of pH	
Parar	meters	Method	Act	t ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1		± 0.496 (0.697)	pCi/L	10/01/19 15:01	13982-63-3	
Radium-228		EPA 904.0	0.454	T:81% ± 0.455 (0.936) % T:71%	pCi/L	10/02/19 15:32	2 15262-20-1	
Sample: 190921 PWS:	6-07	Lab ID: 2012172 Site ID:	0007	Collected: 09/11/19 00:00 Sample Type:	Received:	09/16/19 10:20	Matrix: Water	
				vere added to the sample to n preserved <2 within the requi			quirement of pH	
Parar	meters	Method	Act	t ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1		98 ± 0.319 (0.648) T:82%	pCi/L	10/01/19 15:01	13982-63-3	
Radium-228		EPA 904.0	0.305	± 0.871 (1.76) % T:69%	pCi/L	10/02/19 19:21	15262-20-1	
Sample: 190921 PWS:	6-08	Lab ID: 2012172 Site ID:	8000	Collected: 09/11/19 11:38 Sample Type:	Received:	09/16/19 10:20	Matrix: Water	
				vere added to the sample to n preserved <2 within the requi			quirement of pH	
Parar	neters	Method	Act	t ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1		± 0.426 (0.827)	pCi/L	10/01/19 15:14	13982-63-3	
Radium-228		EPA 904.0	-0.730	T:80% 0 ± 0.620 (1.54) 6 T:77%	pCi/L	10/02/19 17:39	9 15262-20-1	
Sample: 190921 PWS:	6-09	Lab ID: 2012172 Site ID:	0009	Collected: 09/10/19 12:53 Sample Type:	Received:	09/16/19 10:20	Matrix: Water	
Comments: • Up		boratory, 2.5 mls of nitric		vere added to the sample to n preserved <2 within the requi			quirement of pH	
Parar	neters	Method	Act	t ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226		EPA 903.1		± 0.440 (0.655) T:81%	pCi/L	10/01/19 14:48	13982-63-3	
Radium-228		EPA 904.0	1.64 ±	1:81% : 0.799 (1.37) % T:72%	pCi/L	10/02/19 17:34	1 15262-20-1	

REPORT OF LABORATORY ANALYSIS



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: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH Comments: <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual Radium-226 EPA 903.1 0.474 ± 0.728 (1.25) pCi/L 10/01/19 14:48 13982-63-3 C:NA T:79% EPA 904.0 0.799 ± 0.603 (1.18) Radium-228 pCi/L 10/02/19 17:35 15262-20-1 C:65% T:81% Sample: 1909216-11 Lab ID: 20121720011 Collected: 09/11/19 08:49 Received: 09/16/19 10:20 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Qual Analyzed CAS No. EPA 903.1 Radium-226 $0.492 \pm 0.603 \quad (0.990)$ pCi/L 10/01/19 15:01 13982-63-3 C:NA T:80% EPA 904.0 1.62 ± 0.813 Radium-228 pCi/L 10/02/19 19:21 15262-20-1 C:71% T:72% Collected: 09/11/19 09:50 Sample: 1909216-12 Lab ID: 20121720012 Received: 09/16/19 10:20 Matrix: Water PWS: Site ID: Sample Type: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH Comments: <2 for radiochemistry analysis. The samples were not preserved <2 within the required 5 days of collection.</p> Parameters 4 8 1 Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual EPA 903.1 $0.772 \pm 0.465 \quad (0.190)$ Radium-226 pCi/L 10/01/19 15:01 13982-63-3 C:NA T:77% Radium-228 EPA 904.0 0.423 ± 0.639 pCi/L 10/02/19 19:21 15262-20-1 C:69% T:88% 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual EPA 903.1 0.202 ± 0.546 (1.01) Radium-226 pCi/L 10/01/19 14:48 13982-63-3 C:NA T:87% EPA 904.0 0.246 ± 0.598 (1.33) Radium-228 pCi/L 10/02/19 17:38 15262-20-1 C:69% T:81% Lab ID: 20121720014 Sample: 1909216-14 Collected: 09/10/19 17:06 Received: 09/16/19 10:20 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.</p> **Parameters** Method Act ± Unc (MDC) Carr Trac Units Analyzed CAS No. Qual EPA 903.1 $0.359 \pm 0.330 \quad (0.195)$ Radium-226 pCi/L 10/01/19 15:01 13982-63-3

REPORT OF LABORATORY ANALYSIS

C:NA T:83%



ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1909216
Pace Project No.: 20121720

Sample: 1909216-14

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.</p>

 Parameters
 Method
 Act ± Unc (MDC) Carr Trac
 Units
 Analyzed
 CAS No.
 Qual

 Radium-228
 EPA 904.0
 0.285 ± 0.538 (1.18) (

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.</p>

Parameters Method Act ± Unc (MDC) Carr Trac Units Qual Analyzed CAS No. EPA 903.1 $0.817 \pm 0.641 \quad (0.892)$ Radium-226 pCi/L 10/01/19 15:01 13982-63-3 C:NA T:81% EPA 904.0 Radium-228 0.0211 ± 0.704 pCi/L 10/02/19 19:21 15262-20-1 C:74% T:79%

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 EPA 903.1 $0.748 \pm 0.645 \quad (0.959)$ Radium-226 10/01/19 15:14 13982-63-3 pCi/L C:NA T:78% EPA 904.0 0.663 ± 0.546 (1.09) Radium-228 pCi/L 10/02/19 17:39 15262-20-1 C:74% T:80%

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 EPA 903.1 0.405 ± 0.421 Radium-226 (0.627)pCi/L 10/01/19 14:48 13982-63-3 C:NA T:86% EPA 904.0 0.981 ± 0.839 (1.69) Radium-228 pCi/L 10/02/19 19:00 15262-20-1 C:64% T:72%



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.



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

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.



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

Date: 10/03/2019 04:23 PM

PASI-PA Pace Analytical Services - Greensburg



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1909216
Pace Project No.: 20121720

Date: 10/03/2019 04:23 PM

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica 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		
0121720016	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		



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: -

WO#:20121720

* need Standara 1711

Work Order: 1909216

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

10/08/2019 11:45

Containers Supplied:

1000mL Plastic (A)

1000ml. Plastic (B)

Sample Name: MW-17 Sample ID: 1909216-02 Water Sampled: 09/10/2019 14:34

Radium, Total 226 & 228 by 901.1

09/20/2019

10/08/2019 14:34

Containers Supplied:

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

Containers Supplied:

1000ml. Plastic (A)

1000mL Plastic (B)

Water Sampled: 09/10/2019 17:45 Sample ID: 1909216-04 Sample Name: MW-13

Radium, Total 226 & 228 by 901.1

10/08/2019 17:45

Containers Supplied:

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

Containers Supplied:

1000ml Plastic (A)

1000mil Plastic (B)

Sample Name: MW-14 Sample ID: 1909216-06 Water Sampled: 09/11/2019 11:15 9/20/2019

Radium, Total 226 & 228 by 901.1

10/09/2019 11:15

Containers Supplied:

1000mL Plastic (A)

1000mL Plastic (B)

Water Sampled: 09/11/2019 00:00 Sample ID: 1909216-07 Sample Name: Field Blank

Received By

Page 1 of 3

Page 55 of 58



SUBCONTRACT ORDER

(Continued)

Work Order: 1909216 (Continued)

Analysis

Due

Expires

Comments

Sample ID: 1909216-07

Water

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

Containers Supplied:

1000mL Plastic (A)

1000mL Plastic (B)

Sample ID: 1909216-08

Water Sampled: 09/11/2019 11:38 Sample Name: Duplicate

Radium, Total 226 & 228 by 901.1

09/20/2019

10/09/2019 11:38

Containers Supplied:

1000mL Plastic (A)

1000mL Plastic (B)

Sample ID: 1909216-09

Water 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

Containers Supplied:

1000mL Plastic (A)

1000mL Plastic (B)

Sample ID: 1909216-10

Water Sampled: 09/10/2019 15:17

Sample Name: MW-15

Radium, Total 226 & 228 by 901.1

09/20/2019

9/20/2019

/20/2019

10/08/2019 15:17

10/09/2019 08:49

10/09/2019 09:50

Containers Supplied:

1000mL Plastic (A)

1000mL Plastic (B)

Sample ID: 1909216-11

Water Sampled: 09/11/2019 08:49

Sample Name: CCR-2

Radium, Total 226 & 228 by 901.1

Containers Supplied: 1000mL Plastic (A)

1000mL Plastic (B)

Sample ID: 1909216-12

Water Sampled: 09/11/2019 09:50

Sample Name: CCR-3

Radium, Total 226 & 228 by 901.1

Containers Supplied:

1000mL Plastic (A)

Sample ID: 1909216-13

1000mL Plastic (B)

Sampled: 09/10/2019 16:59

Sample Name: CCR-4

Radium, Total 226 & 228 by 901.1

Water

10/08/2019 16:59

Containers Supplied:

1000mL Plastic (A)

Sampled: 09/10/2019 17:06

Sample ID: 1909216-14

Water

Sample Name: CCR-5

Radium, Total 226 & 228 by 901.1

1000mL Plastic (B)

10/08/2019 17:06

09/20/2019

Containers Supplied:

1000mL Plastic (A)

1000mL Plastic (B)

Received By



SUBCONTRACT ORDER

(Continued)

Work Order: 1909216 (Continued)

Analysis Due Expires Comments
Sample ID: 1909216-15 Water Sampled: 09/11/2019 10:09 Sample Name: CCR-6

Radium, Total 226 & 228 by 901.1

(2) 69/20/2019 10/09/2019 10:09

Containers Supplied:

1000mL Plastic (A)

1000mL Plastic (8)

Sample ID: 1909216-16 Water 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

Containers Supplied:

1000mL Plastic (A)

1000mL Plastic (B)

Sample ID: 1909216-17 Water Sampled: 09/10/2019 12:05 Sample Name: CCR-8

Radium, Total 226 & 228 by 901.1

5)09/20/2019

10/08/2019 12:05

Containers Supplied:

1000mL Plastic (A)

1000mL Plastic (B)

 Small formula
 9/13/19 1630
 MS
 9/13/19 1630

 Released By
 Date
 Received By
 Date

 Released By
 Date
 Date

#:2012 Sample Condition Upon Re ace Analytical CLIENT: 20-MICRO 1000 Riverbend, Blvd., Suite F Proje St. Rose, LA 70087 Courier: □ Pace Courier ☐ Hired Courier ☐ Fed X UPS ☐ DHL □ USPS □ Customer □ Other Custody Seals intact: ☐Yes ☐No Custody Seal on Cooler/Box Present: [see COC] □ Therm Fisher IR 5 Therometer □ Therm Fisher IR 6 Type of Ice: Blue Wet 'None Samples on ice: [see COC] Used: □ Therm Fisher IR 7 Date and Initials of person examining contents: Cooler Temperature: [see COC] Temp should be above freezing to 6°C Temp must be measured from Temperature blank when present Comments: □Yes 🗹No Temperature Blank Present"? □N/A Pres □No □n/a Chain of Custody Present: Yes No Chain of Custody Complete: □N/A ☐Yes □No Chain of Custody Relinquished: □N/A □Yes ⊴No □N/A Sampler Name & Signature on COC: Samples Arrived within Hold Time: ☑Yes ☐No □n/A __ No Sufficient Volume: □N/A ✓Yes □No Correct Containers Used: □N/A □Yes 🗖 No Filtered vol. Rec. for Diss. tests □N/A □Yes □No Sample Labels match COC: □N/A All containers received within manafacture's ZYes □No □N/A precautionary and/or expiration dates. 11 All containers needing chemical preservation have □Yes □No ______N/A been checked (except VOA, coliform, & O&G). 12 All containers preservation checked found to be in If No, was preserative added? □Yes □No ☐Yes ☐No □N/A compliance with EPA recommendation. If added record lot no.: HNO3 H2S04

Person Contacted:			Date/Time:		
Comments/ Resolution:					
· · · · · · · · · · · · · · · · · · ·					
···		' 			
	· - "	·			
		 			
	•	-			
*	. MU.		9,,41.4		

☑N/A 14

15

☐Yes ☐No

□Yes ☑No

Headspace in VOA Vials (>6mm):

Client Notification/ Resolution:

Trip Blank Present:

APPENDIX C

FIELD SAMPLING DATA

Monitor Well:	MW-7		MW-7 Well Diameter:		4	inches
Date:	3120119		-	Water Column Height:	23.22	ft
Sampling Method:		Pumped		(Measured Well Depth - Static Wa	ater Level)	
Measured Well Dep	oth:	56.92	ft	TOC Elevation ⁽¹⁾ :	571.76	ft
Static Water Level:		33.70	ft	GW Elevation:	538.06	ft
(Depth to Water)		21 00		(TOC Elevation - Static Water Lev	vel)	-
Maximum Drawdov	vn Depth	36.02	_ft	Well Volume:	15.09	gal
(10% of WCH + SWL)			_	(Water Column Height x Well Cas	sing Volume Fac	ctor)

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
3120/19		11:25						
	2.0	11:36			4.81	16.1	6.87	309.6
		11:39			3.07	16.1	6.92	307.7
	3.0	11:42			2.88	16.2	6.94	302.0
	-							
				-				
	-							
	-			-				
	1							
				 				
	ļ							
	-							

Sample Time: Sample Analyzed for	or:	N:45 Appendix III (B	oron,Calcium,C	Chloride,Fluoride,S	Sulfate, & TDS).	pH measured in the	e field.			
		Appendix IV (A	ntimony, Bariu	m, Beryllium, Cad	mium, Chromiu	m, Cobalt, Fluoride,	Lead, Lithium,	& Radium 22	26/228).	
Total Drawdown (fi)):		1.05		132 Websi 120	r	- \			
Drawdown/Water	olumn (%):		4.520	10		t	INAL DE	PPTH = 2	34.75 ft	
MO Hal		1. *	<i>\$1.400</i>							
Sampler Signature	:									

If possible, total drawdown will not exceed 0.33 ft.

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.

Monitor Well:	MV	V-9			Well Diam	eter:	4	inches
Date:	3/19/1	9						-
Sampling Method		Pumped				umn Height: ell Depth - Static Wa	13.98 iter Level)	_ft
Measured Well De Static Water Leve	100000000000000000000000000000000000000	21.74 7.76	ft		TOC Eleva		480.04	_ft
(Depth to Water)	33				GW Elevation (TOC Elevation	ion: n - Static Water Lev	472.28 eD	_ft
Maximum Drawdo (10% of WCH + SWL)	own Depth	9.16	ft		Well Volum		9.09	gal ctor)
	Date	Volume Purged	Time	Elapsed Time	Water Level	Turbidity	Temp	рН

Start Pum	p
-----------	---

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivit (uS/cm)
3/19/19		12:00						(do/citi)
	2.0	12:02			16.27	17.5	4.20	1436
		12:06		Constitution of the consti	8.78	17.0	4.09	1485
	5.0	17:09			8.09	17.1	4.16	1491
	-							
-								
				-				
	-							
-								

harry many many many many many many many man		
Sample Time: 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 0.98	n, Cobalt, Fluoride, Lead, Lithium, & Radium 226/228).
Drawdown/Water Column (%):	7.01%	FINAL DEPTH = 8.74 Jt
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.

William					
Well Stabilization pH:	0.1 standard units	Well Casing Volumes 1" = 0.041	(gal/ft) 1 1/2 * = 0.10		
conductivity:	within 3%	3" = 0.37		2" = 0.16	2 1/2" = 0.24
temperature:	0.1 deg. C		3 1/2" = 0.50	4" = 0.65	6" = 1.46
turbidity:	<5 NTU or 10%	8" = 2.61	10" = 4.08	12" = 5.87	0 1.10

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	MW-	12	_	Well Diameter:	4	inches
Date:	3/19/19		_		15.14	
Sampling Method	l:	Pumped		Water Column Height: (Measured Well Depth - Static Wal		_ft
Measured Well De	epth:	19.09	_ _ft	TOC Elevation ⁽¹⁾ :	474.19	ft
Static Water Leve (Depth to Water)	l:	3.95	_ft	GW Elevation: (TOC Elevation - Static Water Leve	470.24	ft
Maximum Drawdo (10% of WCH + SWL)	own Depth	5.46	_ft	Well Volume: (Water Column Height x Well Casin	9.84 ng Volume Fac	_gal

Start Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
3/19/19		10:15						
	2.0	10:25			28	13.2	5.60	540.3
		10:28			39.8	13.6	5.90	518.5
		10:32			36.9	13.6	5.45	518.3
		10:36			32.3	12.6	6.41	512.7
	6.0	10:39			34.1	13.5	5.40	514.0
			30 20 30					
			1100					
112								
			WARET TO STATE OF THE STATE OF					

3									
Sample Time:		10:40							
Sample Analyzed for	or:	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 (fi	i);, ,		1.4	7			_	N	
Drawdown/Water C			9.7	%		ti 	-WAL	DUPM	4 = 5.42 ++
MAH	1	×-				•			•
Sampler Signature									

If possible, total drawdown will not exceed 0.33 ft.

Well		
pH:	0.1 standard units	1" = 0
conductivity:	within 3%	3" = 0
temperature:	0.1 deg. C	8" = 2
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.

Monitor Well:	MW	-13	wa*	Well Diameter:	4	inches
Date:	3/20/19	1	_			
Sampling Method	d:	Pumped		Water Column Height: (Measured Well Depth - Static Water	42.76 er Level)	_ft
Measured Well D Static Water Leve		106 63.24	ft _ft	TOC Elevation ⁽¹⁾ : GW Elevation:	584.48 521.24	_ft ft
(Depth to Water) Maximum Drawd (10% of WCH + SWL)	THE REPORT OF THE PARTY OF THE PARTY.	67.52	_ft	(TOC Elevation - Static Water Leve Well Volume: (Water Column Height x Well Casin	27.79	gal

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
3/20/19		11:06	The same of the sa					(uo/ciii)
	8.0	11:31			2.20	18.8	7.04	226 -
		11:34			1.52	18.5	7.10	215.7
	9.25	11:37			1.45	18.5		219.6
		11 1			1.43	10.5	7.16	218.1

								-

22110								
							ALTERNATIVE HIR SET	

Sample Time: Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & T	TDS), pH measured in the field
Total Drawdown (ft):	Appendix IV (Antimony, Barium, Beryllium, Cadmium, Chr. 7.16	romium, Cobalt, Fluoride, Lead, Lithium, & Radium 226/228).
Drawdown/Water Column (%):	5.05%	- N 15414
Sampler Signature:		FINAL DEPTH = 65.4 ft

If possible, total drawdown will not exceed 0.33 ft.

pH:	0.1 standard units		Well Casing	Volumes (gal/ft)	
conductivity: emperature:	within 3% 0.1 deg. C	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2" = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65	2 1/2" = 0.24 6" = 1.46
urbidity:	<5 NTU or 10%	-	10 4.00	12" = 5.87	

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	MW-14		Well Diameter:	4	inche
Date:	3/20/19				
Sampling Method:	Pumpeo		Water Column Height: (Measured Well Depth - Static Wa	32.82 ater Level)	_ft
Measured Well De		ft	TOC Elevation(1):	593.84	ft
Static Water Level (Depth to Water)	_ 28.19	<u>5</u> ft	GW Elevation: (TOC Elevation - Static Water Lev	565.69	ft
Maximum Drawdo (10% of WCH + SWL)	wn Depth3[.4]	<u>3</u> ft	Well Volume: (Water Column Height x Well Cas	21.33	gal

Start	Pumn

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
3/20/19		15:06						(derein)
	2.0	15:20			1.85	20.8	5.98	156.8
		15:23			1.88	20.3	5.26	143.0
	3.0	15:25			1.32	20.2	5.23	140.9
CONTRACTOR OF THE PARTY OF THE								

					STATE OF THE STATE			

Sample Time:	15:26	
Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TD	S) pH measured in the field
Total Drawdown (ft):	Appendix IV (Antirnony, Barium, Beryllium, Cadmium, Chron 0, 95	nium, Cobalt, Fluoride, Lead, Lithium, & Radium 226/228).
Drawdown/Water Column (%):	2.89%	FINAL DEPTH= 29.1 ft
Sampler Signature		- Time Selin Dill

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.

pH: 0.1 standard units		Well Casing Volumes (gal/ft)			
conductivity: emperature: urbidity:	0.1 standard units within 3% 0.1 deg. C <5 NTU or 10%	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2" = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65 12" = 5.87	2 1/2" = 0.24 6" = 1.46

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

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FIELD BLANK

Monitor Well:	MW-15	to the second se	Well Diameter:	4	inches
Date:	3/20/19				-
Sampling Method	Pumped		Water Column Height: (Measured Well Depth - Static W.	15.34 ater Level)	_ft
Measured Well De Static Water Leve (Depth to Water)	pth: 22.74	ft ft	TOC Elevation ⁽¹⁾ ; GW Elevation:	488.10 480.70	_ft _ft
Maximum Drawdo (10% of WCH + SWL)	wn Depth <u>8.93</u>	_ft	(TOC Elevation - Static Water Level Volume: (Water Column Height x Well Case)	9.97	_gal

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
3/20/19		9:35						(uo/ciii)
	2.0	9:38			74.0	14.6	6.55	406.2
		9:39			73.3	14.8	6.38	406.2
		9:41			63.0	14.9	6-36	406.2 404.6
	4.0	9:44			59.5	14.8	6.36	403.9
					21.2	14.0	6.0	403.1
POR ELECTRONIC SPECIAL CONTRACTOR OF THE PORT OF THE P								

	-							

by the same of the		
ample Time:	9:45	A second
Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS).	pH measured in the field
es necessaria	Appendix IV (Antimony, Barium, Beryllium, Cadmium, Chromium	n. Cobalt Fluoride Lead Lithium & Badis - 200/2001
otal Drawdown (ft):	0.84	, seeds, riddride, Edad, Elithalff, & Radium 226/228).
Drawdown/Water Column (%):-	5.48%	
137 1/1	2. 0/0	FINAL DEPTH=8.24 A
B/HO		,
Sampler Signature:		

If possible, total drawdown will not exceed 0.33 ft.

Well Stabilization pH: 0.1 standard units			Well Casing	Volumes (gal/ft)	
conductivity: temperature: turbidity:	0.1 standard units within 3% 0.1 deg. C <5 NTU or 10%	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2 " = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65 12" = 5.87	2 1/2" = 0.24 6" = 1.46

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	MW-16		Well Diameter:	4	_inches
Date:					
Sampling Method:	Pumped		Water Column Height: (Measured Well Depth - Static)	Water Level)	_ft
Measured Well Depth:	21.74 ft		TOC Elevation ⁽¹⁾ :	485.98	ft
Static Water Level: (Depth to Water)	ft	11.87	GW Elevation: (TOC Elevation - Static Water L	_evel)	 _ ft
Maximum Drawdown Depth (10% of WCH + SWL)	ft		Well Volume: (Water Column Height x Well C		_gal

Start	Pumi	n
Start	Pum	D

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	pН	Conductivity (uS/cm)
								/
							-	8
							151	07
	-			7			10	11.01
						ort	15	
			2/	1	~ ~		16	
	-		MI		0 h	5		
-		-	1	CEE	-4	70		
			1	, ,	EPTH			
	10 X		1AS	NG.				
	M		115	Mo.				
		EU						
	1	H	8					
		1,	[***

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 (%):	
Il Jella	
Sampler Signature:	

If possible, total drawdown will not exceed 0.33 ft.

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					

Monitor Well:	OW-2	Well Diameter:	4	inches
Date:	3/19/19			_
Sampling Method:	Pumped	Water Column Height: (Measured Well Depth - Statio		_ft
Measured Well Dep Static Water Level: (Depth to Water)	oth: 27.05 f	TOC Elevation ⁽¹⁾ : GW Elevation:	489.40 478.80	_ft _ft
Maximum Drawdov (10% of WCH + SWL)	vn Depth 12.25 f	(TOC Elevation - Static Water Well Volume: (Water Column Height x Well	10.69	_gal

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	pН	Conductivity (uS/cm)
3/19/19		9:02						
	2.0	9:14			1.28	15.5	6.77	499.6
		9:17			1.18	15.5	5.91	481.5
		9:20			1.16	15.8	5.92	477 -3
	3.75	9:23	21	12.22	1.28	16.0	5.96	473.7
	 							
West Control of the C								
-								

Sample Time:	9:24		
Sample Analyzed for:	Appendix III (Boron, Calciurn, Chloride, Fluoride, Sulfate, & T	TDS) of measured in the field	
	Appendix IV (Antimony, Barium, Beryllium, Cadmium, Chro	romium, Cobalt, Fluoride, Lead, Lithium, & Radium 226/228).	
Total Drawdown (ft):	1.62	Table (Carrier) Carrier (Carrier)	
Drawdown/Water Column (%):	9.85°/D	T	
RALLES		- tinac DEPTH = 12.	224
Sampler Signature:			0

Well Stabilization pH: 0.1 standard units			Well Casing	Volumes (gal/ft)	
conductivity: temperature: turbidity:	0.1 standard units within 3% 0.1 deg. C <5 NTU or 10%	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2" = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65 12" = 5.87	2 1/2" = 0.24 6" = 1.46

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

If possible, total drawdown will not exceed 0.33 ft.

Monitor Well:	CCR-2	Well Diameter: 4	inches
Date:	3/19/19		
Sampling Method	: Pumped	Water Column Height: 33, 92 (Measured Well Depth - Static Water Level)	_ft
Measured Well De Static Water Leve (Depth to Water)	epth: 84.5 ft	TOC Elevation ⁽¹⁾ : 542.50 GW Elevation: 491.97	_ft _ft
Maximum Drawdo (10% of WCH + SWL)	own Depth <u>53.97</u> ft	(TOC Elevation - Static Water Level) Well Volume: (Water Column Height x Well Casing Volume Fac	_gal

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	pH	Conductivity (uS/cm)
3/19/19		15:40					100000	(
	2.0	15:54			39.1	18.7	7.15	198.9
	41119	15:57			36.7	18.0	7.04	193.7
		16:00			37.4	18.0	7.10	193.4
	4.25	16:03			41.0	17.8	7.04	194.0
							1.0.	177.0
- 17 A/III 11-								
				The second second				
		198.00						

							-	

Sample Time:	16:08	Mozeste de la financia de la composición del composición de la com		
Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluonde, Sulfate, & TDS). pl	H measured in the field.		
	Appendix IV (Antimorry, Barium, Beryllium, Cadrolum, Chromium,	Cohalt Elypride Load Lithiu	m 9 Dadi - cociona	
Total Drawdown (ft):	1.55	Godan, Flooride, Lead, Lithig	im, & Radium 226/228).	
Drawdown/Water Column (%):	4.57%			
POHX		FINA	DEPTH:	C) 12 11
Sampler Signature:		11000	24/111	52.13 gr

pH:	O. d. edge and a state of the s		Well Casing	Well Casing Volumes (gal/ft)		
conductivity: temperature: turbidity:	0.1 standard units within 3% 0.1 deg. C <5 NTU or 10%	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2" = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65 12" = 5.87	2 1/2" = 0.24 6" = 1.46	

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

If possible, total drawdown will not exceed 0.33 ft.

Monitor Well:	CCR-3	Well Diameter: 4	inches
Date:	3/19/19		_
Sampling Method:	Pumped	Water Column Height: 27.85 (Measured Well Depth - Static Water Level)	_ft
Measured Well Depth:		TOC Elevation ⁽¹⁾ : 504.78	ft
Static Water Level: (Depth to Water)	25.15 ft	GW Elevation: 479.63 (TOC Elevation - Static Water Level)	_ft
Maximum Drawdown [(10% of WCH + SWL)	Depth 27.99 ft	Well Volume: [8.]0 (Water Column Height x Well Casing Volume Far	gal ctor)

Start	Pump
Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	pН	Conductivity (uS/cm)
3/19/19		14:44						(deron)
	2.0	Ju: 57			3.30	18.4	6.07	636.1
		15:00			2.66	18.2	6.45	126.0
		15:03			6.30	18.0	6.34	612.0
		15:00			2.40	17.9	6.54	611.6
	5.5	15:07			4.48	17.8	6.42	605.7
					9,1	1.0	0.12	90-1
		AMERICA CALL						
								-
-								

Sample Time:	15:12	
Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS), pH me	assured in the field
Total Drawdown (ft):	Appendix IV (Antimony, Barium, Beryllium, Cadmium, Chromium, Cob	alt, Fluoride, Lead, Lithium, & Radium 226/228).
Drawdown/Water Column (%):	6.93%	
BOH		FINAL DEPTH = 27.08 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	4
3" = 0.37	3 1/2" = 0.50	4" = 0.65	2 1/2" = 0.24
8" = 2.61			6" = 1.46
	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:	CCR-4	Well Diameter:	4	inches
Date:	3120/19	And Change		
Sampling Method	Pumped	Water Column Height: 2 (Measured Well Depth - Static Water Le	8.7 vel)	. ft
Measured Well De Static Water Level		TOO LIEVATION .	05.68	ft
(Depth to Water)		t GW Elevation: 4 (TOC Elevation - Static Water Level)	81.38	ft
Maximum Drawdo (10% of WCH + SWL)	wn Depth <u>27.1/</u> fi	Well Volume: 18 (Water Column Height x Well Casing Vol	lume Faci	gal tor)

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
3/20/19		8:22						
	2.0	8:31			5. 6 8.42	15.7	6.90	351.9
		8:34			8.92	16.2	6.55	339.0
		8:37			5.26	[6.3	6.89	338.7
		8:40			9.30	16.2	6.47	339.1
		8:43				16.3	6.30	339.8
		8:46			7.90	16.4	6.54	240.9
		8:49			11.31	16.7	6.70	343.1
		8:51			9.27	16.7	6.58	342.5
		8:53				16.7	6.71	344.0
	6.5	8:56			8.04	16.7	6.64	346.3
							- W - V -	7
	-							
	-							
	-							
					Marie Company (1971)			
	-							

Sample Time:	8:50	
Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS). pl	H measured in the field
Total Drawdown (ft):	Appendix IV (Antimony, Barium, Beryllium, Cadmium, Chromium,	Cobalt, Fluoride, Lead, Lithium, & Radium 226/228).
Drawdown/Water Column (%):	6.44%	
757418		FINAL DEPTH = 26.11
Sampler Signature:		†ii

If possible, total drawdown will not exceed 0.33 ft.

Well Stabilization			Well Casing	Volumes (gai/ft)	
conductivity: temperature: turbidity;	0.1 standard units within 3% 0.1 deg. C <5 NTU or 10%	1° = 0.041 3" = 0.37 8" = 2.61	1 1/2 " = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65 12" = 5.87	2 1/2" = 0.24 6" = 1.46

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	CCR-5	_	Well Diameter:	4	inches
Date:	3/20/19	-	Water Column Height:	27.50	ft
Sampling Method:	Pumped		(Measured Well Depth - Static Water	r Level)	
Measured Well Depti	h: 34.55	- ft	TOC Elevation ⁽¹⁾ :	470.46	ft
Static Water Level:	7.05	ft	GW Elevation:	463.41	ft
(Depth to Water)	0.00	=38 	(TOC Elevation - Static Water Level		
Maximum Drawdowr	Depth 9.80	_ft	Well Volume:	17.88	gal
(10% of WCH + SWL)			(Water Column Height x Well Casino	Volume Fac	tor)

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
3/20/19		08:29						
	11.0	10:12			155	17.0	5.92	1761
		10:15			161	16.4	5.96	1759
	12.0	10,18			167	16.3	5.97	1755
					*			
		11111						
								4.00
								**
								N. S.
12.00								
								2011-2-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7
					18 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			

			the same of the sa					
Sample Time: Sample Analyzed for:	(0:20 Appendix III (B	oron,Calcium,(Chloride,Fluoride,	_ Sulfate, & TDS).	pH measured in the	field.		
	Appendix IV (A	ntimony, Bariu	m, Beryllium, Cad	lmium, Chromiur	m, Cobalt, Fluoride,	Lead, Lithium	, & Radium 226/2	28).
Total Drawdown (ft):		0.35					٨	
Drawdown/Water Column (%):		1.2	7%			TINAL	DEPTH	= 7.4 gt
PUNJUL								
Sampler Signature:								

If possible, total drawdown will not exceed 0.33 ft.

Well	Stabilization		Well Casing Volumes (gal/ft)						
pH:	0.1 standard units	1" = 0.041	1 1/2 " = 0.10	2" = 0.16	2 1/2" = 0.24				
conductivity:	within 3%	3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46				
temperature:	0.1 deg. C	8" = 2.61	10" = 4.08	12" = 5.87					
turbidity:	<5 NTU or 10%								

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	MW-7	Well Diameter:	4	inche
Date: 5/30	/19			
Sampling Method:	Pumped	Water Column Height: (Measured Well Depth - Static W	23.63 (ater Level)	_ft
Measured Well Depth: Static Water Level: (Depth to Water)	56.92 ft 33.29 ft	TOC Elevation ⁽¹⁾ : GW Elevation:	571.76 538.47	_ft 7_ft
Maximum Drawdown Depth (10% of WCH + SWL)	35.65 ft	(TOC Elevation - Static Water Le Well Volume: (Water Column Height y Well Column	15.36	gal

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
5/30/19		7:24						(43/011)
	2.0	7:35			3.27	18.8	6.98	216.
		7:38			3.76	18.4	7.01	330.4
		7:41			4.03	18.6	6.58	269.8
		7:44			2.91	18.3	7.00	355.9
	4.5	7:47			3.35	18.3	6.92	355.6
	-							

	-							
	+							***************************************

Sample Time:	7:50			
	Antimony, Arsenic, Barium, Beryllium, Cad Thallium, Radium 226/228	lmium, Chromium, Cobalt, Fl	uoride, Lead, Lithium,	Mercury, Molybdenum, Selenium,
Total Drawdown (ft):	0.67			
Drawdown/Water Column (%):	2.84%		T	N
Sampler Signature:			TINAL	DEPTH = 33.96 #

If possible, total drawdown will not exceed 0.33 ft.

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	0.4100 - 0.01	
3" = 0.37	3 1/2" = 0.50	4" = 0.65	2 1/2" = 0.24	
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.

			RED HIL	LS AMU M	IONITOR WE	ELLS			
Monitor Well:	MV	V-9	-		Well Diame	eter:	4	inches	
Date:	5129/19						MARKET PROPERTY AND ADDRESS OF THE PARTY AND A		
Sampling Meth	od:	Pumped			Water Colu	ımn Height: ell Depth - Static W.	13.26	_ft	
Measured Well	Depth:	21.74	_ft		TOC Eleva		480.04	_ft	
Static Water Le (Depth to Water)	vei:	8.48			GW Elevation	ion: n - Static Water Le	471.56	2 ft	
Maximum Draw (10% of WCH + SWI		9.81	_ft		Well Volum		8.62	_gal ctor)	
	Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
Start Pump	5/29/19		12:07				(0)		(us/cm)
		2.0	12:16			10.3	23.0	4.91	1770
			12:19			22.1	21.0	4.79	1783
			12:22			16.5	19.7	4.76	1745
		-	12:25			8.81	19.6	4.72	1789
			12:28			6.68	20.6	4.73	1789
	-	6.5	12:31			8.1	20.9	4.71	1780
		-							

		-							Approved the second
		-							
		-							
	10-00-0								
Sample Time:		12:3							
Sample Analyzed	d for:	Antimony, Arse	nic, Barium, Ber	yllium, Cadmiur	n, Chromium, Cob	alt, Fluoride, Lead,	Lithium Merci	irv Maluhdan	um Colonium
Total Drawdown	(ft)·	Thallium, Radiu						y, woybuer	on, seienum,
· · · · · · · · · · · · · · · · · · ·	(11).	_	0.0			- Continue of			
Drawdown/Water	Column (%):	-	7.1	6%		F	INAL	DEPTH	1= 9.43 fr
Sampler Signature	e:								
If possible, total draw f drawdown exceeds 1	vdown will not exceed of 10% of water column her	9.33 ft. ght, flow will be st	opped and well	allowed to recov	ver.				
Well Stabilization		1							
oH:			Mall Carina LI-1	man (antife)		-			
	0.1 standard units		Vell Casing Volu	ines (gairt)	3 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
conductivity; emperature;	0.1 standard units within 3% 0.1 deg. C	1	" = 0.041 " = 0.37	ines (gai/it)	1 1/2 " = 0.10 3 1/2" = 0.50		2" = 0.16 \$" = 0.65		1/2" = 0.24 " = 1.46

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	MV	V-12	_	Well Diameter:	4	inches
Date:	5/29/1	9	_			
Sampling Method	:	Pumped		Water Column Height: (Measured Well Depth - Static Water	II.57	ft
Measured Well De		19.09	ft	TOC Elevation(1):	474.19	ft
Static Water Level (Depth to Water)	l:	7.52	_ft	GW Elevation: (TOC Elevation - Static Water Level)	466.67	ft
Maximum Drawdo (10% of WCH + SWL)	wn Depth	8.68	ft	Well Volume: (Water Column Height x Well Casing	7.52	gal tor)

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivit
5/29/19		9:38						(40,011)
	2.0	9:44		-	263	20.3	6.66	549.7
		9:47			202	18.4	5.71	538.0
		9:50			182	18.4	5.61	(28 3
		9:53			172	17.9	5.65	538.3 537.3
		9:56			133	18.1	5.57	636.4
		9:59			112	18.1	5.63	528.6
	8.0	10:02			118	18.0	5.58	539.4
					CONTRACTOR OF THE STATE OF THE			7711
-							110 Mark 1990 1990 1990	

Sample Time:	10:15		
Sample Analyzed for:	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Flut	oride, Lead, Lithium, Mercupy, I	Unlybrianum Palanium
	Thallum, Radium 226/228	, moreay, i	noryboenum, Selenium,
Total Drawdown (ft):	1.08		
Drawdown/Water Column (%):	9.33%		DEATH = 8.60 Jr
BOHO		TINAL	DE&LM . 0.00
Sampler Signature:			

If possible, total drawdown will not exceed 0.33 ft.

Well	Stabilization		Wall Casina	Val / 16	
pH: conductivity: temperature: turbidity:	0.1 standard units within 3% 0.1 deg. C <5 NTU or 10%	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2" = 0.10 3 1/2" = 0.50 10" = 4.08	Volumes (gal/ft) 2" = 0.16 4" = 0.65 12" = 5.87	2 1/2" = 0.24 6" = 1.46

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	MW-13	Well Diameter:	4	inches
Date:	5/30/19			-
		Water Column Height:	42.94	ft
Sampling Method:	Pumped	(Measured Well Depth - Static W.	ater Level)	
Measured Well De	-	TOC Elevation(1):	584.48	ft
Static Water Level	63.06 ft	GW Elevation:	521.42	ft
(Depth to Water)	1735	(TOC Elevation - Static Water Lev	/el)	-
Maximum Drawdo	wn Depth <u>67.35</u> ft	Well Volume:	27.91	gal
(10% of WCH + SWL)		(Water Column Height x Well Cas	ing Volume Fac	ctor)

Start	Pump	

Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
	10:08		TANK TANK				
2.0	10:19			7.27	21.5	6.66	244.3
	10:22					-	240.4
4.0	10:25						239.3
				7.70	-	00	23 1
1							The state of the s
-							
							W
	Purged (L) 2.0	Purged (L) to: 0 6 2.0 10:19 10:22	Purged (L) Time (min) 10:08 2.0 10:19 10:22	Purged (L) Time (min) Level (ft) 2.0 10:19 10:22	Purged (L) Time (min) Level (NTU) 10:08 2.0 10:19 10:22 2.80	Purged (L) Time (min) Level (ft) Turbidity (NTU) (C) 2.0 10:19 7.27 21.5 10:22 7.80 21.4	Purged (L) Time (min) Level (ft) Turbidity (NTU) Temp (C) PH 2.0 10:19 7.27 21.5 6.66 10:22 3.80 21.4 6.64

Manager and Control of the Control o					
Sample Time:	10:30		-		
Sample Analyzed for:	Antimony, Arsenic, Barium, Beryllium, Cadmium, Thallium, Radium 226/228	Chromium Cobalt Fluoride Lear	d Lithium Mass.		
	Thallium, Radium 226/228	Today, Fiboride, Lead	r, citilum, Mercu	ry, Molybdenun	n, Selenium,
Total Drawdown (ft):	0.56				
Drawdown/Water Column (%):	2.00%				1292
BAHO		1	TINAL D	epth =	03.72
Sampler Signature:					

If possible, total drawdown will not exceed 0.33 ft.

pH:	Stabilization		Well Casing	Volumes (gal/ft)	
conductivity: temperature.	0.1 standard units within 3% 0.1 deg. C	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2" = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65	2 1/2" = 0.2 6" = 1.46
turbidity:	<5 NTU or 10%	None and the second	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-14	•	Well Diameter:	4	inches
Date:	5/30/19		Water Column Height:	32.76	ft
Sampling Method:	Pumped		(Measured Well Depth - Static Wal	ter Level)	• "
Measured Well Depth:	60.97	ft	TOC Elevation ⁽¹⁾ :	593.84	ft
Static Water Level: (Depth to Water)		ft	GW Elevation: (TOC Elevation - Static Water Leve	565.63	ft
Maximum Drawdown De (10% of WCH + SWL)	epth 3 .41	ft	Well Volume: (Water Column Height x Well Casi	71.29	gal tor)

Start Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
5/30/19		8:18		CONTRACTOR OF THE PARTY OF THE	Hall Carries and March	No.		PARTIE NAME OF THE PARTIES.
		8:30			1.17	21.2	5.19	140.6
		8:34			1.60	21.1	4.98	141.0
		8:38			1.12	21.0	4.97	139.5
	4.0	8:42			1.32	21.0	4.95	138.2
				199				
ļ								
				1				

						2011		

								1	
Sample Time:	8:45								
Sample Analyzed for:	Antimony, Ars	enic, Barium, I	Beryllium, Cadmiur	– n, Chromium, C	obalt, Fluoride, Lead	d, Lithium, Mer	curv. Molvbd	denum. Seleniu	m.
	Thallium, Rad						,,	, , , , , , , , , , , , , , , , , , , ,	
Total Drawdown (ft):		1.4	7						
Drawdown/Water/Column (%):		4.6	19%		F	NAL DE	PTH = 2"	9.68	
Py O State									
Sampler Signature:		•			_		_		14/
					Dug	PLICATE	AKEN	ON THIS	WELL.

If possible, total drawdown will not exceed 0.33 ft.

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.

Monitor Well:	MW-15		Well Diameter:	4	inches
Date:	5/29/19			1	-
		******	Water Column Height:	14.84	ft
Sampling Method:	Pumped		(Measured Well Depth - Static W	ater Level)	
Measured Well Depth:	22.74	ft	TOC Elevation ⁽¹⁾ ;	488.10	ft
Static Water Level:	7.9	ft	GW Elevation:	480.2	ft
(Depth to Water)	. 20		(TOC Elevation - Static Water Le	vel)	
Maximum Drawdown	Depth 4.38	ft	Well Volume:	9.65	gal
(10% of WCH + SWL)			(Water Column Height x Well Cast	sing Volume Fa	ctor)

Start Pump	Start F	ump
------------	---------	-----

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
5129119		10:49						
	2.0	10:54			140	16.6	5.99	461.6
		10:57			143	18.6	589	457.9
		11:00			132	18.4	5.95	120.0
		11:03			123	18-3	19.0	420.8
	5.5	11:06			130	19.6	599	454.2
						NESS OF THE OWN TO THE OWN		
						La vega en la seguira de		

Sample Time:	11:10		
Sample Analyzed for:	Antimony, Arsenic, Barium, Beryllium, Cadmium,	Chromium, Cobalt, Fluoride, Lead, Lithium	Marcury Malubdanum Salari
	Thallium, Radium 226/228		moreary, moryodenam, Seleniam,
Total Drawdown (ft):	0.82	*	
Drawdown/Water Column (%):	5.53%	FINAL	DepTH= 8.72 ft
FOHO		Primary Department	
Sampler Signature:			

If possible, total drawdown will not exceed 0.33 ft.

	Stabilization		Well Casing	Volumes (gal/ft)	
pH: conductivity: temperature: turbidity:	0.1 standard units within 3% 0.1 deg. C <5 NTU or 10%	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2 " = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65 12" = 5.87	2 1/2" = 0.24 6" = 1.46

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	MW-17 5/29//9		NAME .	Well Diameter:	4	inche
Date:				Water Column Height:	13.55	4
Sampling Method:	P	umped		(Measured Well Depth - Static Water		_1(
Measured Well Depth	ı:	18.75	ft	TOC Elevation(1):	483.85	ft
Static Water Level:	_	5.2	ft	GW Elevation:	4 78.65	ft
(Depth to Water) Maximum Drawdown	Depth	6.50	ft	(TOC Elevation - Static Water Level) Well Volume:	8.81	gal
(10% of WCH + SWL)				(Water Column Height x Well Casing	Volume Fac	

Start Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
5/29/19		8:49						
	7.0	8:56			23.4	21.0	5.71	720.4
		8:58			23.0	19.8	5.76	722.5
		9:01			23.0	19.1	5.69	726.2
	6.0	9:04			18.9	19.0	5.25	720.7
	-							

					_			-
	-							
a pro-	-							

Sample	Time:	
Sample	Analyzed for:	

9:07

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium.

Thailium, Radium 226/228

Total Drawdown (ft): Drawdown/Water Column (%):

0.75

5.54%

FINAL DEPH - 5.95 gt

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	0.4101 0.01
3" = 0.37	3 1/2" = 0.50		2 1/2" = 0.24
		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.

Pome Set @ 14'

Monitor Well:	Ol	N-2		Well Diameter:	4	inches
Date:	5129	119				
				Water Column Height:	16.63	ft
Sampling Method:		Pumped		(Measured Well Depth - Static Wa	ter Level)	100
Measured Well Depth	ı;	27.05	ft	TOC Elevation(1):	489.40	ft
Static Water Level: (Depth to Water)		54.01	ft	GW Elevation: (TOC Elevation - Static Water Lev	478.98	ft
Maximum Drawdowr (10% of WCH + SWL)	Depth	12.08	_ft	Well Volume: (Water Column Height x Well Casi	10.81	gal etor)

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
5/29/19		11:29						(aoioiii)
	2.0	11:37			17.4	22.1	5.63	503.2
		11:40			7.9	19.9	5.65	498.5
		11:43			6.7	20.4	6.55	445.7
		11:46			7.62	20.0	5.62	601.6
	5.0	11:49			7.14	202	5.55	493.6
								11
			erus sesses con militare	T. 150 (100 (100 (100 (100 (100 (100 (100				
				Same of the same o				

		Y						

Sample Time:	11:59	
Sample Analyzed for:	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cob Thallium, Radium 226/228	palt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium,
Total Drawdown (ft):	1.49	
Drawdown/Water Column (%):	8.960/0	E.M. D. W. 10
Sampler Signature:		FINAL DEPTH= 11.91 J&

If possible, total drawdown will not exceed 0.33 ft.

Well Stabilization		Well Casing	Volumes (gal/ft)	
pH: 0.1 standard units conductivity: within 3% temperature: 0.1 deg. C turbidity: <5 NTU or 10%	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2 " = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65 12" = 5.87	2 1/2" = 0.24 6" = 1.46

⁽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	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Sampling Method:	Pumped	Water Column Height: 23 · 62 (Measured Well Depth - Static Water Level)	_ft
Measured Well Depth: Static Water Level:	84.5 ft 50.88 ft	TOC Elevation ⁽¹⁾ : 542.50	_ft
(Depth to Water)		GW Elevation: 41.62 (TOC Elevation - Static Water Level)	ft
Maximum Drawdown E (10% of WCH + SWL)	Depth <u>59.74</u> ft	Well Volume: 71.85 (Water Column Height x Well Casing Volume Fac	_gal

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	pН	Conductivity (uS/cm)
5129/89		15:14						
	3.0	15:31			198	23.1	6.49	185.7
		15:34			160	24.4	6.52	186.4
		15:37			124	27.7	6.53	185.1
		15:40			101	71.1	6.56	1953
	6.5	15:43			101	71.0	6.45	184.0
						<u> </u>	0	10,
						 		

Sample Time:	15:45		
Sample Analyzed for:	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Thallium, Radium 226/228	Cobalt, Fluoride, Lead, Lithium, Mercur	ry, Molybdenum, Selenium,
Total Drawdown (ft):	1.43		
Drawdown/Water Column (%):	4.25%	- 7	N 5201
Sampler Signature:		- + NAC	DEPTH = 52.31

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		Well Casing Volumes (gal/ft)				
conductivity: within temperature: 0.1 d	standard units in 3% deg. C NTU or 10%	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2" = 0.10 3 1/2" = 0.50 10" = 4.08	2* = 0.16 4* = 0.65 12* = 5.87	2 1/2" = 0.24 6" = 1.46	

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	CCR	-3	Well Diameter:	4	inche
Date:	5/29/19		-		
Sampling Method	ı:	Pumped	Water Column Height: (Measured Well Depth - Static Water	26.98 r Level)	.ft
Measured Well De Static Water Leve	W. ************************************	ft	TOC Elevation ⁽¹⁾ :	504.78	ft
(Depth to Water)	157) 		GW Elevation: (TOC Elevation - Static Water Level)	478.76	ft
Maximum Drawdo (10% of WCH + SWL)	own Depth	29.72 ft	Well Volume: (Water Column Height x Well Casino	17.54	gal

Start	Pumn

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
5129/A		14:25						(doront)
	2.0	14:35			28.2	23.6	6.17	638. 9
		14:38			26.2	21.8	6.14	636.6
	4.75	14:41			25.2	21.2	6-23	632.0
						01	0.72	632.
						-		
						-		
						-		
	+							
	+							
	-							
Male								
-								

Sample Time:	14:47	
Sample Analyzed for:	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Coba	It Fluoride Lead Lithium Maraus, Mahhara
	Thallium, Radium 226/228	, rideride, Edad, Ettiliatti, Mercary, Malybaenum, Selenium,
Total Drawdown (ft):	1.19	
Drawdown/Water Column (%):	4.41 %	T
Sampler Signature:		1-INAL DEPTH = 27.21 1

If possible, total drawdown will not exceed 0.33 ft.

Well Stabilization		Company of the second second second	Wall Casina	Volumes (gal/ft)	
pH: conductivity: temperature	0.1 standard units within 3% 0.1 deg. C	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2 " = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65	2 1/2" = 0.24 6" = 1.46
turbidity:	<5 NTU or 10%		7.00	12" = 5.87	

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	CCR-4	Well Diameter:	4	inche
Date: 5	130/19			
		Water Column Height:	28.16	ft
Sampling Method:	Pumped	(Measured Well Depth - Static W	ater Level)	_
Measured Well Depth:	53 ft	TOC Elevation(1):	505.68	ft
Static Water Level:	24.84 ft	GW Elevation:	480.84	ft
(Depth to Water)	th 27.66 ft	(TOC Elevation - Static Water Le		
Maximum Drawdown Dept	hft	Well Volume:	18.30	gal
(10% of WCH + SWL)		(Water Column Height x Well Ca	sing Volume Fa	ctor)

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivit
5130/19		0:21						
	2.0	8:33			35.1	19.9	6.55	347.
		8:36			54.9	19.6	4.40	349.9
		8:37			8.52	19.4	6.40	350.6
		8:42		-	1 34.0	19.5	6.34	3 61 .8
		8.45			88.6	19.6	6.41	348.1
	6.5	8:48			79.7	17.7	6.34	348.7
							6.3.	340.1

A TANADA STANDARD STANDARD STANDARD								
	+							
	-							
								2000,000
	-							
								7,7

Sample Time:	8:52	
Sample Analyzed for:	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Thallium, Radium 226/228	n, Selenium,
Total Drawdown (ft):	1.21	
Drawdown/Water Column (%):	4.3%	
Sampler Signature:		1=26.05 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.

	Stabilization		Well Casing	Volumes (gal/ft)	
pH: conductivity; temperature:	0.1 standard units within 3% 0.1 deg. C	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2 " = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65	2 1/2" = 0.24 6" = 1.46
turbidity:	<5 NTU or 10%		10 - 4.00	12" = 5.87	

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	CCF	R-5		Well Diameter:	4	inches
Date:	5/30/	119				
			-	Water Column Height:	76.84	ft
Sampling Method:		Pumped		(Measured Well Depth - Static Wa	iter Level)	
Measured Well De	pth:	34.55	ft	TOC Elevation(1):	470.46	ft
Static Water Level	:	7.71	ft	GW Elevation:	462.75	ft
(Depth to Water)			_	(TOC Elevation - Static Water Lev		
Maximum Drawdo	wn Depth	10.39	ft	Well Volume:	17.45	gal
(10% of WCH + SWL)			_	(Water Column Height x Well Cas	ing Volume Fac	tor)

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	pH	Conductivity (uS/cm)
5/30/19		9:10						The state of the s
	2.0	9:22			190	70.0	5.76	1910
		q:25			199	19.7	5.66	1871
		9:28			713	19.6	5.75	1903
	4.0	q:25 q:28 q:31			207	19.7	5.75	1895

						-		
	-							
	+						-	
	+					-		

				minimum man Amerika				

Sample Time:	9:35				Million and design	-	
Sample Analyzed for:	Antimony, Arsenic, Thallium, Radium 2	Barium, Beryllium, Cadm	ium, Chromium,	Cobalt, Fluoride, Lea	d, Lithium, Men	cury, Molybder	num, Selenium,
Total Drawdown (ft):	- Tourist, Tourist 2	0.49 4					
Drawdown/Water Column (%):		1.83%		-	1	~	
Per 48				-	TINAC	Dopr	4=8.2 JA
Sampler Signature:	**************************************						0

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.

Stabilization		Well Casing	Volumes (gal/ft)	
0.1 standard units within 3% 0.1 deg. C	1" = 0.041 3" = 0.37 8" = 2.61	1 1/2 " = 0.10 3 1/2" = 0.50 10" = 4.08	2" = 0.16 4" = 0.65 12" = 5.87	2 1/2" = 0 6" = 1.46
	0.1 standard units within 3%	0.1 standard units 1" = 0.041 within 3% 3" = 0.37 0.1 deg. C 8" = 2.61	0.1 standard units	0.1 standard units 1" = 0.041 1" = 0.10 2" = 0.16 within 3% 3" = 0.37 3 1/2" = 0.50 4" = 0.65 0.1 deg. C 8" = 2.61 10" = 4.08 1." = 5.87

(1) Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

FIELD BLANK DONE

Monitor Well:	CCR-6	Well Diameter:	4	inches
Date: 9	129/19	Water Column Height:	25.91	ft
Sampling Method:	Pumped	(Measured Well Depth - Static Water	Level)	
Measured Well Depth:	41.05 ft	TOC Elevation ⁽¹⁾ :	475.05	ft
Static Water Level:	15.14 ft	GW Elevation:	459.91	_ _ft
(Depth to Water) Maximum Drawdown Depth	17.73 ft	(TOC Elevation - Static Water Level) Well Volume:	16.84	aal
(10% of WCH + SWL)		(Water Column Height x Well Casing	Volume Fac	_gal ctor)

Start Pump)
------------	---

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9129/19		10:00				5235103		
	5	10:24			22.5	20.2	6.92	707.8
		10:28		16.92	24.1	20.5	7.04	677.0
		10:32			20.8	20.2	7.14	716.
	1 1	10:36		17.54	21.4	20.1		699.1
	8.25	10:40		17.34	20.0	20.0	7.11	699.2

Sample Time:	10:45	
Sample Analyzed for:	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromi	ium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium,
	Thallium, Radium 226/228	
Total Drawdown (ft):	2.45	
Drawdown/Water Column (%):	9.45%	
My A Shile		PIMP SET at 37 BELOW TOP OF CASING
Sampler Signature:		FIME JOI ON J.

If possible, total drawdown will not exceed 0.33 ft.

Well	Stabilization		Well Casing	Volumes (gal/ft)	
pH:	0.1 standard units	1" = 0.041	1 1/2 " = 0.10	2" = 0.16	2 1/2" = 0.24
conductivity:	within 3%	3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
temperature:	0.1 deg. C	8" = 2.61	10" = 4.08	12" = 5.87	
turbidity:	<5 NTU or 10%				

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	CCR	2-7	_	Well Diameter:	4	inches
Date:	5/29	119			- 2 - 0 0	
S -11-11-11-11-11-11-11-11-11-11-11-11-11			_	Water Column Height:	23:09	ft
Sampling Method:		Pumped		(Measured Well Depth - Static Wa	ater Level)	
Measured Well Depth:		63.05	_ _ft	TOC Elevation ⁽¹⁾ :	527.10	ft
Static Water Level:		39.96	ft	GW Elevation:	487.14	ft
(Depth to Water)		27	-	(TOC Elevation - Static Water Lev	rel)	
Maximum Drawdown De	pth	42.27	_ft	Well Volume:	15.01	gal
(10% of WCH + SWL)			_	(Water Column Height x Well Cas	ing Volume Fac	ctor)

Start	Dum	n
Start	ruill	μ

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
5129/19		11:59						
	5	12:19			16.56	22.3	6.12	833.5
		12:23			14.84	22.2	6.16	834.7
		12:27			14.65	22.3	6.16	832.9
	1.5	12:31			14.26	22.3	6.19	837.8
							ļ	
							<u> </u>	

		The state of the s		THE RESERVE OF THE PERSON NAMED IN COLUMN 2 IS NOT THE OWNER.	
Sample Time: Sample Analyzed for:	12:35 Antimony, Arsenic, Barium, Beryllium, Cadmium	Chromium, Cobalt, Fluoride, Lead, Li	thium, Merci	ury, Molybdenum,	Selenium,
	Thallium, Radium 226/228			310	
Total Drawdown (ft):	1.9				
Drawdown(Water Oglumn (%):	9.23%		T	1	41.86 10
He & Sall		1	MAL	Depth =	1.00 %
Sampler Signature:					

If possible, total drawdown will not exceed 0.33 ft.

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	

Monitor Well:	CCR-8	_	Well Diameter:	4	_inches
Date:	5/29/19	-	Water Column Height:	42.14	_ft
Sampling Method:	Pumped		(Measured Well Depth - Static W	ater Level)	
Measured Well Depth	1: 85.0	_ _ft	TOC Elevation ⁽¹⁾ :	505.65	ft
Static Water Level:	42.86	ft	GW Elevation:	462.79	ft
(Depth to Water)		-	(TOC Elevation - Static Water Le		_
Maximum Drawdown	Depth 47.07	ft	Well Volume:	27.39	gal
(10% of WCH + SWL)	-	-	(Water Column Height x Well Cast	sing Volume Fa	ctor)

C+	bre	Pu	m	n
316	411	FU	ш	E I

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
5129 119		14:35					De la constante	Manager Park
		14:35 15:15			10.24	22.3	9.15	1687
		15:19			10.02	22.3	9.0	1776
		15:23				22.4	9.08	1745
	13	15:27		43.77	9.81	22.3	9.97	1764

Sample Time:	15:	35		_				
Sample Analyzed for:	Antimony, Arse	enic, Barium, E	Beryllium, Cadmiun	n, Chromium, C	Cobalt, Fluoride, Lea	d, Lithium, Me	rcury, Molybdenu	m, Selenium,
	Thallium, Radi	um 226/228						
Total Drawdown (ft):		0.91	1		_	0 (` ^ -	701
Drawdown/Watek Golumn (%):		2.19	5%		_	PIMP)	ET @	17
All A flata					-	•		
Sampler Signature:								

If possible, total drawdown will not exceed 0.33 ft.

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	

Monitor Well:		MW-7	_ Well Diameter:	4	inches
Date:	9/	10 /19	- Water Column Height:	23.51	ft
Sampling Method:		Pumped	(Measured Well Depth - Static Wat	er Level)	•
Measured Well Dep	th:	56.92	ft TOC Elevation ⁽¹⁾ :	571.76	ft
Static Water Level: (Depth to Water)		33.41	_ft GW Elevation: (TOC Elevation - Static Water Leve	538.35	ft
Maximum Drawdov (10% of WCH + SWL)	vn Depti	h 35.76	_ft	15.28 ng Volume Fac	gal ctor)

Start	Pump
Otali	i ump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9/10/19		1738					The Part of the	
		1756			3.15	21.1	6.89	416.6
		1800			2.70	21.1	6.89	411.1
250000000000000000000000000000000000000	8.0	1804			2.67	21.2	6.94	407.3
								
								10-0000
			110000					337.8.1558.1
							<u> </u>	
								1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

			L						
Sample Time:	180	8						197	
Sample Analyzed for:	Appendix III (E	Boron, Calcium,	Chloride, Fluoride	e, Sulfate, & TD	S). pH measured in	the field. Appe	ndix IV (Antii	mony, Arsenic,	
					d, Lithium, Molybde				_
Total Drawdown (ft):		1.6							П
Dřawdown/Water Column (%):		6.81%	0		Ī				
M & flil					†	INAL	DEPTH	= 35.01	
Sampler Signature:									

If possible, total drawdown will not exceed 0.33 ft.

Well Stabilization					
0.1 standard units					
within 3%					
0.1 deg. C					
<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 HILL	S AMU MC	NITOR WE	LLS				
Monitor Well:	MW-9	9			Well Diame	ter:	4	inches		
Date:	9/10/	1 9			Water Column Height: 12.31 ft (Measured Well Depth - Static Water Level)					
Sampling Method Measured Well De Static Water Leve (Depth to Water) Maximum Drawdo (10% of WCH + SWL)	epth: I:	Pumped 21.74 q. 4 5			TOC Elevati GW Elevation (TOC Elevation Well Volum	ion ⁽¹⁾ : on: 1 - Static Water Leve	480.04 470.61 8.00	ft gal		
	Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)	
Start Pump	9/10/19	1200003	11:20							
		2.0	11:28	N _L		4.08	23.1	5.90	1742	
			11:31			5.78	22.6	5.63	1698	
		4.0	11:34			2.77	22.9	5.66	1682	

Sample Time:

11:45

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

5.520/0

FINAL DEPTH = 10.11 gt

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% 0.1 deg. C temperature: 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.

Monitor Well:	MW-12	Well Diameter:	4	inche
Date:	9/10/19	Water Column Height:	11.23	ft
Sampling Method:	Pumped	(Measured Well Depth - Static Wa	ater Level)	. "
Measured Well Dep	AND AND ADDRESS OF THE PARTY OF	TOC Elevation(1):	474.19	ft
Static Water Level:	art A (GW Elevation:	4 66 . 33	ft
(Depth to Water)		(TOC Elevation - Static Water Lev		T0
Maximum Drawdov	vn Depth 8 . 98 ft	Well Volume:	7.30	gal
(10% of WCH + SWL)		(Water Column Height x Well Cas	sing Volume Fac	tor)

Start	Pump
Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9/10/19		12:14						
	2	12:24	No of Control of Control		32.9	24.2	6.59	392.5
		12:27			30.2	23.8	6.59	385.4
		12:30			32.1	23.2	6.75	388.7
	3.8	12:33			32.6	23.8	6.64	385.1
							-	
	-					-	-	
						-		
								weg.
	+					-	-	
	-		 					
						-		
LOCATION IN THE STREET WAS ASSESSED.								

Name and Address of the Owner o		The second secon			
Sample Time:	12:63				
Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluoride	Sulfate, & TDS), pH measur	red in the field. App	pendix IV (Antimony, Arsenic	
	Barium, Beryllium, Cadmium, Chromium, Coball	, Fluoride, Lead, Lithium, Mo	lybdenum, Seleniu	m, & Radium 226/228)	-
Total Drawdown (ft):	1.03				_
Drawdown/Water Column (%):	9.17 %	THE STATE OF THE S	T	D 200	
720140	***************************************		TINAL	DEPTH = 8.89	
Sampler Signature:	The state of the s				

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		Well Casing Volumes (gal/ft)					
pH:	0.1 standard units	1" = 0.041	1 1/2 " = 0.10	2" = 0.16	2 1/2" = 0.24		
conductivity:	within 3%	3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46		
temperature:	0.1 deg. C	8" = 2.61	10" = 4.08	12" = 5.87	0 - 1,40		
turbidity:	<5 NTU or 10%			12 = 0.07			

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:		M	N-1	3	Well Diameter:	4	inches
Date:	9	/10	/1	9	Water Column Height:	42.67	ft
Sampling Method: Measured Well Depth:				Pumped 106	(Measured Well Depth - Static TOC Elevation ⁽¹⁾ :	Water Level) 584.48 521.15	ft -
Static Water Level: (Depth to Water) Maximum Drawdown De (10% of WCH + SWL)	ptl	1		67.6	GW Elevation: (TOC Elevation - Static Water Well Volume: (Water Column Height x Well (27.74	gal

St	art	PI	ım	n

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	pН	Conductivity (uS/cm)
9/10/19		17:27						
	2.0	17:36			4.71	22.7	7.18	228.3
		17:39			2.76	22.2	7.26	232.0
	3.5	17:42			2.03	22.4	7.16	230.6
	 							
			1					

						THE REAL PROPERTY OF THE PARTY		
Sample Time:	17:45	5						
Sample Analyzed for:	Appendix III (B	oron, Calcium,	Chloride, Fluorid	e, Sulfate, & TD	S). pH measured in	the field. Appe	ndix IV (Antim	ony, Arsenic,
	Barium, Berylli	um, Cadmium,	Chromium, Coba	ilt, Fluoride, Lea	d, Lithium, Molybder	num, Selenium	& Radium 22	26/228).
Total Drawdown (ft):		0.	73	TO THE RESERVE OF THE PERSON O				
Drawdown/Water Column (%):		1.	71%		-	_	2	
FI JIR					-	TINAL	DEPTH	1=64.06
Sampler Signature: Y								

If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization		and the second s	Volumes (gal/ft)		
pH:	0.1 standard units	1" = 0.041	1 1/2 " = 0.10	2" = 0.16	2 1/2" = 0.24
conductivity:	within 3%	3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
temperature:	0.1 deg. C	8" = 2.61	10" = 4 08	12" = 5.87	
turbidity:	<5 NTU or 10%				

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

If possible, total drawdown will not exceed 0.33 ft.

Monitor Well:	MW-14	_	Well Diameter:	4	inches
Date:	/11/19				
Selection and the selection an		-	Water Column Height:	32.29	ft
Sampling Method:	Pumped	<u>018</u> 9	(Measured Well Depth - Static Wa	ater Level)	
Measured Well Depth:	60.97	ft	TOC Elevation(1);	593.84	ft
Static Water Level:	28.68	_ ft	GW Elevation:	565.16	ft
(Depth to Water)			(TOC Elevation - Static Water Le-	vel)	-
Maximum Drawdown Dep	oth 31.91	ft	Well Volume:	20.99	gal
(10% of WCH + SWL)			(Water Column Height x Well Cas	sing Volume Fac	ctor)

Start	PI	ım	n

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9/11/19		10.51	BETTER STORY					
	2.75	11:03			0.67	27.0	4.45	172.2
		11:06			0.83	25.4	4.91	149.6
		11:09			1.17	24.6	4.67	149.6
	4.25	W:12			1.10	24.9	4.67	148.6
	-							
							-	
						-		
***************************************							-	
					A CONTRACTOR OF THE CONTRACTOR			
						-	-	

						-		
		KO N						

Sample Time:	11:15						
Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS). pH measured in the field. Appendix IV (Antimony, Arsenic,						
Total Drawdown (ft):	Barium, Beryllium, Ca	dmium, Chromium, C	obalt, Fluoride, Lea	ad, Lithium, Molybo	denum, Selenium	, & Radium 226/228).	
Drawdown/Water Column (%):	5 - 11 - 11 - 11 - 11 - 11 - 11 - 11 - 	2.39%		- 1	F. N. I	2011	0
Politi	-				I INAL I)ерги = 29.44	f\$
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					
0.1 standard units					
within 3%					
0.1 deg. C					
<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.

DUPLICATE SAMPLE TAKEN @ THIS WELL.

Monitor Well:	onitor Well: MW-15		MW-15 Well Diameter:		4	inches
Date:	9/10/19		-	Water Column Height:	13.47	ft
Sampling Method		umped		(Measured Well Depth - Static Wa	ter Level)	
Measured Well De	-	22.74	ft	TOC Elevation(1):	488.10	_ft
Static Water Leve	· ·	9.27	_ ft	GW Elevation: (TOC Elevation - Static Water Lev	478.83	_ft
Maximum Drawdo (10% of WCH + SWL)	own Depth _	10.62	_ft	Well Volume: (Water Column Height x Well Case	9.76 ng Volume Fa	_gal ctor)

728 10	2.5
Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9/10/19		14:55						
	2.0	15:05			29.9	23.5	6.71	436.4
		15:08		Maria Maria	22.5	22.9	6.57	417.0
		15:11			24.2	23.0	6.59	419.2
	3.9	15:14			24.1	23.2	6.48	415.8
						 		····
	1					-		
						1		
	1					-	+	
				-		-	 	
***************************************	1						-	
						-	-	
		1		1				

Sample Time:	15:17					
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, Molyb	denum, Seleniur	m, & Radium 226/228).		
Total Drawdown (ft):	0.84					
Drawdown/Water Columny(%):	6.2490		FINAL	DEPTH= 10.11 ft		
Sampler Signature:						

If possible, total drawdown will not exceed 0.33 ft.

Well Stabilization			Well Casing	Volumes (gal/ft)	
pH:	0.1 standard units	1" = 0.041	1 1/2 " = 0.10	2" = 0.16	2 1/2" = 0.24
conductivity:	within 3%	3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
temperature:	0.1 deg. C	8" = 2.61	10" = 4.08	12" = 5.87	
turbidity:	<5 NTU or 10%	***************************************			

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well: MW-17			Well Diameter:	4	inches	
Date:	9/10	119				•
Sampling Method:	**************************************	Pumped	•	Water Column Height: (Measured Well Depth - Static Wat	12.63 er Level)	_ft
Measured Well Depth:		18.75	ft	TOC Elevation(1):	483.85	ft
Static Water Level: (Depth to Water)		6.12	ft	GW Elevation: (TOC Elevation - Static Water Leve	477.73	ft
Maximum Drawdown Dep (10% of WCH + SWL)	th	7.38	ft	Well Volume: (Water Column Height x Well Casin	8.21	gal stor)

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9/10/19		14:10						(40,011)
	2.0	14:51			4.18	24.0	6.50	637.4
		14:24			2.50	24.7	6.34	620.7
	3.5	14:27			2.21	24.7	6.36	622.2
						61.1	0 10	024.2
					-			
							-	
	1						-	
								lenenger in the
	-							

							-	
						CONTRACTOR OF THE PARTY OF THE		

Sample Time:	14: 34	
Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TD:	S), pH measured in the field. Appendix IV (Antimony, Arsenic.
Total Drawdown (ft):	Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lea	d, Lithium, Molybdenum, Selenium, & Radium 226/228).
Drawdown/Water Column (%):	5.94 %	
BJ 418		FINAL DEPTH = 6.87 B
Sampler Signature:	AND THE RESIDENCE OF THE PROPERTY OF THE PROPE	

If possible, total drawdown will not exceed 0.33 ft.

Well Stabilization				
0.1 standard units				
within 3%				
0.1 deg. C				
<5 NTU or 10%				

	Well Casing	Volumes (gal/ft)	
1" = 0.041	1 1/2 " = 0.10	2" = 0.16	2.4128 - 0.04
3" = 0.37	3 1/2" = 0.50	4" = 0.65	2 1/2" = 0.24
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.

Monitor Well:	OV	N-2	_	Well Diameter:	4	inches
Date:	9/10/	19	_	Water Column Height:	15. 22	ft
Sampling Method	ı.	Pumped		(Measured Well Depth - Static Water	r Level)	
Measured Well De		27.05	ft	TOC Elevation(1):	489.40	ft
Static Water Leve		11.83	ft	GW Elevation:	477.57	ft
(Depth to Water) Maximum Drawdo (10% of WCH + SWL)		13.35	ft	(TOC Elevation - Static Water Leve Well Volume: (Water Column Height x Well Casin	9.89	_gal ctor)

Sta	rt	PI	ım	n

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	pH	Conductivity (uS/cm)
9/10/19		15:39	700000 11 11 11 11 11 11 11 11 11 11 11 1					
	2	15:46			1.63	21.4	6.17	484.2
		15:49			1.54	21.4	6.06	483.6
	4.0	15:52			1.62	21.3	6.17	482.7
	+							
	-							
							+	
						-		
					1		1	1

Sample Time:	15:57	
Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS). pH me	easured in the field. Appendix IV (Antimony, Arsenic,
	Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium	n, Molybdenum, Selenium, & Radium 226/228).
Total Drawdown (ft):	1.09 1+	The same of the sa
Drawdown/Water Column (%):	7.16%	1 1 -17 971
P1 118		TINAL DEPTH = 12.92 B

If possible, total drawdown will not exceed 0.33 ft.

Sampler Signature:

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)	x vv-to-painting to the COVID OVE
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: _	CCR-2		-	Well Diameter:	4	inches
Date:	9/11/19			Water Column Height:	33.28	ft
Sampling Method:	P	umped		(Measured Well Depth - Static Water		
Measured Well Dept	h:	84.5	ft	TOC Elevation ⁽¹⁾ :	542.50	ft
Static Water Level: (Depth to Water)	_	51.22	ft	GW Elevation: (TOC Elevation - Static Water Level)	491.28	ft
Maximum Drawdow (10% of WCH + SWL)	n Depth	54.55	_ft	Well Volume: (Water Column Height x Well Casing	21.63 Volume Fact	gal or)

Start	Pump
	· amp

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9/11/19		8:16	No. of the last of	The second		Barrier St.	Kanada N	
	4.5	8:40			67.7	22.2	6.41	237.6
		8:43			59.2	22.	6.39	234.9
	5.75	8:46			56.7	22.1	6.45	229.7
		1271, 127						

Sample Time:	9:4	9						
Sample Analyzed for:	Appendix III (B	oron, Calcium, Chloric	le, Fluoride, Sulfate	e, & TDS). pH me:	asured in the field.	Appendix IV	(Antimony, Arsenic,	
	Barium, Berylliu	ım, Cadmium, Chromi	um, Cobalt, Fluorio	de, Lead, Lithium,	Molybdenum, Seler	nium, & Rac	lium 226/228).	
Total Drawdown (ft):		1.84	-1					
Drawdown/Water Column (%):		5.53%			_	_	7	
Contlin Hold	ing				+,	NAL	DEPTH = 53.	66 g
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-3	Well Diameter:	4	_ inche
Date:	9/11/19	Water Column Height:	25.13	ft
Sampling Method:	Pumped	(Measured Well Depth - Static W.	ater Level)	_"
Measured Well Dept	***************************************	TOC Elevation(1):	504.78	ft
Static Water Level:	77.87 ft	GW Elevation:	476.91	ft
(Depth to Water)	**************************************	(TOC Elevation - Static Water Le	vel)	2000
Maximum Drawdow	Depth 30.38 ft	Well Volume: (Water Column Height x Well Ca:	16 - 33 sing Volume Fa	gal actor)

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9/11/19		9:21						
	3.75	9:55		Liga .	10.0	22:7	6-34	539.4
		9:38			4.85	21.9	6.45	531.0
		9:41			4.01	21.7	6.33	525.8
	5.5	9:44			3.76	21.6	6.42	523.8
						1		
	-		-			-	-	
AND THE RESIDENCE OF THE PARTY						1		
						-	-	
	+				 		-	
			-			-	_	
			 	 	-			
							1	

Sample Time:	f:50
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. 58 4+
Drawdown/Water Column (%):	6.29%
Sampler Signature:	- 1.6740 TIMAL DEPTH = 29.45 f

if possible, total drawdown will not exceed 0.33 ft.

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.

Monitor Well:	CCR-4		Well Diameter:	4	inches
Date:	9/10/19				
		 0	Water Column Height:	27.75	ft
Sampling Method:	Pumped		(Measured Well Depth - Static W	ater Level)	* 0.00
Measured Well Depth	: 53	ft	TOC Elevation(1):	505.68	ft
Static Water Level:	25.25	ft	GW Elevation:	480.43	ft
(Depth to Water)	1.000		(TOC Elevation - Static Water Le	ivel)	-
Maximum Drawdown (10% of WCH + SWL)	Depth 28.03	<u>ft</u>	Well Volume: (Water Column Height x Well Ca	18.04	gal

Start	Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9/10/19		16:25						
	2.0	16:35			36.4	20.6	6.85	348.3
		16:36			36.4	20.7	6.90	345.5
		16:41			130.0	70.8	6.87	344.2
		16:44			189.0	21.0	6.89	343.5
		16:47			112.0	21.3	6.88	344.2
		16:50		Control Statement (Control State	72.1	20.6	6.93	344.2
		16:53			56.3	20.3	6.86	341.7
	4.5	16:56			70.9	20.5	6.89	341.7
			(A) 1					

						100000000000000000000000000000000000000		

							T	

Sample Time:	16:59					THE PERSON NAMED IN COLUMN
Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluori	de, Sulfate, & TDS).	pH measured in	n the field. Appe	endix IV (Antimi	ONV Arconic
	Barium, Beryllium, Cadmium, Chromium, Cob	alt, Fluoride, Lead, L	ithium, Molybde	enum Selenium	& Radium 22	6/228)
Total Drawdown (ft):	1.05				1 - 110000111 -	orazoj.
Drawdown/Water Column (%):	3.78%	-		T	N	-76 3
Sampler Signature:				TINA	c UEPTH	= 76.3

If possible, total drawdown will not exceed 0.33 ft.

Well Stabilization		
0.1 standard units		
within 3%		
0.1 deg. C		
<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	0 = 1.40

⁽¹⁾ Monitoring form was revised after the top-of-case (TOC) elevation was resurveyed on November 14, 2019.

Monitor Well:	CCR-5		Well Diameter:	4	_inche
Date:	9/10/19	_		2/ 11	
Sampling Method:	Pumped		Water Column Height: (Measured Well Depth - Static Wa	26 · 11 iter Level)	_ft
Measured Well Dep	th: 34.55	— ft	TOC Elevation ⁽¹⁾ :	470.46	ft
Static Water Level: (Depth to Water)	8.44	ft	GW Elevation: (TOC Elevation - Static Water Lev	1-2-0-	_ft
Maximum Drawdow (10% of WCH + SWL)	n Depth [1.05	_ft	Well Volume: (Water Column Height x Well Casi	16.97	_gal

Start Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9/10/19		1625						
	5	1651			133	22.5	5.95	1917
		1655			141	24.0	6.07	1901
		1659	130		144	23.9	6.01	1886
	10	1703	Section 1		146	23.7	6.04	1899
			1000					

Sample Time:	1706		
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,	t, Fluoride, Lead, Lithium, Molybdenum, Selenium, & Radium 226/228).	
Total Drawdown (ft):	0.541+		
Drawdown/Water Column (%):	2.078/0	FINAL DEPTH > 8.98	
Sampler Signature:			

If possible, total drawdown will not exceed 0.33 ft.

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.

Monitor Well:	CCR-	-6	_	Well Diameter:	4	inches
Date:	9/11/19		_	Water Column Height:	24.71	ft
Sampling Method:		Pumped		(Measured Well Depth - Static Wa	iter Level)	_ ''
Measured Well De	pth:	41.05	_ ft	TOC Elevation ⁽¹⁾ :	475.05	ft
Static Water Level (Depth to Water)	:	16.34	ft	GW Elevation: (TOC Elevation - Static Water Lev	4 58.71 (el)	_ft
Maximum Drawdo (10% of WCH + SWL)	wn Depth	18.81	_ft	Well Volume: (Water Column Height x Well Casi	ing Volume Fac	_gal

Pump

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9/11/19		9:38						
		9:55	×		9:16	20.1	7.13	428.2
		9;59			6.88	19.9	7.09	420.1
	10	10:03			7.16	19.8	7.10	4, 9.5
	-							

			-					
			A**					
38.88								

					Marie Toronto Company			
Sample Time:	10:09							
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):	W	1.07	,					
Drawdown/Water/Column (%):	_	4.3	3%					1741
MASHL	-					TINAL	DEP	TH = 17.41
Sampler Signature:								

If possible, total drawdown will not exceed 0.33 ft.

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.

Monitor Well:	CCR-	.7	_	Well Diameter:	4	inches
Date:	9 /11 /19		_	Water Column Height:	22.36	ft
Sampling Method:		Pumped		(Measured Well Depth - Static Wa	ater Level)	- ' '
Measured Well Dep	th:	63.05	– ft	TOC Elevation ⁽¹⁾ :	527.10	ft
Static Water Level:		40.69	ft	GW Elevation:	487.01	ft
(Depth to Water)				(TOC Elevation - Static Water Lev		
Maximum Drawdow	n Depth	42.93	ft	Well Volume:	14.63	gal
(10% of WCH + SWL)		8	-	(Water Column Height x Well Cas	ing Volume Fac	ctor)

Start Pump	Start	Pump
------------	-------	------

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity (uS/cm)
9 111/19		10:56						
		(1:17			4.59	22.0	6.14	403.9
		11:21			4.26	22.0	6.10	39 7. 8 3 ^{99.} 6
	11.0	u:25			4.28	22.0	6.13	399.6
								17 000000 12 000 41000470
	-							
	-							
	-							
	-							
	+							
	+							
	-							
	+							
	-							
	-							

Sample Time: Sample Analyzed for:	Appendix III (Boron, Calcium, Chloride, Fluoride, Sulfate, & TDS	S). pH measured in the field. Appendix IV (Antimony, Arsenic,
	Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead	d, Lithium, Molybdenum, Selenium, & Radium 226/228).
Total Drawdown (ft):	1.38	
Drawdown/Water/Column (%):	6.17 %	FINAL DEPTH = 42.07
Sampler Signature:		

If possible, total drawdown will not exceed 0.33 ft.

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		

Monitor Well:	CCR-8		Well Diameter:	4	_inches
Date:	9/10/19		Water Column Height:	41.39	_ft
Sampling Method:	Pumped		(Measured Well Depth - Static Wa	ater Level)	
Measured Well Depth:	85	ft	TOC Elevation ⁽¹⁾ :	505.65	_ft
Static Water Level:	43.61	ft	GW Elevation:	462.04	ft
(Depth to Water)			(TOC Elevation - Static Water Lev	vel)	- n
Maximum Drawdown D	Depth 47.75	ft	Well Volume:	26.90	gal
(10% of WCH + SWL)	-		(Water Column Height x Well Cas	sing Volume Far	ctor)

Start	Pump
Otart	1 unip

Date	Volume Purged (L)	Time	Elapsed Time (min)	Water Level (ft)	Turbidity (NTU)	Temp (C)	рН	Conductivity _M S (uS /cm)
9/10/19		11:32		CONTRACTOR OF THE PARTY OF THE	DE LOS SELECTIONS			
	g. 0	11:54			10.0	21.2	8.81	2.37
		11:68			10.5	21.0	8.79	2.39
	10.0	12:02			9.7	21.0	8.86	2.36

Sample Time: Sample Analyzed f	or:		0 5 Boron, Calcium,	Chloride, Fluoride	, Sulfate, & TDS	S). pH measured in t	the field. Apper	ndix IV (Antin	mony, Arsenic,
		Barium, Berylli	um, Cadmium,	Chromium, Cobal	t, Fluoride, Lead	d, Lithium, Molybden	um, Selenium,	& Radium 2	26/228).
Total Drawdown (f	t):		2.91		157.5%		_	`	111 63
Drawdown/Water			7.03	°/ ₀		i s	FINAL	DEPTH	. 46 . 52
Sampler Šignature	:								

If possible, total drawdown will not exceed 0.33 ft.

Well Stabilization pH: 0.1 standard units conductivity: within 3% temperature: 0.1 deg. C									
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									

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)

							Моі	nitoring 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
						Pre	diction Limi	t = 0.002, GV	VPS = 0.010							

⁽¹⁾ Appendix IV constituent not required to be monitored during detection 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															

⁽²⁾ Constituent not previously detected; therefore, not included in further assessment monitoring.

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.

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.

⁽²⁾ Appendix III constituent not required to be monitored during the annual assessment monitoring event.

Cadmium (Cd) 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	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															

Chloride (CI) Monitoring Results (mg/L)

							,	<u> </u>								
							Moi	nitoring Wel								
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															39.6	
							Prediction	n Limit = 26	.6034							

⁽¹⁾ Appendix III constituent not required to be monitored during initial assessment monitoring event.

Chromium (Cr) Monitoring Results (mg/L)

							Mor	nitoring 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
						Pr	rediction Lin	nit = 0.001, G	WPS = 0.1							

⁽²⁾ Appendix III constituent not required to be monitored during the annual assessment monitoring event.

Cobalt (Co) Monitoring Results (mg/L)

							(,		` `	,						
							Moi	nitoring 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
	•	•	•	•		Pre	diction Limi	t = 0.001, G\	VPS = 0.006	•			•			

Fluoride (F) Monitoring Results (mg/L)

							Mor	nitoring 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
						Р	rediction Lir	nit = 0.30, G	WPS = 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)

							a ()	intorning ive	Juite (iiig, E	• •						
							Moi	nitoring Wel								
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
						Pre	diction Limi	it = 0.001, G\	VPS = 0.015							

Lithium (Li) Monitoring Results (mg/L)

							Mor	nitoring 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
	•		•			Pre	diction Limi	t = 0.050, G\	VPS = 0.050	•				•		

Mercury (Hg) Monitoring Results (mg/L)

							Mor	nitoring Well	<u>, </u>							
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	-	-
						Pre	diction Limi	t = 0.002, G\	VPS = 0.002							

⁽¹⁾ Appendix IV constituent not required to be monitored during detection monitoring.

Molybdenum (Mo) Monitoring Results (mg/L)

							()		,	<u> </u>						
							Moi	nitoring 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
	•		•			Pro	diction Lim	it = 0.001 G	NPS -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.

⁽²⁾ Constituent not previously detected; therefore, not included in further assessment monitoring.

Selenium (Se) Monitoring Results (mg/L)

							(,									
							Mor	nitoring 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
						Pre	ediction Lim	it = 0.001, G	WPS = 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)

							,	<u> </u>	(<u>9</u>	,						
							Moi	nitoring Wel								
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	n 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 (TI) Monitoring Results (mg/L)

							(11)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		-,						
							Moi	nitoring Wel								
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⁾	-	-	-	-				-	-	-	-	-	-	-		<u>-</u>
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	-	-
						Pre	diction Limi	t = 0.001. G\	VPS = 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)

							Moi	nitoring Wel								
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
							Predictio	n 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.)

F																
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 (nCi/L) (1)

Radium 226 and 228 Combined (Ra) 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



MW-6

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.

MW-13



Corporate Office:

P.O. Box 356 (282 Third Ave) Sherman, MS 38869 Office: (662) 840-5945 (662) 840-5965 Fax:

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Jackson, MS Ocean Springs, MS 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 60day extension to the assessment of corrective measures is warranted. This extension is deemed necessary for the following reasons:

- 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

3372

MIS

State of Mississippi

March 1, 2019

Date Signed

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











ECS SAFETY, INC.

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TABLE OF CONTENTS

		<u>F</u>	age
1.0	ALTER	NATE SOURCE DEMONSTRATION (ASD) CERTIFICATION	1
2.0	EXECU	TIVE SUMMARY	2
3.0	SITE DI	ESCRIPTION	3
	3.1	Site Geology	3
		Site Hydrogeology	
4.0	GROUN	NDWATER MONITORING SYSTEM	5
		undwater Monitoring Well Network	
	4.2 Cons	stituents Detected at SSLs in Groundwater	5
5.0	ALTER	NATE SOURCE DEMONSTRATION	7
	5.1 I	Liner System	7
	5.2	Constituents Naturally Occurring in Subsurface Soils	7
6.0	CONCL	USION	10
7.0	REFER	ENCES	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	17/18/7619 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.

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 Tuscahoma 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:

Ш	Lithium concentrations	have been	detected a	at SSLs	above the	e GWPS	of 0.050	mg/L in	CCR-3,
	CCR-8, and MW-9.								
П	Cobalt concentrations I	nave been	detected a	at SSIs	above the	GWPS	of 0.006	ma/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

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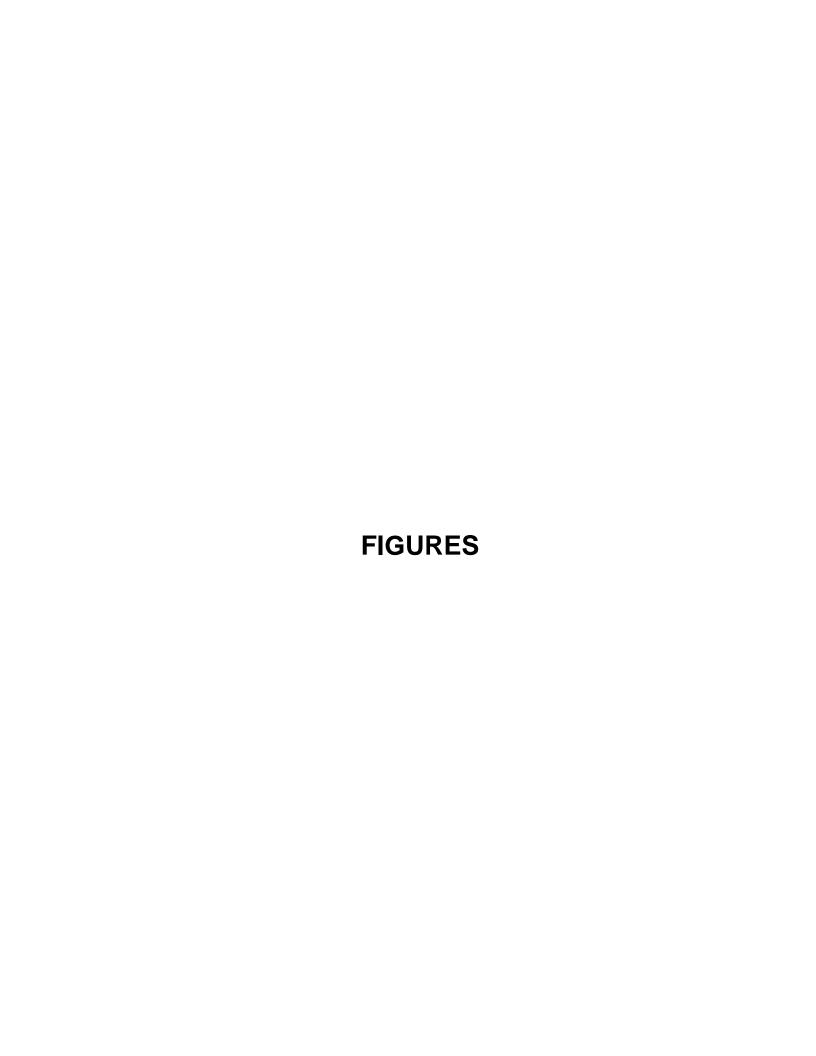
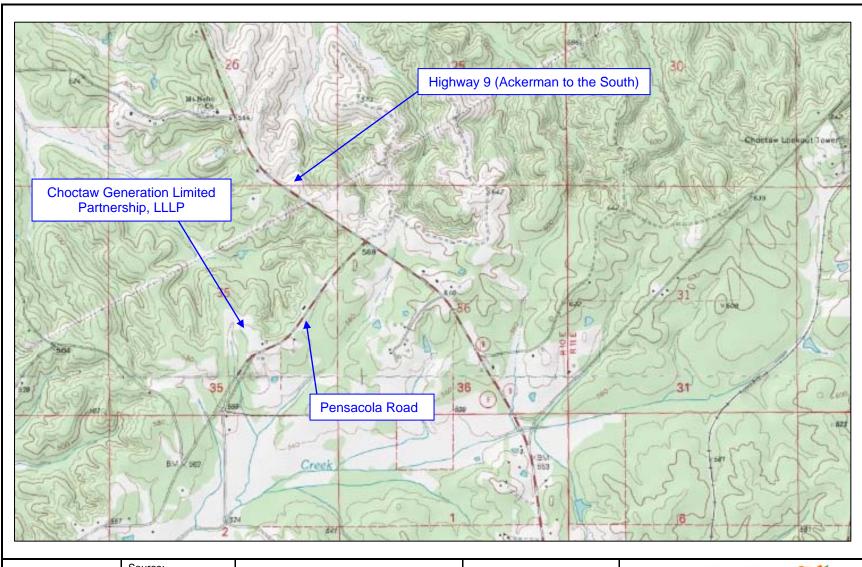


FIGURE 1

SITE LOCATION MAP





Source: Mytopo.com

<u>Legend</u>: N/A Drawn By/Checked By: CBG

Date: 11/01/2019

Choctaw Generation Limited Partnership, LLLP 2391 Pensacola Road Ackerman, Mississippi 39735

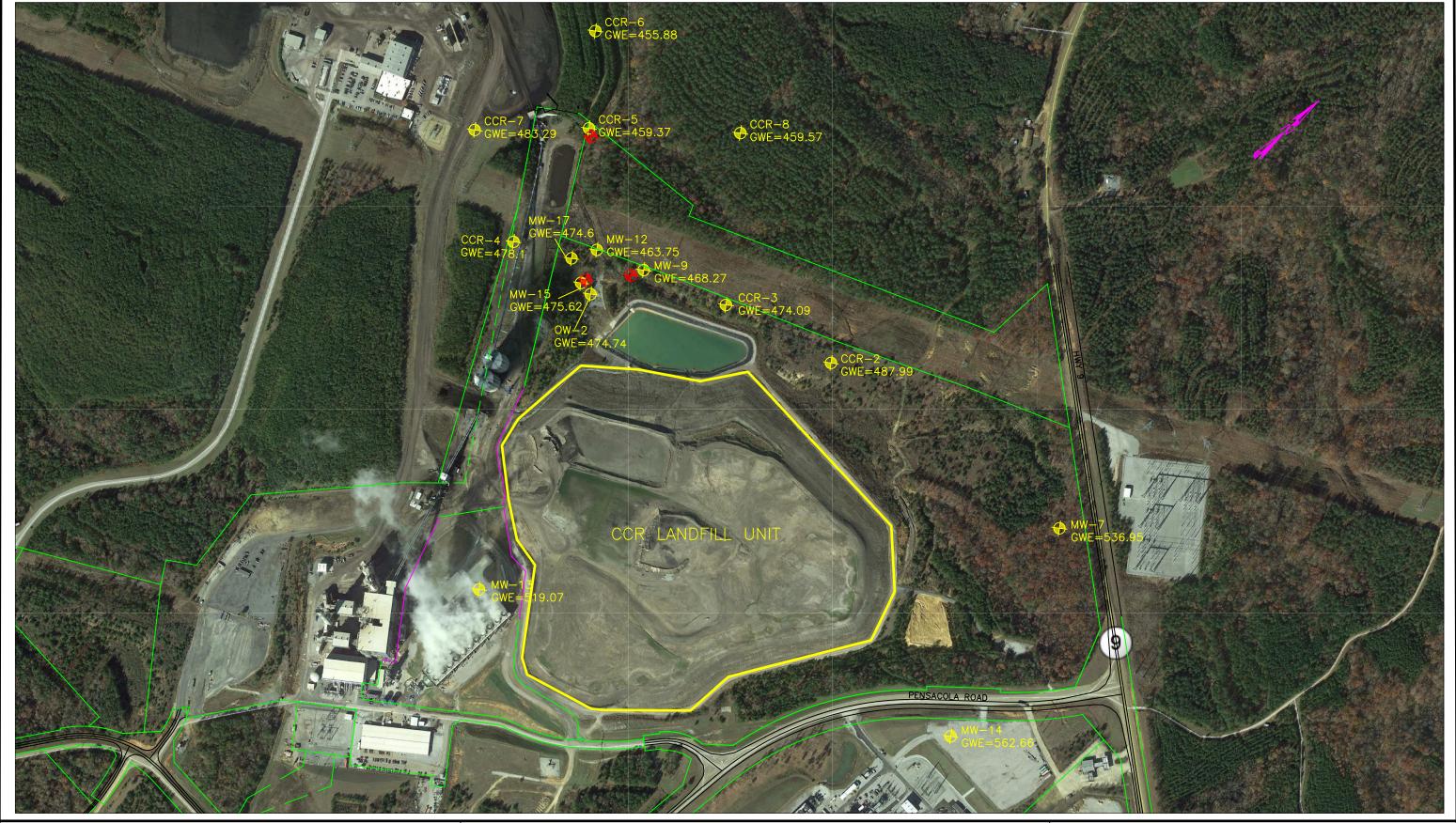
Figure 1: Site Location Map



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

FIGURE 2

CCR MONITORING WELL LOCATIONS





Choctaw Generation Limited Partnership, L.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

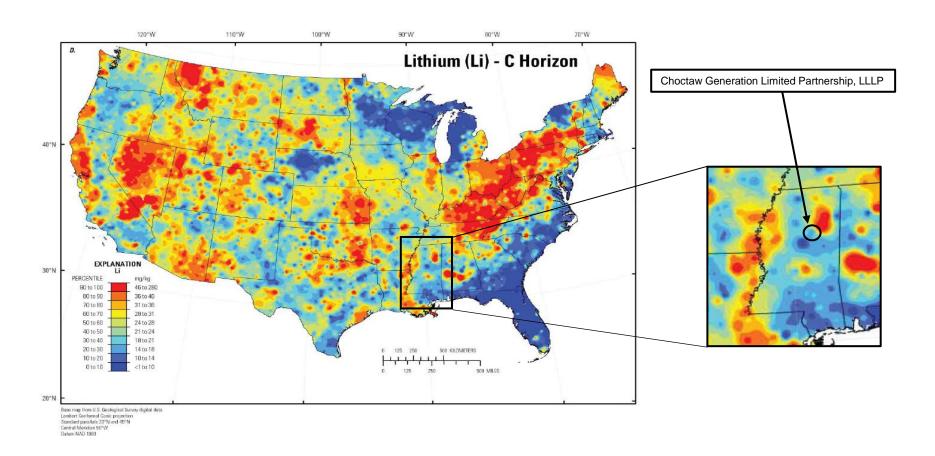


Figure 3. USGS Geochemical Map for Lithium

FIGURE 4

USGS GEOCHEMICAL MAP FOR COBALT

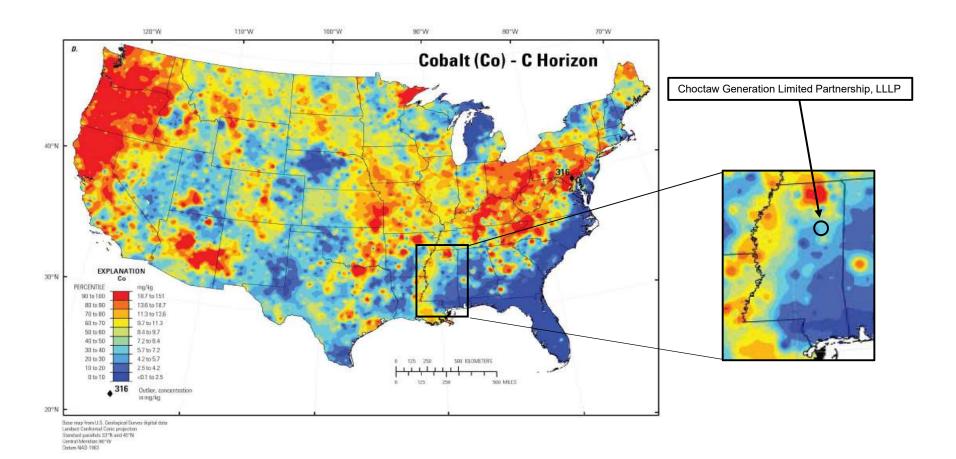


Figure 4. USGS Geochemical Map for Cobalt

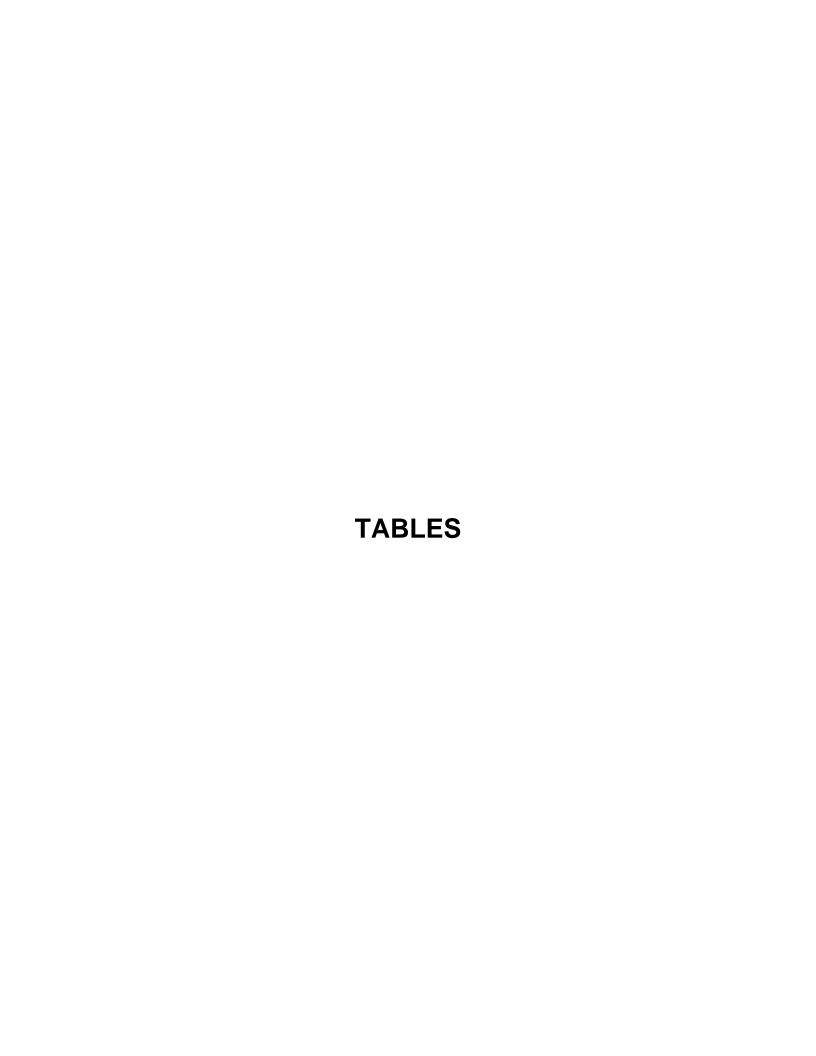


Table 1

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) Monitorin	g Results (ı	mg/L) – GW	PS = 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
					E	Beryllium (B	Be) Monitori	ng Results	(mg/L) – G	WPS = 0.00	4					
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)
	7	Gray Tan Sand with Blocky Clay (wet)	6.15	8.30	ND	ND
SB-CCR5	SB-CCR5 10 Ta	Tan Gray Clay with Silt	12.5	ND	ND	ND
(Hear CCR-5)	18	Lignite	3.31	11.4	3.52	ND
CD MINO	10	Gray Brown Clayey Sand (Damp)	6.43	7.40	ND	ND
SB-MW9	14	Gray Brown Silty Sand (Wet)	4.89	ND	ND	ND
(near MW-9)	18	Dark Gray Fat Clay	21.8	16.4	ND	ND
CD MW47	6	Lignite	10.2	15.4	8.93	ND
SB-MW17 (near MW-17)	13	Gray Clayey Silt	13.0	11.0	ND	ND
(lieal WW-17)	19	Gray Clayey Silt	16.1	10.6	ND	ND

bgs - below ground surface

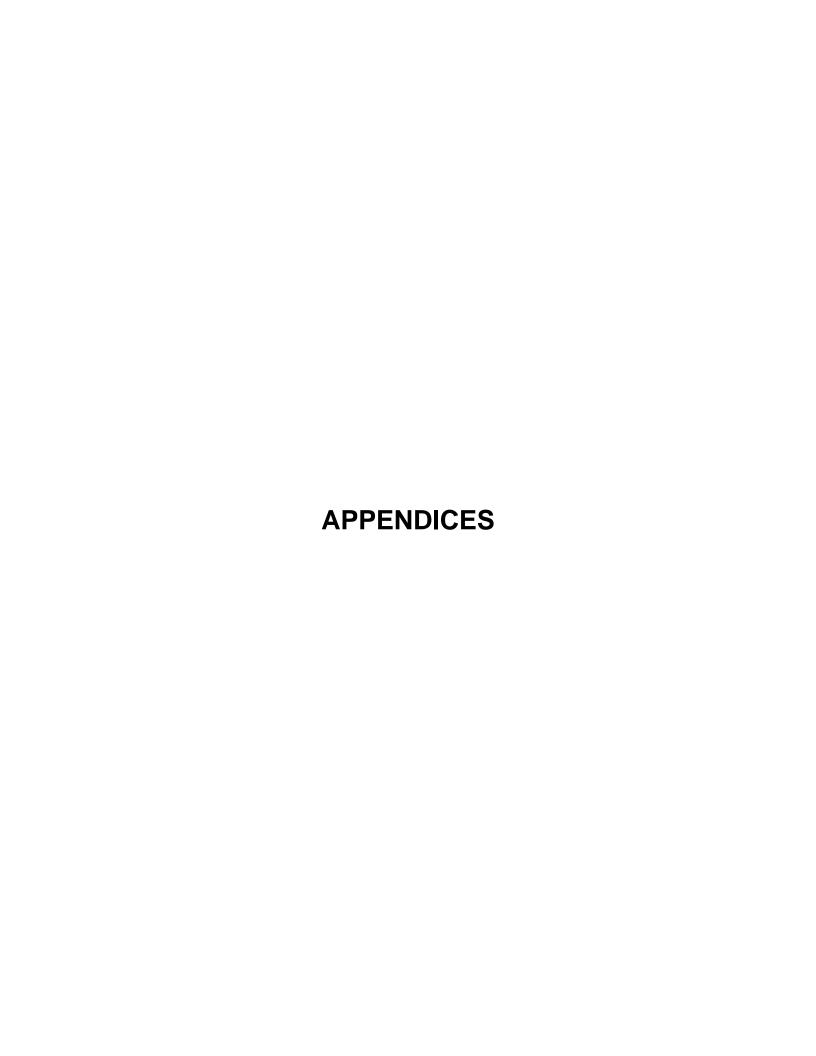
Table 3 **Groundwater pH Measurements – Downgradient Wells**

	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													
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.



APPENDIX A

SOIL SAMPLING FIELD NOTES

Boring No.:	SB-CC	R5		Date:	10/29/19
Description:	Soil Samp.	Ing Event at Chocs	LowGenn	Lon	
Latitude: Longitude:	MC/III/ Mun			-	
Soil Boring Metho	odology:	Derut Post Geop	-051		-
Soil Boring De	epth (e.g., 0-4 ft)	Soil Classification	PID Readin	ıgs (ppm)]
0-4		Gray Silt with Clay]
6-9		Brown Sanzy Clay	11 (1 (1	107	-
9-11		+ 1 1	So) +	(+67)	-
11-12		Tun bray Clay with			
12-15		T 1 1 11 11 11	u/		
15-16		Black Sliff Fat Clay	1		
16-18		Lignite			
Soil sample collection Sample collection Analytical testing	ction depth (ft): time: and sample contair	7, 10, 18 ner type:			
Groundwater sam Purge method:	ple collected (yes/r	Ves depth (ft): NO A	7'		
Sample collection Analytical testing a	time: and sample contain	date: ner type:	NA		
Comments:	(fusil@ 18	/			
			1		

KI A SILLA

Boring No.:	8-MW9		_		Date:	10/29
Description:	oil San	Uhy Even	+ at Chock	ou General	504	
Latitude:	ic fine 7 - 4	7 17	_		-	
Soil Boring Methodolo	gy:	Direct F	201 Geoprol	1		-
Soil Boring Depth	(e.g., 0-4 ft)	Soil CI	assification	PID Readin	ngs (ppm)	_
0-2		Orange	San Ly Clay			
2-4		Brown CI	ay not Sand]
4-8		Brown Le	on Claynith S	and		
8-12		Gray Brow	in Clayer Sant	Dampe 10	,/)	
12-14		Gray Brown	Silty Sun 2	(wet e14	()	
14-17		Postlybra)	al Soul with	s. It		1
17-20		Dork Gro	y tat () an)			1
			, ,			1
*						1
]
Soil sample collection of Sample collection time Analytical testing and s	:	10',19',18 ner type:				
Groundwater encounte Groundwater sample c Purge method:	ollected (yes/i	Jes no): A	depth (ft):	141	r.	-
Sample collection time: Analytical testing and s			date:	MA	8	
Comments:						

MA Heles

Boring No.: SB-MW17		Date:	10/29/19
Description: Soil Sumpling Action has	Event of Charton 6	invition	•
Latitude: Longitude:			
Soil Boring Methodology:	Direct Post Teoproba		
Soil Boring Depth (e.g., 0-4 ft)	Soil Classification	PID Readings (pp	m)
0-4	Orange Tan Lean Clust		
4-6	Lignite		
6-8	Gray Lean Clay	- 11	
10-12	Gray Lean Cluy with	silt	_
12-13	Gray Clayers:1+		
13-14	Drunge Tan Silt		
14-16	Gray Sill Danselb)	
16-20	Gruy Clayey Silt (Weta	(18,)	
	, , ,		
Soil sample collection depth (ft): Sample collection time: Analytical testing and sample contain	6, 13, 19		
Groundwater encountered (yes/no): Groundwater sample collected (yes/no)	depth (ft):	18'	
Purge method: Sample collection time:	1/1/	111	
Sample collection time: Analytical testing and sample contain	A/A date:	10/17	
The sample contain		-	
Comments:			_
	Λ. Ι.		

HA Shlo

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

Choctaw Generation LP 2391 Pensacola Rd.

Ackerman, MS 39735

RE: Choctaw Gen Soil

Work Order #: 1910642

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.

Hany P. Howell



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.





Project: Choctaw Gen Soil

Project Number: [none]
Project Manager: Jim Ward

Reported: 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] Reported:
Project Manager: Jim Ward 11/13/2019 10:08

Sample Receipt Conditions

Date/Time Received: 10/31/2019 9:00:00AM

Received by: Sarah E. Tomek

Date/Time Logged: 10/31/2019 9:12:00AM

COC meets acceptance criteria

Cooler ID: client cooler

Shipped by: Fed Ex

Submitted by: Kirk Shelton

Logged by: Sarah E. Tomek

Receipt Temperature: 1.6 °C

Cooler Custody Seals Present	Yes	Received on Ice but Not Frozen	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 Rejected/Documented in Log	No	Adequate Sample for Analysis	Yes
Temp Taken From Temp Blank	No	Sample Custody Seals Present	Yes
Temp Taken From Sample Container	Yes	Samples Missing from COC/Cooler	No
Temp Taken From Cooler	No		

Yes



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





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 Me	thods 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 Me	thods ICP-MS	[Analysis	s 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	II .	"	"	ADB			"	
Molybdenum [He]	ND	5.00	"	"	"	ADB			"	





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 Me	ethods ICP-AES	<u> </u>								
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 Me	ethods ICP-MS	[Analysi:	s 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	"	"	II .	ADB			"	





Project: Choctaw Gen Soil

Project Number: [none]
Project Manager: Jim Ward

Reported: 11/13/2019 10:08

SBCCR5-7

1910642-03 (Soil)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Metals by EPA 6000 Series Mo	ethods ICP-AES	3								
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 Me	ethods ICP-MS	[Analysis	s 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			TI .	





Project: Choctaw Gen Soil

Project Number: [none]
Project Manager: Jim Ward

Reported: 11/13/2019 10:08

SBMW9-18

1910642-04 (Soil)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Metals by EPA 6000 Series Mo	ethods ICP-AES	3								
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	
Metals by EPA 6000 Series Me	ethods ICP-MS	[Analysi	s 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				



Reported:

11/13/2019 10:08



Choctaw Generation LP 2391 Pensacola Rd. Ackerman MS, 39735

Project: Choctaw Gen Soil

Project Number: [none]
Project Manager: Jim Ward

SBMW9-14

1910642-05 (Soil)

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Metals by EPA 6000 Series	Methods ICP-AES	1								
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	
Metals by EPA 6000 Series	Methods ICP-MS	[Analysi	s 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	"		II .	
Molybdenum [He]	ND	5.00	"	"	m .	ADB			II .	





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
Metals by EPA 6000 Series	Methods ICP-AES	3								
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	
Metals by EPA 6000 Series	Methods ICP-MS	[Analysi	s 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	"		"	



Reported:

11/13/2019 10:08



Choctaw Generation LP 2391 Pensacola Rd. Ackerman MS, 39735

Project: Choctaw Gen Soil

Project Number: [none]
Project Manager: Jim Ward

SBMW17-6

1910642-07 (Soil)

Analyta	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
Analyte		IVITAL	Ullis	ווט	Datel	Allalyst	- roparcu	, iiidiy200	ivietriod	Qualifiers
Metals by EPA 6000 Serie	es 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 Serie	es Methods ICP-MS [Analysi	s 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	u	"	"	ADB	"		"	
Molybdenum [He]	ND	5.00	"	5.0	"	ADB	"	11/11/2019 15:22	"	





Project: Choctaw Gen Soil

Project Number: [none]
Project Manager: Jim Ward

Reported: 11/13/2019 10:08

SBMW17-13

1910642-08 (Soil)

							Date Time	Date Time		
Analyte	Result	MRL	Units	Dil	Batch	Analyst	Prepared	Analyzed	Method	Qualifiers
Metals by EPA 6000 Series I	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 I	Methods ICP-MS	[Analysi:	s 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			II .	





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
Metals by EPA 6000 Series Me	thods ICP-AES	3								
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	
Metals by EPA 6000 Series Me	thods 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			n n	



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: 1910	642-01							
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: 1910	642-01							
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	

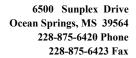


Project: Choctaw Gen Soil

Project Number: [none] Reported:
Project Manager: Jim Ward 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: 1910	0642-01							
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: 1910	0642-01							
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	





Project: 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	
SW 6010C in Soil		
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**



Project: Choctaw Gen Soil

Project Number: [none]
Project Manager: Jim Ward

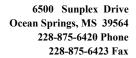
Reported: 11/13/2019 10:08

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





Choctaw Generation LP Project: Choctaw Gen Soil

2391 Pensacola Rd. Project Number: [none] Reported:
Ackerman MS, 39735 Project Manager: Jim Ward 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



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

Chain of Custody Record

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

M-M Lab

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Chockaw (seneration Limited Limited Manager	Project Manager: Jaw Wowd	Turn Around Time & Reporting
2391 Pensayola Rd.		ur normal turn around time is 10 working d
cherman	Email Address :	requests must be
662-387-5758	Sampler Name Printed: Kirk Shallhow	
rdx.	Sampler Name Signed:	OC Level: Level 1
	List Analyses Requested	
Project Name: Chilictaw (Jen. So:1	servative:	D# ID# ID# Matrix:
		rield lest Field Test Field Test W = Water DW = Drinking
Sample Identification Sampling Matrix Date/Time Code	Grab (Composition Color Lithing Berg	S = Solid SO = Solid
1-577	× ×	SE = Sediment
85:11 61762101	- G × ×	A = Air
10/29/19 11·77		SI = Sludge
10/29/19 13:36	- 6 ××××	
SEWIN - 10 11/2/14 13:45 00	~ × × × ×	
16 19 19 19 19 19 19 19 19 19 19 19 19 19		Preservation:
17-13 10/21/11 (5:3)	5 6 × 7 × 7 × 7 × 7 × 7 × 7 × 7 × 7 × 7 ×	1= H2S04 2= H3P04
56MW17-19 10/2914 15:12 50	- 6 × × × ×	3=NaOH 4=ZnC4H10O6
		S=ZnC4H1006 & NaOH
Received on Ice Y / N Thermometer# + Cooler #	Receipt Temp Corrected(°C)	7=Na25203
Pate & Time By:	٦	**All Temps are Corrected Values**
Printed Name	Signature Company Date Time	Notes:
The take the second	12 July 10/20/14/12:80	Jan My Jr. Mic wis I colk.
received by tect to tent to		
telinquished by		
teceived by AMM TRMIN SMM	In tome mm insula and	
telinquished by		
eceived by		
CN# F316 Rev.#5 Physical A	Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564	

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Print Form