

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

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## 1.0 INTRODUCTION

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### 1.1 SITE DESCRIPTION AND REGULATORY APPLICABILITY

The Choctaw Generation Limited Partnership, LLLP – Red Hills Operations (Red Hills) is located near the City of Ackerman in Choctaw County, Mississippi. Red Hills is in north central Mississippi on a 170-acre site. Red Hills 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. Red Hills 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. Red Hills 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 on Figure 2. The CCR unit encompasses approximately 90 acres of the Red Hills 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
- ☐ Begin evaluating the 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 Red Hills groundwater monitoring system was completed in accordance with the groundwater monitoring performance standards of §257.91 by June 2016. The initial Red Hills 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 and is available in the Red Hills 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**

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

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

- ☐ A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;
- ☐ Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;
- ☐ In addition to all the monitoring data obtained under §§257.90 through 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;
- ☐ A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and
- ☐ Other information required to be included in the annual report as specified in §§257.90 through 257.98.

To comply with the requirements above, a map of the CCR unit and all upgradient and downgradient monitoring wells that are part of the groundwater monitoring system are shown on Figure 2. A discussion of the current monitoring well system and any monitoring wells installed or decommissioned is provided in Section 2.0. A summary of the monitoring data obtained during the annual reporting period is provided in Section 3.0. Section 4.0 contains a narrative discussion of the status and any transition between monitoring programs (i.e., detection monitoring versus assessment monitoring) and the reason such monitoring program is in place. Section 5.0 presents additional information required by §§257.90 through 257.98 to be included in the Annual Report and which is not already addressed in the prior sections. Finally, Section



6.0 summarized actions completed during the reporting year and projects key activities planning for the following reporting year.

### 1.3 PROFESSIONAL ENGINEER CERTIFICATION

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



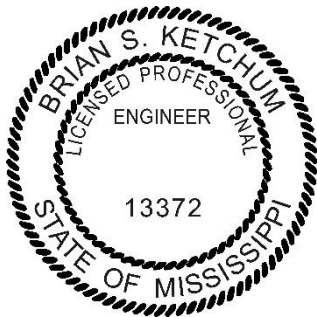
1/30/2019

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

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Date Signed



(Seal)

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## 2.0 GROUNDWATER MONITORING SYSTEM

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### 2.1 CURRENT GROUNDWATER MONITORING SYSTEM

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

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

The groundwater monitoring system must include a minimum number of monitoring wells necessary to meet the performance standards and information specified above. The direction of groundwater flow through the CCR unit is to the north-northwest, which has been consistently determined through ongoing solid waste permit groundwater monitoring events. The locations for the monitoring wells were based upon the known direction of groundwater movement. The monitoring wells screen the uppermost laterally continuous aquifer below the base of ash fill. The base of ash fill is at an approximate elevation of 480 feet mean sea level (msl). The zone is screened and monitored is 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 Red Hills CCR unit groundwater monitoring system consists 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 90 acres. An additional downgradient well was added in August 2018 as discussed further in Section 2.2. 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**

<b>Well No.</b>	<b>Background or Down-gradient</b>	<b>Elevation (ft)</b>	<b>Well Depth (ft)</b>	<b>Well Dia. (inches)</b>
CCR-2	Downgradient	539.90	84.50	4
CCR-3	Downgradient	502.60	53.00	4
CCR-4	Downgradient	504.00	52.90	4
CCR-5	Downgradient	467.81	32.0	4
MW-7	Background (Upgradient)	572.62	56.92	4
MW-9	Downgradient	480.96	21.74	4
MW-12	Downgradient	475.00	19.09	4
MW-13	Background (Upgradient)	563.00	106.00	4
MW-14	Background (Upgradient)	595.00	60.97	4
MW-15	Downgradient	487.61	22.74	4
MW-16	Downgradient	489.05	21.74	4
OW-2	Downgradient	489.10	27.05	4

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**

A new monitoring well was installed on August 28, 2018, and identified as CCR-5. The CCR-5 well was installed downgradient from the CCR unit at the facility boundary in the direction of contaminant migration to meet the requirements of 40 CFR 257.95(g)(1)(iii). This well was installed to help assess the nature and extent of groundwater contamination as a result of concentrations of cobalt and lithium exceeding the groundwater protection standards in some downgradient wells.

## **2.3 MONITORING WELL DECOMMISSIONING**

During the annual reporting period, no existing monitoring wells were decommissioned.



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## 3.0 GROUNDWATER MONITORING DATA

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### 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**

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

**Table 3-2: Appendix IV Constituents**

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

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

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

### 3.2 GROUNDWATER ELEVATION AND FLOW

Groundwater elevation is measured in each monitoring well immediately prior to purging each time groundwater is sampled. Table 3-3 provides a summary of the groundwater elevation recorded for each well during each of the monitoring events. A potentiometric surface map was developed for each monitoring event based on the measured static water levels and the top-of-case (TOC) elevations. Also, the rate of groundwater flow is determined for each event and the direction of flow is summarized in the table and provided on the potentiometric surface maps included in Appendix A. Groundwater flow velocity ( $v$ ) is estimated using the hydraulic conductivity ( $K$ ) of the groundwater zone, the effective porosity ( $\eta_e$ ), 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  $1.0 \times 10^{-6}$  cm/sec, and in many cases  $1.0 \times 10^{-8}$  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  $2.0 \times 10^{-5}$  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 2018 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 to 1.4 feet per year based on the 2018 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, groundwater protection standards were established per the requirements of §257.95(d)(2) for Appendix IV constituents and are compared to current and future sampling results.

The first detection monitoring event conducted February 6-7, 2018, resulted in SSI for the following Appendix III constituents at the well locations noted below:

- Chloride: MW-9, MW-12, MW-16, and OW-2
- Fluoride: MW-9 and OW-2
- Sulfate: CCR-3, MW-9, MW-12, MW-16, and OW-2
- Total Dissolved Solids (TDS): CCR-3, MW-9, and MW-16.

Due to these SSI, assessment monitoring was triggered and an initial assessment monitoring event for all Appendix IV constituents was conducted on May 15-16, 2018. This event resulted in SSI for the following Appendix IV constituents at the well locations noted below:

- Antimony: CCR-2
- Barium: MW-12
- Beryllium: MW-9
- Cadmium: MW-9
- Chromium: MW-16
- Cobalt: CCR-4, MW-9, MW-12, MW-15, and MW-16
- Fluoride: CCR-3, CCR-4, MW-9, MW-15, MW-16, and OW-2
- Lithium: CCR-3 and MW-9



An additional downgradient well was installed at the property boundary in accordance with §257.95(g)(1)(iii) and groundwater protection standards were established per the requirements of §257.95(d)(2). A second assessment monitoring event was conducted on September 10-11, 2018, which included sampling at the new property boundary well, CCR-5. During this monitoring event, all Appendix III constituents and those Appendix IV constituents detected during the initial assessment monitoring event were analyzed. The results of this second event were compared to the groundwater protection standards. The following Appendix IV constituents exceeded the groundwater protection standards at the well locations noted below for this monitoring event:

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

Antimony and chromium detected during the first assessment monitoring event were only detected at one well at the minimum reporting level for the test method. Subsequent sampling of these two parameters revealed no detections at any wells, so the increases were not verified, and there were no detections of these constituents in any wells during previous monitoring. 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 groundwater protection standards and have shown decreasing trends in most wells. Beryllium and cadmium were detected in MW-9 during both assessment monitoring events. Neither constituent has been detected in any other well, and the detected levels in MW-9 are below the groundwater protection standards, which are only 4 parts per billion (ppb) and 5 ppb for beryllium and cadmium, respectively. Fluoride has 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 groundwater protection standard, with trends varying across the wells.

Cobalt exceeded the groundwater protection standards during the assessment monitoring events in five (5) downgradient wells, including MW-9, MW-12, MW-15 MW-16 and the recently installed boundary well CCR-5. Cobalt has been prevalent in these wells, including the background sampling. Lithium exceeded the groundwater protection standards in only two (2) wells – CCR-3 and MW-9 – for both assessment monitoring events. These wells only recently saw measurable detections of lithium. No other monitoring wells, upgradient or downgradient, have detected lithium.

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

Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2	Flow Rate	Flow Direction
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
<b>Detection Monitoring</b>														
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
<b>Assessment Monitoring</b>														
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

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## **4.0 DETECTION AND ASSESSMENT MONITORING**

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Red Hills 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 Red Hills 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, Red Hills triggered the Assessment Monitoring Program under §257.95. Red Hills completed initial assessment monitoring for all Appendix IV constituents on May 15-16, 2018. Because two constituents were detected at statistically significant levels exceeding their respective groundwater protection standards, an additional monitoring well was installed in accordance with §257.95(c)(1)(iii), and a second assessment monitoring event was completed on September 10-11, 2018, to analyze for all Appendix III constituents and ten (10) Appendix IV constituents detected in the initial assessment monitoring event. The next sampling event required by the Assessment Monitoring Program (§257.95) will occur in March 2019. This event will include sampling for the Appendix III and detected Appendix IV constituents at the upgradient and downgradient wells.

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, Red Hills may return to detection monitoring. If the concentrations of any Appendix III or IV constituent is above the background values, but



all concentrations are below the groundwater protection standards, Red Hills must continue assessment monitoring. If one or more Appendix IV constituent is detected at statistically significant levels (SSL) above the groundwater protection standard in any monitoring event, Red Hills must implement correction actions. Due to statistically significant levels of cobalt and lithium, Red Hills will continue assessment monitoring on a semiannual basis and will also initiate corrective actions.

Groundwater protection standards 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 groundwater protection standards (GWPS) established under §257.95(d)(2) are included as Appendix D of the Annual Report.

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## **5.0 ADDITIONAL INFORMATION**

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### **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. Red Hills 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). Red Hills 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, Red Hills 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, Red Hills 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, Red Hills must continue monitoring in accordance with the detection or assessment monitoring program, as applicable. Red Hills must also include the demonstration in the Annual Report, as well as the certification by a qualified professional engineer. *With this Annual Report, Red Hills is not demonstrating at this time that a statistically significant increase (SSI) resulted from another source or resulted from any error.*

### **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 groundwater protection standard. 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, Red Hills is not requesting additional time to assess corrective measures, since such assessment was not required during the period covered by the report.*

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## **6.0 CONCLUSION**

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### **6.1 SUMMARY OF KEY ACTIONS COMPLETED**

During the reporting period, initial sampling under the Detection Monitoring Program was completed on February 6-7, 2018, which resulted in SSI's for various constituents and triggered the Assessment Monitoring Program. The initial assessment monitoring event was completed on May 15-16, 2018, and groundwater protection standards were established for those Appendix IV constituents detected and then compared to results from this initial event to determine if the SSI was verified. As required, an additional well (CCR-5) was installed in August 2018 at the property boundary in order to further characterize the nature and extent of the contaminant plume. The second assessment monitoring event was completed on September 10-11, 2018, which included the property boundary well, CCR-5. Based on the results of the two assessment monitoring events, SSL's for cobalt and lithium were verified as exceeding the groundwater protection standards. Both a notification establishing the Assessment Monitoring Program and a notification of exceedances of the groundwater protection standards were placed in the operating record, sent to the State Director, and posted to the website.

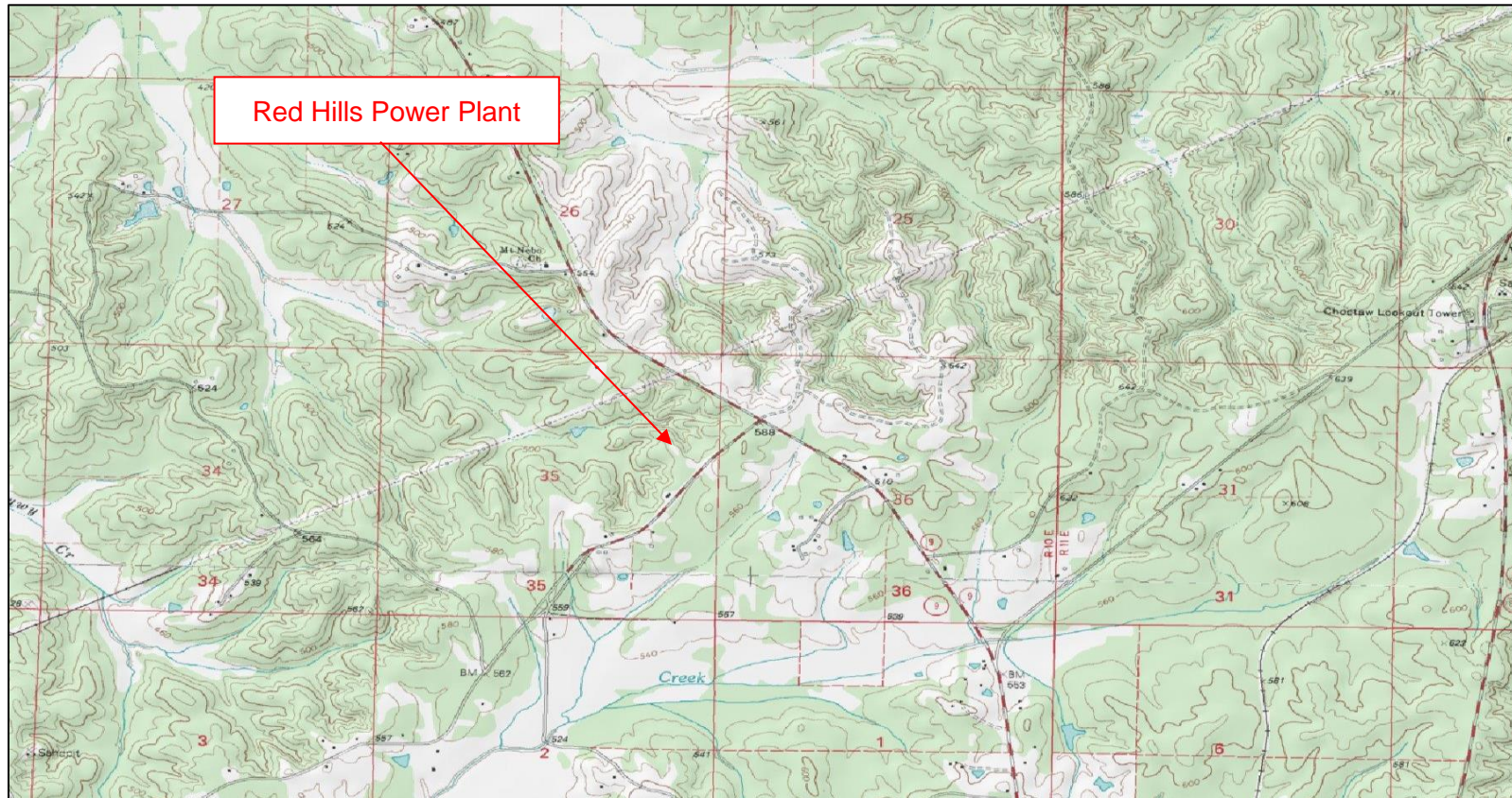
### **6.2 KEY ACTIVITIES FOR UPCOMING YEAR**

During calendar year 2019, Red Hills anticipates conducting at least two (2) semiannual assessment monitoring events. Also, Red Hills will characterize the nature and extent of the release in accordance with §257.95(g) and initiate an assessment of corrective measures per the requirements of §257.96. Based on the results of the corrective measures assessment, selection of a remedy may occur in calendar year 2019.



## **FIGURE 1**

SITE LOCATION MAP



Legend:

Source:  
Digital-Topo-maps.com

Drawn By: JTB

Date: 8/11/2016

Checked By: BSK

Scale: 1:24,000

Project No.:

Drawing No: N/A

Red Hills Power Plant  
2391 Pensacola Road  
Ackerman, Mississippi



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

Figure 1: Site Location Map

## **FIGURE 2**

FACILITY DIAGRAM

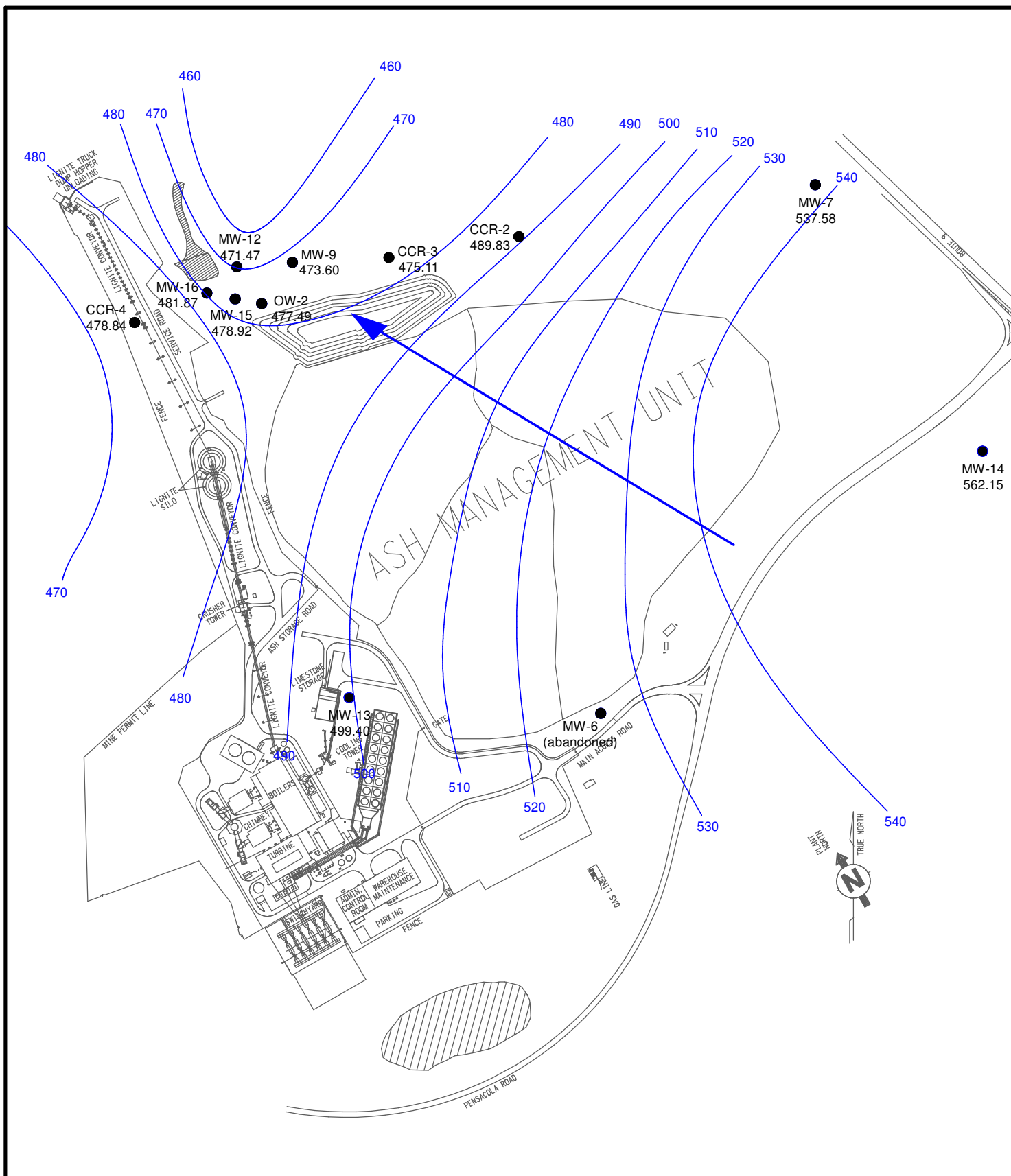






## **APPENDIX A**

### POTENTIOMETRIC SURFACE MAPS



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

Red Hills Generating Facility  
2391 Pensacola Road  
Ackerman, Mississippi

Potentiometric Surface Map (2/6 - 7/2018)

Project No.:

**Legend:**

Monitoring Well Designation  
and Groundwater Elevation

Groundwater Elevation Contours (ft)

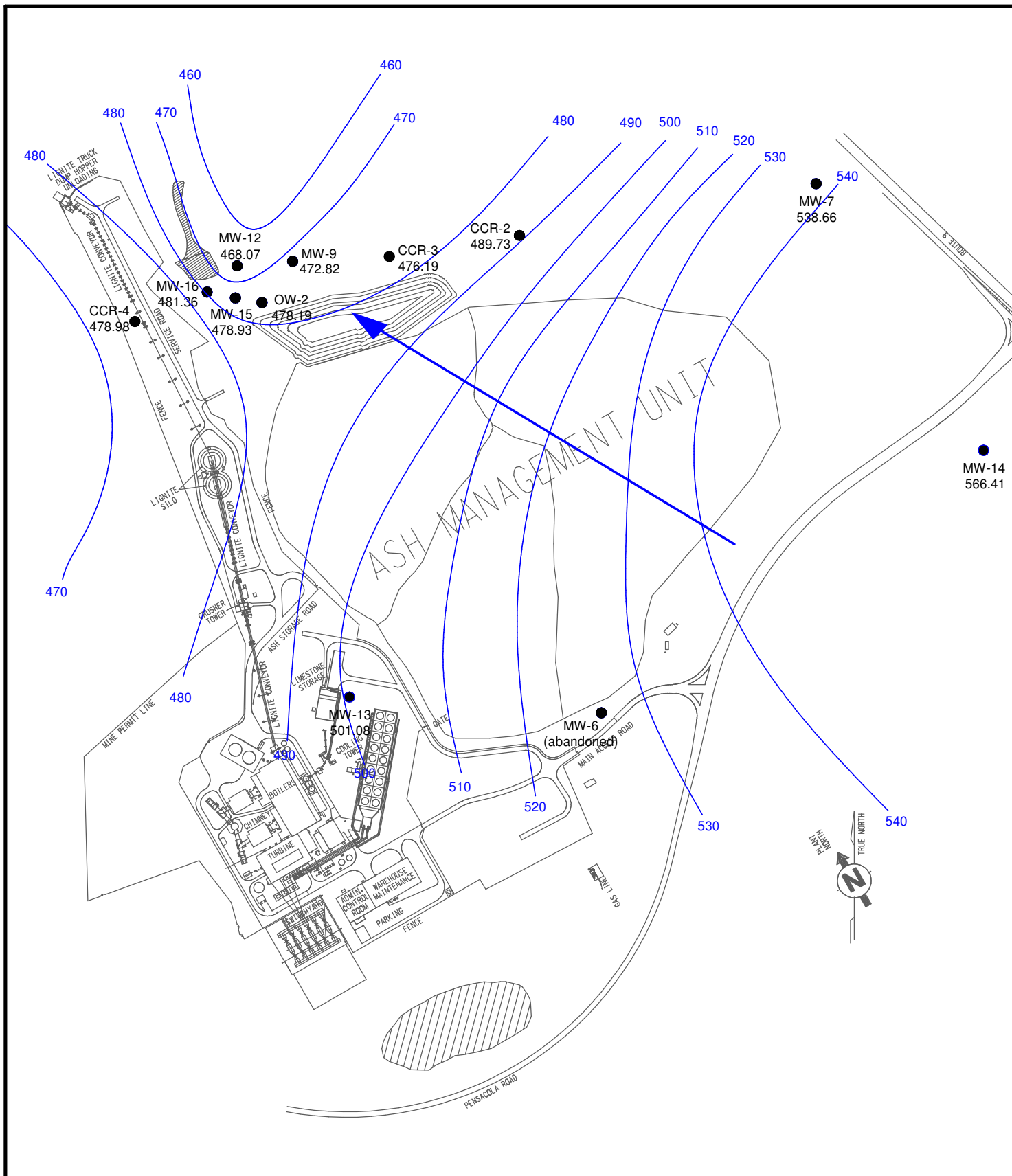
●  
MW-7  
537.58

— 500 —

Scale: NTS

Drawn By: GJL (modified by JTB)

Date: 01/16/2019



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

Red Hills Generating Facility  
2391 Pensacola Road  
Ackerman, Mississippi

Potentiometric Surface Map (5/15 - 16/2018)

Project No.:

**Legend:**

Monitoring Well Designation  
and Groundwater Elevation

Groundwater Elevation Contours (ft)

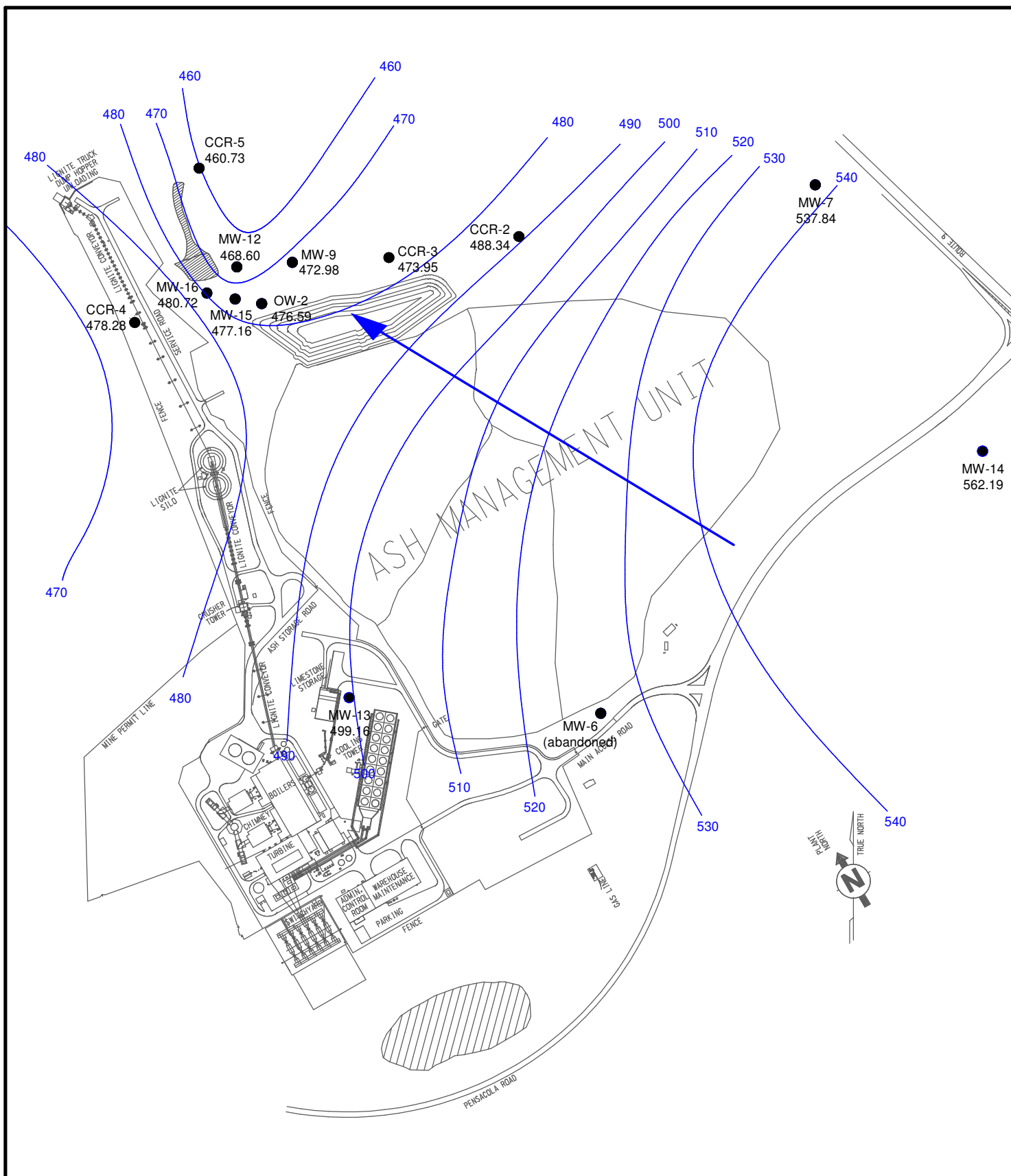
●  
MW-7  
538.66

— 500 —

Scale: NTS

Drawn By: GJL (modified by JTB)

Date: 01/16/2019



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

Red Hills Generating Facility  
2391 Pensacola Road  
Ackerman, Mississippi

Potentiometric Surface Map (9/10 - 11/2018)

Project No.:

**Legend:**

Monitoring Well Designation  
and Groundwater Elevation

Groundwater Elevation Contours (ft)

●  
MW-7  
537.84

— 500 —

Scale: NTS

Drawn By: GJL (modified by JTB)

Date: 01/16/2019



## **APPENDIX B**

ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY FORMS



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

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

February 19, 2018

Jim Ward

**Work Order # :** 1802129

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

**Purchase Order #:** SCSRDH6883

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 02/08/2018 10:30. If you have any questions concerning this report, please feel free to contact the office.



Harry P. Howell

President  
Micro-Methods Laboratory, Inc.



**DISCLAIMER**

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

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

 Project: Red Hills CCR  
 Project Number: 1st Detection Monitoring Event  
 Project Manager: Jim Ward

 Reported:  
 02/19/2018 10:12

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
MW-9	1802129-01	Water	02/07/2018 11:41	Joseph Bookout	02/08/2018 10:30
MW-16	1802129-02	Water	02/07/2018 13:32	Joseph Bookout	02/08/2018 10:30
OW-2	1802129-03	Water	02/07/2018 12:50	Joseph Bookout	02/08/2018 10:30
MW-13	1802129-04	Water	02/06/2018 11:48	Joseph Bookout	02/08/2018 10:30
MW-7	1802129-05	Water	02/07/2018 09:20	Joseph Bookout	02/08/2018 10:30
MW-14	1802129-06	Water	02/07/2018 10:14	Joseph Bookout	02/08/2018 10:30
Field Blank	1802129-07	Water	02/07/2018 14:00	Joseph Bookout	02/08/2018 10:30
Duplicate	1802129-08	Water	02/07/2018 02:00	Joseph Bookout	02/08/2018 10:30
MW-12	1802129-09	Water	02/06/2018 13:25	Joseph Bookout	02/08/2018 10:30
MW-15	1802129-10	Water	02/07/2018 14:15	Joseph Bookout	02/08/2018 10:30
CCR-2	1802129-11	Water	02/06/2018 15:55	Joseph Bookout	02/08/2018 10:30
CCR-3	1802129-12	Water	02/06/2018 14:35	Joseph Bookout	02/08/2018 10:30
CCR-4	1802129-13	Water	02/06/2018 16:38	Joseph Bookout	02/08/2018 10:30

#### Sample Receipt Conditions

Date/Time Received: 2/8/2018 10:30:00AM

Received by: Sarah E. Tomek

Date/Time Logged: 2/8/2018 11:01:00AM

Shipped by: Client Delivery

Submitted by: Joseph Bookout

Logged by: Sarah E. Tomek

 Cooler ID: **#1122**

 Receipt Temperature: **0.1 °C**

Custody Seals	Yes
Containers Intact	Yes
COC/Labels Agree	Yes
Labels Complete	Yes
COC Complete	Yes

Received on Ice	Yes
No Ice, Short Trip	No
Obvious Contamination	No
Rush to meet HT	No

 Cooler ID: **#1124**

 Receipt Temperature: **0.2 °C**

Custody Seals	Yes
Containers Intact	Yes
COC/Labels Agree	Yes
Labels Complete	Yes
COC Complete	Yes

Received on Ice	Yes
No Ice, Short Trip	No
Obvious Contamination	No
Rush to meet HT	No

Red Hills Power Plant  
2391 Pensacola Rd.  
Ackerman MS, 39735Project: Red Hills CCR  
Project Number: 1st Detection Monitoring Event  
Project Manager: Jim Ward**Reported:**  
02/19/2018 10:12**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:** *No Summary Comments*

**Total Metals-EPA 200.7 Rev 4.4****Qualifiers:**

QD-10 The analyte concentration is greater than 10 times the spike concentration. The Matrix Spike result reported as Duplicate. The QC batch was accepted based on LCS/LCSD and Duplicate recoveries within the acceptance limits.

**Calcium**

8B12029-DUP1, 8B12029-DUP2

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

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 Reported:  
 02/19/2018 10:12

**MW-9**
**1802129-01 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Chloride	509	25.0	mg/L	50.0	8B09021	DLW	02/09/2018 11:17	02/09/2018 11:35	SM 4110B 2000	
Sulfate as SO <sub>4</sub>	92.9	50.0	"	10.0	"	DLW	"	02/09/2018 11:17	"	
Fluoride	0.35	0.22	"	1.0	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
Total Dissolved Solids	1423	1	"	"	8B09023	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 13:16	EPA 200.7 Rev 4.4	
Calcium	79.8	0.050	"	"	"	SCH	"	"	"	

Red Hills Power Plant  
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 Reported:  
 02/19/2018 10:12

**MW-16**
**1802129-02 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>61.9</b>	5.00	mg/L	10.0	8B09021	DLW	02/08/2018 08:30	02/08/2018 16:56	SM 4110B 2000	
<b>Sulfate as SO<sub>4</sub></b>	<b>128</b>	50.0	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	1.0	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
<b>Total Dissolved Solids</b>	<b>338</b>	2	"	"	8B09023	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 13:26	EPA 200.7 Rev 4.4	
<b>Calcium</b>	<b>33.2</b>	0.050	"	"	"	SCH	"	"	"	

Red Hills Power Plant  
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 Project Manager: Jim Ward

 Reported:  
 02/19/2018 10:12

**OW-2**
**1802129-03 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Chloride	37.7	5.00	mg/L	10.0	8B09021	DLW	02/08/2018 08:30	02/08/2018 17:14	SM 4110B 2000	
Sulfate as SO <sub>4</sub>	108	50.0	"	"	"	DLW	"	"	"	
Fluoride	0.33	0.22	"	1.0	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
Total Dissolved Solids	274	2	"	"	8B09023	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 13:31	EPA 200.7 Rev 4.4	
Calcium	36.4	0.050	"	"	"	SCH	"	"	"	

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

 Reported:  
 02/19/2018 10:12

**MW-13**
**1802129-04 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>4.72</b>	0.500	mg/L	1.0	8B09021	DLW	02/08/2018 08:30	02/08/2018 17:32	SM 4110B 2000	
<b>Sulfate as SO<sub>4</sub></b>	<b>6.03</b>	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
<b>Total Dissolved Solids</b>	<b>159</b>	1	"	"	8B09023	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 13:36	EPA 200.7 Rev 4.4	
<b>Calcium</b>	<b>21.0</b>	0.050	"	"	"	SCH	"	"	"	



Red Hills Power Plant  
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 Reported:  
 02/19/2018 10:12

**MW-7**
**1802129-05 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Chloride	3.12	0.500	mg/L	1.0	8B09021	DLW	02/09/2018 11:53	02/09/2018 11:53	SM 4110B 2000	
Sulfate as SO <sub>4</sub>	33.5	20.0	"	4.0	"	DLW	"	02/09/2018 12:24	"	
Fluoride	0.32	0.22	"	1.0	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
Total Dissolved Solids	204	2	"	"	8B09023	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 13:40	EPA 200.7 Rev 4.4	
Calcium	58.2	0.050	"	"	"	SCH	"	"	"	

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

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 Project Manager: Jim Ward

 Reported:  
 02/19/2018 10:12

**MW-14**
**1802129-06 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>19.1</b>	0.500	mg/L	1.0	8B09021	DLW	02/09/2018 12:41	02/09/2018 12:41	SM 4110B 2000	
<b>Sulfate as SO<sub>4</sub></b>	<b>6.74</b>	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
<b>Total Dissolved Solids</b>	<b>79</b>	1	"	"	8B09023	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 13:45	EPA 200.7 Rev 4.4	
<b>Calcium</b>	<b>0.624</b>	0.050	"	"	"	SCH	"	"	"	

Red Hills Power Plant  
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**Field Blank**
**1802129-07 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Chloride	12.5	0.500	mg/L	1.0	8B09021	DLW	02/09/2018 13:12	02/09/2018 13:12	SM 4110B 2000	
Sulfate as SO4	ND	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
Total Dissolved Solids	35	1	"	"	8B09023	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 13:50	EPA 200.7 Rev 4.4	
Calcium	7.51	0.050	"	"	"	SCH	"	"	"	

Red Hills Power Plant  
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 Ackerman MS, 39735

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 Reported:  
 02/19/2018 10:12

**Duplicate**
**1802129-08 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>19.3</b>	0.500	mg/L	1.0	8B09021	DLW	02/09/2018 13:18	02/09/2018 13:48	SM 4110B 2000	
<b>Sulfate as SO<sub>4</sub></b>	<b>7.16</b>	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
<b>Total Dissolved Solids</b>	<b>79</b>	1	"	"	8B09023	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 13:54	EPA 200.7 Rev 4.4	
<b>Calcium</b>	<b>0.610</b>	0.050	"	"	"	SCH	"	"	"	

Red Hills Power Plant  
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 Reported:  
 02/19/2018 10:12

**MW-12**
**1802129-09 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>56.2</b>	2.00	mg/L	4.0	8B09021	DLW	02/09/2018 13:18	02/09/2018 14:06	SM 4110B 2000	
<b>Sulfate as SO<sub>4</sub></b>	<b>48.2</b>	20.0	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	1.0	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
<b>Total Dissolved Solids</b>	<b>310</b>	1	"	"	8B09023	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 13:59	EPA 200.7 Rev 4.4	
<b>Calcium</b>	<b>32.1</b>	0.050	"	"	"	SCH	"	"	"	

Red Hills Power Plant  
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 Project Manager: Jim Ward

 Reported:  
 02/19/2018 10:12

**MW-15**
**1802129-10 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Chloride	12.0	2.00	mg/L	4.0	8B09021	DLW	02/09/2018 13:18	02/09/2018 14:23	SM 4110B 2000	
Sulfate as SO <sub>4</sub>	39.2	20.0	"	"	"	DLW	"	"	"	
Fluoride	0.24	0.22	"	1.0	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
Total Dissolved Solids	272	2	"	"	8B09024	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 14:04	EPA 200.7 Rev 4.4	
Calcium	32.7	0.050	"	"	"	SCH	"	"	"	

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

 Project: Red Hills CCR  
 Project Number: 1st Detection Monitoring Event  
 Project Manager: Jim Ward

**Reported:**  
 02/19/2018 10:12

**CCR-2**
**1802129-11 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>2.89</b>	0.500	mg/L	1.0	8B09021	DLW	02/09/2018 13:18	02/09/2018 15:24	SM 4110B 2000	
<b>Sulfate as SO<sub>4</sub></b>	<b>8.33</b>	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
<b>Total Dissolved Solids</b>	<b>107</b>	1	"	"	8B09024	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 14:37	EPA 200.7 Rev 4.4	
<b>Calcium</b>	<b>14.1</b>	0.050	"	"	"	SCH	"	"	"	

Red Hills Power Plant  
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 Ackerman MS, 39735

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 Project Number: 1st Detection Monitoring Event  
 Project Manager: Jim Ward

 Reported:  
 02/19/2018 10:12

**CCR-3**
**1802129-12 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Chloride	6.82	0.500	mg/L	1.0	8B09021	DLW	02/09/2018 13:18	02/12/2018 11:28	SM 4110B 2000	
Sulfate as SO <sub>4</sub>	202	100	"	20.0	"	DLW	"	02/12/2018 11:10	"	
Fluoride	0.27	0.22	"	1.0	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
Total Dissolved Solids	518	2	"	"	8B09024	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 14:48	EPA 200.7 Rev 4.4	
Calcium	75.4	0.050	"	"	"	SCH	"	"	"	



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

 Project: Red Hills CCR  
 Project Number: 1st Detection Monitoring Event  
 Project Manager: Jim Ward

 Reported:  
 02/19/2018 10:12

**CCR-4**
**1802129-13 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>7.57</b>	0.500	mg/L	1.0	8B09021	DLW	02/09/2018 13:18	02/09/2018 17:25	SM 4110B 2000	
<b>Sulfate as SO<sub>4</sub></b>	<b>15.9</b>	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8B15039	HAD	02/15/2018 14:40	02/15/2018 15:00	SM 4500-F D 1997	
<b>Total Dissolved Solids</b>	<b>195</b>	1	"	"	8B09024	DLW	02/08/2018 16:00	02/09/2018 00:00	SM 2540 C 1997	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Boron	ND	0.050	mg/L	1.0	8B12029	SCH	02/12/2018 08:30	02/13/2018 14:52	EPA 200.7 Rev 4.4	
<b>Calcium</b>	<b>28.8</b>	0.050	"	"	"	SCH	"	"	"	

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 02/19/2018 10:12

### Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
<b>Batch 8B09021 - Default Prep GenChem</b>											
<b>Blank (8B09021-BLK1)</b>											
Chloride	2/8/18 10:54	ND	0.500	mg/L							
Sulfate as SO4	2/8/18 10:54	ND	5.00	"							
<b>Blank (8B09021-BLK2)</b>											
Chloride	2/9/18 10:51	ND	0.500	mg/L							
Sulfate as SO4	2/9/18 10:51	ND	5.00	"							
<b>Blank (8B09021-BLK3)</b>											
Chloride	2/12/18 10:42	ND	0.500	mg/L							
Sulfate as SO4	2/12/18 10:42	ND	5.00	"							
<b>LCS (8B09021-BS1)</b>											
Chloride	2/8/18 10:18	8.15	0.500	mg/L	8.00		102	90-110			
Sulfate as SO4	2/8/18 10:18	8.01	5.00	"	8.00		100	90-110			
<b>LCS (8B09021-BS2)</b>											
Chloride	2/9/18 10:16	7.89	0.500	mg/L	8.00		98.6	90-110			
Sulfate as SO4	2/9/18 10:16	7.39	5.00	"	8.00		92.4	90-110			
<b>LCS (8B09021-BS3)</b>											
Chloride	2/12/18 10:06	8.09	0.500	mg/L	8.00		101	90-110			
Sulfate as SO4	2/12/18 10:06	8.68	5.00	"	8.00		109	90-110			
<b>LCS Dup (8B09021-BSD1)</b>											
Chloride	2/8/18 10:36	8.16	0.500	mg/L	8.00		102	90-110	0.0858	20	
Sulfate as SO4	2/8/18 10:36	8.07	5.00	"	8.00		101	90-110	0.809	20	
<b>LCS Dup (8B09021-BSD2)</b>											
Chloride	2/9/18 10:34	7.95	0.500	mg/L	8.00		99.3	90-110	0.707	20	
Sulfate as SO4	2/9/18 10:34	7.36	5.00	"	8.00		92.0	90-110	0.352	20	

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### Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
<b>Batch 8B09021 - Default Prep GenChem</b>											
<b>LCS Dup (8B09021-BSD3)</b>											
Chloride	2/12/18 10:24	8.57	0.500	mg/L	8.00		107	90-110	5.70	20	
Sulfate as SO4	2/12/18 10:24	8.43	5.00	"	8.00		105	90-110	2.93	20	
<b>Duplicate (8B09021-DUP2) Source: 1802129-04</b>											
Chloride	2/8/18 17:50	4.33	0.500	mg/L		4.72			8.73	20	
Sulfate as SO4	2/8/18 17:50	5.84	5.00	"		6.03			3.12	20	
<b>Duplicate (8B09021-DUP3) Source: 1802129-11</b>											
Chloride	2/9/18 15:42	2.89	0.500	mg/L		2.89			0.0346	20	
Sulfate as SO4	2/9/18 15:42	8.36	5.00	"		8.33			0.407	20	
<b>Matrix Spike (8B09021-MS2) Source: 1802129-04</b>											
Chloride	2/8/18 18:08	27.3	2.00	mg/L	20.0	4.72	113	86.8-113			
Sulfate as SO4	2/8/18 18:08	25.4	20.0	"	20.0	6.03	97.0	54.5-117			
<b>Matrix Spike (8B09021-MS3) Source: 1802129-11</b>											
Chloride	2/9/18 16:13	44.7	2.00	mg/L	40.0	2.89	104	86.8-113			
Sulfate as SO4	2/9/18 16:13	42.0	20.0	"	40.0	8.33	84.1	54.5-117			
<b>Matrix Spike Dup (8B09021-MSD2) Source: 1802129-04</b>											
Chloride	2/8/18 18:26	26.8	2.00	mg/L	20.0	4.72	110	86.8-113	2.01	20	
Sulfate as SO4	2/8/18 18:26	22.6	20.0	"	20.0	6.03	82.7	54.5-117	11.9	20	
<b>Matrix Spike Dup (8B09021-MSD3) Source: 1802129-11</b>											
Chloride	2/9/18 16:31	46.9	2.00	mg/L	40.0	2.89	110	86.8-113	4.81	20	
Sulfate as SO4	2/9/18 16:31	42.9	20.0	"	40.0	8.33	86.5	54.5-117	2.28	20	



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

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

Project: Red Hills CCR  
Project Number: 1st Detection Monitoring Event  
Project Manager: Jim Ward

Reported:  
02/19/2018 10:12

### Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 8B09023 - Default Prep GenChem											
Blank (8B09023-BLK1)											
Total Dissolved Solids	2/9/18 0:00	ND	1	mg/L							
LCS (8B09023-BS1)											
Total Dissolved Solids	2/9/18 0:00	192	2	mg/L	207		92.8	79.6-105			
LCS Dup (8B09023-BSD1)											
Total Dissolved Solids	2/9/18 0:00	188	2	mg/L	207		90.8	79.6-105	2.11	15	
Duplicate (8B09023-DUP1) Source: 1802122-01											
Total Dissolved Solids	2/9/18 0:00	448	1	mg/L		446			0.447	5	
Batch 8B09024 - Default Prep GenChem											
Blank (8B09024-BLK1)											
Total Dissolved Solids	2/9/18 0:00	ND	1	mg/L							
LCS (8B09024-BS1)											
Total Dissolved Solids	2/9/18 0:00	194	1	mg/L	207		93.7	79.6-105			
LCS Dup (8B09024-BSD1)											
Total Dissolved Solids	2/9/18 0:00	194	1	mg/L	207		93.7	79.6-105	0.00	15	
Duplicate (8B09024-DUP1) Source: 1802129-13											
Total Dissolved Solids	2/9/18 0:00	191	1	mg/L		195			2.07	5	
Batch 8B15039 - Default Prep GenChem											
Blank (8B15039-BLK1)											
Fluoride	2/15/18 15:00	ND	0.22	mg/L							

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### Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
<b>Batch 8B15039 - Default Prep GenChem</b>											
<b>Blank (8B15039-BLK2)</b>											
Fluoride	2/15/18 15:00	ND	0.22	mg/L							
<b>LCS (8B15039-BS1)</b>											
Fluoride	2/15/18 15:00	0.88	0.22	mg/L	0.800		110	75-125			
<b>LCS (8B15039-BS2)</b>											
Fluoride	2/15/18 15:00	0.89	0.22	mg/L	0.800		111	75-125			
<b>LCS Dup (8B15039-BSD1)</b>											
Fluoride	2/15/18 15:00	0.90	0.22	mg/L	0.800		112	75-125	1.85	30	
<b>LCS Dup (8B15039-BSD2)</b>											
Fluoride	2/15/18 15:00	0.89	0.22	mg/L	0.800		112	75-125	0.616	30	
<b>Duplicate (8B15039-DUP1)</b> <span style="float: right;">Source: 1802129-01</span>											
Fluoride	2/15/18 15:00	0.40	0.22	mg/L		0.35			13.7	35	
<b>Duplicate (8B15039-DUP2)</b> <span style="float: right;">Source: 1802129-11</span>											
Fluoride	2/15/18 15:00	ND	0.22	mg/L		ND				35	

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### 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 8B12029 - EPA 200.2 DCN 1017 Rev 8											
<b>Blank (8B12029-BLK1)</b>											
Boron	2/13/18 13:05	ND	0.050	mg/L							
Calcium	2/13/18 13:05	ND	0.050	"							
<b>LCS (8B12029-BS1)</b>											
Boron	2/13/18 13:08	0.198	0.050	mg/L	0.200		99.0	85-115			
Calcium	2/13/18 13:08	0.215	0.050	"	0.200		108	85-115			
<b>LCS Dup (8B12029-BSD1)</b>											
Boron	2/13/18 13:11	0.200	0.050	mg/L	0.200		99.9	85-115	0.831	20	
Calcium	2/13/18 13:11	0.208	0.050	"	0.200		104	85-115	3.34	20	
<b>Duplicate (8B12029-DUP1) Source: 1802129-01</b>											
Calcium	2/13/18 13:19	79.3	0.050	mg/L		79.8			0.634	20	QD-10
<b>Duplicate (8B12029-DUP2) Source: 1802129-11</b>											
Calcium	2/13/18 14:40	14.9	0.050	mg/L		14.1			5.37	20	QD-10
<b>Matrix Spike (8B12029-MS1) Source: 1802129-01</b>											
Boron	2/13/18 13:19	0.211	0.050	mg/L	0.200	0.011	99.9	70-130			
<b>Matrix Spike (8B12029-MS2) Source: 1802129-11</b>											
Boron	2/13/18 14:40	0.233	0.050	mg/L	0.200	0.020	106	70-130			
<b>Matrix Spike Dup (8B12029-MSD1) Source: 1802129-01</b>											
Boron	2/13/18 13:22	0.213	0.050	mg/L	0.200	0.011	101	70-130	0.701	20	
<b>Matrix Spike Dup (8B12029-MSD2) Source: 1802129-11</b>											
Boron	2/13/18 14:43	0.234	0.050	mg/L	0.200	0.020	107	70-130	0.606	20	

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**Certified Analyses Included in this Report**

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

***EPA 200.7 Rev 4.4 in Water***

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

***SM 2540 C 1997 in Water***

Total Dissolved Solids	C01,C02
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***SM 4110B 2000 in Water***

Chloride	C01,C02
Sulfate as SO <sub>4</sub>	C01,C02
Nitrate as N	C01,C02

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

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### Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	LA Environmental Lab Accreditation Program	01960	06/30/2018
C02	The NELAC Institute (NELAP)	TNI01397	06/30/2018
C03	Ms Dept of Health (Coliform)	MS00021	12/31/2018
C04	Ms Dept of Health (Drinking Water Certificate)	MS00021	12/31/2018
C05	Ms DEQ Lead Firm Certification	PBF-00000028	10/16/2017
C06	MsDEQ Asbestos Inspector : C.D. Bingham	ABI-00001348	03/09/2018
C07	MsDEQ Air Monitor : C.D. Bingham	AM-011572	04/22/2018
C08	MsDEQ Asbestos Inspector: C. W. Meins	ABI-00001821	09/15/2018
C09	MsDEQ Air Monitor : C.W. Meins	AM-011189	04/22/2018
C12	MsDEQ Asbestos Inspector : H.P. Howell	ABI-00001345	03/09/2018
C14	MsDEQ Lead Paint Inspector : C.D. Bingham	PBI-00003690	02/22/2018
C15	MsDEQ Lead Paint Inspector : C.W. Meins	PBI-00001740	02/22/2018

### Report Definitions

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





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Project Manager: Jim Ward

**Reported:**  
02/19/2018 10:12

## Analyst Initials Key

<u>FullName</u>	<u>Initials</u>
Barbara K. McMillan	BKM
Dortha L. Wells	DLW
Heather A Denham	HAD
Michelle M Gallegos	MMG
Sarah E. Tomek	SET
Samantha C. Hall	SCH
Tina Tomek	TPT



6500 Sunplex Drive, Ocean Springs, MS  
39564 (228) 875-6420 FAX (228) 875-6423  
www.micromethodslab.com

### Chain of Custody Record

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

Print Form

M-M Lab  
WO #

1802129

Company Name: Red Hills Power Plant  
Address: 2391 Pensacola Road  
City: Ackerman State: MS Zip: 39735  
Phone: 662-387-5758  
Fax:

Project Manager: Jim Ward  
Purchase Order #: SCSRDH6883  
Email Address: jimward@southernco.com

Sampler Name Printed: Joseph Buckout  
Sampler Name Signed: Joseph Buckout

Project Name: Red Hills CCR

Project #: 1st Detection Monitoring Event

Sample Identification

Sample Identification	Sampling Date/Time	Matrix Code	# of Containers	Preservative:	Grab (G) or Composite (C)	TDS	Chloride	Fluoride	Sulfate	Boron	Calcium
MW-9	2/7/18 1141	W	2	C	X	X	X	X	X	X	X
MW-16	2/7/18 1332	W	2	C	X	X	X	X	X	X	X
OW-2	2/7/18 1250	W	2	C	X	X	X	X	X	X	X
MW-13	2/6/18 1148	W	2	C	X	X	X	X	X	X	X
MW-7	2/7/18 0920	W	2	C	X	X	X	X	X	X	X
MW-14	2/7/18 1014	W	2	C	X	X	X	X	X	X	X
Field Blank	2/7/18 1400	W	2	C	X	X	X	X	X	X	X
Duplicate	2/7/18 0240	W	2	C	X	X	X	X	X	X	X
MW-12	2/6/18 1325	W	2	C	X	X	X	X	X	X	X
MW-15	2/7/18 1115	W	2	C	X	X	X	X	X	X	X
CCR-2	2/6/18 1555	W	2	C	X	X	X	X	X	X	X
CCR-3	2/6/18 1435	W	2	C	X	X	X	X	X	X	X
CCR-4	2/6/18 1438	W	2	C	X	X	X	X	X	X	X

Printed Name: Joseph Buckout Signature: [Signature] Company: ECS Date: 2/6/18 Time: 1030

Relinquished by: [Signature] Received by: [Signature]

Relinquished by: [Signature] Received by: [Signature]

Turn Around Time & Reporting  
Our normal turn around time is 10 working days  
Normal Next Day\* requests must be prior approved.  
Phone Mail Fax Email

Field Testing / QC Reporting  
Field pH Collect Time Read Time  
Field D.O. Collect Time Read Time  
Field Temp Collect Time Read Time  
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Matrix Codes: Preservation Codes:  
W = Water 1 = Sulfuric Acid  
DW = Drinking Water 2 = Phosphoric Acid  
S = Solid 3 = Sodium Hydroxide  
SO = Soil 4 = Zinc Acetate  
SE = Sediment 5 = Sodium Thiosulfate  
L = Liquid 6 = Nitric Acid  
A = Air 7 = Hydrochloric Acid  
O = Oil 8 = Sodium Bisulfate  
SL = Sludge 9 = Sodium Bisulfate

Special Instructions / Comments  
pH, Conductivity, Temp, and Turbidity recorded during Sampling, SKS  
#1124 0.2% T#44  
#1122 0.1% T#44

Received on Ice? Yes ☒ No ☐  
Receipt Temp (°C) Sample Blank X  
Cooler # Thermometer # 834  
Date & Time By: [Signature]



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

Client Red Hills WO 1802129 Shipped By client  
 Date/Time Received 2/10/18 1030 Unpacked/Checked By 8

Cooler ID	Ice Present Yes/No	Temperature (Corrected)	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#1124	yes	0.2°C	T#4	yes	yes
#1122	yes	0.1°C	T#4	yes	yes

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

Custody Seals on Bottles Present Yes \_\_\_ No X  
 Containers Intact Yes X No \_\_\_  
 Proper Containers for Requested Analysis Yes X No \_\_\_

Correct Preservation Used for All Samples Yes X No \_\_\_  
 Adequate Sample for Analysis Requested Yes X No \_\_\_

Volatile Vials Headspace Greater than 6mm in Diameter Yes \_\_\_ No \_\_\_ N/A X

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

Samples Received Within Holding Time Yes X No \_\_\_  
 Dept. Manager Notified of Rush/Short Holding Times Yes \_\_\_ No \_\_\_ N/A X

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

Client Contacted \_\_\_\_\_ Contacted By \_\_\_\_\_ Date/Time \_\_\_\_\_

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

Comments:

<b>CUSTODY SEAL</b> DATE <u>2/8/18</u> SIGNATURE <u>[Signature]</u>	<b>QEC</b> Quality Environmental Containers 800-255-3950 • 304-255-3900
---	---

**CUSTODY SEAL**  
 DATE 2/8/18  
 SIGNATURE [Signature]  
**QEC**  
 Quality Environmental Containers  
 800-255-3950 • 304-255-3900

Controlled Document: Company Confidential & Proprietary  
 Only Electronic Copies and Hard Copies Designated as "Controlled" are Controlled





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

Print Form

Company Name: <b>Red Hills Power Plant</b>		Project Manager: <b>Jim Ward</b>	
Address: <b>2391 Pensacola Road</b>		Purchase Order #: <b>SCSRDH6883</b>	
City: <b>Ackerman</b>	State: <b>MS</b> Zip: <b>39735</b>	Email Address: <b>jimward@southernco.com</b>	
Phone: <b>662-387-5758</b>	Sampler Name Printed: <b>Joseph Barkot</b>		
Fax:	Sampler Name Signed: <i>Joseph Barkot</i>		

Project Name: <b>Red Hills CCR</b>		List Analyses Requested										
Project #: <b>1st Detection Monitoring Event</b>	Sample Identification	Sampling Date/Time	Matrix Code	Preservative:							# of Containers	
				Composite (C) or Grab (G)	TDS	Chloride	Fluoride	Sulfate	Boron	Calcium		
MW-9		2/7/18 1141	W	G	X	X	X	X	X	X	X	X
MW-16		2/7/18 1332	W	G	X	X	X	X	X	X	X	X
OW-2		2/7/18 1250	W	G	X	X	X	X	X	X	X	X
MW-13		2/6/18 1148	W	G	X	X	X	X	X	X	X	X
MW-7		2/7/18 0920	W	G	X	X	X	X	X	X	X	X
MW-14		2/7/18 1014	W	G	X	X	X	X	X	X	X	X
Field Blank		2/7/18 1400	W	G	X	X	X	X	X	X	X	X
Duplicate		2/7/18 0220	W	G	X	X	X	X	X	X	X	X
MW-12		2/6/18 1325	W	G	X	X	X	X	X	X	X	X
MW-15		2/7/18 1415	W	G	X	X	X	X	X	X	X	X
CCR-2		2/6/18 1555	W	G	X	X	X	X	X	X	X	X
CCR-3		2/6/18 1435	W	G	X	X	X	X	X	X	X	X
CCR-4		2/6/18 1638	W	G	X	X	X	X	X	X	X	X

Relinquished by	Printed Name: <b>Joseph Barkot</b>	Signature: <i>Joseph Barkot</i>	Company: <b>ECS</b>	Date: <b>2/8/18 1030</b>	Time: <b>1030</b>
Received by	<b>William Tamm</b>	<i>William Tamm</i>	<b>MM</b>	<b>2/8/18 1030</b>	
Relinquished by					
Received by					
Relinquished by					
Received by					

Turn Around Time & Reporting	
Normal	*All rush order requests must be prior approved.
Next Day*	Phone
2nd Day*	Mail
Other*	Fax
	Email

Field Testing / QC Reporting			
Field pH	Collect Time	Read Time	
Field D.O.	Collect Time	Read Time	
Field Temp	Collect Time	Read Time	
QC Level: Level 1	Level 2	Level 3	

Matrix Codes:		Preservation Codes:	
W = Water	1 = Sulfuric Acid	SE = Sediment	5 = Zinc Acetate & Sodium Hydroxide
DW = Drinking Water	2 = Phosphoric Acid	L = Liquid	6 = Nitric Acid
S = Solid	3 = Sodium Hydroxide	A = Air	7 = Sodium Thiosulfate
SO = Soil	4 = Zinc Acetate	O = Oil	8 = Hydrochloric Acid
		SL = Sludge	9 = Sodium Bisulfate

Special Instructions / Comments	
<p>pH, Conductivity, Temp. and Turbidity recorded during Sampling. JLB</p> <p>#1124 0.2% T#4</p> <p>#1122 0.1% T#4</p>	

Received on Ice? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Receipt Temp (°C) <input type="text"/> Sample <input type="text"/> Blank <input checked="" type="checkbox"/>
Cooler # <input type="text"/> Thermometer # <input type="text"/>
Date & Time <input type="text"/>
By: <i>ST</i>

DCN# F316 Rev #2



**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

June 18, 2018

Jim Ward

**Work Order # :** 1805378

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

**Purchase Order #:** SCSRDH6883

Enclosed are Micro-Methods Laboratory, Inc. results of analyses performed on samples received 05/17/2018 10:30. If you have any questions concerning this report, please feel free to contact the office.

Harry P. Howell

President  
Micro-Methods Laboratory, Inc.



**DISCLAIMER**

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

Red Hills Power Plant  
2391 Pensacola Rd.  
Ackerman MS, 39735Project: Red Hills CCR  
Project Number: Red Hills  
Project Manager: Jim WardReported:  
06/18/2018 10:01

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
MW-9	1805378-01	Water	05/15/2018 13:25	Joseph Bookout	05/17/2018 10:30
MW-16	1805378-02	Water	05/15/2018 10:50	Joseph Bookout	05/17/2018 10:30
OW-2	1805378-03	Water	05/15/2018 12:05	Joseph Bookout	05/17/2018 10:30
MW-13	1805378-04	Water	05/16/2018 11:20	Joseph Bookout	05/17/2018 10:30
MW-7	1805378-05	Water	05/16/2018 11:55	Joseph Bookout	05/17/2018 10:30
MW-14	1805378-06	Water	05/16/2018 12:55	Joseph Bookout	05/17/2018 10:30
Field Blank	1805378-07	Water	05/16/2018 10:00	Joseph Bookout	05/17/2018 10:30
Duplicate	1805378-08	Water	05/16/2018 08:00	Joseph Bookout	05/17/2018 10:30
MW-12	1805378-09	Water	05/15/2018 10:20	Joseph Bookout	05/17/2018 10:30
MW-15	1805378-10	Water	05/15/2018 12:38	Joseph Bookout	05/17/2018 10:30
CCR-2	1805378-11	Water	05/16/2018 10:10	Joseph Bookout	05/17/2018 10:30
CCR-3	1805378-12	Water	05/15/2018 14:40	Joseph Bookout	05/17/2018 10:30
CCR-4	1805378-13	Water	05/16/2018 10:55	Joseph Bookout	05/17/2018 10:30

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

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

 Reported:  
 06/18/2018 10:01

**Sample Receipt Conditions**

Date/Time Received: 5/17/2018 10:30:00AM

Received by: Sarah E. Tomek

Date/Time Logged: 5/17/2018 10:51:00AM

Cooler ID: #1121

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

Cooler ID: #1130

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

Cooler ID: #711

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

Shipped by: Client Delivery

Submitted by: Joseph Bookout

Logged by: Sarah E. Tomek

Receipt Temperature: 2.2 °C

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

Receipt Temperature: 3.9 °C

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

Receipt Temperature: 1.2 °C

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



Red Hills Power Plant  
2391 Pensacola Rd.  
Ackerman MS, 39735Project: Red Hills CCR  
Project Number: Red Hills  
Project Manager: Jim Ward**Reported:**  
06/18/2018 10:01**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:**

For Metals 200.8 [Multi-Mode] analysis: [ ] indicates analysis mode.  
[NG] = No collision/reaction cell gas used  
[He] = Helium collision/reaction cell gas used-normal flow rate  
[HHe] = Helium collision/reaction cell gas used-high flow rate

See attached results from Sub-Contract Laboratory

**Qualifiers:**      *No Data Qualification*

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**Analyte & Samples(s) Qualified:**    *None*

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

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

 Reported:  
 06/18/2018 10:01

**MW-9**
**1805378-01 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Fluoride	0.57	0.22	mg/L	1.0	8E25019	HAD	05/25/2018 10:30	05/25/2018 13:38	SM 4500-F D-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Barium	0.212	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 15:23	EPA 200.7 Rev 4.4	
Lithium	0.090	0.050	"	"	"	SCH	"	"	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 11:58	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	0.002	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	0.001	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	0.017	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	
<b>Mercury by EPA 200 Series Methods CVAAS</b>										
Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	

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

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

 Reported:  
 06/18/2018 10:01

**MW-16**
**1805378-02 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Fluoride</b>	<b>0.34</b>	0.22	mg/L	1.0	8E25019	HAD	05/25/2018 10:30	05/25/2018 13:38	SM 4500-F D-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
<b>Barium</b>	<b>0.194</b>	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 15:41	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 12:21	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
<b>Chromium [He]</b>	<b>0.002</b>	0.001	"	"	"	MMG	"	"	"	
<b>Cobalt [He]</b>	<b>0.008</b>	0.001	"	"	"	MMG	"	"	"	
<b>Lead [He]</b>	<b>0.001</b>	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	
<b>Mercury by EPA 200 Series Methods CVAAS</b>										
Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	

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

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

 Reported:  
 06/18/2018 10:01

**OW-2**
**1805378-03 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Fluoride	0.45	0.22	mg/L	1.0	8E25019	HAD	05/25/2018 10:30	05/25/2018 13:38	SM 4500-F D-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Barium	0.116	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 15:44	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 12:29	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	ND	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	
<b>Mercury by EPA 200 Series Methods CVAAS</b>										
Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	

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

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

 Reported:  
 06/18/2018 10:01

**MW-13**
**1805378-04 (Water)**

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

Fluoride	ND	0.22	mg/L	1.0	8E25019	HAD	05/25/2018 10:30	05/25/2018 13:38	SM 4500-F D-2011	
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**Metals by EPA 200 Series Methods ICP-AES**

Barium	0.157	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 15:47	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	

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

Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 12:37	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	ND	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	

**Mercury by EPA 200 Series Methods CVAAS**

Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	
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Red Hills Power Plant  
 2391 Pensacola Rd.  
 Ackerman MS, 39735

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

 Reported:  
 06/18/2018 10:01

**MW-7**
**1805378-05 (Water)**

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

Fluoride	0.25	0.22	mg/L	1.0	8E25019	HAD	05/25/2018 10:30	05/25/2018 13:38	SM 4500-F D-2011	
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**Metals by EPA 200 Series Methods ICP-AES**

Barium	0.089	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 15:49	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	

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

Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 12:46	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	ND	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	

**Mercury by EPA 200 Series Methods CVAAS**

Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	
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Red Hills Power Plant  
 2391 Pensacola Rd.  
 Ackerman MS, 39735

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

 Reported:  
 06/18/2018 10:01

**MW-14**
**1805378-06 (Water)**

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

Fluoride	ND	0.22	mg/L	1.0	8E25019	HAD	05/25/2018 10:30	05/25/2018 13:38	SM 4500-F D-2011	
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**Metals by EPA 200 Series Methods ICP-AES**

Barium	0.013	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 15:52	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	

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

Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 12:54	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	ND	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	

**Mercury by EPA 200 Series Methods CVAAS**

Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	
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Red Hills Power Plant  
 2391 Pensacola Rd.  
 Ackerman MS, 39735

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

 Reported:  
 06/18/2018 10:01

**Field Blank**
**1805378-07 (Water)**

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

Fluoride	ND	0.22	mg/L	1.0	8E31018	TKM	05/31/2018 10:25	05/31/2018 16:18	SM 4500-F D-2011	
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**Metals by EPA 200 Series Methods ICP-AES**

Barium	ND	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 15:55	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	

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

Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 13:02	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	ND	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	

**Mercury by EPA 200 Series Methods CVAAS**

Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	
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Red Hills Power Plant  
 2391 Pensacola Rd.  
 Ackerman MS, 39735

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

 Reported:  
 06/18/2018 10:01

**Duplicate**
**1805378-08 (Water)**

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

Fluoride	ND	0.22	mg/L	1.0	8E31018	TKM	05/31/2018 10:25	05/31/2018 16:18	SM 4500-F D-2011	
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**Metals by EPA 200 Series Methods ICP-AES**

Barium	0.013	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 16:12	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	

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

Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 13:11	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	ND	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	

**Mercury by EPA 200 Series Methods CVAAS**

Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	
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Red Hills Power Plant  
 2391 Pensacola Rd.  
 Ackerman MS, 39735

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

 Reported:  
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**MW-12**
**1805378-09 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Fluoride	0.24	0.22	mg/L	1.0	8E31018	TKM	05/31/2018 10:25	05/31/2018 16:18	SM 4500-F D-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Barium	0.295	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 16:14	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 13:19	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	0.017	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	
<b>Mercury by EPA 200 Series Methods CVAAS</b>										
Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/29/2018 14:43	EPA 245.1 Rev 3.0	

Red Hills Power Plant  
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 Project Manager: Jim Ward

 Reported:  
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**MW-15**
**1805378-10 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Fluoride	0.31	0.22	mg/L	1.0	8E31018	TKM	05/31/2018 10:25	05/31/2018 16:18	SM 4500-F D-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Barium	0.203	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 16:17	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 13:27	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	0.009	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	
<b>Mercury by EPA 200 Series Methods CVAAS</b>										
Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	

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**CCR-2**
**1805378-11 (Water)**

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

Fluoride	ND	0.22	mg/L	1.0	8E31018	TKM	05/31/2018 10:25	05/31/2018 16:18	SM 4500-F D-2011	
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**Metals by EPA 200 Series Methods ICP-AES**

Barium	0.091	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 16:26	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	

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

Antimony [He]	0.002	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 14:23	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	0.001	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	

**Mercury by EPA 200 Series Methods CVAAS**

Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	
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Red Hills Power Plant  
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**CCR-3**
**1805378-12 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Fluoride	0.48	0.22	mg/L	1.0	8E31018	TKM	05/31/2018 10:25	05/31/2018 16:18	SM 4500-F D-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Barium	0.098	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 16:29	EPA 200.7 Rev 4.4	
Lithium	0.108	0.050	"	"	"	SCH	"	"	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 14:32	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	ND	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	
<b>Mercury by EPA 200 Series Methods CVAAS</b>										
Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	

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 Project Manager: Jim Ward

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**CCR-4**
**1805378-13 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Fluoride	0.53	0.22	mg/L	1.0	8E31018	TKM	05/31/2018 10:25	05/31/2018 16:18	SM 4500-F D-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Barium	0.154	0.010	mg/L	1.0	8E21052	SCH	05/21/2018 09:00	05/24/2018 16:32	EPA 200.7 Rev 4.4	
Lithium	ND	0.050	"	"	"	SCH	"	"	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [He]	ND	0.002	mg/L	1.0	8E21049	MMG	"	05/22/2018 14:40	EPA 200.8 Rev 5.4	
Arsenic [HHe]	ND	0.002	"	"	"	MMG	"	"	"	
Beryllium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cadmium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Chromium [He]	ND	0.001	"	"	"	MMG	"	"	"	
Cobalt [He]	0.002	0.001	"	"	"	MMG	"	"	"	
Lead [He]	ND	0.001	"	"	"	MMG	"	"	"	
Molybdenum [He]	ND	0.001	"	"	"	MMG	"	"	"	
Selenium [HHe]	ND	0.001	"	"	"	MMG	"	"	"	
Thallium [He]	ND	0.001	"	"	"	MMG	"	"	"	
<b>Mercury by EPA 200 Series Methods CVAAS</b>										
Mercury	ND	0.002	mg/L	1.0	8E23044	MMG	05/23/2018 09:00	05/23/2018 16:23	EPA 245.1 Rev 3.0	



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2391 Pensacola Rd.  
Ackerman MS, 39735

Project: Red Hills CCR  
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Project Manager: Jim Ward

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### Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 8E25019 - Default Prep GenChem											
Blank (8E25019-BLK1)											
Fluoride	5/25/18 13:38	ND	0.22	mg/L							
LCS (8E25019-BS1)											
Fluoride	5/25/18 13:38	0.20	0.22	mg/L	0.200		102	75-125			
LCS Dup (8E25019-BSD1)											
Fluoride	5/25/18 13:38	0.23	0.22	mg/L	0.200		117	75-125	14.1	30	
Duplicate (8E25019-DUP1) Source: 1805359-01											
Fluoride	5/25/18 13:38	0.86	0.22	mg/L		0.81			5.68	35	
Batch 8E31018 - Default Prep GenChem											
Blank (8E31018-BLK1)											
Fluoride	5/31/18 16:19	ND	0.22	mg/L							
Blank (8E31018-BLK2)											
Fluoride	5/31/18 16:27	ND	0.22	mg/L							
LCS (8E31018-BS1)											
Fluoride	5/31/18 13:46	0.20	0.22	mg/L	0.200		97.6	75-125			
LCS (8E31018-BS2)											
Fluoride	5/31/18 16:27	0.21	0.22	mg/L	0.200		107	75-125			
LCS Dup (8E31018-BSD1)											
Fluoride	5/31/18 13:46	0.23	0.22	mg/L	0.200		114	75-125	15.1	30	



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Project: Red Hills CCR  
Project Number: Red Hills  
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### Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 8E31018 - Default Prep GenChem											
LCS Dup (8E31018-BSD2)											
Fluoride	5/31/18 16:27	0.21	0.22	mg/L	0.200		107	75-125	0.00	30	
Duplicate (8E31018-DUP1) Source: 1805378-07											
Fluoride	5/31/18 16:19	ND	0.22	mg/L		ND				35	
Duplicate (8E31018-DUP2) Source: 1805533-01											
Fluoride	5/31/18 16:27	0.45	0.22	mg/L		0.42			7.29	35	

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### 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 8E21052 - EPA 200.2 DCN 1017 Rev 8											
Blank (8E21052-BLK1)											
Barium	5/24/18 14:58	ND	0.010	mg/L							
Lithium	5/24/18 14:58	ND	0.050	"							
LCS (8E21052-BS1)											
Barium	5/24/18 15:01	0.194	0.010	mg/L	0.200		97.1	85-115			
Lithium	5/24/18 15:30	0.196	0.050	"				85-115			
LCS Dup (8E21052-BSD1)											
Barium	5/24/18 15:04	0.197	0.010	mg/L	0.200		98.3	85-115	1.23	20	
Lithium	5/24/18 15:32	0.163	0.050	"				85-115	18.4	20	
Duplicate (8E21052-DUP1) Source: 1805378-10											
Lithium	5/24/18 16:20	0.030	0.050	mg/L		0.030			0.386	20	
Matrix Spike (8E21052-MS1) Source: 1805378-01											
Barium	5/24/18 15:35	0.402	0.010	mg/L	0.200	0.212	95.1	70-130			
Lithium	5/24/18 15:35	0.287	0.050	"		0.090		70-130			
Matrix Spike (8E21052-MS2) Source: 1805378-10											
Barium	5/24/18 16:20	0.413	0.010	mg/L	0.200	0.203	105	70-130			
Matrix Spike Dup (8E21052-MSD1) Source: 1805378-01											
Barium	5/24/18 15:38	0.400	0.010	mg/L	0.200	0.212	94.2	70-130	0.491	20	
Lithium	5/24/18 15:38	0.291	0.050	"		0.090		70-130	1.54	20	
Matrix Spike Dup (8E21052-MSD2) Source: 1805378-10											
Barium	5/24/18 16:23	0.409	0.010	mg/L	0.200	0.203	103	70-130	1.06	20	



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

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
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Batch 8E21049 - EPA 200.2 DCN 1017 Rev 8

#### Blank (8E21049-BLK1)

Antimony [He]	5/22/18 11:33	ND	0.002	mg/L							
Arsenic [HHe]	5/22/18 11:33	ND	0.002	"							
Beryllium [He]	5/22/18 11:33	ND	0.001	"							
Cadmium [HHe]	5/22/18 11:33	ND	0.001	"							
Chromium [He]	5/22/18 11:33	ND	0.001	"							
Cobalt [He]	5/22/18 11:33	ND	0.001	"							
Lead [He]	5/22/18 11:33	ND	0.001	"							
Molybdenum [He]	5/22/18 11:33	ND	0.001	"							
Selenium [HHe]	5/22/18 11:33	ND	0.001	"							
Thallium [He]	5/22/18 11:33	ND	0.001	"							

#### LCS (8E21049-BS1)

Antimony [He]	5/22/18 11:42	0.108	0.002	mg/L	0.100		108	85-115			
Arsenic [HHe]	5/22/18 11:42	0.100	0.002	"	0.100		100	85-115			
Beryllium [He]	5/22/18 11:42	0.103	0.001	"	0.100		103	85-115			
Cadmium [HHe]	5/22/18 11:42	0.091	0.001	"	0.100		90.6	85-115			
Chromium [He]	5/22/18 11:42	0.100	0.001	"	0.100		99.5	85-115			
Cobalt [He]	5/22/18 11:42	0.093	0.001	"	0.100		93.0	85-115			
Lead [He]	5/22/18 11:42	0.096	0.001	"	0.100		95.5	85-115			
Molybdenum [He]	5/22/18 11:42	0.091	0.001	"	0.100		91.0	85-115			
Selenium [HHe]	5/22/18 11:42	0.102	0.001	"	0.100		102	85-115			
Thallium [He]	5/22/18 11:42	0.101	0.001	"	0.100		101	85-115			

#### LCS Dup (8E21049-BSD1)

Antimony [He]	5/22/18 11:50	0.107	0.002	mg/L	0.100		107	85-115	0.994	20	
Arsenic [HHe]	5/22/18 11:50	0.101	0.002	"	0.100		101	85-115	0.962	20	
Beryllium [He]	5/22/18 11:50	0.100	0.001	"	0.100		100	85-115	2.41	20	
Cadmium [HHe]	5/22/18 11:50	0.090	0.001	"	0.100		89.6	85-115	1.11	20	
Chromium [He]	5/22/18 11:50	0.100	0.001	"	0.100		99.8	85-115	0.261	20	
Cobalt [He]	5/22/18 11:50	0.093	0.001	"	0.100		92.9	85-115	0.115	20	
Lead [He]	5/22/18 11:50	0.094	0.001	"	0.100		93.7	85-115	1.90	20	
Molybdenum [He]	5/22/18 11:50	0.091	0.001	"	0.100		91.1	85-115	0.166	20	
Selenium [HHe]	5/22/18 11:50	0.101	0.001	"	0.100		101	85-115	0.587	20	
Thallium [He]	5/22/18 11:50	0.100	0.001	"	0.100		100	85-115	0.530	20	

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### 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 8E21049 - EPA 200.2 DCN 1017 Rev 8											
<b>Matrix Spike (8E21049-MS1)</b>				<b>Source: 1805378-01</b>							
Antimony [He]	5/22/18 12:06	0.227	0.002	mg/L	0.200	0.0005	114	70-130			
Arsenic [HHe]	5/22/18 12:06	0.203	0.002	"	0.200	0.0001	101	70-130			
Beryllium [He]	5/22/18 12:06	0.203	0.001	"	0.200	0.002	100	70-130			
Cadmium [HHe]	5/22/18 12:06	0.204	0.001	"	0.200	0.001	101	70-130			
Chromium [He]	5/22/18 12:06	0.193	0.001	"	0.200	0.00008	96.5	70-130			
Cobalt [He]	5/22/18 12:06	0.208	0.001	"	0.200	0.017	95.1	70-130			
Lead [He]	5/22/18 12:06	0.205	0.001	"	0.200	ND	103	70-130			
Molybdenum [He]	5/22/18 12:06	0.200	0.001	"	0.200	0.0002	100	70-130			
Selenium [HHe]	5/22/18 12:06	0.197	0.001	"	0.200	0.0004	98.4	70-130			
Thallium [He]	5/22/18 12:06	0.201	0.001	"	0.200	0.0002	100	70-130			
<b>Matrix Spike (8E21049-MS2)</b>				<b>Source: 1805378-10</b>							
Antimony [He]	5/22/18 13:35	0.228	0.002	mg/L	0.200	ND	114	70-130			
Arsenic [HHe]	5/22/18 13:35	0.201	0.002	"	0.200	0.0004	100	70-130			
Beryllium [He]	5/22/18 13:35	0.208	0.001	"	0.200	0.0001	104	70-130			
Cadmium [HHe]	5/22/18 13:35	0.205	0.001	"	0.200	0.00002	102	70-130			
Chromium [He]	5/22/18 13:35	0.199	0.001	"	0.200	0.00009	99.5	70-130			
Cobalt [He]	5/22/18 13:35	0.211	0.001	"	0.200	0.009	101	70-130			
Lead [He]	5/22/18 13:35	0.205	0.001	"	0.200	ND	103	70-130			
Molybdenum [He]	5/22/18 13:35	0.192	0.001	"	0.200	ND	96.1	70-130			
Selenium [HHe]	5/22/18 13:35	0.196	0.001	"	0.200	ND	98.2	70-130			
Thallium [He]	5/22/18 13:35	0.201	0.001	"	0.200	ND	101	70-130			
<b>Matrix Spike Dup (8E21049-MSD1)</b>				<b>Source: 1805378-01</b>							
Antimony [He]	5/22/18 12:14	0.229	0.002	mg/L	0.200	0.0005	114	70-130	0.466	20	
Arsenic [HHe]	5/22/18 12:14	0.203	0.002	"	0.200	0.0001	101	70-130	0.139	20	
Beryllium [He]	5/22/18 12:14	0.204	0.001	"	0.200	0.002	101	70-130	0.411	20	
Cadmium [HHe]	5/22/18 12:14	0.205	0.001	"	0.200	0.001	102	70-130	0.283	20	
Chromium [He]	5/22/18 12:14	0.194	0.001	"	0.200	0.00008	96.8	70-130	0.347	20	
Cobalt [He]	5/22/18 12:14	0.212	0.001	"	0.200	0.017	97.6	70-130	2.33	20	
Lead [He]	5/22/18 12:14	0.208	0.001	"	0.200	ND	104	70-130	1.54	20	
Molybdenum [He]	5/22/18 12:14	0.202	0.001	"	0.200	0.0002	101	70-130	0.905	20	
Selenium [HHe]	5/22/18 12:14	0.197	0.001	"	0.200	0.0004	98.2	70-130	0.186	20	
Thallium [He]	5/22/18 12:14	0.204	0.001	"	0.200	0.0002	102	70-130	1.56	20	

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

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

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

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
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Batch 8E21049 - EPA 200.2 DCN 1017 Rev 8

Matrix Spike Dup (8E21049-MSD2)

Source: 1805378-10

Antimony [He]	5/22/18 13:43	0.224	0.002	mg/L	0.200	ND	112	70-130	1.52	20	
Arsenic [HHe]	5/22/18 13:43	0.203	0.002	"	0.200	0.0004	101	70-130	0.945	20	
Beryllium [He]	5/22/18 13:43	0.210	0.001	"	0.200	0.0001	105	70-130	0.902	20	
Cadmium [HHe]	5/22/18 13:43	0.203	0.001	"	0.200	0.00002	102	70-130	0.667	20	
Chromium [He]	5/22/18 13:43	0.199	0.001	"	0.200	0.00009	99.5	70-130	0.0270	20	
Cobalt [He]	5/22/18 13:43	0.212	0.001	"	0.200	0.009	102	70-130	0.411	20	
Lead [He]	5/22/18 13:43	0.203	0.001	"	0.200	ND	101	70-130	1.30	20	
Molybdenum [He]	5/22/18 13:43	0.191	0.001	"	0.200	ND	95.3	70-130	0.856	20	
Selenium [HHe]	5/22/18 13:43	0.200	0.001	"	0.200	ND	100	70-130	1.95	20	
Thallium [He]	5/22/18 13:43	0.202	0.001	"	0.200	ND	101	70-130	0.370	20	

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### 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 8E23044 - EPA 245.1 DCN 1017 Rev 8											
Blank (8E23044-BLK1)											
Mercury	5/23/18 16:23	ND	0.002	mg/L							
LCS (8E23044-BS1)											
Mercury	5/23/18 16:23	0.006	0.002	mg/L	0.00500		110	85-115			
LCS Dup (8E23044-BSD1)											
Mercury	5/23/18 16:23	0.005	0.002	mg/L	0.00500		106	85-115	3.70	20	
Matrix Spike (8E23044-MS1) Source: 1805378-01											
Mercury	5/23/18 16:23	0.005	0.002	mg/L	0.00500	0.0005	96.0	70-130			
Matrix Spike (8E23044-MS2) Source: 1805378-10											
Mercury	5/23/18 16:23	0.007	0.002	mg/L	0.00500	0.0002	126	70-130			
Matrix Spike Dup (8E23044-MSD1) Source: 1805378-01											
Mercury	5/23/18 16:23	0.006	0.002	mg/L	0.00500	0.0005	106	70-130	9.01	20	
Matrix Spike Dup (8E23044-MSD2) Source: 1805378-10											
Mercury	5/23/18 16:23	0.006	0.002	mg/L	0.00500	0.0002	110	70-130	13.1	20	

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**Certified Analyses Included in this Report**

Analyte	Certification Code
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***EPA 200.7 Rev 4.4 in Water***

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

***EPA 200.8 Rev 5.4 in Water***

Aluminum [He]	C01,C02
Antimony [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

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Cobalt [He]	C01,C02
Copper [He]	C01,C02
Copper [NG]	C01,C02
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

**EPA 245.1 Rev 3.0 in Water**

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



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

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

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### Laboratory Accreditations/Certifications

Code	Description	Number	Expires
C01	LA Environmental Lab Accreditation Program	01960	06/30/2018
C02	The NELAC Institute (NELAP)	TNI01397	06/30/2018
C03	Ms Dept of Health (Coliform)	MS00021	12/31/2018
C04	Ms Dept of Health (Drinking Water Certificate)	MS00021	12/31/2018
C05	Ms DEQ Lead Firm Certification	PBF-00000028	02/25/2019
C06	MsDEQ Asbestos Inspector : C.D. Bingham	ABI-00001348	03/08/2019
C07	MsDEQ Air Monitor : C.D. Bingham	AM-011572	03/09/2019
C08	MsDEQ Asbestos Inspector: C. W. Meins	ABI-00001821	09/15/2018
C09	MsDEQ Air Monitor : C.W. Meins	AM-011189	03/09/2019
C12	MsDEQ Asbestos Inspector : H.P. Howell	ABI-00001345	03/08/2019
C14	MsDEQ Lead Paint Inspector : C.D. Bingham	PBI-00003690	03/19/2019
C15	MsDEQ Lead Paint Inspector : C.W. Meins	PBI-00001740	03/19/2019

### Report Definitions

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



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

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

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

**Reported:**  
06/18/2018 10:01

## Analyst Initials Key

<u>FullName</u>	<u>Initials</u>
Barbara K. McMillan	BKM
Heather A Denham	HAD
Harry P. Howell	HPH
Michelle M Gallegos	MMG
Rachel A Walters	RAW
Sarah E. Tomek	SET
Samantha C. Hall	SCH
Tina Tomek	TPT
Teresa Meins	TKM



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

Chain of Custody Record

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

Print Form

M-M Lab  
WO #  
1805378

Company Name: <b>Red Hills Power Plant</b>				Project Manager: <b>Jim Ward</b>			
Address: <b>2391 Pensacola Rd.</b>				Purchase Order #: <b>SCSRDH6883</b>			
City: <b>Ackerman</b>		State: <b>MS</b>		Zip: <b>39735</b>		Email Address: <b>Stacy.H@environment.net</b>	
Phone: <b>662-387-5758</b>				Sampler Name Printed: <b>Joseph Baskin</b>			
Fax:				Sampler Name Signed: <b>Joseph Baskin</b>			
Project Name: <b>Red Hills CCR</b>				List Analyses Requested			
Project #:				Preservative:			
Sample Identification		Sampling Date/Time		Matrix Code		# of Containers	
MM-9		5/15-1325		W		4	
MM-16		5/15-1050		W		4	
OW-2		5/15-1205		W		4	
MM-13		5/16-1120		W		4	
MM-7		5/16-1155		W		4	
MM-14		5/16-1255		W		4	
Field Blank		5/16-1030		W		4	
Duplicate		5/16-0800		W		4	
MM-12		5/15-1020		W		4	
MM-15		5/15-1238		W		4	
CCR-2		5/16-1010		W		4	
Received on Ice? Y N Thermometer# _____ Cooler # _____				Receipt Temp Corrected (°C)			
Date & Time _____ By: _____				Sample _____ Blank _____ Cooler _____			
Printed Name		Signature		Company		Date	
Relinquished by		Joseph Baskin		EC S		5/17/18 1030	
Received by		Sarah Tomer		MVM		5/17/18 1030	
Relinquished by							
Received by							
Relinquished by							
Received by							

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

Notes: see page 2.

\*\*All Temps are Corrected Values\*\*



### Chain of Custody Record

PO Box 1410, Ocean Springs, MS 39566-1410  
(228) 875-6420 FAX (228) 875-6423  
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Lab ID# MS00021  
LELAP ID # 01960  
TNID # TN101397

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M-M Lab  
WO #

1805378

Print Form

[illegible]

Micro-Methods Issue Date: 11-22-17	Micro-Methods Laboratory Log-In Checklist	DCN: F207 Date Revised: 11-22-17 Revision: 5
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Client Red Hills WO 1805378 Shipped By Client  
 Date/Time Received 5/17/18 1030 Unpacked/Checked By ST

Cooler ID	Ice Present Yes/No	Temperature (Corrected)	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#1130	Y/N	3.9°C	T#4	Y/N	Y/N
#711	Y/N	1.2°C	Y	Y/N	Y/N
#1121	Y	2.2°C	Y	Y	Y

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

Custody Seals on Bottles Present Yes \_\_\_ No X  
 Containers Intact Yes X No \_\_\_  
 Proper Containers for Requested Analysis Yes X No \_\_\_

Correct Preservation Used for All Samples Yes X No \_\_\_  
 Adequate Sample for Analysis Requested Yes X No \_\_\_

Volatile Vials Headspace Greater than 6mm in Diameter Yes \_\_\_ No \_\_\_ N/A X

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

Samples Received Within Holding Time Yes X No \_\_\_  
 Dept. Manager Notified of Rush/Short Holding Times Yes \_\_\_ No \_\_\_ N/A X

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

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

Comments: \_\_\_\_\_

**CUSTODY SEAL**

DATE 5/17/18  
 SIGNATURE Joseph Buckner

**QEC**

Quality Environmental Con  
 800-255-3950 • 304-255-3900

**CUSTODY SEAL**  
 DATE 5/17  
 SIGNATURE Joseph Buckner

**QEC**

Quality Environmental Containers  
 800-255-3950 • 304-255-3900

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June 13, 2018

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

RE: Project: 1805378  
Pace Project No.: 2076917

Dear Harry Howell:

Enclosed are the analytical results for sample(s) received by the laboratory on May 22, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



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

Enclosures



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 1805378

Pace Project No.: 2076917

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 1805378

Pace Project No.: 2076917

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2076917001	1805378-01	Water	05/15/18 13:25	05/22/18 10:00
2076917002	1805378-02	Water	05/15/18 10:50	05/22/18 10:00
2076917003	1805378-03	Water	05/15/18 12:05	05/22/18 10:00
2076917004	1805378-04	Water	05/16/18 11:20	05/22/18 10:00
2076917005	1805378-05	Water	05/16/18 11:55	05/22/18 10:00
2076917006	1805378-06	Water	05/16/18 12:55	05/22/18 10:00
2076917007	1805378-07	Water	05/16/18 10:00	05/22/18 10:00
2076917008	1805378-08	Water	05/16/18 08:00	05/22/18 10:00
2076917009	1805378-09	Water	05/15/18 10:20	05/22/18 10:00
2076917010	1805378-10	Water	05/15/18 12:38	05/22/18 10:00
2076917011	1805378-11	Water	05/16/18 10:10	05/22/18 10:00
2076917012	1805378-12	Water	05/15/18 14:40	05/22/18 10:00
2076917013	1805378-13	Water	05/16/18 10:55	05/22/18 10:00

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## SAMPLE ANALYTE COUNT

Project: 1805378

Pace Project No.: 2076917

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2076917001	1805378-01	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917002	1805378-02	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917003	1805378-03	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917004	1805378-04	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917005	1805378-05	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917006	1805378-06	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917007	1805378-07	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917008	1805378-08	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917009	1805378-09	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917010	1805378-10	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917011	1805378-11	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917012	1805378-12	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA
2076917013	1805378-13	EPA 903.1	KAC	1	PASI-PA
		EPA 904.0	JLW	1	PASI-PA

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 1805378

Pace Project No.: 2076917

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**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** Micro Methods Laboratory, Inc.

**Date:** June 13, 2018

**General Information:**

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

**Hold Time:**

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

**Method Blank:**

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

**Laboratory Control Spike:**

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

**Matrix Spikes:**

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

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 1805378

Pace Project No.: 2076917

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**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** Micro Methods Laboratory, Inc.

**Date:** June 13, 2018

**General Information:**

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

**Hold Time:**

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

**Method Blank:**

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

**Laboratory Control Spike:**

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

**Matrix Spikes:**

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

**Additional Comments:**

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

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1805378

Pace Project No.: 2076917

**Sample: 1805378-01**      **Lab ID: 2076917001**      Collected: 05/15/18 13:25      Received: 05/22/18 10:00      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.624 ± 0.627 (0.978)</b> <b>C:NA T:82%</b>	pCi/L	06/11/18 13:30	13982-63-3	
Radium-228	EPA 904.0	<b>0.150 ± 0.476 (1.07)</b> <b>C:78% T:85%</b>	pCi/L	06/12/18 18:11	15262-20-1	

**Sample: 1805378-02**      **Lab ID: 2076917002**      Collected: 05/15/18 10:50      Received: 05/22/18 10:00      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>1.00 ± 0.665 (0.876)</b> <b>C:NA T:85%</b>	pCi/L	06/11/18 13:47	13982-63-3	
Radium-228	EPA 904.0	<b>0.902 ± 0.592 (1.12)</b> <b>C:74% T:77%</b>	pCi/L	06/12/18 18:11	15262-20-1	

**Sample: 1805378-03**      **Lab ID: 2076917003**      Collected: 05/15/18 12:05      Received: 05/22/18 10:00      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>-0.065 ± 0.381 (0.850)</b> <b>C:NA T:86%</b>	pCi/L	06/11/18 13:47	13982-63-3	
Radium-228	EPA 904.0	<b>1.63 ± 0.665 (0.994)</b> <b>C:77% T:87%</b>	pCi/L	06/12/18 15:44	15262-20-1	

**Sample: 1805378-04**      **Lab ID: 2076917004**      Collected: 05/16/18 11:20      Received: 05/22/18 10:00      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.257 ± 0.358 (0.597)</b> <b>C:NA T:91%</b>	pCi/L	06/11/18 13:47	13982-63-3	
Radium-228	EPA 904.0	<b>0.283 ± 0.610 (1.35)</b> <b>C:71% T:81%</b>	pCi/L	06/12/18 18:10	15262-20-1	

**Sample: 1805378-05**      **Lab ID: 2076917005**      Collected: 05/16/18 11:55      Received: 05/22/18 10:00      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.127 ± 0.530 (1.01)</b> <b>C:NA T:91%</b>	pCi/L	06/11/18 13:30	13982-63-3	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1805378

Pace Project No.: 2076917

<b>Sample: 1805378-05</b>		<b>Lab ID: 2076917005</b>	Collected: 05/16/18 11:55	Received: 05/22/18 10:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0	<b>0.143 ± 0.461 (1.04)</b> <b>C:73% T:87%</b>	pCi/L	06/12/18 18:11	15262-20-1	

<b>Sample: 1805378-06</b>		<b>Lab ID: 2076917006</b>	Collected: 05/16/18 12:55	Received: 05/22/18 10:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.0619 ± 0.283 (0.575)</b> <b>C:NA T:87%</b>	pCi/L	06/11/18 13:47	13982-63-3	
Radium-228	EPA 904.0	<b>0.387 ± 0.777 (1.71)</b> <b>C:73% T:82%</b>	pCi/L	06/12/18 19:23	15262-20-1	

<b>Sample: 1805378-07</b>		<b>Lab ID: 2076917007</b>	Collected: 05/16/18 10:00	Received: 05/22/18 10:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.443 ± 0.376 (0.466)</b> <b>C:NA T:94%</b>	pCi/L	06/11/18 13:47	13982-63-3	
Radium-228	EPA 904.0	<b>-0.0677 ± 0.678 (1.57)</b> <b>C:75% T:82%</b>	pCi/L	06/12/18 19:23	15262-20-1	

<b>Sample: 1805378-08</b>		<b>Lab ID: 2076917008</b>	Collected: 05/16/18 08:00	Received: 05/22/18 10:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.435 ± 0.668 (1.15)</b> <b>C:NA T:82%</b>	pCi/L	06/11/18 13:47	13982-63-3	
Radium-228	EPA 904.0	<b>0.913 ± 0.751 (1.52)</b> <b>C:78% T:75%</b>	pCi/L	06/12/18 19:23	15262-20-1	

<b>Sample: 1805378-09</b>		<b>Lab ID: 2076917009</b>	Collected: 05/15/18 10:20	Received: 05/22/18 10:00	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.591 ± 0.546 (0.795)</b> <b>C:NA T:80%</b>	pCi/L	06/11/18 13:47	13982-63-3	
Radium-228	EPA 904.0	<b>0.622 ± 0.827 (1.77)</b> <b>C:73% T:78%</b>	pCi/L	06/12/18 19:23	15262-20-1	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1805378

Pace Project No.: 2076917

**Sample: 1805378-10**      **Lab ID: 2076917010**      Collected: 05/15/18 12:38      Received: 05/22/18 10:00      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.0692 ± 0.525 (1.04)</b> <b>C:NA T:83%</b>	pCi/L	06/11/18 13:59	13982-63-3	
Radium-228	EPA 904.0	<b>0.911 ± 0.845 (1.75)</b> <b>C:73% T:80%</b>	pCi/L	06/12/18 19:23	15262-20-1	

**Sample: 1805378-11**      **Lab ID: 2076917011**      Collected: 05/16/18 10:10      Received: 05/22/18 10:00      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.000 ± 0.459 (0.940)</b> <b>C:NA T:92%</b>	pCi/L	06/11/18 13:59	13982-63-3	
Radium-228	EPA 904.0	<b>-0.947 ± 0.772 (1.88)</b> <b>C:71% T:86%</b>	pCi/L	06/12/18 19:23	15262-20-1	

**Sample: 1805378-12**      **Lab ID: 2076917012**      Collected: 05/15/18 14:40      Received: 05/22/18 10:00      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.952 ± 0.576 (0.631)</b> <b>C:NA T:87%</b>	pCi/L	06/11/18 19:23	13982-63-3	
Radium-228	EPA 904.0	<b>1.07 ± 0.558 (1.03)</b> <b>C:74% T:84%</b>	pCi/L	06/12/18 11:13	15262-20-1	

**Sample: 1805378-13**      **Lab ID: 2076917013**      Collected: 05/16/18 10:55      Received: 05/22/18 10:00      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.821 ± 0.523 (0.631)</b> <b>C:NA T:93%</b>	pCi/L	06/11/18 19:38	13982-63-3	
Radium-228	EPA 904.0	<b>0.156 ± 0.399 (0.889)</b> <b>C:73% T:86%</b>	pCi/L	06/12/18 11:14	15262-20-1	

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL - RADIOCHEMISTRY

Project: 1805378

Pace Project No.: 2076917

QC Batch:	299926	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	2076917001, 2076917002, 2076917003, 2076917004, 2076917005, 2076917006, 2076917007, 2076917008, 2076917009, 2076917010, 2076917011		

METHOD BLANK:	1468128	Matrix:	Water
Associated Lab Samples:	2076917001, 2076917002, 2076917003, 2076917004, 2076917005, 2076917006, 2076917007, 2076917008, 2076917009, 2076917010, 2076917011		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.955 ± 0.449 (0.750) C:76% T:80%	pCi/L	06/12/18 15:44	

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

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## QUALITY CONTROL - RADIOCHEMISTRY

Project: 1805378

Pace Project No.: 2076917

QC Batch: 299932

Analysis Method: EPA 904.0

QC Batch Method: EPA 904.0

Analysis Description: 904.0 Radium 228

Associated Lab Samples: 2076917012, 2076917013

METHOD BLANK: 1468143

Matrix: Water

Associated Lab Samples: 2076917012, 2076917013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0968 ± 0.368 (0.832) C:75% T:78%	pCi/L	06/12/18 11:13	

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

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL - RADIOCHEMISTRY

Project: 1805378

Pace Project No.: 2076917

QC Batch: 299886

Analysis Method: EPA 903.1

QC Batch Method: EPA 903.1

Analysis Description: 903.1 Radium-226

Associated Lab Samples: 2076917012, 2076917013

METHOD BLANK: 1468021

Matrix: Water

Associated Lab Samples: 2076917012, 2076917013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.457 ± 0.428 (0.606) C:NA T:83%	pCi/L	06/11/18 19:23	

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

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL - RADIOCHEMISTRY

Project: 1805378

Pace Project No.: 2076917

QC Batch:	299885	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	2076917001, 2076917002, 2076917003, 2076917004, 2076917005, 2076917006, 2076917007, 2076917008, 2076917009, 2076917010, 2076917011		

METHOD BLANK:	1468018	Matrix:	Water
Associated Lab Samples:	2076917001, 2076917002, 2076917003, 2076917004, 2076917005, 2076917006, 2076917007, 2076917008, 2076917009, 2076917010, 2076917011		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0702 ± 0.320 (0.517) C:NA T:87%	pCi/L	06/11/18 13:13	

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

## REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 1805378

Pace Project No.: 2076917

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1805378

Pace Project No.: 2076917

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2076917001	1805378-01	EPA 903.1	299885		
2076917002	1805378-02	EPA 903.1	299885		
2076917003	1805378-03	EPA 903.1	299885		
2076917004	1805378-04	EPA 903.1	299885		
2076917005	1805378-05	EPA 903.1	299885		
2076917006	1805378-06	EPA 903.1	299885		
2076917007	1805378-07	EPA 903.1	299885		
2076917008	1805378-08	EPA 903.1	299885		
2076917009	1805378-09	EPA 903.1	299885		
2076917010	1805378-10	EPA 903.1	299885		
2076917011	1805378-11	EPA 903.1	299885		
2076917012	1805378-12	EPA 903.1	299886		
2076917013	1805378-13	EPA 903.1	299886		
2076917001	1805378-01	EPA 904.0	299926		
2076917002	1805378-02	EPA 904.0	299926		
2076917003	1805378-03	EPA 904.0	299926		
2076917004	1805378-04	EPA 904.0	299926		
2076917005	1805378-05	EPA 904.0	299926		
2076917006	1805378-06	EPA 904.0	299926		
2076917007	1805378-07	EPA 904.0	299926		
2076917008	1805378-08	EPA 904.0	299926		
2076917009	1805378-09	EPA 904.0	299926		
2076917010	1805378-10	EPA 904.0	299926		
2076917011	1805378-11	EPA 904.0	299926		
2076917012	1805378-12	EPA 904.0	299932		
2076917013	1805378-13	EPA 904.0	299932		

## REPORT OF LABORATORY ANALYSIS

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



# MICRO-METHODS

LABORATORY, INC.

## 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: Barbara K. McMillan

### Subcontracted Laboratory:

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

WO#: 2076917



4613 L14

### Work Order: 1805378

Analysis	Due	Expires	Comments
<b>Sample ID: 1805378-01 Water Sampled: 05/15/2018 13:25 Sample Name: MW-9</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/12/2018 13:25	
<i>Containers Supplied:</i> 1000mL Plastic (C) 1000mL Plastic (D)			
<b>Sample ID: 1805378-02 Water Sampled: 05/15/2018 10:50 Sample Name: MW-16</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/12/2018 10:50	
<i>Containers Supplied:</i> 1000mL Plastic (C) 1000mL Plastic (D)			
<b>Sample ID: 1805378-03 Water Sampled: 05/15/2018 12:05 Sample Name: OW-2</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/12/2018 12:05	
<i>Containers Supplied:</i> 1000mL Plastic (C) 1000mL Plastic (D)			
<b>Sample ID: 1805378-04 Water Sampled: 05/16/2018 11:20 Sample Name: MW-13</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/13/2018 11:20	
<i>Containers Supplied:</i> 1000mL Plastic (C) 1000mL Plastic (D)			
<b>Sample ID: 1805378-05 Water Sampled: 05/16/2018 11:55 Sample Name: MW-7</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/13/2018 11:55	
<i>Containers Supplied:</i> 1000mL Plastic (C) 1000mL Plastic (D)			
<b>Sample ID: 1805378-06 Water Sampled: 05/16/2018 12:55 Sample Name: MW-14</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/13/2018 12:55	
<i>Containers Supplied:</i> 1000mL Plastic (C) 1000mL Plastic (D)			
<b>Sample ID: 1805378-07 Water Sampled: 05/16/2018 10:00 Sample Name: Field Blank</b>			

Released By

Date

Received By

Date

Released By

Date

Received By

Date





# MICRO-METHODS LABORATORY, INC.

## SUBCONTRACT ORDER (Continued)

### Work Order: 1805378 (Continued)

Analysis	Due	Expires	Comments
<b>Sample ID: 1805378-07</b> <i>Water</i> <b>Sampled: 05/16/2018 10:00</b> <b>Sample Name: Field Blank</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/13/2018 10:00	
<i>Containers Supplied:</i> 1000mL Plastic (C)                      1000mL Plastic (D)			
<b>Sample ID: 1805378-08</b> <i>Water</i> <b>Sampled: 05/16/2018 08:00</b> <b>Sample Name: Duplicate</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/13/2018 08:00	
<i>Containers Supplied:</i> 1000mL Plastic (C)                      1000mL Plastic (D)			
<b>Sample ID: 1805378-09</b> <i>Water</i> <b>Sampled: 05/15/2018 10:20</b> <b>Sample Name: MW-12</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/12/2018 10:20	
<i>Containers Supplied:</i> 1000mL Plastic (C)                      1000mL Plastic (D)			
<b>Sample ID: 1805378-10</b> <i>Water</i> <b>Sampled: 05/15/2018 12:38</b> <b>Sample Name: MW-15</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/12/2018 12:38	
<i>Containers Supplied:</i> 1000mL Plastic (C)                      1000mL Plastic (D)			
<b>Sample ID: 1805378-11</b> <i>Water</i> <b>Sampled: 05/16/2018 10:10</b> <b>Sample Name: CCR-2</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/13/2018 10:10	
<i>Containers Supplied:</i> 1000mL Plastic (C)                      1000mL Plastic (D)			
<b>Sample ID: 1805378-12</b> <i>Water</i> <b>Sampled: 05/15/2018 14:40</b> <b>Sample Name: CCR-3</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/12/2018 14:40	
<i>Containers Supplied:</i> 1000mL Plastic (C)                      1000mL Plastic (D)			
<b>Sample ID: 1805378-13</b> <i>Water</i> <b>Sampled: 05/16/2018 10:55</b> <b>Sample Name: CCR-4</b>			
Radium, Total 226 & 228 by 901.1	05/25/2018	06/13/2018 10:55	
<i>Containers Supplied:</i> 1000mL Plastic (C)                      1000mL Plastic (D)			

Small form 5/21/18 0810  
Released By \_\_\_\_\_ Date \_\_\_\_\_  
\_\_\_\_\_ 5/21/18  
Released By \_\_\_\_\_ Date \_\_\_\_\_

5/21/18 0810  
Received By \_\_\_\_\_ Date \_\_\_\_\_  
\_\_\_\_\_ 5-21-18 0810  
Received By \_\_\_\_\_ Date \_\_\_\_\_

## Pittsburgh Lab Sample Condition Upon Receipt

WO#: 2076917

PM: KHB

Due Date: 06/14/18

CLIENT: 20-MICRO

Face Analytical

Client Name: Micro-methodsCourier: ☒ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Face OtherTracking #: 42016 1797 2260

LIMS Login

Custody Seal on Cooler/Box Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ noThermometer Used N-A Type of Ice: Wet Blue NoneCooler Temperature Observed Temp - °C Correction Factor: - °C Final Temp: - °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10D3671	BKH 5-22-18
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Includes date/time/ID					
Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Orthophosphate field filtered	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Hex Cr Aqueous Compliance/NPDES sample field filtered	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Organic Samples checked for dechlorination:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed BKH	Date/time of preservation BKH 5-22-18 1040
				Lot # of added preservative DL18-04169	
Headspace in VOA Vials (>6mm):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Trip Blank Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Rad Aqueous Samples Screened > 0.5 mrem/hr	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed BKH	Date: 5-22-18

## Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Sample 003 Spilled during transit 1805378-03 5/15/18 12:05  
bottle 1 of 2.

☐ A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.





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

www.micromethodslab.com

## Chain of Custody Record

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

Print Form

M-M Lab  
WO #

Company Name: <b>Red Hills Power Plant</b>		Project Manager: <b>Jim Ward</b>	
Address: <b>2391 Pensacola Rd.</b>		Purchase Order #: <b>SCSRDH6883</b>	
City: <b>Ackerman</b>	State: <b>MS</b>	Zip: <b>39735</b>	Email Address: <b>stakst@envirocon.net</b>
Phone: <b>662-387-5758</b>	Sampler Name Printed: <b>Joseph Beckert</b>		
Fax:	Sampler Name Signed: <i>Joseph Beckert</i>		
Project Name: <b>Red Hills CCR</b>		List Analyses Requested	
Project #:		Preservative: # of Containers	
Sample Identification	Sampling Date/Time	Matrix Code	Fluoride
MW-9	5/15-1325	W	X
MW-16	5/15-1050	W	X
OW-2	5/15-1205	W	X
MW-13	5/16-1120	W	X
MW-7	5/16-1155	W	X
MW-14	5/16-1255	W	X
Field Blank	5/16-1020	W	X
Duplicate	5/16-800	W	X
MW-12	5/15-1020	W	X
MW-15	5/15-1238	W	X
CCR-2	5/15-1010	W	X
Received on Ice? Y N Thermometer# _____ Cooler # _____		Receipt Temp Corrected(°C)	
Date & Time	Printed Name	Signature	Company
Relinquished by	<i>Joseph Beckert</i>	<i>Joseph Beckert</i>	ECS
Received by	<i>Sarah Tomlin</i>	<i>Sarah Tomlin</i>	MM
Relinquished by			
Received by			
Relinquished by			
Received by			

Turn Around Time & Reporting			
Our normal turn around time is 10 working days			
Normal	*All rush order	Phone	
Next Day*	requests must be	Mail	
2nd Day*	prior approved.	Fax	
Other*		Email	
QC Level: Level 1	Level 2	Level 3	
Field Testing			
ID#	ID#	ID#	ID#
Field Test	Field Test	Field Test	Field Test
Matrix:			
W = Water			
DW = Drinking Water			
S = Solid			
SO = Soil			
SE = Sediment			
L = Liquid			
A = Air			
O = Oil			
SL = Sludge			
Preservation:			
1= H2SO4			
2= H3PO4			
3= NaOH			
4= ZnC4H10O6			
5= ZnC4H10O6 & NaOH			
6= HNO3			
7= Na2S2O3			
8= HCl			
9= NaHSO4			
**All Temps are Corrected Values**			

Notes: See page 2.

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 02, 2018

Jim Ward

**Work Order # :** 1809205

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 09/12/2018 08:09. If you have any questions concerning this report, please feel free to contact the office.



Harry P. Howell

President  
Micro-Methods Laboratory, Inc.



**DISCLAIMER**

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

Red Hills Power Plant  
2391 Pensacola Rd.  
Ackerman MS, 39735Project: Red Hills CCR  
Project Number: Red Hills  
Project Manager: Jim WardReported:  
10/02/2018 13:40

## ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date/Time Sampled	Sampled by	Date/Time Received
MW-9	1809205-01	Water	09/11/2018 09:55	Kirk Shelton	09/12/2018 08:09
MW-16	1809205-02	Water	09/11/2018 09:09	Kirk Shelton	09/12/2018 08:09
OW-2	1809205-03	Water	09/11/2018 07:09	Kirk Shelton	09/12/2018 08:09
MW-13	1809205-04	Water	09/11/2018 11:04	Kirk Shelton	09/12/2018 08:09
MW-7	1809205-05	Water	09/11/2018 13:26	Kirk Shelton	09/12/2018 08:09
MW-14	1809205-06	Water	09/11/2018 14:29	Kirk Shelton	09/12/2018 08:09
Field Blank	1809205-07	Water	09/11/2018 07:00	Kirk Shelton	09/12/2018 08:09
Duplicate	1809205-08	Water	09/10/2018 00:00	Kirk Shelton	09/12/2018 08:09
MW-12	1809205-09	Water	09/11/2018 08:01	Kirk Shelton	09/12/2018 08:09
MW-15	1809205-10	Water	09/11/2018 08:41	Kirk Shelton	09/12/2018 08:09
CCR-2	1809205-11	Water	09/10/2018 14:40	Kirk Shelton	09/12/2018 08:09
CCR-3	1809205-12	Water	09/10/2018 13:36	Kirk Shelton	09/12/2018 08:09
CCR-4	1809205-13	Water	09/10/2018 16:50	Kirk Shelton	09/12/2018 08:09
CCR-5	1809205-14	Water	09/11/2018 11:58	Kirk Shelton	09/12/2018 08:09

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

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

 Reported:  
 10/02/2018 13:40

**Sample Receipt Conditions**

Date/Time Received: 9/12/2018 8:09:00AM

Received by: Sarah E. Tomek

Date/Time Logged: 9/13/2018 9:03:00AM

 Cooler ID: **#1124**

<i>Custody Seals</i>	<i>No</i>
<i>Containers Intact</i>	<i>Yes</i>
<i>COC/Labels Agree</i>	<i>Yes</i>
<i>Labels Complete</i>	<i>Yes</i>
<i>COC Complete</i>	<i>Yes</i>

 Cooler ID: **#1136**

<i>Custody Seals</i>	<i>No</i>
<i>Containers Intact</i>	<i>Yes</i>
<i>COC/Labels Agree</i>	<i>Yes</i>
<i>Labels Complete</i>	<i>Yes</i>
<i>COC Complete</i>	<i>Yes</i>

 Cooler ID: **#515**

<i>Custody Seals</i>	<i>No</i>
<i>Containers Intact</i>	<i>Yes</i>
<i>COC/Labels Agree</i>	<i>Yes</i>
<i>Labels Complete</i>	<i>Yes</i>
<i>COC Complete</i>	<i>Yes</i>

Shipped by: Fed Ex

Submitted by: Kirk Shelton

Logged by: Sarah E. Tomek

 Receipt Temperature: 2.6 °C

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

 Receipt Temperature: 5.6 °C

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

 Receipt Temperature: 5.1 °C

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

Red Hills Power Plant  
2391 Pensacola Rd.  
Ackerman MS, 39735Project: Red Hills CCR  
Project Number: Red Hills  
Project Manager: Jim Ward**Reported:**  
10/02/2018 13:40**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 results from Sub-Contract Laboratory

**Total Metals-EPA 200.7 Rev 4.4****Qualifiers:**

QD-10 The analyte concentration is greater than 10 times the spike concentration. The Matrix Spike result reported as Duplicate. The QC batch was accepted based on LCS/LCSD and Duplicate recoveries within the acceptance limits.

**Calcium**

8I17029-DUP1, 8I17029-DUP2

**Total Dissolved Solids-SM 2540 C-2011****Qualifiers:**

RPD04 The RPD between the sample and sample duplicate exceeded the acceptance limits. The batch was accepted based on the lab controls.

**Total Dissolved Solids**

8I13028-DUP1

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

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

 Reported:  
 10/02/2018 13:40

**MW-9**
**1809205-01 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
Chloride	419	25.0	mg/L	50.0	8118046	DLW	09/18/2018 16:26	09/20/2018 12:49	SM 4110B 2011	
Sulfate as SO <sub>4</sub>	79.2	20.0	"	4.0	"	DLW	"	09/18/2018 18:34	"	
Fluoride	0.46	0.22	"	1.0	8125036	HAD	09/25/2018 13:00	09/25/2018 15:14	SM 4500-F D-2011	
Total Dissolved Solids	1498	1	"	"	8113028	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Barium	0.191	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 09:46	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	09/21/2018 10:28	"	
Calcium	70.6	0.200	"	2.0	"	MMG	"	09/21/2018 11:51	"	
Lithium	0.101	0.050	"	1.0	"	MMG	"	09/27/2018 09:11	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 16:41	EPA 200.8 Rev 5.4	
Beryllium [He]	0.00270	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	0.00139	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cobalt [He]	0.0176	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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

 Reported:  
 10/02/2018 13:40

**MW-16**
**1809205-02 (Water)**

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

<b>Chloride</b>	<b>49.8</b>	5.00	mg/L	10.0	8118046	DLW	09/18/2018 16:26	09/18/2018 18:52	SM 4110B 2011	
<b>Sulfate as SO<sub>4</sub></b>	<b>133</b>	50.0	"	"	"	DLW	"	"	"	
<b>Fluoride</b>	<b>0.24</b>	0.22	"	1.0	8125036	HAD	09/25/2018 13:00	09/25/2018 15:14	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>386</b>	2	"	"	8113028	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	

**Metals by EPA 200 Series Methods ICP-AES**

<b>Barium</b>	<b>0.188</b>	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 10:20	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	09/21/2018 10:45	"	
<b>Calcium</b>	<b>29.2</b>	0.100	"	"	"	MMG	"	"	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 09:19	"	

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

Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 17:11	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
<b>Cobalt [He]</b>	<b>0.00426</b>	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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 Project Manager: Jim Ward

 Reported:  
 10/02/2018 13:40

**OW-2**
**1809205-03 (Water)**

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

<b>Chloride</b>	<b>33.8</b>	5.00	mg/L	10.0	8118046	DLW	09/18/2018 16:26	09/18/2018 19:10	SM 4110B 2011	
<b>Sulfate as SO<sub>4</sub></b>	<b>73.2</b>	50.0	"	"	"	DLW	"	"	"	
<b>Fluoride</b>	<b>0.42</b>	0.22	"	1.0	8125036	HAD	09/25/2018 13:00	09/25/2018 15:14	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>304</b>	2	"	"	8113028	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	

**Metals by EPA 200 Series Methods ICP-AES**

<b>Barium</b>	<b>0.091</b>	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 10:23	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	09/21/2018 10:51	"	
<b>Calcium</b>	<b>29.0</b>	0.100	"	"	"	MMG	"	"	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 09:21	"	

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

Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 17:19	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	



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**MW-13**
**1809205-04 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>3.72</b>	0.500	mg/L	1.0	8118046	DLW	09/18/2018 16:26	09/18/2018 19:28	SM 4110B 2011	
Sulfate as SO <sub>4</sub>	ND	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8125036	HAD	09/25/2018 13:00	09/25/2018 15:14	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>149</b>	1	"	"	8113028	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
<b>Barium</b>	<b>0.131</b>	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 10:25	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	09/21/2018 10:56	"	
<b>Calcium</b>	<b>16.3</b>	0.100	"	"	"	MMG	"	"	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 09:24	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 17:58	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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**MW-7**
**1809205-05 (Water)**

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

<b>Chloride</b>	<b>2.65</b>	0.500	mg/L	1.0	8118046	DLW	09/18/2018 16:26	09/18/2018 19:46	SM 4110B 2011	
<b>Sulfate as SO<sub>4</sub></b>	<b>24.0</b>	20.0	"	4.0	"	DLW	"	09/20/2018 13:07	"	
<b>Fluoride</b>	<b>0.28</b>	0.22	"	1.0	8125036	HAD	09/25/2018 13:00	09/25/2018 15:14	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>224</b>	2	"	"	8113028	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	

**Metals by EPA 200 Series Methods ICP-AES**

<b>Barium</b>	<b>0.075</b>	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 10:27	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	09/21/2018 11:02	"	
<b>Calcium</b>	<b>43.2</b>	0.100	"	"	"	MMG	"	"	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 09:26	"	

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

Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 18:06	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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 Project Manager: Jim Ward

 Reported:  
 10/02/2018 13:40

**MW-14**
**1809205-06 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>17.0</b>	0.500	mg/L	1.0	8118046	DLW	09/18/2018 16:26	09/18/2018 20:04	SM 4110B 2011	
<b>Sulfate as SO4</b>	<b>8.67</b>	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8125036	HAD	09/25/2018 13:00	09/25/2018 15:14	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>87</b>	1	"	"	8113028	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Barium	ND	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 10:30	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	09/21/2018 11:08	"	
<b>Calcium</b>	<b>0.493</b>	0.100	"	"	"	MMG	"	"	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 09:29	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 18:14	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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

 Reported:  
 10/02/2018 13:40

**Field Blank**
**1809205-07 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>13.8</b>	0.500	mg/L	1.0	8118046	DLW	09/18/2018 16:26	09/18/2018 20:22	SM 4110B 2011	
<b>Sulfate as SO4</b>	<b>7.70</b>	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8125036	HAD	09/25/2018 13:00	09/25/2018 15:14	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>70</b>	1	"	"	8113028	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
Barium	ND	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 10:32	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	09/21/2018 11:14	"	
<b>Calcium</b>	<b>7.34</b>	0.100	"	"	"	MMG	"	"	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 09:32	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 18:22	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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

 Reported:  
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**Duplicate**
**1809205-08 (Water)**

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

Chloride	2.53	0.500	mg/L	1.0	8118046	DLW	09/18/2018 16:26	09/20/2018 15:14	SM 4110B 2011	
Sulfate as SO <sub>4</sub>	23.6	20.0	"	4.0	"	DLW	"	09/20/2018 13:25	"	
Fluoride	0.30	0.22	"	1.0	8125036	HAD	09/25/2018 13:00	09/25/2018 15:14	SM 4500-F D-2011	
Total Dissolved Solids	224	1	"	"	8113029	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	

**Metals by EPA 200 Series Methods ICP-AES**

Barium	0.076	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 10:35	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	09/21/2018 11:20	"	
Calcium	44.7	0.100	"	"	"	MMG	"	"	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 09:34	"	

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

Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 18:29	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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 Project Number: Red Hills  
 Project Manager: Jim Ward

 Reported:  
 10/02/2018 13:40

**MW-12**
**1809205-09 (Water)**

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

<b>Chloride</b>	<b>23.3</b>	2.00	mg/L	4.0	8118046	DLW	09/18/2018 16:26	09/20/2018 15:32	SM 4110B 2011	
<b>Sulfate as SO<sub>4</sub></b>	<b>16.5</b>	5.00	"	1.0	"	DLW	"	09/20/2018 15:50	"	
<b>Fluoride</b>	<b>0.23</b>	0.22	"	"	8125036	HAD	09/25/2018 13:00	09/25/2018 15:14	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>214</b>	1	"	"	8113029	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	

**Metals by EPA 200 Series Methods ICP-AES**

<b>Barium</b>	<b>0.142</b>	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 10:37	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	09/21/2018 11:25	"	
<b>Calcium</b>	<b>21.3</b>	0.100	"	"	"	MMG	"	"	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 09:37	"	

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

Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 18:37	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
<b>Cobalt [He]</b>	<b>0.00744</b>	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	



Red Hills Power Plant  
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 Project Manager: Jim Ward

 Reported:  
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**MW-15**
**1809205-10 (Water)**

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

<b>Chloride</b>	<b>10.6</b>	2.00	mg/L	4.0	8118046	DLW	09/18/2018 16:26	09/20/2018 16:08	SM 4110B 2011	
<b>Sulfate as SO<sub>4</sub></b>	<b>30.5</b>	20.0	"	"	"	DLW	"	"	"	
<b>Fluoride</b>	<b>0.36</b>	0.22	"	1.0	8125036	HAD	09/25/2018 13:00	09/25/2018 15:14	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>282</b>	2	"	"	8113029	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	

**Metals by EPA 200 Series Methods ICP-AES**

<b>Barium</b>	<b>0.160</b>	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 10:40	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	09/21/2018 11:30	"	
<b>Calcium</b>	<b>26.0</b>	0.100	"	"	"	MMG	"	"	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 09:39	"	

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

Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 18:45	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
<b>Cobalt [He]</b>	<b>0.00932</b>	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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 Project Manager: Jim Ward

 Reported:  
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**CCR-2**
**1809205-11 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>2.20</b>	0.500	mg/L	1.0	8118046	DLW	09/18/2018 16:26	09/20/2018 16:26	SM 4110B 2011	
<b>Sulfate as SO<sub>4</sub></b>	<b>6.32</b>	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8125039	HAD	09/25/2018 15:15	09/25/2018 16:03	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>136</b>	1	"	"	8113029	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
<b>Barium</b>	<b>0.079</b>	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 11:17	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	"	"	
<b>Calcium</b>	<b>13.5</b>	0.100	"	"	"	MMG	"	09/21/2018 13:34	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 09:52	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 18:53	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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**CCR-3**
**1809205-12 (Water)**

Analyte	Result	MRL	Units	Dil	Batch	Analyst	Date Time Prepared	Date Time Analyzed	Method	Qualifiers
<b>Classical Chemistry Parameters</b>										
<b>Chloride</b>	<b>5.32</b>	2.00	mg/L	4.0	8118046	DLW	09/18/2018 16:26	09/20/2018 16:44	SM 4110B 2011	
<b>Sulfate as SO4</b>	<b>56.2</b>	20.0	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	1.0	8125039	HAD	09/25/2018 15:15	09/25/2018 16:03	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>314</b>	2	"	"	8113029	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	
<b>Metals by EPA 200 Series Methods ICP-AES</b>										
<b>Barium</b>	<b>0.072</b>	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 11:25	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	"	"	
<b>Calcium</b>	<b>32.8</b>	0.100	"	"	"	MMG	"	09/21/2018 13:51	"	
<b>Lithium</b>	<b>0.058</b>	0.050	"	"	"	MMG	"	09/27/2018 10:00	"	
<b>Metals by EPA 200 Series Methods ICP-MS [Analysis Mode]</b>										
Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 19:24	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cobalt [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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**CCR-4**
**1809205-13 (Water)**

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

<b>Chloride</b>	<b>6.85</b>	0.500	mg/L	1.0	8118046	DLW	09/18/2018 16:26	09/20/2018 17:01	SM 4110B 2011	
<b>Sulfate as SO<sub>4</sub></b>	<b>14.8</b>	5.00	"	"	"	DLW	"	"	"	
Fluoride	ND	0.22	"	"	8125039	HAD	09/25/2018 15:15	09/25/2018 16:03	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>207</b>	1	"	"	8113029	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	

**Metals by EPA 200 Series Methods ICP-AES**

<b>Barium</b>	<b>0.127</b>	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 11:28	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	"	"	
<b>Calcium</b>	<b>22.7</b>	0.100	"	"	"	MMG	"	09/21/2018 13:57	"	
Lithium	ND	0.050	"	"	"	MMG	"	09/27/2018 10:03	"	

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

Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 19:31	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
<b>Cobalt [He]</b>	<b>0.00274</b>	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	

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**CCR-5**
**1809205-14 (Water)**

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

<b>Chloride</b>	<b>9.44</b>	0.500	mg/L	1.0	8118046	DLW	09/18/2018 16:26	09/20/2018 17:55	SM 4110B 2011	
<b>Sulfate as SO<sub>4</sub></b>	<b>807</b>	500	"	100.0	"	DLW	"	09/21/2018 11:16	"	
Fluoride	ND	0.22	"	1.0	8125039	HAD	09/25/2018 15:15	09/25/2018 16:03	SM 4500-F D-2011	
<b>Total Dissolved Solids</b>	<b>1673</b>	1	"	"	8113029	DLW	09/13/2018 12:40	09/17/2018 00:00	SM 2540 C-2011	

**Metals by EPA 200 Series Methods ICP-AES**

<b>Barium</b>	<b>0.039</b>	0.010	mg/L	1.0	8117029	MMG	09/17/2018 09:00	09/24/2018 11:31	EPA 200.7 Rev 4.4	
Boron	ND	0.050	"	"	"	MMG	"	"	"	
<b>Calcium</b>	<b>181</b>	0.500	"	5.0	"	MMG	"	09/24/2018 11:54	"	
Lithium	ND	0.050	"	1.0	"	MMG	"	09/27/2018 10:05	"	

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

Antimony [HHe]	ND	0.00200	mg/L	1.0	8117028	SCH	"	09/19/2018 20:03	EPA 200.8 Rev 5.4	
Beryllium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
Cadmium [HHe]	ND	0.00100	"	"	"	SCH	"	"	"	
Chromium [He]	ND	0.00100	"	"	"	SCH	"	"	"	
<b>Cobalt [He]</b>	<b>0.0368</b>	0.00100	"	"	"	SCH	"	"	"	
Lead [He]	ND	0.00100	"	"	"	SCH	"	"	"	



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### Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 8I13028 - Default Prep GenChem											
Blank (8I13028-BLK1)											
Total Dissolved Solids	9/17/18 0:00	ND	1	mg/L							
LCS (8I13028-BS1)											
Total Dissolved Solids	9/17/18 0:00	98	1	mg/L	104		94.2	82.2-100			
LCS Dup (8I13028-BSD1)											
Total Dissolved Solids	9/17/18 0:00	92	1	mg/L	104		88.5	82.2-100	6.32	15	
Duplicate (8I13028-DUP1) Source: 1809195-01											
Total Dissolved Solids	9/17/18 0:00	36	1	mg/L		34			5.71	5	RPD04
Batch 8I13029 - Default Prep GenChem											
Blank (8I13029-BLK1)											
Total Dissolved Solids	9/17/18 0:00	ND	1	mg/L							
LCS (8I13029-BS1)											
Total Dissolved Solids	9/17/18 0:00	96	1	mg/L	104		92.3	82.2-100			
LCS Dup (8I13029-BSD1)											
Total Dissolved Solids	9/17/18 0:00	96	1	mg/L	104		92.3	82.2-100	0.00	15	
Duplicate (8I13029-DUP1) Source: 1809205-14											
Total Dissolved Solids	9/17/18 0:00	1678	1	mg/L		1673			0.298	5	
Duplicate (8I13029-DUP2) Source: 1809205-08											
Total Dissolved Solids	9/17/18 0:00	221	1	mg/L		224			1.35	5	



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### Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
<b>Batch 8I18046 - Default Prep GenChem</b>											
<b>Blank (8I18046-BLK1)</b>											
Chloride	9/18/18 14:42	ND	0.500	mg/L							
Sulfate as SO4	9/18/18 14:42	ND	5.00	"							
<b>Blank (8I18046-BLK2)</b>											
Chloride	9/20/18 10:21	ND	0.500	mg/L							
Sulfate as SO4	9/20/18 10:21	ND	5.00	"							
<b>LCS (8I18046-BS1)</b>											
Chloride	9/18/18 14:06	5.08	0.500	mg/L	5.00		102	85.4-110			
Sulfate as SO4	9/18/18 14:06	4.89	5.00	"	5.00		97.8	83.3-120			
<b>LCS (8I18046-BS2)</b>											
Chloride	9/20/18 9:46	8.00	0.500	mg/L	8.00		100	85.4-110			
Sulfate as SO4	9/20/18 9:46	7.92	5.00	"	8.00		99.0	83.3-120			
<b>LCS Dup (8I18046-BSD1)</b>											
Chloride	9/18/18 14:24	5.50	0.500	mg/L	5.00		110	85.4-110	8.11	20	
Sulfate as SO4	9/18/18 14:24	5.27	5.00	"	5.00		105	83.3-120	7.44	20	
<b>LCS Dup (8I18046-BSD2)</b>											
Chloride	9/20/18 10:04	8.01	0.500	mg/L	8.00		100	85.4-110	0.200	20	
Sulfate as SO4	9/20/18 10:04	7.57	5.00	"	8.00		94.7	83.3-120	4.48	20	
<b>Duplicate (8I18046-DUP1) Source: 1809205-07</b>											
Chloride	9/18/18 20:40	13.7	0.500	mg/L		13.8			0.944	20	
Sulfate as SO4	9/18/18 20:40	9.08	5.00	"		7.70			16.4	20	
<b>Duplicate (8I18046-DUP2) Source: 1809205-13</b>											
Chloride	9/20/18 17:19	6.64	0.500	mg/L		6.85			3.12	20	
Sulfate as SO4	9/20/18 17:19	16.0	5.00	"		14.8			8.01	20	



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### Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 8I18046 - Default Prep GenChem											
Matrix Spike (8I18046-MS1)			Source: 1809205-07								
Chloride	9/18/18 20:58	49.6	2.00	mg/L	40.0	13.8	89.4	79-119			
Sulfate as SO4	9/18/18 20:58	27.8	20.0	"	40.0	7.70	50.3	43.5-124			
Matrix Spike Dup (8I18046-MSD1)			Source: 1809205-07								
Chloride	9/18/18 21:16	52.5	2.00	mg/L	40.0	13.8	96.7	79-119	5.68	20	
Sulfate as SO4	9/18/18 21:16	30.8	20.0	"	40.0	7.70	57.6	43.5-124	10.1	20	
Batch 8I25036 - Default Prep GenChem											
Blank (8I25036-BLK1)											
Fluoride	9/25/18 15:14	ND	0.22	mg/L							
LCS (8I25036-BS1)											
Fluoride	9/25/18 15:14	0.83	0.22	mg/L	0.800		104	75-125			
LCS Dup (8I25036-BSD1)											
Fluoride	9/25/18 15:14	0.83	0.22	mg/L	0.800		104	75-125	0.00	30	
Duplicate (8I25036-DUP1)			Source: 1809205-01								
Fluoride	9/25/18 15:14	0.50	0.22	mg/L		0.46			7.11	35	
Batch 8I25039 - Default Prep GenChem											
Blank (8I25039-BLK1)											
Fluoride	9/25/18 16:03	ND	0.22	mg/L							



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### Classical Chemistry Parameters - Quality Control

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
Batch 8125039 - Default Prep GenChem											
LCS (8125039-BS1)											
Fluoride	9/25/18 16:03	0.80	0.22	mg/L	0.800		100	75-125			
LCS Dup (8125039-BSD1)											
Fluoride	9/25/18 16:03	0.85	0.22	mg/L	0.800		106	75-125	5.63	30	
Duplicate (8125039-DUP1) Source: 1809205-14											
Fluoride	9/25/18 16:03	0.07	0.22	mg/L		0.07				35	

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**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 8117029 - EPA 200.2 DCN 1017 Rev 8											
Blank (8117029-BLK1)											
Barium	9/24/18 10:05	ND	0.010	mg/L							
Boron	9/21/18 10:15	ND	0.050	"							
Calcium	9/21/18 10:15	ND	0.100	"							
Lithium	9/27/18 9:04	ND	0.050	"							
LCS (8117029-BS1)											
Barium	9/24/18 11:38	0.194	0.010	mg/L	0.200		97.0	85-115			
Boron	9/21/18 10:19	0.179	0.050	"	0.200		89.6	85-115			
Calcium	9/21/18 11:46	0.188	0.100	"	0.200		94.1	85-115			
Lithium	9/27/18 9:06	0.204	0.050	"	0.200		102	85-115			
LCS Dup (8117029-BSD1)											
Barium	9/24/18 11:40	0.197	0.010	mg/L	0.200		98.6	85-115	1.57	20	
Boron	9/21/18 10:22	0.173	0.050	"	0.200		86.3	85-115	3.78	20	
Calcium	9/21/18 11:49	0.183	0.100	"	0.200		91.3	85-115	2.97	20	
Lithium	9/27/18 9:09	0.205	0.050	"	0.200		102	85-115	0.292	20	
Duplicate (8117029-DUP1) Source: 1809205-01											
Calcium	9/21/18 11:54	68.5	0.200	mg/L		70.6			2.92	20	QD-10
Duplicate (8117029-DUP2) Source: 1809205-11											
Calcium	9/21/18 13:40	13.3	0.100	mg/L		13.5			1.19	20	QD-10
Matrix Spike (8117029-MS1) Source: 1809205-01											
Barium	9/24/18 9:49	0.351	0.010	mg/L	0.200	0.191	79.8	70-130			
Boron	9/21/18 10:34	0.192	0.050	"	0.200	0.016	88.1	70-130			
Lithium	9/27/18 9:14	0.315	0.050	"	0.200	0.101	107	70-130			

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### ***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 8I17029 - EPA 200.2 DCN 1017 Rev 8											
<b>Matrix Spike (8I17029-MS2)</b>			<b>Source: 1809205-11</b>								
Barium	9/24/18 11:19	0.239	0.010	mg/L	0.200	0.079	80.1	70-130			
Boron	9/24/18 11:19	0.156	0.050	"	0.200	0.013	71.6	70-130			
Lithium	9/27/18 9:55	0.215	0.050	"	0.200	0.012	101	70-130			
<b>Matrix Spike Dup (8I17029-MSD1)</b>			<b>Source: 1809205-01</b>								
Barium	9/24/18 10:18	0.349	0.010	mg/L	0.200	0.191	78.9	70-130	0.515	20	
Boron	9/21/18 10:39	0.191	0.050	"	0.200	0.016	87.7	70-130	0.450	20	
Lithium	9/27/18 9:16	0.311	0.050	"	0.200	0.101	105	70-130	1.36	20	
<b>Matrix Spike Dup (8I17029-MSD2)</b>			<b>Source: 1809205-11</b>								
Barium	9/24/18 11:22	0.240	0.010	mg/L	0.200	0.079	80.6	70-130	0.434	20	
Boron	9/24/18 11:22	0.157	0.050	"	0.200	0.013	72.0	70-130	0.486	20	
Lithium	9/27/18 9:57	0.223	0.050	"	0.200	0.012	106	70-130	3.67	20	

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

Analyte	Analyzed	Result	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qualifiers
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Batch 8117028 - EPA 200.2 DCN 1017 Rev 8

**Blank (8117028-BLK1)**

Antimony [HHe]	9/19/18 14:44	ND	0.00200	mg/L							
Beryllium [He]	9/19/18 14:44	ND	0.00100	"							
Cadmium [HHe]	9/19/18 14:44	ND	0.00100	"							
Chromium [He]	9/19/18 14:44	ND	0.00100	"							
Cobalt [He]	9/19/18 14:44	ND	0.00100	"							
Lead [He]	9/19/18 14:44	ND	0.00100	"							

**LCS (8117028-BS1)**

Antimony [HHe]	9/19/18 14:52	0.113	0.00200	mg/L	0.100		113	85-115			
Beryllium [He]	9/19/18 14:52	0.108	0.00100	"	0.100		108	85-115			
Cadmium [HHe]	9/19/18 14:52	0.106	0.00100	"	0.100		106	85-115			
Chromium [He]	9/19/18 14:52	0.108	0.00100	"	0.100		108	85-115			
Cobalt [He]	9/19/18 14:52	0.102	0.00100	"	0.100		102	85-115			
Lead [He]	9/19/18 14:52	0.104	0.00100	"	0.100		104	85-115			

**LCS Dup (8117028-BSD1)**

Antimony [HHe]	9/19/18 15:00	0.112	0.00200	mg/L	0.100		112	85-115	0.754	20	
Beryllium [He]	9/19/18 15:00	0.107	0.00100	"	0.100		107	85-115	1.11	20	
Cadmium [HHe]	9/19/18 15:00	0.105	0.00100	"	0.100		105	85-115	1.48	20	
Chromium [He]	9/19/18 15:00	0.107	0.00100	"	0.100		107	85-115	0.941	20	
Cobalt [He]	9/19/18 15:00	0.101	0.00100	"	0.100		101	85-115	1.32	20	
Lead [He]	9/19/18 15:00	0.103	0.00100	"	0.100		103	85-115	0.735	20	

**Matrix Spike (8117028-MS1)**

Source: 1809205-01

Antimony [HHe]	9/19/18 16:48	0.233	0.00200	mg/L	0.200	ND	117	70-130			
Beryllium [He]	9/19/18 16:48	0.181	0.00100	"	0.200	0.003	89.1	70-130			
Cadmium [HHe]	9/19/18 16:48	0.208	0.00100	"	0.200	0.001	103	70-130			
Chromium [He]	9/19/18 16:48	0.199	0.00100	"	0.200	0.0002	99.6	70-130			
Cobalt [He]	9/19/18 16:48	0.198	0.00100	"	0.200	0.018	90.3	70-130			
Lead [He]	9/19/18 16:48	0.213	0.00100	"	0.200	0.0003	106	70-130			

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

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

 Reported:  
 10/02/2018 13:40

**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 8117028 - EPA 200.2 DCN 1017 Rev 8											
<b>Matrix Spike (8117028-MS2)</b>			<b>Source: 1809205-11</b>								
Antimony [HHe]	9/19/18 19:00	0.227	0.00200	mg/L	0.200	ND	114	70-130			
Beryllium [He]	9/19/18 19:00	0.190	0.00100	"	0.200	ND	95.0	70-130			
Cadmium [HHe]	9/19/18 19:00	0.207	0.00100	"	0.200	0.00001	104	70-130			
Chromium [He]	9/19/18 19:00	0.214	0.00100	"	0.200	0.0002	107	70-130			
Cobalt [He]	9/19/18 19:00	0.203	0.00100	"	0.200	0.0004	101	70-130			
Lead [He]	9/19/18 19:00	0.210	0.00100	"	0.200	ND	105	70-130			
<b>Matrix Spike Dup (8117028-MSD1)</b>			<b>Source: 1809205-01</b>								
Antimony [HHe]	9/19/18 16:56	0.237	0.00200	mg/L	0.200	ND	119	70-130	1.61	20	
Beryllium [He]	9/19/18 16:56	0.183	0.00100	"	0.200	0.003	90.3	70-130	1.34	20	
Cadmium [HHe]	9/19/18 16:56	0.210	0.00100	"	0.200	0.001	104	70-130	1.19	20	
Chromium [He]	9/19/18 16:56	0.201	0.00100	"	0.200	0.0002	101	70-130	0.987	20	
Cobalt [He]	9/19/18 16:56	0.201	0.00100	"	0.200	0.018	91.9	70-130	1.58	20	
Lead [He]	9/19/18 16:56	0.221	0.00100	"	0.200	0.0003	110	70-130	3.79	20	
<b>Matrix Spike Dup (8117028-MSD2)</b>			<b>Source: 1809205-11</b>								
Antimony [HHe]	9/19/18 19:08	0.228	0.00200	mg/L	0.200	ND	114	70-130	0.590	20	
Beryllium [He]	9/19/18 19:08	0.193	0.00100	"	0.200	ND	96.7	70-130	1.81	20	
Cadmium [HHe]	9/19/18 19:08	0.208	0.00100	"	0.200	0.00001	104	70-130	0.354	20	
Chromium [He]	9/19/18 19:08	0.214	0.00100	"	0.200	0.0002	107	70-130	0.195	20	
Cobalt [He]	9/19/18 19:08	0.204	0.00100	"	0.200	0.0004	102	70-130	0.225	20	
Lead [He]	9/19/18 19:08	0.220	0.00100	"	0.200	ND	110	70-130	4.41	20	



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

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

 Reported:  
 10/02/2018 13:40

**Certified Analyses Included in this Report**

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

***EPA 200.7 Rev 4.4 in Water***

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

***EPA 200.8 Rev 5.4 in Water***

Aluminum [He]	C01,C02
Antimony [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

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

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

 Reported:  
 10/02/2018 13:40

Cobalt [He]	C01,C02
Copper [He]	C01,C02
Copper [NG]	C01,C02
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

**SM 2540 C-2011 in Water**

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

**SM 4110B 2011 in Water**

Chloride	C01,C02
Sulfate as SO <sub>4</sub>	C01,C02
Nitrate as N	C01,C02

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

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

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

 Reported:  
 10/02/2018 13:40

### 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 (Coliform)	MS00021	12/31/2018
C04	Ms Dept of Health (Drinking Water Certificate)	MS00021	12/31/2018
C05	Ms DEQ Lead Firm Certification	PBF-00000028	02/25/2019
C06	MsDEQ Asbestos Inspector : C.D. Bingham	ABI-00001348	03/08/2019
C07	MsDEQ Air Monitor : C.D. Bingham	AM-011572	03/09/2019
C08	MsDEQ Asbestos Inspector: C. W. Meins	ABI-00001821	09/15/2018
C09	MsDEQ Air Monitor : C.W. Meins	AM-011189	03/09/2019
C12	MsDEQ Asbestos Inspector : H.P. Howell	ABI-00001345	03/08/2019
C14	MsDEQ Lead Paint Inspector : C.D. Bingham	PBI-00003690	03/19/2019
C15	MsDEQ Lead Paint Inspector : C.W. Meins	PBI-00001740	03/19/2019

### Report Definitions

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

Red Hills Power Plant  
2391 Pensacola Rd.  
Ackerman MS, 39735Project: Red Hills CCR  
Project Number: Red Hills  
Project Manager: Jim Ward**Reported:**  
10/02/2018 13:40**Analyst Initials Key**

<u>FullName</u>	<u>Initials</u>
Barbara K. McMillan	BKM
Dortha L. Wells	DLW
Heather A Denham	HAD
Harry P. Howell	HPH
Michelle M Gallegos	MMG
Sarah E. Tomek	SET
Samantha C. Hall	SCH
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

pg 1 of 2

Print Form

M-M Lab  
WO #

1809205

Company Name: <b>Red Hills Power Plant</b>		Project Manager: <b>Jim Ward</b>							
Address: <b>2391 Pensacola Rd.</b>		Purchase Order #: <b>SCSRDH6883</b>							
City: <b>Ackerman</b>	State: <b>MS</b>	Zip: <b>39735</b>	Email Address:						
Phone: <b>662-387-5758</b>		Sampler Name Printed: <i>Jim A. Shepherd</i>							
Fax:		Sampler Name Signed: <i>Jim A. Shepherd</i>							
<b>List Analyses Requested</b>									
Project Name: <b>Red Hills CCR</b>	Preservative:	TDS							
Project #:	Chloride, Fluoride, Sulfate	Antimony							
Sample Identification	Barium, Boron, Beryllium	Cadmium, Chromium							
	Lead, Calcium, Cobalt	Lithium							
	Total Radium 226 & 228								
MM-9	9/11/18 9:55	W	4	6	X	X	X	X	X
MM-16	9/11/18 9:09	W	4	6	X	X	X	X	X
OW-2	9/11/18 7:09	W	4	6	X	X	X	X	X
MM-13	9/11/18 1:04	W	4	6	X	X	X	X	X
MM-7	9/11/18 1:36	W	4	6	X	X	X	X	X
MM-14	9/11/18 1:29	W	4	6	X	X	X	X	X
Field Blank	9/11/18 7:00	W	4	6	X	X	X	X	X
Duplicate		W	4	6	X	X	X	X	X
MM-12	9/11/18 8:01	W	4	6	X	X	X	X	X
MM-15	9/11/18 5:14	W	4	6	X	X	X	X	X
CCR-2	9/10/18 14:40	W	4	6	X	X	X	X	X
Received on Ice? Y N Thermometer# Cooler # Receipt Temp Corrected (°C)									
Date & Time	By:	Sample	Blank	Cooler					
Relinquished by	Printed Name	Signature	Company	Date	Time	Notes:			
Received by	<i>Jim A. Shepherd</i>	<i>Jim A. Shepherd</i>	<i>ECS</i>	9-11-18	18:50				
Relinquished by	<i>Fred Ex</i>								
Received by	<i>Sarah Tomer</i>	<i>Sarah Tomer</i>	<i>MM</i>	9/12/18	08:09				
Relinquished by									
Received by									

Turn Around Time & Reporting

Our normal turn around time is 10 working days

Normal ☒ \*All rush order requests must be prior approved.

Next Day\* ☐ Phone ☐ Mail ☐ Fax ☐ Email ☐

Other\* ☐

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

**Field Testing**

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

**Matrix:**

W = Water

DW = Drinking Water

S = Solid

SO = Soil

SE = Sediment

L = Liquid

A = Air

O = Oil

SL = Sludge

**Preservation:**

1 = H2SO4

2 = H3PO4

3 = NaOH

4 = ZnC4H10O6

5 = ZnC4H10O6 & NaOH

6 = HNO3

7 = Na2S2O3

8 = HCl

9 = NaHSO4





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

pag 2042  
1809205

W-At Lab  
WO #

Turn Around Time & Reporting

Our normal turn around time is 10 working days

Normal ☒ \*All rush order requests must be prior approved.  
Next Day\* ☐  
2nd Day\* ☐  
Other\* ☐

Phone ☐  
Mail ☐  
Fax ☐  
Email ☐

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

#### Field Testing

ID# ☐ ID# ☐ ID# ☐ ID# ☐

Field Test ☐ Field Test ☐ Field Test ☐ Field Test ☐

Matrix:

W = Water  
DW = Drinking Water

S = Solid  
SO = Soil

SE = Sediment  
L = Liquid

A = Air  
O = Oil

SL = Sludge

#### Preservation:

- 1 = H2SO4
- 2 = H3PO4
- 3 = NaOH
- 4 = ZnC4H10O6
- 5 = ZnC4H10O6 & NaOH
- 6 = HNO3
- 7 = Na2S2O3
- 8 = HCl
- 9 = NaHSO4

Notes:

\*\*All Temps are Corrected Values\*\*

Company Name: Red Hills Power Plant

Address: 2391 Pensacola Rd.

City: Ackerman State: MS Zip: 39735

Phone: 662-387-5758

Fax:

Project Name: Red Hills CCR

Project #:

Sample Identification

Sampling Date/Time

Matrix Code

# of Containers

Grab (G) or Composite (C)

TDS

Chloride, Fluoride, Sulfate

Antimony

Barium, Boron, Beryllium

Cadmium, Chromium

Lead, Calcium, Cobalt

Lithium

Total Radium 226 & 228

Received on Ice? Y N Thermometer#

Cooler #

Receipt Temp Corrected(°C)

Date & Time

By:

Sample

Blank

Cooler

Company

Date

Time

Relinquished by

Printed Name

Signature

Company

Date

Time

Relinquished by

Printed Name

Signature

Company

Date

Time

Relinquished by

Printed Name

Signature

Company

Date

Time

Relinquished by

Printed Name

Signature

Company

Date

Time

Relinquished by

Printed Name

Signature

Company

Date

Time

Received by

Printed Name

Signature

Company

Date

Time

DCN# F316 Rev.#5

Physical Address: 6500 Sunplex Drive, Ocean Springs MS 39564



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

Client Red Hills WO 1809205 Shipped By FedEx JS  
 Date/Time Received 9/12/18 0809 Unpacked/Checked By JS

Cooler ID	Ice Present Yes/No	Temperature (Corrected)	Thermometer ID	Custody Sealed Yes/No	Custody Seal Intact Yes/No
#575	yes	5.1°C	T#4	no	n/a
#1124	yes	2.6°C	T#4	no	n/a
#1136	yes	5.6°C	S	S	S

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

Custody Seals on Bottles Present Yes \_\_\_ No X  
 Containers Intact Yes X No \_\_\_  
 Proper Containers for Requested Analysis Yes X No \_\_\_

Correct Preservation Used for All Samples Yes X No \_\_\_  
 Adequate Sample for Analysis Requested Yes X No \_\_\_

Volatile Vials Headspace Greater than 6mm in Diameter Yes \_\_\_ No \_\_\_ N/A X

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

Samples Received Within Holding Time Yes X No \_\_\_  
 Dept. Manager Notified of Rush/Short Holding Times Yes \_\_\_ No \_\_\_ N/A X

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

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

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Controlled Document: Company Confidential & Proprietary  
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October 01, 2018

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

RE: Project: 1809205  
Pace Project No.: 2084043

Dear Harry Howell:

Enclosed are the analytical results for sample(s) received by the laboratory on September 14, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



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

Enclosures



## REPORT OF LABORATORY ANALYSIS

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

Project: 1809205

Pace Project No.: 2084043

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 1809205

Pace Project No.: 2084043

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2084043001	1809205-01	Water	09/11/18 09:55	09/14/18 10:20
2084043002	1809205-02	Water	09/11/18 09:09	09/14/18 10:20
2084043003	1809205-03	Water	09/11/18 07:09	09/14/18 10:20
2084043004	1809205-04	Water	09/11/18 11:09	09/14/18 10:20
2084043005	1809205-05	Water	09/11/18 13:26	09/14/18 10:20
2084043006	1809205-06	Water	09/11/18 14:29	09/14/18 10:20
2084043007	1809205-07	Water	09/11/18 07:00	09/14/18 10:20
2084043008	1809205-08	Water	09/10/18 00:00	09/14/18 10:20
2084043009	1809205-09	Water	09/10/18 08:01	09/14/18 10:20
2084043010	1809205-10	Water	09/10/18 08:41	09/14/18 10:20
2084043011	1809205-11	Water	09/10/18 14:40	09/14/18 10:20
2084043012	1809205-12	Water	09/10/18 13:36	09/14/18 10:20
2084043013	1809205-13	Water	09/10/18 16:50	09/14/18 10:20
2084043014	1809205-14	Water	09/10/18 11:58	09/14/18 10:20

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE ANALYTE COUNT

Project: 1809205  
Pace Project No.: 2084043

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2084043001	1809205-01	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043002	1809205-02	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043003	1809205-03	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043004	1809205-04	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043005	1809205-05	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043006	1809205-06	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043007	1809205-07	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043008	1809205-08	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043009	1809205-09	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043010	1809205-10	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043011	1809205-11	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043012	1809205-12	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043013	1809205-13	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
2084043014	1809205-14	EPA 903.1	MK1	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 1809205

Pace Project No.: 2084043

---

**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** Micro Methods Laboratory, Inc.

**Date:** October 01, 2018

**General Information:**

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

**Hold Time:**

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

**Method Blank:**

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

**Laboratory Control Spike:**

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

**Matrix Spikes:**

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

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 1809205

Pace Project No.: 2084043

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**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** Micro Methods Laboratory, Inc.

**Date:** October 01, 2018

**General Information:**

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

**Hold Time:**

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

**Method Blank:**

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

**Laboratory Control Spike:**

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

**Matrix Spikes:**

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

**Additional Comments:**

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

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1809205  
Pace Project No.: 2084043

**Sample: 1809205-01**      **Lab ID: 2084043001**      Collected: 09/11/18 09:55      Received: 09/14/18 10:20      Matrix: Water  
PWS:      Site ID:      Sample Type:  
Comments: •

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.759 ± 0.626 (0.874)</b> <b>C:NA T:93%</b>	pCi/L	09/28/18 12:51	13982-63-3	
Radium-228	EPA 904.0	<b>0.788 ± 0.413 (0.725)</b> <b>C:81% T:78%</b>	pCi/L	09/27/18 11:52	15262-20-1	

**Sample: 1809205-02**      **Lab ID: 2084043002**      Collected: 09/11/18 09:09      Received: 09/14/18 10:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>1.06 ± 0.678 (0.776)</b> <b>C:NA T:78%</b>	pCi/L	09/28/18 12:51	13982-63-3	
Radium-228	EPA 904.0	<b>1.11 ± 0.425 (0.598)</b> <b>C:79% T:76%</b>	pCi/L	09/27/18 11:53	15262-20-1	

**Sample: 1809205-03**      **Lab ID: 2084043003**      Collected: 09/11/18 07:09      Received: 09/14/18 10:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>1.07 ± 0.654 (0.728)</b> <b>C:NA T:84%</b>	pCi/L	09/28/18 12:51	13982-63-3	
Radium-228	EPA 904.0	<b>0.675 ± 0.390 (0.699)</b> <b>C:81% T:72%</b>	pCi/L	09/27/18 11:53	15262-20-1	

**Sample: 1809205-04**      **Lab ID: 2084043004**      Collected: 09/11/18 11:09      Received: 09/14/18 10:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.0652 ± 0.482 (0.920)</b> <b>C:NA T:96%</b>	pCi/L	09/28/18 12:51	13982-63-3	
Radium-228	EPA 904.0	<b>0.516 ± 0.348 (0.662)</b> <b>C:79% T:83%</b>	pCi/L	09/27/18 11:53	15262-20-1	

**Sample: 1809205-05**      **Lab ID: 2084043005**      Collected: 09/11/18 13:26      Received: 09/14/18 10:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.624 ± 0.594 (0.880)</b> <b>C:NA T:94%</b>	pCi/L	09/28/18 12:51	13982-63-3	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1809205  
Pace Project No.: 2084043

<b>Sample: 1809205-05</b>		<b>Lab ID: 2084043005</b>	Collected: 09/11/18 13:26	Received: 09/14/18 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0	<b>0.651 ± 0.401 (0.748)</b> <b>C:78% T:80%</b>		pCi/L	09/27/18 11:53	15262-20-1	

Sample: 1809205-06		Lab ID: 2084043006	Collected: 09/11/18 14:29	Received: 09/14/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	0.469 ± 0.419 (0.539) C:NA T:86%	pCi/L	09/28/18 12:51	13982-63-3	
Radium-228	EPA 904.0	0.255 ± 0.318 (0.674) C:78% T:84%	pCi/L	09/27/18 11:53	15262-20-1	

<b>Sample: 1809205-07</b>		<b>Lab ID: 2084043007</b>	Collected: 09/11/18 07:00	Received: 09/14/18 10:20	Matrix: Water	
PWS:		Site ID:	Sample Type:			
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.						
Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.235 ± 0.555 (1.03)</b> <b>C:NA T:88%</b>	pCi/L	09/28/18 19:13	13982-63-3	
Radium-228	EPA 904.0	<b>0.394 ± 0.325 (0.642)</b> <b>C:81% T:75%</b>	pCi/L	09/27/18 11:53	15262-20-1	

<b>Sample: 1809205-08</b>		<b>Lab ID: 2084043008</b>	Collected: 09/10/18 00:00	Received: 09/14/18 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.173 ± 0.586 (1.13)</b> <b>C:NA T:82%</b>		pCi/L	09/28/18 19:13	13982-63-3	
Radium-228	EPA 904.0	<b>0.160 ± 0.299 (0.657)</b> <b>C:79% T:80%</b>		pCi/L	09/27/18 11:54	15262-20-1	

<b>Sample: 1809205-09</b>		<b>Lab ID: 2084043009</b>	Collected: 09/10/18 08:01	Received: 09/14/18 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Comments: • Upon receipt at the laboratory, 2.5 mls of nitric acid were added to the sample to meet the sample preservation requirement of pH <2 for radiochemistry analysis.							
Parameters	Method	Act ± Unc (MDC) Carr Trac		Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.922 ± 0.795 (1.18)</b> <b>C:NA T:87%</b>		pCi/L	09/28/18 19:13	13982-63-3	
Radium-228	EPA 904.0	<b>0.566 ± 0.342 (0.606)</b> <b>C:75% T:77%</b>		pCi/L	09/27/18 11:54	15262-20-1	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1809205

Pace Project No.: 2084043

**Sample: 1809205-10**      **Lab ID: 2084043010**      Collected: 09/10/18 08:41      Received: 09/14/18 10:20      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.659 ± 0.808 (1.33)</b> <b>C:NA T:77%</b>	pCi/L	09/28/18 19:13	13982-63-3	
Radium-228	EPA 904.0	<b>0.0410 ± 0.335 (0.775)</b> <b>C:75% T:75%</b>	pCi/L	09/27/18 15:07	15262-20-1	

**Sample: 1809205-11**      **Lab ID: 2084043011**      Collected: 09/10/18 14:40      Received: 09/14/18 10:20      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.265 ± 0.625 (1.16)</b> <b>C:NA T:82%</b>	pCi/L	09/28/18 19:13	13982-63-3	
Radium-228	EPA 904.0	<b>-0.357 ± 0.327 (0.851)</b> <b>C:78% T:69%</b>	pCi/L	09/27/18 15:07	15262-20-1	

**Sample: 1809205-12**      **Lab ID: 2084043012**      Collected: 09/10/18 13:36      Received: 09/14/18 10:20      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.920 ± 0.722 (1.00)</b> <b>C:NA T:81%</b>	pCi/L	09/28/18 19:13	13982-63-3	
Radium-228	EPA 904.0	<b>0.666 ± 0.409 (0.755)</b> <b>C:75% T:76%</b>	pCi/L	09/27/18 15:08	15262-20-1	

**Sample: 1809205-13**      **Lab ID: 2084043013**      Collected: 09/10/18 16:50      Received: 09/14/18 10:20      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.412 ± 0.667 (1.16)</b> <b>C:NA T:89%</b>	pCi/L	09/28/18 19:27	13982-63-3	
Radium-228	EPA 904.0	<b>0.291 ± 0.375 (0.797)</b> <b>C:75% T:77%</b>	pCi/L	09/27/18 15:08	15262-20-1	

**Sample: 1809205-14**      **Lab ID: 2084043014**      Collected: 09/10/18 11:58      Received: 09/14/18 10:20      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.542 ± 0.711 (1.18)</b> <b>C:NA T:76%</b>	pCi/L	09/28/18 19:27	13982-63-3	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1809205

Pace Project No.: 2084043

**Sample: 1809205-14**      **Lab ID: 2084043014**      Collected: 09/10/18 11:58      Received: 09/14/18 10:20      Matrix: Water

PWS:      Site ID:      Sample Type:

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

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 904.0	<b>0.517 ± 0.378 (0.733)</b> <b>C:74% T:79%</b>	pCi/L	09/27/18 15:08	15262-20-1	

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL - RADIOCHEMISTRY

Project: 1809205

Pace Project No.: 2084043

QC Batch:	313694	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
Associated Lab Samples:	2084043001, 2084043002, 2084043003, 2084043004, 2084043005, 2084043006, 2084043007, 2084043008, 2084043009, 2084043010, 2084043011, 2084043012, 2084043013, 2084043014		

METHOD BLANK:	1531581	Matrix:	Water
Associated Lab Samples:	2084043001, 2084043002, 2084043003, 2084043004, 2084043005, 2084043006, 2084043007, 2084043008, 2084043009, 2084043010, 2084043011, 2084043012, 2084043013, 2084043014		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0872 ± 0.373 (0.718) C:NA T:96%	pCi/L	09/28/18 12:28	

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

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## QUALITY CONTROL - RADIOCHEMISTRY

Project: 1809205

Pace Project No.: 2084043

QC Batch:	313700	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
Associated Lab Samples:	2084043001, 2084043002, 2084043003, 2084043004, 2084043005, 2084043006, 2084043007, 2084043008, 2084043009, 2084043010, 2084043011, 2084043012, 2084043013, 2084043014		

METHOD BLANK:	1531590	Matrix:	Water
Associated Lab Samples:	2084043001, 2084043002, 2084043003, 2084043004, 2084043005, 2084043006, 2084043007, 2084043008, 2084043009, 2084043010, 2084043011, 2084043012, 2084043013, 2084043014		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0901 ± 0.308 (0.697) C:81% T:79%	pCi/L	09/27/18 11:52	

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

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## QUALIFIERS

Project: 1809205  
Pace Project No.: 2084043

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1809205

Pace Project No.: 2084043

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2084043001	1809205-01	EPA 903.1	313694		
2084043002	1809205-02	EPA 903.1	313694		
2084043003	1809205-03	EPA 903.1	313694		
2084043004	1809205-04	EPA 903.1	313694		
2084043005	1809205-05	EPA 903.1	313694		
2084043006	1809205-06	EPA 903.1	313694		
2084043007	1809205-07	EPA 903.1	313694		
2084043008	1809205-08	EPA 903.1	313694		
2084043009	1809205-09	EPA 903.1	313694		
2084043010	1809205-10	EPA 903.1	313694		
2084043011	1809205-11	EPA 903.1	313694		
2084043012	1809205-12	EPA 903.1	313694		
2084043013	1809205-13	EPA 903.1	313694		
2084043014	1809205-14	EPA 903.1	313694		
2084043001	1809205-01	EPA 904.0	313700		
2084043002	1809205-02	EPA 904.0	313700		
2084043003	1809205-03	EPA 904.0	313700		
2084043004	1809205-04	EPA 904.0	313700		
2084043005	1809205-05	EPA 904.0	313700		
2084043006	1809205-06	EPA 904.0	313700		
2084043007	1809205-07	EPA 904.0	313700		
2084043008	1809205-08	EPA 904.0	313700		
2084043009	1809205-09	EPA 904.0	313700		
2084043010	1809205-10	EPA 904.0	313700		
2084043011	1809205-11	EPA 904.0	313700		
2084043012	1809205-12	EPA 904.0	313700		
2084043013	1809205-13	EPA 904.0	313700		
2084043014	1809205-14	EPA 904.0	313700		

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# MICRO-METHOD

LABORATORY, INC.

WO#: 2084043



2084043

## Sending Laboratory:

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

Project Manager: Barbara K. McMillan

## Subcontract

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

## Work Order: 1809205

Analysis	Due	Expires	Comments
<b>Sample ID: 1809205-01 Water Sampled: 09/11/2018 09:55 Sample Name: MW-9</b>			
Radium, Total 226 & 228 by 901.1	09/20/2018	10/09/2018 09:55	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-02 Water Sampled: 09/11/2018 09:09 Sample Name: MW-16</b>			
Radium, Total 226 & 228 by 901.1	09/20/2018	10/09/2018 09:09	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-03 Water Sampled: 09/11/2018 07:09 Sample Name: OW-2</b>			
Radium, Total 226 & 228 by 901.1	09/20/2018	10/09/2018 07:09	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-04 Water Sampled: 09/11/2018 11:04 Sample Name: MW-13</b>			
Radium, Total 226 & 228 by 901.1	09/20/2018	10/09/2018 11:04	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-05 Water Sampled: 09/11/2018 13:26 Sample Name: MW-7</b>			
Radium, Total 226 & 228 by 901.1	09/20/2018	10/09/2018 13:26	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-06 Water Sampled: 09/11/2018 14:29 Sample Name: MW-14</b>			
Radium, Total 226 & 228 by 901.1	09/20/2018	10/09/2018 14:29	
Containers Supplied:			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-07 Water Sampled: 09/11/2018 07:00 Sample Name: Field Blank</b>			

Released By

Date

Received By

Date

Released By

Date

Received By

Date



Analysis	Due	Expires	Comments
<b>Sample ID: 1809205-07</b>	<b>Water</b>	<b>Sampled: 09/11/2018 07:00</b>	<b>Sample Name: Field Blank</b>
Radium,Total 226 & 228 by 901.1	09/20/2018	10/09/2018 07:00	
<i>Containers Supplied:</i>			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-08</b>	<b>Water</b>	<b>Sampled: 09/10/2018 00:00</b>	<b>Sample Name: Duplicate</b>
Radium,Total 226 & 228 by 901.1	09/20/2018	10/08/2018 00:00	
<i>Containers Supplied:</i>			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-09</b>	<b>Water</b>	<b>Sampled: 09/11/2018 08:01</b>	<b>Sample Name: MW-12</b>
Radium,Total 226 & 228 by 901.1	09/20/2018	10/09/2018 08:01	
<i>Containers Supplied:</i>			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-10</b>	<b>Water</b>	<b>Sampled: 09/11/2018 08:41</b>	<b>Sample Name: MW-15</b>
Radium,Total 226 & 228 by 901.1	09/20/2018	10/09/2018 08:41	
<i>Containers Supplied:</i>			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-11</b>	<b>Water</b>	<b>Sampled: 09/10/2018 14:40</b>	<b>Sample Name: CCR-2</b>
Radium,Total 226 & 228 by 901.1	09/20/2018	10/08/2018 14:40	
<i>Containers Supplied:</i>			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-12</b>	<b>Water</b>	<b>Sampled: 09/10/2018 13:36</b>	<b>Sample Name: CCR-3</b>
Radium,Total 226 & 228 by 901.1	09/20/2018	10/08/2018 13:36	
<i>Containers Supplied:</i>			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-13</b>	<b>Water</b>	<b>Sampled: 09/10/2018 16:50</b>	<b>Sample Name: CCR-4</b>
Radium,Total 226 & 228 by 901.1	09/20/2018	10/08/2018 16:50	
<i>Containers Supplied:</i>			
1000mL Plastic (C)	1000mL Plastic (D)		
<b>Sample ID: 1809205-14</b>	<b>Water</b>	<b>Sampled: 09/11/2018 11:58</b>	<b>Sample Name: CCR-5</b>
Radium,Total 226 & 228 by 901.1	09/20/2018	10/09/2018 11:58	
<i>Containers Supplied:</i>			
1000mL Plastic (C)	1000mL Plastic (D)		

Imah Jomeh 9/13/18 1030  
Released By Date  
VPS 9/14/18  
Released By Date

UPS 9/13/18 1630  
Received By \_\_\_\_\_ Date \_\_\_\_\_  
K. Brown 9/14/18  
Received By \_\_\_\_\_ Date \_\_\_\_\_



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

Sample Condition Upon

WO#: 2084043

PM: KHB

Due Date: 10/08/18

CLIENT: 20-MICRO

Pro.

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

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

Custody Seals intact: ☒ Yes ☐ No

Thermometer  
Used:

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

Type of Ice: Wet Blue None

Samples on ice: [see COC]

Cooler Temperature: [see COC]

Temp should be above freezing to 6°C

Date and Initials of person examining  
contents: 09-15-18 M

Temp must be measured from Temperature blank when present

Comments:

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

Client Notification/ Resolution:

Person Contacted:

Date/Time:

Comments/ Resolution:







### Chain of Custody Record

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

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

M-M Lab  
WO #

Print Form

Company Name: **Red Hills Power Plant**

Project Manager:

**Jim Ward**

Address: **2391 Pensacola Rd.**

Purchase Order #:

**SCSRDH6883**

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

Email Address:

Phone: **662-387-5758**

Sampler Name Printed:

Fax:

Sampler Name Signed:

*Kyle Schuster*

Turn Around Time & Reporting  
Our normal turn around time is 10 working days  
Normal ☒ Next Day\* ☐ 2nd Day\* ☐ Other\* ☐  
\*All rush order requests must be prior approved.  
Phone ☐ Mail ☐ Fax ☐ Email ☐  
QC Level: Level 1 ☐ Level 2 ☐ Level 3 ☐

Project Name: **Red Hills CCR**

#### List Analyses Requested

Project #:

Sample Identification

Sampling Date/Time

Matrix Code

# of Containers

Grab (G) or Composite (C)

TDS

Chloride, Fluoride, Sulfate

Antimony

Barium, Boron, Beryllium

Cadmium, Chromium

Lead, Calcium, Cobalt

Lithium

Total Radium 226 & 228

CCR-3 9/10/18/1336 W

4

5

X

X

X

X

X

X

X

X

CCR-4 9/10/18/1650 W

4

6

X

X

X

X

X

X

X

X

CCR-5 9/11/18/1558 W

4

6

X

X

X

X

X

X

X

X

Received on Ice? Y N Thermometer#

Cooler #

Receipt Temp Corrected(°C)

Date & Time

By:

Sample

Blank

Cooler

Printed Name

Signature

Company

Date

Time

Notes:

\*\*All Temps are Corrected Values\*\*

Preservation:  
1= H2SO4  
2= H3PO4  
3= NaOH  
4= ZnC4H10O6  
5= ZnC4H10O6 & NaOH  
6= HNO3  
7= Na2S2O3  
8= HCl  
9= NaHSO4

Relinquished by *Kyle Schuster*

*HA*

*ECS*

*9-11-18*

*1900*

Relinquished by

Received by

Relinquished by

Received by

## **APPENDIX C**

### FIELD SAMPLING DATA

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.

## RED HILLS AMU MONITOR WELLS

**Monitor Well:** MW-9

**Well Diameter:** 4 inches

Date: 2/9/18

**Water Column Height:** 14.58 ft  
(Measured Well Depth - Static Water Level)

**Sampling Method:** Pumped

**Measured Well Depth:** 21.74 ft

Static Water Level: 7.36 ft

(Depth to Water) 3.5

Maximum Drawdown Depth 8.19 ft

(10% of WCH + SWL)

TOC Elevation: 480.96 ft

GW Elevation: 473.6 ft

(TOC Elevation - Static Water Level)

Well Volume: 9.35 gal

(Water Column Height x Well Casing Volume Factor)

[illegible]

Sample Time: 11/7/11  
Sample Analyzed for: Boron, Calcium, Chloride, Fluoride, Sulfate, TDS

Total Drawdown (ft): 0.85

Drawdown/Water Column (%): Large hole

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.

<b>Well Stabilization</b>	
<b>pH:</b>	0.1 standard units
<b>conductivity:</b>	within 3%
<b>temperature:</b>	0.1 deg. C
<b>turbidity:</b>	<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	



## RED HILLS AMU MONITOR WELLS

Monitor Well:                      MWV-12

Well Diameter: 4 inches

Date: 2/6/18

**Water Column Height:** 15.56 ft  
(Measured Well Depth - Static Water Level)

**Sampling Method:** Pumped

**Measured Well Depth:** 19.09 ft

Static Water Level: 3.53 ft  
(Depth to Water)

**Maximum Drawdown Depth**  
(10% of WCH + SWL) 5.086 ft

TOC Elevation: 475.00 ft

GW Elevation: 471.47 ft  
(TOC Elevation - Static Water Level)

Well Volume: 10.11 gal  
(Water Column Height x Well Casing Volume Factor)

[illegible]

Sample Time: 1325  
Sample Analysis:

**Sample Analyzed for:**

Boron, Calcium, Chloride, Fluoride, Sulfate, TDS

**Total Drawdown (ft):**

**Drawdown/Water Column (%):**

Sampler Signature: [Signature]

**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	



Monitor Well: MW-13  
Date: 2/6/18

Date: 2/6/18

**Well Volume:** 27.38 gal  
(Water Column Height x Well Casing Volume Factor)

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-14

2/7/18

**Water Column Height:** 28.12 ft  
(Measured Well Depth - Static Water Level)

Measured Well Depth: 60.97 ft

TOC Elevation: 595.00 ft

**GW Elevation:** 52.15 ft  
(TOC Elevation - Static Water Level)

**Maximum Drawdown Depth** 35.66 ft  
(10% of WCH + SWL)

**Well Volume:** 18.28 gal  
(Water Column Height x Well Casing Volume Factor)

### Start Pump

**Sample Analyzed for:**

1014  
Boron, Calcium, Chloride, Fluoride, Sulfate, TDS

Duplicate

**Drawdown/Water Column (%):**

$$\begin{array}{r} 1.53 \\ 5.42 \end{array}$$

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	

## RED HILLS AMU MONITOR WELLS

Monitor Well: MW-15

**Well Diameter:** 4 inches

Date: 2/7/18

**Water Column Height:** 14.05 ft  
(Measured Well Depth - Static Water Level)

**Sampling Method:** Pumped

Measured Well Depth: 22.74 ft

Static Water Level: 7.69 ft

(Depth to Water) 10.30

Maximum Drawdown Depth 10.10 ft

(10% of WCH + SWL)

TOC Elevation: 487.61 ft

GW Elevation: 478.92 ft

(TOC Elevation - Static Water Level)

Well Volume: 9.15 gal

(Water Column Height x Well Casing Volume Factor)


[illegible]

Sample Time: 1413

**Sample Analyzed for:** Boron, Calcium, Chloride, Fluoride, Sulfate, TDS

**Total Drawdown (ft):**

**Drawdown/Water Column (%):**

Sampler Signature: 

**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	



MW-16

4 inches

2/7/18

Pumped

21.74 ft

7.18 ft

(Depth to Water)

8.64 ft

(10% of WCH + SWL)

14.56 ft

(Measured Well Depth - Static Water Level)

489.05 ft

481.87 ft

(TOC Elevation - Static Water Level)

9.46 gal

**Well Volume.**  $\frac{\text{Water Column Height} \times \text{Well Casing Volume Factor}}{1000}$

### Start Pump

[illegible]

**Sample Time:**

Sample Analyzed for:

1332  
Boron, Calcium, Chloride, Fluoride, Sulfate, TDS

1332  
Boron, Calcium, Chloride, Fluoride, Sulfate, TDS  
iron-laden water: orange scale on water interface tape  
Periods of intermittent 'very' orange when checking depth to bottom.

**Total Drawdown (ft):**

Drawdown/Water Column (%):

0.91  
6.3%

**Sampler Signature:**

If possible, total drawdown will not exceed 0.33 ft.

If possible, total drawdown will not exceed 0.33 ft.  
If drawdown exceeds 10% of water column height, flow will be stopped and well allowed to recover.

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

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-2

Date: 2/6/19

Date: 2/6/19

**Water Column Height:** 34.43 ft  
(Measured Well Depth - Static Water Level)

TOC Elevation: 539.90 ft

GW Elevation: 489.83 ft

(TOC Elevation - Static Water Level)  
**Well Volume:** 22.38 gal  
 (Water Column Height x Well Casing Volume Factor)

Sample Time: 1555  
Sample Analyzed for: Boron, Calcium, Chloride, Fluoride, Sulfate, TDS

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

Sampler Signature: \_\_\_\_\_

If possible, total drawdown will not exceed 0.33 ft.

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

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	



Monitor Well: CCR-3

Date: 2/6/18

Water Column Height: 25.51 ft  
(Measured Well Depth - Static Water Level)

TOC Elevation: 502.60 ft

GW Elevation: 475.11 ft

(TOC Elevation - Static Water Level) 17.511 ft

Well Volume: 16.58 gal  
(Water Column Height x Well Casing Volume Factor)

Sample Time: 1435  
Sample Analyzed for: Boron, Calcium, Chloride, Fluoride, Sulfate, TDS

2.0  
7.806

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	

## RED HILLS AMU MONITOR WELLS

Monitor Well: CCR-4

**Well Diameter:** 4 inches

Date: 2/6/18

**Water Column Height:** 50.84 ft  
(Measured Well Depth - Static Water Level)

**Sampling Method:** Pumped

**Measured Well Depth:** 53 ft

**Static Water Level:** 25.16 ft  
(Depth to Water)

**Maximum Drawdown Depth** 30.16 ft  
(10% of WCH + SWL)

TOC Elevation: 504.00 ft

GW Elevation: 478.84 ft

(TOC Elevation - Static Water Level)  
**Well Volume:** 33.05 gal  
 (Water Column Height x Well Casing Volume Factor)

[illegible]

Sample Time: 1638  
Sample Analyzed for: Boron, Calcium, Chloride, Fluoride, Sulfate, TDS

**Total Drawdown (ft):**

**Drawdown/Water Column (%):**

**Sampler Signature:**

If possible, total drawdown will not exceed 0.33 ft.

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

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

## RED HILLS AMU MONITOR WELLS

**Monitor Well:** MW-7

**Well Diameter:** 4 inches

Date: 5/16

**Water Column Height:** 22.78 ft  
(Measured Well Depth - Static Water Level)

**Sampling Method:** Pumped

**Measured Well Depth:** 56.92 ft

**Static Water Level:** 33.96 ft  
(Depth to Water) 4.28

Maximum Drawdown Depth +2.27 ft  
(10% of WCH + SWL) -10.39

TOC Elevation: 572.62 ft

GW Elevation: 537.66 ft  
(TOC Elevation - Static Water Level)

**Well Volume:** 14.92 gal  
(Water Column Height x Well Casing Volume Factor)


[illegible]

Sample Time: 1155

**Sample Analyzed for:** Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

Total Drawdown (ft): 1.08

Drawdown/Water Column (%): 4.7%

  
Sampler Signature:

**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	





Monitor Well: MW-12  
Date: 5/15/18

Date: 5/15/18

Well Volume: 7.70 gal  
(Water Column Height x Well Casing Volume Factor)

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	

## RED HILLS AMU MONITOR WELLS

**Monitor Well:** MW-13

Well Diameter: 4 inches

Date: 5/16

**Water Column Height:** 47.08 ft  
(Measured Well Depth - Static Water Level)

**Sampling Method:** Pumped

Measured Well Depth: 106 ft

Static Water Level: 61.92 ft

(Depth to Water)

**Maximum Drawdown Depth** +4.41 ft  
(10% of WCH + SWL)

TOC Elevation: 563.00 ft

GW Elevation: 501.88 ft

(TOC Elevation - Static Water Level)  
**Well Volume:** 28.65 gal  
 (Water Column Height x Well Casing Volume Factor)

### Start Pump


**Sample Time:**

**Sample Analyzed for:**

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

**Total Drawdown (ft):**

**Drawdown/Water Column (%):**

  
Sampler Signature:

If possible, total drawdown will not exceed 0.33 ft.

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

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	



## RED HILLS AMU MONITOR WELLS

Monitor Well: MW-14

Well Diameter: 4 inches

Date: 5/16

**Water Column Height:** 32.38 ft  
(Measured Well Depth - Static Water Level)

**Sampling Method:** Pumped

**Measured Well Depth:** 60.97 ft

**Static Water Level:** 28.59 ft  
(Depth to Water)

Maximum Drawdown Depth  $+3.24$  ft  
(10% of WCH + SWL)  
 $31.83$  ft

**TOC Elevation:** 595.00 ft

**GW Elevation:** 566.41 ft  
(TOC Elevation - Static Water Level)

**Well Volume:** 21.05 gal  
(Water Column Height x Well Casing Volume Factor)

[illegible]

\* Duplicate  
Taken

Sample Time: 1255

**Sample Analyzed for:** Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

Total Drawdown (ft): 1.74

Drawdown/Water Column (%): 5.4%

**Sampler Signature:** 

**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	

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	

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	



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	

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-3  
Date: 5/15/18

**Water Column Height:** 26.59 ft  
(Measured Well Depth - Static Water Level)

<b>Sampling Method:</b>	<u>Pumped</u>	
<b>Measured Well Depth:</b>	<u>53</u>	ft
<b>Static Water Level:</b>	<u>26.41</u>	ft
(Depth to Water)		
<b>Maximum Drawdown Depth</b>	<b>+ 2.66</b>	ft
(10% of WCH + SWL)	<u>39.07</u>	ft

**TOC Elevation:** 502.60 ft  
**GW Elevation:** 476.9 ft  
 (TOC Elevation - Static Water Level)  
**Well Volume:** 17.28 gal  
 (Water Column Height x Well Casing Volume Factor)

[illegible]

\* Conductivity meter experienced issues during sampling. After sample was taken, equipment was taken apart, cleaned, batteries changed, etc. Appears to be working properly now. JB

Sample Time: 1440  
 Sample Analyzed for: Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

Total Drawdown (ft): 2.59  
Drawdown/Water Column (%): 9.74

\_\_\_\_\_  
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	



## RED HILLS AMU MONITOR WELLS

Monitor Well: CCR-4

**Well Diameter:** 4 inches

Date: 5/1/0

**Water Column Height:** 27.98 ft  
(Measured Well Depth - Static Water Level)

**Sampling Method:** Pumped

Measured Well Depth: 53 ft

**Static Water Level:** 25.02 ft  
(Depth to Water)

**Maximum Drawdown Depth**  $\uparrow$  2.79 ft  
(10% of WCH + SWL)

TOC Elevation: 504.00 ft

**GW Elevation:** 478.98 ft  
(TOC Elevation - Static Water Level)

**Well Volume:** 18.19 gal  
(Water Column Height x Well Casing Volume Factor)

[illegible]

**Sample Time:**

**Sample Analyzed for:**

1055  
Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium,  
Thallium, Radium 226/228

**Total Drawdown (ft):**

**Drawdown/Water Column (%):**

**Sampler Signature:**

If possible, total drawdown will not exceed 0.33 ft.

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

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

Monitor Well: CCR-2  
Date: 9/10/18

**Water Column Height:** 32.94 ft  
(Measured Well Depth - Static Water Level)

**TOC Elevation:** 539.90 ft  
**GW Elevation:** 488.34 ft  
 (TOC Elevation - Static Water Level)  
**Well Volume:** 21.41 gal  
 (Water Column Height x Well Casing Volume Factor)

[illegible]

**Sample Analyzed for:**

Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, Thallium, Radium 226/228

**Drawdown/Water Column (%):**

**Sampler Signature:**

If possible, total drawdown will not exceed 0.33 ft.

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

Well Stabilization	
pH:	0.1 standard units
conductivity:	within 3%
temperature:	0.1 deg. C
turbidity:	<5 NTU or 10%

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.16	2 1/2" = 0.24
3" = 0.37	3 1/2" = 0.50	4" = 0.65	6" = 1.46
8" = 2.61	10" = 4.08	12" = 5.87	

Final Depth: 53.38 ft

SAMPLE TIME: 14:40

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	

Well Casing Volumes (gal/ft)			
1" = 0.041	1 1/2" = 0.10	2" = 0.18	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	

Developed 50-gallons  
9/10/18 55-gallons  
Final Depth: 7.88 ft  
SAMPLE Time: 11:58

Duplicate



Final Depth: 9.13 ft  
Sample Time: 9:55

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	

Sample Time - 11:04

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	

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	



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	

Frame Depth = 8.41 ft  
Sample Time 9:09



Field Blank Time 7:00

## **APPENDIX D**

### **2018 GROUNDWATER MONITORING SUMMARY**

# Red Hills CCR Groundwater Results for Calendar Year 2018

## Detection and Assessment Monitoring Results:

	Detected
	Detected above Prediction Limit
	Detected above Prediction Limit and Groundwater Protection Standard (GWPS)

## Groundwater Elevation (feet) and Flow Rate (feet/yr)

Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2	Flow Rate	Flow Direction
Detection Monitoring														
2/6-7/18	489.83	475.11	478.84		537.58	473.6	471.47	499.4	562.15	478.92	481.87	477.49	1.3	NNW
Assessment Monitoring														
5/15-16/18	489.73	476.19	478.98		538.66	472.82	468.07	501.08	566.41	478.93	481.36	478.19	1.4	NNW
9/10-11/18	488.34	473.95	478.28	460.73	537.84	472.98	468.6	499.16	562.19	477.16	480.72	476.59	1.3	NNW

## Antimony (Sb) Monitoring Results (mg/L)

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
9/10-11/18	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Prediction Limit = 0.002, GWPS = 0.006												

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

## Arsenic (As) Monitoring Results (mg/L)

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
9/10-11/18 <sup>(2)</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Prediction Limit = 0.002, GWPS = 0.010												

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

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

**Red Hills CCR Groundwater Results for Calendar Year 2018**

**Barium (Ba) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
<b>Detection Monitoring</b>												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
<b>Assessment Monitoring</b>												
5/15-16/18	0.091	0.098	0.154		0.089	0.212	0.295	0.157	0.013	0.203	0.194	0.116
9/10-11/18	0.079	0.072	0.127	0.039	0.075	0.191	0.142	0.131	<0.010	0.16	0.188	0.091
<b>Prediction Limit = 0.2558, GWPS = 2</b>												

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

**Beryllium (Be) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
<b>Detection Monitoring</b>												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
<b>Assessment Monitoring</b>												
5/15-16/18	<0.001	<0.001	<0.001		<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
9/10-11/18	<0.001	<0.001	<0.001	<0.001	<0.001	0.0027	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<b>Prediction Limit = 0.001, GWPS = 0.004</b>												

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

**Boron (B) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
<b>Detection Monitoring</b>												
2/6-7/18	<0.050	<0.050	<0.050		-	<0.050	<0.050	-	-	<0.050	<0.050	<0.050
<b>Assessment Monitoring</b>												
5/15-16/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
9/10-11/18	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
<b>Prediction Limit = 0.050</b>												

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

**Red Hills CCR Groundwater Results for Calendar Year 2018**

**Calcium (Ca) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18	14.1	75.4	28.8		-	79.8	32.1	-	-	32.7	33.2	36.4
Assessment Monitoring												
5/15- 16/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
9/10-11/18	13.5	32.8	22.7	181	43.2	70.6	21.3	16.3	0.493	26	29.2	29
Prediction Limit = 85.8879												

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

**Cadmium (Cd) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	<0.001	<0.001	<0.001		<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
9/10-11/18	<0.001	<0.001	<0.001	<0.001	<0.001	0.00139	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Prediction Limit = 0.001, GWPS = 0.005												

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

**Chloride (Cl) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18	2.89	6.82	7.57		-	509	56.2	-	-	12	61.9	37.7
Assessment Monitoring												
5/15- 16/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
9/10-11/18	2.2	5.32	6.85	9.44	2.65	419	23.3	3.72	17	10.6	49.8	33.8
Prediction Limit = 26.6034												

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

## Red Hills CCR Groundwater Results for Calendar Year 2018

### Chromium (Cr) Monitoring Results (mg/L)

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001
9/10-11/18	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Prediction Limit = 0.001, GWPS = 0.1												

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

### Cobalt (Co) Monitoring Results (mg/L)

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	0.001	<0.001	0.002		<0.001	0.017	0.017	<0.001	<0.001	0.009	0.008	<0.001
9/10-11/18	<0.001	<0.001	0.00274	0.0368	<0.001	0.0176	0.00744	<0.001	<0.001	0.00932	0.00426	<0.001
Prediction Limit = 0.001, GWPS = 0.006												

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

### Fluoride (F) Monitoring Results (mg/L)

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18	<0.22	0.27	<0.22		-	0.35	<0.22	-	-	0.24	<0.22	0.33
Assessment Monitoring												
5/15-16/18	<0.22	0.48	0.53		0.2	0.57	0.24	<0.22	<0.22	0.31	0.34	0.45
9/10-11/18	<0.22	<0.22	<0.22	<0.22	0.28	0.46	0.23	<0.22	<0.22	0.36	0.24	0.42
Prediction Limit = 0.30, GWPS = 4.0												



**Red Hills CCR Groundwater Results for Calendar Year 2018**

**Lead (Pb) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001
9/10-11/18	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Prediction Limit = 0.001, GWPS = 0.015												

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

**Lithium (Li) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	<0.050	0.108	<0.050		<0.050	0.09	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
9/10-11/18	<0.050	0.058	<0.050	<0.050	<0.050	0.101	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Prediction Limit = 0.050, GWPS = 0.050												

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

**Mercury (Hg) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	<0.002	<0.002	<0.002		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
9/10-11/18 <sup>(2)</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Prediction Limit = 0.002, GWPS = 0.002												

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

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

**Red Hills CCR Groundwater Results for Calendar Year 2018**

**Molybdenum (Mo) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
9/10-11/18 <sup>(2)</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Prediction Limit = 0.001, GWPS =0.100												

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

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

**Selenium (Se) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
9/10-11/18 <sup>(2)</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Prediction Limit = 0.001, GWPS = 0.05												

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

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

**Sulfate (SO<sub>4</sub>) Monitoring Results (mg/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18	8.33	202	15.9		-	92.9	48.2	-	-	39.2	128	108
Assessment Monitoring												
5/15-16/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
9/10-11/18	6.32	56.2	14.8	807	24	79.2	16.5	<5.00	8.67	30.5	133	73.2
Prediction Limit = 44.8102												

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

## Red Hills CCR Groundwater Results for Calendar Year 2018

### Thallium (Tl) Monitoring Results (mg/L)

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
Assessment Monitoring												
5/15-16/18	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
9/10-11/18 <sup>(2)</sup>	-	-	-	-	-	-	-	-	-	-	-	-
Prediction Limit = 0.001, GWPS = 0.002												

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

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

### Total Dissolved Solids (TDS) Monitoring Results (mg/L)

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18	107	518	195		-	1423	310	-	-	272	338	274
Assessment Monitoring												
5/15- 16/18 <sup>(1)</sup>	-	-	-		-	-	-	-	-	-	-	-
9/10-11/18	136	314	207	1673	224	1498	214	149	87	282	386	304
Prediction Limit = 320.8384												

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

### pH Monitoring Results (S.U.)

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18	6.36	6.25	6.25		6.73	4.96	5.65	6.31	4.78	5.84	5.33	5.73
Assessment Monitoring												
5/15-16/18	5.85	6.52	6.55		6.95	5.65	6.25	6.7	5.04	6.33	6.2	6.38
9/10-11/18	6.39	6.47	6.46	5.92	6.81	5.35	6.2	6.77	5.06	6.15	5.54	5.96
Prediction Limit = 3.77 – 9.97												

**Red Hills CCR Groundwater Results for Calendar Year 2018**

**Radium 226 and 228 Combined (Ra) Monitoring Results (pCi/L)**

Monitoring Well												
Date	CCR-2	CCR-3	CCR-4	CCR-5	MW-7	MW-9	MW-12	MW-13	MW-14	MW-15	MW-16	OW-2
	Down	Down	Down	Down/ Boundary	Up	Down	Down	Up	Up	Down	Down	Down
Detection Monitoring												
2/6-7/18 <sup>(1)</sup>												
Assessment Monitoring												
5/15-16/18	0.284	3.156	1.896		1.261	1.877	2.586	1.508	1.5089	2.3502	3.159	2.611
9/10-11/18	0.86	2.717	1.745	2.148	2.27	2.586	2.625	1.4112	1.461	1.843	3.273	2.789
Prediction Limit = 17.8958, GWPS = 17.8958												

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