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THE ELM CONSULTING GROUP INTERNATIONAL LLC

ENVIRONMENTAL AUDIT IN SUPPORT OF THE COURT APPOINTED MONITOR

Asheville Steam Station
Arden, North Carolina
USA

May 2019

Final Report Issued to:

Duke Energy and the Court Appointed Monitor

Prepared By:

Advanced GeoServices Corp.
and
The Elm Consulting Group International LLC

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1.0 INTRODUCTION

Advanced GeoServices Corp. (Advanced GeoServices) and The Elm Consulting Group International LLC (Elm) (collectively, the Audit Team) are conducting environmental compliance audits (the Audits) of certain coal combustion residuals (CCR) management locations owned or operated by Duke Energy Business Services LLC, Duke Energy Carolinas, LLC, and Duke Energy Progress, Inc. (collectively, Duke Energy). The Audits are being conducted under the direction of Mr. Benjamin Wilson, the Court Appointed Monitor, pursuant to an Order issued by the U.S. District Court, Eastern District of North Carolina, in case numbers 5:15-CR-62-H, 5:15-CR-67-H, and 5:15-CR-68-H.

The scope of the Audits is set forth in the plea agreements entered into by Duke Energy and the United States in the above cases, the Court's judgments in these cases, and a written audit scoping document agreed to by Duke Energy and the United States.

1.1 BACKGROUND INFORMATION

The subject of this report is the Audit completed at Duke Energy's Asheville Steam Station in Arden, North Carolina (Asheville Facility). The Audit was conducted on March 13-14, 2019 for a total of two days on-site. The Audit Team included the following senior auditors:

- Mr. Christopher Reitman, P.E., AGC — Project Director, Audit Team Leader, Sr. Subject Matter Expert (on-site)
- Mr. Joseph Cotier, CPEA, Elm — Sr. Environmental Auditor (on-site)
- Mr. Bernie Beegle, P.G., AGC — Sr. Subject Matter Expert (off-site)

The facility was represented by:

- Mr. Matt Pickett , CCP System Owner
- Mr. Tim Hill, General Manager, Carolinas West Region, CCP Operations and Maintenance
- Mr. Mike Clough, CCP Engineering & Closure Engineering
- Mr. Henry Duperier, CCP Projects
- Ms. Tina Woodward, EHS CCP Permitting and Compliance
- Mr. John Toepfer, EHS CCP Waste & Groundwater
- Ms. Bryson Sheetz, EHS CCP Waste & Groundwater
- Ms. Tammy Jett, EHS CCP Waste & Groundwater (by phone)
- Ms. Diana Kooser, Regulatory Affairs
- Mr. Andrew Stroud, Environmental Rover, EHS CCP Compliance
- Mr. Michael Phillips, Manager, EHS CCP Compliance
- Mr. Chuck Cranford, EHS CCP Environmental Field Support
- Ms. Teresa Williams, Station Environmental Field Support
- Mr. Ron Hollifield, EHS CCP H&S Field Support
- Mr. Ken Tadlock, Station H&S Field Support
- Mr. Garry Whisnant, Station General Manager
- Mr. Jeff McFee, Maintenance Superintendent
- Mr. Matt Fields, Anchor Environmental
- Mr. Keith Higgins, EHS CCP Compliance

1.2 FACILITY OVERVIEW

The Asheville Facility is located at 200 CP&L Drive, Arden, North Carolina. The Operations and Maintenance Manual states the Asheville Facility is located on 786 acres spanning across United States Interstate I-26. The Asheville Facility power generating units are located along the east side

of the French Broad River and west of Lake Julian. According to the overview provided by Duke Energy personnel, the Asheville Facility began power generation in 1964. Lake Julian provides cooling water for the Asheville Facility coal-fired generating units.

Two coal-fired generating units are currently in operation at the Asheville Facility, Unit 1 (1964, 191 MW) and Unit 2 (1971, 185 MW). The Asheville Facility also operates two natural gas/fuel oil-fired combustion turbines, Units 3 and 4, which provide a total of 324 MWs. Units 1 and 2 were operating during the Audit Team's visit. The existing coal fired units will retire no later than January 2020.

1.2.1 Ash Management Activities

According to the 2015 Update to the Coal Ash Excavation Plan and Duke Energy personnel, ash generated by coal combustion was placed in the following areas on-site:

- 1964 Ash Basin – The 1964 Ash Basin was put into service in 1964 and originally had an impoundment area of 41 acres. The 1964 Ash Basin is unlined and active and receives sluiced ash/water from the Asheville Facility's generating units. Sluice water goes through the rim ditch which includes a decant basin and then is pumped to the settling basin pond/Outfall 001 with inline pH adjustment in the pipes prior to discharge to the French Broad River.

- 1982 Ash Basin – The 1982 Ash Basin had an impounded area of 54 acres. The excavation of the CCR within the 1982 Ash Basin was completed in 2016. In accordance with the design submitted to NCDEQ, the 1982 Ash Basin dam was intentionally breached to prevent it from impounding water in the future. In September 2016, preparation activities began for the construction of a combined cycle natural gas plant which is projected to come on-line in January 2020. The Audit Team observed construction of significant infrastructure associated with the

planned combined cycle natural gas plant being installed within the former 1982 Ash Basin area during the 2019 Audit.

The North Carolina Coal Ash Management Act of 2014 (CAMA) originally required the CCR in the 1982 and 1964 Ash Basins at the Asheville Facility to be removed by August 1, 2019. However, the North Carolina Mountain Energy Act of 2015 was subsequently passed and extended the CCR removal date for the 1964 Ash Basin to August 1, 2022. As noted above, the CCR in the 1982 Ash Basin has already been removed and the dam has been intentionally breached to eliminate the potential for impounding water.

1.2.2 Environmental Permits and Programs

The Asheville facility operates under a number of environmental permits and programs, including:

- **National Pollutant Discharge Elimination System (NPDES) Wastewater Permitting –** During the period of review the Asheville Facility operated under two separate NPDES permits, as well as the recently issued Special Order by Consent (SOC). The NPDES permits and the SOC are described below.

  1. The North Carolina Department of Environmental Quality (NCDEQ) issued NPDES Permit No. NC0000396 for the Asheville Facility on January 1, 2006. A modification to the Permit became effective November 1, 2007. The permit expired on December 31, 2010, but a timely permit renewal application was submitted to NCDEQ on June 11, 2010, which extended the effective date of the Permit until NCDEQ acts on the renewal application. Duke submitted a permit application amendment on July 30, 2014 to address seepage waters that had been identified at the facility during 2014. A second permit renewal supplement was submitted to NCDEQ on December 1, 2016, requesting inclusion of additional seeps, removal of internal Outfall 005, removal of

industrial stormwater outfalls (which were covered in an individual stormwater permit issued during 2016), and modification of the process water flow path prior to the discharge at Outfall 001. A third permit renewal supplement was submitted on December 7, 2017, requesting removal of the 1982 Ash Basin from the permit and inclusion of the 1964 Ash Basin toe drain seeps as separate outfalls, and noting that 1964 Ash Basin interstitial waters would be directed to the rim ditch for treatment in the Asheville Facility treatment system.

The permit covered the following outfalls:

- Outfall 001 – the Ash Basin treatment system which discharges to the French Broad River;
- Outfall 002 – the once through cooling water which discharges to Lake Julian;
- Internal Outfall 004 – the process waters which discharge to the Ash Basin treatment system (which in turn discharge to outfall 001); and
- Internal Outfall 005 – the wet scrubber water which discharges to outfall 001.

During 2011 and 2012, Outfall 001 was relocated from immediately west of the 1964 Ash Basin to a location northwest of the 1964 Ash Basin, allowing modifications of the 1964 Ash Basin Dam. NCDEQ approval for this relocation was received by the Asheville Facility on May 13, 2015. The seep collection system near the former Outfall 001 location pumps the seep water back to the Ash Basin where it is treated with other process waters generated by the facility.

As discussed more below, a renewed NPDES Permit No. NC0000396 was issued on November 8, 2018 and became effective on December 1, 2018. The new NPDES Permit has eliminated the groundwater monitoring requirements included in the earlier NPDES permit. However, the new NPDES Permit states an exceedance of groundwater standards at or beyond the compliance boundary is subject to remedial action in accordance with 15A NCAC 02L.0106(c), (d), or (e) as well as enforcement actions in accordance with North Carolina General Statute sections 143-215.6A through 143-215.6C. An updated groundwater compliance boundary map was provided in the new NPDES Permit. The updated permit does not include a compliance boundary for the 1982 Ash Basin.

2. The renewed NPDES Permit No. NC0000396 was issued on November 8, 2018 and became effective on December 1, 2018. The permit carries an expiration date of November 30, 2023. Changes to the NPDES permit included:

   - Outfall 001 – Treated Ash Pond water which flows through the Rim Ditch and discharges from the 1964 Ash Basin to the French Broad River. For this outfall, the permit requires physical-chemical treatment. There is also a requirement to discontinue discharge if arsenic, selenium, mercury, nickel, or lead reach 85% of allowable levels. Monitoring for pH and total suspended solids (TSS) must be continuous and be shut off automatically if TSS exceeds one-half of the daily maximum limit or if pH is monitored outside the 6.1 to 8.9 standard units range.
   - Outfall 005 – an internal outfall for wet scrubber wastewater from the flue-gas desulfurization (FGD) unit to the ash basin and the Outfall 001. As noted below, this wastewater now goes to the local publicly owned

treatment works (POTW) under the Buncombe County-issued Significant Industrial User permit, eliminating Outfall 005.

- Outfall 101 – a constructed seep which collects seep water from 3 separate seeps and pumps it back to the 1964 Ash Basin which flows to a building for pH control and then to the stilling pond which is where the Outfall 001 sample is collected. Pumping back to the 1964 Ash Basin will continue until commencement of decanting from the rim ditch. At that time, the Asheville Facility may begin direct discharge from Outfall 101 to French Broad River.

A monthly instream monitoring requirement has also been added. Section A.10 requires monitoring for thirteen parameters at a point upstream (approximately 5500 feet) and downstream (approximately 2900 feet) from the discharge at Outfall 001.

3. Special Order by Consent EMC SOC WQ S17-010 was signed by the Chair of the North Carolina Environmental Management Commission on October 10, 2018. The SOC includes requirements related to non-constructed seeps identified at the Asheville Facility. Non-constructed seeps are defined as seeps that are not on or within the dam structure or that do not convey wastewater via pipe or constructed channel directly to a receiving stream. Twenty-five individual non-constructed seeps are identified in the SOC, including: 5 seeps which require no monitoring per the SOC but are represented by Outfall 101 in the Asheville Facility NPDES permit (64EO-01, 64EO-02, 64EO-03, C-03, C-05); 3 dispositioned seeps (K-02, P-01, SD-01); and 17 active seeps (A-01, A-02, B-01, C-01, C-02, D-01, E-01, F-01, F-02, F-03, K-01, M-01, N-01, Ponded Water F, 82EO-01, 82EO-02, DD-Pipe). Pursuant to the representative sampling locations outlined in the SOC, quarterly sampling for parameters

listed in Attachment B of the SOC is required at A-01, B-01, C-01, E-01, F-01, F-02, N-01, and instream (both upstream and downstream in French Broad River). The first round of monitoring was conducted during the fourth quarter of 2018 on November 28, 2018.

As noted above, any discharge from seeps 64EO-01, 64EO-02, and 64EO-03 are collected at the NPDES Outfall 101 and pumped back to the 1964 Ash Basin until commencement of decanting from the rim ditch. At that time, the Asheville Facility may commence direct discharge from Outfall 101 to French Broad River.

Newly identified non-constructed seeps reported to NCDEQ per the SOC and CAMA (which would be in accordance with the NCDEQ-approved Discharge Identification Plan for the Asheville Facility) are deemed covered by the SOC.

Additional reports must also be submitted to NCDEQ as follows:

- Interim Seep Report — April 30, 2020
- Seep Characterization Report — June 30, 2020
- Amended Groundwater Corrective Action Plan and/or Closure Plan — August 31, 2020
- Quarterly Reports on Status of Decanting, Dewatering and Other Activities Related to Closure — January 30
  April 30
  July 30
  October 30

Pursuant to the representative sampling locations outlined in the SOC, quarterly sampling for parameters listed in Attachment B of the SOC is required at A-01, B-01, C-01, E-01, F-01, F-02, N-01, and instream (both upstream and downstream in the French Broad River). As of the date of the Audit, one round of quarterly sampling and analysis had been completed with discharge monitoring reports (DMRs) having been submitted to NCDEQ.

Monitoring parameters and in some cases specific discharge limits are listed in the Interim Action Level (IAL) column of Attachment A of the SOC for the seeps. For instream monitoring required by the SOC, "N/A-2B Standards Apply" is listed in this column. Because of the inclusion of this language, it was unclear whether or not the 2B standards (15A NCAC 2B) apply and how Duke Energy would determine compliance with the SOC monitoring requirements.

It was also unclear to the Audit Team how the 2B standards would be applied, if deemed applicable by NCDEQ. For example, many metals include both an acute and a chronic standard (e.g., arsenic, beryllium, cadmium, copper, etc.). The SOC is silent on how these standards would be applied to monitoring of seeps at the Asheville Facility.

Duke Energy initiated correspondence with NCDEQ in an email dated March 25, 2019 requesting clarification of the applicability of the 2B standards. NCDEQ responded in an email dated March 29, 2019 that any specific limit noted in the IAL column would be enforceable under the SOC. For example, the IAL column for seep E-01 includes a nickel limit of 60 µg/L. An exceedance of the nickel would trigger stipulated penalties and increased

monitoring at E-01 under the SOC. NCDEQ also stated that if there were no specific limits listed, then there was no IAL (indicated by "N/A" in that column) and the 2B limits would apply. NCDEQ further stated that an exceedance of a 2B standard under this monitoring scenario would not constitute a violation of the SOC and that "…compliance oversight will be performed separate from that of the SOC." Compliance oversight by NCDEQ is understood to refer to the agency's day-to-day execution of their regulatory duties.

A copy of the Asheville Facility NPDES Permit, SOC, and reports required by the SOC must be posted on Duke Energy's external website.

- **NPDES Stormwater Permitting –** NCDEQ issued Individual Stormwater Permit No. NCS000575 to the facility with an effective date of May 24, 2016 and an expiration date of April 30, 2021. Duke Energy submitted a permit modification request on May 3, 2017. The modification was granted by NCDEQ on June 22, 2017 and eliminated Outfall SW002, as well as all monitoring requirements for PCBs. The Permit includes two stormwater outfalls to Lake Julian: SW001 and SW003. These outfalls service the haul road along the east side of the 1982 Ash Basin.

  A Storm Water Pollution Prevention Plan (SWPPP) was developed and implemented in November 2016 and revised in August 2018.

  The stormwater permit lists 18 individual parameters for purposes of qualitative monitoring. Each parameter is paired with a benchmark value. The stormwater permit states that an exceedance of a benchmark value is not a permit violation but instead should be used as a guideline for implementing a facility's SWPPP. The stormwater permit outlines specific measures to take and required documentation

related to exceedance of any benchmark values. The measures include investigation of the exceedance's cause and a sampling frequency increase from quarterly to monthly for all parameters at that outfall.

Monitoring for SW003 during the third quarter of 2018 (sample date September 26, 2018) returned a TSS result of 200 mg/L which exceeds the permit benchmark value of 100 mg/L, putting the Asheville Facility in Tier One status. All required measures were documented and completed. With completion of three consecutive monitoring results for TSS below 100 mg/L (sampling dates October 26, 2018, November 9, 2018, December 20, 2018), SW003 is no longer considered Tier One for TSS. However, the November 9, 2018 monitoring results for SW003 returned a result for copper of 0.0587 mg/L; copper carries a benchmark value of 0.010 mg/L. Required measures were implemented and the fourth quarter 2018 monitoring results showed copper at 0.00997 mg/L (sampling date December 20, 2018). There was inadequate flow during sampling attempts in January and February 2019, so SW003 remains in Tier One status for copper.

- **NPDES Stormwater Construction Permitting –** There are no NCDEQ-issued stormwater construction permits governing activities related to CCR management in effect at the Asheville Facility. Previously issued permits were closed during NCDEQ inspections on June 14, 2018 and November 29, 2018.

- **POTW Permitting –** Buncombe County has issued a Significant Industrial User Permit for the discharge of flue-gas desulfurization (FGD) wastewater to the local POTW. Permit No. S-074-017 was issued January 1, 2017 and expires December 31, 2021. This permit and the associated discharge eliminated the former NPDES internal Outfall 005, described above.

- **Title V Permitting –** Western North Carolina Regional Air Quality Agency (WNCRAQA) issued Title V Permit No. 11-628-16A to the Asheville Facility with an effective date of January 9, 2017 and an expiration date of July 31, 2021. Insignificant sources identified in the Title V permit include: coal handling/coal pile/ash handling and ash ponds, the gypsum handling system, and diesel generators for the filter pump and the seep pump. Fugitive dust control was included in Section MM of the permit and reflects the WNCRAQA Code 4.0540. The Annual Compliance Certification for 2018 was submitted to WNCRAQA on January 28, 2019

- **Spill Prevention, Control and Countermeasure (SPCC) Plan** – Activities related to coal ash or basin management were addressed in a Waste Management, Inc. SPCC Plan that covered oil storage related to the 1964 Ash Basin closure. The SPCC Plan was dated August 2017. The SPCC Plan was revised March 4, 2019 and is awaiting final certification by the Professional Engineer before being fully implemented. Waste Management operates as a contractor to Duke Energy.

- **Hazardous Chemicals Inventory Reporting on Tier II for 2018** – Duke Energy submitted a Tier II report on February 5, 2019.

- **CAMA Statute** – CAMA requirements include identification of drinking water supply wells within a half mile of the facility, submission of Groundwater Assessment Plans, installation of groundwater assessment wells and multiple rounds of sampling, submission of Groundwater Assessment Reports summarizing groundwater investigations, submission of an Annual Groundwater Protection and Restoration Report, submission of Discharge Assessment Plans to characterize

seeps, submission of a Groundwater Corrective Action Plan, and Ash Basin closure/removal.

On October 11, 2017, NCDEQ issued to Duke Energy approval of provisional background threshold values (PBTVs) for the Asheville Facility. Duke Energy is scheduled to submit the CAMA Comprehensive Site Assessment Update in June 2020 for the Asheville Facility.

On December 20, 2017, under CAMA, NCDEQ issued Revised Interim Monitoring Plans (IMPs) to Duke Energy requiring groundwater monitoring at 14 Duke Energy facilities located in North Carolina, including the Asheville Facility. The revised facility IMPs require groundwater monitoring on a quarterly basis commencing the fourth quarter of calendar year 2017 pursuant to 15A NCAC 02L.0110, until Corrective Action Plans are accepted for the individual facilities or as directed otherwise by the NCDEQ. The quarterly sampling events will be conducted in conjunction with planned compliance monitoring sampling events for three quarters during the calendar year, supplemented with an additional sampling event conducted at each facility in order to provide four rounds of monitoring data to evaluate seasonal fluctuations during a year-long timeframe. The Asheville Facility CAMA groundwater monitoring network consists of 66 wells. On December 21, 2018, NCDEQ issued Duke Energy optimized Interim Monitoring Plans (IMPs) for all the 14 Duke Energy Facilities with groundwater sampling to begin in the first quarter of 2019.

Under CAMA, Duke Energy submitted to the NCDEQ the 2018 Groundwater Protection and Restoration Annual Report on January 25, 2019 and the 2018 Surface Water Protection and Restoration Annual Report on January 21, 2019 for the Asheville Facility.

Duke Energy submitted to NCDEQ a Technical Report of Geochemical and Isotope Characterization of Surface and Groundwater in and around the Asheville Facility dated April 26, 2018. One of the report's conclusions was that no significant difference in boron or strontium composition occurs in French Broad River samples from upstream to downstream of the Asheville Facility.

Duke Energy submitted to NCDEQ a Bedrock Flow System Evaluation Update Report dated October 2018. The purpose of the evaluation was to determine the location and characteristics of bedrock fractures in wells between the Asheville Facility ash basins and the French Broad River, to evaluate the hydraulic connectivity of bedrock fractures, and to identify potential for groundwater affected by the ash basins to migrate beneath the French Broad River and affect groundwater quality on the west side of the river. The pump tests were conducted at wells MW-16BRL, MW-26BRL, and MW-20BR between May 8, 2018 and July 12, 2018, with a pump test observation well at residential well AS-14. General conclusions were the bedrock groundwater flow system downgradient of the 1964 Ash Basin is connected to the French Broad River as would be expected based on the fundamental hydrogeological principals that main stem river systems are groundwater discharge zones. The horizontal extent of connectivity of the flow system within the area of impacted groundwater is defined. The bedrock flow system downgradient of the 1982 Ash Basin has limited connectivity to the French Broad River. Water levels from residential well AS-14 indicated the well was affected by the pumping test at the MW-20BR location.

– **CCR Rule** – The Coal Combustion Residuals Rule (CCR Rule, 40 CFR, part 257, Subpart D) identifies standards for the disposal of CCR in landfills and surface impoundments. The 1964 and 1982 Ash Basins are subject to the CCR Rule

because the Asheville Facility currently produces electricity. A groundwater monitoring well network has been established at both the 1964 Ash Basin and the 1982 Ash Basin and the required detection monitoring sampling events were completed. The CCR groundwater monitoring networks are comprised of 6 background wells and a combined 20 downgradient wells for the 1964 and 1982 Ash Basins.

On March 14, 2018, Duke Energy provided notice on Duke Energy's public website that the 1964 and 1982 Ash Basins are now in the CCR assessment monitoring program due to statistically significant increases over the background values of the Appendix III parameters.

On November 7, 2018, Duke Energy posted the required location restrictions for impoundments which stated the 1964 Ash Basin did not meet the surface impoundment standard for placement above the uppermost aquifer (40 C.F.R. § 257.60(a)) or for wetlands (40 C.F.R. § 257.61(a)). Since the wetland restriction was not met, closure would normally be required by April 12, 2019. It was the understanding of the Audit Team that Duke Energy planned on extending the time required to closure in accordance with Alternative Closure provisions identified in provisions of 40 C.F.R. § 257.103. The specific details of the Alternative Closure request were not reviewed by the Audit Team.

On December 14, 2018, Duke Energy provided notice on Duke Energy's public website that the following CCR Rule Appendix IV constituents were detected at levels above the applicable Groundwater Protection Standard (GWPS) at the 1964 and 1982 Ash Basins.

- Cobalt
- Radium 226 and 228 combined

On January 18, 2019, Duke Energy submitted to NCDEQ the 2018 CCR Annual Groundwater Monitoring and Corrective Action Reports for the 1964 and 1982 Ash Basins.

On February 19, 2019, Duke Energy provided notice on Duke Energy's public website that an assessment of corrective measures was initiated for the 1964 and 1982 Ash Basins in accordance with 40 C.F.R. § 257.96(a).

Duke Energy has also developed numerous other submittals for each CCR unit in accordance with the CCR Rule identified on Tables 1A and 1B.

Although all the CCR materials have been removed from the 1982 Ash Basin, closure under the CCR rule will not be considered complete until groundwater standards are met in the groundwater beneath the basin.

1.2.3 Dam and Other Structural Permits and Approvals

The 1964 Ash Basin has an active dam. The dam was grandfathered under North Carolina's Session Law 2009-390 (Senate Bill 1004, effective date January 1, 2010). Under this grandfathering, the original design of the dams is not subject to the current design standards for new construction, although modifications after the effective date may be subject to these standards.

According to the 2018 Annual Inspection Report, the 1964 Ash Basin Dam (BUNCO – 97) has a length of 2,100 feet with a maximum height of 100 feet, a crest width of 12 feet, a crest elevation of about 2,158 feet above mean sea level (msl), and a reported pond area of 30 acres. The dam is classified as a very large high hazard dam under North Carolina regulations. At the time of the NCDEQ Annual Inspection on June 20, 2018, the 1964 Ash Basin impoundment held

approximately 2,676,600 tons of CCR and 6.5 million gallons of water (not including interstitial water) and had additional storage capacity of 311 acre-feet.

According to the 2018 Annual Inspection Report, the 1982 Ash Basin Dam (BUNCO – 089) has been removed from the upstream slope and within the ash basin. The decommissioning of the 1982 Ash Basin dam has been completed and the Certificate of Final Approval for the basin was provided by the state on March 15, 2018.

Duke Energy also made modifications to the discharge structure of the 1964 Ash Basin, in the "Duck Pond" area of the basin and the spillway. Duke Energy submitted the Engineer of Record Certification Report associated with these modifications to NCDEQ on March 6, 2019. Duke Energy reported after the Audit that Final Approval from Dam Safety for this modification was provided on March 20, 2019.

1.2.4 Recent Activities and Audit Observations

While on-site, the Audit Team observed the continued repurposing of the 1982 Ash Basin. As noted in last year's report, Duke Energy received NCDEQ's approval of their CCR removal activities on February 28, 2018. The 1982 Ash Basin repurposing activities call for the installation of two Combined Cycle Units (560 MW total).

Duke Energy personnel reported about 1,500,000 tons of CCR had been removed from the 1964 Ash Basin at the time of the audit. A fleet of over 100 trucks was being used to transport the CCR to the Waste Management R&B Landfill in Homer, Georgia. The remaining 2,100,000 tons of CCR (including generated ash) (estimated as of January 2019) will need to be removed from the 1964 Ash Basin by August 1, 2022 to comply with the schedule in the Mountain Energy Act of 2015.

Duke Energy is planning on developing an on-site area west of the 1964 Ash Basin for landfilling a portion of the remaining CCR materials. Duke Energy is preparing a site stability and design associated with this project, and both documents are currently anticipated to be submitted in the Spring of 2019.

The use of accelerated remediation of groundwater at the Asheville Facility continues. The system was originally anticipated to include two extraction wells. However, the accelerated remediation system comprises only one well, which became operational on March 19, 2018, because all additional installed wells were dry. The remediation system groundwater pumping rate for the single well system is approximately 5 to 15 gallons per minute. Duke Energy submitted the accelerated remediation system annual report to NCDEQ during April 2018. The accelerated remediation system was shut down for the off-site pump tests conducted in the Asheville Facility area from May 2018 to July 2018. After the pump tests, Duke Energy attempted to restart the accelerated remediation system and found the pump motor was inoperable. Investigations conducted by Duke Energy indicated the unit may have been struck by lightning. In addition, other mechanical issues were identified and Duke Energy was not able to procure the required parts and restart the system until February 18, 2019.

2.0 AUDIT SCOPE AND SUBJECT MATTER

The Audit was completed in accordance with the court documents and the audit scoping document agreed to by Duke Energy and the United States. A description of the scope is provided as Attachment A. The Audit included ash management activities, including aspects of generation that affect the nature of the waste streams from the point of generation into surface impoundments or ash management basins, landfills, and/or storage piles. The Audit focused on the activities at the facility since the date of the last Audit, which was March 14-15, 2018.

3.0 AUDIT FINDINGS

The following Findings were identified by the Audit Team.

3.1 EXCEEDANCES OF THE STATE GROUNDWATER QUALITY STANDARDS

Requirement - The state groundwater rules establish maximum contaminant levels for groundwater at or beyond the compliance boundaries for the 1964 and 1982 Ash Basins. *See* 15A NCAC 02L.0202 (Groundwater Standards). 15A NCAC 2L.0103(d) provides that "[n]o person shall conduct or cause to be conducted, any activity which causes the concentration of any substance to exceed that specified" under the Class GA standards or the interim maximum acceptable concentrations (IMACs) established for groundwater quality in 15A NCAC 2L.0202. Further, under NCGS § 143- 215.1(i), "[a]ny person ... who is required to obtain an individual permit ... for a disposal system under the authority of G.S. 143-215.1 [water pollution control] ... shall have a compliance boundary ... beyond which groundwater quality standards may not be exceeded." *See also* 15A NCAC 2L.0102(3) (defining "compliance boundary" as "a boundary around a disposal system at and beyond which groundwater quality standards may not be exceeded").

In addition, under NCGS § 143-215.6A(a)(l), civil penalties may be assessed against any person who violates any standard established by the NCDEQ under the authority of NCGS § 143-214.1, which covers groundwater standards.

Finding - Constituents exceeding the state standards for Class GA waters, established in 15A NCAC 2L.0202 were documented in monitoring wells located at or beyond the compliance boundaries for the 1964 and 1982 Ash Basins at the facility. The CAMA groundwater monitoring network consists of 66 wells. Based on the review of the 2018 CAMA groundwater monitoring analyses, boron, chloride, cobalt, iron, manganese, sulfate, vanadium, and total dissolved solids (TDS) were observed to exceed the 2L groundwater standards, the Interim Maximum Allowable

Concentration (IMAC) groundwater standards or the NCDEQ approved provisional background threshold values (PBTVs), if the PBTV was greater than the 02L or IMAC groundwater standards, one or more times at or beyond the compliance boundaries of the 1964 Ash Basin and/or 1982 Ash Basin. The 2018 CAMA groundwater data and a site layout map are provided in Attachment B.

Duke Energy has stated its opinion that, pursuant to a September 2015 Settlement Agreement with the NCDEQ, "Duke Energy is not subject to any further financial penalties for exceedances of groundwater standards" and "Duke Energy is not subject to any further enforcement action based on exceedances of groundwater standards as long as it remains in substantial compliance with CAMA groundwater requirements."

The CAM has advised the Audit Team that the Audit scope does not include an evaluation of compliance with the September 2015 Settlement Agreement, and therefore the Audit Team does not take a position on Duke Energy's opinion.

4.0 OPEN LINES OF INQUIRY

Open Lines of Inquiry are items identified by the Audit Team while on-site that, due to limited available information or the need for additional research, could not be determined as being in compliance or out of compliance. There were no Open Lines of Inquiry identified as part of this Audit.

5.0 AUDIT APPROACH

5.1 ON-SITE ACTIVITIES

During its time on-site, the Audit Team conducted an opening conference with facility personnel to discuss the scope of work and the plan for accomplishing necessary tasks while at the facilities. A site tour of the coal ash management and program support areas was subsequently completed. Following the tour, the Audit Team conducted a review of pertinent files, interviews with facility representatives, and verification of facility activities related to the ECPs, written programs and permits. A debrief was conducted each audit day to advise the facility representatives of audit progress, open lines of inquiry, possible audit findings, and needs for the next day. At the completion of the Audit, the Audit Team led a verbal discussion of draft Audit findings with facility representatives.

5.2 STANDARDS OF PRACTICE

The fieldwork portion of the Audit was conducted on March 13-14, 2019 with compliance reporting commencing May 14, 2015, the date of the Court's judgments. The Audit focused on the activities at the facility since the date of the last Audit, which was March 14-15, 2018. The Audit was based on:

- Physical inspections of the facility;
- Examination of selected administrative and operating records made available by facility staff at the Audit Team's request;
- Interviews and discussions with key facility management and staff; and
- Verification procedures designed to assess the facility's application of, and adherence to, terms of the Probation, environment laws and regulations and site policies and procedures. In addition, the Audit Team reviewed the facility's adherence to good management practices.

The Audit followed established audit protocols and procedures. It should be understood that the Audit consisted of evaluating a sample of practices and was conducted over a short period of time. Efforts were made toward sampling major facets of environmental performance during the period under review. This method is intended to uncover major system deficiencies and the Audit may not have identified all potential problems.

To support the overall independence of the Audit process, the Audit included an auditing professional certified by the Board of Environmental, Health and Safety Auditor Certifications (BEAC). BEAC is an accredited professional certification board that issues the Certified Professional Environmental Auditor (CPEA) designation to qualified auditors. Under BEAC, auditor independence is a key criterion for the implementation of an effective third-party audit program. The Audit was implemented in accordance with the standards related to auditor independence.

The process by which the Audit was conducted was consistent with the general state of the art of environment auditing and the best professional judgment of the Audit Team. To conduct the Audit, the team implemented a formal approach, drawing on process guidance from both BEAC and the Auditing Roundtable (AR) guidance documents. Guidance documents included:

- *Standards for the Professional Practice of Environmental, Health and Safety Auditing*. Prepared by the Board of Environmental, Health and Safety Auditor Certifications, 2008.

- ISO 19011:2002 – Guidelines for Quality and/or Environmental Management Systems Auditing. Prepared by the International Organization for Standardization, 2002.

- Standard for the Design and Implementation of an Environmental, Health and Safety Audit Program. Prepared by The Auditing Roundtable, Inc., 1995.

- Minimum Criteria for the Conduct of Environmental, Health and Safety Audits, Prepared by The Auditing Roundtable, Inc.

5.3 REPRESENTATIVE SAMPLING

When confronted with a large population of data to review or equipment to inspect, auditors employed representative sampling techniques to evaluate records over the Audit period requested, and as necessary, for physical inspection of some types of common equipment. The sample size for records reviews or equipment inspections required professional judgment.

The auditor's judgement considered the following:

- The outcome of the evaluation of the records sampled. If problems are found in the representative sample, more records may need to be examined to evaluate compliance status.
- Potential for or severity of non-compliance.
- The general appearance and observed practices of certain operating areas.
- Information obtained during an interview that indicates a potential problem.
- Other specific information or guidance from the CAM.
- Time available during the Audit.

Auditors also employed the following types of sampling techniques, depending upon the characteristics of a specific population:

- Random sampling – every item has an equal chance of being selected.

- Interval sampling – select every nth item, (e.g., every third manifest in chronological order as contained in facility files).

- Block sampling – auditor uses his/her judgment to select a specific block of items, (e.g., petroleum storage tank inspections from April to October).

- Stratified sampling – population is divided into groups, which are then sampled through random or judgmental techniques.

TABLES

TABLE 1A
1964 Ash Basin - Plans and Reports Posted by Duke Energy under the CCR Rule

Document Name	Category	Release Date
CCR Annual Groundwater Monitoring and Corrective Action Report 2018	Groundwater Monitoring and Corrective Action	03/01/2019
Notice of Initiation of Assessment of Corrective Measures	Groundwater Monitoring and Corrective Action	02/19/2019
Notice of Groundwater Protection Standard Exceedance 2018	Groundwater Monitoring and Corrective Action	12/14/2018
Annual Fugitive Dust Control Report 2018	Operating Criteria	12/05/2018
Wetlands	Location Restriction	11/07/2018
Unstable Areas	Location Restriction	11/07/2018
Seismic Impact Zones	Location Restriction	11/07/2018
Fault Areas	Location Restriction	11/07/2018
Placement Above Uppermost Aquifer	Location Restriction	11/07/2018
Emergency Action Plan for Asheville 1964 Ash Pond	Design Criteria	10/01/2018
CCR Annual Surface Impoundment Inspection Report 2018	Operating Criteria	08/31/2018
Inflow Design Flood Control System Plan	Operating Criteria	06/06/2018
Annual Meeting with Local Emergency Responders 2018	Design Criteria	05/23/2018
CCR History of Construction	Design Criteria	04/03/2018
Notice of Establishment of an Assessment Monitoring Program - Asheville 1964 Ash Basin	Groundwater Monitoring and Corrective Action	03/14/2018
CCR Annual Grounds Water Monitoring and Corrective Action Report	Groundwater Monitoring and Corrective Action	02/06/2018
Asheville Inundation Maps	Design Criteria	01/25/2018

TABLE 1A
(Continued)

Document Name	Category	Release Date
2017 Annual CCR Fugitive Dust Control Report-Asheville	Operating Criteria	11/29/2017
Groundwater Sampling and Analysis Program Selection of Statistical Method Certification-Asheville 1964 Ash Basin	Groundwater Monitoring and Corrective Action	10/25/2017
Asheville Groundwater Monitoring System Certification-Asheville 1964 Basin	Groundwater Monitoring and Corrective Action	10/25/2017
Emergency Action Plan for Asheville 1964 and 1982 Ash Ponds Revision 007A	Design Criteria	10/06/2017
CCR Annual Surface Impoundment Inspection Report 2017	Operating Criteria	09/12/2017
Annual Meeting with Local Emergency Responders 2017	Design Criteria	05/24/2017
Closure Plan Impoundments - 1964 Ash Basin and 1982 Ash Basin, Revision 1	Closure and Post Closure Care	03/16/2017
Coal Combustion Residuals Fugitive Dust Control Plan - Asheville Plant - Revision 1	Operating Criteria	01/12/2017
Annual Fugitive Dust Control Report 2016	Operating Criteria	12/05/2016
Initial Structural Stability Assessment	Design Criteria	11/16/2016
Initial Factor of Safety Assessment	Design Criteria	11/15/2016
Closure Plan for Impoundments	Closure and Post Closure Care	11/11/2016
Inflow Design Flood Control System	Operating Criteria	11/03/2016
History of Construction	Design Criteria	10/25/2016
Initial Hazard Classification Assessment Certification	Design Criteria	10/12/2016
Existing Liner Design Criteria	Design Criteria	10/11/2016
Annual Surface Impoundment Report 2016	Operating Criteria	09/13/2016
Annual Surface Impoundment Report (Initial) for Asheville Plant	Operating Criteria	02/16/2016

*This summary of reports was downloaded on March 6, 2019

TABLE 1B
1982 Ash Basin - Plans and Reports Posted by Duke Energy under the CCR Rule

Document Name	Category	Release Date
CCR Annual Groundwater Monitoring and Corrective Action Report 2018	Groundwater Monitoring and Corrective Action	03/01/2019
Notice of Initiation of Assessment of Corrective Measures	Groundwater Monitoring and Corrective Action	02/19/2019
Notice of Groundwater Protection Standard Exceedance 2018	Groundwater Monitoring and Corrective Action	12/14/2018
Annual Fugitive Dust Control Report 2018	Operating Criteria	12/05/2018
Wetlands	Location Restriction	11/07/2018
Unstable Areas	Location Restriction	11/07/2018
Seismic Impact Zones	Location Restriction	11/07/2018
Fault Areas	Location Restriction	11/07/2018
Placement Above Uppermost Aquifer	Location Restriction	11/07/2018
CCR Annual Surface Impoundment Inspection Report 2018	Operating Criteria	08/31/2018
Annual Meeting with Local Emergency Responders 2018	Design Criteria	05/23/2018
CCR History of Construction	Design Criteria	04/03/2018
Emergency Action Plan Asheville 1964 Ash Pond and 1982 Ash Pond	Design Criteria	03/21/2018
Hazard Potential Classification Assessment Certification - Asheville 1982 Ash Basin	Design Criteria	03/14/2018
Notice of Establishment of an Assessment Monitoring Program - Asheville 1982 Ash Basin	Groundwater Monitoring and	03/14/2018

TABLE 1B
(Continued)

Document Name	Category	Release Date
	Corrective Action	
CCR Annual Grounds Water Monitoring and Corrective Action Report	Groundwater Monitoring and Corrective Action	02/06/2018
Asheville Inundation Maps	Design Criteria	01/25/2018
2017 Annual CCR Fugitive Dust Control Report-Asheville	Operating Criteria	11/29/2017
Groundwater Sampling and Analysis Program Selection of Statistical Method Certification-Asheville 1982 Ash Basin	Groundwater Monitoring and Corrective Action	10/25/2017
Asheville Groundwater Monitoring System Certification-Asheville 1982 Basin	Groundwater Monitoring and Corrective Action	10/25/2017
Emergency Action Plan for Asheville 1964 and 1982 Ash Ponds Revision 007A	Design Criteria	10/06/2017
CCR Annual Surface Impoundment Inspection Report 2017	Operating Criteria	09/12/2017
Annual Meeting with Local Emergency Responders 2017	Design Criteria	05/24/2017
Notification of Intent to Close Asheville 1982 Ash Basin	Operating Criteria	03/16/2017
Closure Plan Impoundments - 1964 Ash Basin and 1982 Ash Basin, Revision 1	Closure and Post Closure Care	03/16/2017
Coal Combustion Residuals Fugitive Dust Control Plan - Asheville Plant - Revision 1	Operating Criteria	01/12/2017
Annual Fugitive Dust Control Report 2016	Operating Criteria	12/05/2016
Notice of Intent to Close Asheville 1982 Ash Basin	Closure-Post Closure Care	11/22/2016
Initial Structural Stability Assessment	Design Criteria	11/16/2016
Initial Factor of Safety Assessment	Design Criteria	11/15/2016

TABLE 1B
(Continued)

Document Name	Category	Release Date
Closure Plan for Impoundments	Closure and Post Closure Care	11/11/2016
Inflow Design Flood Control System	Operating Criteria	11/03/2016
History of Construction	Design Criteria	10/25/2016
Initial Hazard Classification Assessment Certification	Design Criteria	10/12/2016
Existing Liner Design Criteria	Design Criteria	10/11/2016
Annual Surface Impoundment Report 2016	Operating Criteria	09/13/2016
Annual Surface Impoundment Report (Initial)	Operating Criteria	02/16/2016

*This summary of reports was downloaded on March 6, 2019

ATTACHMENT A

ATTACHMENT A
AUDIT SCOPE

A-1 GENERAL AUDIT SCOPE ITEMS

The general audit scope items included:

- Review and evaluation of documentation for maintenance and repair of structures and equipment used for coal ash disposal,

- Review and evaluation of documentation of modifications, failures, leaks, damage, disrepair and other problems at the coal ash management units,

- Review and evaluation of documentation of efforts to correct failures, leaks, damage, disrepair and other problems where they determine that employee/contractor actions were likely a primary or contributing cause to a compliance finding,

- Review and evaluation of documentation of communication of the items above within the organization,

- Review and evaluation of documentation associated with the specific environmental compliance items described below and laws, regulations, and policies associated these items and

- Review of compliance with administrative aspects and regulatory submissions related to coal ash management-specific regulations, including:

-	Coal Combustion Residuals	40 CFR Part 257 Subpart D
-	NC Coal Ash Management Act of 2014	NC General Statutes Chapter 130A, Article 9

More specific items which were addressed in the audits to comply with the General Audit Scope are described below.

A-2 SPECIFIC COMPLIANCE WITH THE ECP-NC

The following items related to specific ECP-NC compliance were reviewed as part of the audit:

1. Verify maintenance and sufficient funding of corporate compliance organizations (ABSAT, CCP organization, National Ash Management Advisory Board). Where a root cause of a compliance finding appears in an auditor's judgment to result from inadequate funding, the Advanced GeoServices/ELM audit team will identify this in the audit finding.

2. Verify timely production of satisfactory Compliance Officer (CO) reports to the CAM relating to the development, implementation, and enforcement of the ECP-NC. No auditing work is associated with this work at this time.

3. Evaluate existence and efficacy of toll-free hotline/e-mail inbox for violation reporting, including the appropriateness of the follow-up investigation and disposition of each reported matter. This requirement will be evaluated for the first year of audits and then reassessed.

4. Evaluate completion and efficacy of periodic notices (via Internet, Intranet, email, notices in employee work areas, and publication in community outlets) to employees and the public of the availability of the toll-free hotline and electronic mail inbox.

5. Evaluate training materials and curricula utilized in the mandated training program, particularly those tailored to employee's specific job descriptions, to determine whether it advances the goal of "ensuring that every domestic employee of Duke Energy Corporation and its wholly-owned or operated affiliates understands applicable compliance policies and is able to integrate the compliance objectives in the performance of his/her job." Ensure that the subjects specifically named in the plea agreements are covered by the training (namely, notice and reporting requirements in the event of a release or discharge and the safe and proper handling of pollutants, hazardous substances and/or wastes.)

6. Evaluate whether Defendants are using "Best Efforts" to comply with the obligations under the ECP-NC. Where the Audit Team makes compliance findings, the audit team will, upon request, provide their opinion on whether this best efforts standard applies, and if so, whether best efforts have been used.

7. Verify compliance at each facility with the specific procedures and protocols set forth in the ECP-NC.

A-3 SPECIFIC COMPLIANCE WITH OTHER PROVISIONS OF THE PLEA AGREEMENT

The following items related to specific items in the Plea Agreement were reviewed as part of the audit:

1. Determine whether Defendants have opened, expanded, or reopened any coal ash or coal ash wastewater impoundment and, if so, verify that they are lined and do not allow unpermitted discharges of coal ash or coal ash wastewater to waters of the United States.

2. Verify that Defendants have determined the volume of wastewater and coal ash in each wet-storage coal ash impoundment in North Carolina as described in the plea agreements and that written or electronic records of this information is maintained in a location available to facility staff and employees responsible for making environmental or emergency reports.

3. Review citations/notices of violation/notices of deficiency related to violations of federal, state, or local law to assure that they have been properly relayed to the Court and, as appropriate under the plea agreements, determine their materiality.

4. Evaluate Defendants' efforts to close coal ash impoundments at Dan River, Riverbend, Asheville, and Sutton for legal compliance.

5. Note any observations made during the audit that cause concern regarding the assets and/or security available to the Defendants to meet the obligations imposed by the Judgment in this case.

A-4 GENERAL ENVIRONMENTAL COMPLIANCE SUBJECT AREAS

The following items related to General Environmental Compliance were reviewed as part of the audit:

1. Assess all waste streams from Duke Energy facilities with coal ash impoundments. Review Duke Energy's processes, procedures, and practices, as well as compliance with those processes, procedures, and practices, for:

    a. identifying waste streams (especially, but not limited to, waste streams with discharge points into bodies of water),
    b. identifying and communicating any modifications or changes, or potential modifications or changes, to waste streams,
    c. ensuring proper handling/disposal of waste streams,
    d. identifying, preventing, and mitigating any risks or hazards that could affect waste streams and/or the disposal of waste streams, and
    e. ensuring proper permitting for waste streams.

For Item 1.d., the Audit Team evaluated such risk/hazard issues where there were compliance findings associated with waste streams.

2. Review and evaluate documentation of:

    a. Maintenance and repair of structures and equipment related to coal ash disposal,
    b. Modification of the coal ash impoundments and related pollution prevention equipment and structures,
    c. Failures, leaks, damage, disrepair, and other problems,
    d. Communication of the information described in a-c within the organization, and
    e. Efforts to correct failures, leaks, damage, disrepair, and other problems.

3. Assess the employees responsible for inspection, maintenance, and repair of coal ash basins and related structures and equipment. The assessment included an assessment of the workloads of such employees to assure that Duke Energy's facilities are adequately staffed. These assessments were made where the Audit Team determined that employee/contractor actions were likely a primary or contributing cause to a compliance finding.

4. Review the results and recommendations of any other audits (internal or external/state mandated) and assess Duke Energy's implementation of those recommendations.

5. Review and assess Duke Energy's processes, procedures, and practices for identifying, communicating, and addressing problems and potential problems at its coal ash basins (leaks, unpermitted discharges, etc.).

6. Review and assess Duke Energy's policies, procedures, practices, and equipment for handling emergency releases from its coal Ash Basins and evaluate the personnel with duties in such situations.

7. Verify that Duke Energy is complying with its NPDES wastewater and stormwater permits, as well as other relevant environmental permits. This should include verifying Duke Energy's timely submission of permit applications, permit renewal applications, and responses to requests for additional information from the relevant regulatory authority.

8. Review and assess any actions or measures Duke Energy has undertaken to assure accountability and prevent recurrences when problems and/or failures occur (i.e.

disciplinary actions, re-training, revision to policies and procedures, etc.). This review will be completed where the audit team determines that employee/contractor actions were likely a primary or contributing cause to a compliance finding.

9. Review and assess compliance with the following environmental regulations, as applicable to the management of coal ash:

a.	Wastewater Discharges	40 CFR 122; 15A NCAC 2H .0100 *et seq*
b.	Stormwater Discharges	40 CFR 122.26; 15A NCAC 2H .1000 *et seq;* NC General Permit (Construction) No. NCG010000
c.	NC Groundwater Standards	15A NCAC 02L .0202(h)
d.	Hazardous Waste Management	15A NCAC 13A .0100 to 13A .0107
e.	Oil Pollution Prevention	40 CFR Part 112
f.	Air Pollution (Title V)	WNCRAQA Chapt. 17 and Sect. 4.0540, and
g.	Hazardous Chemicals (Tier II)	40 CFR Part 370.

Reviews also included an analysis of overall compliance and the status and security of the asset. Subsequent reviews of individual facilities will evaluate the movement towards compliance. The Audit did not include an evaluation of compliance with the September 2015 Settlement Agreement with NCDEQ.

A–5 LIST OF PERMITS AND PROGRAMS DEEMED TO BE EITHER DIRECTLY OR INDIRECTLY IN SUPPORT OF ASH MANAGEMENT

During the audit, the Audit Team reviewed a variety of written programs developed and implemented by Duke Energy and facility staff. State-issued permits and supporting

documentation relative to environmental programs and geotechnical aspects of ash basin management were also requested and reviewed.

Requested documents, pertinent to management of ash in basins, landfills, ponds, etc. were outlined in the pre-audit questionnaire for each facility and included, but were not limited to:

1. The Compliance Register developed for ETrac for the Site.

2. The Duke Energy Operations Manual for the facility.

3. A site plan, site map, or aerial photo which shows the entire facility and key features, of the facility including NPDES outfalls associated environmental monitoring locations, storage tanks, etc.

4. Most recent 2 years of maintenance, monitoring, and inspection records for each coal ash/CCR basin (just the physical inspections, not the groundwater records).

5. A "Phase 1 and Phase 2" summary of ash basin conditions prepared by an outside consultant.

6. Duke Energy's permitting plans for addressing ash impoundments and landfills at this facility.

7. Applicable pages from the Duke Energy basin-by-basin coal ash/CCR project tracking document for this facility.

8. Original basin/landfill/coal ash management unit construction records.

9. Documentation of changes to these units.

10. Coal ash unit construction permit application and approval.

11. State-issued permits and application materials for permits associated with coal ash/CCR management (including, e.g., dam permits).

12. Any currently effective state order, consent order, or similar state direction that addresses coal ash/CCR management at the site.

13. Records required to be maintained in the site's operating record under the federal CCR regulation and/or any state CCR regulatory program.

14. Records of off-site ash shipments from May 2015 forward.

15. Stormwater permit application and approval for all outfalls.

16. Industrial wastewater (NPDES/POTW) permit application and approval for all outfalls/discharges.

17. Industrial and stormwater sampling and monitoring records, and any corrective action plans (last 2 years).

18. Stormwater pollution prevention plan.

19. Landfill operating permit with maintenance and monitoring requirements.

20. Landfill leak detection and groundwater monitoring records from the last 2 years along with any workplans that describes the rationale for the monitoring system at the Site.

21. Landfill operating permit with maintenance and monitoring requirements.

22. Copies of any air permits and applications for coal ash units and ancillary operations.

23. Any testing and monitoring records completed to comply with the air permits.

24. Any notices of violations associated with the coal ash/CCR management activities received over the last 2 years.

25. Copy of SPCC Plan.

26. Community Right-to-Know

    a. Copies of lists of hazardous chemicals or MSDSs submitted;
    b. Copies of Tier I or II reports; and
    c. Copies of Form R (toxic release inventory) reports.

27. Copies of communications with employees and the public regarding availability of toll-free hotline and electronic mail inbox for reporting suspected environmental violations.

28. Management Systems:

    a. List of responsible party for each environmental activity.
    b. All environmental-related training records.
    c. All environmental policies and procedures.
    d. Organization chart.
    e. Site diagram identifying storage areas, tanks, etc.

29. Employee training records related to environmental programs and ash management policies.

ATTACHMENT B

2018 CAMA Groundwater Data and a Site Layout Map
Groundwater 2L Exceedance Locations

LEGEND

- DUKE ENERGY PROGRESS PARCEL LINE
- BUNCOMBE COUNTY PARCEL LINE
- CCR SURFACE IMPOUNDMENT COMPLIANCE BOUNDARY
- CCR SURFACE IMPOUNDMENT
- CB-8D — CSA MONITORING WELL (SURVEYED)
- CB-8 — COMPLIANCE MONITORING WELL (SURVEYED)
- CB-1 — BACKGROUND COMPLIANCE MONITORING WELL (SURVEYED)
- GW-4 — MONITORING WELL (SURVEYED)
- P-101 — PIEZOMETER (SURVEYED)
- S-12 — SEEP SAMPLE LOCATION
- DW-6 — ABANDONED WELL
- EDR 1 — EDR REPORTED WELL (APPROXIMATE)
- DW-21 — WATER SUPPLY WELL
- STREAM APPROXIMATE
- STORM WATER DITCH APPROXIMATE

SOURCES:

1.) MARCH 16, 2015 AERIAL PHOTOGRAPH OBTAINED FROM NC GEOSPATIAL PORTAL AT http://data.nconemap.gov/geoportal/catalog/main/home.page

2.) DRAWING HAS BEEN SET WITH A PROJECTION OF NORTH CAROLINA STATE PLANE COORDINATE SYSTEM FIPS 3200 (NAD 83).

3.) PARCEL BOUNDARY WAS OBTAINED FROM BUNCOMBE COUNTY GIS DATA.

4.) COMPLIANCE MONITORING WELL LOCATIONS AND WASTE BOUNDARY FROM FCA OF NC, SURVEY DATED MARCH 2009. COMPLIANCE WELLS CB-3R, CB-9 AND SG-1 SURVEYED BY FCA OF NC, SURVEY DATED 2012-11-28.

5.) ADDITIONAL MONITORING WELL AND PIEZOMETER LOCATIONS WERE BASED ON DATA PROVIDED BY PROGRESS ENERGY.

GRAPHIC SCALE

150 0 150 300 600

(IN FEET)

synTerra

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DRAWN BY:	JOHN CHASTAIN	DATE:	08/07/2016
CHECKED BY:	TODD PLATING	DATE:	08/07/2016
PROJECT MANAGER:	KATHY WEBB		
LAYOUT NAME:	FIG 1-2 (SITE LAYOUT MAP)		

DUKE ENERGY PROGRESS

ASHEVILLE PLANT
200 CP & L DRIVE
ARDEN, NORTH CAROLINA

FIGURE 1-2
SITE LAYOUT MAP

ASHEVILLE
01/24/2019
BRANDON RUSSO
TODD PLATING

		PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS					INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
Reporting Units		S.U.	ug/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
15A NCAC 02L Standard		6.5-8.5	700	250	250	500	1*	10	10	1*	300	50	20	0.2*	0.3*	5^
Provisional Background (Alluvial Unit)		4.6-5.1	50	15	4.6	56	1	0.42	5	4.29	598	363	1	0.2	0.3	4.17
Provisional Background (Saprolite Unit)		4.3-5.8	50	14	50	104.9	1	1.313	5	6.9	941	725	1.88	0.2	0.625	6.832
Provisional Background (Transition Unit)		3.9-7.0	50	6.7	5.467	72.77	1	0.261	1.32	4.608	779	380	1	0.2	0.41	6.61
Provisional Background (Bedrock Unit)		4.1-8.1	50	6.5	5.6	131.5	1	0.423	1.3	1	1246	93	1	0.2	0.632	5.8

					PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS					INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
Sample ID	Location Description	Associated Unit	Location with Respect to Groundwater Flow Direction	Sample Collection Date	pH	Boron	Chloride	Sulfate	Total Dissolved Solids	Antimony	Chromium (VI)	Chromium	Cobalt	Iron	Manganese	Selenium	Thallium	Vanadium	Total Radium
1159 Glen Bridge	1159 Glenn Bridge Road	---	West of French Broad River	01/15/2018	6.8	<50	1.2	0.1	38	<1	0.079	<1	<1	**1620**	46	<1	<0.2	<0.3	0.37
ABMW-11BR	On dam between 1964 and 1982 basins	1982 Basin	Ash Basin	02/08/2018	**9.1**	<50	3.1	43	130	<1	<0.025	8.86	<1	174	15	<1	<0.2	<0.3	NA
ABMW-11BR	On dam between 1964 and 1982 basins	1982 Basin	Ash Basin	04/18/2018	**8.7**	37.799 j	3.3	42	140	0.507 j	0.73	5.54	<1	268	22	<1	<0.2	**0.309**	NA
ABMW-11BR	On dam between 1964 and 1982 basins	1982 Basin	Ash Basin	07/10/2018	8.4	37.513 j	3.3	42	130	<1	<0.025	1.34	<1	105	22	<1	0.141 j	**0.403 B2**	NA
ABMW-11BR	On dam between 1964 and 1982 basins	1982 Basin	Ash Basin	11/14/2018	**10.5**	36.09 j	3.4	45	140	**2.31**	0.034	0.67 j	0.538 j	21	<5	<1	<0.2	**0.39**	NA
AMW-01B	SE of 1982 basin	1982 Basin	Downgradient	02/07/2018	7.3	346	8.3	110	230	<1	<0.025	<1	<1	**2800**	**196**	<1	<0.2	<0.3	1.411
AMW-01B	SE of 1982 basin	1982 Basin	Downgradient	04/18/2018	7.2	343	8.3	100	220	<1	<0.025	<1	<1	**2380**	**194**	<1	<0.2	0.111 j	1.575
AMW-01B	SE of 1982 basin	1982 Basin	Downgradient	07/10/2018	7.1	347	8.6	110	230	<1	<0.025	<1	<1	**1670**	**187**	<1	<0.2	**0.376 B2**	3.434
AMW-01B	SE of 1982 basin	1982 Basin	Downgradient	11/08/2018	7.3	327	8.3	100	240	<1	<0.025 M1,R1	<1	<1	**1440**	**208**	<1	<0.2	<0.3	3.205
AMW-02A	SE of 1982 basin	1982 Basin	Sidegradient	02/07/2018	**5.8**	233	9.3	67	130	<1	<0.025	<1	**7.37**	**4470**	**1250**	1.6	<0.2	<0.3	NA
AMW-02A	SE of 1982 basin	1982 Basin	Sidegradient	04/18/2018	**5.9**	205	8.9	47	150	<1	<0.025	<1	**7.26**	**21000**	**1440**	0.689 j	0.13 j	0.117 j	NA
AMW-02A	SE of 1982 basin	1982 Basin	Sidegradient	07/11/2018	**6.0**	179	9.2	53	210	<1	<0.025 M1	<1	**8.14**	**37100**	**1650**	0.369 j	0.182 j	<0.3	NA
AMW-02A	SE of 1982 basin	1982 Basin	Sidegradient	11/08/2018	**5.8**	212	9.3	57	150	<1	<0.025	<1	**4.97**	**4100**	**999**	1.72	<0.2	<0.3	NA
AMW-03B	SE of 1982 basin	1982 Basin	Background	02/06/2018	**6.4**	<50	0.61	0.96	62	<1	0.22	<1	<1	<10	<5	<1	<0.2	**0.331**	0.2934
AMW-03B CCR	SE of 1982 basin	1982 Basin	Background	02/06/2018	**6.4**	<50	0.6	0.95	57	<1	NA	<1	<1	NA	NA	<1	<0.2 B3	NA	0.578
AMW-03B	SE of 1982 basin	1982 Basin	Background	04/18/2018	**6.3**	<50	0.57	1	41	<1	0.21	<1	<1	4.8 j	<5	<1	<0.2	0.25 j	2.021
AMW-03B CCR	SE of 1982 basin	1982 Basin	Background	04/18/2018	**6.3**	<50	0.48	0.98	59	<1	NA	0.376 j	<1	NA	NA	<1	<0.2	NA	3.53135
AMW-03B	SE of 1982 basin	1982 Basin	Background	07/10/2018	**5.8**	<50	0.6	0.95	50	<1	0.23	0.341 j	<1	8.098 j	<5	<1	<0.2	**0.547 B2**	2.0416
AMW-03B	SE of 1982 basin	1982 Basin	Background	11/08/2018	**6.2**	<50	0.63	0.93	74	<1	0.24	0.344 j	<1	5.24 j	<5	<1	<0.2	0.192 j	1.848
AMW-03B CCR	SE of 1982 basin	1982 Basin	Background	11/08/2018	**6.2**	<50	0.53	0.87	40	<1	NA	0.391 j	<1	NA	NA	<1	<0.2	NA	1.876
AS-05BR	S of 1982 basin, off of New Rockwood Rd	1982 Basin	Sidegradient	01/10/2018	**12.7**	<50	6.2	19	**2200**	<1	**21.8**	**22.3**	<1	47	<5	2.13	<0.2 B3	**57**	2.208
AS-05BR	S of 1982 basin, off of New Rockwood Rd	1982 Basin	Sidegradient	04/19/2018	**12.8**	<50	5.7	16	**2200**	**2.5**	**21**	**27.5**	0.74 j	98	<5	1.6	0.087 j	**8.19**	NA
AS-05BR	S of 1982 basin, off of New Rockwood Rd	1982 Basin	Sidegradient	07/11/2018	**12.8**	<50	<0.1	15	**2400**	0.967 j	**13.4**	**12.4**	0.8 j	83	<5	1.49	0.176 j	**7.33**	NA
AS-05BR	S of 1982 basin, off of New Rockwood Rd	1982 Basin	Sidegradient	11/07/2018	**12.7**	<50	6.5	19	**2000**	0.714 j	**11.5**	8.55	0.808 j	49	<5	1.88	<0.2	**8.78**	NA
AS-05BRL	S of 1982 basin, off of New Rockwood Rd	1982 Basin	Sidegradient	01/10/2018	**11.0**	<50	11	37	250	<1	<0.025	3.01	<1	220	39	<1	<0.2 B3	**7.08**	2.175
AS-05BRL	S of 1982 basin, off of New Rockwood Rd	1982 Basin	Sidegradient	04/19/2018	**11.6**	32.24 j	12	57	340	0.632 j	0.08	**16.5**	<1	236	9	<1	<0.2	**4.37**	NA
AS-05BRL	S of 1982 basin, off of New Rockwood Rd	1982 Basin	Sidegradient	07/11/2018	**11.5**	39.51 j	12	71	420	0.597 j	0.12	0.707 j	<1	136	3.109 j	<1	**0.218**	**1.86**	NA
AS-05BRL	S of 1982 basin, off of New Rockwood Rd	1982 Basin	Sidegradient	11/07/2018	**11.5**	42.528 j	9.7	66	340	<1	0.09	1.99	<1	98	2.49 j	<1	<0.2	**1.95**	NA
CB-01	Between 1982 basin and Lake Julian	1982 Basin	Background	02/06/2018	**4.9**	<50	1.3	<0.1	<25	<1	<0.025	<1	**1.5**	<10	19	<1	<0.2	<0.3	-0.0134
CB-01 CCR	Between 1982 basin and Lake Julian	1982 Basin	Background	02/06/2018	**4.9**	<50	1.3	0.1	<25	<1	NA	<1	**1.44**	NA	NA	<1	<0.2 B3	NA	0.772
CB-01 IMP	Between 1982 basin and Lake Julian	1982 Basin	Background	04/17/2018	**4.7**	<50	1.8	0.18	<25	<1	<0.025	<1	**1.89**	54	25	<1	<0.2	0.102 j	2.968
CB-01	Between 1982 basin and Lake Julian	1982 Basin	Background	04/17/2018	**4.7**	<50	1.9	0.18	<25	<1	NA	<5	**1.89**	110	24	<1	<0.2	<0.3	NA
CB-01 CCR	Between 1982 basin and Lake Julian	1982 Basin	Background	04/17/2018	**4.7**	<50	1.9	0.28	<25	<1	NA	<1	**2**	NA	NA	<1	<0.2	NA	1.086
CB-01 IMP	Between 1982 basin and Lake Julian	1982 Basin	Background	07/09/2018	**5.0**	<50	2.1	0.21	<25	<1	<0.025	<1	**2.08**	33	24	<1	<0.2	0.237 j	1.2068
CB-01	Between 1982 basin and Lake Julian	1982 Basin	Background	07/09/2018	**5.0**	<50	2	0.4	<25	<1	NA	<5	**2.01**	49	24	<1	<0.2	<0.3	NA
CB-01BR	Between 1982 basin and Lake Julian	1982 Basin	Background	04/26/2018	**11.9**	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CB-01D	Between 1982 basin and Lake Julian	1982 Basin	Background	02/06/2018	**5.5**	<50	0.83	2.6	27	<1	0.069	<1	**1.44**	<10	**60**	<1	<0.2	<0.3	0.471
CB-01D CCR	Between 1982 basin and Lake Julian	1982 Basin	Background	02/06/2018	**5.5**	<50	0.78	2.6	29	<1	NA	<1	**1.41**	NA	NA	<1	<0.2 B3	NA	0.49603
CB-01D	Between 1982 basin and Lake Julian	1982 Basin	Background	04/17/2018	**5.3**	<50	0.83	2.3	<25	<1	0.035	<1	**1.51**	5.28 j	**58**	<1	<0.2	0.113 j	1.2023
CB-01D CCR	Between 1982 basin and Lake Julian	1982 Basin	Background	04/17/2018	**5.3**	<50	0.84	2.7	<25	<1	NA	<1	**1.66**	NA	NA	<1	<0.2	NA	1.81
CB-01D	Between 1982 basin and Lake Julian	1982 Basin	Background	07/10/2018	**4.6**	<50	0.85	3.2	<25	<1	0.053	<1	**2.04**	3.706 j	**51**	<1	0.088 j	**0.431 B2**	2.962
CB-02	W of cove area, N of Arden Dr	1982 Basin	Sidegradient	02/05/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CB-02	W of cove area, N of Arden Dr	1982 Basin	Sidegradient	04/17/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CB-02	W of cove area, N of Arden Dr	1982 Basin	Sidegradient	07/09/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CB-03R	Between 1982 basin and Arden Dr	1982 Basin	Downgradient	02/05/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CB-03R IMP	Between 1982 basin and Arden Dr	1982 Basin	Downgradient	04/17/2018	**5.0**	586	3.7	100	180	<1	<0.025	<1	**3.29**	11	**222**	4.55	**0.353**	<0.3	NA
CB-03R	Between 1982 basin and Arden Dr	1982 Basin	Downgradient	04/17/2018	**5.0**	591	3.6	110	160	<1	NA	<5	**3.27**	44	**217**	4.42	**0.299**	<0.3	NA
CB-03R CCR	Between 1982 basin and Arden Dr	1982 Basin	Downgradient	04/17/2018	**5.0**	609	3.7	110	160	<1	NA	<1	**3.33**	NA	NA	4.72	**0.251**	NA	4.96
CB-03R IMP	Between 1982 basin and Arden Dr	1982 Basin	Downgradient	07/09/2018	**5.0**	543	4.1	100	170	<1	0.029	<1	**3.22**	128	**195**	4.39	**0.258**	0.263 j	1.338
CB-03R	Between 1982 basin and Arden Dr	1982 Basin	Downgradient	07/09/2018	**5.0**	548	3.9	100	160	<1	NA	<5	**3.11**	67	**196**	4.46	**0.282**	<0.3	NA
CB-04	SW of 1982 basin, parallel to CB-05	1982 Basin	Downgradient	02/07/2018	**5.4**	415	2.6	87	140	<1	0.63	<1	**1.5**	**384**	**566**	4.93	<0.2	**0.625**	NA
CB-04 IMP	SW of 1982 basin, parallel to CB-05	1982 Basin	Downgradient	04/17/2018	**5.2**	361	1.8	81	98	<1	0.24	0.41 j	**1.06**	185	**405**	5.02	0.113 j	**0.313**	NA
CB-04	SW of 1982 basin, parallel to CB-05	1982 Basin	Downgradient	04/17/2018	**5.2**	364	1.8	87	100	<1	NA	<5	<1	162	**399**	4.87	<0.2	**0.341**	NA
CB-04 IMP	SW of 1982 basin, parallel to CB-05	1982 Basin	Downgradient	07/09/2018	**5.2**	261	1.8	67	110	<1	0.17	0.471 j	0.73 j	49	**296**	4.54	<0.2	**0.346**	0.783
CB-04	SW of 1982 basin, parallel to CB-05	1982 Basin	Downgradient	07/09/2018	**5.2**	237	1.7	64	76	<1	NA	<5	<1	120	**269**	4.5	<0.2	**0.355**	0
CB-04B	SW of 1982 basin, parallel to CB-05	1982 Basin	Downgradient	02/06/2018	7.0	<50	6.1	53	150	<1	0.032	<1	<1	**1150**	**68**	<1	<0.2	**0.368**	NA
CB-04B IMP	SW of 1982 basin, parallel to CB-05	1982 Basin	Downgradient	04/18/2018	6.9	25.666 j	6.2	53	120	<1	<0.025 M1	<1	<1	**751**	50	<1	<0.2	0.237 j	NA
CB-04B	SW of 1982 basin, parallel to CB-05	1982 Basin	Downgradient	04/18/2018	6.9	<50	6.1	55	120	<1	NA	<5	<1	**1040**	**64**	<1	<0.2	<0.3	NA
CB-04B IMP	SW of 1982 basin, parallel to CB-05	1982 Basin	Downgradient	07/09/2018	6.5	21.511 j	6.4	56	140	<1	<0.025	0.354 j	0.409 j	**999**	46	<1	<0.2	**0.347**	2.574
CB-04B	SW of 1982 basin, parallel to CB-05	1982 Basin	Downgradient	07/09/2018	6.5	<50	6.2	55	130	<1	NA	<5	<1	**517**	36	<1	<0.2	**0.34**	NA
CB-05	SE corner of CB between I-26 and French Broad	1982 Basin	Downgradient	02/08/2018	**5.5**	248	33	48	140	<1	<0.12 D3	<1	<1	**15700**	**574**	<1	<0.2	**0.317**	NA
CB-05 IMP	SE corner of CB between I-26 and French Broad	1982 Basin	Downgradient	04/17/2018	**5.1**	222	39	42	150	<1	<0.025	<1	0.707 j	**7870**	**584**	<1	<0.2	0.153 j	NA
CB-05	SE corner of CB between I-26 and French Broad	1982 Basin	Downgradient	04/17/2018	**5.1**	217	45	39	150	<1	NA	<5	<1	**19800**	**569**	<1	<0.2	**0.306**	NA
CB-05 IMP	SE corner of CB between I-26 and French Broad	1982 Basin	Downgradient	07/10/2018	**5.7**	310	46	48	180	<1	<0.025	0.784 j	0.653 j	**29400**	**567**	<1	<0.2	**0.528 B2**	NA
CB-05	SE corner of CB between I-26 and French Broad	1982 Basin	Downgradient	07/10/2018	**5.7**	292	45	42	170	<1	NA	<5	<1	**27900**	**537**	<1	<0.2	**0.36**	NA
CB-05 IMP	SE corner of CB between I-26 and French Broad	1982 Basin	Downgradient	11/13/2018	**5.9**	296	42	31	150	<1	<0.025	0.53 j	0.634 j	**19300**	**494**	<1	<0.2	**0.328**	NA
CB-05	SE corner of CB between I-26 and French Broad	1982 Basin	Downgradient	11/13/2018	**5.9**	301	45	28	170	<1	NA	<5	<1	**23500**	**506**	<1	<0.2	**0.422**	NA
CB-06	Approx. 1000 ft NE of CB-05	1964 Basin	Downgradient	02/08/2018	**3.9**	444	54	**310**	420	<1	<0.12 D3	<1	**17.3**	**10400**	**9810**	<1	<0.2	<0.3	NA
CB-06 IMP	Approx. 1000 ft NE of CB-05	1964 Basin	Downgradient	04/17/2018	**3.8**	477	73	250	440	<1	<0.025	0.37 j	**17.6**	**13700**	**8820**	<1	**0.213**	<0.3	NA
CB-06	Approx. 1000 ft NE of CB-05	1964 Basin	Downgradient	04/17/2018	**3.8**	451	66	**350**	420	<1	NA	<5	**19**	**4400**	**9650**	<1	<0.2	<0.3	NA
CB-06 IMP	Approx. 1000 ft NE of CB-05	1964 Basin	Downgradient	07/17/2018	**4.0**	649	89	250	440	<1	<0.025	<1	**10.6**	**16800**	**6440**	0.73 j	0.143 j	0.16 j	NA

ASHEVILLE
01/24/2019
BRANDON RUSSO
TODD PLATING

		PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS				INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
Reporting Units		S.U.	ug/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
15A NCAC 02L Standard		6.5-8.5	700	250	250	500	1*	10	10	1*	300	50	20	0.2*	0.3*	5^
Provisional Background (Alluvial Unit)		4.6-5.1	50	15	4.6	56	1	0.42	5	4.29	598	363	1	0.2	0.3	4.17
Provisional Background (Saprolite Unit)		4.3-5.8	50	14	50	104.9	1	1.313	5	6.9	941	725	1.88	0.2	0.625	6.832
Provisional Background (Transition Unit)		3.9-7.0	50	6.7	5.467	72.77	1	0.261	1.32	4.608	779	380	1	0.2	0.41	6.61
Provisional Background (Bedrock Unit)		4.1-8.1	50	6.5	5.6	131.5	1	0.423	1.3	1	1246	93	1	0.2	0.632	5.8

					PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS					INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
Sample ID	Location Description	Associated Unit	Location with Respect to Groundwater Flow Direction	Sample Collection Date	pH	Boron	Chloride	Sulfate	Total Dissolved Solids	Antimony	Chromium (VI)	Chromium	Cobalt	Iron	Manganese	Selenium	Thallium	Vanadium	Total Radium
CB-06	Approx. 1000 ft NE of CB-05	1964 Basin	Downgradient	07/17/2018	**4.0**	619	120	**260**	440	<1	NA	<5	**11.5**	**12700**	**6350**	<1	<0.2	<0.3	NA
CB-06 IMP	Approx. 1000 ft NE of CB-05	1964 Basin	Downgradient	11/13/2018	**5.0**	550	59	190	330	<1	<0.025	<1	**9.49**	**10900**	**5510**	0.74 j	0.104 j	<0.3	NA
CB-06	Approx. 1000 ft NE of CB-05	1964 Basin	Downgradient	11/13/2018	**5.0**	550	63	190	350	<1	NA	<5	**9.11**	**13000**	**5720**	<1	<0.2	<0.3	NA
CB-07	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	02/06/2018	**5.7**	<50	37	32	140	<1	<0.025	<1	<1	56	<5	14.3	<0.2	**0.332**	NA
CB-07 IMP	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	04/17/2018	**5.6**	137	120	35	300	<1	0.036 M1	<1	<1	13	4.235 j	15.4	**0.21**	0.234 j	NA
CB-07	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	04/17/2018	**5.6**	134	120	35	250	<1	NA	<5	<1	19	<5	16.6	<0.2	**0.318**	NA
CB-07 IMP	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	07/17/2018	**5.3**	216	150	35	420	<1	0.19	0.336 j	<1	18	17	1.24	0.169 j	0.225 j	NA
CB-07	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	07/17/2018	**5.3**	212	160	31	400	<1	NA	<5	<1	16	16	1.22	<0.2	**0.375**	NA
CB-07 IMP	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	11/13/2018	**5.6**	159	68	38	180	<1	0.04	0.539 j	<1	82	11	4.22	<0.2	**0.454**	NA
CB-07	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	11/13/2018	**5.6**	161	70	39	190	<1	NA	<5	<1	29	9	3.66	<0.2	**0.304**	NA
CB-08	NW of 1964 basin and SW stilling pond	1964 Basin	Downgradient	02/08/2018	**5.3**	**1490**	47	120	290	<1	5	5.35	**1.15**	<10	**343**	10.6	<0.2	<0.3	NA
CB-08 IMP	NW of 1964 basin and SW stilling pond	1964 Basin	Downgradient	04/17/2018	**5.3**	**1150**	47	87	250	0.49 j	2.3	2.69	**1.23**	62	**393**	8.51	0.084 j	0.294 j	NA
CB-08	NW of 1964 basin and SW stilling pond	1964 Basin	Downgradient	04/17/2018	**5.3**	**1110**	48	87	210	<1	NA	<5	**1.07**	16	**373**	7.5	<0.2	<0.3	NA
CB-08 IMP	NW of 1964 basin and SW stilling pond	1964 Basin	Downgradient	07/10/2018	**5.2**	**800**	38	59	190	<1	0.81 P4	0.953 j	**1.09**	5.31 j	**415**	5.42	0.125 j	**0.495 B2**	1.644
CB-08	NW of 1964 basin and SW stilling pond	1964 Basin	Downgradient	07/10/2018	**5.2**	**803**	37	60	160	<1	NA	<5	**1.14**	<10	**401**	5.68	<0.2	<0.3	NA
CB-08BR	NW of 1964 basin and SW stilling pond	1964 Basin	Downgradient	02/08/2018	6.8	531	55	50	310	<1	<0.025	<1	<1	**511**	**987**	3.59	<0.2	**0.481**	**5.35**
CB-08BR	NW of 1964 basin and SW stilling pond	1964 Basin	Downgradient	04/17/2018	6.8	467	42	44	260	0.51 j	<0.025	<1	0.355 j	202	**886**	2.59	<0.2	**0.576**	**8.591**
CB-08BR	NW of 1964 basin and SW stilling pond	1964 Basin	Downgradient	07/10/2018	6.8	108	26	29	190	<1	<0.025	<1	<1	**355**	**548**	<1	0.112 j	**0.503 B2**	**7.8**
CB-09	N of 1964 basin and settling pond	1964 Basin	Background	02/05/2018	**5.0**	<50	6.5	0.1	45	<1	0.13	<1	<1	10	32	<1	<0.2	<0.3	NA
CB-09 CCR	N of 1964 basin and settling pond	1964 Basin	Background	02/05/2018	**5.0**	<50	6.8	<0.1	52	<1	NA	<1	<1	NA	NA	<1	<0.2 B3	NA	2.39
CB-09 IMP	N of 1964 basin and settling pond	1964 Basin	Background	04/18/2018	**4.8**	<50	6.9	0.13	<25	<1	0.08	<1	0.878 j	6.037 j	34	<1	0.083 j	0.124 j	NA
CB-09	N of 1964 basin and settling pond	1964 Basin	Background	04/18/2018	**4.8**	<50	7	0.18	<25	<1	NA	<5	<1	<10	32	<1	<0.2	<0.3	NA
CB-09 CCR	N of 1964 basin and settling pond	1964 Basin	Background	04/18/2018	**4.8**	<50	6.7	0.23	<25	<1	NA	<1	0.864 j	NA	NA	<1	0.145 j	NA	0.904
CB-09 IMP	N of 1964 basin and settling pond	1964 Basin	Background	07/10/2018	**5.0**	<50	6.9	0.13	<25	<1	0.087	<1	0.872 j	66	36	<1	0.095 j	**0.382 B2**	NA
CB-09	N of 1964 basin and settling pond	1964 Basin	Background	07/10/2018	**5.0**	<50	6.5	0.33	<25	<1	NA	<5	<1	97	35	<1	<0.2	<0.3	NA
CB-09BR	N of 1964 basin and settling pond	1964 Basin	Background	02/05/2018	**6.1**	<50	6.3	1.2	120	<1	0.18	<1	<1	<10	26	<1	<0.2	<0.3	2.538
CB-09BR CCR	N of 1964 basin and settling pond	1964 Basin	Background	02/05/2018	**6.1**	<50	6.8	1.1	100	<1	NA	<1	<1	NA	NA	<1	<0.2	NA	4.636
CB-09BR	N of 1964 basin and settling pond	1964 Basin	Background	04/18/2018	**6.0**	<50	6.9	1.1	50	<1	0.18	<1	<1	3.949 j	32	<1	<0.2	0.177 j	4.528
CB-09BR CCR	N of 1964 basin and settling pond	1964 Basin	Background	04/18/2018	**6.0**	<50	6.5	1.1	49	<1	NA	<1	<1	NA	NA	<1	<0.2	NA	2.263
CB-09BR	N of 1964 basin and settling pond	1964 Basin	Background	07/09/2018	**5.4**	<50	7.1	1.1	63	<1	0.14 M1	0.473 j	<1	7.035 j	34	<1	<0.2	**0.327**	1.205
CB-09SL	N of 1964 basin and settling pond	1964 Basin	Background	02/05/2018	**5.7**	<50	6.5	0.26	67	<1	0.29	<1	<1	<10	<5	<1	<0.2	<0.3	0.7492
CB-09SL CCR	N of 1964 basin and settling pond	1964 Basin	Background	02/05/2018	**5.7**	<50	6.9	0.24	77	<1	NA	<1	<1	NA	NA	<1	<0.2	NA	1.16
CB-09SL	N of 1964 basin and settling pond	1964 Basin	Background	04/18/2018	**5.6**	<50	7	0.26	35	<1	6.4	0.366 j	<1	8.268 j	2.793 j	<1	<0.2	0.17 j	0.2137
CB-09SL CCR	N of 1964 basin and settling pond	1964 Basin	Background	04/18/2018	**5.6**	<50	6.7	0.26	31	<1	NA	0.503 j	<1	NA	NA	<1	<0.2	NA	0.1893
CB-09SL	N of 1964 basin and settling pond	1964 Basin	Background	07/09/2018	**5.0**	<50	7.2	0.24	41	<1	0.3	0.654 j	<1	4.988 j	2.081 j	<1	<0.2	**0.343**	0.106
CCR-100BR	---	---	Background	11/07/2018	6.7	<50	9.1	2	81	0.865 j	NA	1.38	0.529 j	NA	NA	<1	0.091 j	NA	2.025
CCR-100BRL	---	---	Background	11/07/2018	7.3	<50	33	110	480	**1.49**	NA	3.25	**1.9**	NA	NA	<1	<0.2	NA	0.945
CCR-100SL	---	---	Background	11/07/2018	7.3	<50	8.5	0.33	99	**1.36**	NA	2.66	**2.31**	NA	NA	<1	<0.2	NA	1.121
CCR-101BR IMP	S of stilling pond, N of 1964 basin	1964 Basin	Sidegradient	02/05/2018	**5.6**	**3440**	150	130	**780**	<1	0.15	<1	<1	<10	**791**	18.2	<0.2	<0.3	**6.279**
CCR-101BR	S of stilling pond, N of 1964 basin	1964 Basin	Sidegradient	02/05/2018	**5.6**	**3450**	170	140	**760**	<1	NA	<1	<1	NA	NA	19.8	<0.2	NA	2.833
CCR-101BR IMP	S of stilling pond, N of 1964 basin	1964 Basin	Sidegradient	04/17/2018	**5.4**	**1880**	81	82	310	<1	0.12	<1	0.535 j	4.746 j	**429**	12.2	<0.2	0.198 j	2.056
CCR-101BR	S of stilling pond, N of 1964 basin	1964 Basin	Sidegradient	04/17/2018	**5.4**	**1940**	81	89	280	<1	NA	<1	0.544 j	NA	NA	11	<0.2	NA	2.45
CCR-101BR IMP	S of stilling pond, N of 1964 basin	1964 Basin	Sidegradient	07/09/2018	**5.3**	**1080**	52	71	290	<1	0.098 P4,M1	0.381 j	<1	4.698 j	**268**	7.26	0.162 j	0.218 j	1.564
CCR-102D IMP	On dam W of 1964 basin	1964 Basin	Downgradient	02/05/2018	**6.4**	**6340**	**280**	220	**1400**	<1	0.026	<1	**2.5**	171	**729**	<1	<0.2	**0.436**	2.1826
CCR-102D	On dam W of 1964 basin	1964 Basin	Downgradient	02/05/2018	**6.4**	**6330**	**320**	**270**	**1500**	<1	NA	<1	**2.38**	NA	NA	<1	<0.2	NA	1.407
CCR-102D IMP	On dam W of 1964 basin	1964 Basin	Downgradient	04/18/2018	**6.3**	**5700**	**270**	220	**1000**	<1	0.034	<1	**2.22**	17	**685**	<1	0.093 j	0.248 j	4.123
CCR-102D	On dam W of 1964 basin	1964 Basin	Downgradient	04/18/2018	**6.3**	**6000**	**260**	220	**1200**	<1	NA	<1	**2.2**	NA	NA	<1	0.095 j	NA	1.998
CCR-102D IMP	On dam W of 1964 basin	1964 Basin	Downgradient	07/10/2018	**6.2**	**5410**	230	200	**810**	<1	0.048	<1	**2.12**	37	**644**	<1	0.154 j	0.283 j	2.57
CCR-102S IMP	On dam W of 1964 basin	1964 Basin	Downgradient	02/05/2018	**6.4**	**7020**	**310**	230	**1500**	<1	0.074	**12.8**	<1	287	**638**	<1	<0.2	**0.502**	0.2069
CCR-102S	On dam W of 1964 basin	1964 Basin	Downgradient	02/05/2018	**6.4**	**7200**	**370**	**280**	**1500**	<1	NA	**10.8**	<1	NA	NA	<1	<0.2	NA	1.1012
CCR-102S IMP	On dam W of 1964 basin	1964 Basin	Downgradient	04/18/2018	**6.2**	**6620**	**300**	230	**1100**	<1	0.083	1.35	0.555 j	164	**529**	<1	0.12 j	**0.423**	3.8717
CCR-102S	On dam W of 1964 basin	1964 Basin	Downgradient	04/18/2018	**6.2**	**6880**	**290**	230	**1200**	<1	NA	1.88	0.563 j	NA	NA	<1	<0.2	NA	3.385
CCR-102S IMP	On dam W of 1964 basin	1964 Basin	Downgradient	07/10/2018	**6.2**	**6680**	**270**	220	**960**	<1	0.11	2.06	0.417 j	31	**499**	<1	0.139 j	0.292 j	1.765
CCR-103BR IMP	Toe of dam, W of 1964 basin	1964 Basin	Downgradient	02/05/2018	**5.9**	**815**	25	130	310	<1	<0.025	<1	**1.08**	115	**5340**	<1	<0.2	<0.3	**5.93**
CCR-103BR	Toe of dam, W of 1964 basin	1964 Basin	Downgradient	02/05/2018	**5.9**	**844**	26	140	320	<1	NA	<1	**1.13**	NA	NA	<1	<0.2 B3	NA	2.46
CCR-103BR IMP	Toe of dam, W of 1964 basin	1964 Basin	Downgradient	04/18/2018	**6.2**	**832**	26	130	270	<1	0.032	<1	0.999 j	141	**5370**	<1	0.106 j	0.186 j	3.71
CCR-103BR	Toe of dam, W of 1964 basin	1964 Basin	Downgradient	04/18/2018	**6.2**	**838**	25	130	270	<1	NA	<1	0.965 j	NA	NA	<1	<0.2	NA	3.66
CCR-103BR IMP	Toe of dam, W of 1964 basin	1964 Basin	Downgradient	07/10/2018	**6.0**	**826**	24	140	260	<1	<0.025	<1	1	234	**5970**	<1	0.086 j	0.2 j	NA
CCR-103D IMP	Toe of dam, W of 1964 basin	1964 Basin	Downgradient	02/05/2018	**5.7**	**891**	24	110	270	<1	0.026	<1	**1.99**	<10	**6870**	<1	**0.228**	<0.3	2.833
CCR-103D	Toe of dam, W of 1964 basin	1964 Basin	Downgradient	02/05/2018	**5.7**	**891**	25	130	290	<1	NA	<1	**2.08**	NA	NA	<1	**0.232**	NA	0.762
CCR-103D IMP	Toe of dam, W of 1964 basin	1964 Basin	Downgradient	04/18/2018	**5.7**	**873**	24	120	220	<1	0.069 M1,R1	<1	**2.08**	8.717999 j	**6770**	<1	**0.263**	0.239 j	0.562
CCR-103D	Toe of dam, W of 1964 basin	1964 Basin	Downgradient	04/18/2018	**5.7**	**907**	24	120	230	<1	NA	<1	**1.98**	NA	NA	<1	**0.22**	NA	1.308
CCR-103D IMP	Toe of dam, W of 1964 basin	1964 Basin	Downgradient	07/10/2018	**5.7**	**856**	22	130	220	<1	0.061	<1	**2.02**	32	**7100**	<1	**0.302**	0.249 j	NA
CCR-104D IMP	SW of 1964 basin	1964 Basin	Downgradient	02/05/2018	**6.1**	**2740**	94	**410**	**950**	<1	<0.025	<1	**20.2**	13	**9210**	<1	**0.214**	<0.3	3.313
CCR-104D	SW of 1964 basin	1964 Basin	Downgradient	02/05/2018	**6.1**	**2790**	99	**590**	**940**	<1	NA	<1	**20**	NA	NA	<1	**0.219**	NA	2.026
CCR-104D IMP	SW of 1964 basin	1964 Basin	Downgradient	04/18/2018	**5.8**	**2790**	100	**420**	**870**	<1	<0.025	<1	**20.6**	4.984 j	**8810**	<1	0.2	0.221 j	NA
CCR-104D	SW of 1964 basin	1964 Basin	Downgradient	04/18/2018	**5.8**	**2940**	100	**410**	**880**	<1	NA	<1	**19.9**	NA	NA	<1	0.171 j	NA	2.711
CCR-104D IMP	SW of 1964 basin	1964 Basin	Downgradient	07/11/2018	**6.1**	**2850**	100	**390**	**850**	<1	<0.025	<1	**20.3**	16	**8710**	<1	**0.256**	0.252 j	1.678
CCR-105BR IMP	Toe of dam, W of 1982 basin	1982 Basin	Downgradient	02/05/2018	7.2	193	11	140	350	<1	<0.025	<1	<1	**1250**	9	<1	<0.2	**0.701**	NA
CCR-105BR	Toe of dam, W of 1982 basin	1982 Basin	Downgradient	02/05/2018	7.2	175	11	150	310	<1	NA	<1	<1	NA	NA	<1	<0.2 B3	NA	2.38767
CCR-105BR IMP	Toe of dam, W of 1982 basin	1982 Basin	Downgradient	04/18/2018	6.9	192	11	140	270	<1	<0.025	0.998 j	<1	**956**	7	0.947 j	<0.2	**0.761**	NA
CCR-105BR	Toe of dam, W of 1982 basin	1982 Basin	Downgradient	04/18/2018	6.9	203	11	140	280	<1	NA	1.7	<1	NA	NA	0.686 j	<0.2	NA	0.4167

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TODD PLATING

		PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS				INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
Reporting Units		S.U.	ug/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
15A NCAC 02L Standard		6.5-8.5	700	250	250	500	1*	10	10	1*	300	50	20	0.2*	0.3*	5^
Provisional Background (Alluvial Unit)		4.6-5.1	50	15	4.6	56	1	0.42	5	4.29	598	363	1	0.2	0.3	4.17
Provisional Background (Saprolite Unit)		4.3-5.8	50	14	50	104.9	1	1.313	5	6.9	941	725	1.88	0.2	0.625	6.832
Provisional Background (Transition Unit)		3.9-7.0	50	6.7	5.467	72.77	1	0.261	1.32	4.608	779	380	1	0.2	0.41	6.61
Provisional Background (Bedrock Unit)		4.1-8.1	50	6.5	5.6	131.5	1	0.423	1.3	1	1246	93	1	0.2	0.632	5.8

					PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS					INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
Sample ID	Location Description	Associated Unit	Location with Respect to Groundwater Flow Direction	Sample Collection Date	pH	Boron	Chloride	Sulfate	Total Dissolved Solids	Antimony	Chromium (VI)	Chromium	Cobalt	Iron	Manganese	Selenium	Thallium	Vanadium	Total Radium
CCR-105BR IMP	Toe of dam, W of 1982 basin	1982 Basin	Downgradient	07/10/2018	7.0	212	11	150	290	<1	0.1	1.81	<1	**1150**	9	1.11	0.118 j	**1.16 B2**	NA
CCR-105BR IMP	Toe of dam, W of 1982 basin	1982 Basin	Downgradient	11/07/2018	7.0	234	11	150	290	<1	0.44	1.31	<1	**391**	8	1.36	<0.2	**0.858**	NA
CCR-105BR	Toe of dam, W of 1982 basin	1982 Basin	Downgradient	11/07/2018	7.0	243	12	160	270	<1	NA	1.11	<1	NA	NA	1.43	<0.2	NA	1.811
CCR-105D IMP	Toe of dam, W of 1982 basin	1982 Basin	Downgradient	02/05/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCR-105D	Toe of dam, W of 1982 basin	1982 Basin	Downgradient	02/05/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
CCR-105D IMP	Toe of dam, W of 1982 basin	1982 Basin	Downgradient	07/09/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EXT-01	Pump Test Sample Location	1964 Basin	Downgradient	02/07/2018	**6.2**	**12000**	**660**	**450**	**1600**	<1	<0.025	<1	**4.75**	**428 S1**	**3660**	<1	<0.2	**0.677**	NA
EXT-01	Pump Test Sample Location	1964 Basin	Downgradient	04/18/2018	8.2	**6330**	**320**	230	**1100**	<1	0.032	<1	**9.11**	181	**2160**	1.73	0.122 j	0.146 j	NA
EXT-02	Pump Test Sample Location	1964 Basin	Downgradient	02/07/2018	**6.2**	**1270**	86	87	350	<1	<0.025	<1	<1	47	**404**	<1	<0.2	<0.3	NA
EXT-02	Pump Test Sample Location	1964 Basin	Downgradient	04/18/2018	**6.3**	**1190**	83	79	370	<1	<0.025	<1	0.453 j	28	**375**	<1	0.086 j	0.205 j	NA
EXT-02	Pump Test Sample Location	1964 Basin	Downgradient	07/10/2018	**6.3**	**1090**	76	76	360	<1	<0.025	<1	0.525 j	<10	**318**	<1	<0.2	0.189 j	NA
EXT-A	Pump Test Sample Location	1964 Basin	Downgradient	02/08/2018	**5.5**	**3740**	160	150	**560**	<1	<0.025	2.08	**7.46**	**1200**	**1440**	**20.5**	<0.2	**0.357**	NA
EXT-A	Pump Test Sample Location	1964 Basin	Downgradient	04/17/2018	**5.4**	**4390**	190	150	**680**	<1	<0.025	3.29	**5.72**	**695**	**1210**	**25.2**	0.163 j	**0.587**	NA
EXT-A	Pump Test Sample Location	1964 Basin	Downgradient	07/09/2018	**5.4**	**4180**	180	160	**730**	0.336 j	0.025	7.04	**5.51**	**1560**	**1020**	**25.5**	0.173 j	**1.54**	NA
EXT-A	Pump Test Sample Location	1964 Basin	Downgradient	11/14/2018	**5.6**	**3870**	170	140	**620**	<1	<0.025 M1,R1	2.07	**6.26**	**402**	**1030**	**23.1**	0.121 j	**0.538**	NA
GW-01	Between the 1982 basin and Lake Julian	1982 Basin	Background	02/06/2018	**4.9**	<50	8.6	34	91	<1	1.1	1.12	**5.18**	34	**642**	1.15	<0.2	<0.3	NA
GW-01 IMP	Between the 1982 basin and Lake Julian	1982 Basin	Background	04/18/2018	**4.8**	21.583 j	8.6	39	77	<1	1.3	1.39	**5.64**	40	**709**	1.62	0.102 j	0.177 j	NA
GW-01	Between the 1982 basin and Lake Julian	1982 Basin	Background	04/18/2018	**4.8**	<50	8.8	44	70	<1	NA	<5	**5.26**	<10	**711**	1.61	<0.2	<0.3	NA
GW-01 IMP	Between the 1982 basin and Lake Julian	1982 Basin	Background	07/10/2018	**4.8**	<50	8.9	56	98	<1	1.4	1.55	**5.8**	8.481 j	**775**	2.17	<0.2	**0.342 B2**	2.0418
GW-01	Between the 1982 basin and Lake Julian	1982 Basin	Background	07/10/2018	**4.8**	<50	8.6	56	91	<1	NA	<5	**6.01**	16	**791**	2.27	<0.2	<0.3	NA
GW-01BR	Between the 1982 basin and Lake Julian	1982 Basin	Background	02/06/2018	7.1	<50	1.5	5.2	99	<1	<0.025	<1	<1	224	30	<1	<0.2	**0.307**	NA
GW-01BR	Between the 1982 basin and Lake Julian	1982 Basin	Background	04/18/2018	7.5	<50	1.6	4.3	72	0.401 j	0.036	<1	<1	**993**	**65**	<1	0.138 j	**0.565**	NA
GW-01BR	Between the 1982 basin and Lake Julian	1982 Basin	Background	07/10/2018	7.6	<50	2	5.4	82	0.652 j	<0.025	0.769 j	<1	**824**	**78**	<1	<0.2	**0.923 B2**	NA
GW-01D	Between the 1982 basin and Lake Julian	1982 Basin	Background	02/06/2018	**5.2**	<50	3.7	1	33	<1	0.17	<1	<1	12	**69**	<1	<0.2	<0.3	NA
GW-01D	Between the 1982 basin and Lake Julian	1982 Basin	Background	04/18/2018	**5.1**	<50	4.5	1.2	<25	<1	0.13	<1	**1.08**	9.6 j	**96**	<1	0.143 j	0.172 j	NA
GW-01D	Between the 1982 basin and Lake Julian	1982 Basin	Background	07/10/2018	**4.7**	<50	5.3	1.7	<25	<1	0.13	0.34 j	**1.14**	24	**110**	<1	0.089 j	**0.447 B2**	NA
GW-02	SW of 1964 basin, NE of I-26	1964 Basin	Downgradient	02/07/2018	**5.6**	**2260**	200	130	**570**	<1	0.12	<1	**6.5**	28	**1380**	<1	<0.2	<0.3	0.35768
GW-02	SW of 1964 basin, NE of I-26	1964 Basin	Downgradient	04/18/2018	**5.7**	**2160**	170	110	**610**	<1	1.8	1.65	**6.36**	**460**	**1220**	0.412 j	0.132 j	**0.716**	2.168
GW-02	SW of 1964 basin, NE of I-26	1964 Basin	Downgradient	07/10/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GW-03	SW of 1964 basin, NE of I-26	1964 Basin	Downgradient	02/05/2018	**6.0**	**1580**	57	250	**580**	<1	1.5	1.91	**1.34**	**1010**	**670**	<1	<0.2	**1.01**	1.402
GW-03 CCR	SW of 1964 basin, NE of I-26	1964 Basin	Downgradient	02/05/2018	**6.0**	**1810**	72	**310**	**630**	<1	NA	1.39	**1.26**	NA	NA	<1	<0.2	NA	0.8421
GW-03	SW of 1964 basin, NE of I-26	1964 Basin	Downgradient	04/18/2018	**5.6**	**1470**	60	240	**520**	<1	1.4	1.67	0.376 j	**323**	**179**	1.02	<0.2	**0.376**	3.089
GW-03 CCR	SW of 1964 basin, NE of I-26	1964 Basin	Downgradient	04/18/2018	**5.6**	**1520**	53	220	460	<1	NA	1.74	0.4 j	NA	NA	0.716 j	<0.2	NA	1.103
GW-03	SW of 1964 basin, NE of I-26	1964 Basin	Downgradient	07/18/2018	**5.2**	**2020**	72	**300**	**720**	<1	1.7	1.88	**1.24**	**357**	**817**	0.966 j	0.099 j	**0.418**	2.772
GW-04	SW of 1964 basin, NE of I-26	1982 Basin	Downgradient	02/05/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GW-04	SW of 1964 basin, NE of I-26	1982 Basin	Downgradient	04/18/2018	**5.2**	**812**	4.8	130	200	<1	2.6	5.26	**1.62**	**3580**	**112**	0.54 j	0.151 j	**3.23**	**5.42**
GW-04	SW of 1964 basin, NE of I-26	1982 Basin	Downgradient	07/11/2018	**5.5**	609	5.3	110	190	<1	2	2.27	<1	**489**	**77**	0.82 j	0.123 j	**0.371**	4.546
GW-04	SW of 1964 basin, NE of I-26	1982 Basin	Downgradient	11/07/2018	**5.6**	**768**	7.4	110	170	<1	3.2 M6	3.54	<1	119	**69**	0.813 j	0.106 j	0.25 j	0.861
GW-05	Between Arden Dr and 1982 basin	1982 Basin	Downgradient	02/06/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GW-05	Between Arden Dr and 1982 basin	1982 Basin	Downgradient	07/11/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
GW-05	Between Arden Dr and 1982 basin	1982 Basin	Downgradient	11/07/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-03BR	Between Arden Dr and 1982 basin	1982 Basin	Downgradient	04/26/2018	7.9	676	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-03D	Between Arden Dr and 1982 basin	1982 Basin	Downgradient	02/05/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-03D	Between Arden Dr and 1982 basin	1982 Basin	Downgradient	07/11/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-05BR	Between Arden Dr and 1982 basin	1982 Basin	Sidegradient	02/06/2018	6.7	371	5	120	250	<1	<0.025	<1	<1	**32400**	**197**	<1	<0.2	<0.3	NA
MW-05BR	Between Arden Dr and 1982 basin	1982 Basin	Sidegradient	04/18/2018	6.7	337	9	120	200	<1	<0.025	<1	<1	**33600**	**215**	<1	<0.2	<0.3	NA
MW-05BR	Between Arden Dr and 1982 basin	1982 Basin	Sidegradient	07/11/2018	**6.3**	327	8.7	110	240	<1	<0.025	<1	<1	**32800**	**202**	<1	0.11 j	<0.3	NA
MW-05BR	Between Arden Dr and 1982 basin	1982 Basin	Sidegradient	11/07/2018	6.8	303	8.7	110	190	<1	<0.025	0.998 j	**1.67**	**34700**	**271**	<1	<0.2	**1.49**	NA
MW-05D	Between Arden Dr and 1982 basin	1982 Basin	Sidegradient	02/06/2018	**4.0**	650	8.8	160	270	<1	0.047	<1	**19.9**	**1760**	**475**	2.95	<0.2	<0.3	NA
MW-05D	Between Arden Dr and 1982 basin	1982 Basin	Sidegradient	04/18/2018	**3.7**	661	8.3	210	240	<1	<0.025	<1	**19.8**	**1020**	**474**	3.48	0.093 j	0.111 j	NA
MW-05D	Between Arden Dr and 1982 basin	1982 Basin	Sidegradient	07/11/2018	**3.6**	672	8.1	210	280	<1	<0.025	<1	**16.1**	**3380**	**446**	2.81	0.126 j	<0.3	NA
MW-05D	Between Arden Dr and 1982 basin	1982 Basin	Sidegradient	11/07/2018	**3.8**	694	7.8	240	230	<1	<0.025	<1	**18.8**	**1230**	**448**	2.16	<0.2	<0.3	NA
MW-06BR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	02/06/2018	8.4	171	5.7	68	180	<1	0.06	<1	<1	<10	6	<1	<0.2	**0.313**	0.4724
MW-06BR CCR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	02/06/2018	8.4	171	5.6	68	180	<1	NA	<1	<1	NA	NA	<1	<0.2 B3	NA	-0.107
MW-06BR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	04/19/2018	8.4	211	6.2	74	150	<1	<0.025	<1	<1	11	6	<1	<0.2	0.139 j	3.233
MW-06BR CCR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	04/19/2018	8.4	216	6.2	75	180	<1	NA	<1	<1	NA	NA	<1	<0.2	NA	1.207
MW-06BR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	07/11/2018	8.2	320	7.4	92	240	<1	<0.025	<1	<1	17	24	<1	<0.2	0.11 j	1.4762
MW-06BR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	11/07/2018	6.8	80	5	170	260	<1	0.084	<1	**25.1**	**417**	**4910**	<1	<0.2	0.121 j	0.3207
MW-06BR CCR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	11/07/2018	6.8	83	4.9	200	270	<1	NA	<1	**25.3**	NA	NA	<1	<0.2	NA	0.529
MW-06D	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	02/06/2018	**5.7**	**1320**	8.1	140	230	<1	0.028	<1	**4.95**	81	**4640**	<1	**0.248**	<0.3	0.724
MW-06D CCR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	02/06/2018	**5.7**	**1340**	8	140	230	<1	NA	<1	**5.03**	NA	NA	<1	**0.248**	NA	0.45096
MW-06D	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	04/19/2018	**5.5**	**1320**	8.2	140	210	<1	0.029	<1	**5.42**	15	**5020**	<1	**0.359**	0.101 j	2.879
MW-06D CCR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	04/19/2018	**5.5**	**1290**	8.4	140	230	<1	NA	<1	**5.22**	NA	NA	<1	**0.236**	NA	1.611
MW-06D	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	07/11/2018	**5.4**	**1200**	8.4	150	260	<1	<0.025	<1	**4.93**	38	**4660**	<1	**0.312**	0.15 j	0.79622
MW-06D	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	11/07/2018	**5.5**	**1110**	8.2	140	210	<1	0.047	<1	**4.84**	9.711 j	**4710**	<1	**0.246**	<0.3	4.103
MW-06D CCR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	11/07/2018	**5.5**	**1090**	8.1	140	200	<1	NA	<1	**4.77**	NA	NA	<1	**0.242**	NA	3.152
MW-06S	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	02/06/2018	**5.6**	**935**	9	110	250	<1	0.031	<1	**6.94**	38	**7010**	<1	<0.2	<0.3	0.653
MW-06S CCR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	02/06/2018	**5.6**	**965**	8.8	110	240	<1	NA	<1	**6.99**	NA	NA	<1	<0.2 B3	NA	0.2209
MW-06S	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	04/19/2018	**5.4**	**933**	9.1	120	220	<1	<0.025	<1	**7.67**	83	**6430**	0.367 j	0.19 j	0.229 j	4.645
MW-06S CCR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	04/19/2018	**5.4**	**906**	9.3	120	250	<1	NA	<1	**6.96**	NA	NA	0.367 j	0.186 j	NA	2.173
MW-06S	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	07/11/2018	**5.3**	**977**	9.9	140	250	<1	<0.025	<1	**6.02**	11	**6700**	<1	0.149 j,B4	0.163 j	1.315
MW-06S	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	11/07/2018	**5.3**	**951**	9.9	130	200	<1	<0.025	0.588 j	**6.21**	**706**	**7190**	<1	0.167 j	**0.645**	0.863

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		PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS				INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
Reporting Units		S.U.	ug/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
15A NCAC 02L Standard		6.5-8.5	700	250	250	500	1*	10	10	1*	300	50	20	0.2*	0.3*	5^
Provisional Background (Alluvial Unit)		4.6-5.1	50	15	4.6	56	1	0.42	5	4.29	598	363	1	0.2	0.3	4.17
Provisional Background (Saprolite Unit)		4.3-5.8	50	14	50	104.9	1	1.313	5	6.9	941	725	1.88	0.2	0.625	6.832
Provisional Background (Transition Unit)		3.9-7.0	50	6.7	5.467	72.77	1	0.261	1.32	4.608	779	380	1	0.2	0.41	6.61
Provisional Background (Bedrock Unit)		4.1-8.1	50	6.5	5.6	131.5	1	0.423	1.3	1	1246	93	1	0.2	0.632	5.8

					PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS					INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
Sample ID	Location Description	Associated Unit	Location with Respect to Groundwater Flow Direction	Sample Collection Date	pH	Boron	Chloride	Sulfate	Total Dissolved Solids	Antimony	Chromium (VI)	Chromium	Cobalt	Iron	Manganese	Selenium	Thallium	Vanadium	Total Radium
MW-06S CCR	SW of 1982 basin at toe of dam	1982 Basin	Downgradient	11/07/2018	**5.3**	**980**	10	130	200	<1	NA	0.477 j	**6.03**	NA	NA	<1	0.158 j	NA	2.754
MW-07BR	SW of 1964 basin	1964 Basin	Downgradient	04/26/2018	**11.1**	30.758 j	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-08BR	W of 1964 basin	1964 Basin	Downgradient	04/26/2018	**9.0**	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-08S	W of 1964 basin	1964 Basin	Downgradient	02/07/2018	**6.1**	**4610**	250	200	**800**	<1	<0.025	<1	**1.82**	<10	**1840**	<1	<0.2	<0.3	0.504
MW-08S	W of 1964 basin	1964 Basin	Downgradient	04/18/2018	**6.2**	**4290**	220	170	**840**	**3.45**	<0.025	<1	**1.69**	6.384 j	**1780**	0.805 j	<0.2	0.236 j	3.298
MW-08S	W of 1964 basin	1964 Basin	Downgradient	07/10/2018	**6.1**	**5210**	240	200	**910**	0.625 j	<0.025	<1	**1.97**	6.06 j	**1960**	0.819 j	<0.2	0.202 j	1.086
MW-09BR	Immediately NW of 1964 basin	1964 Basin	Downgradient	02/05/2018	6.5	**2740**	**340**	150	**1500**	<1	<0.025	<1	**5.78**	**44100**	**1340**	<1	<0.2	<0.3	**13.5**
MW-09BR CCR	Immediately NW of 1964 basin	1964 Basin	Downgradient	02/05/2018	6.5	**2820**	**390**	180	**1500**	<1	NA	<1	**5.72**	NA	NA	<1	<0.2	NA	**14.29**
MW-09BR	Immediately NW of 1964 basin	1964 Basin	Downgradient	04/17/2018	**6.3**	**2550**	**330**	150	**1000**	<1	<0.025	<1	**1.74**	**42700**	**1270**	<1	0.117 j	0.109 j	**11.52**
MW-09BR CCR	Immediately NW of 1964 basin	1964 Basin	Downgradient	04/17/2018	**6.3**	**2680**	**340**	160	**960**	<1	NA	<1	**2.15**	NA	NA	<1	<0.2	NA	**7.88**
MW-09BR	Immediately NW of 1964 basin	1964 Basin	Downgradient	07/09/2018	**6.3**	**2550**	**320**	160	**1200**	<1	<0.025	0.392 j	**4.82**	**45300**	**1250**	<1	<0.2	0.192 j	**9.32**
MW-09D	Immediately NW of 1964 basin	1964 Basin	Downgradient	02/05/2018	**5.7**	**3610**	150	150	**780**	<1	0.09	1.88	**2.01**	<10	**1120**	18.8	<0.2	<0.3	2.2846
MW-09D CCR	Immediately NW of 1964 basin	1964 Basin	Downgradient	02/05/2018	**5.7**	**3810**	170	160	**780**	<1	NA	1.98	**2.04**	NA	NA	19	<0.2	NA	1.3944
MW-09D	Immediately NW of 1964 basin	1964 Basin	Downgradient	04/17/2018	**5.6**	**4020**	160	150	**570**	<1	0.58 M1	1.8	**2.77**	6.059 j	**1520**	**21.5**	<0.2	0.168 j	1.57512
MW-09D CCR	Immediately NW of 1964 basin	1964 Basin	Downgradient	04/17/2018	**5.6**	**4150**	160	160	**510**	<1	NA	1.64	**2.39**	NA	NA	**20.8**	<0.2	NA	1.53
MW-09D	Immediately NW of 1964 basin	1964 Basin	Downgradient	07/09/2018	**5.5**	**3660**	150	160	**650**	<1	4.1	5.42	**2.04**	15	**1340**	**20.6**	0.128 j	0.231 j	0.7
MW-09S	Immediately NW of 1964 basin	1964 Basin	Downgradient	02/05/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-09S CCR	Immediately NW of 1964 basin	1964 Basin	Downgradient	02/05/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-09S	Immediately NW of 1964 basin	1964 Basin	Downgradient	07/09/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-10	SE of 1982 basin, S of Lake Julian	1982 Basin	Background	02/06/2018	**5.1**	<50	14	0.6	48	<1	0.3	<1	**2.24**	15	**148**	<1	<0.2	<0.3	0.402
MW-10	SE of 1982 basin, S of Lake Julian	1982 Basin	Background	04/18/2018	**5.0**	<50	13	0.55	<25	<1	0.3	0.452 j	**1.88**	20	**131**	<1	0.172 j	0.155 j	1.655
MW-10	SE of 1982 basin, S of Lake Julian	1982 Basin	Background	07/10/2018	**4.5**	<50	14	0.7	<25	<1	0.22	0.523 j	**1.66**	14	**123**	<1	0.176 j	**0.414 B2**	3.018
MW-10	SE of 1982 basin, S of Lake Julian	1982 Basin	Background	11/08/2018	**4.9**	<50	16	0.54	69	<1	0.42	0.816 j	**1.52**	13	**114**	<1	0.142 j	<0.3	1.193
MW-11	NW of 1964 basin, S of Powell Creek	1964 Basin	Downgradient	02/06/2018	**5.5**	<50	58	46	210	<1	2.4	4.08	<1	17 S1	**52**	<1	<0.2	<0.3	NA
MW-11	NW of 1964 basin, S of Powell Creek	1964 Basin	Downgradient	04/16/2018	**5.5**	<50	85	41	240	<1	4.3	5.02	<1	17	33	<1	<0.2	0.285 j	NA
MW-11	NW of 1964 basin, S of Powell Creek	1964 Basin	Downgradient	07/09/2018	**4.9**	<50	110	38	270	<1	3.4	8.26	0.501 j	31	**59**	<1	<0.2	0.287 j	NA
MW-11	NW of 1964 basin, S of Powell Creek	1964 Basin	Downgradient	11/12/2018	**5.8**	<50	89	33	250	<1	2	**10.1**	0.899 j	64	**71**	<1	<0.2	0.24 j	NA
MW-11D	NW of 1964 basin, S of Powell Creek	1964 Basin	Downgradient	02/06/2018	**5.1**	<50	170	12	390	<1	0.14 M1	<1	<1	11	**182**	<1	<0.2	<0.3	NA
MW-11D	NW of 1964 basin, S of Powell Creek	1964 Basin	Downgradient	04/16/2018	**4.9**	37.322 j	180	13	340	<1	0.18	<1	0.532 j	20	**200**	0.412 j	0.155 j	0.236 j	NA
MW-11D	NW of 1964 basin, S of Powell Creek	1964 Basin	Downgradient	07/09/2018	**4.5**	33.844 j	190	14	480	0.348 j	0.18	0.479 j	0.498 j	8.666 j	**197**	<1	0.088 j	**0.344**	NA
MW-11D	NW of 1964 basin, S of Powell Creek	1964 Basin	Downgradient	11/12/2018	**5.0**	34.503 j	190	9	370	<1	0.13	0.459 j	0.446 j	7.069 j	**205**	0.463 j	0.099 j	0.236 j	NA
MW-13BR	N of railroad tracks and 1964 basin	1964 Basin	Sidegradient	02/08/2018	**5.4**	<50	4.6	2.1	<25	<1	0.24	<1	<1	120 S1	19	<1	<0.2	<0.3 S1	NA
MW-13BR	N of railroad tracks and 1964 basin	1964 Basin	Sidegradient	04/19/2018	**5.7**	<50	5	2.2	<25	0.386 j	0.25	1.63	0.591 j	**460**	29	<1	<0.2	**0.495**	NA
MW-13BR	N of railroad tracks and 1964 basin	1964 Basin	Sidegradient	07/09/2018	**4.7**	<50	5.2	2.4	33	<1	0.24	0.63 j	0.453 j	65	18	<1	<0.2	**0.358**	NA
MW-13BR	N of railroad tracks and 1964 basin	1964 Basin	Sidegradient	11/08/2018	**5.4**	<50	5.2	2.2	46	<1	0.28	0.392 j	0.449 j	69	16	<1	<0.2	<0.3	NA
MW-13D	N of railroad tracks and 1964 basin	1964 Basin	Sidegradient	02/08/2018	6.6	<50	3.9	0.82	65	<1	<0.12 D3	<1	**4.22**	**1700**	**489**	<1	<0.2	<0.3	NA
MW-13D	N of railroad tracks and 1964 basin	1964 Basin	Sidegradient	04/19/2018	7.0	<50	4.4	0.67	66	<1	<0.025	0.355 j	**3.23**	**2050**	**618**	<1	<0.2	0.173 j	NA
MW-13D	N of railroad tracks and 1964 basin	1964 Basin	Sidegradient	07/09/2018	6.6	<50	4.9	1.5	91	<1	<0.025	0.554 j	**2.89**	**1460**	**476**	<1	<0.2	**0.515**	NA
MW-13D	N of railroad tracks and 1964 basin	1964 Basin	Sidegradient	11/08/2018	6.9	<50	4.7	0.88	120	<1	<0.025	<1	**1.59**	**1240**	**514**	<1	<0.2	<0.3	NA
MW-14BR	Along access road N of NPDES stilling pond	1964 Basin	Sidegradient	02/06/2018	6.9	113	3.4	110	260	<1	0.082	<1	<1	108	14	6.16	<0.2	**0.609**	NA
MW-14BR	Along access road N of NPDES stilling pond	1964 Basin	Sidegradient	04/17/2018	6.8	216	4.5	120	260	<1	0.19	<1	<1	29	2.694 j	6.3	<0.2	**0.429**	NA
MW-14BR	Along access road N of NPDES stilling pond	1964 Basin	Sidegradient	07/09/2018	**6.5**	185	4.3	120	280	<1	0.22	0.416 j	<1	26	5	6.52	<0.2	**0.551**	NA
MW-14BR	Along access road N of NPDES stilling pond	1964 Basin	Sidegradient	11/08/2018	6.7	162	4.3	99	270	<1	0.081	<1	<1	58	8	4.44	<0.2	**0.377**	NA
MW-15A	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	02/06/2018	**5.0**	84	58	3.4	110	<1	0.22	<1	<1	43	**549**	<1	<0.2	<0.3	1.037
MW-15A	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	04/16/2018	**4.8**	82	53	4.2	93	<1	<0.025	<1	0.838 j	49	**486**	<1	<0.2	0.276 j	2.333
MW-15A	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	07/16/2018	**4.7**	129	51	3.7	110	<1	<0.025	<1	0.98 j	21	**364**	<1	0.144 j	**0.349**	2.288
MW-15A	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	11/12/2018	**5.0**	106	65	3.6	120	<1	<0.025	<1	0.885 j	58	**431**	<1	0.109 j	0.156 j	2.54
MW-15BR	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	04/26/2018	**11.4**	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-15BRL	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	01/09/2018	7.4	<50	11	5.4	180	<1	<0.025	<1	<1	54	**451**	<1	<0.2	**0.861**	0.53
MW-15BRL	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	04/16/2018	7.0	26.569 j	10	3.6	140	<1	<0.025	<1	0.715 j	220	**318**	0.385 j	<0.2	**0.67**	NA
MW-15BRL	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	07/16/2018	6.9	21.363 j	11	3.6	140	<1	<0.025	<1	0.482 j	116	**155**	0.337 j	<0.2	**0.796**	4.414
MW-15BRL	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	11/12/2018	7.9	20.085 j	12	3.4	130	0.468 j	<0.025	<1	<1	51	**67**	0.588 j	<0.2	**0.627**	0.487
MW-15D	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	02/06/2018	**6.0**	<50	8.1	0.32	84	<1	0.2	<1	<1	51	10	<1	<0.2	**0.747**	0.885
MW-15D	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	04/16/2018	**5.8**	<50	12	0.36	60	<1	0.22	0.365 j	<1	56	10	<1	<0.2	**0.822**	0.8914
MW-15D	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	07/16/2018	**5.6**	<50	17	0.33	85	<1	0.19	0.408 j	<1	24	8	<1	<0.2	**0.841**	4.718
MW-15D	NW of 1964 basin, S of MW-11	1964 Basin	Downgradient	11/12/2018	**6.0**	<50	16	0.34	83	<1	0.18 M1	0.42 j	<1	25	10	<1	0.134 j	**0.59**	1.52
MW-16A	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	02/06/2018	**5.0**	518	92	53	240	<1	0.089	<1	**1.52**	79	**816**	<1	<0.2	<0.3	0.764
MW-16A	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	04/16/2018	**4.8**	453	90	55	220	<1	0.045	<1	**1.64**	152	**797**	<1	0.111 j	0.182 j	4.337
MW-16A	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	07/16/2018	**4.7**	537	92	61	250	<1	0.03	<1	**1.49**	48	**765**	<1	<0.2	0.147 j	2.089
MW-16A	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	11/12/2018	**4.8**	621	78	46	200	<1	<0.025	<1	**1.42**	101	**646**	<1	<0.2	0.167 j	2.53
MW-16BR	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	02/06/2018	**5.9**	210	110	40	320	<1	0.053	<1	<1	**55000**	**727**	<1	<0.2	<0.3	0.9542
MW-16BR	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	04/16/2018	**5.8**	198	120	51	300	<1	<0.025	0.809 j	0.955 j	**61400**	**754**	<1	0.122 j	0.154 j	4.19
MW-16BR	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	07/16/2018	**5.5**	230	110	52	350	<1	<0.025	0.792 j	**1.74**	**53300**	**733**	<1	**0.222**	**0.484**	3.17
MW-16BR	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	11/12/2018	**5.8**	250	110	49	330	<1	<0.025	1.22	0.547 j	**52500**	**708**	<1	<0.2	<0.3	4.57
MW-16BRL	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	01/09/2018	**5.4**	**743**	120	53	320	<1	<0.025	<1	**9.24**	**38400**	**868**	<1	<0.2	<0.3	1.75
MW-16BRL	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	04/16/2018	**5.1**	**756**	110	69	320	<1	<0.025	<1	**7.29**	**40500**	**730**	0.547 j	<0.2	0.222 j	NA
MW-16BRL	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	07/16/2018	**5.0**	603	96	82	310	<1	<0.025	<1	**8.13**	**32500**	**942**	0.451 j	<0.2	0.124 j	3.66
MW-16BRL	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	11/14/2018	6.6	336	110	70	350	<1	<0.025	<1	**4.76**	**35200**	**1060**	<1	<0.2	0.155 j	1.847
MW-16BRLL	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	11/12/2018	6.9	345	74	49	310	<1	<0.025	<1	**2.65**	**16700**	**828**	<1	<0.2	<0.3	2.475
MW-16D	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	01/09/2018	**4.7**	368	110	56	300	<1	<0.025	<1	**3.93**	**37900**	**602**	<1	<0.2	**0.346**	3.23
MW-16D	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	04/16/2018	**4.8**	408	110	57	270	<1	<0.025	<1	**3.67**	**34200**	**709**	<1	<0.2	0.252 j	NA
MW-16D	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	07/16/2018	**4.4**	**739**	78	98	250	<1	<0.025 M1,R1	<1	**2.61**	**10100**	**484**	2.63	<0.2	0.159 j	NA

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Reporting Units	PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS					INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
	S.U.	ug/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
15A NCAC 02L Standard	6.5-8.5	700	250	250	500	1*	10	10	1*	300	50	20	0.2*	0.3*	5^
Provisional Background (Alluvial Unit)	4.6-5.1	50	15	4.6	56	1	0.42	5	4.29	598	363	1	0.2	0.3	4.17
Provisional Background (Saprolite Unit)	4.3-5.8	50	14	50	104.9	1	1.313	5	6.9	941	725	1.88	0.2	0.625	6.832
Provisional Background (Transition Unit)	3.9-7.0	50	6.7	5.467	72.77	1	0.261	1.32	4.608	779	380	1	0.2	0.41	6.61
Provisional Background (Bedrock Unit)	4.1-8.1	50	6.5	5.6	131.5	1	0.423	1.3	1	1246	93	1	0.2	0.632	5.8

					PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS					INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
Sample ID	Location Description	Associated Unit	Location with Respect to Groundwater Flow Direction	Sample Collection Date	pH	Boron	Chloride	Sulfate	Total Dissolved Solids	Antimony	Chromium (VI)	Chromium	Cobalt	Iron	Manganese	Selenium	Thallium	Vanadium	Total Radium
MW-16D	W of 1964 basin, S of MW-15A	1964 Basin	Downgradient	11/12/2018	**5.4**	601	96	61	280	<1	<0.025	<1	**3.37**	**36200**	**756**	<1	<0.2	<0.3	NA
MW-17A	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	02/06/2018	**4.6**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.582
MW-17A	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	02/07/2018	NM	**3050**	**440**	250	**1200**	<1	<0.025	<1	**5.44**	**27500**	**3090**	<1	<0.2	<0.3	NA
MW-17A	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	04/17/2018	**5.0**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.964
MW-17A	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	04/18/2018	NM	**3000**	**370**	**320 M2**	**1000**	<1	<0.025	1.4	**6.39**	**6760**	**3390**	<1	0.132 j	**2.5**	NA
MW-17A	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	07/16/2018	**5.7**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.944
MW-17A	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	07/17/2018	**5.7**	**3250**	**350**	**280**	NA	<1	<0.025	0.353 j	**5.06**	**18100**	**2900**	<1	0.185 j	**0.649**	NA
MW-17A	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	11/13/2018	**5.2**	**3030**	**290**	240 M2	**920**	<1	<0.025	0.534 j	**4.16**	**5730**	**2420**	<1	0.154 j	0.205 j	1.137
MW-17BRL	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	01/09/2018	6.9	408	46	**730**	**1300**	<1	<0.025	<1	<1	**2880**	**2190**	<1	<0.2	**0.491**	**8.93**
MW-17BRL	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	04/17/2018	7.0	361	26	**820**	**1400**	<1	<0.025	<1	<1	**2510**	**2250**	<1	0.148 j	0.146 j	NA
MW-17BRL	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	07/16/2018	6.8	343	32	**660**	**1200**	<1	<0.025	<1	<1	**1820**	**2100**	<1	<0.2	0.255 j	4.63
MW-17BRL	W of 1964 basin, N of CB-07	1964 Basin	Downgradient	11/13/2018	7.3	302	21	**770**	**1300**	<1	<0.025	<1	<1	**2050**	**2150**	<1	<0.2	0.221 j	**6**
MW-18BR	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	02/07/2018	**5.5**	**953**	110	**360**	**670**	<1	<0.025	<1	**1.18**	<10	**233**	<1	<0.2	<0.3	1.072
MW-18BR	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	04/16/2018	**5.5**	**950**	92	**330**	**660**	<1	<0.025	<1	**1.45**	4.323 j	**246**	0.912 j	<0.2	0.26 j	1.726
MW-18BR	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	07/17/2018	**5.3**	**972**	95	**360**	**720**	<1	0.043	<1	**1.35**	6.782 j	**252**	0.741 j	<0.2	0.208 j	1.968
MW-18BR	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	11/13/2018	**5.5**	**915**	96	**340**	**660**	<1	<0.025	<1	**1.3**	24	**234**	0.87 j	<0.2	**0.436**	1.778
MW-18BRL	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	02/07/2018	7.4	<50	5.4	**280**	360	<1	0.14	<1	<1	113	**227**	<1	<0.2	<0.3	1.513
MW-18BRL	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	04/16/2018	7.6	26.164 j	5.1	200	360	<1	0.13 M1	<1	<1	101	**239**	<1	<0.2	0.27 j	**5.21**
MW-18BRL	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	07/17/2018	7.3	22.096 j	4.2	220	400	<1	0.037	<1	<1	73	**281**	<1	<0.2	0.194 j	3.123
MW-18BRL	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	11/13/2018	7.8	21.474 j	3.8	220	370	<1	0.067	<1	<1	69	**272**	<1	<0.2	0.277 j	3.31
MW-18D	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	02/07/2018	**5.7**	**896**	110	**350**	**640**	<1	<0.025	<1	**2.13**	**448**	**418**	<1	<0.2	<0.3	0.6196
MW-18D	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	04/16/2018	**5.6**	**879**	91	**320**	**620**	<1	<0.025	<1	**1.68**	**317**	**328**	0.683 j	<0.2	0.19 j	1.375
MW-18D	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	07/17/2018	**5.3**	**927**	94	**370**	**700**	<1	<0.025	<1	**1.61**	130	**344**	0.716 j	<0.2	0.168 j	1.214
MW-18D	Approx. 1000 ft NE of CB-06	1964 Basin	Downgradient	11/13/2018	**5.4**	**936**	93	**320**	**650**	<1	<0.025 M1,R1	<1	**1.66**	194	**264**	0.994 j	0.103 j	**0.372**	1.181
MW-19BR	Approx. 1000 ft NE of CB-05	1964 Basin	Downgradient	04/26/2018	**10.6**	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-20A	Open wetlands, S of CB-06, N of CB-05	1982 Basin	Downgradient	02/08/2018	**6.3**	572	17	**260**	180	<1	<0.25 D3	<1	**3.55**	**14100**	**5970**	8.86	<0.2	**0.346**	NA
MW-20A	Open wetlands, S of CB-06, N of CB-05	1982 Basin	Downgradient	04/17/2018	**6.4**	615	17	250	430	<1	<0.025	<1	**2.34**	**17900**	**6420**	2.26	<0.2	0.17 j	NA
MW-20A	Open wetlands, S of CB-06, N of CB-05	1982 Basin	Downgradient	07/18/2018	**6.2**	**702**	14	150	400	<1	0.049	<1	**1.48**	**25100**	**8170**	0.555 j	0.136 j	0.258 j	NA
MW-20A	Open wetlands, S of CB-06, N of CB-05	1982 Basin	Downgradient	11/19/2018	**6.3**	264	10	150	270	<1	<0.025	<1	**1.31**	**7380**	**3180**	<1	<0.2	0.127 j	NA
MW-20BR	Open wetlands, S of CB-06, N of CB-05	1982 Basin	Downgradient	01/09/2018	6.9	233	11	**800**	**1300**	<1	<0.025	<1	**4.96**	**87000 B3**	**8560**	<1	<0.2	<0.3	**15.13**
MW-20BR	Open wetlands, S of CB-06, N of CB-05	1982 Basin	Downgradient	03/23/2018	6.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	**13.99**
MW-20BR	Open wetlands, S of CB-06, N of CB-05	1982 Basin	Downgradient	04/17/2018	6.9	255	10	**750**	**1100**	<1	<0.025	<1	**5.01**	**73500**	**9150**	<1	<0.2	<0.3	NA
MW-20BR	Open wetlands, S of CB-06, N of CB-05	1982 Basin	Downgradient	07/18/2018	6.8	281	10	**700**	**1100**	<1	<0.025	<1	**7.19**	**69000**	**9620**	<1	<0.2	0.174 j	**13.34**
MW-20BR	Open wetlands, S of CB-06, N of CB-05	1982 Basin	Downgradient	11/19/2018	6.5	309	11	**640**	**1000**	<1	<0.025	<1	**8.28**	**70300**	**10200**	<1	<0.2	<0.3	2.135
MW-21D	SW of 1982 basin, NE of MW-22BR/D	1982 Basin	Downgradient	02/08/2018	**5.2**	81	29	23	76	<1	<0.12 D3	<1	**1.66**	**1720**	**238**	<1	<0.2	<0.3	0.626
MW-21D	SW of 1982 basin, NE of MW-22BR/D	1982 Basin	Downgradient	04/19/2018	**5.1**	77	34	24	86	<1	0.046	0.427 j	**1.26**	**1800**	**235**	<1	0.095 j	0.192 j	2.705
MW-21D	SW of 1982 basin, NE of MW-22BR/D	1982 Basin	Downgradient	07/10/2018	**4.8**	79	33	30	85	<1	0.032 M1,R1	0.479 j	**1.52**	**1570**	**248**	0.443 j	<0.2	0.181 j	4.482
MW-21D	SW of 1982 basin, NE of MW-22BR/D	1982 Basin	Downgradient	11/08/2018	**5.3**	81	32	23	120	<1	<0.025	<1	0.852 j	**1020**	**237**	<1	<0.2	<0.3	1.221
MW-22BR	SW of 1982 basin,in I-26 right-of-way	1982 Basin	Sidegradient	02/08/2018	**5.9**	<50	54	16	150	<1	<0.12 D3	<1	<1	**17000**	**422**	<1	<0.2	<0.3	2.038
MW-22BR	SW of 1982 basin,in I-26 right-of-way	1982 Basin	Sidegradient	04/19/2018	**5.7**	<50	58	17	150	<1	0.045	<1	0.345 j	**15800**	**431**	<1	<0.2	0.12 j	4.09
MW-22BR	SW of 1982 basin,in I-26 right-of-way	1982 Basin	Sidegradient	07/10/2018	**6.3**	<50	54	18	140	<1	<0.025	<1	0.36 j	**17300**	**372**	<1	0.12 j	**0.497 B2**	**5.503**
MW-22BR	SW of 1982 basin,in I-26 right-of-way	1982 Basin	Sidegradient	11/08/2018	**6.0**	<50	60	16	190	<1	<0.025	<1	0.434 j	**15900**	**409**	<1	<0.2	0.208 j	3.91
MW-22D	SW of 1982 basin,in I-26 right-of-way	1982 Basin	Sidegradient	02/08/2018	**5.1**	<50	47	9.4	94	<1	0.6	<1	<1	20	**159**	<1	<0.2	<0.3	0.446
MW-22D	SW of 1982 basin,in I-26 right-of-way	1982 Basin	Sidegradient	04/19/2018	**5.0**	<50	51	8.8	100	<1	0.59	0.744 j	0.394 j	4.2 j	**160**	<1	**0.204**	0.166 j	1.791
MW-22D	SW of 1982 basin,in I-26 right-of-way	1982 Basin	Sidegradient	07/10/2018	**4.8**	<50	52	13	88	<1	0.61	1.11	0.387 j	4.789 j	**144**	<1	0.13 j	0.231 j	1.315
MW-22D	SW of 1982 basin,in I-26 right-of-way	1982 Basin	Sidegradient	11/08/2018	**4.9**	<50	55	9	120	<1	0.59	0.647 j	0.371 j	6.004 j	**168**	<1	0.144 j	0.192 j	1.044
MW-23BR	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	02/08/2018	**9.6**	<50	6.3	23	210	<1	<0.12 D3	**17.9**	<1	**1870**	24	<1	<0.2	**3.78**	NA
MW-23BR	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	04/19/2018	**9.0**	42.096 j	6	46	NA	**2.01**	0.096	2.31	<1	227	8	1.16	<0.2	**3.07**	NA
MW-23BR	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	07/11/2018	8.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-23BR	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	11/07/2018	8.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-23DL	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	02/08/2018	7.1	<50	3.1	16	130	<1	<0.12 D3,M1	<1	<1	**7910**	**71**	<1	<0.2	<0.3	NA
MW-23DL	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	04/19/2018	7.2	34.365 j	3.4	19	120	<1	<0.025	<1	<1	**12900**	**84**	<1	<0.2	<0.3	NA
MW-23DL	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	07/11/2018	7.1	35.339 j	3.6	20	170	<1	<0.025 M1,R1	<1	<1	**10600**	**81**	<1	0.18 j	0.157 j	NA
MW-23DL	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	11/07/2018	6.8	32.562 j	3.4	17	120	<1	<0.025	<1	<1	**10100**	**82**	<1	<0.2	<0.3	NA
MW-23DU	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	02/08/2018	**5.5**	74	8	15	55	<1	0.21	<1	**1.5**	**374**	**99**	<1	<0.2	**0.331**	NA
MW-23DU	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	04/19/2018	**5.7**	72	8.6	15	44	<1	0.2	<1	**1.73**	**506**	**113**	<1	0.11 j	0.269 j	NA
MW-23DU	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	07/11/2018	**5.2**	71	8.7	14	86	<1	0.18	0.341 j	**1.46**	**352**	**93**	<1	0.141 j	0.237 j	NA
MW-23DU	S of Arden Dr, N of New Rockwood Rd	1982 Basin	Sidegradient	11/07/2018	**5.5**	69	8.3	15	43	<1	0.24	0.468 j	**1.19**	174	**106**	<1	<0.2	0.146 j	NA
MW-24BR	E of plant adjacent to Lake Julian	---	Background	04/26/2018	7.9	<50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-24S	E of plant adjacent to Lake Julian	---	Background	02/06/2018	**5.4**	<50	13	0.62	46	<1	0.28	<1	<1	46	**120**	<1	<0.2	<0.3	0.35
MW-24S	E of plant adjacent to Lake Julian	---	Background	04/18/2018	**4.9**	18.275 j	14	0.7	27	<1	0.28	<1	0.792 j	13	**122**	<1	0.123 j	0.162 j	3.248
MW-24S	E of plant adjacent to Lake Julian	---	Background	07/10/2018	**4.6**	<50	14	0.76	41	<1	0.3	0.403 j	0.782 j	5.592 j	**127**	<1	0.091 j	**0.425 B2**	1.576
MW-24S	E of plant adjacent to Lake Julian	---	Background	11/07/2018	**5.1**	<50	14	0.65	<25	<1	0.35	0.594 j	0.75 j	6.521 j	**117**	<1	<0.2	0.151 j	1.309
MW-25BR	E of FBR, SE of MW-17A	1964 Basin	Downgradient	01/09/2018	6.6	**866**	140	160	**580**	<1	<0.025	<1	<1	209	**164**	<1	<0.2	**0.812**	0.759
MW-25BR	E of FBR, SE of MW-17A	1964 Basin	Downgradient	04/16/2018	**6.3**	**885**	120	180	500	<1	<0.025	<1	0.791 j	**852**	**126**	<1	<0.2	**0.415**	NA
MW-25BR	E of FBR, SE of MW-17A	1964 Basin	Downgradient	07/17/2018	**6.2**	**934**	120	180	**620**	<1	0.052	<1	0.385 j	**560**	**95**	<1	<0.2	**0.51**	1.156
MW-25BR	E of FBR, SE of MW-17A	1964 Basin	Downgradient	11/14/2018	**6.5**	**955**	99	180	490	<1	<0.025	0.431 j	0.562 j	**636**	**87**	<1	<0.2	**0.444**	1.517
MW-25BRL	E of FBR, SE of MW-17A	1964 Basin	Downgradient	01/09/2018	6.9	617	89	**470**	**1100**	<1	<0.025	<1	**1.02**	**2840**	**3990**	<1	<0.2	**0.396**	**14.32**
MW-25BRL	E of FBR, SE of MW-17A	1964 Basin	Downgradient	04/16/2018	7.1	692	96	**550**	**1100**	<1	0.036	<1	<1	**1890**	**2480**	<1	<0.2	0.262 j	NA
MW-25BRL	E of FBR, SE of MW-17A	1964 Basin	Downgradient	07/17/2018	6.8	414	48	**670**	**1200**	<1	<0.025	<1	<1	**4210**	**5770**	<1	<0.2	0.188 j	**6.85**
MW-25BRL	E of FBR, SE of MW-17A	1964 Basin	Downgradient	11/14/2018	7.5	320	28	**770**	**1300**	<1	<0.025	<1	<1	**6120**	**6740**	<1	<0.2	**0.483**	**5.45**
MW-25S	E of FBR, SE of MW-17A	1964 Basin	Downgradient	01/09/2018	**5.5**	**1750**	210	140	**690**	<1	<0.025 M1	<1	**7.5**	131	**1870**	<1	<0.2	**0.479**	1.167

ASHEVILLE
01/24/2019
BRANDON RUSSO
TODD PLATING

Reporting Units		PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS					INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
	S.U.	ug/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	pCi/L
15A NCAC 02L Standard	6.5-8.5	700	250	250	500	1*	10	10	1*	300	50	20	0.2*	0.3*	5^
Provisional Background (Alluvial Unit)	4.6-5.1	50	15	4.6	56	1	0.42	5	4.29	598	363	1	0.2	0.3	4.17
Provisional Background (Saprolite Unit)	4.3-5.8	50	14	50	104.9	1	1.313	5	6.9	941	725	1.88	0.2	0.625	6.832
Provisional Background (Transition Unit)	3.9-7.0	50	6.7	5.467	72.77	1	0.261	1.32	4.608	779	380	1	0.2	0.41	6.61
Provisional Background (Bedrock Unit)	4.1-8.1	50	6.5	5.6	131.5	1	0.423	1.3	1	1246	93	1	0.2	0.632	5.8

					PARAMETERS 40CFR257 APPENDIX III CONSTITUENTS					INORGANIC PARAMETERS (TOTAL CONCENTRATION)									IONUCLI
Sample ID	Location Description	Associated Unit	Location with Respect to Groundwater Flow Direction	Sample Collection Date	pH	Boron	Chloride	Sulfate	Total Dissolved Solids	Antimony	Chromium (VI)	Chromium	Cobalt	Iron	Manganese	Selenium	Thallium	Vanadium	Total Radium
MW-25S	E of FBR, SE of MW-17A	1964 Basin	Downgradient	04/16/2018	**5.3**	**1880**	190	150	**580**	<1	<0.025	<1	**3.54**	130	**1920**	<1	0.114 j	**0.412**	NA
MW-25S	E of FBR, SE of MW-17A	1964 Basin	Downgradient	07/17/2018	**5.0**	**2070**	180	130	**760**	<1	<0.025	<1	**2.59**	88	**1840**	<1	<0.2	**0.328**	NA
MW-25S	E of FBR, SE of MW-17A	1964 Basin	Downgradient	11/14/2018	**5.3**	**2110**	160	150	**580**	<1	0.029	0.336 j	**2.47**	109	**1790**	<1	<0.2	**0.345**	NA
MW-26BR	E of FBR, SE of CB-07	1964 Basin	Downgradient	11/14/2018	7.1	**973**	45	180	**510**	<1	<0.025	<1	0.379 j	**11200**	**1920**	<1	<0.2	0.278 j	4.72
MW-26BRL	E of FBR, SE of CB-07	1964 Basin	Downgradient	01/10/2018	6.8	533	33	150	410	<1	<0.025	<1	**3.77**	**20000**	**1760**	<1	<0.2 B3	**0.554**	4.97
MW-26BRL	E of FBR, SE of CB-07	1964 Basin	Downgradient	04/17/2018	6.8	642	33	150	400	<1	<0.025	<1	**2.65**	**23600**	**2220**	<1	<0.2	**0.394**	NA
MW-26BRL	E of FBR, SE of CB-07	1964 Basin	Downgradient	07/18/2018	**6.0**	**714**	38	180	390	<1	<0.025	<1	**3.18**	**19500**	**1610**	<1	<0.2	0.196 j	**8.79**
MW-26BRL	E of FBR, SE of CB-07	1964 Basin	Downgradient	11/14/2018	**13.1**	43.809 j	33	180	**1700**	**5.89**	1.3	5.66	0.433 j	131	15	1.33	<0.2	**28.1**	4.62
MW-26S	E of FBR, SE of CB-08	1964 Basin	Downgradient	01/10/2018	**5.8**	697	58	**350**	**640**	<1	<0.025	<1	**92.6**	**26300**	**14000**	<1	<0.2 B3	**0.705**	<RL
MW-26S	E of FBR, SE of CB-08	1964 Basin	Downgradient	04/17/2018	**5.8**	575	46	**270**	460	<1	<0.025	<1	**101**	**32300**	**10200**	<1	0.167 j	0.223 j	NA
MW-26S	E of FBR, SE of CB-08	1964 Basin	Downgradient	07/18/2018	**5.6**	662	46	**260**	470	<1	<0.025	<1	**83**	**30900**	**8840**	<1	**0.22**	**0.317**	NA
MW-26S	E of FBR, SE of CB-08	1964 Basin	Downgradient	11/13/2018	**5.7**	**710**	60	240	420	<1	<0.025	<1	**93.2**	**25500**	**9110**	<1	**0.242**	0.162 j	NA
P-103	On dam between 1964 and 1982 basins	1982 Basin	Sidegradient	02/08/2018	**5.4**	418	12	65	120	<1	<0.25 D3	**11.8**	**30.2**	**1940**	**11300**	<1	<0.2	**2.2**	NA
P-103	On dam between 1964 and 1982 basins	1982 Basin	Sidegradient	04/18/2018	**5.2**	477	13	76	140	<1	0.051	**44.4**	**27.4**	**940**	**11900**	<1	0.131 j	**0.67**	NA
P-103	On dam between 1964 and 1982 basins	1982 Basin	Sidegradient	07/10/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
P-103	On dam between 1964 and 1982 basins	1982 Basin	Sidegradient	11/14/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PRW-05	211 Sumner Dr	---	West of French Broad River	02/02/2018	6.6	<50	0.52	0.52	68	<1	0.12	<1	<1	192	<5	<1	<0.2	**1.26**	2.4368
PRW-10	206 Sumner Dr	---	West of French Broad River	02/19/2018	6.6	<50	0.89	1.6	69	<1	0.22	<1	<1	40	<5	<1	<0.2	**0.537**	NA
PZ-16	On dam between SW corners of 1964 and 1982 basins	1964 Basin	Sidegradient	04/26/2018	**6.2**	518	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ-17BRL	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	01/10/2018	6.8	660	8.8	120	340	<1	<0.025	**20.2**	**10.3**	**670**	**2550**	8.9	<0.2 B3	**0.507**	1.79
PZ-17BRL	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	04/18/2018	**6.3**	681	6.3	110	290	<1	<0.025	0.513 j	**5.75**	**941**	**2070**	4.03	<0.2	**0.408**	NA
PZ-17BRL	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	07/11/2018	**6.4**	675	6	110	300	0.454 j	<0.025	<1	**2.74**	**477**	**1100**	8.5	0.171 j	**0.484**	2.664
PZ-17BRL	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	11/07/2018	**6.3**	671	5.3	100	240	<1	0.044 M1	1.47	**1.79**	187	**577**	11.5	<0.2	**0.355**	2.032
PZ-17D	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	02/05/2018	**6.0**	**711**	6	100	300	<1	0.037	<1	**1.34**	<10	**67**	15.5	<0.2	<0.3	1.42
PZ-17D CCR	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	02/05/2018	**6.0**	**739**	6.1	120	290	<1	NA	<1	**1.15**	NA	NA	16.7	<0.2	NA	2.45
PZ-17D	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	04/18/2018	**5.8**	**721**	5.5	110	260	<1	0.079	<1	0.475 j	4.737 j	14	19.8	<0.2	0.21 j	**5.09**
PZ-17D CCR	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	04/18/2018	**5.8**	**754**	5.4	110	250	<1	NA	<1	0.438 j	NA	NA	**20.2**	<0.2	NA	0.607
PZ-17D	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	07/10/2018	**6.0**	694	5.6	110	240	<1	0.088 M1,R1	<1	0.406 j	7.7 j	3.151 j	**20.2**	0.134 j	**0.396 B2**	1.987
PZ-17D	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	11/07/2018	**6.0**	680	5.1	99	220	<1	0.11	<1	0.434 j	6.238 j	2.191 j	**20.6**	**0.332**	<0.3	2.025
PZ-17D CCR	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	11/07/2018	**6.0**	698	5	100	220	<1	NA	<1	0.409 j	NA	NA	**21**	<0.2	NA	2.721
PZ-17S	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	02/05/2018	**5.0**	52	2.1	18	59	<1	0.08	<1	**1.08**	164	32	8.92	<0.2	**0.46**	2.651
PZ-17S CCR	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	02/05/2018	**5.0**	53	2.2	18	70	<1	NA	<1	<1	NA	NA	9.17	<0.2	NA	4.61
PZ-17S	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	04/18/2018	**4.8**	48.204 j	2.1	19	28	<1	0.091	<1	0.711 j	20	30	8.96	0.104 j	0.169 j	3.3
PZ-17S CCR	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	04/18/2018	**4.8**	47.292 j	4.1	17	45	<1	NA	0.354 j	0.674 j	NA	NA	8.78	<0.2	NA	2.331
PZ-17S	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	07/10/2018	**5.3**	40.673 j	2.2	19	35	<1	0.067	1.01	0.562 j	28	25	8.27	0.109 j	**0.359 B2**	3.29
PZ-17S	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	11/07/2018	**5.1**	44.616 j	2.2	17	30	<1	0.075	<1	0.992 j	19	32	8.8	0.098 j	0.117 j	3.05
PZ-17S CCR	On dam SW of 1964 basin and W of 1982 basins	1964 Basin	Downgradient	11/07/2018	**5.1**	43.955 j	2.2	16	25	<1	NA	<1	**1.05**	NA	NA	8.74	0.11 j	NA	2.83
PZ-19	W of 1982 basin	1982 Basin	Downgradient	02/05/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ-19	W of 1982 basin	1982 Basin	Downgradient	07/10/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PZ-19	W of 1982 basin	1982 Basin	Downgradient	11/07/2018	NM	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

COLOR NOTES

Bold highlighted concentration indicates exceedance of the 15A NCAC 02L .0202 Standard or the IMAC. (Effective date for 15A NCAC 02L .0202 Standard and IMAC is April 1, 2013)

Turbidity of Sample ≥ 10 NTUs

Provisional Background Threshold Values reflect the values represented in the NCDEQ letter dated 10/11/2017.

Analytical data review has not been completed for this dataset.

ABBREVIATION NOTES	
BGS - below ground surface	mV - millivolts
BOD - Biologic Oxygen Demand	NA - Not available or Not Applicable
CB - Compliance Boundary	ND - Not detected
COD - Chemical Oxygen Demand	NE - Not established
Deg C - Degrees Celsius	NM - Not measured
DMAs - dimethylarsinic acid	NTUs - Nephelometric Turbidity Units
DUP - Duplicate	pCi/L - picocuries per liter
Eh - Redox Potential	PSRG - Primary Soil Remediation Goals
ft - Feet	RL - Reporting Limit
GPM - gallons per minute	SeCN - selnocynante
IMAC - Interim Maximum Allowable Concentrations. From the 15A NCAC 02L Standard, Appendix 1, April, 1, 2013.	SeMe (IV) - Selenomethionine
meq/100g - millequivalents per 100 grams	SPLP - Synthetic Precipitation Leaching Procedure
MDC - Minimum Detectable Concentration	S.U. - Standard Units
MeSe - Methylseleninic acid	TCLP - Toxicity Characteristic Leaching Procedure
mg/kg - milligrams per kilogram	ug/L - micrograms per liter
mg/L - milligrams per liter	ug/mL - microgram per milliliter
mg-N/L - Milligram nitrogen per liter	umhos/cm - micromhos per centimenter
MMAs - monomethylarsonic acid	Well Locations referenced to NAD83 and elevations referenced to NAVD88

mV - millivolts
NA - Not available or Not Applicable
ND - Not detected
NE - Not established
NM - Not measured
NTUs - Nephelometric Turbidity Units
pCi/L - picocuries per liter
PSRG - Primary Soil Remediation Goals
RL - Reporting Limit
SeCN - selnocynante
SeMe (IV) - Selenomethionine
SPLP - Synthetic Precipitation Leaching Procedure
S.U. - Standard Units
TCLP - Toxicity Characteristic Leaching Procedure
ug/L - micrograms per liter
ug/mL - microgram per milliliter
umhos/cm - micromhos per centimenter
Well Locations referenced to NAD83 and elevations referenced to NAVD88