



**REPORT**

# 2019 Semi-Annual Groundwater Monitoring & Corrective Action Report

*Georgia Power Company - Plant McDonough-Atkinson*

*Ash Pond 2, Ash Pond 3, and Ash Pond 4*

Submitted to:

**Georgia Power Company**

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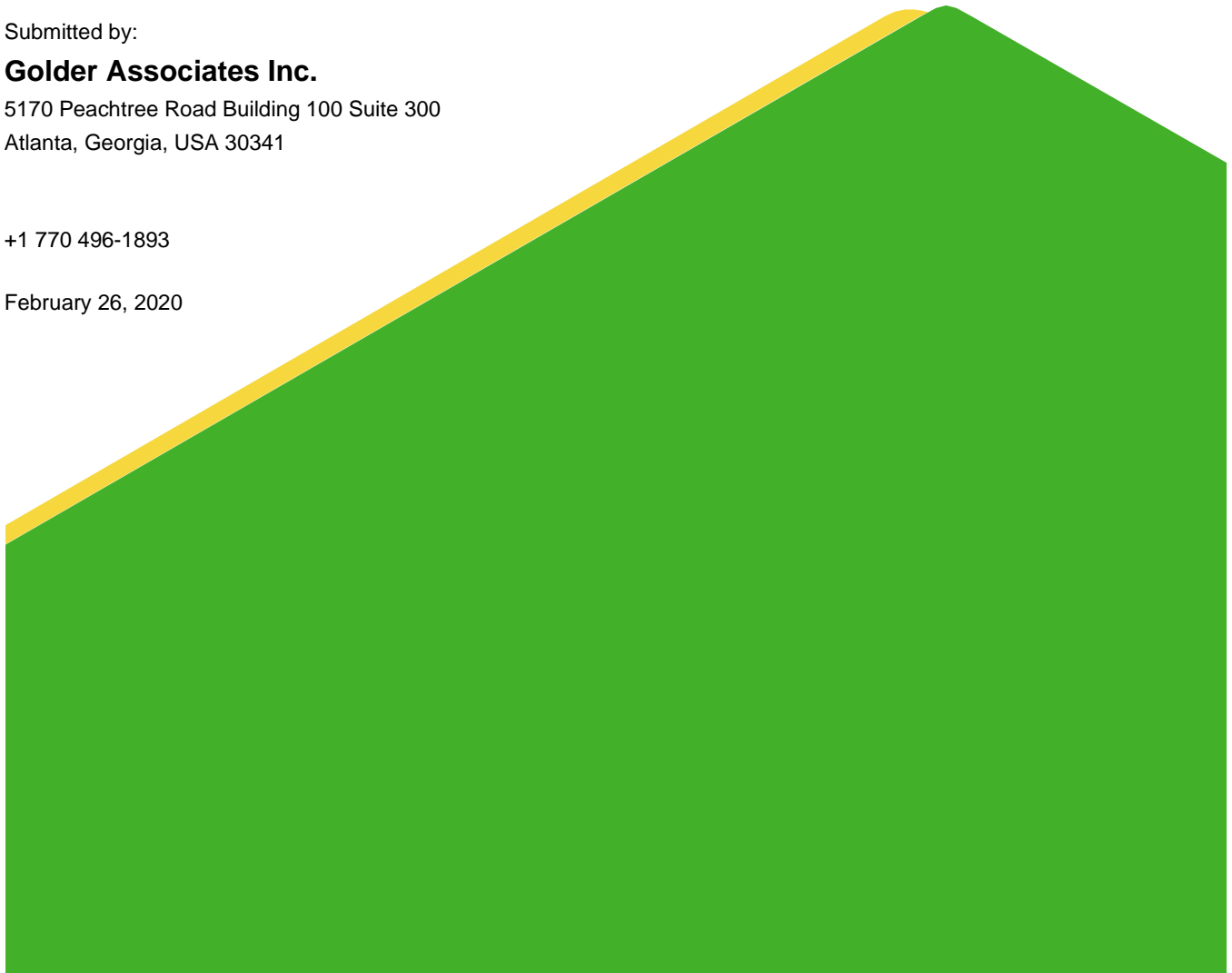
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## Certification

This 2019 Semi-Annual Groundwater Monitoring & Corrective Action Report, Georgia Power Company - Plant McDonough-Atkinson – Ash Pond 2 (AP-2), Ash Pond 3 (AP-3), and Ash Pond 4 (AP-4) has been prepared in compliance with the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10 (6)(a-c) by a qualified groundwater scientist or engineer with Golder Associates Inc.

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## 1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule (40 Code of Federal Regulations [CFR] 257 Subpart D) and the Georgia Environmental Protection Division (EPD) Rules for Solid Waste Management 391-3-4-.10, this *2019 Semi-Annual Groundwater Monitoring and Corrective Action Report* was prepared to document groundwater monitoring activities conducted at Georgia Power Company's (GPC's) Plant McDonough Ash Pond 2 (AP-2), Ash Pond 3 (AP-3), and Ash Pond 4 (AP-4) and satisfies the requirements of § 257.90(e). To specify groundwater monitoring requirements, GA EPD rule 391-3-4-.10(6)(a) incorporates by reference the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule (40 Code of Federal Regulations [CFR] 257 Subpart D). For ease of reference, the US EPA CCR rules are cited within this report.

Two monitoring events were conducted during this monitoring period: (1) an initial assessment monitoring event was conducted in August 2019 as a result of statistical exceedances during the first detection monitoring event, and (2) the subsequent assessment event conducted in October 2019, which served as the semi-annual compliance monitoring event for the year. This report documents the activities completed through the second half of 2019 at AP-2 and AP-3/4, which are monitored as a multi-unit monitoring system.

### 1.1 Site Description and Background

Plant McDonough-Atkinson (Plant McDonough), formerly a coal-fired power generating facility, was converted to a natural gas combined-cycle power generating facility in 2011. Located approximately 7 miles northwest of Atlanta in southeast Cobb County (5551 South Cobb Dr SE, Atlanta, GA 30339), the property occupies approximately 390 acres and is bounded on the southeast by the Chattahoochee River. A site location map is included as Figure 1.

Four CCR surface impoundments are located on-site: Ash Pond 1 (AP-1), Ash Pond 2 (AP-2), Ash Pond 3 (AP-3) and Ash Pond 4 (AP-4). AP-3 and AP-4 were historically operated together and are being closed as a Combined Unit AP- 3/4. A notification of intent to initiate closure of the inactive CCR surface impoundment was certified on December 7, 2015 for AP-2 and December 8, 2015 for AP-3 and AP-4 and posted to GPC's website. A permit application package for AP-2, AP-3, and AP-4 was submitted to Georgia EPD in November 2018 and is currently under review.

Groundwater monitoring and reporting for AP-2, AP-3, and AP-4 are being performed in order to meet the alternate schedule in § 257.100(e)(5) of the revised USEPA CCR rule (August 5, 2016) and being done so as a combined multi-unit AP-2 and AP-3/4.

### 1.2 Regional Geology and Hydrogeologic Setting

The following section and subsections include a general description of regional geologic and hydrogeologic characteristics of formations that occur beneath the site.

The site is located in the Piedmont/Blue Ridge geologic province, which contains some of the oldest rock formations in the southeastern United States. These late Precambrian to late Paleozoic rocks have undergone repeated cycles of igneous intrusions and extrusions, metamorphism, folding, faulting, shearing, and silicification. Rock outcrops near the site consist of biotite gneiss, porphyritic gneiss, mica schist, and quartzite.

Residual soils, primarily clayey/sandy silt, sandy silt with clay, and silty sand, occur as a variably-thick blanket overlying bedrock across most of the site. These residual saprolitic soils along with saprolitic transitionally or

partially weathered rock, collectively the overburden, range between approximately 9 to 61 feet in thickness across the site, with an average thickness of approximately 38 feet. Saprolitic rock is considered to be transitionally weathered rock or partially weathered rock (PWR). PWR is defined by Standard Penetration Test (SPT) blow counts that exceed 50 blows/six inches.

A regional, unconfined surficial aquifer system is present at the site, existing within the overburden and weathered and fractured upper bedrock (e.g., approximate first 30 feet), depending on topographic location. Recharge primarily occurs through precipitation and subsequent infiltration. Generally, groundwater flow occurs through intergranular pore spaces in the overburden and is controlled by topography and top of rock variations. However, a relatively higher transmissive zone is interpreted to occur at the base of the overburden, at the interface of weathered bedrock and competent bedrock and is believed to be the primary groundwater flow path. The overburden has an average horizontal hydraulic conductivity of  $10^{-4}$  centimeters per second (cm/s) and is interpreted to flow south-southeast.

A limited and localized bedrock aquifer system also occurs beneath the site. The upper bedrock is fractured and weathered, connected hydraulically with the overburden groundwater, and is considered part of the uppermost aquifer. The overlying silt/clay-rich overburden may act to retard recharge into the bedrock aquifer system. However, deeper bedrock (i.e., approximately 30 feet into the bedrock) is unweathered with few discontinuities (e.g., fractures) available to store groundwater.

### 1.3 Groundwater Monitoring Network

Pursuant to § 257.91, a groundwater monitoring system was installed within the uppermost aquifer at AP-2 and AP-3/4 (AP-2, 3/4) to monitor groundwater passing the waste boundary. Wells were located to monitor upgradient and downgradient groundwater conditions based on groundwater flow direction. The monitoring well network was certified by a Professional Engineer in Georgia on April 17, 2019, and the certification is maintained in the Operating Record pursuant to § 257.90(f).

The certified monitoring well network for AP-2, 3/4 consists of three (3) upgradient monitoring wells and twenty (20) downgradient monitoring wells (Figure 2). Table 1A includes well construction details for the AP-2, 3/4 monitoring well network. Additionally, a series of piezometers were installed at AP-2, 3/4 to measure groundwater elevations. Table 1B includes construction details for these piezometers.

## 2.0 GROUNDWATER MONITORING ACTIVITIES

The following section describes monitoring-related activities for sampling performed during the second semiannual period of 2019. Groundwater sampling was performed in accordance with 40 CFR § 257.93. Samples were collected from each well in the certified monitoring network. The location of each of these monitoring wells is shown on Figure 2.

Table 2, Groundwater Sampling Event Summary, presents a summary of groundwater sampling events completed for AP-2, 3/4.

### 2.1 Monitoring Well Installation and Maintenance

There was no change to the certified groundwater monitoring system in the second half of 2019 and has remained the same since 2019.

In summary, monitoring well-related activities included the following:

- Visual inspection and documentation of well conditions and performing exterior maintenance on wells as needed.
- Installation of additional site monitoring wells as part of ongoing site investigations. Additional monitoring wells installed at Plant McDonough are documented in a report, *Well Design, Installation, Development and Decommissioning Report-Georgia Power Company-Plant McDonough Atkinson-Ash Pond 1, Ash Pond 2, Ash Pond 3, and Ash Pond 4 dated February X, 2020 (Appendix C)*.

Monitoring well and piezometer construction details are presented on Tables 1A and 1B, respectively, and the locations of each are shown on Figures 2 and 3, respectively.

## 2.2 Assessment Monitoring

Statistically Significant Increases (SSI) of Appendix III constituents were identified in the initial detection monitoring event (March 2019). Pursuant to § 257.94(e), (3), an assessment monitoring program has been established for AP-2, 3/4 at Plant McDonough based on the SSIs documented in the *2019 Annual Groundwater Monitoring and Corrective Action Report*, (Golder, 2019). A notice of assessment monitoring was placed in the operation record on November 13, 2019.

In accordance with § 257.95, groundwater sampling events were conducted for AP-2, 3/4 during March, August, and October 2019. During the initial assessment monitoring event in August 2019, groundwater samples were collected and analyzed for the full suite of Appendix IV constituents to meet the requirement §257.95(b). During the subsequent October 2019 semi-annual sampling event, groundwater samples were collected for the Appendix III parameters and those Appendix IV constituents detected in the August 2019 event. Results of sampling activities conducted in the second half of 2019 are presented in Appendix A, Analytical Data Summary, Analytical Results, Field Data Forms, and Data Validation Summaries.

## 3.0 SAMPLE METHODOLOGY AND ANALYSIS

Two monitoring events (and resampling) were conducted during this monitoring period: (1) an initial assessment monitoring event was conducted in August 2019 as a result of statistical exceedances during the first detection monitoring event, and (2) the subsequent assessment event conducted in October 2019, which served as the semi-annual compliance monitoring event for the year. The following sections describe the methods used to conduct groundwater monitoring at the Site.

### 3.1 Groundwater Elevation Measurement

Prior to each sampling event, groundwater levels were measured at monitoring wells and piezometers. Groundwater elevations recorded during background, detection, and assessment monitoring events are summarized in Table 3.

Groundwater level data from the uppermost aquifer measured in October 2019 indicate the water table elevation ranges between approximately 835 feet above mean sea level (msl) at upgradient well DGWA-53 to approximately 741 feet msl at downgradient piezometer B-84. The October 2019 groundwater elevation data were used to develop a generalized potentiometric surface map of the uppermost aquifer (Figure 3). Localized groundwater flow directions within this aquifer are influenced by topographic and top of rock variations on site. AP-3/4 is on a topographic high, creating radial flow around the ponds, with the exception of the one upland high upgradient of AP-3/4. Dewatering at AP-4 is creating an upgradient area northeast of AP-3/4. Currently, AP-2 is over excavated into subgrade soils, creating a topographic low point and low hydraulic gradient. Regionally

groundwater is interpreted to flow south-southeast from the topographic high northwest of AP-3/4 towards AP-2. The groundwater flow pattern interpreted using the October 2019 elevation data is consistent with previous observations.

### 3.2 Groundwater Gradient and Flow Velocity

Hydraulic gradient is calculated as the difference in groundwater elevation (in feet) divided by the distance between two piezometers or wells (in feet). October 2019 groundwater elevation data from three piezometer and/or well pairings; DGWA-53/DGWC-13, DGWA-71/DGWC-5, and B-26/DGWC-48, located along the groundwater flow path and perpendicular to the potentiometric contours were used to calculate hydraulic gradients for AP-2, 3/4. The hydraulic gradients for these pairings are 0.030 feet per foot (ft/ft), 0.036 ft/ft, and 0.028 ft/ft, respectively. An overall average hydraulic gradient for AP-2, 3/4 derived using these individual calculated gradients is 0.031 ft/ft.

Average groundwater flow velocities at the site were calculated using hydraulic gradient data, hydraulic conductivity data generated from slug testing results, and an estimated effective porosity of the screened portion of the uppermost aquifer. Based on slug test data, the average hydraulic conductivity for the uppermost aquifer is  $5.0 \times 10^{-4}$  centimeters per second (cm/s),  $8.4 \times 10^{-4}$  cm/s in the overburden and  $1.6 \times 10^{-4}$  cm/s in the upper bedrock, respectively. Assumed effective porosity of 20 percent for overburden was used based on the default values for effective porosity recommended by USEPA for a silty sand-type soil (USEPA, 1996). Assumed effective porosity of 9 percent was used for bedrock (Daniel and Dahlen, 2002; Dowd and Marshall, 1995). The hydraulic gradient was calculated between well pairs as discussed above and shown on Table 4.

Horizontal flow velocity was calculated using the commonly used derivative of Darcy's Law:

$$V = \frac{K * i}{n_e} \quad \text{Where:}$$

$V =$  Groundwater flow velocity  $\left( \frac{\text{feet}}{\text{day}} \right)$

$K =$  Average hydraulic conductivity of the aquifer  $\left( \frac{\text{feet}}{\text{day}} \right)$

$i =$  Horizontal hydraulic gradient  $\left( \frac{\text{feet}}{\text{feet}} \right)$

$n_e =$  Effective porosity

Using this equation, groundwater flow velocities were calculated for AP-2, 3/4 using October 2019 groundwater elevation data. Table 4 presents the velocities calculated using groundwater elevation data from the October 2019 sampling event.

Calculated (horizontal) flow velocities range from approximately 127 feet per year (ft/yr) to 157 ft/yr and 54 ft/yr to 66 ft/yr in the regolith and upper bedrock. These estimated flow velocities are also generally consistent with other published velocities for regolith-upper bedrock aquifers of the Piedmont (Heath, R.C., 1982).

### 3.3 Groundwater Sampling

Groundwater samples were collected during August and October 2019 in accordance with § 257.93(a) and 391-3-4-.10(6). Monitoring wells were purged and sampled using low-flow sampling procedures. Non-dedicated, low-flow pneumatic bladder pumps and peristaltic pumps were used to purge and sample the wells. Field

equipment was decontaminated prior to use and between wells using USEPA Science and Ecosystem Support Division (SESD) Operating Procedure for Field Equipment Cleaning and Decontamination as a guide (USEPA, 2015). An In Situ SmarTroll was used to monitor and record field water quality parameters [temperature, specific conductance, dissolved oxygen (DO), pH, and oxidation-reduction potential (ORP)] during purging. Turbidity was monitored using a LaMotte 2020we turbidimeter. Groundwater samples were collected when the following stabilization criteria were met for a minimum of three consecutive readings:

- $\pm 0.1$  standard units for pH
- $\pm 5\%$  for specific conductance
- $\pm 10\%$  for DO where  $DO > 0.5$  mg/L; if  $DO < 0.5$  milligrams per liter (mg/L), no stabilization criteria apply
- $\leq 5$  Nephelometric Turbidity Units (NTUs) for turbidity

Any deviation from stabilization criteria, if applicable, is identified on field sampling forms. Where sample turbidity was greater than 5 NTU and all other stabilization criteria were met, samplers continued purging for up to 3 additional hours in order to reduce the turbidity to 5 NTU or less. If turbidity remained above 5 NTU, but was less than 10 NTU, and all other parameters were stabilized, the well was sampled. Where turbidity remained above 10 NTU, an unfiltered sample was collected followed by a filtered sample that passed through an in-line 0.45-micron filtered attached to the discharge (sample collection) tube. The unfiltered sample data are used for compliance monitoring and in the statistical analysis database. Filtered sample data are used to assess the impacts of turbidity on groundwater quality. Additional details regarding filtered samples are recorded on the field information form and filtered samples are clearly identified as “filtered” on the laboratory reports.

Following well stabilization, unfiltered samples were collected directly into appropriately preserved laboratory supplied sample containers, placed in ice-packed coolers, and submitted to the laboratory following standard chain-of-custody protocol. Field information forms, generated directly from the SmarTroll®, and chain-of-custody records are included in Appendix A.

### 3.4 Laboratory Analysis

Groundwater samples were collected during two groundwater monitoring events in the second half of 2019. Since AP-2, 3/4 is currently in assessment monitoring, groundwater samples from wells in the assessment monitoring program were analyzed for Appendix III and detected Appendix IV monitoring parameters per 40 CFR Parts 257(d). Analytical methods used for groundwater monitoring parameters can be found in the analytical data reports in Appendix A.

Laboratory analyses for all events were performed by Pace Analytical Services, LLC (Pace) in Norcross, Georgia. Pace is accredited by the National Environmental Laboratory Accreditation Program (NELAP) and maintains NELAP certification for all parameters analyzed for this project. Groundwater data, chain-of-custody records, and NELAP certifications for the monitoring events are presented in Appendix A.

### 3.5 Quality Assurance and Quality Control

During each sampling event, quality assurance/quality control (QA/QC) samples were collected at a rate of one sample per every 10 samples. QA/QC samples included equipment blanks (where non-dedicated sampling equipment is used), field blanks, and duplicate samples. QA/QC sample data was evaluated during data validation (as described below) and is included in Appendix A.

Groundwater quality data in this report was independently validated in accordance with USEPA guidance (USEPA, 2011) and the analytical methods. Data validation generally consisted of reviewing sample integrity, holding times, laboratory method blanks, laboratory control samples, matrix spikes/matrix spike duplicate recoveries and relative percent differences (RPDs), post digestion spikes, laboratory and field duplicate RPDs, field and equipment blanks, and reporting limits. Where appropriate, validation qualifiers and flags were applied to the data using USEPA procedures as guidance (USEPA, 2017). Flagged data are identified in the statistical analysis reports in Appendix B and described in the following section.

A value followed by a "J" flag in tables and laboratory reports indicate that the value is an estimated analyte concentration detected between the method detection limit (MDL) and the laboratory reporting limit (RL). The estimated value is positively identified but is below the lowest level that can be reliably achieved within specified limits of precision and accuracy under routine laboratory operating conditions. "J" flagged data are used to establish background statistical limits but are not used when performing statistical analyses.

## 4.0 STATISTICAL ANALYSIS

Statistical analysis of Appendix III groundwater monitoring data was performed pursuant to 40 CFR § 257.93 and 391-3-4-.10(6) following the PE-certified statistical method for AP-2, 3/4 (Golder, 2019; Groundwater Stats Consulting, 2019). Pursuant to § 257.95(d)(2) GPC will establish groundwater protection standards for the Appendix IV monitoring parameters and complete statistical analysis of the Appendix IV groundwater monitoring data obtained during the first semi-annual assessment monitoring event within 90 days of obtaining the results. GPC will complete the assessment monitoring and statistical analysis in accordance with § 257.95 and report the results in the Annual Groundwater Monitoring and Corrective Action Report, due August 1, 2020.

### 4.1 Statistical Method

The selected statistical method for AP-2, 3/4 was developed in accordance with 40 CFR § 257.93(f), using methodology presented in Statistical Analysis of Groundwater Data at RCRA Facilities, Unified Guidance (USEPA, 2009). The Sanitas groundwater statistical software was used to perform statistical analyses. Sanitas is a commercially-available decision-support software package that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations and guidance as recommended in the USEPA(2009) document.

Groundwater monitoring data was statistically evaluated through the use of interwell prediction limits for Appendix III parameters with an optional 1-of-2 verification resampling plan. This method allows for upgradient well data to be used to establish a background statistical limit or prediction limit (PL). Downgradient well data is compared to the PL to determine whether any concentrations exceed background levels. If data from downgradient wells initially exceed the PL, a second sample (or resample) may be collected within 90 days to verify the initial result or determine if the result was an outlier. If the result of the resample confirms the PL exceedance, both values remain in the database and an SSI is declared. If the initial finding is not verified by resampling, the resampled value will replace the initial value and no SSI is declared.

Downgradient well data from the October 2019 assessment monitoring event was compared to background PLs to determine whether any concentrations exceed background levels. The Sen's Slope/Mann Kendall trend test was performed to evaluate concentrations over time and determine whether concentrations are statistically increasing, decreasing, or stabilizing.

The following table provides a summary of the statistical methodology used at AP-2, 3/4 for the October 2019 assessment monitoring event and will be used for any future routine detection or assessment monitoring.



PLANT MCDONOUGH AP-2, 3/4 STATISTICAL METHOD SUMMARY		
Monitoring Well Network	Upgradient Wells	DGWA-53, DGWA-70A, DGWA-71
	Downgradient Wells	DGWC-2, DGWC-4, DGWC-5, DGWC-8, DGWC-9, DGWC-10, DGWC-11, DGWC-12, DGWC-13, DGWC-14, DGWC-15, DGWC-17, DGWC-19, DGWC-20, DGWC-21, DGWC-22, DGWC-23, DGWC-42, DGWC-47, DGWC-48
CCR Monitoring Parameters	Appendix III (Detection Monitoring)	Boron, Calcium, Chloride, Fluoride, pH, Sulfate, TDS
	Appendix IV (Assessment Monitoring)	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, and Thallium, Radium (226 + 228)
Statistical Methodology	Data Screening on Proposed Background	Evaluate outliers, trends, and seasonality when sufficient data are available.
	Statistical Limits	Interwell statistical limits will be applied on a constituent basis, depending on the appropriateness of the method as determined by the Analysis of Variance.
	Prediction Limits	Parametric when data follow a normal or transformed normal distribution and when less than 50% non-detects, utilizing Kaplan Meier non-detect adjustment when applicable; nonparametric when data sets contain greater than 50% non-detects or when data are not normally or transformed-normally distributed.
	Confidence Intervals	Used in Assessment and Corrective Action monitoring.
	No Statistical Testing	Statistical testing is not required for parameters with 100% non-detects.
	Verification Resample Plan (Optional)	1-of-3 with minimum of 8 samples per well for interwell testing. <ul style="list-style-type: none"> <li>▪ Initial statistical exceedance warrants independent resampling within 90 days.</li> <li>▪ If resample passes, well/parameter is not a confirmed statistically significant increase (SSI).</li> <li>▪ If resample exceeds, well/parameter has a confirmed SSI.</li> <li>▪ If no resample is collected, the original result is deemed verified.</li> </ul>

The following statements are also applicable to the statistical analytical method:

- Statistical analyses are not performed on analytes containing 100% non-detects (USPEA Unified Guidance, 2009, Chapter 6).
- When data contain less than or equal to 15% no-detects in background, simple substitution of one-half the RL is utilized in the statistical analysis. The RL utilized for non-detects is the practical quantitation limit (PQL) as reported by the laboratory.

- When data contain between 15-50% non-detects, a non-detect adjustment such as the Kaplan-Meier or Regression on Order Statistics (ROS) method for adjustment of the mean and standard deviation will be used prior to constructing a parametric prediction limit.
- Nonparametric prediction limits are used on data containing greater than 50% non-detects.

## 4.2 Appendix III Statistical Analysis Results

Verification resampling to confirm initial SSIs was not performed; therefore, initial SSIs are considered verified. The statistical results of the October 2019 assessment monitoring event are included in Appendix B.

The verified SSIs from the October 2019 assessment monitoring event are presented in Table \*\*, as follows:

AP-2, 3/4 Inter-Well Prediction Limit Statistically Significant Increase Summary	
Appendix III Parameter	AP-2, 3/4 Monitoring Wells
Boron	DGWC-2, DGWC-4, DGWC-5, DGWC-8, DGWC-9, DGWC-10, DGWC-11, DGWC-12, DGWC-13, DGWC-15, DGWC-17, DGWC-19, DGWC-20, DGWC-21, DGWC-22, DGWC-23, DGWC-42, DGWC-47, DGWC-48
Calcium	DGWC-2, DGWC-4, DGWC-5, DGWC-8, DGWC-9, DGWC-10, DGWC-11, DGWC-12, DGWC-13, DGWC-19, DGWC-20, DGWC-21, DGWC-22, DGWC-23, DGWC-42, DGWC-48
Chloride	DGWC-4, DGWC-5, DGWC-8, DGWC-9, DGWC-10, DGWC-11, DGWC-12, DGWC-13, DGWC-15, DGWC-17, DGWC-19, DGWC-20, DGWC-21, DGWC-22, DGWC-23, DGWC-42, DGWC-47, DGWC-48
Fluoride	No exceedances
pH	DGWC-5, DGWC-8, DGWC-9, DGWC-10, DGWC-17, DGWC-19, DGWC-20, DGWC-42, DGWC-47, DGWC-48
Sulfate	DGWC-2, DGWC-4, DGWC-5, DGWC-8, DGWC-9, DGWC-10, DGWC-11, DGWC-12, DGWC-13, DGWC-14, DGWC-15, DGWC-17, DGWC-19, DGWC-20, DGWC-21, DGWC-22, DGWC-23, DGWC-42, DGWC-47, DGWC-48
Total Dissolved Solids	DGWC-2, DGWC-4, DGWC-5, DGWC-8, DGWC-9, DGWC-10, DGWC-11, DGWC-12, DGWC-13, DGWC-15, DGWC-17, DGWC-19, DGWC-20, DGWC-21, DGWC-22, DGWC-23, DGWC-42, DGWC-47, DGWC-48

Pursuant to §257.94(e)(3), an assessment monitoring program was initiated for AP-2, 3/4 at Plant McDonough based on SSIs documented in the 2019 Annual Groundwater Monitoring and Corrective Action Report, (Golder 2019). A notice of assessment monitoring was placed in the operation record on November 13, 2019.

## 4.3 Appendix IV Statistical Analyses

Pursuant to §257.95 and Georgia EPD rule 391-3-4-.10(6)(a), Appendix IV groundwater quality data will be statistically analyzed and compared to groundwater protection standards within 90 days of receiving data from the



first (October 2019) assessment monitoring event. GPC will complete the assessment monitoring and statistical analysis in accordance with § 257.95 and report the results in the Annual Groundwater Monitoring and Corrective Action Report, due August 1, 2020.

## 5.0 MONITORING PROGRAM STATUS

Following evaluation of Appendix III parameters, groundwater at Plant McDonough AP-1 has not returned to background conditions and will remain in assessment monitoring. Table 2 presents the status of each well within the certified monitoring network for AP-2, 3/4. GPC has initiated assessment monitoring in accordance with § 257.94(e)(1-3) and will evaluate the Appendix IV groundwater monitoring data in accordance with the requirements, and options of § 257.95 and Georgia EPD rule 391-3-4-.10(6)(a)

## 6.0 CONCLUSIONS AND FUTURE ACTIONS

This 2019 Semi-Annual Groundwater Monitoring & Corrective Action Report, Georgia Power Company Plant McDonough-Atkinson – Ash Pond 2 (AP-2), Ash Pond 3 (AP-3), and Ash Pond 4 (AP-4) was prepared to fulfill the requirements of USEPA CCR rule 40 CFR 257 Subpart D and Georgia EPD rule 391-3-4-.10.

Statistical evaluations of the groundwater monitoring data for AP-2, AP-3, and AP-4 identified SSIs of Appendix III groundwater monitoring parameters. GPC initiated assessment monitoring in accordance with the requirements of § 257.95. The next scheduled sampling event is scheduled for March 2020. During the next semi-annual reporting period of 2020, GPC will establish groundwater protection standards for Appendix IV constituents in accordance with § 257.95 and report the results in the Annual Groundwater Monitoring and Corrective Action Report, due August 1, 2020.

## 7.0 REFERENCES

- Daniel, C. C., 2002, Dahlen, P. R., *Preliminary Hydrogeologic Assessment and Study Plan for a Regional Ground-Water Resource Investigation of the Blue Ridge and Piedmont Provinces of North Carolina*, US Geological Survey, Water-Resources Investigations Report 02-4105, Raleigh, NC.
- Dowd, J. F., 1995, Marshall, J. E., *Recharge to High Yield Wells in the Piedmont*.
- Golder, 2019, *Statistical Analysis Method Certification, 40 CFR § 257.93(f), Ash Pond 1 (AP-1), Plant McDonough, Georgia Power Company*, April 2019.
- Groundwater Stats Consulting, 2019, *Georgia Power Company's Plant McDonough Ash Pond 1 (AP-1) Statistical Analysis Plan*, April 2019.
- Heath, R.C., 1982, Basic Ground-Water Hydrology. Water Supply Paper 2220. U.S. Geological Survey, Federal Center, Box 25425, Denver, Colorado.
- United States Environmental Protection Agency (USEPA), 1986, *RCRA Groundwater Monitoring Technical Enforcement Guidance Document*.
- USEPA, 1996, *Soil Guidance Manual*.
- USEPA, 2001, *Environmental Investigations Standard Operating Procedures and Quality Assurance Manual*, November 2001.
- USEPA, 2009, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance*. Office of Resource Conservation and Recovery – Program Implementation and Information Division, March 2009.
- USEPA, 2011, *Data Validation Standard Operating Procedures*. Science and Ecosystem Support Division. Revision IV. Athens, GA, September 2011.
- USEPA, 2015, *Field Equipment Cleaning and Decontamination*, Region 4 USEPA Science and Ecosystem Support Division, Revision III, Athens, GA, December 2015.
- USEPA, 2017, *National Functional Guidelines for Inorganic Superfund Methods Data Review*, Office of Superfund Remediation and Technology Innovation. OLEM 9355.0-135 [EPA-540-R-2017-001]. Washington. DC, January 2011.

## Tables & Figures

**TABLE 1A**  
**MONITORING WELL NETWORK SUMMARY**

**Georgia Power Company - Plant McDonough**  
**Atlanta, GA**

Well-ID	Former Well-ID	Boring ID	Hydraulic Location	Geologic Unit Screened	Northing	Easting	Top of Casing Elevation (feet msl)	Ground Surface Elevation (feet msl)	Total Depth (feet bgs)	Top of Screen Elevation (feet msl)	Bottom of Screen Elevation (feet msl)	Date of Installation	
<b>ASH POND 2 and ASH PONDS 3/4 (AP-2, 3/4) MONITORING WELL NETWORK</b>													
DGWA-53	B-53	B-53	Upgradient	Upper Bedrock	1393475.82	2201668.95	850.74	847.24	28.9	830	820	9/24/2016	
DGWA-70	B-70	B-70	Upgradient	Overburden	1390167.51	2201107.31	ABANDONED						
DGWA-70A	B-70A	B-70A	Upgradient	Overburden	1390481.13	2200590.67	808.60	805.45	58.9	757	747	5/10/2017	
DGWA-71	B-71	B-71	Upgradient	Overburden	1393965.35	2201713.63	863.95	861.05	43.4	828	818	2/28/2017	
DGWC-2	DGWA-2	B-2	Downgradient	Overburden/ Upper Bedrock	1393956.84	2202118.69	850.93	847.6	49.0	809	799	10/2/2012	
DGWC-4	B-4	B-4	Downgradient	Overburden	1394170.48	2202662.20	814.87	811.4	45.0	777	767	10/3/2012	
DGWC-5	B-5	B-5	Downgradient	Overburden/ Upper Bedrock	1394309.25	2202962.79	791.84	788.0	30.0	768	758	10/4/2012	
DGWC-8	DGWA-8	B-8	Downgradient	Overburden	1394325.09	2203881.82	826.50	823.5	49.1	785	775	10/10/2012	
DGWC-9	DGWA-9	B-9	Downgradient	Overburden	1394056.26	2204166.95	824.39	821.3	30.0	802	792	10/10/2012	
DGWC-10	B-10	B-10	Downgradient	Overburden	1393818.47	2204197.80	823.60	820.3	45.4	785	775	10/11/2012	
DGWC-11	B-11	B-11	Downgradient	Overburden	1393547.50	2204167.65	800.64	797.5	49.1	759	749	10/15/2012	
DGWC-12	B-12	B-12	Downgradient	Overburden	1393151.16	2204125.01	773.90	770.5	25.1	756	746	10/15/2012	
DGWC-13	B-13	B-13	Downgradient	Overburden	1392881.61	2204084.66	793.90	791.2	43.8	758	748	11/29/2012	
DGWC-14	B-14	B-14	Downgradient	Overburden/ Upper Bedrock	1392575.34	2204013.21	792.36	789.6	34.3	766	756	12/18/2012	
DGWC-15	B-15	B-15	Downgradient	Overburden	1392544.70	2203675.77	824.53	820.8	67.1	764	754	11/29/2012	
DGWC-17	B-17	B-17	Downgradient	Overburden	1392645.88	2203049.04	837.10	834.1	44.5	800	790	1/9/2013	
DGWC-19	B-19	B-19	Downgradient	Overburden	1392342.80	2202600.41	825.53	823.0	39.8	794	784	3/12/2013	
DGWC-20	B-20	B-20	Downgradient	Overburden	1392164.35	2202315.15	822.16	819.8	39.7	791	781	3/5/2013	
DGWC-21	B-21	B-21	Downgradient	Overburden/ Upper Bedrock	1392068.12	2202062.54	816.33	813.5	69.0	755	745	10/31/2012	
DGWC-22	B-22	B-22	Downgradient	Upper Bedrock	1392124.82	2201790.51	816.64	813.1	60.0	763	753	10/25/2012	
DGWC-23	B-23	B-23	Downgradient	Upper Bedrock	1392242.10	2201582.86	818.59	815.2	60.1	765	755	10/25/2012	
DGWC-42	B-42	B-42	Downgradient	Overburden	1391328.16	2201866.97	804.73	801.4	50.4	761	751	11/12/2012	
DGWC-47	B-47	B-47	Downgradient	Overburden/ Upper Bedrock	1391553.90	2202610.11	797.50	794.10	28.8	776	766	6/23/2016	
DGWC-48	B-48	B-48	Downgradient	Overburden/ Upper Bedrock	1391315.02	2202287.97	788.34	784.97	30.0	765	755	6/22/2016	

**Notes:**

1. bgs = below ground surface; msl = mean sea level
2. DGWA-70 is not used as monitoring well due to well replacement and modifications to the proposed well network. DGWA-70 was abandoned 5/1/2017.
3. Coordinate System: NAD 1983 State Plane Georgia West (U.S. feet)

**TABLE 1B  
PIEZOMETER SUMMARY**

**Georgia Power Company - Plant McDonough  
Atlanta, GA**

Well-ID	Former Well-ID	Boring ID	Geologic Unit Screened	Northing	Easting	Top of Casing Elevation (feet msl)	Ground Surface Elevation (feet msl)	Total Depth (feet bgs)	Top of Screen Elevation (feet msl)	Bottom of Screen Elevation (feet msl)	Date of Installation
<b>PIEZOMETER NETWORK</b>											
B-3	B-3	B-3	Overburden/ Upper Bedrock	1394043.54	2202411.14	837.82	834.5	37.0	808	798	10/3/2012
B-6	B-6	B-6	Overburden	1394422.57	2203265.55	789.49	785.9	35.4	761	751	10/9/2012
B-7	B-7	B-7	Overburden	1394373.41	2203595.17	809.24	805.4	25.2	791	781	10/9/2012
B-16	B-16	B-16	Overburden	1392596.21	2203313.21	826.50	823.6	43.7	790	780	12/19/2012
B-18	B-18	B-18	Overburden	1392521.15	2202874.99	826.54	823.9	32.6	801	791	11/10/2013
B-24	B-24	B-24	Upper Bedrock	1392480.23	2201451.51	822.27	818.7	79.1	750	740	10/24/2012
B-25	B-25	B-25	Upper Bedrock	1392813.23	2201504.19	836.62	833.1	54.8	789	779	10/24/2012
B-26	DGWA-26	B-26	Upper Bedrock	1393106.18	2201551.86	853.67	850.2	49.3	811	801	10/23/2012
B-27	DGWA-27	B-27	Upper Bedrock	1393423.51	2201744.77	ABANDONED					
B-28	B-28	B-28	Overburden/ Upper Bedrock	1391970.42	2201677.59	816.10	812.8	69.4	754	744	10/31/2012
B-29	B-29	B-29	Overburden	1391891.93	2201420.25	816.45	813.5	54.4	769	759	11/11/2013
B-31	B-31	B-31	Upper Bedrock	1392035.97	2200926.82	797.42	794.8	45.1	760	750	11/22/2013
B-41	B-41	B-41	Overburden	1390922.38	2201749.84	795.22	792.4	60.0	743	733	11/14/2012
B-50	B-50	B-50	Overburden	1391656.94	2201839.72	809.78	806.28	35.2	781	771	6/24/2016
B-51	B-51	B-51	Overburden	1390501.61	2200904.19	765.93	763.00	66.0	708	698	6/27/2016
B-52	B-52	B-52	Overburden	1392309.40	2201314.05	823.22	820.07	50.0	781	771	9/28/2016
B-54	B-54	B-54	Overburden/ Upper Bedrock	1394424.75	2203140.27	785.59	782.09	34.2	758	748	9/26/2016
B-55	B-55	B-55	Overburden	1394143.23	2204146.61	825.11	821.96	52.0	781	771	9/22/2016
B-56	B-56	B-56	Overburden	1393958.64	2204186.27	823.70	820.55	45.0	786	776	10/3/2016
B-57	B-57	B-57	Upper Bedrock	1391397.46	2202735.64	789.22	785.76	50.5	746	736	9/24/2016
B-58	B-58	B-58	Overburden	1391126.84	2202425.23	788.20	784.90	45.0	750	740	9/23/2016
B-59	B-59	B-59	Overburden/ Upper Bedrock	1394349.80	2203000.17	788.16	785.30	30.2	765	755	9/23/2016
B-60	B-60	B-60	Overburden	1391101.88	2202880.57	782.12	778.87	49.8	740	730	9/29/2016
B-61	B-61	B-61	Overburden	1390958.73	2202504.81	782.03	778.58	52.4	737	727	9/29/2016
B-62	B-62	B-62	Upper Bedrock	1389828.91	2201810.02	763.34	759.94	39.9	730	720	10/4/2016
B-63	B-63	B-63	Overburden	1390999.47	2202976.11	777.15	777.45	46.0	742	732	10/6/2016
B-64	B-64	B-64	Overburden	1394383.12	2203029.71	786.02	785.85	30.4	766	756	11/2/2016
B-65	B-65	B-65	Overburden/ Upper Bedrock	1394382.64	2204049.66	822.02	822.27	45.4	788	778	11/15/2016
B-66	B-66	B-66	Overburden	1393860.16	2204276.73	815.96	813.06	55.3	768	758	11/16/2016
B-68	DGWC-68	B-68	Overburden	1391299.56	2200714.04	758.73	758.56	18.0	751	741	3/16/2017
B-77	B-77	B-77	Overburden	1390949.76	2202941.41	776.75	777.06	42.5	744.56	734.56	9/17/2019
B-78	B-78	B-78	Overburden/ Upper Bedrock	1394327.62	2202958.92	790.65	787.31	30	767.31	757.31	9/22/2019
B-79	B-79	B-79	Overburden	1394458.16	2203223.8	788.55	785.5	35	760.5	750.5	9/21/2019
B-80	B-80	B-80	Overburden	1394373.86	2203534.26	804.45	801.52	30	781.52	771.52	9/20/2019
B-81	B-81	B-81	Overburden	1394366.17	2203741.53	820.51	816.75	50	776.75	766.75	9/22/2019
B-82	B-82	B-82	Overburden	1393750.42	2204256.96	809.98	807.15	45	772.15	762.15	9/21/2019
B-83	B-83	B-83	Overburden	1390736.31	2202695.17	776.89	777.05	50	737.05	727.05	9/30/2019
B-84	B-84	B-84	Overburden	1390411.65	2202242.51	776.24	776.27	50	736.27	726.27	10/1/2019
B-85	B-85	B-85	Overburden	1394433.14	2203135.02	782.67	782.8	34.5	758.3	748.3	11/18/2019
B-86	B-86	B-86	Overburden	1394479.84	2203207.19	784.4	784.5	34.1	760.4	750.4	11/18/2020
B-87	B-87	B-87	Overburden	1394401.16	2203531.64	803.54	800.4	42	768.4	758.4	11/17/2019
B-88	B-88	B-88	Overburden	1394400.23	2203738.46	820.11	816.6	72	754.6	744.6	11/15/2019
B-89	B-89	B-89	Overburden	1394399.07	2204048.84	822.5	822.5	32.2	800.3	790.3	11/19/2019
B-90	B-90	B-90	Overburden	1394500.73	2203212.95	784.18	784.2	33.4	760.8	750.8	12/10/2019
B-91	B-91	B-91	Overburden	1394447.87	2203124.3	783.07	783.1	35	758.1	748.1	12/11/2019
B-92	B-92	B-92	Overburden	1394393.54	2203026.6	785.22	785.3	25	770.3	760.3	12/11/2019
B-93	B-93	B-93	Overburden	1394348.37	2202947.29	789.14	789.2	29.2	770	760	12/12/2019

**Notes:**

- bgs = below ground surface; msl = mean sea level
- B-26 and B-68 are not used as monitoring wells due to well replacement, proximity to closure activities, or modifications to the proposed well network.
- B-27 was abandoned 4/4/2017.
- Coordinate System: NAD 1983 State Plane Georgia West (U.S. feet)

**TABLE 2  
GROUNDWATER SAMPLING EVENT SUMMARY**

**Georgia Power Company - Plant McDonough  
Atlanta, GA**

Well ID	Hydraulic Location	Summary of Sampling Events														Status of Monitoring Well
		August - September 2016	December 2016	March - April 2017	May 2017	June 2017	July 2017	August 2017	October - November 2017	February - March 2018	July 2018	November 2018	March 2019	August 2019	October 2019	
Purpose of Sampling Event		Background	Background	Background	Background	Background	Background	Background	Background	Background	Background	Background	Detection	Initial Monitoring	Assessment	
<b>ASH POND 2 and ASH PONDS 3/4 (AP-2, 3/4) MONITORING WELL NETWORK</b>																
DGWA-53	Upgradient			BG01	BG02	BG03	BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWA-70A	Upgradient				BG01	BG02	BG03	BG04	BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWA-71	Upgradient			BG01	BG02	BG03	BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-2	Downgradient			BG01	BG02	BG03	BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-4	Downgradient			BG01	BG02	BG03	BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-5	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-8	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-9	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-10	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-11	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-12	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-13	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-14	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-15	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-17	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-19	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-20	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-21	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-22	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-23	Downgradient			BG01	BG02	BG03	BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-42	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-47	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment
DGWC-48	Downgradient	BG01	BG02	BG03			BG04		BG05	BG06	BG07	BG08	D01	IM01	A01	Assessment

**Notes:**

- BG## = Background Event Number
- D## = Detection Event Number
- IM## = Initial Monitoring Event Number
- A## = Assessment Monitoring Event Number

**TABLE 3  
SUMMARY OF GROUNDWATER ELEVATIONS**

Georgia Power Company - Plant McDonough  
Atlanta, GA

Well ID	Top of Casing Elevation (feet/msl)	Groundwater Elevation (feet msl)										
		8/29/2016	12/5/2016	3/27/2017	7/10/2017	10/23/2017	2/26/2018	7/9/2018	11/5/2018	3/11/2019	8/26/2019	10/14/2019
<b>ASH POND 2 and ASH PONDS 3/4 (AP-2, 3/4) MONITORING WELLS</b>												
DGWA-53	850.74	NM	840.16	841.21	844.59	840.73	842.64	842.00	828.02	831.04	819.87	835.51
DGWA-70	778.20	NM	NM	752.10								
DGWA-70A	808.60	NM	NM	NM	767.37	766.93	767.76	768.62	767.73	771.92	768.16	765.92
DGWA-71	863.93	NM	NM	834.80	835.84	835.32	835.56	835.70	834.78	837.74	835.40	834.53
DGWC-2	850.93	822.66	821.27	820.00	822.53	821.22	820.39	820.73	819.05	822.11	820.06	819.89
DGWC-4	814.87	797.89	797.37	798.47	798.95	796.24	795.91	794.37	793.07	794.83	791.98	791.36
DGWC-5	791.84	785.98	786.33	785.90	786.18	785.74	785.48	784.54	784.02	784.89	782.57	782.13
DGWC-8	826.50	812.00	808.38	807.69	811.43	805.36	799.81	797.87	795.21	798.35	794.48	793.75
DGWC-9	824.39	810.40	808.16	807.19	812.39	805.03	802.88	801.13	799.61	802.55	799.25	797.57
DGWC-10	823.60	802.79	802.30	800.80	806.57	800.33	797.50	796.22	794.05	796.58	792.55	793.59
DGWC-11	800.64	791.49	792.56	791.44	795.26	791.15	790.61	789.86	787.57	789.89	786.81	787.22
DGWC-12	773.90	765.72	766.17	766.27	767.20	765.64	767.13	765.54	765.14	766.40	764.43	764.79
DGWC-13	793.90	760.19	760.30	760.39	761.49	NM	768.46	760.44	759.55	760.10	760.69	759.94
DGWC-14	792.36	770.41	769.77	770.44	771.56	771.69	771.31	771.67	771.46	773.96	771.29	770.91
DGWC-15	824.53	786.06	785.21	785.13	786.08	786.06	785.28	785.79	785.38	786.89	784.94	784.52
DGWC-17	837.10	809.35	808.83	809.08	810.77	809.75	809.19	808.34	807.56	809.02	806.61	806.17
DGWC-19	825.53	804.25	803.58	803.81	806.11	804.73	805.36	804.70	804.16	805.05	803.21	802.51
DGWC-20	822.16	802.21	801.24	801.05	802.43	801.30	801.72	800.68	800.20	801.71	798.98	798.56
DGWC-21	816.33	802.74	801.41	800.77	800.50	799.79	799.85	799.03	798.47	799.09	798.22	796.96
DGWC-22	816.64	805.02	803.20	802.84	801.71	799.88	800.84	799.69	798.25	800.74	797.05	796.36
DGWC-23	818.59	804.61	804.84	804.88	803.89	802.66	804.02	801.83	800.61	803.75	798.64	797.77
DGWC-42	804.73	778.08	775.93	775.01	775.21	774.13	774.24	773.80	773.28	774.84	772.36	771.96
DGWC-47	797.50	776.88	776.70	778.54	780.25	778.16	779.78	780.70	779.15	782.01	774.51	773.79
DGWC-48	788.34	771.45	770.67	771.66	773.33	771.63	772.84	772.88	771.60	774.90	769.69	768.34
<b>PIEZOMETERS</b>												
B-3	837.82	811.85	810.09	811.86	811.36	808.91	807.28	806.10	804.82	805.58	803.77	803.22
B-6	789.49	787.40	786.35	786.98	787.04	786.72	786.18	785.43	785.19	785.89	784.15	783.89
B-7	809.24	799.54	797.50	796.76	797.04	795.51	792.92	791.26	791.04	792.20	788.36	787.60
B-16	826.50	802.60	802.25	802.61	804.41	800.02	800.71	799.59	798.25	800.45	796.05	795.20
B-18	826.54	809.19	808.33	808.53	811.84	810.19	810.71	809.21	808.21	810.41	807.50	806.93
B-24	822.27	806.65	804.87	807.18	808.10	804.72	806.23	805.47	803.00	809.86	803.09	801.61
B-25	836.62	821.63	822.51	823.42	823.85	822.68	824.06	822.50	821.06	824.12	819.20	817.71
B-26	853.67	829.13	827.14	829.97	831.02	827.90	829.45	828.59	826.26	833.30	826.25	824.82
B-27	850.29	830.16	828.94	836.76								
ABANDONED												
B-28	816.10	793.30	792.40	792.42	792.12	789.56	791.14	790.07	787.90	791.89	786.52	785.52
B-29	816.45	790.87	790.42	792.15	792.30	789.57	791.80	790.69	788.83	793.96	787.99	786.67
B-31	797.42	764.17	764.31	764.68	766.38	763.81	765.11	765.23	763.62	766.88	763.61	763.07
B-41	795.22	774.74	773.24	772.28	772.46	770.97	771.32	771.01	770.28	771.76	768.70	767.98
B-50	809.78	783.18	781.78	781.93	782.49	781.16	782.32	782.04	781.00	783.83	780.34	780.17
B-51	765.93	753.69	753.90	753.57	753.89	754.08	753.86	753.44	753.26	754.15	753.00	752.80
B-52	823.22	NM	796.52	799.44	800.17	797.09	798.56	798.66	795.73	803.49	796.58	794.51
B-54	785.59	NM	781.24	780.81	780.91	781.23	780.67	780.09	780.28	780.44	779.46	779.47
B-55	825.11	NM	812.13	810.46	815.77	807.47	805.77	804.55	803.08	805.21	802.68	803.89
B-56	823.70	NM	805.57	804.87	810.59	802.42	799.29	797.00	795.42	798.40	794.91	794.27
B-57	789.22	NM	766.42	767.55	769.46	768.51	768.52	770.71	768.67	773.56	767.91	766.19
B-58	788.20	NM	764.20	765.36	767.61	766.40	766.63	768.59	766.37	771.75	765.57	763.75
B-59	788.16	NM	782.84	782.46	782.58	782.62	782.22	781.46	781.51	781.83	780.40	780.31
B-60	782.12	NM	748.58	748.44	749.87	749.49	749.48	751.13	749.78	755.46	749.91	748.89
B-61	782.03	NM	758.46	759.12	761.86	760.30	760.82	762.98	760.50	766.59	759.78	758.06
B-62	763.34	NM	745.89	745.33	745.89	751.03	749.15	748.04	745.82	754.34	746.21	745.32
B-63	777.15	NM	745.02	745.46	746.75	746.75	746.95	747.38	746.55	753.35	746.85	746.64
B-64	786.02	NM	781.29	781.40	781.50	781.67	781.20	780.54	780.67	781.01	779.69	779.66
B-65	822.02	NM	811.62	811.38	814.82	811.24	806.45	805.56	803.98	807.77	803.79	803.22
B-66	815.96	NM	801.50	799.86	804.66	799.91	798.36	797.80	796.43	798.14	794.79	796.11
B-68	758.73	NM	NM	755.45	NM	NM	NM	NM	NM	NM	754.84	754.81
B-76	760.31	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	743.2
B-77	776.75	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	745.23
B-78	790.65	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	779.94
B-79	788.55	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	781.71
B-80	804.45	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	786.97
B-81	820.51	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	788.8
B-82	809.98	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	797.42
B-83	776.89	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	744.01
B-84	776.24	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	740.54
B-85	782.67											
B-86	784.40											
B-87	803.54											
B-88	820.11											
B-89	822.50											
B-90	784.18											
B-91	783.07											
B-92	785.22											
B-93	789.14											

- Notes:**
- msl = mean sea level
  - NM = Not Measured
  - DGWA-70, B-27, and B-68 are not used due to well replacement, proximity to closure activities, or modifications to the proposed well network.

**TABLE 4**  
**HORIZONTAL GROUNDWATER FLOW VELOCITY CALCULATIONS - OCTOBER 2019**

**Georgia Power Company - Plant McDonough**  
**Atlanta, GA**

Flow Paths	Groundwater Elevation (feet msl)	$\Delta h$ (feet) <sup>1</sup>	$\Delta l$ (feet) <sup>2</sup>	Hydraulic Gradient ( $\Delta h/\Delta l$ ) <sup>3</sup>	Average Hydraulic Conductivity, K (centimeter per second) <sup>5</sup>		Assumed Effective Porosity ( $n_e$ ) <sup>6</sup>		Average Linear Groundwater Velocity			
					Overburden	Upper Bedrock	Overburden	Upper Bedrock	(feet per day) <sup>4</sup>		(feet per year) <sup>4</sup>	
									Overburden	Upper Bedrock	Overburden	Upper Bedrock
<b>ASH POND 2 AND ASH PONDS 3/4 (AP-2, 3/4)</b>												
DGWA-53/ DGWC-13	835.51	75.57	2550	0.030	0.00084	0.00016	0.2	0.09	0.35	0.15	129	55
	759.94											
DGWA-71/ DGWC-5	834.53	52.4	1450	0.036	0.00084	0.00016	0.2	0.09	0.43	0.18	157	66
	782.13											
B-26/ DGWC-48	824.82	56.48	2000	0.028	0.00084	0.00016	0.2	0.09	0.34	0.14	123	52
	768.34											

**Notes:**

1.  $\Delta h$  = Change in groundwater elevation
2.  $\Delta l$  = Distance along flow path
3.  $l = \Delta h / \Delta l$
4. Velocity =  $(l * K)/n_e$
5. Hydraulic conductivity based on historic aquifer performance tests
6. Assumed effective porosities for overburden was based on the default values recommended by USEPA for a silty sand-type soil (1996). Assumed effective porosity for bedrock was derived from Daniel and Dahlen (2002) and Dowd and Marshall (1995).



**TABLE 5A**  
**ANALYTICAL DATA SUMMARY**  
**Ash Pond 2 and Ash Ponds 3/4 - Initial Assessment Monitoring Event-August 2019**  
**Georgia Power Company - Plant McDonough**  
**Atlanta, GA**

Substance	Well ID																	
	DGWA-53	DGWA-70A	DGWA-71	DGWC-2	DGWC-4	DGWC-5	DGWC-8	DGWC-9	DGWC-10	DGWC-11	DGWC-12	DGWC-13	DGWC-14	DGWC-15	DGWC-17	DGWC-19		
	8/28/2019	8/27/2019	8/27/2019	8/27/2019	8/27/2019	8/27/2019	8/28/2019	8/27/2019	8/27/2019	8/27/2019	8/27/2019	8/28/2019	8/27/2019	8/28/2019	8/27/2019	8/28/2019		
APPENDIX III	Boron	Appendix III constituents not analyzed																
	Calcium	Appendix III constituents not analyzed																
	Chloride	Appendix III constituents not analyzed																
	Fluoride	0.42	<0.30	<0.30	<0.30	<0.30	0.32	ND (0.098 J)	0.68	1.4	<0.30	<0.30	ND (0.091 J)	<0.30	<0.10	ND (0.24 J)	0.20	
	Sulfate	Appendix III constituents not analyzed																
	pH	6.04	5.53	5.87	5.94	5.84	4.83	5.11	4.02	5.14	5.55	5.55	5.71	5.58	5.88	4.96	4.85	
	TDS	Appendix III constituents not analyzed																
APPENDIX IV	Antimony	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	ND (0.00033 J)	<0.0030	<0.0030	
	Arsenic	<0.0050	<0.0050	<0.0050	ND (0.00099 J)	<0.0050	<0.0050	<0.0050	0.021	ND (0.0024 J)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	ND (0.00049 J)	
	Barium	0.087	0.037	0.027	0.023	0.036	0.017	0.025	0.016	0.021	0.071	0.024	0.033	0.059	0.047	0.050	0.026	
	Beryllium	<0.0030	ND (0.000079 J)	<0.0030	<0.0030	ND (0.00024 J)	0.010	ND (0.0021 J)	0.0070	0.0092	ND (0.00014 J)	ND (0.00028 J)	<0.0030	<0.0030	<0.0030	ND (0.00066 J)	ND (0.0018 J)	
	Cadmium	<0.0025	<0.0025	<0.0025	ND (0.00012 J)	ND (0.00072 J)	ND (0.00082 J)	ND (0.0022 J)	ND (0.00071 J)	ND (0.00077 J)	ND (0.00012 J)	ND (0.00037 J)	<0.0025	<0.0025	<0.0025	ND (0.00033 J)	ND (0.00033 J)	
	Chromium	<0.010	ND (0.00071 J)	ND (0.0018 J)	ND (0.00040 J)	<0.010	<0.010	<0.010	ND (0.00048 J)	ND (0.00083 J)	ND (0.00060 J)	<0.010	<0.010	<0.010	<0.010	ND (0.0031 J)	ND (0.0028 J)	
	Cobalt	0.013	<0.0050	<0.0050	0.0088	ND (0.0018 J)	0.020	0.051	0.24	0.13	ND (0.00076 J)	ND (0.0021 J)	<0.0050	<0.0050	ND (0.0015 J)	0.031	0.048	
	Lead	<0.0050	ND (0.000078 J)	<0.0050	ND (0.000060 J)	ND (0.000049 J)	ND (0.000051 J)	ND (0.000082 J)	<0.025	ND (0.00024 J)	ND (0.00012 J)	ND (0.00010 J)	<0.0050	<0.0050	ND (0.000059 J)	ND (0.000090 J)	ND (0.00026 J)	
	Lithium	ND (0.0092 J)	<0.030	ND (0.0014 J)	0.032	ND (0.0033 J)	ND (0.0080 J)	ND (0.0048 J)	0.031	ND (0.0053 J)	ND (0.0023 J)	ND (0.0011 J)	ND (0.0033 J)	ND (0.0038 J)	ND (0.0063 J)	ND (0.00089 J)	ND (0.0032 J)	
	Mercury	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	ND (0.00016 J)	<0.00050	ND (0.00021 J)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	ND (0.00016 J)	<0.00050
	Molybdenum	0.031	<0.010	<0.010	ND (0.0020 J)	ND (0.0065 J)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	<0.010	<0.010	<0.010	<0.010	
	Radium	2.68	1.97	1.30 U	1.60	1.79	1.81	0.815 U	1.55	1.58	2.13	0.434 U	1.43	1.17 U	1.01 U	1.12	0.661 U	
	Selenium	<0.010	<0.010	<0.010	ND (0.0069 J)	<0.010	ND (0.0031 J)	<0.010	0.067	0.015	<0.010	<0.010	ND (0.0039 J)	<0.010	<0.010	ND (0.0073 J)	ND (0.0040 J)	
Thallium	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	ND (0.00022 J)	ND (0.00053 J)	ND (0.00036 J)	<0.0010	ND (0.000089 J)	<0.0010	<0.0010	<0.0010	ND (0.00018 J)	ND (0.00053 J)		

Notes:

1. Results for substances are reported in milligrams per liter (mg/L). Radium is reported in picocurie per liter (pCi/L).
2. < indicates the substance was not detected above the analytical method detection limit (MDL). The value displayed is the laboratory reporting limit.
3. ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.
4. TDS indicates total dissolved solids.
5. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Appendix IV Scan and Assessment Monitoring.
6. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed with the U qualifier. The MDC varies depending upon the sample amount and elapsed time of the measurement.

**TABLE 5A**  
**ANALYTICAL DATA SUMMARY**  
**Ash Pond 2 and Ash Ponds 3/4 - Initial Assessment Monitoring Event-August 2019**  
**Georgia Power Company - Plant McDonough**  
**Atlanta, GA**

Substance	Well ID							
	DGWC-20	DGWC-21	DGWC-22	DGWC-23	DGWC-42	DGWC-47	DGWC-48	
	8/29/2019	8/29/2019	8/29/2019	8/29/2019	8/28/2019	8/29/2019	8/29/2019	
APPENDIX III	Boron	Appendix III constituents not analyzed						
	Calcium							
	Chloride							
	Fluoride	0.78	ND (0.079 J)	ND (0.054 J)	ND (0.095 J)	<0.10	0.52	0.78
	Sulfate	Appendix III constituents not analyzed						
	pH	4.64	5.61	5.66	5.96	5.3	4.35	4.28
	TDS	Appendix III constituents not analyzed						
APPENDIX IV	Antimony	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
	Arsenic	0.0064	<0.0050	<0.0050	<0.0050	<0.0050	ND (0.00089 J)	<0.0050
	Barium	0.018	0.027	0.031	0.025	0.018	0.018	0.014
	Beryllium	0.0050	ND (0.00018 J)	ND (0.00015 J)	ND (0.00041 J)	ND (0.0023 J)	0.011	0.0081
	Cadmium	ND (0.0020 J)	ND (0.00087 J)	ND (0.00053 J)	ND (0.00022 J)	ND (0.0015 J)	ND (0.0021 J)	0.0030
	Chromium	ND (0.0017 J)	ND (0.00041 J)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cobalt	0.66	0.010	0.0094	ND (0.00036 J)	0.029	0.28	0.42
	Lead	ND (0.00015 J)	ND (0.00023 J)	<0.0050	ND (0.000066 J)	ND (0.00036 J)	ND (0.00060 J)	ND (0.0010 J)
	Lithium	ND (0.0093 J)	ND (0.0061 J)	ND (0.0035 J)	ND (0.0017 J)	ND (0.010 J)	0.056	0.11
	Mercury	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Molybdenum	<0.010	<0.010	<0.010	0.014	<0.010	<0.010	<0.010
	Radium	0.996 U	0.582 U	1.87	2.21	0.883 U	3.05	2.37
	Selenium	0.029	<0.010	<0.010	<0.010	<0.010	ND (0.0040 J)	ND (0.0023 J)
Thallium	ND (0.00084 J)	<0.0010	ND (0.000064 J)	<0.0010	ND (0.000069 J)	ND (0.00025 J)	ND (0.000078 J)	

Notes:

1. Results for substances are reported in milligrams per liter (mg/L). Radium is reported in picocurie per liter (pCi/L).
2. < indicates the substance was not detected above the analytical method detection limit (MDL). The value displayed is the laboratory reporting limit.
3. ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.
4. TDS indicates total dissolved solids.
5. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Appendix IV Scan and Assessment Monitoring.
6. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed with the U qualifier. The MDC varies depending upon the sample amount and elapsed time of the measurement.

**TABLE 5B**  
**ANALYTICAL DATA SUMMARY**  
**Ash Pond 2 and Ash Ponds 3/4 - Compliance Monitoring Event-October 2019**  
**Georgia Power Company - Plant McDonough**  
**Atlanta, GA**

Substance	Well ID																
	DGWA-53	DGWA-70A	DGWA-71	DGWC-2	DGWC-4	DGWC-5	DGWC-8	DGWC-9	DGWC-10	DGWC-11	DGWC-12	DGWC-13	DGWC-14	DGWC-15	DGWC-17	DGWC-19	
	10/16/2019	10/15/2019	10/15/2019	10/17/2019	10/15/2019	10/16/2019	10/16/2019	10/17/2019	10/15/2019	10/15/2019	10/15/2019	10/16/2019	10/16/2019	10/17/2019	10/18/2019	10/16/2019	
APPENDIX III	Boron	0.059	<0.040	ND (0.0054 J)	0.73	5.0	4.3	1.2	1.2	1.6	1.2	5.9	0.65	0.052	1.5	0.82	2.2
	Calcium	17.7	5.1	5.1	47.2	276	109	47.3	75.6	79.1	61.2	61.4	43.8	9.4	37.0	12.9	85.7
	Chloride	2.0	2.2	3.3	2.8	20.9	11.6	10.4	10	9.4	15.6	11.6	17.4	3.5	22.0	22.0	33.2
	Fluoride	ND (0.11 J)	<0.30	<0.30	ND (0.042 J)	<0.30	0.32	ND (0.14 J)	1.2	1.4	<0.30	<0.30	ND (0.14 J)	ND (0.052 J)	ND (0.079 J)	ND (0.086 J)	ND (0.23 J)
	Sulfate	15.1	ND (0.16 J)	7.4	134	888	493	235	331	263	273	270	167	42.1	146	222	323
	pH	6.51	5.61	5.88	6.16	5.98	4.78	5.33	4.02	4.96	5.6	5.89	5.69	5.66	5.76	5.08	4.87
	TDS	126	70.0	89.0	302	1520	702	374	550	447	461	472	296	104	319	403	500
APPENDIX IV	Antimony	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
	Arsenic	ND (0.0018 J)	ND (0.00052 J)	ND (0.00071 J)	<0.0050	<0.0050	ND (0.0036 J)	<0.0050	0.033	0.0078	<0.0050	ND (0.00063 J)	<0.0050	ND (0.00039 J)	ND (0.00064 J)	ND (0.0012 J)	ND (0.00046 J)
	Barium	0.077	0.034	0.024	0.022	0.033	0.020	0.027	0.015	0.024	0.064	0.020	0.034	0.059	0.046	0.045	0.024
	Beryllium	<0.0030	<0.0030	ND (0.000088 J)	<0.0030	ND (0.00022 J)	0.0072	ND (0.0019 J)	0.0063	0.010	ND (0.00012 J)	ND (0.00016 J)	<0.0030	<0.0030	<0.0030	ND (0.00071 J)	ND (0.0017 J)
	Cadmium	<0.0025	<0.0025	<0.0025	ND (0.00013 J)	ND (0.00077 J)	ND (0.00069 J)	ND (0.0022 J)	ND (0.00064 J)	ND (0.00095 J)	<0.0025	ND (0.00025 J)	<0.0025	<0.0025	<0.0025	ND (0.00029 J)	ND (0.00034 J)
	Chromium	<0.010	0.034	ND (0.0025 J)	ND (0.00046 J)	<0.010	<0.010	ND (0.0013 J)	ND (0.00051 J)	ND (0.00078 J)	<0.010	<0.010	<0.010	<0.010	ND (0.00058 J)	ND (0.0027 J)	ND (0.0024 J)
	Cobalt	0.0090	ND (0.00064 J)	<0.0050	0.0084	ND (0.0018 J)	0.022	0.054	0.21	0.17	ND (0.00060 J)	0.0058	<0.0050	<0.0050	ND (0.0018 J)	0.023	0.046
	Lead	<0.0050	<0.0050	<0.0050	ND (0.000086 J)	ND (0.00010 J)	ND (0.000085 J)	ND (0.00029 J)	<0.025	ND (0.00014 J)	ND (0.000076 J)	<0.0050	<0.0050	<0.0050	<0.0050	ND (0.000074 J)	<0.0050
	Lithium	ND (0.0094 J)	<0.030	ND (0.0012 J)	ND (0.029 J)	ND (0.0029 J)	ND (0.0060 J)	ND (0.0045 J)	ND (0.029 J)	ND (0.0051 J)	ND (0.0019 J)	ND (0.00091 J)	ND (0.0029 J)	ND (0.0032 J)	ND (0.0064 J)	ND (0.00096 J)	ND (0.0026 J)
	Mercury	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	ND (0.00042 J)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Molybdenum	0.037	<0.010	<0.010	ND (0.0018 J)	ND (0.0061 J)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.014	<0.010	<0.010	<0.010	<0.010
	Radium	1.89	0.319 U	1.21 U	1.74	2.11 U	1.63	0.999 U	0.702 U	0.831 U	0.622 U	0.359 U	1.73	1.04 U	1.03 U	0.890 U	1.79
	Selenium	<0.010	<0.010	<0.010	ND (0.0051 J)	ND (0.0014 J)	0.015	ND (0.0016 J)	0.19	0.071	<0.010	ND (0.0019 J)	ND (0.0031 J)	ND (0.0017 J)	<0.010	ND (0.0093 J)	ND (0.0060 J)
Thallium	<0.0010	<0.0010	<0.0010	<0.0010	ND (0.000073 J)	ND (0.000078 J)	ND (0.00025 J)	ND (0.00076 J)	ND (0.00039 J)	<0.0010	ND (0.000091 J)	<0.0010	<0.0010	<0.0010	ND (0.00014 J)	ND (0.00053 J)	

Notes:

- Results for substances are reported in milligrams per liter (mg/L). Radium is reported in picocurie per liter (pCi/L).
- < indicates the substance was not detected above the analytical method detection limit (MDL). The value displayed is the laboratory reporting limit.
- ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.
- TDS indicates total dissolved solids.
- Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Appendix IV Scan and Assessment Monitoring.
- Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed with the U qualifier. The MDC varies depending upon the sample amount and elapsed time of the measurement.

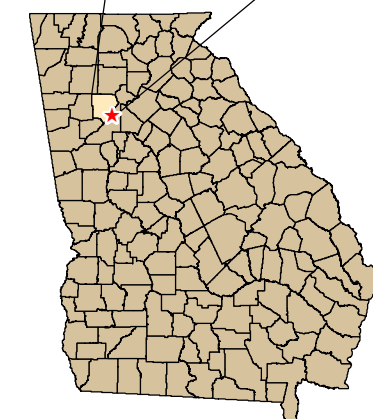
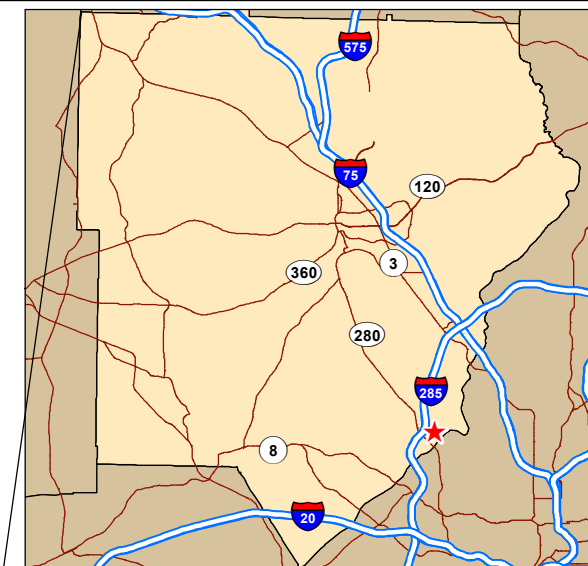
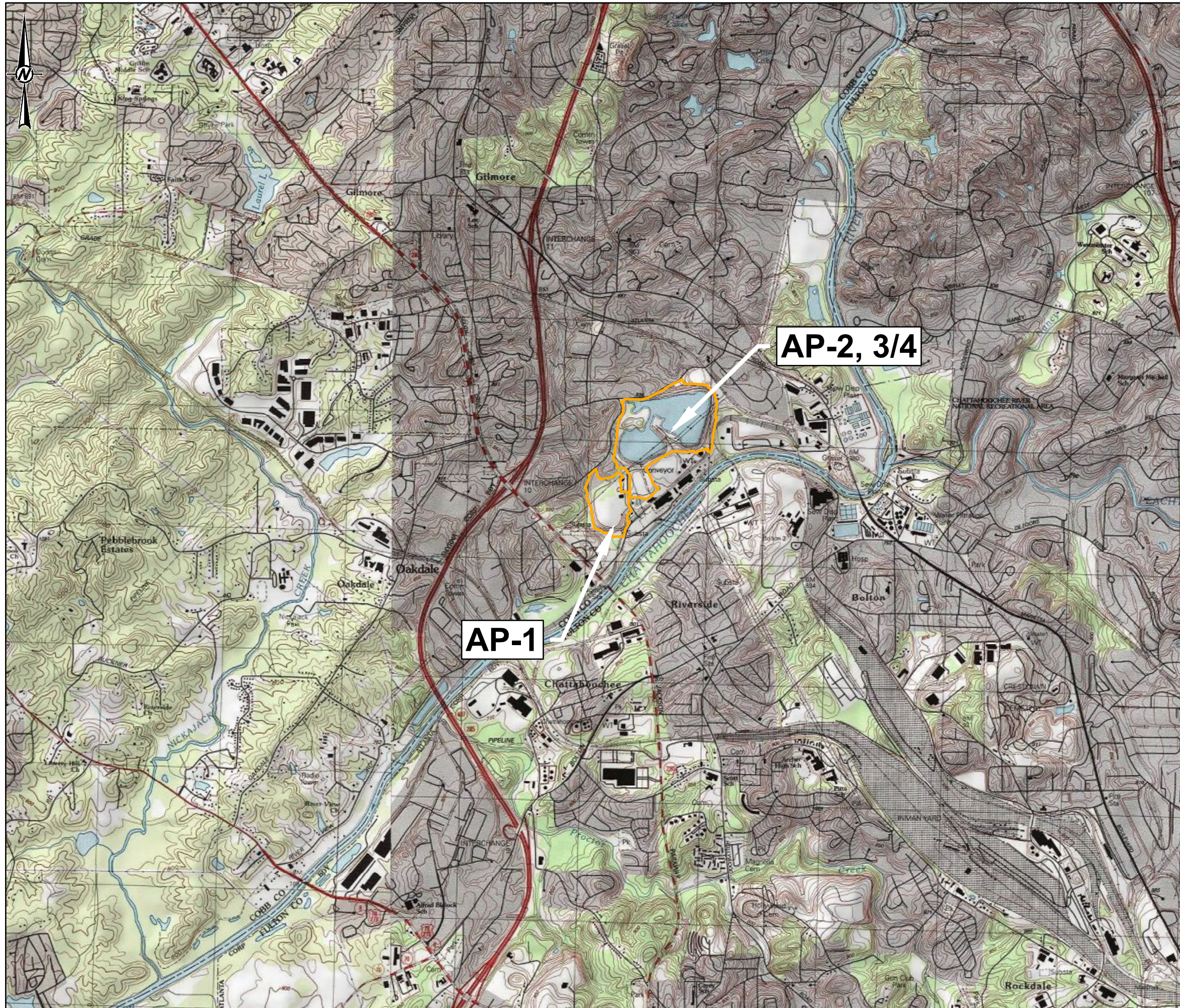
**TABLE 5B**  
**ANALYTICAL DATA SUMMARY**  
**Ash Pond 2 and Ash Ponds 3/4 - Compliance Monitoring Event-October 2019**  
**Georgia Power Company - Plant McDonough**  
**Atlanta, GA**

Substance	Well ID								
	DGWC-20	DGWC-21	DGWC-22	DGWC-23	DGWC-42	DGWC-47	DGWC-48		
	10/17/2019	10/17/2019	10/18/2019	10/18/2019	10/17/2019	10/17/2019	10/18/2019		
APPENDIX III	Boron	5.0	7.0	4.2	4.5	0.94	0.25	0.74	
	Calcium	86.9	79.8	61.7	67.7	44.1	36.2	72.7	
	Chloride	24.9	20.1	23.4	14.4	25.8	7.0	9.6	
	Fluoride	ND (0.26 J)	<0.30	<0.30	ND (0.079 J)	<0.30	0.46	0.46	
	Sulfate	426	255	254	203	321	179	336	
	pH	4.64	5.57	5.61	5.99	5.2	4.6	4.22	
	TDS	751	498	480	448	612	327	593	
APPENDIX IV	Antimony	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	
	Arsenic	0.0094	<0.0050	<0.0050	<0.0050	<0.0050	ND (0.0013 J)	ND (0.00079 J)	
	Barium	0.015	0.027	0.032	0.019	0.018	0.019	0.014	
	Beryllium	0.0041	ND (0.00015 J)	ND (0.00014 J)	ND (0.00038 J)	ND (0.0027 J)	0.0093	0.0099	
	Cadmium	ND (0.0017 J)	ND (0.00060 J)	ND (0.00056 J)	ND (0.00022 J)	ND (0.00058 J)	0.0033	0.0028	
	Chromium	ND (0.0015 J)	<0.010	<0.010	ND (0.00041 J)	ND (0.00041 J)	<0.010	<0.010	
	Cobalt	0.57	0.010	0.0084	<0.0050	0.030	0.26	0.41	
	Lead	ND (0.000097 J)	ND (0.000046 J)	<0.0050	<0.0050	ND (0.00026 J)	ND (0.0011 J)	ND (0.00095 J)	
	Lithium	ND (0.0075 J)	ND (0.0063 J)	ND (0.0041 J)	ND (0.0039 J)	ND (0.011 J)	0.066	0.11	
	Mercury	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
	Molybdenum	<0.010	<0.010	<0.010	ND (0.0091 J)	<0.010	<0.010	<0.010	
	Radium	2.00	0.427 U	1.10 U	1.32	1.38	2.58	1.42	
	Selenium	0.071	<0.010	<0.010	<0.010	<0.010	ND (0.0062 J)	ND (0.0050 J)	
Thallium	ND (0.00062 J)	<0.0010	<0.0010	<0.0010	<0.0010	ND (0.00025 J)	<0.0010		

Notes:

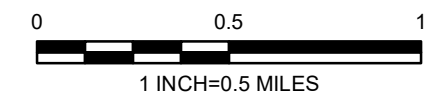
1. Results for substances are reported in milligrams per liter (mg/L). Radium is reported in picocurie per liter (pCi/L).
2. < indicates the substance was not detected above the analytical method detection limit (MDL). The value displayed is the laboratory reporting limit.
3. ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.
4. TDS indicates total dissolved solids.
5. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Appendix IV Scan and Assessment Monitoring.
6. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed with the U qualifier. The MDC varies depending upon the sample amount and elapsed time of the measurement.





**REFERENCE**

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CLIENT  
 GEORGIA POWER COMPANY  
 PLANT MCDONOUGH  
 PROJECT  
 ANNUAL GROUNDWATER MONITORING REPORT  
 PLANT MCDONOUGH

TITLE  
**SITE LOCATION MAP**

CONSULTANT	YYYY-MM-DD	2019-1-31
	PREPARED	SEB
	DESIGN	SEB
	REVIEW	KNJ
	APPROVED	TIR

THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN. THE SHEET HAS BEEN MODIFIED FROM ANS/B





**LEGEND**

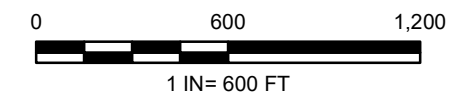
- ◆ UPGRADIENT WELL
- ◆ AP-2, 3/4 MONITORING WELL
- AP-2, 3/4 PERMIT BOUNDARY
- - - PROPERTY BOUNDARY

**NOTES**

1. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.

**REFERENCE**

1. SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRIID, IGN, AND THE GIS USER COMMUNITY.
2. COORDINATE SYSTEM: NAD 1983 STATE PLANE GEORGIA WEST (U.S. FEET).
3. MONITORING WELL LOCATIONS PROVIDED BY SOUTHERN COMPANY SERVICES.
4. APPROXIMATE PROPERTY BOUNDARY PROVIDED BY SOUTHERN COMPANY (2018). DATE OF PHOTOGRAPHY 09-7-2018.



CLIENT  
 GEORGIA POWER COMPANY  
 PLANT MCDONOUGH

PROJECT  
 ANNUAL GROUNDWATER MONITORING REPORT  
 PLANT MCDONOUGH

**TITLE**  
**ASH POND 2 (AP-2) & ASH PONDS 3/4 (AP-3/4) SITE PLAN & MONITORING WELL LOCATION MAP**

CONSULTANT	YYYY-MM-DD	2019-1-31
GOLDER	PREPARED	SEB
	DESIGN	SEB
	REVIEW	KNJ
	APPROVED	TIR

Path: Q:\GIS\Southern Company\1668496-SCS-Plant McDonough\figures\ash\ponds\_2\fig3-4\_WellLocationMap\_SEB.mxd

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET HAS BEEN MODIFIED FROM ANSIB

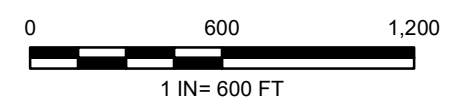




- LEGEND**
- PIEZOMETER
  - AP-1 MONITORING WELL
  - AP-2, 3/4 MONITORING WELL
  - UPGRADIENT WELL
  - ABANDONED PIEZOMETER OR MONITORING WELL
  - APPROXIMATE GROUNDWATER FLOW DIRECTION
  - PERMIT BOUNDARY
  - PROPERTY BOUNDARY
  - GROUNDWATER SURFACE CONTOUR (FAMSL)

- NOTES**
1. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
  2. GROUNDWATER ELEVATION MEASUREMENTS OBTAINED OCTOBER 14, 2019 BY GOLDER ASSOCIATES.
  3. GROUNDWATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FAMSL).
  4. B-27, B-68, AND DGWA-70 ARE NOT USED AS MONITORING WELLS DUE TO WELL REPLACEMENT, PROXIMITY TO CLOSURE ACTIVITIES, OR MODIFICATIONS TO THE PROPOSED WELL NETWORK.
  5. B-76 TO B-84 WERE NOT INCLUDED DUE TO LACK OF SURVEY.

- REFERENCE**
1. SERVICE LAYER CREDITS: SOURCE: ESRI, DIGITALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AERGRID, IGN, AND THE GIS USER COMMUNITY.
  2. COORDINATE SYSTEM: NAD 1983 STATE PLANE GEORGIA WEST (U.S. FEET).
  3. MONITORING WELL/PIEZOMETER LOCATIONS PROVIDED BY SOUTHERN COMPANY SERVICES.
  4. APPROXIMATE PROPERTY BOUNDARY PROVIDED BY SOUTHERN COMPANY (2018). DATE OF PHOTOGRAPHY 09-7-2018.



**DRAFT**

CLIENT  
SOUTHERN COMPANY SERVICES, INC.  
PLANT MCDONOUGH

PROJECT  
ESTIMATED POTENTIOMETRIC SURFACE



TITLE  
**SITE POTENTIOMETRIC MAP  
OCTOBER 14, 2019**

CONSULTANT	YYYY-MM-DD	2019-10-15
	PREPARED	SEB
	DESIGN	SEB
	REVIEW	JRJ
	APPROVED	TIR

PROJECT No. 166849618      Rev. 0      FIGURE 3

**CONFIDENTIAL**  
Attorney Client Communication  
Attorney Work Product  
Work in Progress

Path: Q:\GIS\Southern Company\1668496-SCS-Plant McDonough\figures\SitePotentiometricMap\_SEB.mxd

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**APPENDIX A**

# Laboratory Analytical Data & Field Sampling Reports



December 30, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 28, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Kevin Herring for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622479

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### **Pace Analytical Services Atlanta**

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622479

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622479001	DGWC-2	Water	08/27/19 17:10	08/28/19 10:01
2622479002	DGWC-4	Water	08/27/19 09:50	08/28/19 10:01
2622479003	DGWC-5	Water	08/27/19 11:45	08/28/19 10:01
2622479004	DGWC-9	Water	08/27/19 15:20	08/28/19 10:01
2622479005	DGWC-10	Water	08/27/19 16:30	08/28/19 10:01
2622479006	DGWC-11	Water	08/27/19 11:00	08/28/19 10:01
2622479007	DGWC-12	Water	08/27/19 13:30	08/28/19 10:01
2622479008	DGWC-14	Water	08/27/19 14:50	08/28/19 10:01
2622479009	DGWC-17	Water	08/27/19 16:15	08/28/19 10:01
2622479010	FD-1	Water	08/27/19 00:00	08/28/19 10:01
2622479011	EB-1	Water	08/27/19 17:50	08/28/19 10:01

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2622479001	DGWC-2	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622479002	DGWC-4	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622479003	DGWC-5	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622479004	DGWC-9	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622479005	DGWC-10	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622479006	DGWC-11	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622479007	DGWC-12	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622479008	DGWC-14	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622479009	DGWC-17	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622479010	FD-1	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622479011	EB-1	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: DGWC-2		Lab ID: 2622479001		Collected: 08/27/19 17:10		Received: 08/28/19 10:01		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 18:51	7440-36-0	
Arsenic	<b>0.00099J</b>	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 18:51	7440-38-2	
Barium	<b>0.023</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 18:51	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 18:51	7440-41-7	
Cadmium	<b>0.00012J</b>	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 18:51	7440-43-9	
Chromium	<b>0.00040J</b>	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 18:51	7440-47-3	
Cobalt	<b>0.0088</b>	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 18:51	7440-48-4	
Lead	<b>0.000060J</b>	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 18:51	7439-92-1	B
Lithium	<b>0.032</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 18:51	7439-93-2	
Molybdenum	<b>0.0020J</b>	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 18:51	7439-98-7	
Selenium	<b>0.0069J</b>	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 18:51	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 18:51	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 11:43	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		08/31/19 22:21	16984-48-8	1A

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: DGWC-4		Lab ID: 2622479002		Collected: 08/27/19 09:50		Received: 08/28/19 10:01		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 18:56	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 18:56	7440-38-2	
Barium	<b>0.036</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 18:56	7440-39-3	
Beryllium	<b>0.00024J</b>	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 18:56	7440-41-7	
Cadmium	<b>0.00072J</b>	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 18:56	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 18:56	7440-47-3	
Cobalt	<b>0.0018J</b>	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 18:56	7440-48-4	
Lead	<b>0.000049J</b>	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 18:56	7439-92-1	B
Lithium	<b>0.0033J</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 18:56	7439-93-2	
Molybdenum	<b>0.0065J</b>	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 18:56	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 18:56	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 18:56	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 11:53	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		08/31/19 22:43	16984-48-8	1A

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: DGWC-5		Lab ID: 2622479003		Collected: 08/27/19 11:45		Received: 08/28/19 10:01		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 19:19	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 19:19	7440-38-2		
Barium	<b>0.017</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 19:19	7440-39-3		
Beryllium	<b>0.010</b>	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/04/19 10:03	7440-41-7		
Cadmium	<b>0.00082J</b>	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 19:19	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 19:19	7440-47-3		
Cobalt	<b>0.020</b>	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 19:19	7440-48-4		
Lead	<b>0.000051J</b>	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 19:19	7439-92-1	B	
Lithium	<b>0.0080J</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 19:19	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 19:19	7439-98-7		
Selenium	<b>0.0031J</b>	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 19:19	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 19:19	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	<b>0.00016J</b>	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 11:55	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	<b>0.32</b>	mg/L	0.30	0.029	1		08/31/19 23:06	16984-48-8	1A	

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: DGWC-9		Lab ID: 2622479004		Collected: 08/27/19 15:20		Received: 08/28/19 10:01		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 19:25	7440-36-0	
Arsenic	<b>0.021</b>	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 19:25	7440-38-2	
Barium	<b>0.016</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 19:25	7440-39-3	
Beryllium	<b>0.0070</b>	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/04/19 10:08	7440-41-7	
Cadmium	<b>0.00071J</b>	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 19:25	7440-43-9	
Chromium	<b>0.00048J</b>	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 19:25	7440-47-3	
Cobalt	<b>0.24</b>	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 19:25	7440-48-4	
Lead	ND	mg/L	0.025	0.00023	5	08/29/19 18:05	09/04/19 10:14	7439-92-1	D3
Lithium	<b>0.031</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	09/04/19 10:08	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 19:25	7439-98-7	
Selenium	<b>0.067</b>	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 19:25	7782-49-2	
Thallium	<b>0.00053J</b>	mg/L	0.0050	0.00026	5	08/29/19 18:05	09/04/19 10:14	7440-28-0	D3
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	<b>0.00021J</b>	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 11:57	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.68</b>	mg/L	0.30	0.029	1		08/31/19 23:28	16984-48-8	1A

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## ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: DGWC-10		Lab ID: 2622479005		Collected: 08/27/19 16:30		Received: 08/28/19 10:01		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 19:31	7440-36-0		
Arsenic	<b>0.0024J</b>	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 19:31	7440-38-2		
Barium	<b>0.021</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 19:31	7440-39-3		
Beryllium	<b>0.0092</b>	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/04/19 10:20	7440-41-7		
Cadmium	<b>0.00077J</b>	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 19:31	7440-43-9		
Chromium	<b>0.00083J</b>	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 19:31	7440-47-3		
Cobalt	<b>0.13</b>	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 19:31	7440-48-4		
Lead	<b>0.00024J</b>	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 19:31	7439-92-1	B	
Lithium	<b>0.0053J</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 19:31	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 19:31	7439-98-7		
Selenium	<b>0.015</b>	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 19:31	7782-49-2		
Thallium	<b>0.00036J</b>	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 19:31	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:05	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	<b>1.4</b>	mg/L	0.30	0.029	1		08/31/19 23:51	16984-48-8	1A	

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: DGWC-11		Lab ID: 2622479006		Collected: 08/27/19 11:00		Received: 08/28/19 10:01		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 19:37	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 19:37	7440-38-2	
Barium	<b>0.071</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 19:37	7440-39-3	
Beryllium	<b>0.00014J</b>	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 19:37	7440-41-7	
Cadmium	<b>0.00012J</b>	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 19:37	7440-43-9	
Chromium	<b>0.00060J</b>	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 19:37	7440-47-3	
Cobalt	<b>0.00076J</b>	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 19:37	7440-48-4	
Lead	<b>0.00012J</b>	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 19:37	7439-92-1	B
Lithium	<b>0.0023J</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 19:37	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 19:37	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 19:37	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 19:37	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:07	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 00:14	16984-48-8	1A

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: DGWC-12		Lab ID: 2622479007		Collected: 08/27/19 13:30		Received: 08/28/19 10:01		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 19:42	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 19:42	7440-38-2		
Barium	<b>0.024</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 19:42	7440-39-3		
Beryllium	<b>0.00028J</b>	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 19:42	7440-41-7		
Cadmium	<b>0.00037J</b>	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 19:42	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 19:42	7440-47-3		
Cobalt	<b>0.0021J</b>	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 19:42	7440-48-4		
Lead	<b>0.00010J</b>	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 19:42	7439-92-1	B	
Lithium	<b>0.0011J</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 19:42	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 19:42	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 19:42	7782-49-2		
Thallium	<b>0.00089J</b>	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 19:42	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:09	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 01:22	16984-48-8	1A	

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: DGWC-14		Lab ID: 2622479008		Collected: 08/27/19 14:50		Received: 08/28/19 10:01		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 19:59	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 19:59	7440-38-2	
Barium	<b>0.059</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 19:59	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 19:59	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 19:59	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 19:59	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 19:59	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 19:59	7439-92-1	
Lithium	<b>0.0038J</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 19:59	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 19:59	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 19:59	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 19:59	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:12	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 01:44	16984-48-8	1A

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: DGWC-17		Lab ID: 2622479009		Collected: 08/27/19 16:15		Received: 08/28/19 10:01		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 20:05	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 20:05	7440-38-2	
Barium	<b>0.050</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 20:05	7440-39-3	
Beryllium	<b>0.00066J</b>	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 20:05	7440-41-7	
Cadmium	<b>0.00033J</b>	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 20:05	7440-43-9	
Chromium	<b>0.0031J</b>	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 20:05	7440-47-3	
Cobalt	<b>0.031</b>	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 20:05	7440-48-4	
Lead	<b>0.000090J</b>	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 20:05	7439-92-1	B
Lithium	<b>0.00089J</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 20:05	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 20:05	7439-98-7	
Selenium	<b>0.0073J</b>	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 20:05	7782-49-2	
Thallium	<b>0.00018J</b>	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 20:05	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	<b>0.00016J</b>	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:14	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.24J</b>	mg/L	0.30	0.029	1		09/01/19 02:30	16984-48-8	1A

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: <b>FD-1</b>		Lab ID: <b>2622479010</b>		Collected: 08/27/19 00:00		Received: 08/28/19 10:01		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 20:11	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 20:11	7440-38-2		
Barium	<b>0.037</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 20:11	7440-39-3		
Beryllium	<b>0.00022J</b>	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 20:11	7440-41-7		
Cadmium	<b>0.00074J</b>	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 20:11	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 20:11	7440-47-3		
Cobalt	<b>0.0018J</b>	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 20:11	7440-48-4		
Lead	<b>0.000067J</b>	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 20:11	7439-92-1	B	
Lithium	<b>0.0032J</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 20:11	7439-93-2		
Molybdenum	<b>0.0068J</b>	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 20:11	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 20:11	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 20:11	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:17	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 02:52	16984-48-8	1A	

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## ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622479

Sample: EB-1		Lab ID: 2622479011		Collected: 08/27/19 17:50		Received: 08/28/19 10:01		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 20:17	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 20:17	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 20:17	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 20:17	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 20:17	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 20:17	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 20:17	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 20:17	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 20:17	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 20:17	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 20:17	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 20:17	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:19	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 03:15	16984-48-8	1A	

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### QUALITY CONTROL DATA

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622479

QC Batch: 34496 Analysis Method: EPA 6020B  
 QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
 Associated Lab Samples: 2622479001, 2622479002, 2622479003, 2622479004, 2622479005, 2622479006, 2622479007, 2622479008, 2622479009, 2622479010, 2622479011

METHOD BLANK: 155177 Matrix: Water  
 Associated Lab Samples: 2622479001, 2622479002, 2622479003, 2622479004, 2622479005, 2622479006, 2622479007, 2622479008, 2622479009, 2622479010, 2622479011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	08/30/19 17:42	
Arsenic	mg/L	ND	0.0050	0.00035	08/30/19 17:42	
Barium	mg/L	ND	0.010	0.00049	08/30/19 17:42	
Beryllium	mg/L	ND	0.0030	0.000074	08/30/19 17:42	
Cadmium	mg/L	ND	0.0025	0.00011	08/30/19 17:42	
Chromium	mg/L	ND	0.010	0.00039	08/30/19 17:42	
Cobalt	mg/L	ND	0.0050	0.00030	08/30/19 17:42	
Lead	mg/L	ND	0.0050	0.000046	08/30/19 17:42	
Lithium	mg/L	ND	0.030	0.00078	08/30/19 17:42	
Molybdenum	mg/L	ND	0.010	0.00095	08/30/19 17:42	
Selenium	mg/L	ND	0.010	0.0013	08/30/19 17:42	
Thallium	mg/L	ND	0.0010	0.000052	08/30/19 17:42	

LABORATORY CONTROL SAMPLE: 155178

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	104	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	104	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.11	105	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.10	102	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155179 155180

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2622479002 Result	Spike Conc.	Spike Conc.	Conc.								
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	104	102	75-125	2	20		
Arsenic	mg/L	ND	0.1	0.1	0.11	0.11	106	107	75-125	1	20		
Barium	mg/L	0.036	0.1	0.1	0.14	0.13	103	97	75-125	4	20		
Beryllium	mg/L	0.00024J	0.1	0.1	0.098	0.095	97	95	75-125	3	20		

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622479

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155179		155180		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2622479002 Result	MS Spike Conc.	MSD Spike Conc.									
Cadmium	mg/L	0.00072J	0.1	0.1	0.10	0.099	100	98	75-125	1	20		
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20		
Cobalt	mg/L	0.0018J	0.1	0.1	0.098	0.098	97	96	75-125	1	20		
Lead	mg/L	0.000049J	0.1	0.1	0.094	0.093	94	93	75-125	1	20		
Lithium	mg/L	0.0033J	0.1	0.1	0.10	0.10	100	97	75-125	2	20		
Molybdenum	mg/L	0.0065J	0.1	0.1	0.11	0.11	106	105	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.11	0.11	106	109	75-125	2	20		
Thallium	mg/L	ND	0.1	0.1	0.096	0.095	96	95	75-125	1	20		

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### QUALITY CONTROL DATA

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622479

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QC Batch: 34615 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 2622479001, 2622479002, 2622479003, 2622479004, 2622479005, 2622479006, 2622479007, 2622479008,  
 2622479009, 2622479010, 2622479011

---

METHOD BLANK: 155878 Matrix: Water  
 Associated Lab Samples: 2622479001, 2622479002, 2622479003, 2622479004, 2622479005, 2622479006, 2622479007, 2622479008,  
 2622479009, 2622479010, 2622479011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	08/31/19 20:05	1A

LABORATORY CONTROL SAMPLE: 155879

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	9.4	94	90-110	1A

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## QUALIFIERS

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622479

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### BATCH QUALIFIERS

Batch: 34615

[1] Batch accepted based on laboratory control sample (LCS) recovery.

### ANALYTE QUALIFIERS

1A Batch accepted based on laboratory control sample (LCS) recovery.

B Analyte was detected in the associated method blank.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622479

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622479001	DGWC-2	EPA 3005A	34496	EPA 6020B	34557
2622479002	DGWC-4	EPA 3005A	34496	EPA 6020B	34557
2622479003	DGWC-5	EPA 3005A	34496	EPA 6020B	34557
2622479004	DGWC-9	EPA 3005A	34496	EPA 6020B	34557
2622479005	DGWC-10	EPA 3005A	34496	EPA 6020B	34557
2622479006	DGWC-11	EPA 3005A	34496	EPA 6020B	34557
2622479007	DGWC-12	EPA 3005A	34496	EPA 6020B	34557
2622479008	DGWC-14	EPA 3005A	34496	EPA 6020B	34557
2622479009	DGWC-17	EPA 3005A	34496	EPA 6020B	34557
2622479010	FD-1	EPA 3005A	34496	EPA 6020B	34557
2622479011	EB-1	EPA 3005A	34496	EPA 6020B	34557
2622479001	DGWC-2	EPA 7470A	34472	EPA 7470A	34485
2622479002	DGWC-4	EPA 7470A	34472	EPA 7470A	34485
2622479003	DGWC-5	EPA 7470A	34472	EPA 7470A	34485
2622479004	DGWC-9	EPA 7470A	34472	EPA 7470A	34485
2622479005	DGWC-10	EPA 7470A	34472	EPA 7470A	34485
2622479006	DGWC-11	EPA 7470A	34472	EPA 7470A	34485
2622479007	DGWC-12	EPA 7470A	34472	EPA 7470A	34485
2622479008	DGWC-14	EPA 7470A	34472	EPA 7470A	34485
2622479009	DGWC-17	EPA 7470A	34472	EPA 7470A	34485
2622479010	FD-1	EPA 7470A	34472	EPA 7470A	34485
2622479011	EB-1	EPA 7470A	34472	EPA 7470A	34485
2622479001	DGWC-2	EPA 300.0	34615		
2622479002	DGWC-4	EPA 300.0	34615		
2622479003	DGWC-5	EPA 300.0	34615		
2622479004	DGWC-9	EPA 300.0	34615		
2622479005	DGWC-10	EPA 300.0	34615		
2622479006	DGWC-11	EPA 300.0	34615		
2622479007	DGWC-12	EPA 300.0	34615		
2622479008	DGWC-14	EPA 300.0	34615		
2622479009	DGWC-17	EPA 300.0	34615		
2622479010	FD-1	EPA 300.0	34615		
2622479011	EB-1	EPA 300.0	34615		

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Sample Condition Upon Receipt

Client Name: GCA Power Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

WO#: **2622479**

Tracking #: \_\_\_\_\_

PM: BM Due Date: 09/05/19

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 23 Type of Ice:  Wet  Blue  None  Samples on ice, cooling process has begun

Cooler Temperature 0.8 Biological Tissue is Frozen: Yes No

Date and initials of person examining contents: 8/28/19 MR

Temp should be above freezing to 6°C

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

September 26, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622480

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 28, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Ms. Jean Brown, Georgia Power\_Southern Company  
Ben Hodges, Georgia Power  
Kristen Jurinko, Golder Associates Inc.  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta  
Dominic Weatherhill, Georgia Power



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622480

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## SAMPLE SUMMARY

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622480

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622480001	DGWC-2	Water	08/27/19 17:10	08/28/19 10:01
2622480002	DGWC-4	Water	08/27/19 09:50	08/28/19 10:01
2622480003	DGWC-5	Water	08/27/19 11:45	08/28/19 10:01
2622480004	DGWC-9	Water	08/27/19 15:20	08/28/19 10:01
2622480005	DGWC-10	Water	08/27/19 16:30	08/28/19 10:01
2622480006	DGWC-11	Water	08/27/19 11:00	08/28/19 10:01
2622480007	DGWC-12	Water	08/27/19 13:30	08/28/19 10:01
2622480008	DGWC-14	Water	08/27/19 14:50	08/28/19 10:01
2622480009	DGWC-17	Water	08/27/19 16:15	08/28/19 10:01
2622480010	FD-1	Water	08/27/19 00:00	08/28/19 10:01
2622480011	EB-1	Water	08/27/19 17:50	08/28/19 10:01

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622480001	DGWC-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622480002	DGWC-4	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622480003	DGWC-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622480004	DGWC-9	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622480005	DGWC-10	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622480006	DGWC-11	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622480007	DGWC-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622480008	DGWC-14	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622480009	DGWC-17	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622480010	FD-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622480011	EB-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.982 ± 0.388 (0.330)</b> C:86% T:NA	pCi/L	09/20/19 07:18	13982-63-3	
Radium-228	EPA 9320	<b>0.621 ± 0.437 (0.858)</b> C:81% T:84%	pCi/L	09/23/19 14:06	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.60 ± 0.825 (1.19)</b>	pCi/L	09/24/19 10:31	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

**Sample: DGWC-4**      **Lab ID: 2622480002**      Collected: 08/27/19 09:50      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.752 ± 0.382 (0.563)</b> C:98% T:NA	pCi/L	09/18/19 08:55	13982-63-3	
Radium-228	EPA 9320	<b>1.04 ± 0.433 (0.674)</b> C:73% T:83%	pCi/L	09/20/19 11:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.79 ± 0.815 (1.24)</b>	pCi/L	09/23/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

**Sample: DGWC-5**      **Lab ID: 2622480003**      Collected: 08/27/19 11:45      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.679 ± 0.340 (0.460)</b> C:96% T:NA	pCi/L	09/18/19 10:03	13982-63-3	
Radium-228	EPA 9320	<b>1.13 ± 0.420 (0.608)</b> C:73% T:92%	pCi/L	09/20/19 11:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.81 ± 0.760 (1.07)</b>	pCi/L	09/23/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

**Sample: DGWC-9**      **Lab ID: 2622480004**      Collected: 08/27/19 15:20      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.834 ± 0.358 (0.350)</b> C:91% T:NA	pCi/L	09/18/19 10:26	13982-63-3	
Radium-228	EPA 9320	<b>0.720 ± 0.384 (0.675)</b> C:71% T:84%	pCi/L	09/20/19 11:55	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.55 ± 0.742 (1.03)</b>	pCi/L	09/23/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

**Sample: DGWC-10**      **Lab ID: 2622480005**      Collected: 08/27/19 16:30      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.504 ± 0.279 (0.316)</b> C:89% T:NA	pCi/L	09/18/19 10:27	13982-63-3	
Radium-228	EPA 9320	<b>1.08 ± 0.497 (0.842)</b> C:75% T:82%	pCi/L	09/23/19 14:06	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.58 ± 0.776 (1.16)</b>	pCi/L	09/24/19 10:31	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

**Sample: DGWC-11**      **Lab ID: 2622480006**      Collected: 08/27/19 11:00      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.07 ± 0.414 (0.315)</b> <b>C:94% T:NA</b>	pCi/L	09/18/19 08:55	13982-63-3	
Radium-228	EPA 9320	<b>1.06 ± 0.473 (0.784)</b> <b>C:73% T:80%</b>	pCi/L	09/20/19 11:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.13 ± 0.887 (1.10)</b>	pCi/L	09/23/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.434 ± 0.319 (0.567)</b> C:90% T:NA	pCi/L	09/18/19 10:03	13982-63-3	
Radium-228	EPA 9320	<b>-0.115 ± 0.318 (0.773)</b> C:69% T:81%	pCi/L	09/20/19 11:55	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.434 ± 0.637 (1.34)</b>	pCi/L	09/23/19 12:59	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

**Sample: DGWC-14**      **Lab ID: 2622480008**      Collected: 08/27/19 14:50      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.550 ± 0.317 (0.469)</b> C:92% T:NA	pCi/L	09/18/19 10:29	13982-63-3	
Radium-228	EPA 9320	<b>0.620 ± 0.428 (0.818)</b> C:68% T:78%	pCi/L	09/20/19 11:55	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.17 ± 0.745 (1.29)</b>	pCi/L	09/23/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

**Sample: DGWC-17**      **Lab ID: 2622480009**      Collected: 08/27/19 16:15      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.442 ± 0.283 (0.422)</b> <b>C:88% T:NA</b>	pCi/L	09/18/19 10:26	13982-63-3	
Radium-228	EPA 9320	<b>0.675 ± 0.331 (0.542)</b> <b>C:78% T:82%</b>	pCi/L	09/20/19 11:55	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.12 ± 0.614 (0.964)</b>	pCi/L	09/23/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.722 ± 0.339 (0.401)</b> C:96% T:NA	pCi/L	09/18/19 08:55	13982-63-3	
Radium-228	EPA 9320	<b>0.398 ± 0.360 (0.728)</b> C:74% T:82%	pCi/L	09/20/19 11:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.12 ± 0.699 (1.13)</b>	pCi/L	09/23/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

**Sample: EB-1**      **Lab ID: 2622480011**      Collected: 08/27/19 17:50      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.243 ± 0.222 (0.388)</b> C:80% T:NA	pCi/L	09/20/19 07:18	13982-63-3	
Radium-228	EPA 9320	<b>0.433 ± 0.408 (0.836)</b> C:82% T:74%	pCi/L	09/23/19 14:07	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.676 ± 0.630 (1.22)</b>	pCi/L	09/24/19 10:31	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

QC Batch: 359967

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2622480001, 2622480011

METHOD BLANK: 1747391

Matrix: Water

Associated Lab Samples: 2622480001, 2622480011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.763 ± 0.364 (0.510) C:93% T:NA	pCi/L	09/20/19 07:14	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

QC Batch: 359964

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2622480002, 2622480003, 2622480004, 2622480005, 2622480006, 2622480007, 2622480008, 2622480009, 2622480010

METHOD BLANK: 1747386

Matrix: Water

Associated Lab Samples: 2622480002, 2622480003, 2622480004, 2622480005, 2622480006, 2622480007, 2622480008, 2622480009, 2622480010

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.204 ± 0.233 (0.472) C:94% T:NA	pCi/L	09/18/19 08:31	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

QC Batch: 359966

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2622480002, 2622480003, 2622480004, 2622480006, 2622480007, 2622480008, 2622480009, 2622480010

METHOD BLANK: 1747390

Matrix: Water

Associated Lab Samples: 2622480002, 2622480003, 2622480004, 2622480006, 2622480007, 2622480008, 2622480009, 2622480010

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.232 ± 0.311 (0.664) C:77% T:89%	pCi/L	09/20/19 11:52	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

QC Batch: 359968

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2622480001, 2622480005, 2622480011

METHOD BLANK: 1747392

Matrix: Water

Associated Lab Samples: 2622480001, 2622480005, 2622480011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.921 ± 0.439 (0.755) C:82% T:78%	pCi/L	09/23/19 10:55	

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## QUALIFIERS

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622480

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622480

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622480001	DGWC-2	EPA 9315	359967		
2622480002	DGWC-4	EPA 9315	359964		
2622480003	DGWC-5	EPA 9315	359964		
2622480004	DGWC-9	EPA 9315	359964		
2622480005	DGWC-10	EPA 9315	359964		
2622480006	DGWC-11	EPA 9315	359964		
2622480007	DGWC-12	EPA 9315	359964		
2622480008	DGWC-14	EPA 9315	359964		
2622480009	DGWC-17	EPA 9315	359964		
2622480010	FD-1	EPA 9315	359964		
2622480011	EB-1	EPA 9315	359967		
2622480001	DGWC-2	EPA 9320	359968		
2622480002	DGWC-4	EPA 9320	359966		
2622480003	DGWC-5	EPA 9320	359966		
2622480004	DGWC-9	EPA 9320	359966		
2622480005	DGWC-10	EPA 9320	359968		
2622480006	DGWC-11	EPA 9320	359966		
2622480007	DGWC-12	EPA 9320	359966		
2622480008	DGWC-14	EPA 9320	359966		
2622480009	DGWC-17	EPA 9320	359966		
2622480010	FD-1	EPA 9320	359966		
2622480011	EB-1	EPA 9320	359968		
2622480001	DGWC-2	Total Radium Calculation	362817		
2622480002	DGWC-4	Total Radium Calculation	362637		
2622480003	DGWC-5	Total Radium Calculation	362637		
2622480004	DGWC-9	Total Radium Calculation	362637		
2622480005	DGWC-10	Total Radium Calculation	362817		
2622480006	DGWC-11	Total Radium Calculation	362637		
2622480007	DGWC-12	Total Radium Calculation	362637		
2622480008	DGWC-14	Total Radium Calculation	362637		
2622480009	DGWC-17	Total Radium Calculation	362637		
2622480010	FD-1	Total Radium Calculation	362637		
2622480011	EB-1	Total Radium Calculation	362817		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Minter Road  
 Atlanta, GA 30339  
 Email: jbrahah@southemco.com  
 Phone: (404)506-7239  
 Requested Due Date: Standard TAT

**Section B**  
**Required Project Information:**  
 Report To: Joju Abraham  
 Copy To: Golder  
 Address: SCS Invoices@southemco.com  
 Purchase Order #: SCS10382775  
 Project Name: Plant McDonough AP-2, 3/4  
 Project #: 16584961B

**Section C**  
**Invoice Information:**  
 Attention: SCS Invoices@southemco.com  
 Company Name: SCS  
 Address: 332.7.2  
 State / Location: GA

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)		DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES							OTHER	ANALYSIS TEST	Y/N	
		G	C					H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Fluoride by 300 0				Radium 226/228
1	DGWC-2		G	8/27/2019	1710		4	X								X		
2	DGWC-3		G	8/27/2019	950		4	X								X		
3	DGWC-5		G	8/27/2019	1145		4	X								X		
4	DGWC-9		G	8/27/2019	1520		4	X								X		
5	DGWC-10		G	8/27/2019	1630		4	X								X		
6	DGWC-11		G	8/27/2019	1100		4	X								X		
7	DGWC-12		G	8/27/2019	1330		6	X								X		
8	DGWC-14		G	8/27/2019	1450		4	X								X		
9	DGWC-17		G	8/27/2019	1615		4	X								X		
10	FD-1		G	8/27/2019	-		4	X								X		
11	EB-1		G	8/27/2019	1750		4	X								X		
12																		

**MATRIX:** Drinking Water: WT; Wate: WM; Waste Water: P; Product: SL; Soil/Sed: OL; Oil: WPI; Wipe: ARI; Ar.: OT; Other: TS; Tissue

**CODE:** DW: WT; WM: P; SL: OL; WPI: ARI; OT: TS

**SAMPLE ID**  
 One Character per box.  
 (A-Z, 0-9 /, -)  
 Sample Ids must be unique

**WO#: 2622480**

REMOVED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Received on	TEMP in C	Received on	TEMP in C	Sealed	Cooler	Samples Intact (Y/N)
Kan Mar	8/28/19	908	S-Pace	8.28.19	0908							
Golder	8/28/19	1001	Ma Luman	8/28/19	1001							
						0.87	9					



Sample Condition Upon Receipt

Client Name: G.A. Power

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_  
Tracking #: \_\_\_\_\_

WO#: **2622480**

PM: BM Due Date: 09/26/19

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83

Type of Ice: Wet Blue None

Samples on ice, cooling process has begun

Cooler Temperature 0.8

Biological Tissue is Frozen: Yes No

Date and initials of person examining contents: 8/28/19 MR

Temp should be above freezing to 6°C

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

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):	_____	

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

January 03, 2020

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough Background  
Pace Project No.: 2622481

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 28, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Kevin Herring for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



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## CERTIFICATIONS

Project: Plant McDonough Background

Pace Project No.: 2622481

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### **Pace Analytical Services Atlanta**

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## SAMPLE SUMMARY

Project: Plant McDonough Background  
Pace Project No.: 2622481

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622481001	DGWA-70A	Water	08/27/19 10:20	08/28/19 10:01
2622481002	DGWA-71	Water	08/27/19 15:10	08/28/19 10:01
2622481003	FB-1	Water	08/27/19 10:30	08/28/19 10:01

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough Background  
Pace Project No.: 2622481

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2622481001	DGWA-70A	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622481002	DGWA-71	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2622481003	FB-1	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant McDonough Background  
Pace Project No.: 2622481

Sample: DGWA-70A		Lab ID: 2622481001		Collected: 08/27/19 10:20		Received: 08/28/19 10:01		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	08/30/19 20:22	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	08/30/19 20:22	7440-38-2		
Barium	<b>0.037</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	08/30/19 20:22	7440-39-3		
Beryllium	<b>0.000079J</b>	mg/L	0.0030	0.000074	1	08/29/19 18:05	08/30/19 20:22	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	08/30/19 20:22	7440-43-9		
Chromium	<b>0.00071J</b>	mg/L	0.010	0.00039	1	08/29/19 18:05	08/30/19 20:22	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	08/30/19 20:22	7440-48-4		
Lead	<b>0.000078J</b>	mg/L	0.0050	0.000046	1	08/29/19 18:05	08/30/19 20:22	7439-92-1	B	
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	08/30/19 20:22	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	08/30/19 20:22	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	08/30/19 20:22	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	08/30/19 20:22	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:21	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 03:38	16984-48-8	1A	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant McDonough Background

Pace Project No.: 2622481

Sample: DGWA-71		Lab ID: 2622481002		Collected: 08/27/19 15:10		Received: 08/28/19 10:01		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 20:22	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 20:22	7440-38-2	
Barium	<b>0.027</b>	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 20:22	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 20:22	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 20:22	7440-43-9	
Chromium	<b>0.0018J</b>	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 20:22	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 20:22	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 20:22	7439-92-1	
Lithium	<b>0.0014J</b>	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 20:22	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 20:22	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 20:22	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 20:22	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:24	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 04:00	16984-48-8	1A

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### ANALYTICAL RESULTS

Project: Plant McDonough Background  
Pace Project No.: 2622481

Sample: FB-1		Lab ID: 2622481003		Collected: 08/27/19 10:30		Received: 08/28/19 10:01		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	<b>0.00078J</b>	mg/L	0.0030	0.00027	1	08/29/19 18:05	09/03/19 20:45	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/29/19 18:05	09/03/19 20:45	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	08/29/19 18:05	09/03/19 20:45	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	08/29/19 18:05	09/03/19 20:45	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00011	1	08/29/19 18:05	09/03/19 20:45	7440-43-9		
Chromium	<b>0.0027J</b>	mg/L	0.010	0.00039	1	08/29/19 18:05	09/03/19 20:45	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	08/29/19 18:05	09/03/19 20:45	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	08/29/19 18:05	09/03/19 20:45	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	08/29/19 18:05	09/03/19 20:45	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/29/19 18:05	09/03/19 20:45	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/29/19 18:05	09/03/19 20:45	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/29/19 18:05	09/03/19 20:45	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	08/29/19 09:13	08/29/19 12:26	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		09/01/19 04:23	16984-48-8	1A	

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### QUALITY CONTROL DATA

Project: Plant McDonough Background

Pace Project No.: 2622481

QC Batch: 34472 Analysis Method: EPA 7470A  
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury  
Associated Lab Samples: 2622481001, 2622481002, 2622481003

METHOD BLANK: 155027 Matrix: Water

Associated Lab Samples: 2622481001, 2622481002, 2622481003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	08/29/19 11:39	

LABORATORY CONTROL SAMPLE: 155028

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0027	108	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155029 155030

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2622479001 Result	Spike Conc.	Spike Conc.	Conc.								
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0025	0.0026	97	99	75-125	3	20	

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### QUALITY CONTROL DATA

Project: Plant McDonough Background  
Pace Project No.: 2622481

QC Batch: 34496 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2622481001

METHOD BLANK: 155177 Matrix: Water  
Associated Lab Samples: 2622481001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	08/30/19 17:42	
Arsenic	mg/L	ND	0.0050	0.00035	08/30/19 17:42	
Barium	mg/L	ND	0.010	0.00049	08/30/19 17:42	
Beryllium	mg/L	ND	0.0030	0.000074	08/30/19 17:42	
Cadmium	mg/L	ND	0.0025	0.00011	08/30/19 17:42	
Chromium	mg/L	ND	0.010	0.00039	08/30/19 17:42	
Cobalt	mg/L	ND	0.0050	0.00030	08/30/19 17:42	
Lead	mg/L	ND	0.0050	0.000046	08/30/19 17:42	
Lithium	mg/L	ND	0.030	0.00078	08/30/19 17:42	
Molybdenum	mg/L	ND	0.010	0.00095	08/30/19 17:42	
Selenium	mg/L	ND	0.010	0.0013	08/30/19 17:42	
Thallium	mg/L	ND	0.0010	0.000052	08/30/19 17:42	

LABORATORY CONTROL SAMPLE: 155178

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	104	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.10	104	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.11	105	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.10	102	80-120	
Thallium	mg/L	0.1	0.10	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155179 155180

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2622479002 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	104	102	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.11	0.11	106	107	75-125	1	20	
Barium	mg/L	0.036	0.1	0.1	0.14	0.13	103	97	75-125	4	20	
Beryllium	mg/L	0.00024J	0.1	0.1	0.098	0.095	97	95	75-125	3	20	
Cadmium	mg/L	0.00072J	0.1	0.1	0.10	0.099	100	98	75-125	1	20	

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### QUALITY CONTROL DATA

Project: Plant McDonough Background

Pace Project No.: 2622481

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155179		155180		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2622479002 Result	MS Spike Conc.	MSD Spike Conc.									
Chromium	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20		
Cobalt	mg/L	0.0018J	0.1	0.1	0.098	0.098	97	96	75-125	1	20		
Lead	mg/L	0.000049J	0.1	0.1	0.094	0.093	94	93	75-125	1	20		
Lithium	mg/L	0.0033J	0.1	0.1	0.10	0.10	100	97	75-125	2	20		
Molybdenum	mg/L	0.0065J	0.1	0.1	0.11	0.11	106	105	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.11	0.11	106	109	75-125	2	20		
Thallium	mg/L	ND	0.1	0.1	0.096	0.095	96	95	75-125	1	20		

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### QUALITY CONTROL DATA

Project: Plant McDonough Background  
Pace Project No.: 2622481

QC Batch: 34528 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2622481002, 2622481003

METHOD BLANK: 155360 Matrix: Water  
Associated Lab Samples: 2622481002, 2622481003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	09/03/19 20:11	
Arsenic	mg/L	ND	0.0050	0.00035	09/03/19 20:11	
Barium	mg/L	ND	0.010	0.00049	09/03/19 20:11	
Beryllium	mg/L	ND	0.0030	0.000074	09/03/19 20:11	
Cadmium	mg/L	ND	0.0025	0.00011	09/03/19 20:11	
Chromium	mg/L	ND	0.010	0.00039	09/03/19 20:11	
Cobalt	mg/L	ND	0.0050	0.00030	09/03/19 20:11	
Lead	mg/L	ND	0.0050	0.000046	09/03/19 20:11	
Lithium	mg/L	ND	0.030	0.00078	09/03/19 20:11	
Molybdenum	mg/L	ND	0.010	0.00095	09/03/19 20:11	
Selenium	mg/L	ND	0.010	0.0013	09/03/19 20:11	
Thallium	mg/L	ND	0.0010	0.000052	09/03/19 20:11	

LABORATORY CONTROL SAMPLE: 155361

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.12	118	80-120	
Arsenic	mg/L	0.1	0.10	105	80-120	
Barium	mg/L	0.1	0.11	105	80-120	
Beryllium	mg/L	0.1	0.11	109	80-120	
Cadmium	mg/L	0.1	0.11	108	80-120	
Chromium	mg/L	0.1	0.11	107	80-120	
Cobalt	mg/L	0.1	0.11	106	80-120	
Lead	mg/L	0.1	0.10	105	80-120	
Lithium	mg/L	0.1	0.11	107	80-120	
Molybdenum	mg/L	0.1	0.11	108	80-120	
Selenium	mg/L	0.1	0.11	107	80-120	
Thallium	mg/L	0.1	0.10	105	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155362 155363

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2622481002 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.11	0.12	114	117	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	100	103	75-125	3	20	
Barium	mg/L	0.027	0.1	0.1	0.13	0.13	101	107	75-125	4	20	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.10	101	102	75-125	1	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.11	103	106	75-125	2	20	

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### QUALITY CONTROL DATA

Project: Plant McDonough Background

Pace Project No.: 2622481

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155362		155363		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2622481002 Result	MS Spike Conc.	MSD Spike Conc.									
Chromium	mg/L	0.0018J	0.1	0.1	0.11	0.11	104	107	75-125	3	20		
Cobalt	mg/L	ND	0.1	0.1	0.10	0.11	103	107	75-125	4	20		
Lead	mg/L	ND	0.1	0.1	0.10	0.10	101	104	75-125	3	20		
Lithium	mg/L	0.0014J	0.1	0.1	0.10	0.10	100	103	75-125	3	20		
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	106	110	75-125	4	20		
Selenium	mg/L	ND	0.1	0.1	0.10	0.11	103	106	75-125	4	20		
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	102	104	75-125	3	20		

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### QUALITY CONTROL DATA

Project: Plant McDonough Background

Pace Project No.: 2622481

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QC Batch: 34615	Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0	Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2622481001, 2622481002, 2622481003	

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METHOD BLANK: 155878 Matrix: Water  
Associated Lab Samples: 2622481001, 2622481002, 2622481003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	08/31/19 20:05	1A

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LABORATORY CONTROL SAMPLE: 155879

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	9.4	94	90-110	1A

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## QUALIFIERS

Project: Plant McDonough Background

Pace Project No.: 2622481

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### BATCH QUALIFIERS

Batch: 34615

[1] Batch accepted based on laboratory control sample (LCS) recovery.

### ANALYTE QUALIFIERS

1A Batch accepted based on laboratory control sample (LCS) recovery.

B Analyte was detected in the associated method blank.

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough Background  
Pace Project No.: 2622481

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622481001	DGWA-70A	EPA 3005A	34496	EPA 6020B	34557
2622481002	DGWA-71	EPA 3005A	34528	EPA 6020B	34560
2622481003	FB-1	EPA 3005A	34528	EPA 6020B	34560
2622481001	DGWA-70A	EPA 7470A	34472	EPA 7470A	34485
2622481002	DGWA-71	EPA 7470A	34472	EPA 7470A	34485
2622481003	FB-1	EPA 7470A	34472	EPA 7470A	34485
2622481001	DGWA-70A	EPA 300.0	34615		
2622481002	DGWA-71	EPA 300.0	34615		
2622481003	FB-1	EPA 300.0	34615		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
<b>Required Client Information:</b>		<b>Required Project Information:</b>		<b>Invoice Information:</b>	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Jay Abraham	Attention:	scs@pcc.com
Address:	2480 Maner Road Atlanta, GA 30339	Copy To:	Goldor	Company Name:	
E-mail:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Address:	
Phone:	(404)506-7239	Project Name:	Plant McDonough Background	Pace Quote:	
Requested Due Date:	Standard TAT	Project #:	168949618	Pace Project Manager:	betsy.mcdaniels@paceelabs.com
				Pace Profile #:	332,7,2

Page: 1 Of 1

ITEM #	MATRIX CODE (see vial codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	SAMPLER TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES										ANALYSES TEST Y/N	Requester/Analysis Filtered (Y/N)	Residual Chlorine (Y/N)								
							H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals App IV*	Fluoride by 300.0	Radium 226/228											
1	DGWA-70A	G	8/27/2019	1020		4	X	X								X	X	X									
2	DGWA-71	G	8/27/2019	1510		4	X	X								X	X	X									
3	FB-1	G	8/27/2019	1030		4	X	X								X	X	X									
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

NO#: 2622481

RECEIVED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Temp (Y/N)	Custody	Sealed	Cooled	Samples	Intact
<i>Y. Z. / Goldor</i>	8/28/19	908	<i>P. / Pace</i>	8.28.19	0908								
<i>Goldor</i>			<i>M. Goldman</i>	8/28/19	1001								
<i>P. / Pace</i>	8.28.19	1001	<i>M. Goldman</i>	8/28/19	1001								

\* Metals = Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Ti



Sample Condition Upon Receipt

Client Name: GA Power Project # \_\_\_\_\_

WO#: **2622481**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_  
Tracking #: \_\_\_\_\_

PM: **BM** Due Date: **09/05/19**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

CLIENT: **GAPower-CCR**

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 0.8

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/28/19 MR

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_

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

September 26, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough Background  
Pace Project No.: 2622482

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 28, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Ms. Jean Brown, Georgia Power\_Southern Company  
Ben Hodges, Georgia Power  
Kristen Jurinko, Golder Associates Inc.  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta  
Dominic Weatherhill, Georgia Power



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough Background  
Pace Project No.: 2622482

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough Background

Pace Project No.: 2622482

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622482001	DGWA-70A	Water	08/27/19 10:20	08/28/19 10:01
2622482002	DGWA-71	Water	08/27/19 15:10	08/28/19 10:01
2622482003	FB-1	Water	08/27/19 10:30	08/28/19 10:01

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough Background

Pace Project No.: 2622482

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622482001	DGWA-70A	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622482002	DGWA-71	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622482003	FB-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2622482

**Sample: DGWA-70A**      **Lab ID: 2622482001**      Collected: 08/27/19 10:20      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.11 ± 0.420 (0.348)</b> <b>C:84% T:NA</b>	pCi/L	09/20/19 07:20	13982-63-3	
Radium-228	EPA 9320	<b>0.863 ± 0.385 (0.642)</b> <b>C:81% T:91%</b>	pCi/L	09/23/19 10:55	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.97 ± 0.805 (0.990)</b>	pCi/L	09/24/19 10:31	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2622482

**Sample: DGWA-71**      **Lab ID: 2622482002**      Collected: 08/27/19 15:10      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.435 ± 0.334 (0.581)</b> C:72% T:NA	pCi/L	09/20/19 07:20	13982-63-3	
Radium-228	EPA 9320	<b>0.867 ± 0.464 (0.843)</b> C:81% T:78%	pCi/L	09/23/19 10:55	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.30 ± 0.798 (1.42)</b>	pCi/L	09/24/19 10:31	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2622482

**Sample: FB-1**      **Lab ID: 2622482003**      Collected: 08/27/19 10:30      Received: 08/28/19 10:01      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.200 ± 0.274 (0.592)</b> <b>C:88% T:NA</b>	pCi/L	09/20/19 07:20	13982-63-3	
Radium-228	EPA 9320	<b>0.386 ± 0.361 (0.740)</b> <b>C:79% T:86%</b>	pCi/L	09/23/19 10:55	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.586 ± 0.635 (1.33)</b>	pCi/L	09/24/19 10:31	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2622482

QC Batch: 359967 Analysis Method: EPA 9315

QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium

Associated Lab Samples: 2622482001, 2622482002, 2622482003

METHOD BLANK: 1747391 Matrix: Water

Associated Lab Samples: 2622482001, 2622482002, 2622482003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.763 ± 0.364 (0.510) C:93% T:NA	pCi/L	09/20/19 07:14	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2622482

QC Batch: 359968

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2622482001, 2622482002, 2622482003

METHOD BLANK: 1747392

Matrix: Water

Associated Lab Samples: 2622482001, 2622482002, 2622482003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.921 ± 0.439 (0.755) C:82% T:78%	pCi/L	09/23/19 10:55	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant McDonough Background

Pace Project No.: 2622482

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough Background

Pace Project No.: 2622482

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622482001	DGWA-70A	EPA 9315	359967		
2622482002	DGWA-71	EPA 9315	359967		
2622482003	FB-1	EPA 9315	359967		
2622482001	DGWA-70A	EPA 9320	359968		
2622482002	DGWA-71	EPA 9320	359968		
2622482003	FB-1	EPA 9320	359968		
2622482001	DGWA-70A	Total Radium Calculation	362817		
2622482002	DGWA-71	Total Radium Calculation	362817		
2622482003	FB-1	Total Radium Calculation	362817		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

### Section A

#### Required Client Information:

Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jbrahram@southemtlab.com  
 Phone: (404)506-7239 Fax:  
 Requested Due Date: Standard TAT

### Section B

#### Required Project Information:

Report To: Jiju Abraham  
 Copy To: Golder  
 Purchase Order #: SCS10382775  
 Project Name: Plant McDonough Background  
 Project #: 168849618

### Section C

#### Invoice Information:

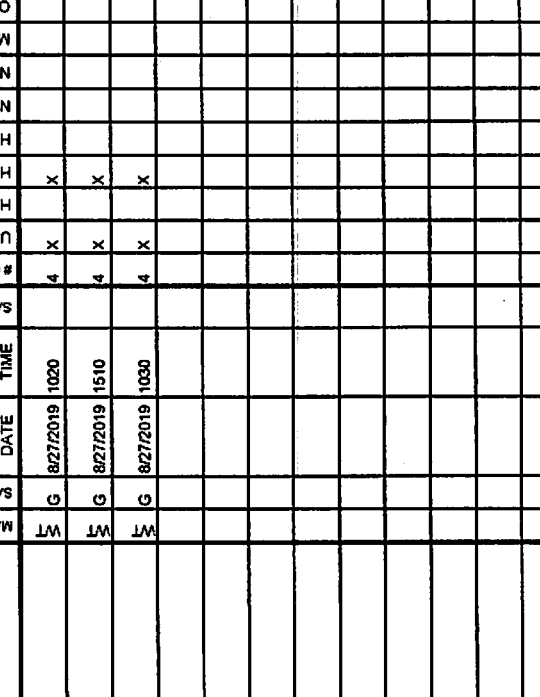
Attention: scsinvoic@southemtlab.com  
 Company Name:  
 Address:  
 Pace Quota:  
 Pace Project Manager: betsy.mcdaniel@pacelabs.com.  
 Pace Profile #: 332.7.2

Regulatory Agency:  
 State / Location: GA

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	SAMPLER TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						ANALYSES TEST	Requested Analysis Filtered (Y/N)	TEMP in C	Received on	Sealed	Cooler	Samples Intact (Y/N)	
							H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol								Other
1	DGWA 70A	WT	8/27/2019	1020		4	X	X												
2	DGWA 71	WT	8/27/2019	1510		4	X	X												
3	FB-1	WT	8/27/2019	1030		4	X	X												
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

**SAMPLE ID**  
 One Character per box. (-)  
 (A-Z, 0-9, -, .)  
 Sample ids must be unique

**WO# : 2622482**



RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
J. Golden	8/28/19	9:08	J. Poole	8.28.19	0908	
J. Poole	8.28.19	1001	A. Dalman	8/28/19	1001	
						5.8 F F F

Matels = Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl

DATE Signed: \_\_\_\_\_



Sample Condition Upon Receipt

Client Name: GAPower

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

WO#: **2622482**

Tracking #: \_\_\_\_\_

PM: **BM** Due Date: **09/26/19**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

CLIENT: **GAPower-CCR**

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice: Wet Blue None  Samples on ice, cooling process has begun

Cooler Temperature 0.8 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/28/19 MK

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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



December 30, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 29, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Kevin Herring for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622572

---

### **Pace Analytical Services Atlanta**

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### **Pace Analytical Services Asheville**

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622572

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622572001	DGWC-20	Water	08/29/19 10:05	08/29/19 16:00
2622572002	DGWC-21	Water	08/29/19 11:30	08/29/19 16:00
2622572003	DGWC-22	Water	08/29/19 12:10	08/29/19 16:00
2622572004	DGWC-23	Water	08/29/19 10:50	08/29/19 16:00
2622572005	DGWC-47	Water	08/29/19 09:15	08/29/19 16:00
2622572006	DGWC-48	Water	08/29/19 10:45	08/29/19 16:00
2622572007	FB-3	Water	08/29/19 09:50	08/29/19 16:00
2622572008	EB-3	Water	08/29/19 12:00	08/29/19 16:00
2622572009	FD-3	Water	08/29/19 00:00	08/29/19 16:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622572001	DGWC-20	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622572002	DGWC-21	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622572003	DGWC-22	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622572004	DGWC-23	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622572005	DGWC-47	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622572006	DGWC-48	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622572007	FB-3	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622572008	EB-3	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A
2622572009	FD-3	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	CDC	1	PASI-A

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

Sample: DGWC-20		Lab ID: 2622572001		Collected: 08/29/19 10:05		Received: 08/29/19 16:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 22:34	7440-36-0		
Arsenic	<b>0.0064</b>	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 22:34	7440-38-2		
Barium	<b>0.018</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 22:34	7440-39-3		
Beryllium	<b>0.0050</b>	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 22:34	7440-41-7		
Cadmium	<b>0.0020J</b>	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 22:34	7440-43-9		
Chromium	<b>0.0017J</b>	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 22:34	7440-47-3	B	
Cobalt	<b>0.66</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 22:34	7440-48-4		
Lead	<b>0.00015J</b>	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 22:34	7439-92-1		
Lithium	<b>0.0093J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 22:34	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 22:34	7439-98-7		
Selenium	<b>0.029</b>	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 22:34	7782-49-2		
Thallium	<b>0.00084J</b>	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 22:34	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:43	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	<b>0.78</b>	mg/L	0.10	0.050	1		09/06/19 14:16	16984-48-8	M1	

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

Sample: DGWC-21		Lab ID: 2622572002		Collected: 08/29/19 11:30		Received: 08/29/19 16:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 22:40	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 22:40	7440-38-2		
Barium	<b>0.027</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 22:40	7440-39-3		
Beryllium	<b>0.00018J</b>	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 22:40	7440-41-7		
Cadmium	<b>0.00087J</b>	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 22:40	7440-43-9		
Chromium	<b>0.00041J</b>	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 22:40	7440-47-3	B	
Cobalt	<b>0.010</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 22:40	7440-48-4		
Lead	<b>0.00023J</b>	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 22:40	7439-92-1		
Lithium	<b>0.0061J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 22:40	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 22:40	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 22:40	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 22:40	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:45	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	<b>0.079J</b>	mg/L	0.10	0.050	1		09/06/19 14:58	16984-48-8		

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

Sample: DGWC-22		Lab ID: 2622572003		Collected: 08/29/19 12:10		Received: 08/29/19 16:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 22:46	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 22:46	7440-38-2		
Barium	<b>0.031</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 22:46	7440-39-3		
Beryllium	<b>0.00015J</b>	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 22:46	7440-41-7		
Cadmium	<b>0.00053J</b>	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 22:46	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 22:46	7440-47-3		
Cobalt	<b>0.0094</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 22:46	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 22:46	7439-92-1		
Lithium	<b>0.0035J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 22:46	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 22:46	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 22:46	7782-49-2		
Thallium	<b>0.00064J</b>	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 22:46	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:48	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	<b>0.054J</b>	mg/L	0.10	0.050	1		09/06/19 15:12	16984-48-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

Sample: DGWC-23		Lab ID: 2622572004		Collected: 08/29/19 10:50		Received: 08/29/19 16:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 22:52	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 22:52	7440-38-2		
Barium	<b>0.025</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 22:52	7440-39-3		
Beryllium	<b>0.00041J</b>	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 22:52	7440-41-7		
Cadmium	<b>0.00022J</b>	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 22:52	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 22:52	7440-47-3		
Cobalt	<b>0.00036J</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 22:52	7440-48-4		
Lead	<b>0.000066J</b>	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 22:52	7439-92-1		
Lithium	<b>0.0017J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 22:52	7439-93-2		
Molybdenum	<b>0.014</b>	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 22:52	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 22:52	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 22:52	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:50	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	<b>0.095J</b>	mg/L	0.10	0.050	1		09/06/19 15:26	16984-48-8		

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

Sample: DGWC-47		Lab ID: 2622572005		Collected: 08/29/19 09:15		Received: 08/29/19 16:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 22:57	7440-36-0		
Arsenic	<b>0.00089J</b>	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 22:57	7440-38-2		
Barium	<b>0.018</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 22:57	7440-39-3		
Beryllium	<b>0.011</b>	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 22:57	7440-41-7		
Cadmium	<b>0.0021J</b>	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 22:57	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 22:57	7440-47-3		
Cobalt	<b>0.28</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 22:57	7440-48-4		
Lead	<b>0.00060J</b>	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 22:57	7439-92-1		
Lithium	<b>0.056</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 22:57	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 22:57	7439-98-7		
Selenium	<b>0.0040J</b>	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 22:57	7782-49-2		
Thallium	<b>0.00025J</b>	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 22:57	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/03/19 11:46	09/03/19 17:52	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	<b>0.52</b>	mg/L	0.10	0.050	1		09/06/19 15:54	16984-48-8		

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

Sample: DGWC-48		Lab ID: 2622572006		Collected: 08/29/19 10:45		Received: 08/29/19 16:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 23:03	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 23:03	7440-38-2		
Barium	<b>0.014</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 23:03	7440-39-3		
Beryllium	<b>0.0081</b>	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 23:03	7440-41-7		
Cadmium	<b>0.0030</b>	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 23:03	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 23:03	7440-47-3		
Cobalt	<b>0.42</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 23:03	7440-48-4		
Lead	<b>0.0010J</b>	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 23:03	7439-92-1		
Lithium	<b>0.11</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 23:03	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 23:03	7439-98-7		
Selenium	<b>0.0023J</b>	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 23:03	7782-49-2		
Thallium	<b>0.000078J</b>	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 23:03	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 13:09	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	<b>0.78</b>	mg/L	0.10	0.050	1		09/06/19 16:36	16984-48-8		

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

Sample: <b>FB-3</b>		Lab ID: <b>2622572007</b>		Collected: 08/29/19 09:50	Received: 08/29/19 16:00	Matrix: Water				
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 23:09	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 23:09	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 23:09	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 23:09	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 23:09	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 23:09	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 23:09	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 23:09	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 23:09	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 23:09	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 23:09	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 23:09	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 13:29	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	ND	mg/L	0.10	0.050	1		09/06/19 16:50	16984-48-8		

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**ANALYTICAL RESULTS**

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622572

Sample: EB-3		Lab ID: 2622572008		Collected: 08/29/19 12:00		Received: 08/29/19 16:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 23:14	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 23:14	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 23:14	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 23:14	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 23:14	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 23:14	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 23:14	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 23:14	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 23:14	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 23:14	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 23:14	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 23:14	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 13:32	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	ND	mg/L	0.10	0.050	1		09/06/19 17:04	16984-48-8		

**REPORT OF LABORATORY ANALYSIS**

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### ANALYTICAL RESULTS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

Sample: <b>FD-3</b>		Lab ID: <b>2622572009</b>		Collected: 08/29/19 00:00		Received: 08/29/19 16:00		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/04/19 23:20	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/04/19 23:20	7440-38-2	
Barium	<b>0.035</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/04/19 23:20	7440-39-3	
Beryllium	<b>0.00016J</b>	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/04/19 23:20	7440-41-7	
Cadmium	<b>0.00072J</b>	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/04/19 23:20	7440-43-9	
Chromium	<b>0.00070J</b>	mg/L	0.010	0.00039	1	08/30/19 16:08	09/04/19 23:20	7440-47-3	B
Cobalt	<b>0.011</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/04/19 23:20	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/04/19 23:20	7439-92-1	
Lithium	<b>0.0040J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/04/19 23:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/04/19 23:20	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/04/19 23:20	7782-49-2	
Thallium	<b>0.000075J</b>	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/04/19 23:20	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 13:34	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993							
Fluoride	ND	mg/L	0.10	0.050	1		09/06/19 17:18	16984-48-8	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

QC Batch: 34630 Analysis Method: EPA 7470A  
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury  
Associated Lab Samples: 2622572001, 2622572002, 2622572003, 2622572004, 2622572005

METHOD BLANK: 155919 Matrix: Water  
Associated Lab Samples: 2622572001, 2622572002, 2622572003, 2622572004, 2622572005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	09/03/19 16:46	

LABORATORY CONTROL SAMPLE: 155920

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0027	107	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155921 155922

Parameter	Units	2622561001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0026	100	105	75-125	5	20	

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

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### QUALITY CONTROL DATA

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622572

QC Batch: 34690 Analysis Method: EPA 7470A  
 QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury  
 Associated Lab Samples: 2622572006, 2622572007, 2622572008, 2622572009

METHOD BLANK: 156136 Matrix: Water  
 Associated Lab Samples: 2622572006, 2622572007, 2622572008, 2622572009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	09/04/19 13:04	

LABORATORY CONTROL SAMPLE: 156137

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 156138 156139

Parameter	Units	156138		156139		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		2622572006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0025	96	99	75-125	3	20

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

QC Batch: 34570 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2622572001, 2622572002, 2622572003, 2622572004, 2622572005, 2622572006, 2622572007, 2622572008, 2622572009

METHOD BLANK: 155680 Matrix: Water  
Associated Lab Samples: 2622572001, 2622572002, 2622572003, 2622572004, 2622572005, 2622572006, 2622572007, 2622572008, 2622572009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	09/04/19 21:26	
Arsenic	mg/L	ND	0.0050	0.00035	09/04/19 21:26	
Barium	mg/L	ND	0.010	0.00049	09/04/19 21:26	
Beryllium	mg/L	ND	0.0030	0.000074	09/04/19 21:26	
Cadmium	mg/L	ND	0.0025	0.00011	09/04/19 21:26	
Chromium	mg/L	0.00055J	0.010	0.00039	09/04/19 21:26	
Cobalt	mg/L	ND	0.0050	0.00030	09/04/19 21:26	
Lead	mg/L	ND	0.0050	0.000046	09/04/19 21:26	
Lithium	mg/L	ND	0.030	0.00078	09/04/19 21:26	
Molybdenum	mg/L	ND	0.010	0.00095	09/04/19 21:26	
Selenium	mg/L	ND	0.010	0.0013	09/04/19 21:26	
Thallium	mg/L	ND	0.0010	0.000052	09/04/19 21:26	

LABORATORY CONTROL SAMPLE: 155681

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	113	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.10	103	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.10	104	80-120	
Cobalt	mg/L	0.1	0.10	103	80-120	
Lead	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.11	105	80-120	
Molybdenum	mg/L	0.1	0.11	106	80-120	
Selenium	mg/L	0.1	0.10	102	80-120	
Thallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155682 155683

Parameter	Units	2622563003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	114	114	75-125	0	20	
Arsenic	mg/L	0.00044J	0.1	0.1	0.10	0.10	101	101	75-125	0	20	
Barium	mg/L	0.039	0.1	0.1	0.14	0.14	103	104	75-125	0	20	
Beryllium	mg/L	0.00016J	0.1	0.1	0.10	0.099	101	99	75-125	2	20	

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### QUALITY CONTROL DATA

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622572

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155682		155683		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2622563003 Result	MS Spike Conc.	MSD Spike Conc.									
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	102	75-125	2	20		
Chromium	mg/L	0.0071J	0.1	0.1	0.11	0.11	105	106	75-125	1	20		
Cobalt	mg/L	ND	0.1	0.1	0.11	0.10	106	104	75-125	2	20		
Lead	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	1	20		
Lithium	mg/L	0.0021J	0.1	0.1	0.10	0.098	98	96	75-125	2	20		
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	108	107	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20		
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20		

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622572

QC Batch: 496440 Analysis Method: EPA 300.0 Rev 2.1 1993  
 QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 2622572001, 2622572002, 2622572003, 2622572004, 2622572005, 2622572006, 2622572007, 2622572008, 2622572009

METHOD BLANK: 2673683 Matrix: Water  
 Associated Lab Samples: 2622572001, 2622572002, 2622572003, 2622572004, 2622572005, 2622572006, 2622572007, 2622572008, 2622572009

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	0.050	09/06/19 13:48	

LABORATORY CONTROL SAMPLE: 2673684

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.4	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2673685 2673686

Parameter	Units	2622572001 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		
Fluoride	mg/L	0.78	2.5	2.5	4.9	4.8	164	160	90-110	2	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2673687 2673688

Parameter	Units	2622502009 Result	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits	RPD		
Fluoride	mg/L	ND	2.5	2.5	3.1	2.7	124	106	90-110	16	10	M1,R1

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622572

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622572

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622572001	DGWC-20	EPA 3005A	34570	EPA 6020B	34601
2622572002	DGWC-21	EPA 3005A	34570	EPA 6020B	34601
2622572003	DGWC-22	EPA 3005A	34570	EPA 6020B	34601
2622572004	DGWC-23	EPA 3005A	34570	EPA 6020B	34601
2622572005	DGWC-47	EPA 3005A	34570	EPA 6020B	34601
2622572006	DGWC-48	EPA 3005A	34570	EPA 6020B	34601
2622572007	FB-3	EPA 3005A	34570	EPA 6020B	34601
2622572008	EB-3	EPA 3005A	34570	EPA 6020B	34601
2622572009	FD-3	EPA 3005A	34570	EPA 6020B	34601
2622572001	DGWC-20	EPA 7470A	34630	EPA 7470A	34665
2622572002	DGWC-21	EPA 7470A	34630	EPA 7470A	34665
2622572003	DGWC-22	EPA 7470A	34630	EPA 7470A	34665
2622572004	DGWC-23	EPA 7470A	34630	EPA 7470A	34665
2622572005	DGWC-47	EPA 7470A	34630	EPA 7470A	34665
2622572006	DGWC-48	EPA 7470A	34690	EPA 7470A	34713
2622572007	FB-3	EPA 7470A	34690	EPA 7470A	34713
2622572008	EB-3	EPA 7470A	34690	EPA 7470A	34713
2622572009	FD-3	EPA 7470A	34690	EPA 7470A	34713
2622572001	DGWC-20	EPA 300.0 Rev 2.1 1993	496440		
2622572002	DGWC-21	EPA 300.0 Rev 2.1 1993	496440		
2622572003	DGWC-22	EPA 300.0 Rev 2.1 1993	496440		
2622572004	DGWC-23	EPA 300.0 Rev 2.1 1993	496440		
2622572005	DGWC-47	EPA 300.0 Rev 2.1 1993	496440		
2622572006	DGWC-48	EPA 300.0 Rev 2.1 1993	496440		
2622572007	FB-3	EPA 300.0 Rev 2.1 1993	496440		
2622572008	EB-3	EPA 300.0 Rev 2.1 1993	496440		
2622572009	FD-3	EPA 300.0 Rev 2.1 1993	496440		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Meter Road, Atlanta, GA 30338  
 Email: jbraham@southernco.com  
 Phone: (404)506-7239  
 Requested Due Date: Standard TAT

Section B  
**Required Project Information:**  
 Report To: Jiju Abraham  
 Copy To: Golder  
 Purchase Order #: SCS10382775  
 Project Name: Plant McDonough AP-2, 3/4  
 Project #: 166849618

Section C  
**Invoice Information:**  
 Attention: scsinvoices@southernco.com  
 Company Name:  
 Address:  
 Pace Quoté:  
 Pace Project Manager: betsy.mcdaniel@pacelets.com  
 Pace Profile #: 332.7.2

State: GA  
 Regulatory Agency:  
 State / Location:

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES										Analyses Test Y/N	Metals App IV*	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)
							H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Unpreserved - Ice	H2SO4	HNO3					
1	DGWC-20	G	8/29/2019	1005		4	X										X	X			
2	DGWC-21	G	8/29/2019	1130		4	X										X	X			
3	DGWC-22	G	8/29/2019	1210		4	X										X	X			
4	DGWC-23	G	8/29/2019	1050		4	X										X	X			
5	DGWC-47	G	8/29/2019	915		4	X										X	X			
6	DGWC-48	G	8/29/2019	1045		6	X										X	X		Extra Radium	
7	FB-3	G	8/29/2019	950		4	X										X	X			
8	EB-3	G	8/29/2019	1200		4	X										X	X			
9	FD-3	G	8/29/2019	-		4	X										X	X			
10																					
11																					
12																					

WO#: 2622572

2622572

RECEIVED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on Ice	Sealed	Cooler	Samples Intact
Jiju Abraham Golder	8-29-19	1650	M. Goldman	8/29/19	1600					

\* Metals = Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Ti



Sample Condition Upon Receipt

Client Name: GIA Power Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_  
Tracking #: \_\_\_\_\_

**WO# : 2622572**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

PM: BM Due Date: 09/06/19  
CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None  Samples on ice, cooling process has begun

Cooler Temperature 0.7 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/29/19 [Signature]

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

September 24, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622574

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 29, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Ben Hodges, Georgia Power  
Kristen Jurinko, Golder Associates Inc.  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

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### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622574001	DGWC-20	Water	08/29/19 10:05	08/29/19 16:00
2622574002	DGWC-21	Water	08/29/19 11:30	08/29/19 16:00
2622574003	DGWC-22	Water	08/29/19 12:10	08/29/19 16:00
2622574004	DGWC-23	Water	08/29/19 10:50	08/29/19 16:00
2622574005	DGWC-47	Water	08/29/19 09:15	08/29/19 16:00
2622574006	DGWC-48	Water	08/29/19 10:45	08/29/19 16:00
2622574007	FB-3	Water	08/29/19 09:50	08/29/19 16:00
2622574008	EB-3	Water	08/29/19 12:00	08/29/19 16:00
2622574009	FD-3	Water	08/29/19 00:00	08/29/19 16:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622574001	DGWC-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622574002	DGWC-21	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622574003	DGWC-22	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622574004	DGWC-23	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622574005	DGWC-47	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622574006	DGWC-48	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622574007	FB-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622574008	EB-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622574009	FD-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.666 ± 0.332 (0.438)</b> C:95% T:NA	pCi/L	09/13/19 08:08	13982-63-3	
Radium-228	EPA 9320	<b>0.330 ± 0.458 (0.983)</b> C:64% T:84%	pCi/L	09/19/19 15:18	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.996 ± 0.790 (1.42)</b>	pCi/L	09/23/19 11:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.582 ± 0.334 (0.523)</b> C:98% T:NA	pCi/L	09/13/19 08:09	13982-63-3	
Radium-228	EPA 9320	<b>-0.0351 ± 0.366 (0.858)</b> C:69% T:81%	pCi/L	09/19/19 15:18	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.582 ± 0.700 (1.38)</b>	pCi/L	09/23/19 11:59	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

**Sample: DGWC-22**      **Lab ID: 2622574003**      Collected: 08/29/19 12:10      Received: 08/29/19 16:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.480 ± 0.285 (0.395)</b> C:91% T:NA	pCi/L	09/13/19 08:10	13982-63-3	
Radium-228	EPA 9320	<b>1.39 ± 0.551 (0.862)</b> C:70% T:80%	pCi/L	09/19/19 15:18	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.87 ± 0.836 (1.26)</b>	pCi/L	09/23/19 11:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

**Sample: DGWC-23**      **Lab ID: 2622574004**      Collected: 08/29/19 10:50      Received: 08/29/19 16:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.06 ± 0.438 (0.563)</b> C:95% T:NA	pCi/L	09/13/19 08:09	13982-63-3	
Radium-228	EPA 9320	<b>1.15 ± 0.488 (0.792)</b> C:70% T:84%	pCi/L	09/19/19 15:18	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.21 ± 0.926 (1.36)</b>	pCi/L	09/23/19 11:59	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

**Sample: DGWC-47**      **Lab ID: 2622574005**      Collected: 08/29/19 09:15      Received: 08/29/19 16:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.68 ± 0.546 (0.445)</b> <b>C:87% T:NA</b>	pCi/L	09/13/19 08:06	13982-63-3	
Radium-228	EPA 9320	<b>1.37 ± 0.508 (0.759)</b> <b>C:72% T:86%</b>	pCi/L	09/19/19 15:17	15262-20-1	
Total Radium	Total Radium Calculation	<b>3.05 ± 1.05 (1.20)</b>	pCi/L	09/23/19 11:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

**Sample: DGWC-48**      **Lab ID: 2622574006**      Collected: 08/29/19 10:45      Received: 08/29/19 16:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.973 ± 0.394 (0.397)</b> C:93% T:NA	pCi/L	09/13/19 08:07	13982-63-3	
Radium-228	EPA 9320	<b>1.40 ± 0.600 (0.987)</b> C:65% T:77%	pCi/L	09/19/19 15:18	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.37 ± 0.994 (1.38)</b>	pCi/L	09/23/19 11:59	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

**Sample: FB-3**      **Lab ID: 2622574007**      Collected: 08/29/19 09:50      Received: 08/29/19 16:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.459 ± 0.301 (0.470)</b> C:86% T:NA	pCi/L	09/13/19 08:07	13982-63-3	
Radium-228	EPA 9320	<b>1.12 ± 0.521 (0.892)</b> C:66% T:84%	pCi/L	09/19/19 15:17	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.58 ± 0.822 (1.36)</b>	pCi/L	09/23/19 11:59	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

**Sample: EB-3**      **Lab ID: 2622574008**      Collected: 08/29/19 12:00      Received: 08/29/19 16:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.388 ± 0.268 (0.422)</b> C:87% T:NA	pCi/L	09/13/19 08:10	13982-63-3	
Radium-228	EPA 9320	<b>0.904 ± 0.594 (1.14)</b> C:63% T:75%	pCi/L	09/19/19 15:18	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.29 ± 0.862 (1.56)</b>	pCi/L	09/23/19 11:59	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

**Sample: FD-3**      **Lab ID: 2622574009**      Collected: 08/29/19 00:00      Received: 08/29/19 16:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>2.10 ± 0.606 (0.427)</b> C:88% T:NA	pCi/L	09/13/19 09:00	13982-63-3	
Radium-228	EPA 9320	<b>0.820 ± 0.478 (0.884)</b> C:71% T:76%	pCi/L	09/19/19 15:17	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.92 ± 1.08 (1.31)</b>	pCi/L	09/23/19 11:59	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Ash Ponds

Pace Project No.: 2622574

QC Batch: 359955

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2622574001, 2622574002, 2622574003, 2622574004, 2622574005, 2622574006, 2622574007, 2622574008, 2622574009

METHOD BLANK: 1747367

Matrix: Water

Associated Lab Samples: 2622574001, 2622574002, 2622574003, 2622574004, 2622574005, 2622574006, 2622574007, 2622574008, 2622574009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.428 ± 0.255 (0.325) C:92% T:NA	pCi/L	09/13/19 09:00	

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

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622574

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QC Batch: 359957 Analysis Method: EPA 9320  
QC Batch Method: EPA 9320 Analysis Description: 9320 Radium 228  
Associated Lab Samples: 2622574001, 2622574002, 2622574003, 2622574004, 2622574005, 2622574006, 2622574007, 2622574008, 2622574009

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METHOD BLANK: 1747374 Matrix: Water  
Associated Lab Samples: 2622574001, 2622574002, 2622574003, 2622574004, 2622574005, 2622574006, 2622574007, 2622574008, 2622574009

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.461 ± 0.411 (0.833) C:71% T:76%	pCi/L	09/19/19 12:11	

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

**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622574

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant McDonough Ash Ponds  
Pace Project No.: 2622574

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622574001	DGWC-20	EPA 9315	359955		
2622574002	DGWC-21	EPA 9315	359955		
2622574003	DGWC-22	EPA 9315	359955		
2622574004	DGWC-23	EPA 9315	359955		
2622574005	DGWC-47	EPA 9315	359955		
2622574006	DGWC-48	EPA 9315	359955		
2622574007	FB-3	EPA 9315	359955		
2622574008	EB-3	EPA 9315	359955		
2622574009	FD-3	EPA 9315	359955		
2622574001	DGWC-20	EPA 9320	359957		
2622574002	DGWC-21	EPA 9320	359957		
2622574003	DGWC-22	EPA 9320	359957		
2622574004	DGWC-23	EPA 9320	359957		
2622574005	DGWC-47	EPA 9320	359957		
2622574006	DGWC-48	EPA 9320	359957		
2622574007	FB-3	EPA 9320	359957		
2622574008	EB-3	EPA 9320	359957		
2622574009	FD-3	EPA 9320	359957		
2622574001	DGWC-20	Total Radium Calculation	362617		
2622574002	DGWC-21	Total Radium Calculation	362617		
2622574003	DGWC-22	Total Radium Calculation	362617		
2622574004	DGWC-23	Total Radium Calculation	362617		
2622574005	DGWC-47	Total Radium Calculation	362617		
2622574006	DGWC-48	Total Radium Calculation	362617		
2622574007	FB-3	Total Radium Calculation	362617		
2622574008	EB-3	Total Radium Calculation	362617		
2622574009	FD-3	Total Radium Calculation	362617		

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Sample Condition Upon Receipt

Client Name: GIA Power

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other  
Tracking #: \_\_\_\_\_

WO#: **2622574**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

PM: BM Due Date: 09/27/19  
CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83

Type of Ice:  Wet  Blue  None

Samples on Ice, cooling process has begun

Cooler Temperature 0.7

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/29/19

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):	_____	

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_

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



December 30, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 29, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Kevin Herring for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622585

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### **Pace Analytical Services Atlanta**

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### **Pace Analytical Services Asheville**

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622585001	DGWC-8	Water	08/28/19 10:29	08/29/19 12:50
2622585002	DGWC-13	Water	08/28/19 12:29	08/29/19 12:50
2622585003	DGWC-15	Water	08/28/19 15:05	08/29/19 12:50
2622585004	DGWC-19	Water	08/28/19 16:30	08/29/19 12:50
2622585005	DGWC-42	Water	08/28/19 16:48	08/29/19 12:50
2622585006	EB-2	Water	08/28/19 17:10	08/29/19 12:50
2622585007	FB-2	Water	08/28/19 10:15	08/29/19 12:50

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622585001	DGWC-8	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	1	PASI-A
2622585002	DGWC-13	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	1	PASI-A
2622585003	DGWC-15	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	1	PASI-A
2622585004	DGWC-19	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	1	PASI-A
2622585005	DGWC-42	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	1	PASI-A
2622585006	EB-2	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	1	PASI-A
2622585007	FB-2	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	1	PASI-A

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

Sample: DGWC-8		Lab ID: 2622585001		Collected: 08/28/19 10:29		Received: 08/29/19 12:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/05/19 18:50	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/05/19 18:50	7440-38-2		
Barium	<b>0.025</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/05/19 18:50	7440-39-3		
Beryllium	<b>0.0021J</b>	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/05/19 18:50	7440-41-7		
Cadmium	<b>0.0022J</b>	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/05/19 18:50	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/05/19 18:50	7440-47-3		
Cobalt	<b>0.051</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/05/19 18:50	7440-48-4		
Lead	<b>0.00082J</b>	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/05/19 18:50	7439-92-1		
Lithium	<b>0.0048J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/05/19 18:50	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/05/19 18:50	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/05/19 18:50	7782-49-2		
Thallium	<b>0.00022J</b>	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/05/19 18:50	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 14:03	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	<b>0.098J</b>	mg/L	0.10	0.050	1		09/07/19 19:02	16984-48-8		

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622585

Sample: DGWC-13		Lab ID: 2622585002		Collected: 08/28/19 12:29		Received: 08/29/19 12:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/05/19 18:56	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/05/19 18:56	7440-38-2		
Barium	<b>0.033</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/05/19 18:56	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/05/19 18:56	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/05/19 18:56	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/05/19 18:56	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/05/19 18:56	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/05/19 18:56	7439-92-1		
Lithium	<b>0.0033J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/05/19 18:56	7439-93-2		
Molybdenum	<b>0.015</b>	mg/L	0.010	0.00095	1	08/30/19 16:08	09/05/19 18:56	7439-98-7		
Selenium	<b>0.0039J</b>	mg/L	0.010	0.0013	1	08/30/19 16:08	09/05/19 18:56	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/05/19 18:56	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 14:05	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	<b>0.091J</b>	mg/L	0.10	0.050	1		09/07/19 19:18	16984-48-8		

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622585

Sample: DGWC-15		Lab ID: 2622585003		Collected: 08/28/19 15:05		Received: 08/29/19 12:50		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	<b>0.00033J</b>	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/05/19 19:13	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/05/19 19:13	7440-38-2	
Barium	<b>0.047</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/05/19 19:13	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/05/19 19:13	7440-41-7	
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/05/19 19:13	7440-43-9	
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/05/19 19:13	7440-47-3	
Cobalt	<b>0.0015J</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/05/19 19:13	7440-48-4	
Lead	<b>0.000059J</b>	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/05/19 19:13	7439-92-1	
Lithium	<b>0.0063J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/05/19 19:13	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/05/19 19:13	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/05/19 19:13	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/05/19 19:13	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 14:12	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993							
Fluoride	ND	mg/L	0.10	0.050	1		09/07/19 19:33	16984-48-8	

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

Sample: DGWC-19		Lab ID: 2622585004		Collected: 08/28/19 16:30		Received: 08/29/19 12:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/05/19 19:19	7440-36-0		
Arsenic	<b>0.00049J</b>	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/05/19 19:19	7440-38-2		
Barium	<b>0.026</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/05/19 19:19	7440-39-3		
Beryllium	<b>0.0018J</b>	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/05/19 19:19	7440-41-7		
Cadmium	<b>0.00033J</b>	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/05/19 19:19	7440-43-9		
Chromium	<b>0.0028J</b>	mg/L	0.010	0.00039	1	08/30/19 16:08	09/05/19 19:19	7440-47-3		
Cobalt	<b>0.048</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/05/19 19:19	7440-48-4		
Lead	<b>0.00026J</b>	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/05/19 19:19	7439-92-1		
Lithium	<b>0.0032J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/05/19 19:19	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/05/19 19:19	7439-98-7		
Selenium	<b>0.0040J</b>	mg/L	0.010	0.0013	1	08/30/19 16:08	09/05/19 19:19	7782-49-2		
Thallium	<b>0.00053J</b>	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/05/19 19:19	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 14:15	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	<b>0.20</b>	mg/L	0.10	0.050	1		09/07/19 19:49	16984-48-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

Sample: DGWC-42		Lab ID: 2622585005		Collected: 08/28/19 16:48		Received: 08/29/19 12:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/05/19 19:25	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/05/19 19:25	7440-38-2		
Barium	<b>0.018</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/05/19 19:25	7440-39-3		
Beryllium	<b>0.0023J</b>	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/05/19 19:25	7440-41-7		
Cadmium	<b>0.0015J</b>	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/05/19 19:25	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/05/19 19:25	7440-47-3		
Cobalt	<b>0.029</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/05/19 19:25	7440-48-4		
Lead	<b>0.00036J</b>	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/05/19 19:25	7439-92-1		
Lithium	<b>0.010J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/05/19 19:25	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/05/19 19:25	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/05/19 19:25	7782-49-2		
Thallium	<b>0.000069J</b>	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/05/19 19:25	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 14:17	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	ND	mg/L	0.10	0.050	1		09/07/19 20:04	16984-48-8		

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

Sample: EB-2		Lab ID: 2622585006		Collected: 08/28/19 17:10		Received: 08/29/19 12:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/05/19 19:31	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/05/19 19:31	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	08/30/19 16:08	09/05/19 19:31	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/05/19 19:31	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/05/19 19:31	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/05/19 19:31	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/05/19 19:31	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/05/19 19:31	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	08/30/19 16:08	09/05/19 19:31	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/05/19 19:31	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/05/19 19:31	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/05/19 19:31	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 14:19	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	ND	mg/L	0.10	0.050	1		09/07/19 20:19	16984-48-8		

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

Sample: <b>FB-2</b>		Lab ID: <b>2622585007</b>		Collected: 08/28/19 10:15		Received: 08/29/19 12:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/05/19 19:36	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/05/19 19:36	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	08/30/19 16:08	09/05/19 19:36	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/05/19 19:36	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/05/19 19:36	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/05/19 19:36	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/05/19 19:36	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/05/19 19:36	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	08/30/19 16:08	09/05/19 19:36	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	08/30/19 16:08	09/05/19 19:36	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/05/19 19:36	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/05/19 19:36	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/04/19 09:14	09/04/19 14:22	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	ND	mg/L	0.10	0.050	1		09/08/19 01:30	16984-48-8		

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

QC Batch: 34690 Analysis Method: EPA 7470A  
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury  
Associated Lab Samples: 2622585001, 2622585002, 2622585003, 2622585004, 2622585005, 2622585006, 2622585007

METHOD BLANK: 156136 Matrix: Water  
Associated Lab Samples: 2622585001, 2622585002, 2622585003, 2622585004, 2622585005, 2622585006, 2622585007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	09/04/19 13:04	

LABORATORY CONTROL SAMPLE: 156137

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	104	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 156138 156139

Parameter	Units	2622572006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0025	96	99	75-125	3	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622585

QC Batch: 34572 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2622585001, 2622585002, 2622585003, 2622585004, 2622585005, 2622585006, 2622585007

METHOD BLANK: 155685 Matrix: Water  
Associated Lab Samples: 2622585001, 2622585002, 2622585003, 2622585004, 2622585005, 2622585006, 2622585007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	09/05/19 17:36	
Arsenic	mg/L	ND	0.0050	0.00035	09/05/19 17:36	
Barium	mg/L	ND	0.010	0.00049	09/05/19 17:36	
Beryllium	mg/L	ND	0.0030	0.000074	09/05/19 17:36	
Cadmium	mg/L	ND	0.0025	0.00011	09/05/19 17:36	
Chromium	mg/L	ND	0.010	0.00039	09/05/19 17:36	
Cobalt	mg/L	ND	0.0050	0.00030	09/05/19 17:36	
Lead	mg/L	ND	0.0050	0.000046	09/05/19 17:36	
Lithium	mg/L	ND	0.030	0.00078	09/05/19 17:36	
Molybdenum	mg/L	ND	0.010	0.00095	09/05/19 17:36	
Selenium	mg/L	ND	0.010	0.0013	09/05/19 17:36	
Thallium	mg/L	ND	0.0010	0.000052	09/05/19 17:36	

LABORATORY CONTROL SAMPLE: 155686

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	108	80-120	
Arsenic	mg/L	0.1	0.097	97	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.097	97	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.10	100	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.10	100	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155687 155688

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2622579008 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	104	106	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Barium	mg/L	0.17	0.1	0.1	0.25	0.27	84	96	75-125	4	20	
Beryllium	mg/L	0.00022J	0.1	0.1	0.094	0.095	94	95	75-125	1	20	
Cadmium	mg/L	ND	0.1	0.1	0.098	0.097	98	97	75-125	1	20	

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622585

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155687		155688		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2622579008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Chromium	mg/L	0.00089J	0.1	0.1	0.096	0.099	95	98	75-125	2	20	
Cobalt	mg/L	0.00099J	0.1	0.1	0.096	0.097	95	96	75-125	1	20	
Lead	mg/L	0.000061J	0.1	0.1	0.096	0.098	96	98	75-125	2	20	
Lithium	mg/L	0.0018J	0.1	0.1	0.097	0.098	95	96	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	100	103	75-125	3	20	
Selenium	mg/L	ND	0.1	0.1	0.098	0.095	98	95	75-125	3	20	
Thallium	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20	

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

QC Batch: 496582 Analysis Method: EPA 300.0 Rev 2.1 1993  
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2622585001, 2622585002, 2622585003, 2622585004, 2622585005, 2622585006

METHOD BLANK: 2674477 Matrix: Water  
Associated Lab Samples: 2622585001, 2622585002, 2622585003, 2622585004, 2622585005, 2622585006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	0.050	09/07/19 12:19	

LABORATORY CONTROL SAMPLE: 2674478

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.7	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2674479 2674480

Parameter	Units	2622657001		2674480		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Fluoride	mg/L	ND	2.5	2.5	ND	ND	0	0	90-110	10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2674481 2674482

Parameter	Units	2622587005		2674482		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.						
Fluoride	mg/L	ND	2.5	2.5	2.7	2.8	108	108	90-110	0	10

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622585

QC Batch: 496583 Analysis Method: EPA 300.0 Rev 2.1 1993  
 QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 2622585007

METHOD BLANK: 2674483 Matrix: Water

Associated Lab Samples: 2622585007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	0.050	09/07/19 20:35	

LABORATORY CONTROL SAMPLE: 2674484

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.7	106	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2674485 2674486

Parameter	Units	92443935013 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Fluoride	mg/L	ND	2.5	2.5	2.5	2.6	99	102	90-110	3	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2674487 2674488

Parameter	Units	2622579001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Fluoride	mg/L	ND	2.5	2.4	2.5	2.4	96	96	90-110	0	10	

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## QUALIFIERS

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622585

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622585

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622585001	DGWC-8	EPA 3005A	34572	EPA 6020B	34602
2622585002	DGWC-13	EPA 3005A	34572	EPA 6020B	34602
2622585003	DGWC-15	EPA 3005A	34572	EPA 6020B	34602
2622585004	DGWC-19	EPA 3005A	34572	EPA 6020B	34602
2622585005	DGWC-42	EPA 3005A	34572	EPA 6020B	34602
2622585006	EB-2	EPA 3005A	34572	EPA 6020B	34602
2622585007	FB-2	EPA 3005A	34572	EPA 6020B	34602
2622585001	DGWC-8	EPA 7470A	34690	EPA 7470A	34713
2622585002	DGWC-13	EPA 7470A	34690	EPA 7470A	34713
2622585003	DGWC-15	EPA 7470A	34690	EPA 7470A	34713
2622585004	DGWC-19	EPA 7470A	34690	EPA 7470A	34713
2622585005	DGWC-42	EPA 7470A	34690	EPA 7470A	34713
2622585006	EB-2	EPA 7470A	34690	EPA 7470A	34713
2622585007	FB-2	EPA 7470A	34690	EPA 7470A	34713
2622585001	DGWC-8	EPA 300.0 Rev 2.1 1993	496582		
2622585002	DGWC-13	EPA 300.0 Rev 2.1 1993	496582		
2622585003	DGWC-15	EPA 300.0 Rev 2.1 1993	496582		
2622585004	DGWC-19	EPA 300.0 Rev 2.1 1993	496582		
2622585005	DGWC-42	EPA 300.0 Rev 2.1 1993	496582		
2622585006	EB-2	EPA 300.0 Rev 2.1 1993	496582		
2622585007	FB-2	EPA 300.0 Rev 2.1 1993	496583		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A** Required Client Information: Company: Georgia Power - Coal Combustion Residuals Address: 2480 Manor Road Atlanta, GA 30339 Email: jbraham@southernco.com Phone: (404)506-7239 Requested Due Date: Standard TAT

**Section B** Required Project Information: Report To: Jaji Abraham Copy To: Golder Purchase Order #: SCS10382775 Project Name: Plant McDonough AP-2, 3/4 Project #: 166849618

**Section C** Invoice Information: Attention: scsvoices@southernco.com Company Name: Address: Pace Quote: Pace Project Manager: bely.modaniel@pacelabs.com, GA State / Location: GA Regulatory Agency: State / Location: GA

ITEM #	MATERIAL	MATRIX CODE	SAMPLE TYPE	DATE		SAMPLE TEMP AT COLLECTION	Requested Analysis Filtered (Y/N)												
				DATE	TIME		# OF CONTAINERS	Unpreserved - Ice	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test	Metals App IV	Fluoride by 300.0	Radium 226/228
1	DGWC-8	WT	G	8/28/2019	1029		4	X								X	X		
2	DGWC-13	WT	G	8/28/2019	1229		4	X								X	X		
3	DGWC-15	WT	G	8/28/2019	1505		4	X								X	X		
4	DGWC-19	WT	G	8/28/2019	1630		4	X								X	X		
5	DGWC-42	WT	G	8/28/2019	1648		4	X								X	X		
6	EB-2	WT	G	8/28/2019	1710		4	X								X	X		
7	FB-2	WT	G	8/28/2019	1015		4	X								X	X		
8																			
9																			
10																			
11																			
12																			

WO#: 2622585

2622585

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	Received on Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
Jaji Abraham Golder	8-29-19		Paul BAH	8/29/19	10:58				
			Charles Golder	8/29/19	17:50	X	X	X	X

\* Metals = Hg, Sb, As, Ba, Bi, Cd, Cr, Co, Pb, Li, Mo, Se, Tl



Sample Condition Upon Receipt

Client Name: GIA Power

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other  
Tracking #: \_\_\_\_\_

WO#: **2622585**

Custody Seal on Cooler/Box Present:  yes  no    Seals intact:  yes  no

PM: BM    Due Date: 09/06/19  
CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83    Type of Ice: Wet Blue None  Samples on ice, cooling process has begun

Cooler Temperature 2.0    Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Date and Initials of person examining contents: 8/29/19 m

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis    Matrix: <u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

September 24, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

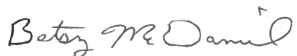
RE: Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622586

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 29, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Ben Hodges, Georgia Power  
Kristen Jurinko, Golder Associates Inc.  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

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### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## SAMPLE SUMMARY

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622586001	DGWC-8	Water	08/28/19 10:29	08/29/19 12:50
2622586002	DGWC-13	Water	08/28/19 12:29	08/29/19 12:50
2622586003	DGWC-15	Water	08/28/19 15:05	08/29/19 12:50
2622586004	DGWC-19	Water	08/28/19 16:30	08/29/19 12:50
2622586005	DGWC-42	Water	08/28/19 16:48	08/29/19 12:50
2622586006	EB-2	Water	08/28/19 17:10	08/29/19 12:50
2622586007	FB-2	Water	08/28/19 10:15	08/29/19 12:50

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622586

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622586001	DGWC-8	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622586002	DGWC-13	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622586003	DGWC-15	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622586004	DGWC-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622586005	DGWC-42	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622586006	EB-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2622586007	FB-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

**Sample: DGWC-8**      **Lab ID: 2622586001**      Collected: 08/28/19 10:29      Received: 08/29/19 12:50      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.474 ± 0.219 (0.316)</b> <b>C:85% T:NA</b>	pCi/L	09/16/19 19:51	13982-63-3	
Radium-228	EPA 9320	<b>0.341 ± 0.440 (0.936)</b> <b>C:70% T:80%</b>	pCi/L	09/19/19 14:38	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.815 ± 0.659 (1.25)</b>	pCi/L	09/24/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

**Sample: DGWC-13**      **Lab ID: 2622586002**      Collected: 08/28/19 12:29      Received: 08/29/19 12:50      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.916 ± 0.282 (0.279)</b> <b>C:88% T:NA</b>	pCi/L	09/16/19 19:51	13982-63-3	
Radium-228	EPA 9320	<b>0.517 ± 0.469 (0.948)</b> <b>C:69% T:76%</b>	pCi/L	09/19/19 14:38	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.43 ± 0.751 (1.23)</b>	pCi/L	09/24/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

**Sample: DGWC-15**      **Lab ID: 2622586003**      Collected: 08/28/19 15:05      Received: 08/29/19 12:50      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.544 ± 0.274 (0.445)</b> <b>C:81% T:NA</b>	pCi/L	09/16/19 19:52	13982-63-3	
Radium-228	EPA 9320	<b>0.467 ± 0.453 (0.936)</b> <b>C:83% T:80%</b>	pCi/L	09/19/19 14:38	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.01 ± 0.727 (1.38)</b>	pCi/L	09/24/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

**Sample: DGWC-19**      **Lab ID: 2622586004**      Collected: 08/28/19 16:30      Received: 08/29/19 12:50      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.276 ± 0.192 (0.339)</b> C:92% T:NA	pCi/L	09/16/19 19:52	13982-63-3	
Radium-228	EPA 9320	<b>0.385 ± 0.422 (0.882)</b> C:80% T:78%	pCi/L	09/19/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.661 ± 0.614 (1.22)</b>	pCi/L	09/24/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

**Sample: DGWC-42**      **Lab ID: 2622586005**      Collected: 08/28/19 16:48      Received: 08/29/19 12:50      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.507 ± 0.199 (0.201)</b> <b>C:89% T:NA</b>	pCi/L	09/16/19 19:53	13982-63-3	
Radium-228	EPA 9320	<b>0.376 ± 0.468 (0.996)</b> <b>C:77% T:88%</b>	pCi/L	09/19/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.883 ± 0.667 (1.20)</b>	pCi/L	09/24/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

**Sample: EB-2**      **Lab ID: 2622586006**      Collected: 08/28/19 17:10      Received: 08/29/19 12:50      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.527 ± 0.196 (0.178)</b> C:89% T:NA	pCi/L	09/16/19 19:53	13982-63-3	
Radium-228	EPA 9320	<b>0.107 ± 0.446 (1.01)</b> C:78% T:75%	pCi/L	09/19/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.634 ± 0.642 (1.19)</b>	pCi/L	09/24/19 12:59	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

**Sample: FB-2**      **Lab ID: 2622586007**      Collected: 08/28/19 10:15      Received: 08/29/19 12:50      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.457 ± 0.225 (0.343)</b> C:83% T:NA	pCi/L	09/16/19 17:48	13982-63-3	
Radium-228	EPA 9320	<b>-0.132 ± 0.434 (1.04)</b> C:71% T:80%	pCi/L	09/19/19 14:38	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.457 ± 0.659 (1.38)</b>	pCi/L	09/24/19 12:59	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

QC Batch: 359960

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2622586001, 2622586002, 2622586003, 2622586004, 2622586005, 2622586006, 2622586007

METHOD BLANK: 1747379

Matrix: Water

Associated Lab Samples: 2622586001, 2622586002, 2622586003, 2622586004, 2622586005, 2622586006, 2622586007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.192 ± 0.159 (0.292) C:91% T:NA	pCi/L	09/16/19 20:09	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

QC Batch: 359961

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2622586001, 2622586002, 2622586003, 2622586004, 2622586005, 2622586006, 2622586007

METHOD BLANK: 1747380

Matrix: Water

Associated Lab Samples: 2622586001, 2622586002, 2622586003, 2622586004, 2622586005, 2622586006, 2622586007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.232 ± 0.345 (0.742) C:77% T:84%	pCi/L	09/19/19 14:40	

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

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## QUALIFIERS

Project: Plant McDonough AP-2, 3/4  
Pace Project No.: 2622586

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

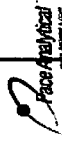
Project: Plant McDonough AP-2, 3/4

Pace Project No.: 2622586

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622586001	DGWC-8	EPA 9315	359960		
2622586002	DGWC-13	EPA 9315	359960		
2622586003	DGWC-15	EPA 9315	359960		
2622586004	DGWC-19	EPA 9315	359960		
2622586005	DGWC-42	EPA 9315	359960		
2622586006	EB-2	EPA 9315	359960		
2622586007	FB-2	EPA 9315	359960		
2622586001	DGWC-8	EPA 9320	359961		
2622586002	DGWC-13	EPA 9320	359961		
2622586003	DGWC-15	EPA 9320	359961		
2622586004	DGWC-19	EPA 9320	359961		
2622586005	DGWC-42	EPA 9320	359961		
2622586006	EB-2	EPA 9320	359961		
2622586007	FB-2	EPA 9320	359961		
2622586001	DGWC-8	Total Radium Calculation	362865		
2622586002	DGWC-13	Total Radium Calculation	362865		
2622586003	DGWC-15	Total Radium Calculation	362865		
2622586004	DGWC-19	Total Radium Calculation	362865		
2622586005	DGWC-42	Total Radium Calculation	362865		
2622586006	EB-2	Total Radium Calculation	362865		
2622586007	FB-2	Total Radium Calculation	362865		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Jiju Abraham	Attention:	scsinvoicess@southernco.com
Address:	2480 Maner Road Atlanta, GA 30339	Copy To:	Goldier	Company Name:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Address:	
Phone:	(404) 506-7239	Project Name:	Plant McDonough AP-2, 3/4	Pace Quote:	
Requested Due Date:	Standard TAT	Project #:	1668-0618	Pace Project Manager:	belsy.mcdaniel@pacelabs.com
				Pace Profile #:	332.7.2
				Regulatory/Agency:	
				State / Location:	GA

Page: 1 Of 1

ITEM #	MATRIX	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Custody	Sealed	Cooler	Samples	Intact	
																		MATRIX CODE (see valid codes to left)
1	DGWC-8	G	8/28/2019	1029	WT													
2	DGWC-13	G	8/28/2019	1229	WT													
3	DGWC-15	G	8/28/2019	1505	WT													
4	DGWC-18	G	8/28/2019	1630	WT													
5	DGWC-42	G	8/28/2019	1648	WT													
6	EB-2	G	8/28/2019	1710	WT													
7	FB-2	G	8/28/2019	1015	WT													
8																		
9																		
10																		
11																		
12																		

WO#: 2622586

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Jiju Abraham Goldier	8/28/19	10:30	Charles Spauld	8/29/19	10:30	
					8/29/19	17:50	X



Sample Condition Upon Receipt

Client Name: GIA Power

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

WO#: **2622586**

Tracking #: \_\_\_\_\_

PM: **BM** Due Date: **09/27/19**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

CLIENT: **GAPower-CCR**

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on Ice, cooling process has begun  
Date and initials of person examining contents: 8/29/19 ml

Cooler Temperature 2.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

December 30, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough Background  
Pace Project No.: 2622589

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 29, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Kevin Herring for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



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## CERTIFICATIONS

Project: Plant McDonough Background

Pace Project No.: 2622589

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### **Pace Analytical Services Atlanta**

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### **Pace Analytical Services Asheville**

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## SAMPLE SUMMARY

Project: Plant McDonough Background

Pace Project No.: 2622589

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622589001	DGWA-53	Water	08/28/19 15:55	08/29/19 12:50

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough Background

Pace Project No.: 2622589

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622589001	DGWA-53	EPA 6020B	CSW	12	PASI-GA
		EPA 7470A	DRB	1	PASI-GA
		EPA 300.0 Rev 2.1 1993	BRJ	1	PASI-A

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## ANALYTICAL RESULTS

Project: Plant McDonough Background  
Pace Project No.: 2622589

Sample: DGWA-53		Lab ID: 2622589001		Collected: 08/28/19 15:55		Received: 08/29/19 12:50		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	08/30/19 16:08	09/05/19 20:39	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	08/30/19 16:08	09/05/19 20:39	7440-38-2		
Barium	<b>0.087</b>	mg/L	0.010	0.00049	1	08/30/19 16:08	09/05/19 20:39	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	08/30/19 16:08	09/05/19 20:39	7440-41-7		
Cadmium	ND	mg/L	0.0025	0.00011	1	08/30/19 16:08	09/05/19 20:39	7440-43-9		
Chromium	ND	mg/L	0.010	0.00039	1	08/30/19 16:08	09/05/19 20:39	7440-47-3		
Cobalt	<b>0.013</b>	mg/L	0.0050	0.00030	1	08/30/19 16:08	09/05/19 20:39	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	08/30/19 16:08	09/05/19 20:39	7439-92-1		
Lithium	<b>0.0092J</b>	mg/L	0.030	0.00078	1	08/30/19 16:08	09/05/19 20:39	7439-93-2		
Molybdenum	<b>0.031</b>	mg/L	0.010	0.00095	1	08/30/19 16:08	09/05/19 20:39	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	08/30/19 16:08	09/05/19 20:39	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	08/30/19 16:08	09/05/19 20:39	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	09/05/19 09:07	09/05/19 13:32	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0 Rev 2.1 1993								
Fluoride	<b>0.42</b>	mg/L	0.10	0.050	1		09/07/19 13:36	16984-48-8		

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough Background  
Pace Project No.: 2622589

QC Batch: 34720 Analysis Method: EPA 7470A  
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury  
Associated Lab Samples: 2622589001

METHOD BLANK: 156270 Matrix: Water  
Associated Lab Samples: 2622589001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	09/05/19 12:57	

LABORATORY CONTROL SAMPLE: 156271

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0025	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 156272 156273

Parameter	Units	156272		156273		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2622587001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0023	0.0023	91	92	75-125	2	20

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough Background  
Pace Project No.: 2622589

QC Batch: 34572 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2622589001

METHOD BLANK: 155685 Matrix: Water  
Associated Lab Samples: 2622589001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	09/05/19 17:36	
Arsenic	mg/L	ND	0.0050	0.00035	09/05/19 17:36	
Barium	mg/L	ND	0.010	0.00049	09/05/19 17:36	
Beryllium	mg/L	ND	0.0030	0.000074	09/05/19 17:36	
Cadmium	mg/L	ND	0.0025	0.00011	09/05/19 17:36	
Chromium	mg/L	ND	0.010	0.00039	09/05/19 17:36	
Cobalt	mg/L	ND	0.0050	0.00030	09/05/19 17:36	
Lead	mg/L	ND	0.0050	0.000046	09/05/19 17:36	
Lithium	mg/L	ND	0.030	0.00078	09/05/19 17:36	
Molybdenum	mg/L	ND	0.010	0.00095	09/05/19 17:36	
Selenium	mg/L	ND	0.010	0.0013	09/05/19 17:36	
Thallium	mg/L	ND	0.0010	0.000052	09/05/19 17:36	

LABORATORY CONTROL SAMPLE: 155686

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	108	80-120	
Arsenic	mg/L	0.1	0.097	97	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.097	97	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Chromium	mg/L	0.1	0.10	100	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lead	mg/L	0.1	0.099	99	80-120	
Lithium	mg/L	0.1	0.10	100	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155687 155688

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2622579008 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.10	0.11	104	106	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.099	0.097	99	97	75-125	2	20	
Barium	mg/L	0.17	0.1	0.1	0.25	0.27	84	96	75-125	4	20	
Beryllium	mg/L	0.00022J	0.1	0.1	0.094	0.095	94	95	75-125	1	20	
Cadmium	mg/L	ND	0.1	0.1	0.098	0.097	98	97	75-125	1	20	

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**QUALITY CONTROL DATA**

Project: Plant McDonough Background

Pace Project No.: 2622589

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 155687		155688		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2622579008 Result	MS Spike Conc.	MSD Spike Conc.									
Chromium	mg/L	0.00089J	0.1	0.1	0.096	0.099	95	98	75-125	2	20		
Cobalt	mg/L	0.00099J	0.1	0.1	0.096	0.097	95	96	75-125	1	20		
Lead	mg/L	0.000061J	0.1	0.1	0.096	0.098	96	98	75-125	2	20		
Lithium	mg/L	0.0018J	0.1	0.1	0.097	0.098	95	96	75-125	1	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	100	103	75-125	3	20		
Selenium	mg/L	ND	0.1	0.1	0.098	0.095	98	95	75-125	3	20		
Thallium	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20		

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### QUALITY CONTROL DATA

Project: Plant McDonough Background  
Pace Project No.: 2622589

QC Batch: 496582 Analysis Method: EPA 300.0 Rev 2.1 1993  
QC Batch Method: EPA 300.0 Rev 2.1 1993 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2622589001

METHOD BLANK: 2674477 Matrix: Water  
Associated Lab Samples: 2622589001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.10	0.050	09/07/19 12:19	

LABORATORY CONTROL SAMPLE: 2674478

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	2.5	2.7	109	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2674479 2674480

Parameter	Units	2622657001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	2.5	2.5	ND	ND	0	0	90-110		10	M1

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2674481 2674482

Parameter	Units	2622587005 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	2.5	2.5	2.7	2.8	108	108	90-110	0	10	

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## QUALIFIERS

Project: Plant McDonough Background

Pace Project No.: 2622589

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant McDonough Background  
Pace Project No.: 2622589

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622589001	DGWA-53	EPA 3005A	34572	EPA 6020B	34602
2622589001	DGWA-53	EPA 7470A	34720	EPA 7470A	34792
2622589001	DGWA-53	EPA 300.0 Rev 2.1 1993	496582		

**REPORT OF LABORATORY ANALYSIS**

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com	Company Name:	Company Name:	Company Name:
Address: 2480 Maner Road	Copy To: Golder	Address:	Address:	Address:	Address:
Atlanta, GA 30339	Purchase Order #: SCS10382775	Pace Quote:	Pace Quote:	Pace Quote:	Pace Quote:
Email: jabraham@southernco.com	Project Name: Plant McDonough Background	Pace Project Manager: belys.mcdaniel@pacelabs.com	Pace Project Manager:	Pace Project Manager:	Pace Project Manager:
Phone: (404)506-7239	Project #: 166849818	Pace Profile #: 332.7.2	Pace Profile #:	Pace Profile #:	Pace Profile #:
Requested Due Date: Standard TAT					

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	DATE		DATE	TIME	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
			DATE	TIME									
1	DGWA-53	G	8/28/2019	1555	8-28-19	10:50	<i>Yuan</i>	8-28-19	10:50	<i>M. BAH</i>	8-28-19	10:50	Received on Ice (Y/N)
2							<i>Golder</i>	8/29/19	12:00	<i>Chalo-offord</i>	8/29/19	12:00	Custody (Y/N)
3													Sealed (Y/N)
4													Cooler (Y/N)
5													Samples Intact (Y/N)
6													
7													
8													
9													
10													
11													
12													

**Requested Analysis Filtered (Y/N)**

Analyses Test	Y
Metals App IV	X
Fluoride by 300.0	X
Radium 226/228	X

**Preservatives**

H2SO4	X
HNO3	X
HCl	
NaOH	
Na2S2O3	
Methanol	
Other	

**# OF CONTAINERS**

Unpreserved - Ice	X
4	

**SAMPLE TEMP AT COLLECTION**

DATE	TIME
8/28/2019	1555

WO#: 2622589

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
* Metals = Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl	<i>Yuan</i>	8-28-19	10:50	<i>M. BAH</i>	8-28-19	10:50	Received on Ice (Y/N)
	<i>Golder</i>	8/29/19	12:00	<i>Chalo-offord</i>	8/29/19	12:00	Custody (Y/N)
							Cooler (Y/N)
							Samples Intact (Y/N)



Sample Condition Upon Receipt

Client Name: GIA Power Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other  
Tracking #: \_\_\_\_\_

**WO# : 2622589**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

PM: BM Due Date: 09/06/19

CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice: Wet Blue None  Samples on ice, cooling process, has begun

Cooler Temperature 2.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/29/19 ml

Temp should be above freezing to 6°C

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

September 27, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough Background  
Pace Project No.: 2622590

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on August 29, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Ms. Jean Brown, Georgia Power\_Southern Company  
Ben Hodges, Georgia Power  
Kristen Jurinko, Golder Associates Inc.  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta  
Dominic Weatherhill, Georgia Power



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough Background

Pace Project No.: 2622590

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### Pennsylvania Certification IDs

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

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough Background

Pace Project No.: 2622590

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2622590001	DGWA-53	Water	08/28/19 15:55	08/29/19 12:50

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough Background

Pace Project No.: 2622590

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2622590001	DGWA-53	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2622590

**Sample: DGWA-53**      **Lab ID: 2622590001**      Collected: 08/28/19 15:55      Received: 08/29/19 12:50      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.38 ± 0.451 (0.394)</b> <b>C:81% T:NA</b>	pCi/L	09/12/19 08:42	13982-63-3	
Radium-228	EPA 9320	<b>1.30 ± 0.446 (0.590)</b> <b>C:69% T:95%</b>	pCi/L	09/19/19 15:19	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.68 ± 0.897 (0.984)</b>	pCi/L	09/23/19 11:58	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2622590

QC Batch: 359954

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2622590001

METHOD BLANK: 1747365

Matrix: Water

Associated Lab Samples: 2622590001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0188 ± 0.324 (0.758) C:68% T:80%	pCi/L	09/19/19 15:18	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2622590

QC Batch: 359953

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2622590001

METHOD BLANK: 1747363

Matrix: Water

Associated Lab Samples: 2622590001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.412 ± 0.223 (0.263) C:94% T:NA	pCi/L	09/12/19 08:42	

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant McDonough Background

Pace Project No.: 2622590

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough Background

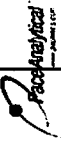
Pace Project No.: 2622590

---

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2622590001	DGWA-53	EPA 9315	359953		
2622590001	DGWA-53	EPA 9320	359954		
2622590001	DGWA-53	Total Radium Calculation	362615		

### REPORT OF LABORATORY ANALYSIS

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### CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 Of 1																																																
<table border="1"> <tr> <th colspan="2">Section A</th> <th colspan="2">Section B</th> <th colspan="2">Section C</th> </tr> <tr> <td>Company:</td> <td>Georgia Power - Coal Combustion Residuals</td> <td>Report To:</td> <td>Johu Abraham</td> <td>Attention:</td> <td>scsinvoices@southemco.com</td> </tr> <tr> <td>Address:</td> <td>2480 Manor Road Atlanta, GA 30339</td> <td>Copy To:</td> <td>Golder</td> <td>Company Name:</td> <td></td> </tr> <tr> <td>Email:</td> <td>jabraham@southemco.com</td> <td>Purchase Order #:</td> <td>SCS10382775</td> <td>Address:</td> <td></td> </tr> <tr> <td>Phone:</td> <td>(404) 506-7239</td> <td>Project Name:</td> <td>Plant McDonough Background</td> <td>Pace Quote:</td> <td></td> </tr> <tr> <td>Requested Due Date:</td> <td>Standard TAT</td> <td>Project #:</td> <td>166849618</td> <td>Pace Project Manager:</td> <td>betsy.mcdaniel@pacelabs.com</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>GA</td> </tr> </table>	Section A		Section B		Section C		Company:	Georgia Power - Coal Combustion Residuals	Report To:	Johu Abraham	Attention:	scsinvoices@southemco.com	Address:	2480 Manor Road Atlanta, GA 30339	Copy To:	Golder	Company Name:		Email:	jabraham@southemco.com	Purchase Order #:	SCS10382775	Address:		Phone:	(404) 506-7239	Project Name:	Plant McDonough Background	Pace Quote:		Requested Due Date:	Standard TAT	Project #:	166849618	Pace Project Manager:	betsy.mcdaniel@pacelabs.com												GA
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Requested Due Date:	Standard TAT	Project #:	166849618	Pace Project Manager:	betsy.mcdaniel@pacelabs.com																																											
					GA																																											

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	DATE		TIME	REQUIRISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	Requested Analysis Filtered (Y/N)																										
			DATE	TIME						DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME															
1	DGWA-S	G	8/28/2019	1555	4	X	Unreserved - Ice	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals App IV	Fluoride by 300.0	Radium 226/228	Residual Chlorine (Y/N)																		
2																																				
3																																				
4																																				
5																																				
6																																				
7																																				
8																																				
9																																				
10																																				
11																																				
12																																				

WO#: 2622590

ADDITIONAL COMMENTS		RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	(Y/N)	Custody	Sealed	Cooler	(Y/N)	Interact	Samples
* Metals = Hg, Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Mn, Se, Ti		Johu Abraham Golder	8-29-19	10:50	M. BATH D. BATH	8-29-19	10:50	20								



Sample Condition Upon Receipt

Client Name: GIA Power Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_  
Tracking #: \_\_\_\_\_

WO#: **2622590**

PM: **BM** Due Date: **09/27/19**

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

CLIENT: **GAPower-CCR**

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83

Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 2.0

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 8/29/19 m

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____		

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_

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

November 14, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough Background  
Pace Project No.: 2624495

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough Background  
Pace Project No.: 2624495

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough Background  
Pace Project No.: 2624495

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624495001	DGWA-53	Water	10/16/19 10:00	10/17/19 12:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough Background

Pace Project No.: 2624495

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624495001	DGWA-53	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2624495

**Sample: DGWA-53**      **Lab ID: 2624495001**      Collected: 10/16/19 10:00      Received: 10/17/19 12:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.26 ± 0.449 (0.426)</b> C:93% T:NA	pCi/L	11/06/19 08:02	13982-63-3	
Radium-228	EPA 9320	<b>0.626 ± 0.409 (0.774)</b> C:75% T:93%	pCi/L	11/06/19 17:17	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.89 ± 0.858 (1.20)</b>	pCi/L	11/12/19 10:41	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2624495

QC Batch: 368259

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2624495001

METHOD BLANK: 1786863

Matrix: Water

Associated Lab Samples: 2624495001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.306 ± 0.244 (0.419) C:96% T:NA	pCi/L	11/06/19 08:02	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough Background

Pace Project No.: 2624495

QC Batch: 368258

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2624495001

METHOD BLANK: 1786861

Matrix: Water

Associated Lab Samples: 2624495001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0170 ± 0.384 (0.894) C:77% T:79%	pCi/L	11/06/19 17:17	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant McDonough Background

Pace Project No.: 2624495

---

### DEFINITIONS

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

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MDL - Adjusted Method Detection Limit.

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

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Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

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Carr - Carrier Recovery (%)

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TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough Background  
Pace Project No.: 2624495

---

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624495001	DGWA-53	EPA 9315	368259		
2624495001	DGWA-53	EPA 9320	368258		
2624495001	DGWA-53	Total Radium Calculation	370509		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

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<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joliu Abraham	Attention:	csinvoices@southemco.com
Address:	2480 Maner Road Atlanta, GA 30339	Copy To:	Goldier	Company Name:	
Email:	jabraham@southemco.com	Purchase Order #:	SCS10382775	Address:	
Phone:		Project Name:	Plant McDonough Background	Pace Quote:	
Requested Dwg Data:	(404)566-7239 Fax Standard TAT	Project #:	16684961	Pace Project Manager:	belsy.mcdonah@pacelabbs.com
				Pace Profile #:	332.7.2
					GA

Page: 1 Of 1

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved - Ice	H2SO4	HNO3	HCl	NaOH + Zn Acetate	Na2S2O3	Methanol	Other	Analytes Test	Requested Analysis Element (Y/N)				Received on Ice (Y/N)	Custody Sealed (Y/N)	Samples Intact (Y/N)	
																Metals App III and App IV Total	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)				
	DGWA-53	G	10/16/2019	1000		4	X		X						Y/N	X	X	X					

**NO# : 2624495**

2624495

DATE	TIME	INITIALED BY	APPROVED BY	DATE	TIME	INITIALED BY	APPROVED BY
10/17/19	1200	[Signature]	[Signature]	10/17/19	1100	[Signature]	[Signature]
10/17/19	1200	[Signature]	[Signature]	10/17/19	1200	[Signature]	[Signature]

DATE Signed:



WO#: 2624495



Client Name: GA Power

PM: BM Due Date: 11/14/19  
CLIENT: GAPower-CCR

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 214 Type of Ice: Wet Blue None  Samples on ice, cooling process has begun

Cooler Temperature 1.0°C Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Date and initials of person examining contents: 10/12/19 CDK

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11. <u>Field Filtered Nets + DOC</u>
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, <u>DOC</u> , O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

December 30, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough Background  
Pace Project No.: 2624494

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Kevin Herring for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough Background

Pace Project No.: 2624494

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### **Pace Analytical Services Atlanta**

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough Background

Pace Project No.: 2624494

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624494001	DGWA-53	Water	10/16/19 10:00	10/17/19 12:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough Background

Pace Project No.: 2624494

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624494001	DGWA-53	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant McDonough Background  
Pace Project No.: 2624494

Sample: DGWA-53		Lab ID: 2624494001		Collected: 10/16/19 10:00		Received: 10/17/19 12:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 23:06	7440-36-0		
Arsenic	<b>0.0018J</b>	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 23:06	7440-38-2		
Barium	<b>0.077</b>	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 23:06	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/25/19 11:41	7440-41-7		
Boron	<b>0.059</b>	mg/L	0.040	0.0049	1	10/21/19 16:03	10/23/19 23:06	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 23:06	7440-43-9		
Calcium	<b>17.7</b>	mg/L	5.0	0.55	50	10/21/19 16:03	10/23/19 23:12	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 23:06	7440-47-3		
Cobalt	<b>0.0090</b>	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 23:06	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 23:06	7439-92-1		
Lithium	<b>0.0094J</b>	mg/L	0.030	0.00078	1	10/21/19 16:03	10/25/19 11:41	7439-93-2		
Molybdenum	<b>0.037</b>	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 23:06	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 23:06	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 23:06	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:34	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>126</b>	mg/L	10.0	10.0	1		10/23/19 15:49			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>2.0</b>	mg/L	1.0	0.024	1		10/25/19 06:39	16887-00-6		
Fluoride	<b>0.11J</b>	mg/L	0.30	0.029	1		10/25/19 06:39	16984-48-8		
Sulfate	<b>15.1</b>	mg/L	1.0	0.017	1		10/25/19 06:39	14808-79-8		

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough Background

Pace Project No.: 2624494

QC Batch: 37300	Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A	Analysis Description: 7470 Mercury
Associated Lab Samples: 2624494001	

METHOD BLANK: 168761 Matrix: Water  
Associated Lab Samples: 2624494001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/23/19 14:38	

LABORATORY CONTROL SAMPLE: 168762

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168763 168764

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		2624388001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0024	97	96	75-125	2	20		

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough Background  
Pace Project No.: 2624494

QC Batch: 37286 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2624494001

METHOD BLANK: 168679 Matrix: Water  
Associated Lab Samples: 2624494001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/23/19 18:31	
Arsenic	mg/L	ND	0.0050	0.00035	10/23/19 18:31	
Barium	mg/L	ND	0.010	0.00049	10/23/19 18:31	
Beryllium	mg/L	ND	0.0030	0.000074	10/23/19 18:31	
Boron	mg/L	ND	0.040	0.0049	10/23/19 18:31	
Cadmium	mg/L	ND	0.0025	0.00011	10/23/19 18:31	
Calcium	mg/L	ND	0.10	0.011	10/23/19 18:31	
Chromium	mg/L	ND	0.010	0.00039	10/23/19 18:31	
Cobalt	mg/L	ND	0.0050	0.00030	10/23/19 18:31	
Lead	mg/L	ND	0.0050	0.000046	10/23/19 18:31	
Lithium	mg/L	ND	0.030	0.00078	10/23/19 18:31	
Molybdenum	mg/L	ND	0.010	0.00095	10/23/19 18:31	
Selenium	mg/L	ND	0.010	0.0013	10/23/19 18:31	
Thallium	mg/L	ND	0.0010	0.000052	10/23/19 18:31	

LABORATORY CONTROL SAMPLE: 168680

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.10	101	80-120	
Beryllium	mg/L	0.1	0.10	103	80-120	
Boron	mg/L	1	0.99	99	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.098	98	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.10	103	80-120	
Molybdenum	mg/L	0.1	0.10	101	80-120	
Selenium	mg/L	0.1	0.095	95	80-120	
Thallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168681 168682

Parameter	Units	2624484003 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	

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### QUALITY CONTROL DATA

Project: Plant McDonough Background  
Pace Project No.: 2624494

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168681		168682		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2624484003 Result	MS Spike Conc.	MSD Spike Conc.									
Arsenic	mg/L	0.00040J	0.1	0.1	0.10	0.10	100	100	75-125	0	20		
Barium	mg/L	0.037	0.1	0.1	0.15	0.14	109	107	75-125	1	20		
Beryllium	mg/L	0.00015J	0.1	0.1	0.095	0.094	95	94	75-125	0	20		
Boron	mg/L	2.2	1	1	3.1	3.1	90	90	75-125	0	20		
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	1	20		
Calcium	mg/L	61.2	1	1	62.7	66.1	145	485	75-125	5	20	M6	
Chromium	mg/L	0.0064J	0.1	0.1	0.11	0.10	100	98	75-125	2	20		
Cobalt	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20		
Lead	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20		
Lithium	mg/L	0.0022J	0.1	0.1	0.096	0.095	94	93	75-125	1	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20		
Selenium	mg/L	ND	0.1	0.1	0.096	0.096	96	95	75-125	0	20		
Thallium	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20		

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### QUALITY CONTROL DATA

Project: Plant McDonough Background

Pace Project No.: 2624494

QC Batch: 37419	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2624494001	

LABORATORY CONTROL SAMPLE: 169291

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	391	98	84-108	

SAMPLE DUPLICATE: 169292

Parameter	Units	2624484007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		10	

SAMPLE DUPLICATE: 169293

Parameter	Units	2624491004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	500	501	0	10	

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### QUALITY CONTROL DATA

Project: Plant McDonough Background  
Pace Project No.: 2624494

QC Batch: 37483 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2624494001

METHOD BLANK: 169745 Matrix: Water  
Associated Lab Samples: 2624494001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/25/19 02:57	
Fluoride	mg/L	ND	0.30	0.029	10/25/19 02:57	
Sulfate	mg/L	0.054J	1.0	0.017	10/25/19 02:57	

LABORATORY CONTROL SAMPLE: 169746

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	5	4.7	93	90-110	
Fluoride	mg/L	5	4.8	97	90-110	
Sulfate	mg/L	5	4.9	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 169747 169748

Parameter	Units	2624451001		169748		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Chloride	mg/L	27.7	5	5	33.9	33.8	124	123	0	15	M1
Fluoride	mg/L	0.38	5	5	11.1	11.4	214	221	3	15	M1
Sulfate	mg/L	ND	5	5	ND	ND	0	0		15	M1

MATRIX SPIKE SAMPLE: 169749

Parameter	Units	2624451002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	4.3	5	13.6	185	90-110	M1
Fluoride	mg/L	0.57	5	10.8	204	90-110	M1
Sulfate	mg/L	ND	5	ND	0	90-110	M1

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## QUALIFIERS

Project: Plant McDonough Background

Pace Project No.: 2624494

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant McDonough Background  
Pace Project No.: 2624494

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624494001	DGWA-53	EPA 3005A	37286	EPA 6020B	37308
2624494001	DGWA-53	EPA 7470A	37300	EPA 7470A	37416
2624494001	DGWA-53	SM 2540C	37419		
2624494001	DGWA-53	EPA 300.0	37483		

**REPORT OF LABORATORY ANALYSIS**

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Johu Abraham	Attention:	scsinvoices@southernco.com
Address:	2480 Manor Road Atlanta, GA 30039	Copy To:	Goldier	Company Name:	
Email:	jabraham@southernco.com	Purchase Order #:	SCS10382775	Address:	
Phone:	(404)506-7239	Project Name:	Plant McDonough Background	Pace Quote:	
Fax:		Pace Project Manager:	betsy.mcdanield@paceelabs.com,	Pace Profile #:	332.7.2
Requested Due Date:	Standard TAT	Project #:	16684961	State / Location:	GA

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	DATE	TIME	SAMPLER TEMP AT COLLECTION	# OF CONTAINERS	ACCEPTED BY / AFFILIATION		DATE	TIME	RECEIVED ON	TEMP IN C	Custody Sealed (Y/N)	Cooling (Y/N)	Samples Interact (Y/N)
							Signature	Signature							
1	DGWA-53	G	10/16/2019	1000		4	X		10/17/19	1100					
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															

ADDITIONAL COMMENTS	RECEIVED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<i>[Signature]</i>	10/17/19	1200	<i>[Signature]</i>	10/17/19	1100	1.0 X Y Y
	<i>[Signature]</i>	10/17/19	1200	<i>[Signature]</i>	10/17/19	1200	

**NO# : 2624494**

2624494

DATE Signed:

**Sample Condition Upon Receipt**

**WO#: 2624494**

PH: **BN** Due Date: **10/24/19**  
 CLIENT: **GAPower-CCR**



Client Name: GAPower

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 214 Type of Ice: Wet Blue None  Samples on ice, cooling process has begun

Cooler Temperature 1.0°C  
 Temp should be above freezing to 6°C

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 10/17/19 CD

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.	
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.	
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.	
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.	
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.	
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.	
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.	
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.	
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11.	<u>Field Filtered Nets + DOC</u>
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.	
-Includes date/time/ID/Analysis Matrix:	<u>W</u>		
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.	
All containers needing preservation are found to be in compliance with EPA recommendation.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A		
exceptions: VOA, coliform, <u>TOC</u> , O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed	Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.	
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.	
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A		
Pace Trip Blank Lot # (if purchased):	_____		

**Client Notification/ Resolution:**

Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_

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

November 14, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624398

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 16, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624398

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624398

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624398001	DGWA-70A	Water	10/15/19 12:15	10/16/19 14:00
2624398002	DGWA-71	Water	10/15/19 15:08	10/16/19 14:00
2624398003	FB-1	Water	10/15/19 11:45	10/16/19 14:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624398

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624398001	DGWA-70A	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624398002	DGWA-71	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624398003	FB-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624398

**Sample: DGWA-70A**      **Lab ID: 2624398001**      Collected: 10/15/19 12:15      Received: 10/16/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.200 ± 0.209 (0.401)</b> C:93% T:NA	pCi/L	11/07/19 08:49	13982-63-3	
Radium-228	EPA 9320	<b>0.119 ± 0.865 (1.98)</b> C:63% T:78%	pCi/L	11/07/19 20:14	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.319 ± 1.07 (2.38)</b>	pCi/L	11/12/19 10:42	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624398

**Sample: DGWA-71**      **Lab ID: 2624398002**      Collected: 10/15/19 15:08      Received: 10/16/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.628 ± 0.348 (0.528)</b> C:87% T:NA	pCi/L	11/07/19 08:54	13982-63-3	
Radium-228	EPA 9320	<b>0.586 ± 0.813 (1.74)</b> C:65% T:77%	pCi/L	11/07/19 20:14	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.21 ± 1.16 (2.27)</b>	pCi/L	11/12/19 10:42	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624398

**Sample: FB-1**      **Lab ID: 2624398003**      Collected: 10/15/19 11:45      Received: 10/16/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.288 ± 0.235 (0.405)</b> C:92% T:NA	pCi/L	11/07/19 08:56	13982-63-3	
Radium-228	EPA 9320	<b>0.864 ± 0.820 (1.68)</b> C:70% T:77%	pCi/L	11/07/19 20:14	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.15 ± 1.06 (2.09)</b>	pCi/L	11/12/19 10:42	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624398

QC Batch: 368367

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2624398001, 2624398002, 2624398003

METHOD BLANK: 1787254

Matrix: Water

Associated Lab Samples: 2624398001, 2624398002, 2624398003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.416 ± 0.262 (0.396) C:98% T:NA	pCi/L	11/07/19 07:47	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624398

QC Batch: 368368

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2624398001, 2624398002, 2624398003

METHOD BLANK: 1787255

Matrix: Water

Associated Lab Samples: 2624398001, 2624398002, 2624398003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.536 ± 0.405 (0.790) C:74% T:76%	pCi/L	11/07/19 14:59	

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

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## QUALIFIERS

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624398

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624398

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624398001	DGWA-70A	EPA 9315	368367		
2624398002	DGWA-71	EPA 9315	368367		
2624398003	FB-1	EPA 9315	368367		
2624398001	DGWA-70A	EPA 9320	368368		
2624398002	DGWA-71	EPA 9320	368368		
2624398003	FB-1	EPA 9320	368368		
2624398001	DGWA-70A	Total Radium Calculation	370512		
2624398002	DGWA-71	Total Radium Calculation	370512		
2624398003	FB-1	Total Radium Calculation	370512		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
<b>Required Client Information:</b>		<b>Required Project Information:</b>		<b>Invoice Information:</b>	
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Attention: scsinvoices@southernco.com	Company Name:		
Address: 2480 Maner Road Atlanta, GA 30339	Copy To: Golder		Address:		
Email: jbraham@southernco.com	Purchase Order #: SCS10382775	Pace Project Manager:	Pace Quote:		
Phone: (404)506-7239	Fax:	Plant McDonough Background	belsy.mcdaniel@pacelabs.com.		
Requested Due Date: Standard TAT	Project #: 16684961	Pace Profile #: 332.7.2			

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES				ANALYSES TEST	Residual Chlorine (Y/N)	
							H2SO4	HNO3	HCl	NaOH + Zn Acetate			
1	DGWA-70A	G	10/15/2019	1215		4	X	X	X	X	X	X	
2	DGWA-71	G	10/15/2019	1508		4	X	X	X	X	X	X	
3	FB-1	G	10/15/2019	1145		4	X	X	X	X	X	X	
4													
5													
6													
7													
8													
9													
10													
11													
12													

**SAMPLE ID**  
One Character per box. ( )  
(A-Z, 0-9 / , - )  
Sample IDs must be unique

WO#: 2624398

REQUIREMENTS / APPLICATOR	DATE	TIME	APPROVED BY / SIGNATURE	DATE	TIME	SAMPLE CONDITIONS
AW	10-16-19	12:15	JOY RICHARDS	10/16/19	12:15	
Golder	10-16-19	1400	Charles Hawke	10/16/19	1400	Y X



Sample Condition Upon Receipt

WO#: 2624398

Client Name: GAPower

PM: BM Due Date: 11/13/19 CLIENT: GAPower-CCR

Courier: [ ] Fed Ex [ ] UPS [ ] USPS [ ] Client [x] Commercial [ ] Pace Other

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present: [x] yes [ ] no Seals intact: [x] yes [ ] no

Packing Material: [ ] Bubble Wrap [x] Bubble Bags [ ] None [ ] Other

Thermometer Used 514 Type of Ice: [x] Wet Blue None [ ] Samples on ice, cooling process has begun

Cooler Temperature 6.3°C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 10/16/19

Chain of Custody Present:	[x] Yes [ ] No [ ] N/A	1.
Chain of Custody Filled Out:	[x] Yes [ ] No [ ] N/A	2.
Chain of Custody Relinquished:	[x] Yes [ ] No [ ] N/A	3.
Sampler Name & Signature on COC:	[x] Yes [ ] No [ ] N/A	4.
Samples Arrived within Hold Time:	[x] Yes [ ] No [ ] N/A	5.
Short Hold Time Analysis (<72hr):	[x] Yes [ ] No [ ] N/A	6.
Rush Turn Around Time Requested:	[ ] Yes [x] No [ ] N/A	7.
Sufficient Volume:	[x] Yes [ ] No [ ] N/A	8.
Correct Containers Used:	[x] Yes [ ] No [ ] N/A	9.
-Pace Containers Used:	[ ] Yes [ ] No [ ] N/A	
Containers Intact:	[ ] Yes [ ] No [ ] N/A	10.
Filtered volume received for Dissolved tests	[ ] Yes [ ] No [x] N/A	11.
Sample Labels match COC:	[ ] Yes [ ] No [ ] N/A	12.
-Includes date/time/ID/Analysis Matrix:	[x] W	
All containers needing preservation have been checked.	[x] Yes [ ] No [ ] N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	[x] Yes [ ] No [ ] N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	[x] Yes [ ] No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	[ ] Yes [ ] No [x] N/A	14.
Headspace in VOA Vials (>6mm):	[ ] Yes [ ] No [x] N/A	15.
Trip Blank Present:	[ ] Yes [ ] No [x] N/A	16.
Trip Blank Custody Seals Present	[ ] Yes [ ] No [x] N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_

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

December 30, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624397

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 16, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Kevin Herring for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624397

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### **Pace Analytical Services Atlanta**

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624397

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624397001	DGWA-70A	Water	10/15/19 12:15	10/16/19 14:00
2624397002	DGWA-71	Water	10/15/19 15:08	10/16/19 14:00
2624397003	FB-1	Water	10/15/19 11:45	10/16/19 14:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624397

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624397001	DGWA-70A	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624397002	DGWA-71	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624397003	FB-1	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624397

Sample: <b>DGWA-70A</b> Lab ID: <b>2624397001</b> Collected: 10/15/19 12:15      Received: 10/16/19 14:00      Matrix: Water									
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020B MET ICPMS</b> Analytical Method: EPA 6020B      Preparation Method: EPA 3005A									
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 22:12	7440-36-0	
Arsenic	<b>0.00052J</b>	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 22:12	7440-38-2	B
Barium	<b>0.034</b>	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 22:12	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 22:12	7440-41-7	
Boron	ND	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 22:12	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 22:12	7440-43-9	
Calcium	<b>5.1</b>	mg/L	0.10	0.011	1	10/20/19 16:44	10/22/19 22:12	7440-70-2	
Chromium	<b>0.034</b>	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 22:12	7440-47-3	
Cobalt	<b>0.00064J</b>	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 22:12	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 22:12	7439-92-1	
Lithium	ND	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 22:12	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 22:12	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 22:12	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 22:12	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470A      Preparation Method: EPA 7470A									
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:06	7439-97-6	
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	<b>70.0</b>	mg/L	10.0	10.0	1		10/18/19 10:46		
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<b>2.2</b>	mg/L	1.0	0.024	1		10/22/19 00:17	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/22/19 00:17	16984-48-8	
Sulfate	<b>0.16J</b>	mg/L	1.0	0.017	1		10/22/19 00:17	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624397

Sample: <b>DGWA-71</b> Lab ID: <b>2624397002</b> Collected: 10/15/19 15:08      Received: 10/16/19 14:00      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b> Analytical Method: EPA 6020B      Preparation Method: EPA 3005A									
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 22:24	7440-36-0	
Arsenic	<b>0.00071J</b>	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 22:24	7440-38-2	B
Barium	<b>0.024</b>	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 22:24	7440-39-3	
Beryllium	<b>0.000088J</b>	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 22:24	7440-41-7	
Boron	<b>0.0054J</b>	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 22:24	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 22:24	7440-43-9	
Calcium	<b>5.1</b>	mg/L	0.10	0.011	1	10/20/19 16:44	10/22/19 22:24	7440-70-2	
Chromium	<b>0.0025J</b>	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 22:24	7440-47-3	
Cobalt	ND	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 22:24	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 22:24	7439-92-1	
Lithium	<b>0.0012J</b>	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 22:24	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 22:24	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 22:24	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 22:24	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470A      Preparation Method: EPA 7470A									
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:08	7439-97-6	
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	<b>89.0</b>	mg/L	10.0	10.0	1		10/18/19 10:46		
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<b>3.3</b>	mg/L	1.0	0.024	1		10/22/19 00:39	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/22/19 00:39	16984-48-8	
Sulfate	<b>7.4</b>	mg/L	1.0	0.017	1		10/22/19 00:39	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624397

Sample: <b>FB-1</b>		Lab ID: <b>2624397003</b>		Collected: 10/15/19 11:45	Received: 10/16/19 14:00	Matrix: Water				
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 22:47	7440-36-0		
Arsenic	<b>0.00059J</b>	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 22:47	7440-38-2	B	
Barium	ND	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 22:47	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 22:47	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 22:47	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 22:47	7440-43-9		
Calcium	ND	mg/L	0.10	0.011	1	10/20/19 16:44	10/22/19 22:47	7440-70-2		
Chromium	<b>0.00088J</b>	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 22:47	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 22:47	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 22:47	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 22:47	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 22:47	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 22:47	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 22:47	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:11	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>18.0</b>	mg/L	10.0	10.0	1		10/18/19 10:47			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>0.078J</b>	mg/L	1.0	0.024	1		10/22/19 01:01	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		10/22/19 01:01	16984-48-8		
Sulfate	<b>0.019J</b>	mg/L	1.0	0.017	1		10/22/19 01:01	14808-79-8		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624397

QC Batch: 37300 Analysis Method: EPA 7470A  
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury  
Associated Lab Samples: 2624397001, 2624397002, 2624397003

METHOD BLANK: 168761 Matrix: Water

Associated Lab Samples: 2624397001, 2624397002, 2624397003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/23/19 14:38	

LABORATORY CONTROL SAMPLE: 168762

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168763 168764

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2624388001 Result	Spike Conc.	Spike Conc.	Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0024	97	96	75-125	2	20

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624397

QC Batch: 37136 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2624397001, 2624397002, 2624397003

METHOD BLANK: 167849 Matrix: Water  
Associated Lab Samples: 2624397001, 2624397002, 2624397003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/22/19 18:23	
Arsenic	mg/L	0.00059J	0.0050	0.00035	10/22/19 18:23	
Barium	mg/L	ND	0.010	0.00049	10/22/19 18:23	
Beryllium	mg/L	ND	0.0030	0.000074	10/22/19 18:23	
Boron	mg/L	ND	0.040	0.0049	10/22/19 18:23	
Cadmium	mg/L	ND	0.0025	0.00011	10/22/19 18:23	
Calcium	mg/L	ND	0.10	0.011	10/22/19 18:23	
Chromium	mg/L	ND	0.010	0.00039	10/22/19 18:23	
Cobalt	mg/L	ND	0.0050	0.00030	10/22/19 18:23	
Lead	mg/L	ND	0.0050	0.000046	10/22/19 18:23	
Lithium	mg/L	ND	0.030	0.00078	10/22/19 18:23	
Molybdenum	mg/L	ND	0.010	0.00095	10/22/19 18:23	
Selenium	mg/L	ND	0.010	0.0013	10/22/19 18:23	
Thallium	mg/L	ND	0.0010	0.000052	10/22/19 18:23	

LABORATORY CONTROL SAMPLE: 167850

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.098	98	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.099	99	80-120	
Boron	mg/L	1	0.96	96	80-120	
Cadmium	mg/L	0.1	0.097	97	80-120	
Calcium	mg/L	1	0.96	96	80-120	
Chromium	mg/L	0.1	0.098	98	80-120	
Cobalt	mg/L	0.1	0.098	98	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Lithium	mg/L	0.1	0.095	95	80-120	
Molybdenum	mg/L	0.1	0.10	101	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168476 168477

Parameter	Units	2624389004 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	Spike Conc.							
Antimony	mg/L	ND	0.1	0.1	0.098	0.097	97	97	75-125	0	20

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624397

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168476		168477		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2624389004 Result	MS Spike Conc.	MSD Spike Conc.									
Arsenic	mg/L	0.00063J	0.1	0.1	0.095	0.098	95	97	75-125	3	20		
Barium	mg/L	0.0091J	0.1	0.1	0.11	0.11	100	103	75-125	3	20		
Beryllium	mg/L	ND	0.1	0.1	0.092	0.094	92	94	75-125	2	20		
Boron	mg/L	ND	1	1	0.89	0.94	88	93	75-125	6	20		
Cadmium	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	0	20		
Calcium	mg/L	3.7	1	1	4.5	4.5	88	82	75-125	1	20		
Chromium	mg/L	0.0083J	0.1	0.1	0.11	0.11	97	100	75-125	2	20		
Cobalt	mg/L	0.00097J	0.1	0.1	0.096	0.096	95	95	75-125	0	20		
Lead	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20		
Lithium	mg/L	ND	0.1	0.1	0.092	0.094	91	93	75-125	3	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.093	0.10	93	100	75-125	7	20		
Thallium	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20		

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### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624397

QC Batch: 37181 Analysis Method: SM 2540C  
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
 Associated Lab Samples: 2624397001, 2624397002, 2624397003

LABORATORY CONTROL SAMPLE: 168196

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	

SAMPLE DUPLICATE: 168197

Parameter	Units	2624388001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1520	1570	3	10	

SAMPLE DUPLICATE: 168198

Parameter	Units	2624392001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	89.0	86.0	3	10	

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**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624397

QC Batch: 37138 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2624397001, 2624397002, 2624397003

METHOD BLANK: 167857 Matrix: Water  
Associated Lab Samples: 2624397001, 2624397002, 2624397003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/21/19 16:11	
Fluoride	mg/L	ND	0.30	0.029	10/21/19 16:11	
Sulfate	mg/L	ND	1.0	0.017	10/21/19 16:11	

LABORATORY CONTROL SAMPLE: 167858

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.9	99	90-110	
Fluoride	mg/L	10	10.2	102	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 167859 167860

Parameter	Units	2624388001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	20.9	10	10	28.1	28.1	72	72	90-110	0	15	M1
Fluoride	mg/L	ND	10	10	10.0	10.1	100	101	90-110	1	15	

MATRIX SPIKE SAMPLE: 167861

Parameter	Units	2624389005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L		2.2	10	12.2	100	90-110
Fluoride	mg/L		ND	10	10.3	103	90-110
Sulfate	mg/L		5.2	10	14.8	96	90-110

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## QUALIFIERS

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624397

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624397

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624397001	DGWA-70A	EPA 3005A	37136	EPA 6020B	37255
2624397002	DGWA-71	EPA 3005A	37136	EPA 6020B	37255
2624397003	FB-1	EPA 3005A	37136	EPA 6020B	37255
2624397001	DGWA-70A	EPA 7470A	37300	EPA 7470A	37416
2624397002	DGWA-71	EPA 7470A	37300	EPA 7470A	37416
2624397003	FB-1	EPA 7470A	37300	EPA 7470A	37416
2624397001	DGWA-70A	SM 2540C	37181		
2624397002	DGWA-71	SM 2540C	37181		
2624397003	FB-1	SM 2540C	37181		
2624397001	DGWA-70A	EPA 300.0	37138		
2624397002	DGWA-71	EPA 300.0	37138		
2624397003	FB-1	EPA 300.0	37138		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 Of 1

## Section A

**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jabraham@southernco.com  
 Phone: (404)506-7239  
 Requested Due Date: Standard TAT

**Required Project Information:**  
 Report To: Joju Abraham  
 Copy To: Golder  
 Purchase Order #: SCS10382775  
 Project Name: Plant McDonough Background  
 Project #: 16884961

**Invoice Information:**  
 Attention: scsinvoices@southernco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: beisy.mcdaniel@paceclabs.com  
 Pace Profile #: 332.7.2

Regulatory/Agency:  
 State / Location:  
 GA

## Section B

**Matrix Codes:**  
 DW: Drinking Water  
 WW: Waste Water  
 P: Product  
 S: Soil/Solid  
 O: Oil  
 W: Wipe  
 A: Air  
 OTC: Other  
 TS: Tissue

**Matrix Code:** (see valid codes to left)  
 SAMPLE TYPE (G=GRAB C=COMP)  
 DATE  
 TIME  
 SAMPLE TEMP AT COLLECTION

## Section C

ITEM #	MATRIX CODE	SAMPLE TYPE	DATE	TIME	# OF CONTAINERS	PRESERVATIVES										ANALYSES TEST	Y/N	DATE	TIME	SAMPLE CONDITIONS		
						H2SO4	Unpreserved - Ice	HCl	HNO3	NaOH + Zn Acetate	Na2S2O3	Methanol	Other	Metals App III and App IV Total	TDS, Cl, F, SO4						Radium 226/228	Residual Chlorine (Y/N)
1	DGWA-70A	G	10/15/2019	1215	4	X	X	X	X							X	X	X	10/16/19	12:14P	Y	
2	DGWA-71	G	10/15/2019	1508	4	X	X	X	X							X	X	X	10/16/19	12:14P	Y	
3	FB-1	G	10/15/2019	1145	4	X	X	X	X							X	X	X	10/16/19	1:30P	Y	
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

**NO#: 2624397**  
  
 2624397

REQUISITIONED BY / AFFILIATION: *Joju Abraham / Golder*  
 DATE: 10/16/19  
 TIME: 12:15  
 ACCERTED BY / AFFILIATION: *Joju Abraham / Golder*  
 DATE: 10/16/19  
 TIME: 12:14P  
 SAMPLE CONDITIONS: Y



Sample Condition Upon Receipt

WO#: 2624397

Client Name: GA Power

PM: BM

Due Date: 10/23/19

CLIENT: GAPower-CCR

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Proj Name: \_\_\_\_\_

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 217 Type of Ice: Wet Blue None  Samples on ice, cooling process has begun

Cooler Temperature 63°C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and initials of person examining contents: 10/16/19

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, <u>TOC</u> , O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):	_____	

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_

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

December 30, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 16, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Kevin Herring for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

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### **Pace Analytical Services Atlanta**

110 Technology Parkway Peachtree Corners, GA 30092  
Florida DOH Certification #: E87315  
Georgia DW Inorganics Certification #: 812  
Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381  
South Carolina Certification #: 98011001  
Virginia Certification #: 460204

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## SAMPLE SUMMARY

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624388001	DGWC-4	Water	10/15/19 10:54	10/16/19 14:00
2624388002	DGWC-10	Water	10/15/19 15:05	10/16/19 14:00
2624388003	DGWC-11	Water	10/15/19 11:55	10/16/19 14:00
2624388004	DGWC-12	Water	10/15/19 13:30	10/16/19 14:00
2624388005	FD-1	Water	10/15/19 00:00	10/16/19 14:00

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624388

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624388001	DGWC-4	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624388002	DGWC-10	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624388003	DGWC-11	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624388004	DGWC-12	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3
2624388005	FD-1	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	ALW	1
		EPA 300.0	MWB	3

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

Sample: DGWC-4		Lab ID: 2624388001		Collected: 10/15/19 10:54		Received: 10/16/19 14:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 18:35	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 18:35	7440-38-2		
Barium	<b>0.033</b>	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 18:35	7440-39-3		
Beryllium	<b>0.00022J</b>	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 18:35	7440-41-7		
Boron	<b>5.0</b>	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 18:35	7440-42-8		
Cadmium	<b>0.00077J</b>	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 18:35	7440-43-9		
Calcium	<b>276</b>	mg/L	5.0	0.55	50	10/20/19 16:44	10/22/19 18:40	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 18:35	7440-47-3		
Cobalt	<b>0.0018J</b>	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 18:35	7440-48-4		
Lead	<b>0.00010J</b>	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 18:35	7439-92-1		
Lithium	<b>0.0029J</b>	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 18:35	7439-93-2		
Molybdenum	<b>0.0061J</b>	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 18:35	7439-98-7		
Selenium	<b>0.0014J</b>	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 18:35	7782-49-2		
Thallium	<b>0.000073J</b>	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 18:35	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 14:42	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>1520</b>	mg/L	10.0	10.0	1		10/18/19 10:45			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>20.9</b>	mg/L	1.0	0.024	1		10/21/19 16:55	16887-00-6	M1	
Fluoride	ND	mg/L	0.30	0.029	1		10/21/19 16:55	16984-48-8		
Sulfate	<b>888</b>	mg/L	50.0	0.85	50		10/22/19 05:04	14808-79-8		

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

Sample: DGWC-10		Lab ID: 2624388002		Collected: 10/15/19 15:05		Received: 10/16/19 14:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 18:46	7440-36-0		
Arsenic	<b>0.0078</b>	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 18:46	7440-38-2		
Barium	<b>0.024</b>	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 18:46	7440-39-3		
Beryllium	<b>0.010</b>	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 18:46	7440-41-7		
Boron	<b>1.6</b>	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 18:46	7440-42-8		
Cadmium	<b>0.00095J</b>	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 18:46	7440-43-9		
Calcium	<b>79.1</b>	mg/L	5.0	0.55	50	10/20/19 16:44	10/22/19 18:52	7440-70-2		
Chromium	<b>0.00078J</b>	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 18:46	7440-47-3		
Cobalt	<b>0.17</b>	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 18:46	7440-48-4		
Lead	<b>0.00014J</b>	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 18:46	7439-92-1		
Lithium	<b>0.0051J</b>	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 18:46	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 18:46	7439-98-7		
Selenium	<b>0.071</b>	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 18:46	7782-49-2		
Thallium	<b>0.00039J</b>	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 18:46	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 14:52	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>447</b>	mg/L	10.0	10.0	1		10/18/19 10:45			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>9.4</b>	mg/L	1.0	0.024	1		10/21/19 18:01	16887-00-6		
Fluoride	<b>1.4</b>	mg/L	0.30	0.029	1		10/21/19 18:01	16984-48-8		
Sulfate	<b>263</b>	mg/L	25.0	0.42	25		10/22/19 05:26	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

Sample: DGWC-11		Lab ID: 2624388003		Collected: 10/15/19 11:55		Received: 10/16/19 14:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 18:57	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 18:57	7440-38-2	
Barium	<b>0.064</b>	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 18:57	7440-39-3	
Beryllium	<b>0.00012J</b>	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 18:57	7440-41-7	
Boron	<b>1.2</b>	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 18:57	7440-42-8	
Cadmium	ND	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 18:57	7440-43-9	
Calcium	<b>61.2</b>	mg/L	5.0	0.55	50	10/20/19 16:44	10/22/19 19:03	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 18:57	7440-47-3	
Cobalt	<b>0.00060J</b>	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 18:57	7440-48-4	
Lead	<b>0.000076J</b>	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 18:57	7439-92-1	
Lithium	<b>0.0019J</b>	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 18:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 18:57	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 18:57	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 18:57	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 14:54	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>461</b>	mg/L	10.0	10.0	1		10/18/19 10:45		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>15.6</b>	mg/L	1.0	0.024	1		10/21/19 18:23	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/21/19 18:23	16984-48-8	
Sulfate	<b>273</b>	mg/L	20.0	0.34	20		10/22/19 05:48	14808-79-8	

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

Sample: DGWC-12		Lab ID: 2624388004		Collected: 10/15/19 13:30		Received: 10/16/19 14:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 19:09	7440-36-0	
Arsenic	<b>0.00063J</b>	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 19:09	7440-38-2	B
Barium	<b>0.020</b>	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 19:09	7440-39-3	
Beryllium	<b>0.00016J</b>	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 19:09	7440-41-7	
Boron	<b>5.9</b>	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 19:09	7440-42-8	
Cadmium	<b>0.00025J</b>	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 19:09	7440-43-9	
Calcium	<b>61.4</b>	mg/L	5.0	0.55	50	10/20/19 16:44	10/22/19 19:15	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 19:09	7440-47-3	
Cobalt	<b>0.0058</b>	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 19:09	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 19:09	7439-92-1	
Lithium	<b>0.00091J</b>	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 19:09	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 19:09	7439-98-7	
Selenium	<b>0.0019J</b>	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 19:09	7782-49-2	
Thallium	<b>0.000091J</b>	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 19:09	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 14:57	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>472</b>	mg/L	10.0	10.0	1		10/18/19 10:45		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>11.6</b>	mg/L	1.0	0.024	1		10/21/19 18:45	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/21/19 18:45	16984-48-8	
Sulfate	<b>270</b>	mg/L	20.0	0.34	20		10/22/19 06:10	14808-79-8	

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

Sample: <b>FD-1</b>		Lab ID: <b>2624388005</b>		Collected: 10/15/19 00:00		Received: 10/16/19 14:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/20/19 16:44	10/22/19 19:32	7440-36-0		
Arsenic	<b>0.00059J</b>	mg/L	0.0050	0.00035	1	10/20/19 16:44	10/22/19 19:32	7440-38-2	B	
Barium	<b>0.020</b>	mg/L	0.010	0.00049	1	10/20/19 16:44	10/22/19 19:32	7440-39-3		
Beryllium	<b>0.00017J</b>	mg/L	0.0030	0.000074	1	10/20/19 16:44	10/22/19 19:32	7440-41-7		
Boron	<b>6.1</b>	mg/L	0.040	0.0049	1	10/20/19 16:44	10/22/19 19:32	7440-42-8		
Cadmium	<b>0.00030J</b>	mg/L	0.0025	0.00011	1	10/20/19 16:44	10/22/19 19:32	7440-43-9		
Calcium	<b>63.0</b>	mg/L	5.0	0.55	50	10/20/19 16:44	10/22/19 19:38	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/20/19 16:44	10/22/19 19:32	7440-47-3		
Cobalt	<b>0.0058</b>	mg/L	0.0050	0.00030	1	10/20/19 16:44	10/22/19 19:32	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/20/19 16:44	10/22/19 19:32	7439-92-1		
Lithium	<b>0.00093J</b>	mg/L	0.030	0.00078	1	10/20/19 16:44	10/22/19 19:32	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/20/19 16:44	10/22/19 19:32	7439-98-7		
Selenium	<b>0.0021J</b>	mg/L	0.010	0.0013	1	10/20/19 16:44	10/22/19 19:32	7782-49-2		
Thallium	<b>0.000092J</b>	mg/L	0.0010	0.000052	1	10/20/19 16:44	10/22/19 19:32	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 14:59	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>469</b>	mg/L	10.0	10.0	1		10/18/19 10:45			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>11.6</b>	mg/L	1.0	0.024	1		10/21/19 19:08	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		10/21/19 19:08	16984-48-8		
Sulfate	<b>267</b>	mg/L	25.0	0.42	25		10/22/19 06:32	14808-79-8		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624388

QC Batch: 37300

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2624388001, 2624388002, 2624388003, 2624388004, 2624388005

METHOD BLANK: 168761

Matrix: Water

Associated Lab Samples: 2624388001, 2624388002, 2624388003, 2624388004, 2624388005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/23/19 14:38	

LABORATORY CONTROL SAMPLE: 168762

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168763 168764

Parameter	Units	MS		MSD		% Rec		% Rec Limits	RPD	Max RPD	Qual
		2624388001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec				
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0024	97	96	75-125	2	20

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

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

QC Batch: 37136 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2624388001, 2624388002, 2624388003, 2624388004, 2624388005

METHOD BLANK: 167849 Matrix: Water  
Associated Lab Samples: 2624388001, 2624388002, 2624388003, 2624388004, 2624388005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/22/19 18:23	
Arsenic	mg/L	0.00059J	0.0050	0.00035	10/22/19 18:23	
Barium	mg/L	ND	0.010	0.00049	10/22/19 18:23	
Beryllium	mg/L	ND	0.0030	0.000074	10/22/19 18:23	
Boron	mg/L	ND	0.040	0.0049	10/22/19 18:23	
Cadmium	mg/L	ND	0.0025	0.00011	10/22/19 18:23	
Calcium	mg/L	ND	0.10	0.011	10/22/19 18:23	
Chromium	mg/L	ND	0.010	0.00039	10/22/19 18:23	
Cobalt	mg/L	ND	0.0050	0.00030	10/22/19 18:23	
Lead	mg/L	ND	0.0050	0.000046	10/22/19 18:23	
Lithium	mg/L	ND	0.030	0.00078	10/22/19 18:23	
Molybdenum	mg/L	ND	0.010	0.00095	10/22/19 18:23	
Selenium	mg/L	ND	0.010	0.0013	10/22/19 18:23	
Thallium	mg/L	ND	0.0010	0.000052	10/22/19 18:23	

LABORATORY CONTROL SAMPLE: 167850

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.098	98	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.099	99	80-120	
Boron	mg/L	1	0.96	96	80-120	
Cadmium	mg/L	0.1	0.097	97	80-120	
Calcium	mg/L	1	0.96	96	80-120	
Chromium	mg/L	0.1	0.098	98	80-120	
Cobalt	mg/L	0.1	0.098	98	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Lithium	mg/L	0.1	0.095	95	80-120	
Molybdenum	mg/L	0.1	0.10	101	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168476 168477

Parameter	Units	2624389004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.098	0.097	97	97	75-125	0	20	

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### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624388

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168476		168477		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2624389004 Result	MS Spike Conc.	MSD Spike Conc.									
Arsenic	mg/L	0.00063J	0.1	0.1	0.095	0.098	95	97	75-125	3	20		
Barium	mg/L	0.0091J	0.1	0.1	0.11	0.11	100	103	75-125	3	20		
Beryllium	mg/L	ND	0.1	0.1	0.092	0.094	92	94	75-125	2	20		
Boron	mg/L	ND	1	1	0.89	0.94	88	93	75-125	6	20		
Cadmium	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	0	20		
Calcium	mg/L	3.7	1	1	4.5	4.5	88	82	75-125	1	20		
Chromium	mg/L	0.0083J	0.1	0.1	0.11	0.11	97	100	75-125	2	20		
Cobalt	mg/L	0.00097J	0.1	0.1	0.096	0.096	95	95	75-125	0	20		
Lead	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20		
Lithium	mg/L	ND	0.1	0.1	0.092	0.094	91	93	75-125	3	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.093	0.10	93	100	75-125	7	20		
Thallium	mg/L	ND	0.1	0.1	0.095	0.098	95	98	75-125	3	20		

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

QC Batch: 37181 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 2624388001, 2624388002, 2624388003, 2624388004, 2624388005

LABORATORY CONTROL SAMPLE: 168196

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	

SAMPLE DUPLICATE: 168197

Parameter	Units	2624388001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	1520	1570	3	10	

SAMPLE DUPLICATE: 168198

Parameter	Units	2624392001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	89.0	86.0	3	10	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624388

QC Batch: 37138 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2624388001, 2624388002, 2624388003, 2624388004, 2624388005

METHOD BLANK: 167857 Matrix: Water  
Associated Lab Samples: 2624388001, 2624388002, 2624388003, 2624388004, 2624388005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/21/19 16:11	
Fluoride	mg/L	ND	0.30	0.029	10/21/19 16:11	
Sulfate	mg/L	ND	1.0	0.017	10/21/19 16:11	

LABORATORY CONTROL SAMPLE: 167858

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.9	99	90-110	
Fluoride	mg/L	10	10.2	102	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 167859 167860

Parameter	Units	2624388001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	20.9	10	10	28.1	28.1	72	72	90-110	0	15	M1
Fluoride	mg/L	ND	10	10	10.0	10.1	100	101	90-110	1	15	

MATRIX SPIKE SAMPLE: 167861

Parameter	Units	2624389005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L		2.2	10	12.2	100	90-110
Fluoride	mg/L		ND	10	10.3	103	90-110
Sulfate	mg/L		5.2	10	14.8	96	90-110

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## QUALIFIERS

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624388

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624388

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624388001	DGWC-4	EPA 3005A	37136	EPA 6020B	37255
2624388002	DGWC-10	EPA 3005A	37136	EPA 6020B	37255
2624388003	DGWC-11	EPA 3005A	37136	EPA 6020B	37255
2624388004	DGWC-12	EPA 3005A	37136	EPA 6020B	37255
2624388005	FD-1	EPA 3005A	37136	EPA 6020B	37255
2624388001	DGWC-4	EPA 7470A	37300	EPA 7470A	37416
2624388002	DGWC-10	EPA 7470A	37300	EPA 7470A	37416
2624388003	DGWC-11	EPA 7470A	37300	EPA 7470A	37416
2624388004	DGWC-12	EPA 7470A	37300	EPA 7470A	37416
2624388005	FD-1	EPA 7470A	37300	EPA 7470A	37416
2624388001	DGWC-4	SM 2540C	37181		
2624388002	DGWC-10	SM 2540C	37181		
2624388003	DGWC-11	SM 2540C	37181		
2624388004	DGWC-12	SM 2540C	37181		
2624388005	FD-1	SM 2540C	37181		
2624388001	DGWC-4	EPA 300.0	37138		
2624388002	DGWC-10	EPA 300.0	37138		
2624388003	DGWC-11	EPA 300.0	37138		
2624388004	DGWC-12	EPA 300.0	37138		
2624388005	FD-1	EPA 300.0	37138		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 Of 1

<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
<b>Required Client Information:</b>		<b>Required Project Information:</b>		<b>Invoice Information:</b>	
Company: Georgia Power - Coal Combustion Residuals	Report To: Jojo Abraham	Copy To: Golder	Company Name:	Attention: scsinvoices@southernco.com	
Address: 2480 Manser Road Atlanta, GA 30339			Purchase Order #: SCS10382775	Address:	
Email: jabraham@southernco.com			Project Name: Plant McDonough AP-2, 3/4	Pace Project Manager: betsy.medanielle@pacerlabs.com	
Phone: (404)506-7239	Fax:		Project #: 168849818	Pace Profile #: 332.7.2	
Requested Due Date: Standard TAT					GA

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	DATE	TIME	PRESERVATIVES		# OF CONTAINERS	SAMPLE TEMP AT COLLECTION	ANALYSES TEST	Requesting Analyte Element (Y/N)	Residual Chlorine (Y/N)	
					H2SO4	HNO3						
1	DGWC-4	G	10/15/2019	1054	X		4		X	X	X	9
2	DGWC-10	G	10/15/2019	1505	X		4		X	X	X	2
3	DGWC-11	G	10/15/2019	1155	X		4		X	X	X	3
4	DGWC-12	G	10/15/2019	1330	X		4		X	X	X	4
5	FD-1	G	10/15/2019	--	X		4		X	X	X	5

APPROVED BY / APPLICATION	DATE	TIME	APPROVED BY / APPLICATION	DATE	TIME	RECEIVED ON	TEMP °C	Received on Ice	Custody Sealed (Y/N)	Cooled (Y/N)	Samples Intact (Y/N)
Don Richards	10/16/19	12:55	Charles Hank	10/16/19	14:00		16.3	Y	Y	Y	Y

NO# : 2624388

2624388

Page 17 of 18



Sample Condition Upon Receipt

WO#: 2624388

Client Name: GA Power

PM: BM Due Date: 10/23/19 CLIENT: GAPower-CCR

Courier: [ ] Fed Ex [ ] UPS [ ] USPS [ ] Client [x] Commercial [ ] Pace Other

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present: [x] yes [ ] no Seals intact: [x] yes [ ] no

Proj Name: \_\_\_\_\_

Packing Material: [ ] Bubble Wrap [x] Bubble Bags [ ] None [ ] Other

Thermometer Used 214 Type of Ice: [x] Wet [ ] Blue [ ] None [ ] Samples on ice, cooling process has begun

Cooler Temperature 63°C Biological Tissue is Frozen: Yes No

Date and initials of person examining contents: 10/16/19

Temp should be above freezing to 6°C Comments:

Table with 16 rows and 3 columns. Columns: Question, Yes/No/N/A checkboxes, and Item Number. Rows include Chain of Custody Present, Chain of Custody Filled Out, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Short Hold Time Analysis (<72hr), Rush Turn Around Time Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, All containers needing preservation have been checked, All containers needing preservation are found to be in compliance with EPA recommendation, exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Samples checked for dechlorination, Headspace in VOA Vials (>6mm), Trip Blank Present, Trip Blank Custody Seals Present, Pace Trip Blank Lot # (if purchased).

Client Notification/ Resolution: Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

November 14, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624390

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 16, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624390

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## SAMPLE SUMMARY

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624390

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624390001	DGWC-4	Water	10/15/19 10:54	10/16/19 14:00
2624390002	DGWC-10	Water	10/15/19 15:05	10/16/19 14:00
2624390003	DGWC-11	Water	10/15/19 11:55	10/16/19 14:00
2624390004	DGWC-12	Water	10/15/19 13:30	10/16/19 14:00
2624390005	FD-1	Water	10/15/19 00:00	10/16/19 14:00

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624390

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624390001	DGWC-4	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624390002	DGWC-10	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624390003	DGWC-11	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624390004	DGWC-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624390005	FD-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624390

**Sample: DGWC-4**      **Lab ID: 2624390001**      Collected: 10/15/19 10:54      Received: 10/16/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.06 ± 0.472 (0.669)</b> <b>C:87% T:NA</b>	pCi/L	11/07/19 07:16	13982-63-3	
Radium-228	EPA 9320	<b>1.05 ± 0.893 (1.79)</b> <b>C:63% T:80%</b>	pCi/L	11/07/19 20:10	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.11 ± 1.37 (2.46)</b>	pCi/L	11/12/19 10:42	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624390

**Sample: DGWC-10**      **Lab ID: 2624390002**      Collected: 10/15/19 15:05      Received: 10/16/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.615 ± 0.332 (0.453)</b> C:92% T:NA	pCi/L	11/07/19 07:16	13982-63-3	
Radium-228	EPA 9320	<b>0.216 ± 0.924 (2.10)</b> C:57% T:80%	pCi/L	11/07/19 20:10	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.831 ± 1.26 (2.55)</b>	pCi/L	11/12/19 10:42	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624390

**Sample: DGWC-11**      **Lab ID: 2624390003**      Collected: 10/15/19 11:55      Received: 10/16/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.191 ± 0.261 (0.563)</b> C:90% T:NA	pCi/L	11/07/19 07:16	13982-63-3	
Radium-228	EPA 9320	<b>0.431 ± 0.729 (1.59)</b> C:66% T:89%	pCi/L	11/07/19 20:11	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.622 ± 0.990 (2.15)</b>	pCi/L	11/12/19 10:42	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624390

**Sample: DGWC-12**      **Lab ID: 2624390004**      Collected: 10/15/19 13:30      Received: 10/16/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.264 ± 0.277 (0.560)</b> C:93% T:NA	pCi/L	11/07/19 07:17	13982-63-3	
Radium-228	EPA 9320	<b>0.0947 ± 0.709 (1.63)</b> C:65% T:86%	pCi/L	11/07/19 20:11	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.359 ± 0.986 (2.19)</b>	pCi/L	11/12/19 10:42	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624390

**Sample: FD-1**      **Lab ID: 2624390005**      Collected: 10/15/19 00:00      Received: 10/16/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.581 ± 0.313 (0.418)</b> C:91% T:NA	pCi/L	11/07/19 07:18	13982-63-3	
Radium-228	EPA 9320	<b>0.549 ± 0.599 (1.25)</b> C:69% T:96%	pCi/L	11/07/19 20:11	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.13 ± 0.912 (1.67)</b>	pCi/L	11/12/19 10:42	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624390

QC Batch: 368367

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2624390001, 2624390002, 2624390003, 2624390004, 2624390005

METHOD BLANK: 1787254

Matrix: Water

Associated Lab Samples: 2624390001, 2624390002, 2624390003, 2624390004, 2624390005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.416 ± 0.262 (0.396) C:98% T:NA	pCi/L	11/07/19 07:47	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624390

QC Batch: 368368

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2624390001, 2624390002, 2624390003, 2624390004, 2624390005

METHOD BLANK: 1787255

Matrix: Water

Associated Lab Samples: 2624390001, 2624390002, 2624390003, 2624390004, 2624390005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.536 ± 0.405 (0.790) C:74% T:76%	pCi/L	11/07/19 14:59	

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

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## QUALIFIERS

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624390

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624390

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624390001	DGWC-4	EPA 9315	368367		
2624390002	DGWC-10	EPA 9315	368367		
2624390003	DGWC-11	EPA 9315	368367		
2624390004	DGWC-12	EPA 9315	368367		
2624390005	FD-1	EPA 9315	368367		
2624390001	DGWC-4	EPA 9320	368368		
2624390002	DGWC-10	EPA 9320	368368		
2624390003	DGWC-11	EPA 9320	368368		
2624390004	DGWC-12	EPA 9320	368368		
2624390005	FD-1	EPA 9320	368368		
2624390001	DGWC-4	Total Radium Calculation	370512		
2624390002	DGWC-10	Total Radium Calculation	370512		
2624390003	DGWC-11	Total Radium Calculation	370512		
2624390004	DGWC-12	Total Radium Calculation	370512		
2624390005	FD-1	Total Radium Calculation	370512		

### REPORT OF LABORATORY ANALYSIS

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## CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**
**Required Client Information:**

Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jabraham@southemco.com  
 Phone: (404)506-7239  
 Requested Due Date: Standard TAT

**Section B**
**Required Project Information:**

Report To: Joju Abraham  
 Copy To: Golder  
 Purchase Order #: SCS10382775  
 Project Name: Plant McDonough AP-2, 3/4  
 Project #: 168849618

**Section C**
**Invoice Information:**

Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.mcdaniel@paceciabs.com.  
 Pace Profile #: 332.7.2

Page: 1 Of 1

Regulatory Agency:  
 State / Location: GA

ITEM #	MATRIX ( ) Drinking Water ( ) DW; Water ( ) WT; Waste Water ( ) WW; Product ( ) P; Soil/Solid ( ) S; Oil ( ) OI; Wipe ( ) WP; Air ( ) AR; Other ( ) OT; Tissue ( ) TS	CODE ( ) DM; WT; WW; P; S; OI; WP; AR; OT; TS	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives		Unpreserved - Ice	Analytes Test (Y/N)						Residual Chlorine (Y/N)		
								H2SO4	HNO3		HCl	NaOH	Na2SO3	Methanol	Other	Metals App. III & App. IV		TDS, Cl, F, SO4	Radium 226/228
								H2SO4	HNO3		HCl	NaOH	Na2SO3	Methanol	Other	Metals App. III & App. IV		TDS, Cl, F, SO4	Radium 226/228
1	DGWC-4		G	10/15/2019	1054		4	X	X		X	X	X	X	X	1			
2	DGWC-10		G	10/15/2019	1505		4	X	X		X	X	X	X	X	2			
3	DGWC-11		G	10/15/2019	1155		4	X	X		X	X	X	X	X	3			
4	DGWC-12		G	10/15/2019	1330		4	X	X		X	X	X	X	X	4			
5	FD-1		G	10/15/2019	-		4	X	X		X	X	X	X	X	5			
6																			
7																			
8																			
9																			
10																			
11																			
12																			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	RECEIVED ON	TEMP IN C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
	Golder	10/16/19	12:25	Don Richards Charles Hank	11/19/19	12:58		1.3	Y	Y	Y	Y

NO# : 2624390



2624390

DATE Signed: \_\_\_\_\_



Sample Condition Upon Receipt

WO#: 2624390

Client Name: GR Power

PM: BM Due Date: 11/13/19

CLIENT: GR Power-CCR

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Proj Name: \_\_\_\_\_

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 214 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 1.3°C Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 10/16/19

Temp should be above freezing to 6°C Comments:

Table with 16 rows of checklist items (Chain of Custody Present, Filled Out, Relinquished, etc.) and checkboxes for Yes, No, N/A.

Client Notification/ Resolution: Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

December 30, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Kevin Herring for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624491

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### **Pace Analytical Services Atlanta**

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624491001	DGWC-5	Water	10/16/19 13:00	10/17/19 12:00
2624491002	DGWC-8	Water	10/16/19 15:10	10/17/19 12:00
2624491003	DGWC-14	Water	10/16/19 13:29	10/17/19 12:00
2624491004	DGWC-19	Water	10/16/19 13:32	10/17/19 12:00
2624491005	DGWC-13	Water	10/16/19 15:50	10/17/19 12:00
2624491006	EB-1	Water	10/16/19 15:00	10/17/19 12:00
2624491007	FB-2	Water	10/16/19 11:30	10/17/19 12:00
2624491008	FD-2	Water	10/16/19 00:00	10/17/19 12:00

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624491

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624491001	DGWC-5	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624491002	DGWC-8	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624491003	DGWC-14	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624491004	DGWC-19	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624491005	DGWC-13	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624491006	EB-1	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624491007	FB-2	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624491008	FD-2	EPA 6020B	CSW	2
		SM 2540C	MZP	1
		EPA 300.0	MWB	3

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Sample: DGWC-5		Lab ID: 2624491001		Collected: 10/16/19 13:00		Received: 10/17/19 12:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 21:29	7440-36-0		
Arsenic	<b>0.0036J</b>	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 21:29	7440-38-2		
Barium	<b>0.020</b>	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 21:29	7440-39-3		
Beryllium	<b>0.0072</b>	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/23/19 21:29	7440-41-7		
Boron	<b>4.3</b>	mg/L	0.040	0.0049	1	10/21/19 16:03	10/23/19 21:29	7440-42-8		
Cadmium	<b>0.00069J</b>	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 21:29	7440-43-9		
Calcium	<b>109</b>	mg/L	5.0	0.55	50	10/21/19 16:03	10/23/19 21:35	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 21:29	7440-47-3		
Cobalt	<b>0.022</b>	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 21:29	7440-48-4		
Lead	<b>0.000085J</b>	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 21:29	7439-92-1		
Lithium	<b>0.0060J</b>	mg/L	0.030	0.00078	1	10/21/19 16:03	10/25/19 10:13	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 21:29	7439-98-7		
Selenium	<b>0.015</b>	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 21:29	7782-49-2		
Thallium	<b>0.000078J</b>	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 21:29	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:13	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>702</b>	mg/L	10.0	10.0	1		10/23/19 15:48			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>11.6</b>	mg/L	1.0	0.024	1		10/24/19 23:53	16887-00-6		
Fluoride	<b>0.32</b>	mg/L	0.30	0.029	1		10/24/19 23:53	16984-48-8		
Sulfate	<b>493</b>	mg/L	20.0	0.34	20		10/25/19 08:12	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Sample: DGWC-8		Lab ID: 2624491002		Collected: 10/16/19 15:10		Received: 10/17/19 12:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 21:57	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 21:57	7440-38-2		
Barium	<b>0.027</b>	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 21:57	7440-39-3		
Beryllium	<b>0.0019J</b>	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/25/19 10:19	7440-41-7		
Boron	<b>1.2</b>	mg/L	0.040	0.0049	1	10/21/19 16:03	10/23/19 21:57	7440-42-8		
Cadmium	<b>0.0022J</b>	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 21:57	7440-43-9		
Calcium	<b>47.3</b>	mg/L	5.0	0.55	50	10/21/19 16:03	10/23/19 22:03	7440-70-2		
Chromium	<b>0.0013J</b>	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 21:57	7440-47-3		
Cobalt	<b>0.054</b>	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 21:57	7440-48-4		
Lead	<b>0.00029J</b>	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 21:57	7439-92-1		
Lithium	<b>0.0045J</b>	mg/L	0.030	0.00078	1	10/21/19 16:03	10/25/19 10:19	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 21:57	7439-98-7		
Selenium	<b>0.0016J</b>	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 21:57	7782-49-2		
Thallium	<b>0.00025J</b>	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 21:57	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:16	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>374</b>	mg/L	10.0	10.0	1		10/23/19 15:48			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>10.4</b>	mg/L	1.0	0.024	1		10/25/19 00:14	16887-00-6		
Fluoride	<b>0.14J</b>	mg/L	0.30	0.029	1		10/25/19 00:14	16984-48-8		
Sulfate	<b>235</b>	mg/L	20.0	0.34	20		10/25/19 08:34	14808-79-8		

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Sample: DGWC-14		Lab ID: 2624491003		Collected: 10/16/19 13:29		Received: 10/17/19 12:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 22:09	7440-36-0		
Arsenic	<b>0.00039J</b>	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 22:09	7440-38-2		
Barium	<b>0.059</b>	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 22:09	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/25/19 10:24	7440-41-7		
Boron	<b>0.052</b>	mg/L	0.040	0.0049	1	10/21/19 16:03	10/23/19 22:09	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 22:09	7440-43-9		
Calcium	<b>9.4</b>	mg/L	0.10	0.011	1	10/21/19 16:03	10/25/19 10:24	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 22:09	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 22:09	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 22:09	7439-92-1		
Lithium	<b>0.0032J</b>	mg/L	0.030	0.00078	1	10/21/19 16:03	10/25/19 10:24	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 22:09	7439-98-7		
Selenium	<b>0.0017J</b>	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 22:09	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 22:09	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:18	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>104</b>	mg/L	10.0	10.0	1		10/23/19 15:48			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>3.5</b>	mg/L	1.0	0.024	1		10/25/19 00:36	16887-00-6		
Fluoride	<b>0.052J</b>	mg/L	0.30	0.029	1		10/25/19 00:36	16984-48-8		
Sulfate	<b>42.1</b>	mg/L	1.0	0.017	1		10/25/19 00:36	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Sample: DGWC-19		Lab ID: 2624491004		Collected: 10/16/19 13:32		Received: 10/17/19 12:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 22:20	7440-36-0	
Arsenic	<b>0.00046J</b>	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 22:20	7440-38-2	
Barium	<b>0.024</b>	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 22:20	7440-39-3	
Beryllium	<b>0.0017J</b>	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/25/19 10:30	7440-41-7	
Boron	<b>2.2</b>	mg/L	0.040	0.0049	1	10/21/19 16:03	10/25/19 10:30	7440-42-8	
Cadmium	<b>0.00034J</b>	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 22:20	7440-43-9	
Calcium	<b>85.7</b>	mg/L	5.0	0.55	50	10/21/19 16:03	10/23/19 22:26	7440-70-2	
Chromium	<b>0.0024J</b>	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 22:20	7440-47-3	
Cobalt	<b>0.046</b>	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 22:20	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 22:20	7439-92-1	
Lithium	<b>0.0026J</b>	mg/L	0.030	0.00078	1	10/21/19 16:03	10/25/19 10:30	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 22:20	7439-98-7	
Selenium	<b>0.0060J</b>	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 22:20	7782-49-2	
Thallium	<b>0.00053J</b>	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 22:20	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:20	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>500</b>	mg/L	10.0	10.0	1		10/23/19 15:48		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>33.2</b>	mg/L	1.0	0.024	1		10/25/19 02:03	16887-00-6	
Fluoride	<b>0.23J</b>	mg/L	0.30	0.029	1		10/25/19 02:03	16984-48-8	
Sulfate	<b>323</b>	mg/L	10.0	0.17	10		10/25/19 09:18	14808-79-8	

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Sample: DGWC-13		Lab ID: 2624491005		Collected: 10/16/19 15:50		Received: 10/17/19 12:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/25/19 10:36	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/25/19 10:36	7440-38-2		
Barium	<b>0.034</b>	mg/L	0.010	0.00049	1	10/21/19 16:03	10/25/19 10:36	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/25/19 10:36	7440-41-7		
Boron	<b>0.65</b>	mg/L	0.040	0.0049	1	10/21/19 16:03	10/25/19 10:36	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/25/19 10:36	7440-43-9		
Calcium	<b>43.8</b>	mg/L	5.0	0.55	50	10/21/19 16:03	10/23/19 22:37	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/21/19 16:03	10/25/19 10:36	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/25/19 10:36	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/25/19 10:36	7439-92-1		
Lithium	<b>0.0029J</b>	mg/L	0.030	0.00078	1	10/21/19 16:03	10/25/19 10:36	7439-93-2		
Molybdenum	<b>0.014</b>	mg/L	0.010	0.00095	1	10/21/19 16:03	10/25/19 10:36	7439-98-7		
Selenium	<b>0.0031J</b>	mg/L	0.010	0.0013	1	10/21/19 16:03	10/25/19 10:36	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/25/19 10:36	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:23	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>296</b>	mg/L	10.0	10.0	1		10/23/19 15:49			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>17.4</b>	mg/L	1.0	0.024	1		10/25/19 02:24	16887-00-6		
Fluoride	<b>0.14J</b>	mg/L	0.30	0.029	1		10/25/19 02:24	16984-48-8		
Sulfate	<b>167</b>	mg/L	20.0	0.34	20		10/25/19 10:01	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Sample: EB-1		Lab ID: 2624491006		Collected: 10/16/19 15:00	Received: 10/17/19 12:00	Matrix: Water				
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 22:43	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 22:43	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 22:43	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/25/19 10:42	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	10/21/19 16:03	10/23/19 22:43	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 22:43	7440-43-9		
Calcium	<b>0.022J</b>	mg/L	0.10	0.011	1	10/21/19 16:03	10/23/19 22:43	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 22:43	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 22:43	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 22:43	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	10/21/19 16:03	10/25/19 10:42	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 22:43	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 22:43	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 22:43	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:25	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/23/19 15:49			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>0.032J</b>	mg/L	1.0	0.024	1		10/25/19 02:46	16887-00-6	B	
Fluoride	<b>0.16J</b>	mg/L	0.30	0.029	1		10/25/19 02:46	16984-48-8		
Sulfate	ND	mg/L	1.0	0.017	1		10/25/19 02:46	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Sample: <b>FB-2</b>		Lab ID: <b>2624491007</b>		Collected: 10/16/19 11:30	Received: 10/17/19 12:00	Matrix: Water				
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/21/19 16:03	10/23/19 22:49	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	10/21/19 16:03	10/23/19 22:49	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	10/21/19 16:03	10/23/19 22:49	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/21/19 16:03	10/25/19 11:35	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	10/21/19 16:03	10/23/19 22:49	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/21/19 16:03	10/23/19 22:49	7440-43-9		
Calcium	<b>0.022J</b>	mg/L	0.10	0.011	1	10/21/19 16:03	10/23/19 22:49	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/21/19 16:03	10/23/19 22:49	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/21/19 16:03	10/23/19 22:49	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/21/19 16:03	10/23/19 22:49	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	10/21/19 16:03	10/25/19 11:35	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/21/19 16:03	10/23/19 22:49	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/21/19 16:03	10/23/19 22:49	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/21/19 16:03	10/23/19 22:49	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/23/19 10:07	10/23/19 15:27	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/23/19 15:49			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>0.035J</b>	mg/L	1.0	0.024	1		10/25/19 03:08	16887-00-6	B	
Fluoride	<b>0.11J</b>	mg/L	0.30	0.029	1		10/25/19 03:08	16984-48-8		
Sulfate	ND	mg/L	1.0	0.017	1		10/25/19 03:08	14808-79-8		

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Sample: <b>FD-2</b>		Lab ID: <b>2624491008</b>		Collected: 10/16/19 00:00	Received: 10/17/19 12:00	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual	
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Boron	<b>0.93</b>	mg/L	0.040	0.0049	1	11/06/19 17:00	11/07/19 16:05	7440-42-8		
Calcium	<b>44.6</b>	mg/L	5.0	0.55	50	11/06/19 17:00	11/07/19 16:11	7440-70-2		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>295</b>	mg/L	10.0	10.0	1		11/08/19 10:21		H1	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>17.3</b>	mg/L	1.0	0.024	1		11/06/19 22:55	16887-00-6	M1	
Fluoride	<b>0.13J</b>	mg/L	0.30	0.029	1		11/06/19 22:55	16984-48-8		
Sulfate	<b>167</b>	mg/L	10.0	0.17	10		11/07/19 21:57	14808-79-8		

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624491

QC Batch: 37300

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2624491001, 2624491002, 2624491003, 2624491004, 2624491005, 2624491006, 2624491007

METHOD BLANK: 168761

Matrix: Water

Associated Lab Samples: 2624491001, 2624491002, 2624491003, 2624491004, 2624491005, 2624491006, 2624491007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/23/19 14:38	

LABORATORY CONTROL SAMPLE: 168762

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168763 168764

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2624388001 Result	Spike Conc.	Spike Conc.	Conc.								
Mercury	mg/L	ND	0.0025	0.0025	0.0024	0.0024	97	96	75-125	2	20		

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

QC Batch: 37286 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2624491001, 2624491002, 2624491003, 2624491004, 2624491005, 2624491006, 2624491007

METHOD BLANK: 168679 Matrix: Water  
Associated Lab Samples: 2624491001, 2624491002, 2624491003, 2624491004, 2624491005, 2624491006, 2624491007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/23/19 18:31	
Arsenic	mg/L	ND	0.0050	0.00035	10/23/19 18:31	
Barium	mg/L	ND	0.010	0.00049	10/23/19 18:31	
Beryllium	mg/L	ND	0.0030	0.000074	10/23/19 18:31	
Boron	mg/L	ND	0.040	0.0049	10/23/19 18:31	
Cadmium	mg/L	ND	0.0025	0.00011	10/23/19 18:31	
Calcium	mg/L	ND	0.10	0.011	10/23/19 18:31	
Chromium	mg/L	ND	0.010	0.00039	10/23/19 18:31	
Cobalt	mg/L	ND	0.0050	0.00030	10/23/19 18:31	
Lead	mg/L	ND	0.0050	0.000046	10/23/19 18:31	
Lithium	mg/L	ND	0.030	0.00078	10/23/19 18:31	
Molybdenum	mg/L	ND	0.010	0.00095	10/23/19 18:31	
Selenium	mg/L	ND	0.010	0.0013	10/23/19 18:31	
Thallium	mg/L	ND	0.0010	0.000052	10/23/19 18:31	

LABORATORY CONTROL SAMPLE: 168680

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.10	101	80-120	
Beryllium	mg/L	0.1	0.10	103	80-120	
Boron	mg/L	1	0.99	99	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	1.0	101	80-120	
Chromium	mg/L	0.1	0.099	99	80-120	
Cobalt	mg/L	0.1	0.098	98	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.10	103	80-120	
Molybdenum	mg/L	0.1	0.10	101	80-120	
Selenium	mg/L	0.1	0.095	95	80-120	
Thallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168681 168682

Parameter	Units	2624484003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	0	20	

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 168681		168682		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2624484003 Result	MS Spike Conc.	MSD Spike Conc.									
Arsenic	mg/L	0.00040J	0.1	0.1	0.10	0.10	100	100	75-125	0	20		
Barium	mg/L	0.037	0.1	0.1	0.15	0.14	109	107	75-125	1	20		
Beryllium	mg/L	0.00015J	0.1	0.1	0.095	0.094	95	94	75-125	0	20		
Boron	mg/L	2.2	1	1	3.1	3.1	90	90	75-125	0	20		
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	100	100	75-125	1	20		
Calcium	mg/L	61.2	1	1	62.7	66.1	145	485	75-125	5	20	M6	
Chromium	mg/L	0.0064J	0.1	0.1	0.11	0.10	100	98	75-125	2	20		
Cobalt	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20		
Lead	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20		
Lithium	mg/L	0.0022J	0.1	0.1	0.096	0.095	94	93	75-125	1	20		
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20		
Selenium	mg/L	ND	0.1	0.1	0.096	0.096	96	95	75-125	0	20		
Thallium	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20		

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

QC Batch: 38336 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2624491008

METHOD BLANK: 173987 Matrix: Water  
Associated Lab Samples: 2624491008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Boron	mg/L	ND	0.040	0.0049	11/07/19 15:54	
Calcium	mg/L	ND	0.10	0.011	11/07/19 15:54	

LABORATORY CONTROL SAMPLE: 173988

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Boron	mg/L	1	1.0	102	80-120	
Calcium	mg/L	1	0.97	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 174014 174015

Parameter	Units	2625120011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Boron	mg/L	1.3	1	1	2.2	2.4	91	105	75-125	6	20	
Calcium	mg/L	278	1	1	277	289	-63	1080	75-125	4	20	

SAMPLE DUPLICATE: 174016

Parameter	Units	2625026002 Result	Dup Result	RPD	Max RPD	Qualifiers
Boron	mg/L	ND	0.020J		20	
Calcium	mg/L	18000 ug/L	17.4	3	20	

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**QUALITY CONTROL DATA**

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

QC Batch: 37419 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 2624491001, 2624491002, 2624491003, 2624491004, 2624491005, 2624491006, 2624491007

LABORATORY CONTROL SAMPLE: 169291

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	391	98	84-108	

SAMPLE DUPLICATE: 169292

Parameter	Units	2624484007 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	ND		10	

SAMPLE DUPLICATE: 169293

Parameter	Units	2624491004 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	500	501	0	10	

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**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

QC Batch: 38488 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 2624491008

LABORATORY CONTROL SAMPLE: 174601

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	380	95	84-108	

SAMPLE DUPLICATE: 174602

Parameter	Units	2625206002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	96.0	85.0	12	10	D6

SAMPLE DUPLICATE: 174608

Parameter	Units	2625315002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	64.0	78.0	20	10	D6

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

QC Batch: 37461 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2624491001, 2624491002, 2624491003, 2624491004, 2624491005, 2624491006, 2624491007

METHOD BLANK: 169631 Matrix: Water  
Associated Lab Samples: 2624491001, 2624491002, 2624491003, 2624491004, 2624491005, 2624491006, 2624491007

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.043J	1.0	0.024	10/24/19 16:21	
Fluoride	mg/L	ND	0.30	0.029	10/24/19 16:21	
Sulfate	mg/L	ND	1.0	0.017	10/24/19 16:21	

LABORATORY CONTROL SAMPLE: 169632

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.6	106	90-110	
Fluoride	mg/L	10	10.9	109	90-110	
Sulfate	mg/L	10	10.4	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 169633 169634

Parameter	Units	2624484001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	5.4	10	10	15.3	15.3	99	100	90-110	0	15	
Fluoride	mg/L	0.17J	10	10	11.1	11.1	110	110	90-110	0	15	

MATRIX SPIKE SAMPLE: 169635

Parameter	Units	2624487002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	4.6	10	14.7	101	90-110	
Fluoride	mg/L	0.076J	10	10.6	106	90-110	

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624491

QC Batch: 38464 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2624491008

METHOD BLANK: 174481 Matrix: Water  
Associated Lab Samples: 2624491008

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.043J	1.0	0.024	11/06/19 22:13	
Fluoride	mg/L	ND	0.30	0.029	11/06/19 22:13	
Sulfate	mg/L	ND	1.0	0.017	11/06/19 22:13	

LABORATORY CONTROL SAMPLE: 174482

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.5	105	90-110	
Fluoride	mg/L	10	10.4	104	90-110	
Sulfate	mg/L	10	10.3	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 174483 174484

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2624491008 Result	Spike Conc.	Spike Conc.	MS Result						
Chloride	mg/L	17.3	10	10	25.4	24.9	81	76	90-110	2	15 M1
Fluoride	mg/L	0.13J	10	10	9.6	9.2	94	91	90-110	3	15

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## QUALIFIERS

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624491

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

H1 Analysis conducted outside the EPA method holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624491

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624491001	DGWC-5	EPA 3005A	37286	EPA 6020B	37308
2624491002	DGWC-8	EPA 3005A	37286	EPA 6020B	37308
2624491003	DGWC-14	EPA 3005A	37286	EPA 6020B	37308
2624491004	DGWC-19	EPA 3005A	37286	EPA 6020B	37308
2624491005	DGWC-13	EPA 3005A	37286	EPA 6020B	37308
2624491006	EB-1	EPA 3005A	37286	EPA 6020B	37308
2624491007	FB-2	EPA 3005A	37286	EPA 6020B	37308
2624491008	FD-2	EPA 3005A	38336	EPA 6020B	38379
2624491001	DGWC-5	EPA 7470A	37300	EPA 7470A	37416
2624491002	DGWC-8	EPA 7470A	37300	EPA 7470A	37416
2624491003	DGWC-14	EPA 7470A	37300	EPA 7470A	37416
2624491004	DGWC-19	EPA 7470A	37300	EPA 7470A	37416
2624491005	DGWC-13	EPA 7470A	37300	EPA 7470A	37416
2624491006	EB-1	EPA 7470A	37300	EPA 7470A	37416
2624491007	FB-2	EPA 7470A	37300	EPA 7470A	37416
2624491001	DGWC-5	SM 2540C	37419		
2624491002	DGWC-8	SM 2540C	37419		
2624491003	DGWC-14	SM 2540C	37419		
2624491004	DGWC-19	SM 2540C	37419		
2624491005	DGWC-13	SM 2540C	37419		
2624491006	EB-1	SM 2540C	37419		
2624491007	FB-2	SM 2540C	37419		
2624491008	FD-2	SM 2540C	38488		
2624491001	DGWC-5	EPA 300.0	37461		
2624491002	DGWC-8	EPA 300.0	37461		
2624491003	DGWC-14	EPA 300.0	37461		
2624491004	DGWC-19	EPA 300.0	37461		
2624491005	DGWC-13	EPA 300.0	37461		
2624491006	EB-1	EPA 300.0	37461		
2624491007	FB-2	EPA 300.0	37461		
2624491008	FD-2	EPA 300.0	38464		

### REPORT OF LABORATORY ANALYSIS

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**WO# : 2624491**  
 PM: BM Due Date: 10/24/19  
 CLIENT: GAPower-COR  
 Proj. Name:



Client Name: GAPower

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other  
 Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 214 Type of Ice: Wet Blue None  Samples on ice, cooling process has begun

Cooler Temperature 1.0°C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: CO/12/19 CD

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11. <u>Field Filtered Nets + DOC</u>
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, <u>TOC</u> , O&G, WI-DRO (water)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N  
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Comments/ Resolution: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

November 14, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624493

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624493

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## SAMPLE SUMMARY

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624493

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624493001	DGWC-5	Water	10/16/19 13:00	10/17/19 12:00
2624493002	DGWC-8	Water	10/16/19 15:10	10/17/19 12:00
2624493003	DGWC-14	Water	10/16/19 13:29	10/17/19 12:00
2624493004	DGWC-19	Water	10/16/19 15:32	10/17/19 12:00
2624493005	FD-2	Water	10/16/19 00:00	10/17/19 12:00
2624493006	EB-1	Water	10/16/19 15:00	10/17/19 12:00
2624493007	FB-2	Water	10/16/19 11:30	10/17/19 12:00

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624493

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624493001	DGWC-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624493002	DGWC-8	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624493003	DGWC-14	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624493004	DGWC-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624493005	FD-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624493006	EB-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624493007	FB-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624493

**Sample: DGWC-5**      **Lab ID: 2624493001**      Collected: 10/16/19 13:00      Received: 10/17/19 12:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.949 ± 0.386 (0.295)</b> C:84% T:NA	pCi/L	11/06/19 10:19	13982-63-3	
Radium-228	EPA 9320	<b>0.683 ± 0.466 (0.899)</b> C:77% T:86%	pCi/L	11/06/19 17:27	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.63 ± 0.852 (1.19)</b>	pCi/L	11/12/19 10:41	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624493

**Sample: DGWC-8**      **Lab ID: 2624493002**      Collected: 10/16/19 15:10      Received: 10/17/19 12:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.649 ± 0.367 (0.548)</b> C:80% T:NA	pCi/L	11/06/19 08:02	13982-63-3	
Radium-228	EPA 9320	<b>0.350 ± 0.487 (1.04)</b> C:72% T:88%	pCi/L	11/06/19 17:27	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.999 ± 0.854 (1.59)</b>	pCi/L	11/12/19 10:41	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624493

**Sample: DGWC-14**      **Lab ID: 2624493003**      Collected: 10/16/19 13:29      Received: 10/17/19 12:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.459 ± 0.306 (0.466)</b> C:76% T:NA	pCi/L	11/06/19 08:02	13982-63-3	
Radium-228	EPA 9320	<b>0.578 ± 0.569 (1.18)</b> C:76% T:77%	pCi/L	11/06/19 17:28	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.04 ± 0.875 (1.65)</b>	pCi/L	11/12/19 10:41	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624493

**Sample: DGWC-19**      **Lab ID: 2624493004**      Collected: 10/16/19 15:32      Received: 10/17/19 12:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.495 ± 0.297 (0.418)</b> C:86% T:NA	pCi/L	11/06/19 08:02	13982-63-3	
Radium-228	EPA 9320	<b>1.29 ± 0.548 (0.868)</b> C:75% T:80%	pCi/L	11/06/19 17:28	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.79 ± 0.845 (1.29)</b>	pCi/L	11/12/19 10:42	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624493

**Sample: FD-2**      **Lab ID: 2624493005**      Collected: 10/16/19 00:00      Received: 10/17/19 12:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.997 ± 0.411 (0.436)</b> C:91% T:NA	pCi/L	11/06/19 07:19	13982-63-3	
Radium-228	EPA 9320	<b>0.732 ± 0.426 (0.778)</b> C:77% T:90%	pCi/L	11/06/19 17:28	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.73 ± 0.837 (1.21)</b>	pCi/L	11/12/19 10:42	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624493

**Sample: EB-1**      **Lab ID: 2624493006**      Collected: 10/16/19 15:00      Received: 10/17/19 12:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.295 ± 0.240 (0.398)</b> C:91% T:NA	pCi/L	11/06/19 07:20	13982-63-3	
Radium-228	EPA 9320	<b>0.427 ± 0.427 (0.878)</b> C:75% T:80%	pCi/L	11/06/19 17:28	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.722 ± 0.667 (1.28)</b>	pCi/L	11/12/19 10:42	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624493

**Sample: FB-2**      **Lab ID: 2624493007**      Collected: 10/16/19 11:30      Received: 10/17/19 12:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.328 ± 0.287 (0.542)</b> C:92% T:NA	pCi/L	11/06/19 07:21	13982-63-3	
Radium-228	EPA 9320	<b>0.614 ± 0.474 (0.935)</b> C:74% T:83%	pCi/L	11/06/19 17:28	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.942 ± 0.761 (1.48)</b>	pCi/L	11/12/19 10:42	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624493

QC Batch: 368259

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2624493001, 2624493002, 2624493003, 2624493004, 2624493005, 2624493006, 2624493007

METHOD BLANK: 1786863

Matrix: Water

Associated Lab Samples: 2624493001, 2624493002, 2624493003, 2624493004, 2624493005, 2624493006, 2624493007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.306 ± 0.244 (0.419) C:96% T:NA	pCi/L	11/06/19 08:02	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624493

QC Batch: 368258

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2624493001, 2624493002, 2624493003, 2624493004, 2624493005, 2624493006, 2624493007

METHOD BLANK: 1786861

Matrix: Water

Associated Lab Samples: 2624493001, 2624493002, 2624493003, 2624493004, 2624493005, 2624493006, 2624493007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0170 ± 0.384 (0.894) C:77% T:79%	pCi/L	11/06/19 17:17	

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

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## QUALIFIERS

Project: Plant McDonough AP-2,3/4

Pace Project No.: 2624493

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough AP-2,3/4  
Pace Project No.: 2624493

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624493001	DGWC-5	EPA 9315	368259		
2624493002	DGWC-8	EPA 9315	368259		
2624493003	DGWC-14	EPA 9315	368259		
2624493004	DGWC-19	EPA 9315	368259		
2624493005	FD-2	EPA 9315	368259		
2624493006	EB-1	EPA 9315	368259		
2624493007	FB-2	EPA 9315	368259		
2624493001	DGWC-5	EPA 9320	368258		
2624493002	DGWC-8	EPA 9320	368258		
2624493003	DGWC-14	EPA 9320	368258		
2624493004	DGWC-19	EPA 9320	368258		
2624493005	FD-2	EPA 9320	368258		
2624493006	EB-1	EPA 9320	368258		
2624493007	FB-2	EPA 9320	368258		
2624493001	DGWC-5	Total Radium Calculation	370509		
2624493002	DGWC-8	Total Radium Calculation	370509		
2624493003	DGWC-14	Total Radium Calculation	370509		
2624493004	DGWC-19	Total Radium Calculation	370511		
2624493005	FD-2	Total Radium Calculation	370511		
2624493006	EB-1	Total Radium Calculation	370511		
2624493007	FB-2	Total Radium Calculation	370511		

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**CHAIN-OF-CUSTODY / Analytical Request Document**  
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jabraheam@southemco.com  
 Phone: (404) 508-7239

**Section B**  
 Required Project Information:  
 Report To: Jolu Abraham  
 Copy To: Golder  
 Purchase Order #: SCS10382775  
 Project Name: Plant McDonough AP-2, 3A  
 Project #: 166846818

**Section C**  
 Invoice Information:  
 Attention: acsinvoices@southemco.com  
 Company Name:  
 Address:  
 Paces Project Manager: belay.mcdaniel@pacelabs.com  
 Paces Profile #: 332.7.2

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	DATE		TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS		PRESERVATIVES										TEMP IN C	RECEIVED COOLING	CUSTODY	Sealed	Cooling	Intact									
			RECEIVED BY	DATE			UNPRESERVED - ICE	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals App. III & App. IV	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)															
1	DGWC-5	G	10/16/2019	10/16/2019	1300		6	X							X	X	X	X	X		X		Extra radium										
2	DGWC-8	G	10/16/2019	10/16/2019	1510		4	X							X	X	X	X	X		X		Extra radium										
3	<del>DGWC-8</del>	<del>G</del>	<del>10/16/2019</del>	<del>10/16/2019</del>	<del>1400</del>		<del>6</del>	<del>X</del>							<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>		<del>X</del>		<del>Extra radium</del>										
4	DGWC-14	G	10/16/2019	10/16/2019	1329		4	X							X	X	X	X	X		X		Extra radium										
5	DGWC-19	G	10/16/2019	10/16/2019	1532		4	X							X	X	X	X	X		X		Labradors, F&S										
6	FD-2	G	10/16/2019	10/16/2019	-		4	X							X	X	X	X	X		X		Labradors, F&S										
7	EB-1	G	10/16/2019	10/16/2019	1500		4	X							X	X	X	X	X		X		Labradors, F&S										
8	FB-2	G	10/16/2019	10/16/2019	1130		4	X							X	X	X	X	X		X		Labradors, F&S										
9																																	
10																																	
11																																	
12																																	

**RECEIVED BY**  
 RECEIVED DATE  
 RECEIVED TIME

**APPROVAL COMMENTS**

**RECEIVED BY / APPLICATION**  
 RECEIVED DATE  
 RECEIVED TIME

**TEMP IN C**

**RECEIVED COOLING**

**CUSTODY**

**Sealed**

**Cooling**

**Intact**

**SAMPLES**

**LABORATORY**

**NO# : 2624493**

**DATE SIGNED**

**WO# : 2624493**

PM: BM Due Date: 11/14/19

CLIENT: GAPower-CCR

Proj. Due Date: \_\_\_\_\_  
Proj. Name: \_\_\_\_\_



Client Name: GAPower

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_  
Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 214 Type of Ice: Wet Blue None  Samples on ice, cooling process has begun

Cooler Temperature 1.0°C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 10/12/19 CCR

Comments:	
Chain of Custody Present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	11. <u>Field Filtered Nets + DOC</u>
Sample Labels match COC: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>	
All containers needing preservation have been checked. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation. <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, <u>TOC</u> , O&G, WI-DRO (water) <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Initial when completed
	Lot # of added preservative
Samples checked for dechlorination: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm): <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present: <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): _____	

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

December 30, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 18, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Kevin Herring for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough AP-2, 3-4

Pace Project No.: 2624567

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### **Pace Analytical Services Atlanta**

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## SAMPLE SUMMARY

Project: Plant McDonough AP-2, 3-4

Pace Project No.: 2624567

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624567001	DGWC-2	Water	10/17/19 15:15	10/18/19 15:40
2624567002	DGWC-9	Water	10/17/19 15:03	10/18/19 15:40
2624567003	DGWC-15	Water	10/17/19 10:00	10/18/19 15:40
2624567004	DGWC-20	Water	10/17/19 09:31	10/18/19 15:40
2624567005	DGWC-21	Water	10/17/19 14:30	10/18/19 15:40
2624567006	DGWC-42	Water	10/17/19 16:00	10/18/19 15:40
2624567007	DGWC-47	Water	10/17/19 13:50	10/18/19 15:40
2624567008	FB-3	Water	10/17/19 13:00	10/18/19 15:40
2624567009	DGWC-17	Water	10/18/19 13:00	10/18/19 15:40
2624567010	DGWC-22	Water	10/18/19 09:55	10/18/19 15:40
2624567011	DGWC-23	Water	10/18/19 09:55	10/18/19 15:40
2624567012	DGWC-48	Water	10/18/19 10:40	10/18/19 15:40

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2, 3-4

Pace Project No.: 2624567

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624567001	DGWC-2	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624567002	DGWC-9	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624567003	DGWC-15	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624567004	DGWC-20	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624567005	DGWC-21	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624567006	DGWC-42	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624567007	DGWC-47	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624567008	FB-3	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624567009	DGWC-17	EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
2624567010	DGWC-22	EPA 6020B	CSW	14

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2, 3-4

Pace Project No.: 2624567

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2624567011	DGWC-23	EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3
		EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
2624567012	DGWC-48	EPA 300.0	MWB	3
		EPA 6020B	CSW	14
		EPA 7470A	DRB	1
		SM 2540C	MZP	1
		EPA 300.0	MWB	3

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: DGWC-2		Lab ID: 2624567001		Collected: 10/17/19 15:15		Received: 10/18/19 15:40		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 18:21	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 18:21	7440-38-2		
Barium	<b>0.022</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 18:21	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 18:21	7440-41-7		
Boron	<b>0.73</b>	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 18:21	7440-42-8		
Cadmium	<b>0.00013J</b>	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 18:21	7440-43-9		
Calcium	<b>47.2</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 18:27	7440-70-2	M6	
Chromium	<b>0.00046J</b>	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 18:21	7440-47-3		
Cobalt	<b>0.0084</b>	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 18:21	7440-48-4		
Lead	<b>0.000086J</b>	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 18:21	7439-92-1		
Lithium	<b>0.029J</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 18:21	7439-93-2		
Molybdenum	<b>0.0018J</b>	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 18:21	7439-98-7		
Selenium	<b>0.0051J</b>	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 18:21	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 18:21	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 16:32	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>302</b>	mg/L	10.0	10.0	1		10/25/19 14:35		H1	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>2.8</b>	mg/L	1.0	0.024	1		10/29/19 01:14	16887-00-6		
Fluoride	<b>0.042J</b>	mg/L	0.30	0.029	1		10/29/19 01:14	16984-48-8		
Sulfate	<b>134</b>	mg/L	20.0	0.34	20		10/29/19 11:55	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4

Pace Project No.: 2624567

Sample: DGWC-9		Lab ID: 2624567002		Collected: 10/17/19 15:03		Received: 10/18/19 15:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 19:13	7440-36-0	
Arsenic	<b>0.033</b>	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 19:13	7440-38-2	
Barium	<b>0.015</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 19:13	7440-39-3	
Beryllium	<b>0.0063</b>	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 19:13	7440-41-7	
Boron	<b>1.2</b>	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 19:13	7440-42-8	
Cadmium	<b>0.00064J</b>	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 19:13	7440-43-9	
Calcium	<b>75.6</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 19:19	7440-70-2	
Chromium	<b>0.00051J</b>	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 19:13	7440-47-3	
Cobalt	<b>0.21</b>	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 19:13	7440-48-4	
Lead	ND	mg/L	0.025	0.00023	5	10/23/19 16:22	10/25/19 11:53	7439-92-1	D3
Lithium	<b>0.029J</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 19:13	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 19:13	7439-98-7	
Selenium	<b>0.19</b>	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 19:13	7782-49-2	
Thallium	<b>0.00076J</b>	mg/L	0.0050	0.00026	5	10/23/19 16:22	10/25/19 11:53	7440-28-0	D3
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	<b>0.00042J</b>	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 16:34	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>550</b>	mg/L	10.0	10.0	1		10/25/19 14:36		H1
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>10</b>	mg/L	1.0	0.024	1		10/29/19 02:20	16887-00-6	M1
Fluoride	<b>1.2</b>	mg/L	0.30	0.029	1		10/29/19 02:20	16984-48-8	M1
Sulfate	<b>331</b>	mg/L	50.0	0.85	50		10/29/19 12:17	14808-79-8	M1

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: DGWC-15		Lab ID: 2624567003		Collected: 10/17/19 10:00		Received: 10/18/19 15:40		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 19:24	7440-36-0		
Arsenic	<b>0.00064J</b>	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 19:24	7440-38-2	B	
Barium	<b>0.046</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 19:24	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 19:24	7440-41-7		
Boron	<b>1.5</b>	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 19:24	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 19:24	7440-43-9		
Calcium	<b>37.0</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 19:30	7440-70-2		
Chromium	<b>0.00058J</b>	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 19:24	7440-47-3		
Cobalt	<b>0.0018J</b>	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 19:24	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 19:24	7439-92-1		
Lithium	<b>0.0064J</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 19:24	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 19:24	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 19:24	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 19:24	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 16:44	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>319</b>	mg/L	10.0	10.0	1		10/25/19 14:36		H1	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>22.0</b>	mg/L	1.0	0.024	1		10/29/19 02:42	16887-00-6		
Fluoride	<b>0.079J</b>	mg/L	0.30	0.029	1		10/29/19 02:42	16984-48-8		
Sulfate	<b>146</b>	mg/L	10.0	0.17	10		10/29/19 12:39	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: DGWC-20		Lab ID: 2624567004		Collected: 10/17/19 09:31		Received: 10/18/19 15:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 19:36	7440-36-0	
Arsenic	<b>0.0094</b>	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 19:36	7440-38-2	
Barium	<b>0.015</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 19:36	7440-39-3	
Beryllium	<b>0.0041</b>	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 19:36	7440-41-7	
Boron	<b>5.0</b>	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 19:36	7440-42-8	
Cadmium	<b>0.0017J</b>	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 19:36	7440-43-9	
Calcium	<b>86.9</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 19:42	7440-70-2	
Chromium	<b>0.0015J</b>	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 19:36	7440-47-3	
Cobalt	<b>0.57</b>	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 19:36	7440-48-4	
Lead	<b>0.000097J</b>	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 19:36	7439-92-1	
Lithium	<b>0.0075J</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 19:36	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 19:36	7439-98-7	
Selenium	<b>0.071</b>	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 19:36	7782-49-2	
Thallium	<b>0.00062J</b>	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 19:36	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 16:46	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>751</b>	mg/L	10.0	10.0	1		10/25/19 14:36		H1
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>24.9</b>	mg/L	1.0	0.024	1		10/29/19 03:04	16887-00-6	
Fluoride	<b>0.26J</b>	mg/L	0.30	0.029	1		10/29/19 03:04	16984-48-8	
Sulfate	<b>426</b>	mg/L	50.0	0.85	50		10/29/19 17:27	14808-79-8	

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: DGWC-21		Lab ID: 2624567005		Collected: 10/17/19 14:30		Received: 10/18/19 15:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 19:47	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 19:47	7440-38-2	
Barium	<b>0.027</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 19:47	7440-39-3	
Beryllium	<b>0.00015J</b>	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 19:47	7440-41-7	
Boron	<b>7.0</b>	mg/L	2.0	0.25	50	10/23/19 16:22	10/24/19 19:53	7440-42-8	
Cadmium	<b>0.00060J</b>	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 19:47	7440-43-9	
Calcium	<b>79.8</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 19:53	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 19:47	7440-47-3	
Cobalt	<b>0.010</b>	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 19:47	7440-48-4	
Lead	<b>0.000046J</b>	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 19:47	7439-92-1	
Lithium	<b>0.0063J</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 19:47	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 19:47	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 19:47	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 19:47	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 16:48	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>498</b>	mg/L	10.0	10.0	1		10/25/19 14:37		H1
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>20.1</b>	mg/L	1.0	0.024	1		10/29/19 04:32	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/29/19 04:32	16984-48-8	
Sulfate	<b>255</b>	mg/L	20.0	0.34	20		10/29/19 17:49	14808-79-8	

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: DGWC-42		Lab ID: 2624567006		Collected: 10/17/19 16:00		Received: 10/18/19 15:40		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 19:59	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 19:59	7440-38-2		
Barium	<b>0.018</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 19:59	7440-39-3		
Beryllium	<b>0.0027J</b>	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 19:59	7440-41-7		
Boron	<b>0.94</b>	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 19:59	7440-42-8		
Cadmium	<b>0.00058J</b>	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 19:59	7440-43-9		
Calcium	<b>44.1</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 20:04	7440-70-2		
Chromium	<b>0.00041J</b>	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 19:59	7440-47-3		
Cobalt	<b>0.030</b>	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 19:59	7440-48-4		
Lead	<b>0.00026J</b>	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 19:59	7439-92-1		
Lithium	<b>0.011J</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 19:59	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 19:59	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 19:59	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 19:59	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 16:55	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>612</b>	mg/L	10.0	10.0	1		10/25/19 14:37		H1	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>25.8</b>	mg/L	1.0	0.024	1		10/29/19 04:55	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		10/29/19 04:55	16984-48-8		
Sulfate	<b>321</b>	mg/L	20.0	0.34	20		10/29/19 18:12	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: <b>DGWC-47</b> Lab ID: <b>2624567007</b> Collected: 10/17/19 13:50      Received: 10/18/19 15:40      Matrix: Water									
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020B MET ICPMS</b> Analytical Method: EPA 6020B      Preparation Method: EPA 3005A									
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 20:22	7440-36-0	
Arsenic	<b>0.0013J</b>	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 20:22	7440-38-2	B
Barium	<b>0.019</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 20:22	7440-39-3	
Beryllium	<b>0.0093</b>	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 20:22	7440-41-7	
Boron	<b>0.25</b>	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 20:22	7440-42-8	
Cadmium	<b>0.0033</b>	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 20:22	7440-43-9	
Calcium	<b>36.2</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 20:27	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 20:22	7440-47-3	
Cobalt	<b>0.26</b>	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 20:22	7440-48-4	
Lead	<b>0.0011J</b>	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 20:22	7439-92-1	
Lithium	<b>0.066</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 20:22	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 20:22	7439-98-7	
Selenium	<b>0.0062J</b>	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 20:22	7782-49-2	
Thallium	<b>0.00025J</b>	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 20:22	7440-28-0	
<b>7470 Mercury</b> Analytical Method: EPA 7470A      Preparation Method: EPA 7470A									
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 16:58	7439-97-6	
<b>2540C Total Dissolved Solids</b> Analytical Method: SM 2540C									
Total Dissolved Solids	<b>327</b>	mg/L	10.0	10.0	1		10/25/19 14:37		H1
<b>300.0 IC Anions 28 Days</b> Analytical Method: EPA 300.0									
Chloride	<b>7.0</b>	mg/L	1.0	0.024	1		10/29/19 05:17	16887-00-6	
Fluoride	<b>0.46</b>	mg/L	0.30	0.029	1		10/29/19 05:17	16984-48-8	
Sulfate	<b>179</b>	mg/L	20.0	0.34	20		10/29/19 18:34	14808-79-8	

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: <b>FB-3</b>		Lab ID: <b>2624567008</b>		Collected: 10/17/19 13:00	Received: 10/18/19 15:40	Matrix: Water				
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 20:33	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 20:33	7440-38-2		
Barium	ND	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 20:33	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 20:33	7440-41-7		
Boron	ND	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 20:33	7440-42-8		
Cadmium	ND	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 20:33	7440-43-9		
Calcium	<b>0.011J</b>	mg/L	0.10	0.011	1	10/23/19 16:22	10/24/19 20:33	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 20:33	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 20:33	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 20:33	7439-92-1		
Lithium	ND	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 20:33	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 20:33	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 20:33	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 20:33	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 17:00	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	10.0	10.0	1		10/25/19 14:37		H1	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	ND	mg/L	1.0	0.024	1		10/29/19 05:39	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		10/29/19 05:39	16984-48-8		
Sulfate	<b>0.28J</b>	mg/L	1.0	0.017	1		10/29/19 05:39	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: DGWC-17		Lab ID: 2624567009		Collected: 10/18/19 13:00		Received: 10/18/19 15:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 20:39	7440-36-0	
Arsenic	<b>0.0012J</b>	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 20:39	7440-38-2	B
Barium	<b>0.045</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 20:39	7440-39-3	
Beryllium	<b>0.00071J</b>	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 20:39	7440-41-7	
Boron	<b>0.82</b>	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 20:39	7440-42-8	
Cadmium	<b>0.00029J</b>	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 20:39	7440-43-9	
Calcium	<b>12.9</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 20:45	7440-70-2	
Chromium	<b>0.0027J</b>	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 20:39	7440-47-3	
Cobalt	<b>0.023</b>	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 20:39	7440-48-4	
Lead	<b>0.000074J</b>	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 20:39	7439-92-1	
Lithium	<b>0.00096J</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 20:39	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 20:39	7439-98-7	
Selenium	<b>0.0093J</b>	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 20:39	7782-49-2	
Thallium	<b>0.00014J</b>	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 20:39	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 17:02	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>403</b>	mg/L	10.0	10.0	1		10/25/19 14:37		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>22.0</b>	mg/L	1.0	0.024	1		10/29/19 06:01	16887-00-6	
Fluoride	<b>0.086J</b>	mg/L	0.30	0.029	1		10/29/19 06:01	16984-48-8	
Sulfate	<b>222</b>	mg/L	20.0	0.34	20		10/29/19 18:56	14808-79-8	

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: DGWC-22		Lab ID: 2624567010		Collected: 10/18/19 09:55		Received: 10/18/19 15:40		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 20:50	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 20:50	7440-38-2	
Barium	<b>0.032</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 20:50	7440-39-3	
Beryllium	<b>0.00014J</b>	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 20:50	7440-41-7	
Boron	<b>4.2</b>	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 20:50	7440-42-8	
Cadmium	<b>0.00056J</b>	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 20:50	7440-43-9	
Calcium	<b>61.7</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 20:56	7440-70-2	
Chromium	ND	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 20:50	7440-47-3	
Cobalt	<b>0.0084</b>	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 20:50	7440-48-4	
Lead	ND	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 20:50	7439-92-1	
Lithium	<b>0.0041J</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 20:50	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 20:50	7439-98-7	
Selenium	ND	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 20:50	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 20:50	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 17:05	7439-97-6	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>480</b>	mg/L	10.0	10.0	1		10/25/19 14:37		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>23.4</b>	mg/L	1.0	0.024	1		10/29/19 06:23	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		10/29/19 06:23	16984-48-8	
Sulfate	<b>254</b>	mg/L	20.0	0.34	20		10/29/19 19:18	14808-79-8	

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### ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: DGWC-23		Lab ID: 2624567011		Collected: 10/18/19 09:55		Received: 10/18/19 15:40		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 21:02	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 21:02	7440-38-2		
Barium	<b>0.019</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 21:02	7440-39-3		
Beryllium	<b>0.00038J</b>	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 21:02	7440-41-7		
Boron	<b>4.5</b>	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 21:02	7440-42-8		
Cadmium	<b>0.00022J</b>	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 21:02	7440-43-9		
Calcium	<b>67.7</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 21:07	7440-70-2		
Chromium	<b>0.00041J</b>	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 21:02	7440-47-3		
Cobalt	ND	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 21:02	7440-48-4		
Lead	ND	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 21:02	7439-92-1		
Lithium	<b>0.0039J</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 21:02	7439-93-2		
Molybdenum	<b>0.0091J</b>	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 21:02	7439-98-7		
Selenium	ND	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 21:02	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 21:02	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 17:07	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>448</b>	mg/L	10.0	10.0	1		10/25/19 14:38			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>14.4</b>	mg/L	1.0	0.024	1		10/29/19 07:07	16887-00-6		
Fluoride	<b>0.079J</b>	mg/L	0.30	0.029	1		10/29/19 07:07	16984-48-8		
Sulfate	<b>203</b>	mg/L	20.0	0.34	20		10/29/19 19:40	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

Sample: DGWC-48		Lab ID: 2624567012		Collected: 10/18/19 10:40		Received: 10/18/19 15:40		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00027	1	10/23/19 16:22	10/24/19 21:25	7440-36-0		
Arsenic	<b>0.00079J</b>	mg/L	0.0050	0.00035	1	10/23/19 16:22	10/24/19 21:25	7440-38-2	B	
Barium	<b>0.014</b>	mg/L	0.010	0.00049	1	10/23/19 16:22	10/24/19 21:25	7440-39-3		
Beryllium	<b>0.0099</b>	mg/L	0.0030	0.000074	1	10/23/19 16:22	10/24/19 21:25	7440-41-7		
Boron	<b>0.74</b>	mg/L	0.040	0.0049	1	10/23/19 16:22	10/24/19 21:25	7440-42-8		
Cadmium	<b>0.0028</b>	mg/L	0.0025	0.00011	1	10/23/19 16:22	10/24/19 21:25	7440-43-9		
Calcium	<b>72.7</b>	mg/L	5.0	0.55	50	10/23/19 16:22	10/24/19 21:30	7440-70-2		
Chromium	ND	mg/L	0.010	0.00039	1	10/23/19 16:22	10/24/19 21:25	7440-47-3		
Cobalt	<b>0.41</b>	mg/L	0.0050	0.00030	1	10/23/19 16:22	10/24/19 21:25	7440-48-4		
Lead	<b>0.00095J</b>	mg/L	0.0050	0.000046	1	10/23/19 16:22	10/24/19 21:25	7439-92-1		
Lithium	<b>0.11</b>	mg/L	0.030	0.00078	1	10/23/19 16:22	10/24/19 21:25	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00095	1	10/23/19 16:22	10/24/19 21:25	7439-98-7		
Selenium	<b>0.0050J</b>	mg/L	0.010	0.0013	1	10/23/19 16:22	10/24/19 21:25	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000052	1	10/23/19 16:22	10/24/19 21:25	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.00014	1	10/24/19 17:51	10/25/19 17:10	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>593</b>	mg/L	10.0	10.0	1		10/25/19 14:38			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>9.6</b>	mg/L	1.0	0.024	1		10/29/19 07:29	16887-00-6		
Fluoride	<b>0.46</b>	mg/L	0.30	0.029	1		10/29/19 07:29	16984-48-8		
Sulfate	<b>336</b>	mg/L	50.0	0.85	50		10/29/19 20:02	14808-79-8		

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2, 3-4

Pace Project No.: 2624567

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QC Batch:	37509	Analysis Method:	EPA 7470A
QC Batch Method:	EPA 7470A	Analysis Description:	7470 Mercury
Associated Lab Samples:	2624567001, 2624567002, 2624567003, 2624567004, 2624567005, 2624567006, 2624567007, 2624567008, 2624567009, 2624567010, 2624567011, 2624567012		

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METHOD BLANK:	170040	Matrix:	Water
Associated Lab Samples:	2624567001, 2624567002, 2624567003, 2624567004, 2624567005, 2624567006, 2624567007, 2624567008, 2624567009, 2624567010, 2624567011, 2624567012		

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.00014	10/25/19 16:27	

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LABORATORY CONTROL SAMPLE: 170041

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	103	80-120	

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MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 170042 170043

Parameter	Units	2624567002 Result	MS Spike		MSD Spike		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Conc.	Conc.	Result	Result						
Mercury	mg/L	0.00042J	0.0025	0.0025	0.0030	0.0030	104	101	75-125	2	20	

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

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

QC Batch: 37435 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2624567001, 2624567002, 2624567003, 2624567004, 2624567005, 2624567006, 2624567007, 2624567008, 2624567009, 2624567010, 2624567011, 2624567012

METHOD BLANK: 169374 Matrix: Water  
Associated Lab Samples: 2624567001, 2624567002, 2624567003, 2624567004, 2624567005, 2624567006, 2624567007, 2624567008, 2624567009, 2624567010, 2624567011, 2624567012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00027	10/24/19 17:54	
Arsenic	mg/L	0.00059J	0.0050	0.00035	10/24/19 17:54	
Barium	mg/L	ND	0.010	0.00049	10/24/19 17:54	
Beryllium	mg/L	ND	0.0030	0.000074	10/24/19 17:54	
Boron	mg/L	ND	0.040	0.0049	10/24/19 17:54	
Cadmium	mg/L	ND	0.0025	0.00011	10/24/19 17:54	
Calcium	mg/L	ND	0.10	0.011	10/24/19 17:54	
Chromium	mg/L	ND	0.010	0.00039	10/24/19 17:54	
Cobalt	mg/L	ND	0.0050	0.00030	10/24/19 17:54	
Lead	mg/L	ND	0.0050	0.000046	10/24/19 17:54	
Lithium	mg/L	ND	0.030	0.00078	10/24/19 17:54	
Molybdenum	mg/L	ND	0.010	0.00095	10/24/19 17:54	
Selenium	mg/L	ND	0.010	0.0013	10/24/19 17:54	
Thallium	mg/L	ND	0.0010	0.000052	10/24/19 17:54	

LABORATORY CONTROL SAMPLE: 169375

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.095	95	80-120	
Arsenic	mg/L	0.1	0.093	93	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.10	100	80-120	
Boron	mg/L	1	1.0	103	80-120	
Cadmium	mg/L	0.1	0.099	99	80-120	
Calcium	mg/L	1	0.98	98	80-120	
Chromium	mg/L	0.1	0.096	96	80-120	
Cobalt	mg/L	0.1	0.097	97	80-120	
Lead	mg/L	0.1	0.095	95	80-120	
Lithium	mg/L	0.1	0.10	101	80-120	
Molybdenum	mg/L	0.1	0.099	99	80-120	
Selenium	mg/L	0.1	0.099	99	80-120	
Thallium	mg/L	0.1	0.096	96	80-120	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2, 3-4

Pace Project No.: 2624567

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 169376		169377		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2624567001 Result	MS Spike Conc.	MSD Spike Conc.									
Antimony	mg/L	ND	0.1	0.1	0.094	0.095	94	95	75-125	1	20		
Arsenic	mg/L	ND	0.1	0.1	0.098	0.096	98	96	75-125	2	20		
Barium	mg/L	0.022	0.1	0.1	0.12	0.12	102	101	75-125	0	20		
Beryllium	mg/L	ND	0.1	0.1	0.097	0.095	96	95	75-125	1	20		
Boron	mg/L	0.73	1	1	1.8	1.8	102	105	75-125	1	20		
Cadmium	mg/L	0.00013J	0.1	0.1	0.098	0.096	98	96	75-125	2	20		
Calcium	mg/L	47.2	1	1	48.1	46.8	90	-44	75-125	3	20	M6	
Chromium	mg/L	0.00046J	0.1	0.1	0.10	0.098	101	98	75-125	3	20		
Cobalt	mg/L	0.0084	0.1	0.1	0.11	0.11	101	99	75-125	2	20		
Lead	mg/L	0.000086J	0.1	0.1	0.094	0.092	94	91	75-125	2	20		
Lithium	mg/L	0.029J	0.1	0.1	0.13	0.12	99	96	75-125	2	20		
Molybdenum	mg/L	0.0018J	0.1	0.1	0.10	0.10	99	100	75-125	2	20		
Selenium	mg/L	0.0051J	0.1	0.1	0.10	0.10	97	95	75-125	1	20		
Thallium	mg/L	ND	0.1	0.1	0.094	0.092	94	92	75-125	2	20		

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

QC Batch: 37487 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 2624567001, 2624567002, 2624567003, 2624567004, 2624567005, 2624567006, 2624567007, 2624567008, 2624567009, 2624567010, 2624567011, 2624567012

LABORATORY CONTROL SAMPLE: 169757

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	392	98	84-108	

SAMPLE DUPLICATE: 169758

Parameter	Units	2624567001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	302	288	5	10	H1

SAMPLE DUPLICATE: 170356

Parameter	Units	2624567012 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	593	591	0	10	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant McDonough AP-2, 3-4  
Pace Project No.: 2624567

QC Batch: 37578 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2624567001, 2624567002, 2624567003, 2624567004, 2624567005, 2624567006, 2624567007, 2624567008, 2624567009, 2624567010, 2624567011, 2624567012

METHOD BLANK: 170487 Matrix: Water  
Associated Lab Samples: 2624567001, 2624567002, 2624567003, 2624567004, 2624567005, 2624567006, 2624567007, 2624567008, 2624567009, 2624567010, 2624567011, 2624567012

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	1.0	0.024	10/29/19 00:30	
Fluoride	mg/L	ND	0.30	0.029	10/29/19 00:30	
Sulfate	mg/L	ND	1.0	0.017	10/29/19 00:30	

LABORATORY CONTROL SAMPLE: 170488

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	10.3	103	90-110	
Sulfate	mg/L	10	9.6	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 170489 170490

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2624567001	Spike Conc.	Spike Conc.	MS Result						
Chloride	mg/L	2.8	10	10	12.8	12.8	100	100	90-110	0	15
Fluoride	mg/L	0.042J	10	10	10.0	10.0	100	100	90-110	0	15

MATRIX SPIKE SAMPLE: 170491

Parameter	Units	2624567002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10	16.9	69	90-110	M1
Fluoride	mg/L	1.2	10	ND	-12	90-110	M1
Sulfate	mg/L	331	10	ND	-3310	90-110	M1

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant McDonough AP-2, 3-4

Pace Project No.: 2624567

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

H1 Analysis conducted outside the EPA method holding time.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough AP-2, 3-4

Pace Project No.: 2624567

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624567001	DGWC-2	EPA 3005A	37435	EPA 6020B	37459
2624567002	DGWC-9	EPA 3005A	37435	EPA 6020B	37459
2624567003	DGWC-15	EPA 3005A	37435	EPA 6020B	37459
2624567004	DGWC-20	EPA 3005A	37435	EPA 6020B	37459
2624567005	DGWC-21	EPA 3005A	37435	EPA 6020B	37459
2624567006	DGWC-42	EPA 3005A	37435	EPA 6020B	37459
2624567007	DGWC-47	EPA 3005A	37435	EPA 6020B	37459
2624567008	FB-3	EPA 3005A	37435	EPA 6020B	37459
2624567009	DGWC-17	EPA 3005A	37435	EPA 6020B	37459
2624567010	DGWC-22	EPA 3005A	37435	EPA 6020B	37459
2624567011	DGWC-23	EPA 3005A	37435	EPA 6020B	37459
2624567012	DGWC-48	EPA 3005A	37435	EPA 6020B	37459
2624567001	DGWC-2	EPA 7470A	37509	EPA 7470A	37584
2624567002	DGWC-9	EPA 7470A	37509	EPA 7470A	37584
2624567003	DGWC-15	EPA 7470A	37509	EPA 7470A	37584
2624567004	DGWC-20	EPA 7470A	37509	EPA 7470A	37584
2624567005	DGWC-21	EPA 7470A	37509	EPA 7470A	37584
2624567006	DGWC-42	EPA 7470A	37509	EPA 7470A	37584
2624567007	DGWC-47	EPA 7470A	37509	EPA 7470A	37584
2624567008	FB-3	EPA 7470A	37509	EPA 7470A	37584
2624567009	DGWC-17	EPA 7470A	37509	EPA 7470A	37584
2624567010	DGWC-22	EPA 7470A	37509	EPA 7470A	37584
2624567011	DGWC-23	EPA 7470A	37509	EPA 7470A	37584
2624567012	DGWC-48	EPA 7470A	37509	EPA 7470A	37584
2624567001	DGWC-2	SM 2540C	37487		
2624567002	DGWC-9	SM 2540C	37487		
2624567003	DGWC-15	SM 2540C	37487		
2624567004	DGWC-20	SM 2540C	37487		
2624567005	DGWC-21	SM 2540C	37487		
2624567006	DGWC-42	SM 2540C	37487		
2624567007	DGWC-47	SM 2540C	37487		
2624567008	FB-3	SM 2540C	37487		
2624567009	DGWC-17	SM 2540C	37487		
2624567010	DGWC-22	SM 2540C	37487		
2624567011	DGWC-23	SM 2540C	37487		
2624567012	DGWC-48	SM 2540C	37487		
2624567001	DGWC-2	EPA 300.0	37578		
2624567002	DGWC-9	EPA 300.0	37578		
2624567003	DGWC-15	EPA 300.0	37578		
2624567004	DGWC-20	EPA 300.0	37578		
2624567005	DGWC-21	EPA 300.0	37578		
2624567006	DGWC-42	EPA 300.0	37578		
2624567007	DGWC-47	EPA 300.0	37578		
2624567008	FB-3	EPA 300.0	37578		
2624567009	DGWC-17	EPA 300.0	37578		
2624567010	DGWC-22	EPA 300.0	37578		
2624567011	DGWC-23	EPA 300.0	37578		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough AP-2, 3-4

Pace Project No.: 2624567

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<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
2624567012	DGWC-48	EPA 300.0	37578		

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### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Jolu Abraham	Attention: scsinvoices@southernco.com	Company Name:	Regulatory Agency	
Address: 2480 Maner Road	Copy To: Golder	Purchase Order #: SCS10382775	Address:	State / Location	
Email: j.abraham@southernco.com	Project Name: Plant McDonough AP-2, 3/4	Pace Quote:	Pace Project Manager: beisy.mcdaniel@pacelabs.com	GA	
Phone: (404)506-7239	Project #: 166849618	Matrix Code (see valid codes to left)	Matrix Type (G=GRAB C=COMP)	Requested Analysis Filtered (Y/N)	
Requested Due Date: Standard TAT					

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES										ANALYSES TEST	Y/N	Metals App. III & App. IV	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)	Requested Analysis Filtered (Y/N)
							H2SO4	HNO3	HCl	NaOH	Na2SO3	Methanol	Other										
1	DGWC-2	G	10/17/2019	1515		4	X										X	X	X				
2	DGWC-9	G	10/17/2019	15:03		6	X										X	X	X				
3	DGWC-15	G	10/17/2019	1000		4	X										X	X	X				
4	DGWC-20	G	10/17/2019	931		4	X										X	X	X				
5	DGWC-21	G	10/17/2019	1430		4	X										X	X	X				
6	DGWC-42	G	10/17/2019	1600		4	X										X	X	X				
7	DGWC-47	G	10/17/2019	1350		4	X										X	X	X				
8	FB-3	G	10/17/2019	1300		4	X										X	X	X				
9	DGWC-17	G	10/18/2019	1300		4	X										X	X	X				
10	DGWC-22	G	10/18/2019	955		4	X										X	X	X				
11	DGWC-23	G	10/18/2019	955		4	X										X	X	X				
12	DGWC-48	G	10/18/2019	1040		4	X										X	X	X				

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
	Yong Chung Seo	10/18/19	1540	M. D. Luman	10/18/19	1540							

DATE Signed:





Sample Condition Upon Receipt

Client Name: GIA Power Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: \_\_\_\_\_

Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None  Samples on ice, cooling process has begun

Cooler Temperature 0.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 10/18/19 MK

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

**Client Notification/ Resolution:** \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

November 15, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant McDonough AP-2, 3-4 Rads  
Pace Project No.: 2624569

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on October 18, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Daniela Herrera, Golder  
Ben Hodges, Georgia Power  
Jimmy Jones, Golder Associates Inc.  
Kristen Jurinko  
Julie Lehrman, Golder Associates Inc.  
Dawn Prell, Golder Associates Inc.  
Tim Richards, Golder Associates - Atlanta  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant McDonough AP-2, 3-4 Rads  
Pace Project No.: 2624569

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant McDonough AP-2, 3-4 Rads  
Pace Project No.: 2624569

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2624569001	DGWC-2	Water	10/17/19 15:15	10/18/19 15:40
2624569002	DGWC-9	Water	10/17/19 15:03	10/18/19 15:40
2624569003	DGWC-15	Water	10/17/19 10:00	10/18/19 15:40
2624569004	DGWC-20	Water	10/17/19 09:31	10/18/19 15:40
2624569005	DGWC-21	Water	10/17/19 14:30	10/18/19 15:40
2624569006	DGWC-42	Water	10/17/19 16:00	10/18/19 15:40
2624569007	DGWC-47	Water	10/17/19 13:50	10/18/19 15:40
2624569008	FB-3	Water	10/17/19 13:00	10/18/19 15:40
2624569009	DGWC-17	Water	10/18/19 13:00	10/18/19 15:40
2624569010	DGWC-22	Water	10/18/19 09:55	10/18/19 15:40
2624569011	DGWC-23	Water	10/18/19 09:55	10/18/19 15:40
2624569012	DGWC-48	Water	10/18/19 10:40	10/18/19 15:40

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant McDonough AP-2, 3-4 Rads  
Pace Project No.: 2624569

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2624569001	DGWC-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569002	DGWC-9	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569003	DGWC-15	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569004	DGWC-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569005	DGWC-21	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569006	DGWC-42	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569007	DGWC-47	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569008	FB-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569009	DGWC-17	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569010	DGWC-22	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569011	DGWC-23	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2624569012	DGWC-48	EPA 9315	LAL	1	PASI-PA
		EPA 9320	VAL	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

**Sample: DGWC-2**      **Lab ID: 2624569001**      Collected: 10/17/19 15:15      Received: 10/18/19 15:40      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.11 ± 0.430 (0.461)</b> C:96% T:NA	pCi/L	11/08/19 08:02	13982-63-3	
Radium-228	EPA 9320	<b>0.631 ± 0.461 (0.898)</b> C:67% T:80%	pCi/L	11/12/19 12:12	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.74 ± 0.891 (1.36)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

**Sample: DGWC-9**      **Lab ID: 2624569002**      Collected: 10/17/19 15:03      Received: 10/18/19 15:40      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.702 ± 0.340 (0.420)</b> C:98% T:NA	pCi/L	11/08/19 08:01	13982-63-3	
Radium-228	EPA 9320	<b>-0.342 ± 0.552 (1.38)</b> C:57% T:84%	pCi/L	11/12/19 15:25	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.702 ± 0.892 (1.80)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

**Sample: DGWC-15**      **Lab ID: 2624569003**      Collected: 10/17/19 10:00      Received: 10/18/19 15:40      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.619 ± 0.354 (0.548)</b> C:95% T:NA	pCi/L	11/08/19 08:00	13982-63-3	
Radium-228	EPA 9320	<b>0.406 ± 0.430 (0.898)</b> C:65% T:87%	pCi/L	11/12/19 12:08	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.03 ± 0.784 (1.45)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

**Sample: DGWC-20**      **Lab ID: 2624569004**      Collected: 10/17/19 09:31      Received: 10/18/19 15:40      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.395 ± 0.268 (0.399)</b> C:94% T:NA	pCi/L	11/08/19 07:59	13982-63-3	
Radium-228	EPA 9320	<b>1.60 ± 0.629 (0.989)</b> C:68% T:76%	pCi/L	11/12/19 12:08	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.00 ± 0.897 (1.39)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.287 ± 0.278 (0.546)</b> C:99% T:NA	pCi/L	11/08/19 08:01	13982-63-3	
Radium-228	EPA 9320	<b>0.140 ± 0.503 (1.14)</b> C:63% T:85%	pCi/L	11/12/19 15:25	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.427 ± 0.781 (1.69)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

**Sample: DGWC-42**      **Lab ID: 2624569006**      Collected: 10/17/19 16:00      Received: 10/18/19 15:40      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.408 ± 0.269 (0.429)</b> <b>C:103% T:NA</b>	pCi/L	11/08/19 08:02	13982-63-3	
Radium-228	EPA 9320	<b>0.967 ± 0.492 (0.858)</b> <b>C:65% T:83%</b>	pCi/L	11/12/19 12:12	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.38 ± 0.761 (1.29)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

**Sample: DGWC-47**      **Lab ID: 2624569007**      Collected: 10/17/19 13:50      Received: 10/18/19 15:40      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.15 ± 0.418 (0.371)</b> <b>C:97% T:NA</b>	pCi/L	11/08/19 08:00	13982-63-3	
Radium-228	EPA 9320	<b>1.43 ± 0.641 (1.02)</b> <b>C:68% T:81%</b>	pCi/L	11/12/19 15:25	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.58 ± 1.06 (1.39)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

**Sample: FB-3**      **Lab ID: 2624569008**      Collected: 10/17/19 13:00      Received: 10/18/19 15:40      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.289 ± 0.291 (0.581)</b> C:95% T:NA	pCi/L	11/08/19 08:00	13982-63-3	
Radium-228	EPA 9320	<b>0.550 ± 0.555 (1.14)</b> C:65% T:80%	pCi/L	11/12/19 15:25	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.839 ± 0.846 (1.72)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

**Sample: DGWC-17**      **Lab ID: 2624569009**      Collected: 10/18/19 13:00      Received: 10/18/19 15:40      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.721 ± 0.335 (0.365)</b> <b>C:100% T:NA</b>	pCi/L	11/08/19 08:14	13982-63-3	
Radium-228	EPA 9320	<b>0.169 ± 0.335 (0.740)</b> <b>C:68% T:79%</b>	pCi/L	11/12/19 12:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.890 ± 0.670 (1.11)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

**Sample: DGWC-22**      **Lab ID: 2624569010**      Collected: 10/18/19 09:55      Received: 10/18/19 15:40      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.693 ± 0.377 (0.587)</b> C:94% T:NA	pCi/L	11/08/19 08:02	13982-63-3	
Radium-228	EPA 9320	<b>0.404 ± 0.412 (0.850)</b> C:62% T:84%	pCi/L	11/12/19 12:12	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.10 ± 0.789 (1.44)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.03 ± 0.399 (0.325)</b> C:93% T:NA	pCi/L	11/08/19 08:14	13982-63-3	
Radium-228	EPA 9320	<b>0.294 ± 0.358 (0.757)</b> C:70% T:86%	pCi/L	11/12/19 12:12	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.32 ± 0.757 (1.08)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

**Sample: DGWC-48**      **Lab ID: 2624569012**      Collected: 10/18/19 10:40      Received: 10/18/19 15:40      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.552 ± 0.310 (0.429)</b> C:90% T:NA	pCi/L	11/08/19 08:14	13982-63-3	
Radium-228	EPA 9320	<b>0.866 ± 0.455 (0.807)</b> C:70% T:84%	pCi/L	11/12/19 12:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.42 ± 0.765 (1.24)</b>	pCi/L	11/13/19 14:00	7440-14-4	

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

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QC Batch:	368419	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2624569001, 2624569002, 2624569003, 2624569004, 2624569005, 2624569006, 2624569007, 2624569008, 2624569009, 2624569010, 2624569011, 2624569012		

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METHOD BLANK:	1787377	Matrix:	Water
Associated Lab Samples:	2624569001, 2624569002, 2624569003, 2624569004, 2624569005, 2624569006, 2624569007, 2624569008, 2624569009, 2624569010, 2624569011, 2624569012		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.618 ± 0.504 (1.02) C:68% T:78%	pCi/L	11/12/19 12:08	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

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QC Batch:	368418	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2624569001, 2624569002, 2624569003, 2624569004, 2624569005, 2624569006, 2624569007, 2624569008, 2624569009, 2624569010, 2624569011, 2624569012		

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METHOD BLANK:	1787376	Matrix:	Water
Associated Lab Samples:	2624569001, 2624569002, 2624569003, 2624569004, 2624569005, 2624569006, 2624569007, 2624569008, 2624569009, 2624569010, 2624569011, 2624569012		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.279 ± 0.243 (0.431) C:98% T:NA	pCi/L	11/08/19 07:55	

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

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## QUALIFIERS

Project: Plant McDonough AP-2, 3-4 Rads

Pace Project No.: 2624569

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

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

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant McDonough AP-2, 3-4 Rads  
Pace Project No.: 2624569

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2624569001	DGWC-2	EPA 9315	368418		
2624569002	DGWC-9	EPA 9315	368418		
2624569003	DGWC-15	EPA 9315	368418		
2624569004	DGWC-20	EPA 9315	368418		
2624569005	DGWC-21	EPA 9315	368418		
2624569006	DGWC-42	EPA 9315	368418		
2624569007	DGWC-47	EPA 9315	368418		
2624569008	FB-3	EPA 9315	368418		
2624569009	DGWC-17	EPA 9315	368418		
2624569010	DGWC-22	EPA 9315	368418		
2624569011	DGWC-23	EPA 9315	368418		
2624569012	DGWC-48	EPA 9315	368418		
2624569001	DGWC-2	EPA 9320	368419		
2624569002	DGWC-9	EPA 9320	368419		
2624569003	DGWC-15	EPA 9320	368419		
2624569004	DGWC-20	EPA 9320	368419		
2624569005	DGWC-21	EPA 9320	368419		
2624569006	DGWC-42	EPA 9320	368419		
2624569007	DGWC-47	EPA 9320	368419		
2624569008	FB-3	EPA 9320	368419		
2624569009	DGWC-17	EPA 9320	368419		
2624569010	DGWC-22	EPA 9320	368419		
2624569011	DGWC-23	EPA 9320	368419		
2624569012	DGWC-48	EPA 9320	368419		
2624569001	DGWC-2	Total Radium Calculation	370742		
2624569002	DGWC-9	Total Radium Calculation	370742		
2624569003	DGWC-15	Total Radium Calculation	370741		
2624569004	DGWC-20	Total Radium Calculation	370741		
2624569005	DGWC-21	Total Radium Calculation	370742		
2624569006	DGWC-42	Total Radium Calculation	370742		
2624569007	DGWC-47	Total Radium Calculation	370742		
2624569008	FB-3	Total Radium Calculation	370742		
2624569009	DGWC-17	Total Radium Calculation	370742		
2624569010	DGWC-22	Total Radium Calculation	370742		
2624569011	DGWC-23	Total Radium Calculation	370742		
2624569012	DGWC-48	Total Radium Calculation	370742		

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**CHAIN-OF-CUSTODY / Analytical Request Document**  
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<b>Section A</b>	<b>Section B</b>	<b>Section C</b>
<b>Required Client Information:</b>	<b>Required Project Information:</b>	<b>Invoice Information:</b>
Company: Georgia Power - Coal Combustion Residuals	Report To: Joliu Abraham	Attention: scsinvoices@southernco.com
Address: 2480 Maner Road	Copy To: Golder	Company Name:
Atlanta, GA 30339	Purchase Order #: SCS10382775	Address:
Email: j.abraham@southernco.com	Project Name: Plant McDonough AP-2, 3/4	Pace Quote:
Phone: (404)506-7239 Fax:	Project #: 166849618	Pace Project Manager: betsy.modani@paciellabs.com
Requested Due Date: Standard TAT		Pace Profile #: 332.7.2
		State / Location: GA
		Regulatory Agency:

ITEM #	MATRIX ( ) Drinking Water ( DW ) Water ( W ) Waste Water ( WW ) Product ( P ) Soil/Solid ( S ) Oil ( O ) Wipe ( W ) Air ( A ) Other ( O ) Tissue ( T )	CODE ( ) DW ( ) WT ( ) WW ( ) P ( ) SL ( ) OL ( ) WP ( ) AR ( ) OT ( ) TS ( )	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST				SAMPLE CONDITIONS									
									H2SO4	HNO3	HCl	NaOH	Na2SO3	Methanol	Other	Y/N	Metals App. III & App. IV	TDS, Cl, F, SO4	Radium 226/228	Received on ice (Y/N)	Custody (Y/N)	Sealed (Y/N)	Cooled (Y/N)	Intact (Y/N)
1				G	10/17/2019	1515		4	X						X	X	X							
2				G	10/17/2019	1503		6	X						X	X	X							
3				G	10/17/2019	1000		4	X						X	X	X							
4				G	10/17/2019	931		4	X						X	X	X							
5				G	10/17/2019	1430		4	X						X	X	X							
6				G	10/17/2019	1600		4	X						X	X	X							
7				G	10/17/2019	1350		4	X						X	X	X							
8				G	10/17/2019	1300		4	X						X	X	X							
9				G	10/18/2019	1300		4	X						X	X	X							
10				G	10/18/2019	955		4	X						X	X	X							
11				G	10/18/2019	955		4	X						X	X	X							
12				G	10/18/2019	1040		4	X						X	X	X							

RELINQUISHED BY/AFFILIATION: *Using Cheryl Seo* DATE: 10/18/19 15:40  
ACCEPTED BY/AFFILIATION: *M. Sabharwal* DATE: 10/18/19 15:40

DATE Signed: \_\_\_\_\_



Sample Condition Upon Receipt

Client Name: GIA Powere Project #

Courier: Fed Ex UPS USPS Client Commercial Pace Other

Tracking #:

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 83 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temperature 0.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Optional Proj. Due Date: Proj. Name: Date and Initials of person examining contents: 10/18/19 MR

Table with 16 rows of checklist items and checkboxes. Items include Chain of Custody Present, Chain of Custody Filled Out, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Short Hold Time Analysis (<72hr), Rush Turn Around Time Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, All containers needing preservation have been checked, All containers needing preservation are found to be in compliance with EPA recommendation, exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Samples checked for dechlorination, Headspace in VOA Vials (>6mm), Trip Blank Present, Trip Blank Custody Seals Present, Pace Trip Blank Lot # (if purchased).

Client Notification/ Resolution:

Field Data Required? Y / N

Person Contacted: Date/Time:

Comments/ Resolution:

Project Manager Review:

Date:

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

Product Name: Low-Flow System

Date: 2019-08-27 17:12:30

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463068  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 46.35 ft

Pump placement from TOC 46.35 ft

Well Information:

Well ID DGWC-2  
Well diameter 2 in  
Well Total Depth 52.42 ft  
Screen Length 10 ft  
Depth to Water 30.89 ft

Pumping Information:

Final Pumping Rate 250 mL/min  
Total System Volume 0.4604883 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 4.68 in  
Total Volume Pumped 6.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:47:48	300.02	21.77	5.92	405.12	2.43	31.25	0.30	80.31
Last 5	16:52:48	600.02	21.45	5.93	405.47	2.53	31.25	0.21	76.78
Last 5	16:57:48	900.02	21.55	5.93	404.43	1.68	31.28	0.18	74.21
Last 5	17:07:48	1500.02	21.68	5.94	402.14	1.57	31.28	0.13	72.12
Last 5									
Variance 0			-0.33	0.01	0.35			-0.09	-3.52
Variance 1			0.10	-0.01	-1.03			-0.03	-2.58
Variance 2			0.13	0.01	-2.30			-0.05	-2.08

Notes

Sampled DGWC-2

Grab Samples



Product Name: Low-Flow System

Date: 2019-08-27 09:56:32

Project Information:

Operator Name C. Tidwell  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020WE

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter .17 in  
Tubing Length 44 ft

Pump placement from TOC 44 ft

Well Information:

Well ID DGWC-4  
Well diameter 2 in  
Well Total Depth 46.71 ft  
Screen Length 10 ft  
Depth to Water 22.90 ft

Pumping Information:

Final Pumping Rate 180 mL/min  
Total System Volume 0.2863906 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 2.76 in  
Total Volume Pumped 4.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:31:02	300.08	20.72	5.80	1796.46	4.57	23.12	0.47	107.87
Last 5	09:36:03	600.58	20.49	5.81	1797.13	4.70	23.13	0.34	106.75
Last 5	09:41:03	900.58	20.44	5.81	1788.93	4.30	23.12	0.29	106.90
Last 5	09:46:03	1200.58	20.38	5.82	1774.49	5.86	23.13	0.27	107.22
Last 5	09:51:03	1500.58	20.39	5.84	1760.74	4.38	23.13	0.26	108.74
Variance 0			-0.05	0.00	-8.20			-0.04	0.15
Variance 1			-0.06	0.01	-14.44			-0.02	0.32
Variance 2			0.01	0.02	-13.75			-0.01	1.52

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-27 11:48:54

Project Information:

Operator Name C. Tidwell  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020WE

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter .17 in  
Tubing Length 32 ft

Pump placement from TOC 32 ft

Well Information:

Well ID DGWC-5  
Well diameter 2 in  
Well Total Depth 33.25 ft  
Screen Length 10 ft  
Depth to Water 9.23 ft

Pumping Information:

Final Pumping Rate 190 mL/min  
Total System Volume 0.2328295 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 8.55 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:22:17	1500.02	21.97	4.86	986.26	0.37	9.52	0.20	297.66
Last 5	11:27:22	1805.02	22.08	4.85	962.25	0.56	9.52	0.34	303.99
Last 5	11:32:22	2105.39	22.05	4.82	917.68	0.47	9.53	0.25	307.77
Last 5	11:37:22	2405.39	22.05	4.82	915.38	0.44	9.53	0.24	314.57
Last 5	11:42:22	2705.39	22.00	4.83	925.79	0.48	9.53	0.23	297.69
Variance 0			-0.03	-0.03	-44.57			-0.09	3.78
Variance 1			0.00	0.00	-2.30			-0.01	6.80
Variance 2			-0.05	0.01	10.40			-0.01	-16.88

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-28 10:32:43

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463068  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 46.65 ft

Pump placement from TOC 46.65 ft

Well Information:

Well ID DGWC-8  
Well diameter 2 in  
Well Total Depth 51.36 ft  
Screen Length 10 ft  
Depth to Water 32.05 ft

Pumping Information:

Final Pumping Rate 250 mL/min  
Total System Volume 0.4604883 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 2.4 in  
Total Volume Pumped 6.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:09:11	300.04	22.98	5.15	496.89	17.50	32.25	0.49	133.72
Last 5	10:14:11	600.02	21.31	5.12	515.27	4.44	32.25	0.17	133.25
Last 5	10:19:11	900.35	20.92	5.12	517.21	2.48	32.25	0.12	128.91
Last 5	10:24:11	1200.35	20.69	5.11	518.95	3.84	32.25	0.09	121.34
Last 5	10:29:11	1500.35	21.26	5.11	524.23	1.78	32.25	0.07	118.14
Variance 0			-0.39	-0.01	1.95			-0.05	-4.34
Variance 1			-0.22	-0.00	1.74			-0.03	-7.57
Variance 2			0.56	-0.00	5.27			-0.02	-3.21

Notes

Sampled DGWC-8 and FB-2  
Sampled DGWC-8 and FB-2

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-27 15:21:28

Project Information:

Operator Name C. Tidwell  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020WE

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter .17 in  
Tubing Length 28 ft

Pump placement from TOC 28 ft

Well Information:

Well ID DGWC-9  
Well diameter 2 in  
Well Total Depth 33.75 ft  
Screen Length 10 ft  
Depth to Water 25.13 ft

Pumping Information:

Final Pumping Rate 170 mL/min  
Total System Volume 0.2149758 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.36 in  
Total Volume Pumped 4.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:57:55	300.02	23.16	4.02	722.77	0.70	25.35	0.79	180.34
Last 5	15:02:55	600.02	23.01	4.02	730.63	1.68	25.36	0.74	191.68
Last 5	15:07:55	900.02	23.10	4.02	731.31	1.09	25.37	0.69	195.71
Last 5	15:12:55	1200.02	23.26	4.02	735.15	1.14	25.38	0.61	197.23
Last 5	15:17:55	1500.02	23.00	4.02	739.23	1.21	25.41	0.43	201.94
Variance 0			0.09	0.00	0.69			-0.05	4.03
Variance 1			0.16	-0.00	3.84			-0.07	1.52
Variance 2			-0.25	0.00	4.08			-0.18	4.72

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-27 16:29:49

Project Information:

Operator Name C. Tidwell  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020WE

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter .17 in  
Tubing Length 44 ft

Pump placement from TOC 44 ft

Well Information:

Well ID DGWC-10  
Well diameter 2 in  
Well Total Depth 47.85 ft  
Screen Length 10 ft  
Depth to Water 31.21 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2863906 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1 in  
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:06:28	300.02	22.87	5.14	524.11	8.52	31.25	3.32	153.16
Last 5	16:11:28	600.02	22.49	5.15	528.85	8.85	31.25	3.23	157.13
Last 5	16:16:29	900.74	22.23	5.16	532.60	9.03	31.25	3.17	157.43
Last 5	16:21:29	1200.74	22.15	5.14	538.08	4.94	31.26	3.12	157.48
Last 5	16:26:29	1500.74	22.04	5.14	533.81	3.37	31.26	3.07	158.69
Variance 0			-0.27	0.00	3.74			-0.06	0.30
Variance 1			-0.07	-0.02	5.48			-0.05	0.05
Variance 2			-0.11	0.00	-4.27			-0.05	1.21

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-27 11:02:38

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 44 ft

Pump placement from TOC 44 ft

Well Information:

Well ID DGWC-11  
Well diameter 2 in  
Well Total Depth 51.65 ft  
Screen Length 10 ft  
Depth to Water 13.75 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2863906 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 7.8 in  
Total Volume Pumped 3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:50:08	300.03	21.24	5.65	619.84	2.83	14.31	0.44	83.27
Last 5	10:55:08	600.01	20.84	5.57	623.68	3.12	14.39	0.28	87.00
Last 5	11:00:08	900.01	20.69	5.55	621.19	4.18	14.40	0.23	89.60
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.40	-0.08	3.84			-0.16	3.73
Variance 2			-0.15	-0.02	-2.49			-0.05	2.60

Notes

Sampled DGWC-11 at 1100

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-27 13:34:25

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 22 ft

Pump placement from TOC 22 ft

Well Information:

Well ID DGWC-12  
Well diameter 2 in  
Well Total Depth 28.28 ft  
Screen Length 10 ft  
Depth to Water 9.39 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.1881953 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:12:31	1200.00	21.37	5.58	754.60	12.20	9.69	0.47	104.63
Last 5	13:17:31	1500.00	21.38	5.58	753.79	9.47	9.69	0.29	106.04
Last 5	13:22:31	1799.99	21.28	5.57	750.04	7.18	9.69	0.18	107.34
Last 5	13:27:31	2099.98	20.99	5.56	751.34	5.99	9.69	0.15	108.23
Last 5	13:32:31	2399.98	20.84	5.55	749.95	3.58	9.69	0.18	109.41
Variance 0			-0.10	-0.01	-3.75			-0.11	1.30
Variance 1			-0.29	-0.01	1.30			-0.04	0.89
Variance 2			-0.15	-0.01	-1.39			0.03	1.18

Notes

Sampled DGWC-12 at 1330. Extra radium

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-28 12:30:25

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463068  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 41.25 ft

Pump placement from TOC 41.25 ft

Well Information:

Well ID DGWC-13  
Well diameter 2 in  
Well Total Depth 46.66 ft  
Screen Length 10 ft  
Depth to Water 33.21 ft

Pumping Information:

Final Pumping Rate 250 mL/min  
Total System Volume 0.4292443 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 4.08 in  
Total Volume Pumped 6.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:08:44	300.03	21.87	5.70	449.83	4.05	33.55	3.64	128.96
Last 5	12:13:44	600.02	22.61	5.71	446.99	2.42	33.55	3.53	149.92
Last 5	12:18:44	899.88	22.39	5.70	446.38	2.56	33.55	3.49	179.38
Last 5	12:23:44	1199.88	22.21	5.71	446.92	1.81	33.55	3.49	203.51
Last 5	12:28:44	1499.88	22.57	5.71	447.36	1.77	33.55	3.47	229.55
Variance 0			-0.22	-0.01	-0.62			-0.04	29.46
Variance 1			-0.18	0.01	0.54			-0.00	24.13
Variance 2			0.36	-0.00	0.44			-0.02	26.05

Notes

Sampled DGWC-13

Grab Samples



Product Name: Low-Flow System

Date: 2019-08-27 14:51:44

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 33 ft

Pump placement from TOC 33 ft

Well Information:

Well ID DGWC-14  
Well diameter 2 in  
Well Total Depth 37.95 ft  
Screen Length 10 ft  
Depth to Water 21.03 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.237293 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1.8 in  
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:30:01	300.02	24.00	6.12	218.08	2.97	21.18	0.64	97.64
Last 5	14:35:01	600.02	21.82	5.92	174.39	1.13	21.18	2.65	90.78
Last 5	14:40:01	900.01	21.56	5.65	150.47	0.33	21.18	4.13	94.43
Last 5	14:45:01	1200.00	21.22	5.60	149.20	0.42	21.18	4.34	98.61
Last 5	14:50:01	1500.00	20.97	5.58	148.16	0.30	21.18	4.43	101.54
Variance 0			-0.27	-0.27	-23.93			1.48	3.65
Variance 1			-0.34	-0.05	-1.26			0.21	4.17
Variance 2			-0.25	-0.02	-1.05			0.09	2.93

Notes

Sampled at 1450

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-28 15:10:30

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463068  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 64.40 ft

Pump placement from TOC 64.40 ft

Well Information:

Well ID DGWC-15  
Well diameter 2 in  
Well Total Depth 70.83 ft  
Screen Length 10 ft  
Depth to Water 39.60 ft

Pumping Information:

Final Pumping Rate 250 mL/min  
Total System Volume 0.54083 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 27.6 in  
Total Volume Pumped 6.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:46:02	300.02	26.16	5.83	452.08	29.10	41.05	0.67	41.09
Last 5	14:51:02	600.02	25.00	5.85	454.28	7.29	41.75	0.52	18.01
Last 5	14:56:02	900.02	24.71	5.89	459.07	5.83	41.80	0.48	11.00
Last 5	15:01:04	1202.02	24.61	5.89	458.74	4.78	41.90	0.41	11.92
Last 5	15:06:04	1502.02	24.57	5.88	457.12	3.30	41.90	0.37	18.88
Variance 0			-0.29	0.03	4.79			-0.04	-7.01
Variance 1			-0.11	0.00	-0.32			-0.07	0.92
Variance 2			-0.03	-0.00	-1.62			-0.04	6.96

Notes

Sampled DGWC-15  
Sampled DGWC-15

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-27 15:59:26

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 44 ft

Pump placement from TOC 44 ft

Well Information:

Well ID DGWC-17  
Well diameter 2 in  
Well Total Depth 47.96 ft  
Screen Length 10 ft  
Depth to Water 30.36 ft

Pumping Information:

Final Pumping Rate 120 mL/min  
Total System Volume 0.2863906 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1.68 in  
Total Volume Pumped 2.4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:39:43	300.02	22.76	5.01	617.33	4.45	30.50	0.72	127.94
Last 5	15:44:43	600.02	22.31	4.97	622.56	4.70	30.50	0.36	134.98
Last 5	15:49:43	900.01	22.18	4.97	621.11	3.90	30.50	0.29	140.61
Last 5	15:54:43	1200.01	22.01	4.96	620.77	4.73	30.50	0.26	145.12
Last 5									
Variance 0			-0.45	-0.03	5.23			-0.36	7.04
Variance 1			-0.13	-0.01	-1.45			-0.07	5.63
Variance 2			-0.17	-0.00	-0.34			-0.03	4.51

Notes

Accidentally hit enter prior to 3L purged.. starting a 2nd low flow prior to collecting sample

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-27 16:18:47

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 44 ft

Pump placement from TOC 44 ft

Well Information:

Well ID DGWC-17  
Well diameter 2 in  
Well Total Depth 47.95 ft  
Screen Length 10 ft  
Depth to Water 30.36 ft

Pumping Information:

Final Pumping Rate 120 mL/min  
Total System Volume 0.2863906 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1.68 in  
Total Volume Pumped 4.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:06:04	300.03	22.30	4.96	620.12	2.96	30.50	0.22	153.58
Last 5	16:11:04	600.02	22.10	4.96	618.04	3.35	30.50	0.22	156.33
Last 5	16:16:04	900.01	22.09	4.96	618.23	2.12	30.50	0.21	158.66
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.20	0.00	-2.07			-0.01	2.75
Variance 2			-0.01	-0.00	0.18			-0.01	2.33

Notes

Second low flow document, ended initial document at 2.4L removed  
Sampled DGWC-17 at 1615

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-28 16:33:09

Project Information:

Operator Name C. Tidwell  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020WE

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter .17 in  
Tubing Length 38 ft

Pump placement from TOC 37 ft

Well Information:

Well ID DGWC-19  
Well diameter 2 in  
Well Total Depth 43.25 ft  
Screen Length 10 ft  
Depth to Water 22.25 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2596101 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 2.4 in  
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:08:34	600.02	22.90	4.85	710.94	25.63	22.45	0.17	251.96
Last 5	16:13:34	900.02	22.59	4.88	721.06	22.99	22.45	0.16	287.98
Last 5	16:18:35	1200.87	22.77	4.86	718.25	12.23	22.45	0.15	303.28
Last 5	16:23:35	1500.87	22.90	4.87	715.25	13.58	22.45	0.15	314.46
Last 5	16:28:35	1800.87	22.62	4.85	710.02	4.92	22.45	0.14	328.27
Variance 0			0.18	-0.02	-2.80			-0.01	15.29
Variance 1			0.12	0.00	-3.00			-0.01	11.18
Variance 2			-0.28	-0.02	-5.23			-0.01	13.82

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-29 10:06:47

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463068  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 38 ft

Pump placement from TOC 38 ft

Well Information:

Well ID DGWC-20  
Well diameter 2 in  
Well Total Depth 43.30 ft  
Screen Length 10 ft  
Depth to Water 23.15 ft

Pumping Information:

Final Pumping Rate 250 mL/min  
Total System Volume 0.290854 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 16.8 in  
Total Volume Pumped 6.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:44:15	300.14	22.42	4.63	987.57	1.98	24.55	1.06	314.36
Last 5	09:49:15	600.02	22.49	4.66	988.05	3.55	24.55	0.78	317.03
Last 5	09:54:15	900.02	22.59	4.66	986.34	1.43	24.55	0.47	335.74
Last 5	09:59:15	1200.02	22.66	4.66	983.55	3.47	24.55	0.39	358.22
Last 5	10:04:15	1500.02	22.87	4.64	974.06	2.79	24.55	0.35	377.84
Variance 0			0.10	0.00	-1.71			-0.31	18.70
Variance 1			0.07	-0.00	-2.79			-0.08	22.48
Variance 2			0.21	-0.02	-9.49			-0.04	19.62

Notes

Sampled DGWC-20 and FB-3

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-29 11:33:13

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463068  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 66.0 ft

Pump placement from TOC 66.0 ft

Well Information:

Well ID DGWC-21  
Well diameter 2 in  
Well Total Depth 72.60 ft  
Screen Length 10 ft  
Depth to Water 19.15 ft

Pumping Information:

Final Pumping Rate 250 mL/min  
Total System Volume 0.4202933 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 4.2 in  
Total Volume Pumped 6.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:10:51	300.03	24.52	5.61	694.92	0.87	19.45	0.36	616.73
Last 5	11:15:51	600.02	23.69	5.61	697.50	0.77	19.47	0.19	626.49
Last 5	11:20:51	900.02	23.70	5.61	695.68	0.77	19.50	0.15	621.77
Last 5	11:25:51	1200.02	23.79	5.61	695.45	0.47	19.50	0.13	617.66
Last 5	11:30:52	1500.38	23.80	5.61	693.66	0.60	19.50	0.12	613.28
Variance 0			0.01	0.00	-1.82			-0.04	-4.72
Variance 1			0.09	0.00	-0.23			-0.02	-4.11
Variance 2			0.01	-0.00	-1.79			-0.01	-4.39

Notes

Sampled DGWC-21

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-29 12:10:55

Project Information:

Operator Name C. Tidwell  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020WE

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter .17 in  
Tubing Length 58 ft

Pump placement from TOC 58 ft

Well Information:

Well ID DGWC-22  
Well diameter 2 in  
Well Total Depth 63.45 ft  
Screen Length 10 ft  
Depth to Water 19.59 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.3488785 L  
Calculated Sample Rate 300 sec 3.84  
Stabilization Drawdown in 5.00 L  
Total Volume Pumped

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:47:31	300.09	23.03	5.64	672.55	0.65	19.86	0.32	273.63
Last 5	11:52:31	600.05	22.49	5.68	667.93	0.83	19.92	0.23	287.25
Last 5	11:57:31	900.04	22.49	5.68	666.23	0.32	19.89	0.20	308.31
Last 5	12:02:31	1200.04	22.46	5.67	664.69	0.37	19.89	0.18	330.20
Last 5	12:07:31	1500.04	22.49	5.66	667.39	0.92	19.91	0.17	347.26
Variance 0			-0.00	-0.01	-1.70			-0.03	21.06
Variance 1			-0.02	-0.01	-1.54			-0.02	21.89
Variance 2			0.03	-0.00	2.70			-0.01	17.06

Notes

Grab Samples



Product Name: Low-Flow System

Date: 2019-08-29 10:52:04

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 58 ft

Pump placement from TOC 58 ft

Well Information:

Well ID DGWC-23  
Well diameter 2 in  
Well Total Depth 63.26 ft  
Screen Length 10 ft  
Depth to Water 19.65 ft

Pumping Information:

Final Pumping Rate 100 mL/min  
Total System Volume 0.3488785 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 22.08 in  
Total Volume Pumped 3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:30:33	600.02	21.64	5.96	656.65	4.88	20.73	0.56	112.47
Last 5	10:35:33	900.01	21.39	5.95	655.93	3.22	21.08	0.37	111.68
Last 5	10:40:33	1200.00	21.18	5.95	654.76	1.87	21.31	0.30	111.17
Last 5	10:45:33	1500.00	21.06	5.95	657.90	0.63	21.49	0.27	111.17
Last 5	10:50:34	1801.03	20.93	5.96	656.07	1.15	21.49	0.25	111.31
Variance 0			-0.21	0.00	-1.17			-0.07	-0.52
Variance 1			-0.12	0.00	3.14			-0.03	0.00
Variance 2			-0.13	0.01	-1.83			-0.01	0.14

Notes

Sampled DGWC-23 at 1050

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-28 16:49:54

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463068  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 47.00 ft

Pump placement from TOC 47.00 ft

Well Information:

Well ID DGWC-42  
Well diameter 2 in  
Well Total Depth 52.79 ft  
Screen Length 10 ft  
Depth to Water 32.39 ft

Pumping Information:

Final Pumping Rate 250 mL/min  
Total System Volume 0.4604883 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 15.72 in  
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:28:35	300.14	24.43	5.35	833.10	11.10	33.60	0.74	130.74
Last 5	16:33:35	600.02	25.03	5.33	835.71	6.45	33.70	0.53	112.36
Last 5	16:38:35	900.02	24.80	5.32	826.36	4.68	33.70	0.38	99.09
Last 5	16:43:35	1200.02	25.12	5.29	830.05	4.42	33.70	0.30	90.98
Last 5	16:48:35	1500.02	24.95	5.30	822.11	3.67	33.70	0.24	84.99
Variance 0			-0.23	-0.02	-9.34			-0.15	-13.27
Variance 1			0.32	-0.02	3.68			-0.09	-8.11
Variance 2			-0.17	0.01	-7.94			-0.06	-6.00

Notes

Sampled DGWC-42  
Sampled DGWC-42

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-29 09:15:37

Project Information:

Operator Name C. Tidwell  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020WE

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter .17 in  
Tubing Length 27 ft

Pump placement from TOC 27 ft

Well Information:

Well ID DGWC-47  
Well diameter 2 in  
Well Total Depth 31.95 ft  
Screen Length 10 ft  
Depth to Water 22.91 ft

Pumping Information:

Final Pumping Rate 100 mL/min  
Total System Volume 0.2105124 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 7.68 in  
Total Volume Pumped 2.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	08:53:08	300.10	21.38	4.36	431.58	1.98	23.25	0.76	128.24
Last 5	08:58:08	600.10	21.73	4.38	432.04	2.00	23.34	0.59	135.45
Last 5	09:03:08	900.10	22.00	4.38	431.85	2.02	23.43	0.52	145.93
Last 5	09:08:08	1200.10	22.35	4.36	433.03	1.94	23.49	0.50	161.27
Last 5	09:13:08	1500.10	22.60	4.35	432.21	1.87	23.55	0.46	177.78
Variance 0			0.27	-0.00	-0.20			-0.07	10.48
Variance 1			0.35	-0.02	1.18			-0.02	15.34
Variance 2			0.25	-0.01	-0.81			-0.04	16.51

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-29 10:48:29

Project Information:

Operator Name C. Tidwell  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020WE

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter .17 in  
Tubing Length 28 ft

Pump placement from TOC 28 ft

Well Information:

Well ID DGWC-48  
Well diameter 2 in  
Well Total Depth 33.49 ft  
Screen Length 10 ft  
Depth to Water 18.71 ft

Pumping Information:

Final Pumping Rate 190 mL/min  
Total System Volume 0.2149758 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 12 in  
Total Volume Pumped 4.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:24:59	300.04	23.07	4.28	767.20	2.55	19.46	0.30	202.42
Last 5	10:29:59	600.02	22.69	4.28	766.08	5.59	19.52	0.23	209.67
Last 5	10:34:59	900.02	22.79	4.28	764.65	2.97	19.56	0.48	217.46
Last 5	10:39:59	1200.02	22.63	4.28	769.03	2.81	19.63	0.20	225.91
Last 5	10:44:59	1500.02	22.65	4.28	770.60	2.58	19.71	0.19	233.76
Variance 0			0.09	0.00	-1.43			0.25	7.79
Variance 1			-0.16	-0.00	4.38			-0.28	8.45
Variance 2			0.03	0.00	1.57			-0.01	7.85

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-27 15:12:10

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463068  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 43.05 ft

Pump placement from TOC 43.05 ft

Well Information:

Well ID DGWA-71  
Well diameter 2 in  
Well Total Depth 47.79 ft  
Screen Length 10 ft  
Depth to Water 28.55 ft

Pumping Information:

Final Pumping Rate 250 mL/min  
Total System Volume 0.4381711 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 5.4 in  
Total Volume Pumped 6.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:49:32	300.03	22.12	5.82	73.52	5.48	29.00	2.30	99.06
Last 5	14:54:32	600.02	20.98	5.86	74.00	3.18	29.00	3.27	88.08
Last 5	14:59:32	900.02	20.97	5.88	74.19	3.62	29.00	3.47	81.08
Last 5	15:04:32	1200.02	21.17	5.87	73.95	2.98	29.00	3.52	81.70
Last 5	15:09:32	1500.02	21.27	5.87	73.53	3.33	29.00	3.56	78.32
Variance 0			-0.01	0.01	0.19			0.20	-7.00
Variance 1			0.20	-0.00	-0.23			0.05	0.62
Variance 2			0.11	-0.00	-0.42			0.04	-3.38

Notes

Sampled DGWA-71  
Sampled DGWA-71

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-27 10:01:56

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 33 ft

Pump placement from TOC 33 ft

Well Information:

Well ID DGWA-53  
Well diameter 2 in  
Well Total Depth 36.89 ft  
Screen Length 10 ft  
Depth to Water 15.63 ft

Pumping Information:

Final Pumping Rate 120 mL/min  
Total System Volume 0.237293 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 137.64 in  
Total Volume Pumped 13.2 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:38:45	1200.00	19.32	5.99	163.51	17.10	24.67	0.36	73.84
Last 5	09:43:45	1499.99	19.71	5.97	165.81	11.10	25.80	0.42	72.33
Last 5	09:48:45	1799.99	20.32	5.98	166.85	6.71	26.25	0.45	69.93
Last 5	09:53:45	2099.98	20.62	5.98	171.34	5.55	26.88	0.47	66.93
Last 5	09:58:45	2399.98	21.08	5.99	172.58	5.07	27.10	0.49	63.67
Variance 0			0.61	0.01	1.04			0.03	-2.40
Variance 1			0.30	-0.00	4.49			0.02	-2.99
Variance 2			0.46	0.01	1.24			0.01	-3.27

Notes

Purged dry with final DTW at 27.10. Returning to sample 8/28

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-28 11:06:07

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 33 ft

Pump placement from TOC 33 ft

Well Information:

Well ID DGWA-53  
Well diameter 2 in  
Well Total Depth 36.89 ft  
Screen Length 10 ft  
Depth to Water 15.59 ft

Pumping Information:

Final Pumping Rate 480 mL/min  
Total System Volume 0.237293 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 141.24 in  
Total Volume Pumped 15 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:42:13	2099.98	20.35	6.17	188.61	5.89	21.31	0.12	41.31
Last 5	10:47:13	2399.98	19.86	6.17	172.49	5.14	23.50	0.20	43.20
Last 5	10:52:13	2699.97	20.26	6.15	170.78	4.01	25.45	0.26	44.73
Last 5	10:57:13	2999.97	20.48	6.13	170.58	3.80	26.80	0.33	45.67
Last 5	11:02:13	3299.96	21.24	6.11	170.74	3.88	27.36	0.41	45.80
Variance 0			0.40	-0.02	-1.71			0.06	1.52
Variance 1			0.23	-0.02	-0.20			0.07	0.94
Variance 2			0.75	-0.02	0.16			0.08	0.13

Notes

Missed 24hr sample deadline. Purged dry again, will sample 8/29

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-28 15:58:36

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 33 ft

Pump placement from TOC 33 ft

Well Information:

Well ID DGWA-53  
Well diameter 2 in  
Well Total Depth 36.89 ft  
Screen Length 10 ft  
Depth to Water 15.80 ft

Pumping Information:

Final Pumping Rate 120 mL/min  
Total System Volume 0.237293 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 10.2 in  
Total Volume Pumped 30 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:56:26	300.04	26.84	6.04	208.53	2.99	16.65	0.88	51.78
Last 5									
Last 5									
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.00	0.00	0.00			0.00	0.00
Variance 2			0.00	0.00	0.00			0.00	0.00

Notes

Sampled DGWA-53 at 1555. Previously purged dry twice

Grab Samples



Product Name: Low-Flow System

Date: 2019-08-27 10:16:14

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463068  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 56.00 ft

Pump placement from TOC 56.00 ft

Well Information:

Well ID DGWA-70A  
Well diameter 2 in  
Well Total Depth 62.54 ft  
Screen Length 10 ft  
Depth to Water 40.40 ft

Pumping Information:

Final Pumping Rate 220 mL/min  
Total System Volume 0.5051225 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 7.8 in  
Total Volume Pumped 5.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:50:15	600.02	20.32	5.50	63.51	9.71	41.05	4.71	79.84
Last 5	09:55:15	899.92	20.17	5.52	64.35	3.20	41.05	4.64	76.74
Last 5	10:00:15	1199.92	20.22	5.54	65.40	1.92	41.05	4.66	75.61
Last 5	10:05:15	1499.91	20.04	5.54	65.74	1.80	41.05	4.64	76.17
Last 5	10:10:15	1799.92	20.17	5.53	65.72	1.12	41.05	4.61	75.13
Variance 0			0.05	0.02	1.05			0.01	-1.13
Variance 1			-0.18	0.00	0.34			-0.02	0.56
Variance 2			0.13	-0.00	-0.02			-0.03	-1.04

Notes

Sampling GWA-70A plus field blank  
Sampled DGWA-70A and FB-1

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-17 15:19:03

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364456  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 45.7 ft

Pump placement from TOC 45.7 ft

Well Information:

Well ID DGWC-2  
Well diameter 2 in  
Well Total Depth 52.42 ft  
Screen Length 10 ft  
Depth to Water 31.05 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.4189785 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 4.2 in  
Total Volume Pumped 12 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	14:55:57	1200.01	15.71	6.14	415.53	8.42	31.40	6.20	91.03
Last 5	15:00:57	1500.04	15.76	6.15	405.60	7.04	31.40	6.25	89.17
Last 5	15:05:57	1800.03	15.57	6.16	415.73	5.97	31.40	6.50	88.03
Last 5	15:10:57	2100.00	15.57	6.16	411.50	5.46	31.40	6.45	87.23
Last 5	15:15:57	2400.00	15.61	6.16	415.26	4.67	31.40	6.42	88.25
Variance 0			-0.19	0.00	10.13			0.25	-1.14
Variance 1			-0.00	0.00	-4.23			-0.05	-0.80
Variance 2			0.04	-0.00	3.77			-0.04	1.03

Notes

Sampled DGWC-2

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-15 10:59:04

Project Information:

Operator Name A. McClure  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 553835  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 42 ft

Pump placement from TOC 42 ft

Well Information:

Well ID DGWC-4  
Well diameter 2 in  
Well Total Depth 47.02 ft  
Screen Length 10 ft  
Depth to Water 23.49 ft

Pumping Information:

Final Pumping Rate 150 mL/min  
Total System Volume 0.2774638 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.36 in  
Total Volume Pumped 3.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:35:05	300.10	21.18	5.88	814.84	6.02	23.73	7.57	163.13
Last 5	10:40:05	600.02	19.14	6.01	1659.45	1.80	23.76	0.39	114.62
Last 5	10:45:05	900.02	18.79	5.98	1666.61	0.54	23.77	0.21	95.67
Last 5	10:50:05	1200.02	18.72	5.98	1670.28	0.45	23.77	0.20	87.59
Last 5	10:55:05	1500.02	18.70	5.98	1675.78	0.88	23.77	0.18	81.64
Variance 0			-0.36	-0.02	7.16			-0.18	-18.95
Variance 1			-0.07	-0.01	3.67			-0.02	-8.07
Variance 2			-0.02	0.01	5.51			-0.01	-5.95

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-16 13:01:47

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463453  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 28 ft

Pump placement from TOC 28 ft

Well Information:

Well ID DGWC-5  
Well diameter 2 in  
Well Total Depth 33.23 ft  
Screen Length 10 ft  
Depth to Water 9.6 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2149758 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 4.08 in  
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:40:06	300.03	19.88	4.38	614.95	0.66	9.90	0.56	434.89
Last 5	12:45:06	600.02	19.86	4.38	619.24	0.19	9.92	0.38	469.08
Last 5	12:50:06	900.02	19.77	4.76	857.81	0.44	9.93	0.27	533.00
Last 5	12:55:06	1200.02	19.64	4.77	859.56	0.45	9.93	0.25	538.84
Last 5	13:00:06	1500.02	19.72	4.78	860.01	0.38	9.94	0.23	539.87
Variance 0			-0.09	0.38	238.57			-0.10	63.91
Variance 1			-0.13	0.01	1.75			-0.02	5.84
Variance 2			0.09	0.01	0.46			-0.02	1.03

Notes

Sampled DGWC-5 at 1300. Extra radium

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-16 15:12:17

Project Information:

Operator Name Yong Cheng Soo  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364456  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 46.33 ft

Pump placement from TOC 46.33 ft

Well Information:

Well ID DGWC-8  
Well diameter 2 in  
Well Total Depth 51.33 ft  
Screen Length 10 ft  
Depth to Water 32.61 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.4217904 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 2.88 in  
Total Volume Pumped 68.98 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	14:49:09	12595.08	15.48	5.32	534.16	13.00	32.85	8.46	142.55
Last 5	14:54:09	12895.07	15.43	5.32	533.30	12.90	32.85	8.48	122.05
Last 5	14:59:09	13195.07	15.48	5.33	532.26	11.30	32.85	8.52	120.49
Last 5	15:04:09	13495.06	15.42	5.33	535.15	11.00	32.85	8.05	118.15
Last 5	15:09:09	13795.07	15.35	5.33	534.23	8.67	32.85	8.25	117.48
Variance 0			0.06	0.01	-1.03			0.03	-1.55
Variance 1			-0.06	0.00	2.88			-0.46	-2.34
Variance 2			-0.07	-0.00	-0.92			0.20	-0.67

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-17 15:07:08

Project Information:

Operator Name A. McClure  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 553835  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 28 ft

Pump placement from TOC 28 ft

Well Information:

Well ID DGWC-9  
Well diameter 2 in  
Well Total Depth 33.66 ft  
Screen Length 10 ft  
Depth to Water 25.67 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.2149758 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 8.76 in  
Total Volume Pumped 16.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:43:13	2100.21	18.83	4.01	751.86	1.64	26.38	0.48	129.93
Last 5	14:48:13	2400.21	18.85	4.02	750.80	1.25	26.39	0.44	126.19
Last 5	14:53:13	2700.21	18.85	4.02	749.43	0.69	26.41	0.37	123.14
Last 5	14:58:14	3001.21	18.87	4.02	749.88	1.10	26.40	0.38	120.41
Last 5	15:03:14	3301.21	18.92	4.02	749.18	1.00	26.40	0.36	118.75
Variance 0			0.00	0.00	-1.36			-0.06	-3.05
Variance 1			0.02	-0.00	0.44			0.01	-2.73
Variance 2			0.05	0.00	-0.70			-0.02	-1.67

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-15 15:11:39

Project Information:

Operator Name A. McClure  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 553835  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 42 ft

Pump placement from TOC 42 ft

Well Information:

Well ID DGWC-10  
Well diameter 2 in  
Well Total Depth 47.85 ft  
Screen Length 10 ft  
Depth to Water 29.45 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2774638 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 7.02 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:48:00	900.50	19.23	4.99	577.54	1.04	29.74	2.94	134.58
Last 5	14:53:00	1200.50	19.27	4.97	588.18	0.69	29.74	2.89	132.64
Last 5	14:58:00	1500.51	19.30	4.96	593.88	0.55	29.74	2.63	130.99
Last 5	15:03:05	1805.50	19.25	4.94	598.52	0.43	29.75	2.44	129.52
Last 5	15:08:06	2106.51	19.28	4.96	596.55	0.50	29.75	2.56	127.88
Variance 0			0.03	-0.01	5.70			-0.26	-1.65
Variance 1			-0.05	-0.02	4.63			-0.18	-1.47
Variance 2			0.02	0.02	-1.96			0.12	-1.63

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-15 11:59:11

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463453  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 47 ft

Pump placement from TOC 47 ft

Well Information:

Well ID DGWC-11  
Well diameter 2 in  
Well Total Depth 51.75 ft  
Screen Length 10 ft  
Depth to Water 12.89 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2997809 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 8.4 in  
Total Volume Pumped 3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:44:08	300.02	19.22	5.63	617.29	1.03	13.50	0.42	149.57
Last 5	11:49:08	600.02	19.00	5.60	617.58	3.22	13.59	0.27	143.28
Last 5	11:54:08	900.02	18.96	5.60	616.92	4.92	13.59	0.23	137.74
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.22	-0.03	0.30			-0.15	-6.30
Variance 2			-0.04	0.00	-0.66			-0.04	-5.53

Notes

Grab Samples



Product Name: Low-Flow System

Date: 2019-10-15 13:30:23

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463453  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 22 ft

Pump placement from TOC 22 ft

Well Information:

Well ID DGWC-12  
Well diameter 2 in  
Well Total Depth 28.26 ft  
Screen Length 10 ft  
Depth to Water 9.18 ft

Pumping Information:

Final Pumping Rate 150 mL/min  
Total System Volume 0.1881953 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 2.64 in  
Total Volume Pumped 5.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:09:07	900.02	18.25	5.67	725.15	14.20	9.40	0.21	122.49
Last 5	13:14:07	1200.02	18.36	5.79	665.75	11.30	9.40	0.19	79.43
Last 5	13:19:07	1500.02	18.47	5.88	621.37	8.07	9.40	0.18	57.71
Last 5	13:24:07	1800.02	18.52	5.89	616.18	6.63	9.40	0.16	56.01
Last 5	13:29:07	2100.02	18.52	5.89	622.11	4.34	9.40	0.16	57.39
Variance 0			0.11	0.09	-44.38			-0.01	-21.73
Variance 1			0.05	0.01	-5.19			-0.01	-1.69
Variance 2			-0.00	0.00	5.94			-0.01	1.38

Notes

FD-1 here

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-16 15:52:54

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 41.25 ft

Pump placement from TOC 41.25 ft

Well Information:

Well ID DGWC-13  
Well diameter 2 in  
Well Total Depth 46.70 ft  
Screen Length 10 ft  
Depth to Water 33.90 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.3991162 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3 in  
Total Volume Pumped 15 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	15:30:13	3301.04	19.91	5.72	28.11	0.89	34.15	3.74	58.16
Last 5	15:35:13	3601.04	19.28	5.71	450.43	0.61	34.15	3.92	71.90
Last 5	15:40:13	3901.04	19.24	5.69	450.55	0.68	34.15	3.53	71.32
Last 5	15:45:13	4201.04	19.19	5.69	450.55	0.66	34.15	3.45	71.14
Last 5	15:50:13	4501.04	19.19	5.69	450.54	0.67	34.15	3.42	70.38
Variance 0			-0.05	-0.02	0.12			-0.39	-0.59
Variance 1			-0.05	-0.00	0.00			-0.08	-0.17
Variance 2			0.00	0.00	-0.01			-0.03	-0.76

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-16 13:31:56

Project Information:

Operator Name A. McClure  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 553835  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 32 ft

Pump placement from TOC 32 ft

Well Information:

Well ID DGWC-14  
Well diameter 2 in  
Well Total Depth 37.97 ft  
Screen Length 10 ft  
Depth to Water 21.46 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2328295 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1.68 in  
Total Volume Pumped 3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:18:18	300.03	20.93	5.65	144.46	0.68	21.60	4.48	111.74
Last 5	13:23:18	600.02	20.57	5.66	144.57	0.64	21.60	4.56	105.29
Last 5	13:28:18	900.02	20.38	5.66	142.77	0.55	21.60	4.57	103.13
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.36	0.01	0.11			0.08	-6.45
Variance 2			-0.19	0.00	-1.80			0.01	-2.16

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-17 10:03:10

Project Information:

Operator Name Y. C. Soo  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 66.75 ft

Pump placement from TOC 66.75 ft

Well Information:

Well ID DGWC-15  
Well diameter 2 in  
Well Total Depth 70.73 ft  
Screen Length 10 ft  
Depth to Water 40.1 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.5129335 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 31.32 in  
Total Volume Pumped 10.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	09:38:01	900.03	18.07	5.75	457.81	2.40	42.66	0.16	1.49
Last 5	09:43:01	1200.03	18.03	5.76	458.74	1.60	42.69	0.13	1.12
Last 5	09:48:01	1500.03	18.03	5.76	458.67	1.71	42.71	0.10	-0.79
Last 5	09:53:01	1800.03	18.08	5.76	458.98	1.16	42.71	0.09	-0.53
Last 5	09:58:01	2100.04	18.08	5.76	458.44	1.23	42.71	0.08	1.13
Variance 0			0.01	0.01	-0.06			-0.03	-1.91
Variance 1			0.04	-0.00	0.30			-0.02	0.26
Variance 2			0.00	-0.00	-0.54			-0.01	1.66

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-18 13:04:04

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364456  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 42.5 ft

Pump placement from TOC 42.5 ft

Well Information:

Well ID DGWC-17  
Well diameter 2 in  
Well Total Depth 47.95 ft  
Screen Length 10 ft  
Depth to Water 31.05 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.4046955 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 4.2 in  
Total Volume Pumped 24.03 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	12:39:57	3599.99	15.52	5.09	594.53	9.22	31.40	0.44	62.69
Last 5	12:44:57	3899.99	15.66	5.09	593.35	9.07	31.40	0.44	64.52
Last 5	12:50:03	4205.99	15.74	5.09	591.40	8.66	31.40	0.38	61.66
Last 5	12:55:03	4505.98	15.79	5.08	591.14	6.19	31.40	0.35	56.63
Last 5	13:00:03	4805.98	15.74	5.08	590.81	4.98	31.40	0.33	54.94
Variance 0			0.09	-0.00	-1.95			-0.06	-2.85
Variance 1			0.05	-0.00	-0.26			-0.03	-5.03
Variance 2			-0.05	-0.01	-0.33			-0.02	-1.69

Notes

Sampled DGWC-17

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-16 15:36:35

Project Information:

Operator Name A. McClure  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 553835  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 38 ft

Pump placement from TOC 38 ft

Well Information:

Well ID DGWC-19  
Well diameter 2 in  
Well Total Depth 43.15 ft  
Screen Length 10 ft  
Depth to Water 22.87 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2596101 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 2.76 in  
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:17:14	300.02	20.74	4.91	727.48	1.71	23.07	0.29	324.25
Last 5	15:22:14	600.02	20.27	4.89	732.88	0.82	23.07	0.23	408.41
Last 5	15:27:14	900.19	20.19	4.88	731.54	1.89	23.07	0.22	443.54
Last 5	15:32:14	1200.19	20.04	4.87	731.12	4.09	23.10	0.20	452.98
Last 5									
Variance 0			-0.47	-0.02	5.40			-0.06	84.16
Variance 1			-0.08	-0.01	-1.35			-0.01	35.13
Variance 2			-0.15	-0.00	-0.41			-0.02	9.44

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-17 09:35:43

Project Information:

Operator Name A. McClure  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 553835  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 38 ft

Pump placement from TOC 38 ft

Well Information:

Well ID DGWC-20  
Well diameter 2 in  
Well Total Depth 43.40 ft  
Screen Length 10 ft  
Depth to Water 23.58 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2596101 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 9.12 in  
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:11:27	300.04	14.27	5.05	1028.66	2.52	24.13	0.38	119.42
Last 5	09:16:27	600.02	15.12	4.78	1014.66	1.01	24.27	0.26	106.12
Last 5	09:21:28	900.28	15.80	4.69	994.61	0.95	24.31	0.26	104.25
Last 5	09:26:28	1200.28	15.56	4.66	991.87	0.74	24.32	0.32	107.13
Last 5	09:31:28	1500.27	16.02	4.64	991.50	0.45	24.34	0.36	112.12
Variance 0			0.67	-0.09	-20.05			-0.01	-1.87
Variance 1			-0.23	-0.03	-2.74			0.06	2.88
Variance 2			0.46	-0.02	-0.37			0.04	4.98

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-17 14:32:42

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463453  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 67 ft

Pump placement from TOC 67 ft

Well Information:

Well ID DGWC-21  
Well diameter 2 in  
Well Total Depth 72.6 ft  
Screen Length 10 ft  
Depth to Water 19.34 ft

Pumping Information:

Final Pumping Rate 250 mL/min  
Total System Volume 0.3890494 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 5.16 in  
Total Volume Pumped 3.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:21:21	300.05	19.06	5.56	686.06	0.36	19.74	0.41	148.52
Last 5	14:26:21	600.02	18.61	5.57	684.21	0.27	19.77	0.24	151.19
Last 5	14:31:21	900.02	18.53	5.57	690.14	0.45	19.77	0.21	146.22
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.45	0.01	-1.85			-0.16	2.67
Variance 2			-0.09	0.00	5.93			-0.03	-4.97

Notes

Grab Samples



Product Name: Low-Flow System

Date: 2019-10-18 09:54:02

Project Information:

Operator Name Y. C. Soo  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 58 ft

Pump placement from TOC 58 ft

Well Information:

Well ID DGWC-22  
Well diameter 2 in  
Well Total Depth 63.45 ft  
Screen Length 10 ft  
Depth to Water 20.42 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.3488785 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 4.32 in  
Total Volume Pumped 7.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	09:30:50	300.08	17.45	5.64	671.27	2.25	20.78	0.16	138.79
Last 5	09:35:50	600.03	17.67	5.62	670.78	1.41	20.78	0.15	130.85
Last 5	09:40:50	900.03	17.68	5.62	672.32	1.17	20.78	0.13	130.80
Last 5	09:45:50	1200.03	17.83	5.62	672.22	1.54	20.78	0.12	130.50
Last 5	09:50:50	1500.03	18.02	5.61	670.06	0.71	20.78	0.12	133.52
Variance 0			0.01	-0.00	1.54			-0.02	-0.05
Variance 1			0.15	-0.00	-0.10			-0.01	-0.30
Variance 2			0.20	-0.01	-2.16			0.00	3.03

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-18 10:00:48

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364456  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 58 ft

Pump placement from TOC 58 ft

Well Information:

Well ID DGWC-23  
Well diameter 2 in  
Well Total Depth 63.26 ft  
Screen Length 10 ft  
Depth to Water 20.82 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.3488785 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 54.96 in  
Total Volume Pumped 10.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	09:35:27	900.02	13.25	6.00	604.15	1.23	24.65	0.45	254.13
Last 5	09:40:27	1200.01	13.23	6.00	630.49	1.19	24.95	0.50	309.28
Last 5	09:45:27	1500.01	13.57	6.01	635.91	1.11	25.20	0.56	327.12
Last 5	09:50:27	1800.01	14.02	6.00	629.99	1.21	25.30	0.58	323.76
Last 5	09:55:27	2100.01	14.17	5.99	622.66	0.76	25.40	0.53	303.33
Variance 0			0.34	0.00	5.41			0.06	17.85
Variance 1			0.45	-0.01	-5.91			0.02	-3.36
Variance 2			0.14	-0.00	-7.33			-0.05	-20.43

Notes

Sampled DGWC-23  
Sampled DGWC-23

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-17 16:02:07

Project Information:

Operator Name Y. C. Soo  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 47.08 ft

Pump placement from TOC 47.08 ft

Well Information:

Well ID DGWC-42  
Well diameter 2 in  
Well Total Depth 52.49 ft  
Screen Length 10 ft  
Depth to Water 32.74 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.4251379 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 18.48 in  
Total Volume Pumped 10.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	15:38:30	900.03	19.70	5.21	804.61	7.38	34.28	0.14	0.09
Last 5	15:43:30	1200.03	19.68	5.21	813.07	5.68	34.28	0.13	0.86
Last 5	15:48:30	1500.03	19.67	5.21	813.42	4.67	34.28	0.12	1.46
Last 5	15:53:30	1800.03	19.72	5.20	812.13	4.60	34.28	0.11	3.43
Last 5	15:58:30	2100.03	19.62	5.20	811.91	4.14	34.28	0.10	4.76
Variance 0			-0.00	-0.00	0.35			-0.01	0.61
Variance 1			0.05	-0.01	-1.29			-0.00	1.97
Variance 2			-0.10	0.01	-0.22			-0.01	1.32

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-17 13:55:50

Project Information:

Operator Name Y. C. Soo  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 26 ft

Pump placement from TOC 26 ft

Well Information:

Well ID DGWC-47  
Well diameter 2 in  
Well Total Depth 31.95 ft  
Screen Length 10 ft  
Depth to Water 23.71 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.2149758 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 60.12 in  
Total Volume Pumped 24.01 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	13:29:10	3600.03	20.31	4.29	469.38	1.37	28.10	0.66	161.53
Last 5	13:34:10	3900.04	20.39	4.32	455.14	1.22	28.22	0.47	136.86
Last 5	13:39:10	4200.04	20.60	4.32	454.66	1.34	28.37	0.32	121.81
Last 5	13:44:12	4502.04	20.44	4.46	446.54	1.26	28.56	0.14	87.18
Last 5	13:49:12	4802.04	20.50	4.60	447.66	1.12	28.72	0.14	8.70
Variance 0			0.21	-0.00	-0.48			-0.15	-15.05
Variance 1			-0.16	0.14	-8.12			-0.19	-34.63
Variance 2			0.06	0.14	1.12			-0.00	-78.48

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-18 10:41:37

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463453  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 28 ft

Pump placement from TOC 28 ft

Well Information:

Well ID DGWC-48  
Well diameter 2 in  
Well Total Depth 33.52 ft  
Screen Length 10 ft  
Depth to Water 19.90 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2149758 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 16.08 in  
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:24:22	300.03	17.36	4.33	766.14	2.37	20.76	0.29	147.65
Last 5	10:29:22	600.02	17.37	4.23	754.22	3.26	21.05	0.21	141.03
Last 5	10:34:22	900.02	17.45	4.23	750.80	4.26	21.19	0.18	135.50
Last 5	10:39:22	1200.02	17.50	4.22	744.41	3.65	21.24	0.19	134.94
Last 5									
Variance 0			0.00	-0.10	-11.92			-0.08	-6.62
Variance 1			0.09	-0.01	-3.42			-0.03	-5.53
Variance 2			0.05	-0.00	-6.40			0.01	-0.57

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-15 11:02:28

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463453  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type  
Tubing Type  
Tubing Diameter  
Tubing Length  
Bailer Teflon  
in  
ft

Pump placement from TOC ft

Well Information:

Well ID DGWA-53  
Well diameter 2 in  
Well Total Depth 36.85 ft  
Screen Length 10 ft  
Depth to Water 15.22 ft

Pumping Information:

Final Pumping Rate 0 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 180 sec  
Stabilization Drawdown 259.44 in  
Total Volume Pumped 17 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:54:56	180.05	17.94	6.46	205.79	--	--	2.84	-15.61
Last 5	10:57:56	360.02	17.45	6.47	190.24	--	--	4.01	-15.53
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.49	0.01	-15.55			1.17	0.08
Variance 2			0.00	0.00	0.00			0.00	0.00

Notes

Purging dry via bailer. Will sample within 24hr. Recording well volumes until dry  
Purged dry at 4.5gal removed. Recorded initial + 1 well volume (3.5 gal)

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-16 10:07:38

Project Information:

Operator Name K. Minkara  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 463453  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 33 ft

Pump placement from TOC 33 ft

Well Information:

Well ID DGWA-53  
Well diameter 2 in  
Well Total Depth 36.85 ft  
Screen Length 10 ft  
Depth to Water 15.05 ft

Pumping Information:

Final Pumping Rate 100 mL/min  
Total System Volume 0.237293 L  
Calculated Sample Rate 30 sec  
Stabilization Drawdown 0 in  
Total Volume Pumped 0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:04:15	30.05	20.35	6.69	190.27	2.27	15.05	4.85	15.16
Last 5	10:04:45	60.03	20.21	6.60	191.32	--	--	4.77	16.32
Last 5	10:05:15	90.02	20.12	6.55	192.38	--	--	4.73	16.77
Last 5	10:05:45	120.02	20.08	6.51	193.62	--	--	4.70	16.89
Last 5									
Variance 0			-0.14	-0.09	1.05			-0.09	1.16
Variance 1			-0.09	-0.05	1.07			-0.03	0.45
Variance 2			-0.04	-0.03	1.23			-0.03	0.12

Notes

Purged dry 10-15-19. Use initial reading for field data.Sampled at 1000.

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-15 12:18:51

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364456  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 54.7 ft

Pump placement from TOC 54.7 ft

Well Information:

Well ID DGWA-70A  
Well diameter 2 in  
Well Total Depth 62.41 ft  
Screen Length 10 ft  
Depth to Water 42.68 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.4591492 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 12.84 in  
Total Volume Pumped 15.0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	11:54:49	1800.01	14.03	5.59	67.00	0.45	43.75	5.13	112.11
Last 5	11:59:50	2101.00	13.98	5.59	66.79	0.65	43.75	5.13	111.94
Last 5	12:04:50	2401.00	13.90	5.60	66.83	0.63	43.75	5.12	110.12
Last 5	12:09:50	2700.99	13.91	5.61	66.69	0.66	43.75	5.12	109.93
Last 5	12:14:51	3001.99	13.80	5.61	66.72	0.19	43.75	5.11	108.54
Variance 0			-0.08	0.01	0.04			-0.01	-1.81
Variance 1			0.01	0.00	-0.14			-0.01	-0.19
Variance 2			-0.11	0.00	0.03			-0.01	-1.39

Notes

Sampled DGWA-70A and FB-1

Grab Samples



Product Name: Low-Flow System

Date: 2019-10-15 15:11:35

Project Information:

Operator Name D. Herrera  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364456  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type SamplePro  
Tubing Type polyethylene  
Tubing Diameter 0.170 in  
Tubing Length 42.71 ft

Pump placement from TOC 42.71 ft

Well Information:

Well ID DGWA-71  
Well diameter 2 in  
Well Total Depth 47.71 ft  
Screen Length 10 ft  
Depth to Water 29.42 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 0.4056328 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 6.48 in  
Total Volume Pumped 13.50 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	14:47:05	1500.01	14.63	5.87	75.11	6.56	29.96	1.14	56.32
Last 5	14:52:05	1800.01	14.62	5.88	74.98	5.42	29.96	1.11	57.14
Last 5	14:57:05	2100.00	14.60	5.87	76.50	4.08	29.96	0.70	58.25
Last 5	15:02:05	2400.00	14.59	5.88	76.22	3.50	29.96	0.70	58.58
Last 5	15:07:05	2699.99	14.62	5.88	76.06	1.99	29.96	0.71	60.21
Variance 0			-0.02	-0.01	1.52			-0.41	1.11
Variance 1			-0.02	0.01	-0.28			0.01	0.33
Variance 2			0.03	-0.00	-0.16			0.00	1.63

Notes

Sampled DGWA-71

Grab Samples

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## Quality Control Review of Analytical Data- Ash Pond AP-2, 3/4 Submitted by Pace Analytical August – October 2019

This narrative presents results of the quality control (QC) data review performed on analytical data submitted by Pace Analytical for groundwater samples collected at Plant McDonough CCR Ash Pond AP-2, 3/4 between August 27, 2019 and October 18, 2019. The chemical data were reviewed to identify quality issues which could affect the use of the data for decision making purposes.

Information regarding the primary sample locations, analytical parameters, QC samples, sampling dates, and laboratory sample delivery group (SDG) designations is summarized in Table 1. In accordance with groundwater monitoring and corrective action procedures discussed in Title 40 CFR, Subpart D - Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments, the samples were analyzed for detection monitoring constituents listed in 40 CFR, Part 257, Appendix III and assessment monitoring constituents listed in 40 CFR, Part 257, Appendix IV. Test methods included Inductively Coupled Plasma- Mass Spectrometry (USEPA Method 6020B), Mercury in Liquid Wastes (USEPA Method 7470A), Determination of Inorganic Anions By Ion Chromatography (USEPA Method 300.0), Total Dissolved Solids (Standard Methods 2540C), Radium-226 (USEPA Method 9315) and Radium-228 (USEPA Method 9320).

Data were reviewed in accordance with the US EPA Region IV Data Validation Standard Operating Procedures for Contract Laboratory Program (CLP) Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy (September 2011, Rev. 2.0), US EPA Region IV Data Validation Standard Operating Procedures for CLP Mercury Data by Cold Vapor Atomic Absorption (September 2011, Rev. 2.0), the National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2017), and US Department of Energy, Evaluation of Radiochemical Data Usability (April 1997). The review included an assessment of the results for completeness, precision (laboratory duplicates, matrix spike/matrix spike duplicates), accuracy (laboratory control samples and matrix spike samples), and blank contamination (including field and laboratory blanks). Additionally, sample procedures, holding times and chains-of-custody were reviewed. Where there was a discrepancy between the QC criteria in the guidelines and the QC criterion established in the analytic methodology, method-specific criteria or professional judgment was used.

### DATA QUALITY OBJECTIVES

<b>Laboratory Precision:</b>	Laboratory goals for precision were met.
<b>Field Precision:</b>	Field goals for precision were met.
<b>Accuracy:</b>	Laboratory goals for accuracy were met with the exception of fluoride and chloride as described in the qualification sections below.
<b>Detection Limits:</b>	Project goals for detection limits were met. Certain samples were diluted due to elevated concentrations of target analytes. Dilutions do not require qualifications based on USEPA guidelines. Detection and reporting limits of non-detect compounds are elevated proportional to the dilution when undiluted sample results are not provided by the laboratory. The data usability of diluted results was evaluated by the data user in the context of site-wide characterization.
<b>Completeness:</b>	There were no rejected analytical results for this event, resulting in a completion of 100%.

**Holding Times:** All holding time requirements were met in accordance with specific analytical methods with the exception of total dissolved solids (TDS) in samples DGWC-2, DGWC-9, DGWC-15, DGWC-20, DGWC-21, DGWC-42, and DGWC-47. The analysis was conducted one day past the TDS seven day holding time requirement. Using professional judgment, no qualifications were applied.

## QUALIFICATIONS

In general, chemical results for the samples collected at the Site were qualified on the basis of low precision or accuracy, or on the basis of professional judgment. The following definitions provide brief explanations of the qualifiers which may have been assigned to data by the laboratory during the data validation process.

- J-** The analyte was reported above the method detection limit; however, the concentration reported is an estimated value that may be biased low.
- J+** The analyte was reported above the method detection limit; however, the concentration reported is an estimated value that may be biased high.
- U** The analyte was not detected above the method detection limit.

The data generated as part of this sampling event met the QC criteria established in the respective analytical methods and data validation guidelines except as specified below. Although these qualifications were applied to some data from samples collected at the site and reported in the SDGs, qualifications may not have been required or applied to all samples collected. A summary of sample qualifications can be found in Table 2.

- Certain arsenic, chromium, fluoride, total radium, radium-226, radium-228, sulfate and TDS results were qualified as non-detect (U) when the analyte was detected at a similar level in an associated blank sample. As shown in Table 2, if the original sample results were below the reporting limit (RL) or the minimum detectable concentration (MDC), the results were qualified as non-detect (U) and the results were raised to the RL or MDC. If results were above the RL or MDC, the results were qualified U and the RL or MDC was raised to the sample result.
- Total radium was qualified as biased high (J+) in certain samples when one radium isotope was detected above the MDC and the other isotope was U qualified.
- Fluoride for DGWC-20 was qualified as estimated biased high (J+) as the associated matrix spike/matrix spike duplicate (MS/MSD) recoveries were above the QC criteria. Certain chloride and fluoride results in SDGs 2624388 and 2624567 were qualified as estimated biased low (J-) as the associated MS/MSD recoveries were below the QC criteria.

Golder reviewed the data from samples collected at Plant McDonough CCR Ash Pond AP-2, 3/4 between August 27, 2019 and October 18, 2019 in accordance with the analytical methods, the laboratory specific QC criteria, and the guidelines. As described above, 100% of the results were acceptable for project use.

## REFERENCE

Paar, J.G. & Porterfield, D.R. *Evaluation of Radiochemical Data Usability*. United States Department of Energy, Office of Environmental Restoration and Waste Management, Oak Ridge National Laboratory, April 1997.

USEPA, January 2017, National, Office of Superfund Remediation and Technology Innovation, *National Functional Guidelines for Inorganic Superfund Methods Data Review*, Revision 0.0.

USEPA, September 2011, Region 4, Science and Ecosystem Support Division, Quality Assurance Section, MTSB, *Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data By Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy*, Revision 2.0.

USEPA, September 2011, Region 4, Science and Ecosystem Support Division, Quality Assurance Section, MTSB, *Data Validation Standard Operating Procedures for Contract Laboratory Program Mercury Data By Cold Vapor Atomic Absorption*, Revision 2.0.

**TABLE 1**  
**Qualifier Summary Table**  
**SCS Plant McDonough AP-2,3/4**

SDGs	Field Identification	Collection Date	Lab Identification	Matrix	QC Samples	Analyses				
						Select Metals (6020B)	Anions (300.0)	TDS (SM 2540C)	Mercury (7470)	Radium (EPA 9315/9320)
2622479/2622480	DGWC-10	8/27/2019	2622479005/2622480005	GW	-	X	X	-	X	X
2622479/2622480	DGWC-11	8/27/2019	2622479006/2622480006	GW	-	X	X	-	X	X
2622479/2622480	DGWC-12	8/27/2019	2622479007/2622480007	GW	-	X	X	-	X	X
2622479/2622480	DGWC-14	8/27/2019	2622479008/2622480008	GW	-	X	X	-	X	X
2622479/2622480	DGWC-17	8/27/2019	2622479009/2622480009	GW	-	X	X	-	X	X
2622479/2622480	DGWC-2	8/27/2019	2622479001/2622480001	GW	-	X	X	-	X	X
2622479/2622480	DGWC-4	8/27/2019	2622479002/2622480002	GW	-	X	X	-	X	X
2622479/2622480	DGWC-5	8/27/2019	2622479003/2622480003	GW	-	X	X	-	X	X
2622479/2622480	DGWC-9	8/27/2019	2622479004/2622480004	GW	-	X	X	-	X	X
2622479/2622480	FD-1	8/27/2019	2622479010/2622480010	GW	FD (DGWC-4)	X	X	-	X	X
2622481/2622482	DGWA-70A	8/27/2019	2622481001/2622482001	GW	-	X	X	-	X	X
2622481/2622482	DGWA-71	8/27/2019	2622481002/2622482002	GW	-	X	X	-	X	X
2622585/2622586	DGWC-13	8/28/2019	2622585002/2622586002	GW	-	X	X	-	X	X
2622585/2622586	DGWC-15	8/28/2019	2622585003/2622586003	GW	-	X	X	-	X	X
2622585/2622586	DGWC-19	8/28/2019	2622585004/2622586004	GW	-	X	X	-	X	X
2622585/2622586	DGWC-42	8/28/2019	2622585005/2622586005	GW	-	X	X	-	X	X
2622585/2622586	DGWC-8	8/28/2019	2622585001/2622586001	GW	-	X	X	-	X	X
2622589/2622590	DGWA-53	8/28/2019	2622589001/2622590001	GW	-	X	X	-	X	X
2622574/2622572	DGWC-20	8/29/2019	2622574001/2622572001	GW	-	X	X	-	X	X
2622574/2622572	DGWC-21	8/29/2019	2622574002/2622572002	GW	-	X	X	-	X	X
2622574/2622572	DGWC-22	8/29/2019	2622574003/2622572003	GW	-	X	X	-	X	X
2622574/2622572	DGWC-23	8/29/2019	2622574004/2622572004	GW	-	X	X	-	X	X
2622574/2622572	DGWC-47	8/29/2019	2622574005/2622572005	GW	-	X	X	-	X	X
2622574/2622572	DGWC-48	8/29/2019	2622574006/2622572006	GW	-	X	X	-	X	X
2622574/2622572	FD-3	8/29/2019	2622574009/2622572009	GW	FD (DGWC-22)	X	X	-	X	X
2624388/2624390	DGWC-10	10/15/2019	2624388002/2624390002	GW	-	X	X	X	X	X
2624388/2624390	DGWC-11	10/15/2019	2624388003/2624390003	GW	-	X	X	X	X	X
2624388/2624390	DGWC-12	10/15/2019	2624388004/2624390004	GW	-	X	X	X	X	X
2624388/2624390	DGWC-4	10/15/2019	2624388001/2624390001	GW	-	X	X	X	X	X
2624388/2624390	FD-1	10/15/2019	2624388005/2624390005	GW	FD (DGWC-12)	X	X	X	X	X
2624397/2624398	DGWA-70A	10/15/2019	2624397001/2624398001	GW	-	X	X	X	X	X
2624397/2624398	DGWA-71	10/15/2019	2624397002/2624398002	GW	-	X	X	X	X	X
2624491/2624493	DGWC-14	10/16/2019	2624491003/2624493003	GW	-	X	X	X	X	X
2624491/2624493	DGWC-19	10/16/2019	2624491004/2624493004	GW	-	X	X	X	X	X
2624491/2624493	DGWC-5	10/16/2019	2624491001/2624493001	GW	-	X	X	X	X	X
2624491/2624493	DGWC-8	10/16/2019	2624491002/2624493002	GW	-	X	X	X	X	X
2624491/2624493	FD-2	10/16/2019	2624491005/2624493005	GW	FD (DGWC-13)	X	X	X	X	X
2624494/2624495	DGWA-53	10/16/2019	2624494001/2624495001	GW	-	X	X	-	X	X
2624567/2624569	DGWC-15	10/17/2019	2624567003/2624569003	GW	-	X	X	X	X	X
2624567/2624569	DGWC-2	10/17/2019	2624567001/2624569001	GW	-	X	X	X	X	X
2624567/2624569	DGWC-20	10/17/2019	2624567004/2624569004	GW	-	X	X	X	X	X
2624567/2624569	DGWC-21	10/17/2019	2624567005/2624569005	GW	-	X	X	X	X	X
2624567/2624569	DGWC-42	10/17/2019	2624567006/2624569006	GW	-	X	X	X	X	X
2624567/2624569	DGWC-47	10/17/2019	2624567007/2624569007	GW	-	X	X	X	X	X
2624567/2624569	DGWC-9	10/17/2019	2624567002/2624569002	GW	-	X	X	X	X	X
2624567/2624569	DGWC-17	10/18/2019	2624567009/2624569009	GW	-	X	X	X	X	X
2624567/2624569	DGWC-22	10/18/2019	2624567010/2624569010	GW	-	X	X	X	X	X
2624567/2624569	DGWC-23	10/18/2019	2624567011/2624569011	GW	-	X	X	X	X	X
2624567/2624569	DGWC-48	10/18/2019	2624567012/2624569012	GW	-	X	X	X	X	X

**Abbreviations:**

- FD - Field duplicate
- GW - Groundwater
- TDS - Total Dissolved Solids
- SDG - Sample Delivery Group

**TABLE 2**  
**Qualifier Summary Table**  
**SCS Plant McDonough AP-2,3/4**

<b>SDG</b>	<b>Sample Name</b>	<b>Constituent</b>	<b>New Result</b>	<b>New RL or MDC</b>	<b>Qualifier</b>	<b>Reason</b>
2624491	DGWC-14	Fluoride	0.3	-	U	Blank contamination
2624491	DGWC-19	Fluoride	0.3	-	U	Blank contamination
2624491	DGWC-5	Fluoride	-	0.32	U	Blank contamination
2624491	DGWC-8	Fluoride	0.3	-	U	Blank contamination
2624491	FD-2	Fluoride	0.3	-	U	Blank contamination
2624494	DGWA-53	Fluoride	0.3	-	U	Blank contamination
2622574	DGWC-22	Total Radium	-	1.870	U	Blank contamination
2622574	DGWC-23	Total Radium	-	2.210	U	Blank contamination
2622574	DGWC-47	Total Radium	-	3.050	U	Blank contamination
2622574	DGWC-48	Total Radium	-	2.370	U	Blank contamination
2622586	DGWC-13	Radium-226	-	0.916	U	Blank contamination
2622586	DGWC-15	Radium-226	-	0.544	U	Blank contamination
2622586	DGWC-42	Radium-226	-	0.507	U	Blank contamination
2622586	DGWC-8	Radium-226	-	0.474	U	Blank contamination
2622586	DGWC-13	Total Radium	-	1.430	U	Blank contamination
2622590	DGWA-53	Radium-226	-	1.380	U	Blank contamination
2622590	DGWA-53	Total Radium	-	-	J+	Blank contamination
2624388	DGWC-12	Arsenic	0.005	-	U	Blank contamination
2624388	FD-1	Arsenic	0.005	-	U	Blank contamination
2624388	DGWC-10	Chromium	0.01	-	U	Blank contamination
2624390	DGWC-10	Radium-226	-	0.615	U	Blank contamination
2624390	DGWC-4	Radium-226	-	1.06	U	Blank contamination
2624390	FD-1	Radium-226	-	0.581	U	Blank contamination
2624397	DGWA-70A	Arsenic	0.005	-	U	Blank contamination
2624397	DGWA-71	Arsenic	0.005	-	U	Blank contamination
2624397	DGWA-71	Chromium	0.01	-	U	Blank contamination
2624397	DGWA-70A	Sulfate	1	-	U	Blank contamination
2624397	DGWA-70A	TDS	-	70	U	Blank contamination
2624397	DGWA-71	TDS	-	89	U	Blank contamination
2624398	DGWA-71	Radium-226	-	0.628	U	Blank contamination
2624567	DGWC-15	Arsenic	0.005	-	U	Blank contamination
2624567	DGWC-17	Arsenic	0.005	-	U	Blank contamination
2624567	DGWC-47	Arsenic	0.005	-	U	Blank contamination
2624567	DGWC-48	Arsenic	0.005	-	U	Blank contamination
2624567	DGWC-17	Chromium	0.01	-	U	Blank contamination
2622572	FD-3	Chromium	0.010	-	U	Blank contamination
2622574	FD-3	Radium-226	-	2.100	U	Blank contamination
2622574	FD-3	Total Radium	-	2.920	U	Blank contamination

**Abbreviations:**

MDC: Minimum detectable concentration  
MS/MSD: Matrix spike / matrix spike duplicate  
RL : Reporting limit  
SDG : Sample delivery group  
TDS: Total Dissolved Solids

**Qualifiers:**

J+ : Estimated result, biased high  
J- : Estimated result, biased low  
U : Non-detect result

**TABLE 2**  
**Qualifier Summary Table**  
**SCS Plant McDonough AP-2,3/4**

<b>SDG</b>	<b>Sample Name</b>	<b>Constituent</b>	<b>New Result</b>	<b>New RL or MDC</b>	<b>Qualifier</b>	<b>Reason</b>
2624567	DGWC-23	Chromium	0.01	-	U	Blank contamination
2622574	DGWC-22	Radium-228	-	1.390	U	Blank contamination
2622574	DGWC-23	Radium-228	-	1.150	U	Blank contamination
2622574	DGWC-47	Radium-228	-	1.370	U	Blank contamination
2622574	DGWC-48	Radium-228	-	1.400	U	Blank contamination
2622479	DGWC-10	Chromium	0.010	-	U	Blank contamination
2622479	DGWC-11	Chromium	0.010	-	U	Blank contamination
2622479	DGWC-17	Chromium	0.010	-	U	Blank contamination
2622479	DGWC-2	Chromium	0.010	-	U	Blank contamination
2622479	DGWC-9	Chromium	0.010	-	U	Blank contamination
2622480	DGWC-2	Radium-226	-	0.982	U	Blank contamination
2622480	DGWC-10	Radium-228	-	1.080	U	Blank contamination
2622480	DGWC-10	Total Radium	-	-	J+	Blank contamination
2622480	DGWC-2	Total Radium	-	-	U	Blank contamination
2622481	DGWA-70A	Chromium	0.010	-	U	Blank contamination
2622481	DGWA-71	Chromium	0.010	-	U	Blank contamination
2622482	DGWA-70A	Radium-226	-	1.110	U	Blank contamination
2622482	DGWA-70A	Radium-228	-	0.863	U	Blank contamination
2622482	DGWA-71	Radium-228	-	0.867	U	Blank contamination
2622482	DGWA-70A	Total Radium	-	-	J+	Blank contamination
2622572	DGWC-20	Chromium	0.010	-	U	Blank contamination
2622572	DGWC-21	Chromium	0.010	-	U	Blank contamination
2622574	DGWC-20	Radium-226	-	0.666	U	Blank contamination
2622574	DGWC-21	Radium-226	-	0.582	U	Blank contamination
2622574	DGWC-22	Radium-226	-	0.480	U	Blank contamination
2622574	DGWC-23	Radium-226	-	1.060	U	Blank contamination
2622574	DGWC-47	Radium-226	-	1.680	U	Blank contamination
2622574	DGWC-48	Radium-226	-	0.973	U	Blank contamination
2622572	DGWC-20	Fluoride	-	-	J+	MS/MSD recovered above the upper acceptance limit
2624388	DGWC-4	Chloride	-	-	J-	MS/MSD recovered below the lower acceptance limit
2624567	DGWC-9	Chloride	-	-	J-	MS/MSD recovered below the lower acceptance limit
2624567	DGWC-10	Flouride	-	-	J-	MS/MSD recovered below the lower acceptance limit

**Abbreviations:**

MDC: Minimum detectable concentration  
MS/MSD: Matrix spike / matrix spike duplicate  
RL : Reporting limit  
SDG : Sample delivery group  
TDS: Total Dissolved Solids

**Qualifiers:**

J+ : Estimated result, biased high  
J- : Estimated result, biased low  
U : Non-detect result

**APPENDIX B**

# Statistical Analyses



# Prediction Limit

McDonough Client: Golder Associates Data: McDonough Ash Pond Printed 2/13/2020, 6:09 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	DGWC-10	0.13	n/a	10/15/2019	1.6	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-11	0.13	n/a	10/15/2019	1.2	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-12	0.13	n/a	10/15/2019	5.9	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-13	0.13	n/a	10/16/2019	0.65	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-15	0.13	n/a	10/17/2019	1.5	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-17	0.13	n/a	10/18/2019	0.82	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-19	0.13	n/a	10/16/2019	2.2	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-20	0.13	n/a	10/17/2019	5	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-21	0.13	n/a	10/17/2019	7	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-22	0.13	n/a	10/18/2019	4.2	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-42	0.13	n/a	10/17/2019	0.94	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-47	0.13	n/a	10/17/2019	0.25	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-48	0.13	n/a	10/18/2019	0.74	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-5	0.13	n/a	10/16/2019	4.3	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-4	0.13	n/a	10/15/2019	5	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-9	0.13	n/a	10/17/2019	1.2	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-8	0.13	n/a	10/16/2019	1.2	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-2	0.13	n/a	10/17/2019	0.73	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-23	0.13	n/a	10/18/2019	4.5	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Calcium (mg/L)	DGWC-10	40.3	n/a	10/15/2019	79.1	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-11	40.3	n/a	10/15/2019	61.2	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-12	40.3	n/a	10/15/2019	61.4	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-13	40.3	n/a	10/16/2019	43.8	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-19	40.3	n/a	10/16/2019	85.7	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-20	40.3	n/a	10/17/2019	86.9	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-21	40.3	n/a	10/17/2019	79.8	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-22	40.3	n/a	10/18/2019	61.7	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-42	40.3	n/a	10/17/2019	44.1	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-48	40.3	n/a	10/18/2019	72.7	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-5	40.3	n/a	10/16/2019	109	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-4	40.3	n/a	10/15/2019	276	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-9	40.3	n/a	10/17/2019	75.6	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-8	40.3	n/a	10/16/2019	47.3	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-2	40.3	n/a	10/17/2019	47.2	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-23	40.3	n/a	10/18/2019	67.7	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Chloride (mg/L)	DGWC-10	4.277	n/a	10/15/2019	9.4	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-11	4.277	n/a	10/15/2019	15.6	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-12	4.277	n/a	10/15/2019	11.6	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-13	4.277	n/a	10/16/2019	17.4	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-15	4.277	n/a	10/17/2019	22	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-17	4.277	n/a	10/18/2019	22	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-19	4.277	n/a	10/16/2019	33.2	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-20	4.277	n/a	10/17/2019	24.9	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-21	4.277	n/a	10/17/2019	20.1	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-22	4.277	n/a	10/18/2019	23.4	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-42	4.277	n/a	10/17/2019	25.8	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-47	4.277	n/a	10/17/2019	7	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-48	4.277	n/a	10/18/2019	9.6	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-5	4.277	n/a	10/16/2019	11.6	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-4	4.277	n/a	10/15/2019	20.9	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2

## Prediction Limit

McDonough Client: Golder Associates Data: McDonough Ash Pond Printed 2/13/2020, 6:09 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Chloride (mg/L)	DGWC-9	4.277	n/a	10/17/2019	10	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-8	4.277	n/a	10/16/2019	10.4	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-23	4.277	n/a	10/18/2019	14.4	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-10	0.5046	n/a	10/15/2019	1.4	Yes	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-9	0.5046	n/a	10/17/2019	1.2	Yes	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-10	6.664	5.159	10/15/2019	4.96	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-17	6.664	5.159	10/18/2019	5.08	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-19	6.664	5.159	10/16/2019	4.87	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-20	6.664	5.159	10/17/2019	4.64	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-47	6.664	5.159	10/17/2019	4.6	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-48	6.664	5.159	10/18/2019	4.22	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-5	6.664	5.159	10/16/2019	4.78	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-9	6.664	5.159	10/17/2019	4.02	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-10	37.58	n/a	10/15/2019	263	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-11	37.58	n/a	10/15/2019	273	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-12	37.58	n/a	10/15/2019	270	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-13	37.58	n/a	10/16/2019	167	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-14	37.58	n/a	10/16/2019	42.1	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-15	37.58	n/a	10/17/2019	146	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-17	37.58	n/a	10/18/2019	222	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-19	37.58	n/a	10/16/2019	323	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-20	37.58	n/a	10/17/2019	426	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-21	37.58	n/a	10/17/2019	255	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-22	37.58	n/a	10/18/2019	254	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-42	37.58	n/a	10/17/2019	321	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-47	37.58	n/a	10/17/2019	179	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-48	37.58	n/a	10/18/2019	336	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-5	37.58	n/a	10/16/2019	493	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-4	37.58	n/a	10/15/2019	888	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-9	37.58	n/a	10/17/2019	331	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-8	37.58	n/a	10/16/2019	235	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-2	37.58	n/a	10/17/2019	134	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-23	37.58	n/a	10/18/2019	203	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-10	331	n/a	10/15/2019	447	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-11	331	n/a	10/15/2019	461	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-12	331	n/a	10/15/2019	472	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-17	331	n/a	10/18/2019	403	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-19	331	n/a	10/16/2019	500	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-20	331	n/a	10/17/2019	751	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-21	331	n/a	10/17/2019	498	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-22	331	n/a	10/18/2019	480	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-42	331	n/a	10/17/2019	612	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-48	331	n/a	10/18/2019	593	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-5	331	n/a	10/16/2019	702	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-4	331	n/a	10/15/2019	1520	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-9	331	n/a	10/17/2019	550	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-8	331	n/a	10/16/2019	374	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-23	331	n/a	10/18/2019	448	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2

# Prediction Limit

McDonough Client: Golder Associates Data: McDonough Ash Pond Printed 2/13/2020, 6:09 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	DGWC-10	0.13	n/a	10/15/2019	1.6	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-11	0.13	n/a	10/15/2019	1.2	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-12	0.13	n/a	10/15/2019	5.9	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-13	0.13	n/a	10/16/2019	0.65	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-14	0.13	n/a	10/16/2019	0.052	No	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-15	0.13	n/a	10/17/2019	1.5	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-17	0.13	n/a	10/18/2019	0.82	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-19	0.13	n/a	10/16/2019	2.2	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-20	0.13	n/a	10/17/2019	5	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-21	0.13	n/a	10/17/2019	7	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-22	0.13	n/a	10/18/2019	4.2	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-42	0.13	n/a	10/17/2019	0.94	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-47	0.13	n/a	10/17/2019	0.25	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-48	0.13	n/a	10/18/2019	0.74	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-5	0.13	n/a	10/16/2019	4.3	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-4	0.13	n/a	10/15/2019	5	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-9	0.13	n/a	10/17/2019	1.2	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-8	0.13	n/a	10/16/2019	1.2	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-2	0.13	n/a	10/17/2019	0.73	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Boron (mg/L)	DGWC-23	0.13	n/a	10/18/2019	4.5	Yes	31	12.9	n/a	0.001666	NP Inter (normality) ...
Calcium (mg/L)	DGWC-10	40.3	n/a	10/15/2019	79.1	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-11	40.3	n/a	10/15/2019	61.2	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-12	40.3	n/a	10/15/2019	61.4	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-13	40.3	n/a	10/16/2019	43.8	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-14	40.3	n/a	10/16/2019	9.4	No	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-15	40.3	n/a	10/17/2019	37	No	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-17	40.3	n/a	10/18/2019	12.9	No	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-19	40.3	n/a	10/16/2019	85.7	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-20	40.3	n/a	10/17/2019	86.9	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-21	40.3	n/a	10/17/2019	79.8	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-22	40.3	n/a	10/18/2019	61.7	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-42	40.3	n/a	10/17/2019	44.1	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-47	40.3	n/a	10/17/2019	36.2	No	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-48	40.3	n/a	10/18/2019	72.7	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-5	40.3	n/a	10/16/2019	109	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-4	40.3	n/a	10/15/2019	276	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-9	40.3	n/a	10/17/2019	75.6	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-8	40.3	n/a	10/16/2019	47.3	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-2	40.3	n/a	10/17/2019	47.2	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Calcium (mg/L)	DGWC-23	40.3	n/a	10/18/2019	67.7	Yes	32	0	n/a	0.001585	NP Inter (normality) ...
Chloride (mg/L)	DGWC-10	4.277	n/a	10/15/2019	9.4	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-11	4.277	n/a	10/15/2019	15.6	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-12	4.277	n/a	10/15/2019	11.6	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-13	4.277	n/a	10/16/2019	17.4	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-14	4.277	n/a	10/16/2019	3.5	No	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-15	4.277	n/a	10/17/2019	22	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-17	4.277	n/a	10/18/2019	22	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-19	4.277	n/a	10/16/2019	33.2	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-20	4.277	n/a	10/17/2019	24.9	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-21	4.277	n/a	10/17/2019	20.1	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2

## Prediction Limit

McDonough Client: Golder Associates Data: McDonough Ash Pond Printed 2/13/2020, 6:09 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Chloride (mg/L)	DGWC-22	4.277	n/a	10/18/2019	23.4	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-42	4.277	n/a	10/17/2019	25.8	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-47	4.277	n/a	10/17/2019	7	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-48	4.277	n/a	10/18/2019	9.6	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-5	4.277	n/a	10/16/2019	11.6	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-4	4.277	n/a	10/15/2019	20.9	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-9	4.277	n/a	10/17/2019	10	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-8	4.277	n/a	10/16/2019	10.4	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-2	4.277	n/a	10/17/2019	2.8	No	34	0	ln(x)	0.000...	Param Inter 1 of 2
Chloride (mg/L)	DGWC-23	4.277	n/a	10/18/2019	14.4	Yes	34	0	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-10	0.5046	n/a	10/15/2019	1.4	Yes	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-11	0.5046	n/a	10/15/2019	0.0145ND	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-12	0.5046	n/a	10/15/2019	0.0145ND	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-13	0.5046	n/a	10/16/2019	0.14	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-14	0.5046	n/a	10/16/2019	0.052	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-15	0.5046	n/a	10/17/2019	0.079	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-17	0.5046	n/a	10/18/2019	0.086	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-19	0.5046	n/a	10/16/2019	0.23	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-20	0.5046	n/a	10/17/2019	0.26	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-21	0.5046	n/a	10/17/2019	0.0145ND	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-22	0.5046	n/a	10/18/2019	0.0145ND	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-42	0.5046	n/a	10/17/2019	0.0145ND	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-47	0.5046	n/a	10/17/2019	0.46	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-48	0.5046	n/a	10/18/2019	0.46	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-5	0.5046	n/a	10/16/2019	0.32	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-4	0.5046	n/a	10/15/2019	0.0145ND	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-9	0.5046	n/a	10/17/2019	1.2	Yes	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-8	0.5046	n/a	10/16/2019	0.14	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-2	0.5046	n/a	10/17/2019	0.042	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
Fluoride (mg/L)	DGWC-23	0.5046	n/a	10/18/2019	0.079	No	35	42.86	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-10	6.664	5.159	10/15/2019	4.96	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-11	6.664	5.159	10/15/2019	5.6	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-12	6.664	5.159	10/15/2019	5.89	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-13	6.664	5.159	10/16/2019	5.69	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-14	6.664	5.159	10/16/2019	5.66	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-15	6.664	5.159	10/17/2019	5.76	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-17	6.664	5.159	10/18/2019	5.08	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-19	6.664	5.159	10/16/2019	4.87	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-20	6.664	5.159	10/17/2019	4.64	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-21	6.664	5.159	10/17/2019	5.57	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-22	6.664	5.159	10/18/2019	5.61	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-42	6.664	5.159	10/17/2019	5.2	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-47	6.664	5.159	10/17/2019	4.6	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-48	6.664	5.159	10/18/2019	4.22	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-5	6.664	5.159	10/16/2019	4.78	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-4	6.664	5.159	10/15/2019	5.98	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-9	6.664	5.159	10/17/2019	4.02	Yes	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-8	6.664	5.159	10/16/2019	5.33	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-2	6.664	5.159	10/17/2019	6.16	No	35	0	ln(x)	0.000...	Param Inter 1 of 2
pH [field] (S.U.)	DGWC-23	6.664	5.159	10/18/2019	5.99	No	35	0	ln(x)	0.000...	Param Inter 1 of 2

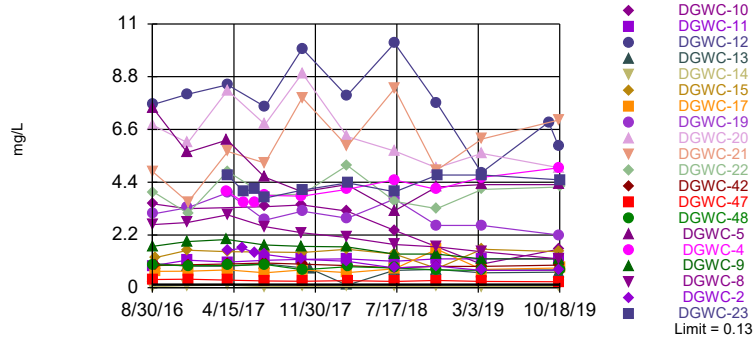
# Prediction Limit

McDonough Client: Golder Associates Data: McDonough Ash Pond Printed 2/13/2020, 6:09 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Sulfate (mg/L)	DGWC-10	37.58	n/a	10/15/2019	263	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-11	37.58	n/a	10/15/2019	273	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-12	37.58	n/a	10/15/2019	270	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-13	37.58	n/a	10/16/2019	167	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-14	37.58	n/a	10/16/2019	42.1	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-15	37.58	n/a	10/17/2019	146	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-17	37.58	n/a	10/18/2019	222	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-19	37.58	n/a	10/16/2019	323	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-20	37.58	n/a	10/17/2019	426	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-21	37.58	n/a	10/17/2019	255	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-22	37.58	n/a	10/18/2019	254	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-42	37.58	n/a	10/17/2019	321	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-47	37.58	n/a	10/17/2019	179	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-48	37.58	n/a	10/18/2019	336	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-5	37.58	n/a	10/16/2019	493	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-4	37.58	n/a	10/15/2019	888	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-9	37.58	n/a	10/17/2019	331	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-8	37.58	n/a	10/16/2019	235	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-2	37.58	n/a	10/17/2019	134	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
Sulfate (mg/L)	DGWC-23	37.58	n/a	10/18/2019	203	Yes	34	0	sqrt(x)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-10	331	n/a	10/15/2019	447	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-11	331	n/a	10/15/2019	461	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-12	331	n/a	10/15/2019	472	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-13	331	n/a	10/16/2019	296	No	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-14	331	n/a	10/16/2019	104	No	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-15	331	n/a	10/17/2019	319	No	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-17	331	n/a	10/18/2019	403	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-19	331	n/a	10/16/2019	500	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-20	331	n/a	10/17/2019	751	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-21	331	n/a	10/17/2019	498	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-22	331	n/a	10/18/2019	480	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-42	331	n/a	10/17/2019	612	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-47	331	n/a	10/17/2019	327	No	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-48	331	n/a	10/18/2019	593	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-5	331	n/a	10/16/2019	702	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-4	331	n/a	10/15/2019	1520	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-9	331	n/a	10/17/2019	550	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-8	331	n/a	10/16/2019	374	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-2	331	n/a	10/17/2019	302	No	31	0	x^(1/3)	0.000...	Param Inter 1 of 2
TDS (mg/L)	DGWC-23	331	n/a	10/18/2019	448	Yes	31	0	x^(1/3)	0.000...	Param Inter 1 of 2

Exceeds Limit: DGWC-10, DGWC-11, DGWC-12, DGWC-13, DGWC-15, DGWC-17, DGWC-19, DGWC-20, DGWC-21, DGWC-22, DGWC-42, DGWC-47, DGWC-48, DGWC-5, DGWC-9, DGWC-8, DGWC-2, DGWC-23

Prediction Limit  
Interwell Non-parametric

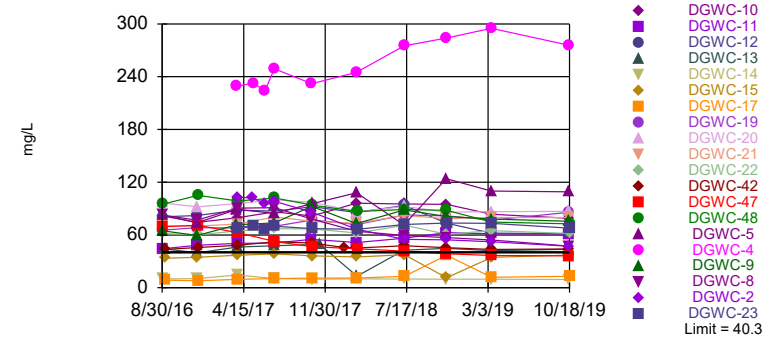


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 31 background values. 12.9% NDs. Annual per-constituent alpha = 0.06452. Individual comparison alpha = 0.001666 (1 of 2). Comparing 20 points to limit.

Constituent: Boron Analysis Run 2/13/2020 6:07 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

Exceeds Limit: DGWC-10, DGWC-11, DGWC-12, DGWC-13, DGWC-19, DGWC-20

Prediction Limit  
Interwell Non-parametric

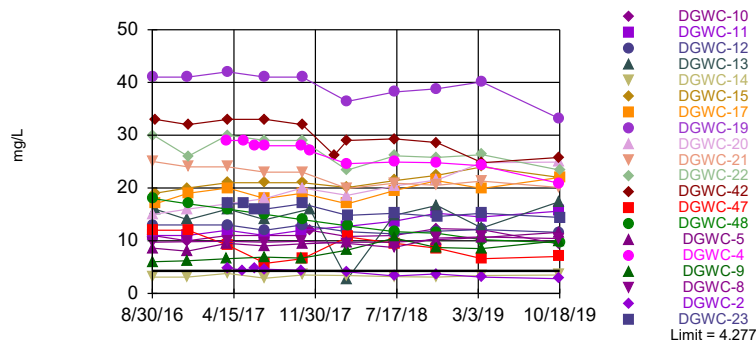


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 32 background values. Annual per-constituent alpha = 0.06146. Individual comparison alpha = 0.001585 (1 of 2). Comparing 20 points to limit.

Constituent: Calcium Analysis Run 2/13/2020 6:07 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

Exceeds Limit: DGWC-10, DGWC-11, DGWC-12, DGWC-13, DGWC-15, DGWC-17, DGWC-19, DGWC-20, DGWC-21, DGWC-22, DGWC-42, DGWC-47, DGWC-48, DGWC-5, DGWC-9, DGWC-8, DGWC-2, DGWC-23

Prediction Limit  
Interwell Parametric

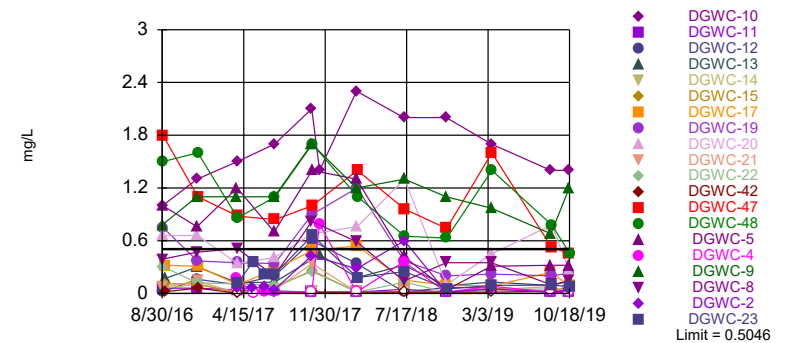


Background Data Summary (based on natural log transformation): Mean=0.9725, Std. Dev.=0.21, n=34. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9084, critical = 0.908. Kappa = 2.29 (c=7, w=20, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.0003762. Comparing 20 points to limit.

Constituent: Chloride Analysis Run 2/13/2020 6:07 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

Exceeds Limit: DGWC-10, DGWC-9

Prediction Limit  
Interwell Parametric

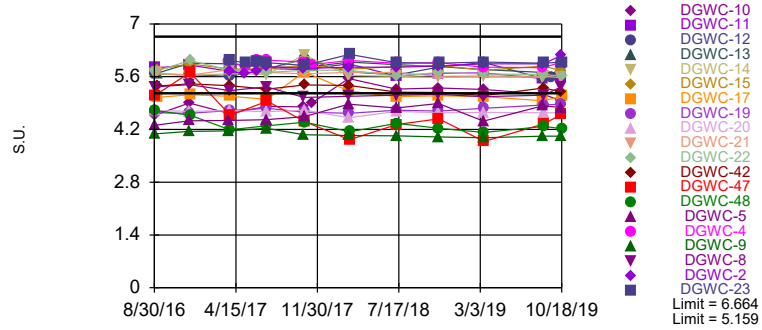


Background Data Summary (based on natural log transformation) (after Kaplan-Meier Adjustment): Mean=3.862, Std. Dev.=1.393, n=35, 42.86% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9384, critical = 0.91. Kappa = 2.282 (c=7, w=20, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.0003762. Comparing 20 points to limit.

Constituent: Fluoride Analysis Run 2/13/2020 6:07 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

Exceeds Limits: DGWC-10, DGWC-17, DGWC-19, DGWC-20, DGWC-47, DGWC

Prediction Limit  
Interwell Parametric

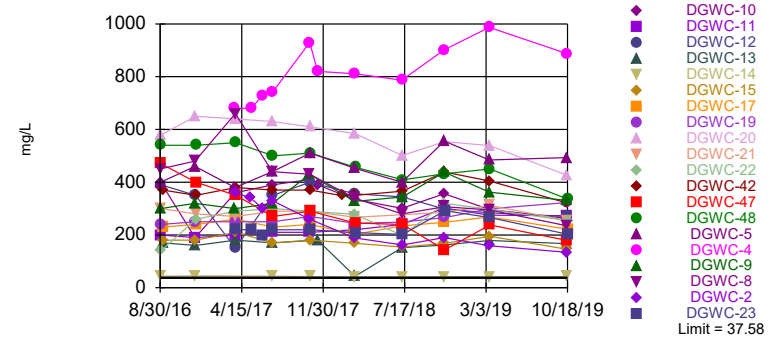


Background Data Summary (based on natural log transformation): Mean=1.769, Std. Dev.=0.05611, n=35. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9131, critical = 0.91. Kappa = 2.282 (c=7, w=20, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.0001881. Comparing 20 points to limit.

Constituent: pH [field] Analysis Run 2/13/2020 6:07 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

Exceeds Limit: DGWC-10, DGWC-11, DGWC-12, DGWC-13, DGWC-14, DGWC

Prediction Limit  
Interwell Parametric

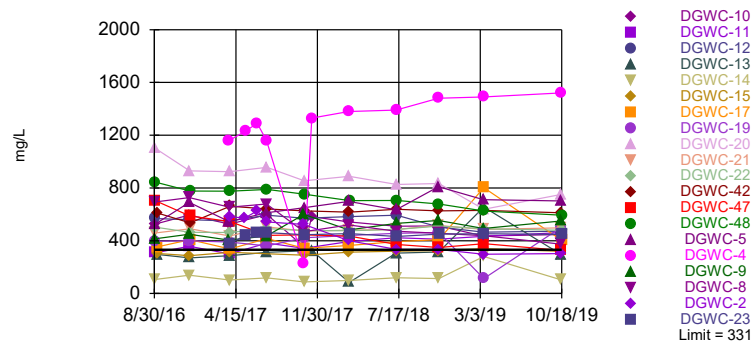


Background Data Summary (based on square root transformation): Mean=2.61, Std. Dev.=1.537, n=34. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9363, critical = 0.908. Kappa = 2.29 (c=7, w=20, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.0003762. Comparing 20 points to limit.

Constituent: Sulfate Analysis Run 2/13/2020 6:07 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

Exceeds Limit: DGWC-10, DGWC-11, DGWC-12, DGWC-17, DGWC-19, DGWC

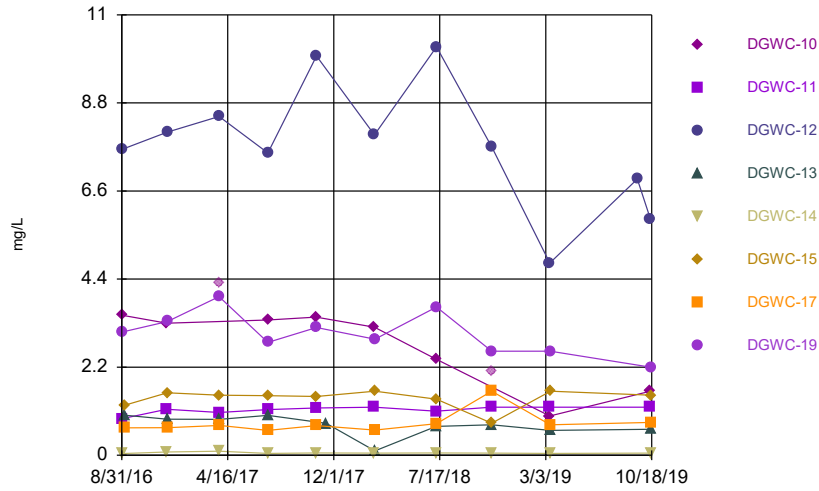
Prediction Limit  
Interwell Parametric



Background Data Summary (based on cube root transformation): Mean=4.718, Std. Dev.=0.9514, n=31. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9111, critical = 0.902. Kappa = 2.312 (c=7, w=20, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.0003762. Comparing 20 points to limit.

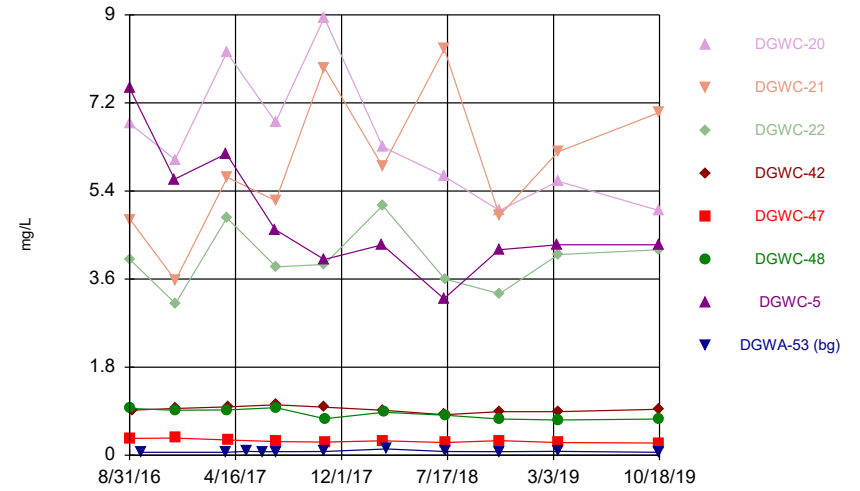
Constituent: TDS Analysis Run 2/13/2020 6:07 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



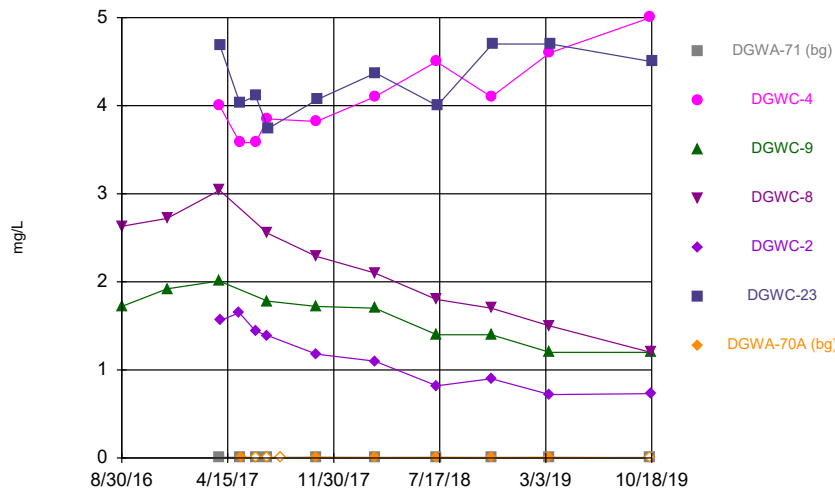
Constituent: Boron Analysis Run 2/13/2020 6:12 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



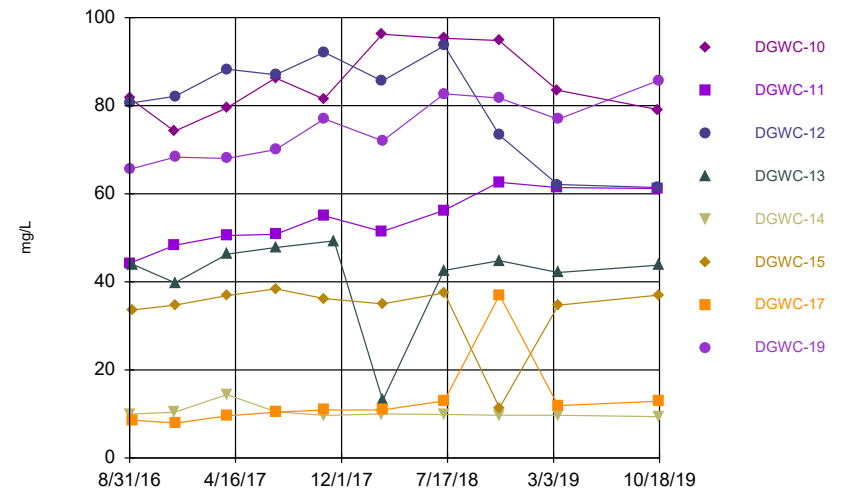
Constituent: Boron Analysis Run 2/13/2020 6:12 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



Constituent: Boron Analysis Run 2/13/2020 6:12 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

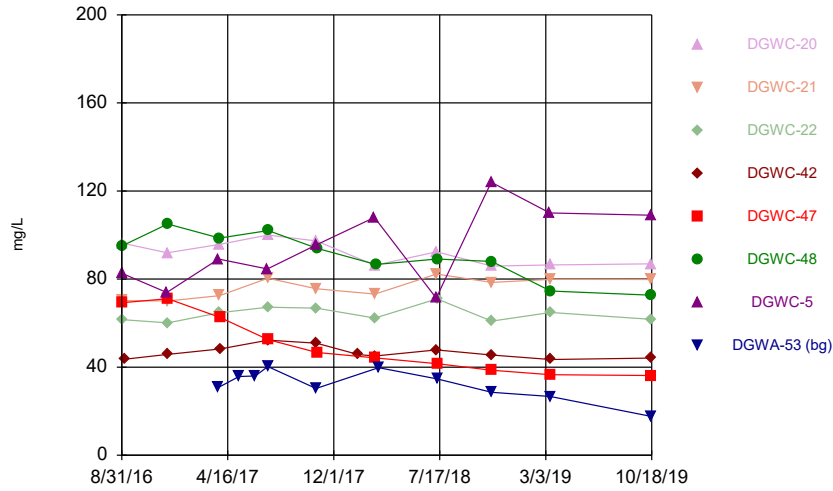
Time Series



Constituent: Calcium Analysis Run 2/13/2020 6:12 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

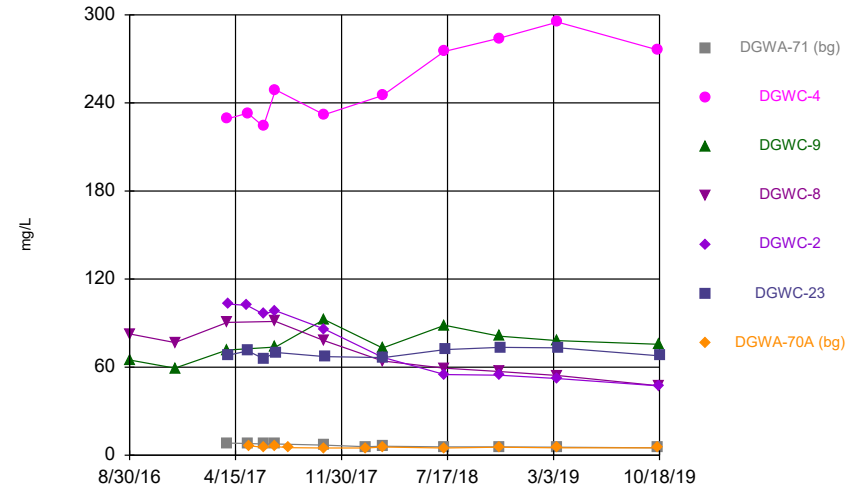


Time Series



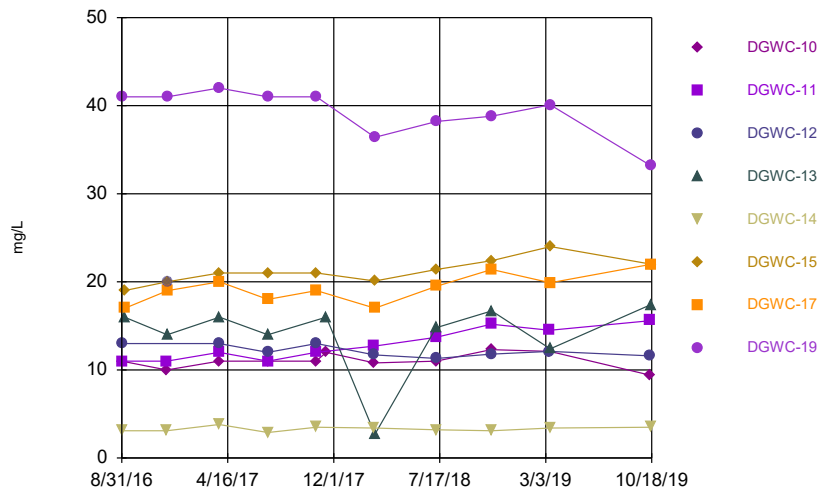
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McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



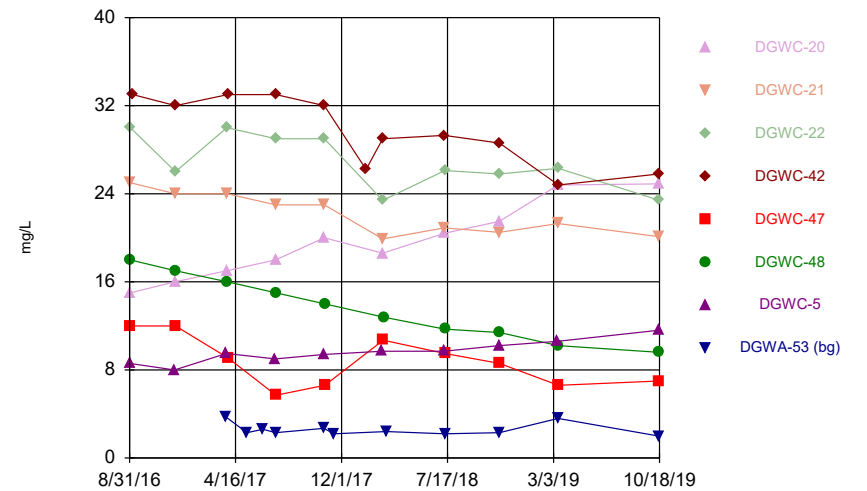
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McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



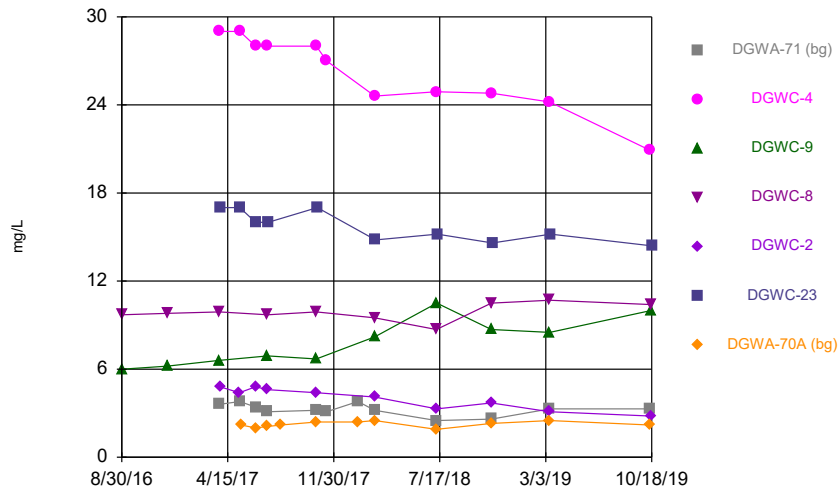
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McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



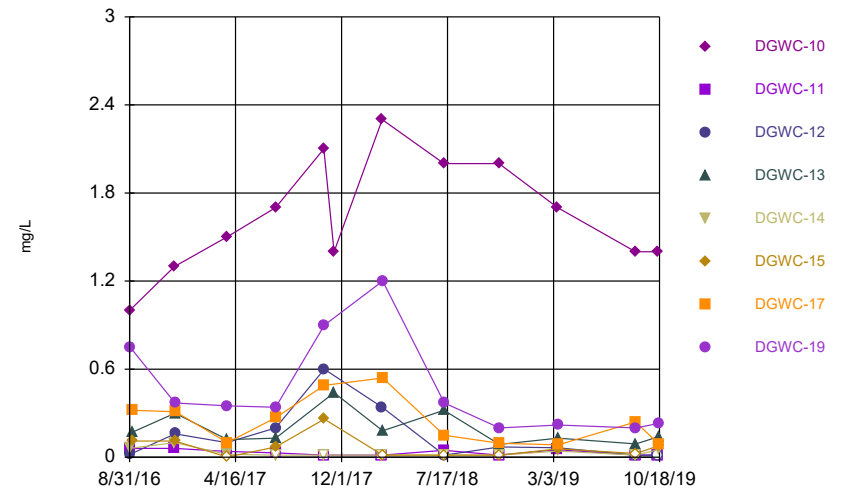
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McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



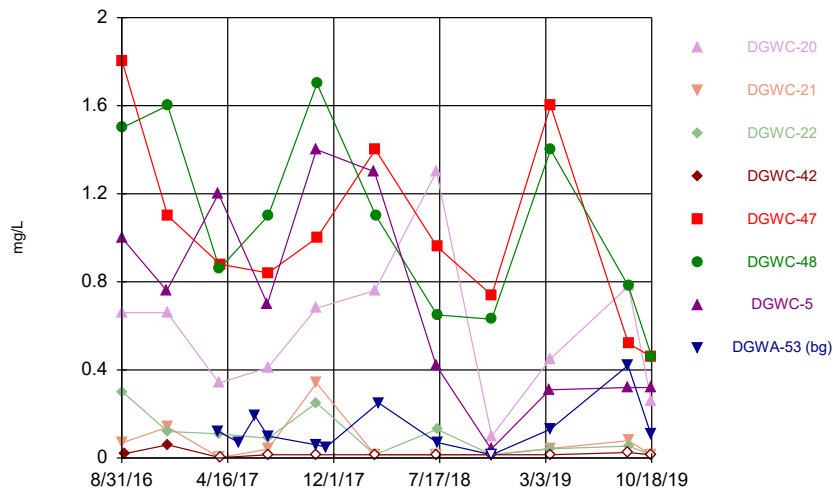
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McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



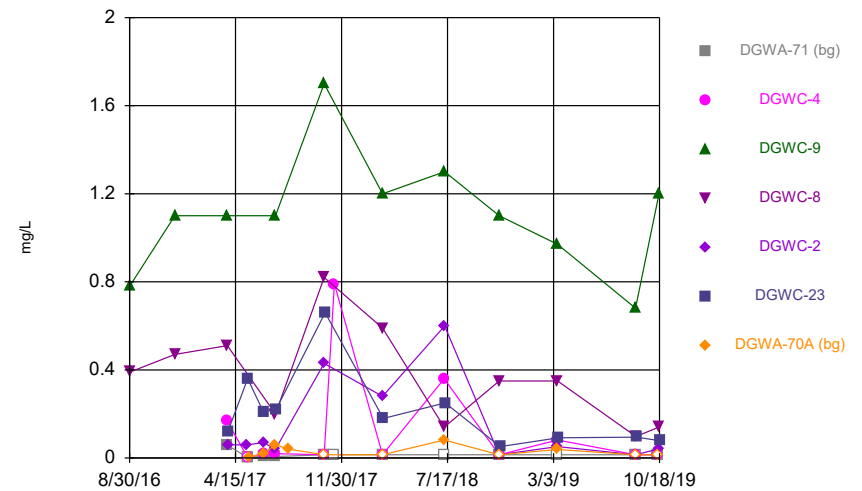
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McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



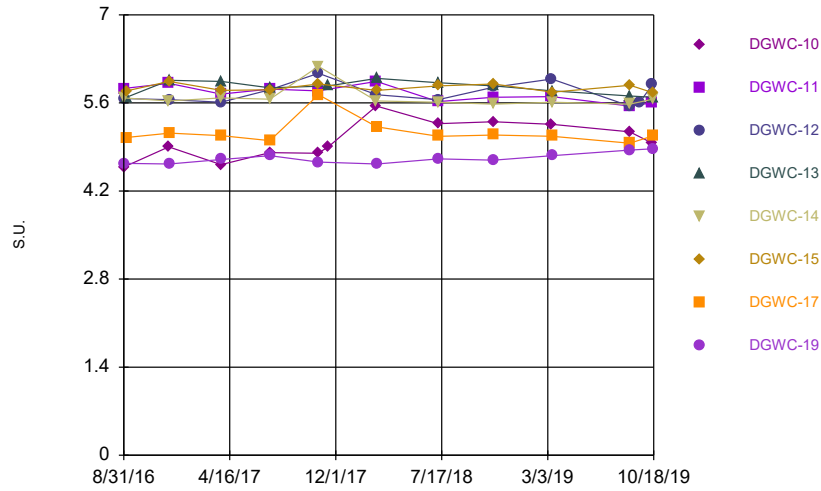
Constituent: Fluoride Analysis Run 2/13/2020 6:12 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



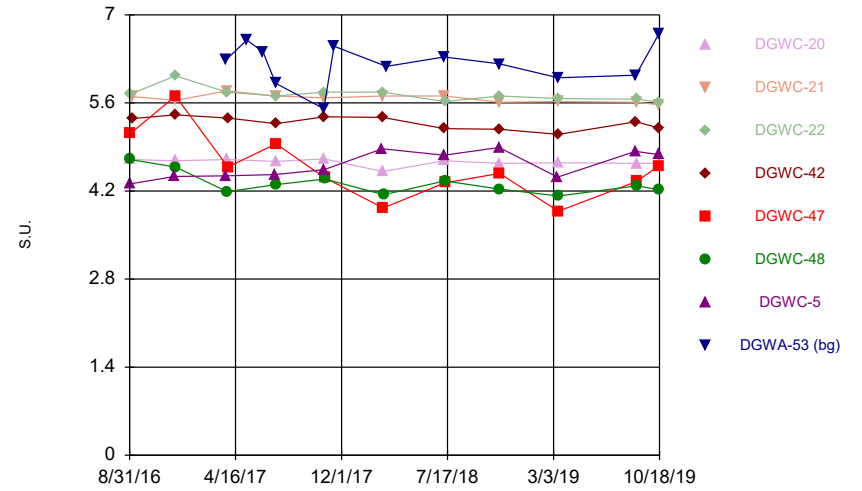
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McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



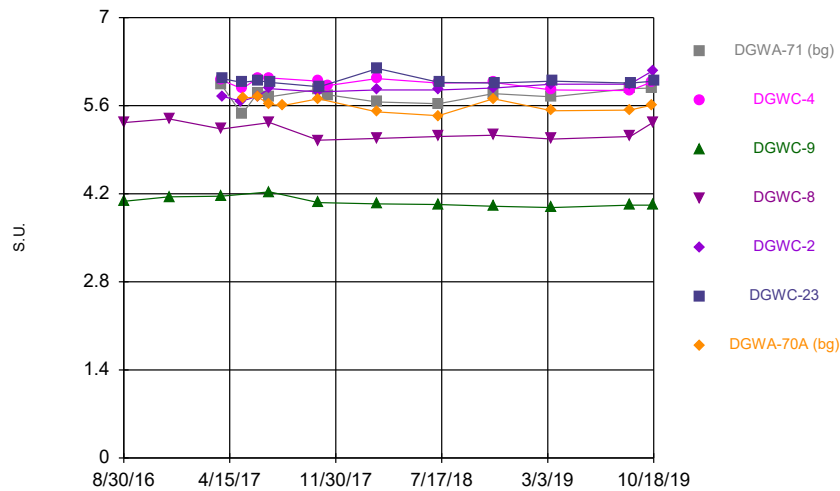
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McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



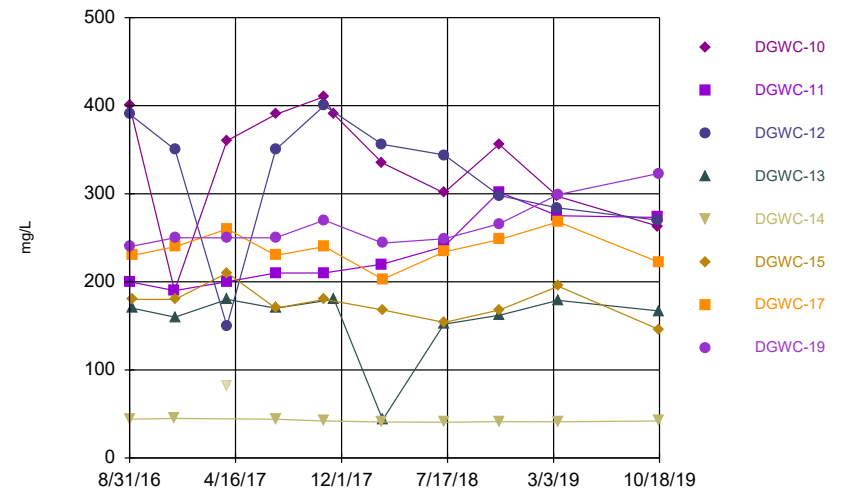
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McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



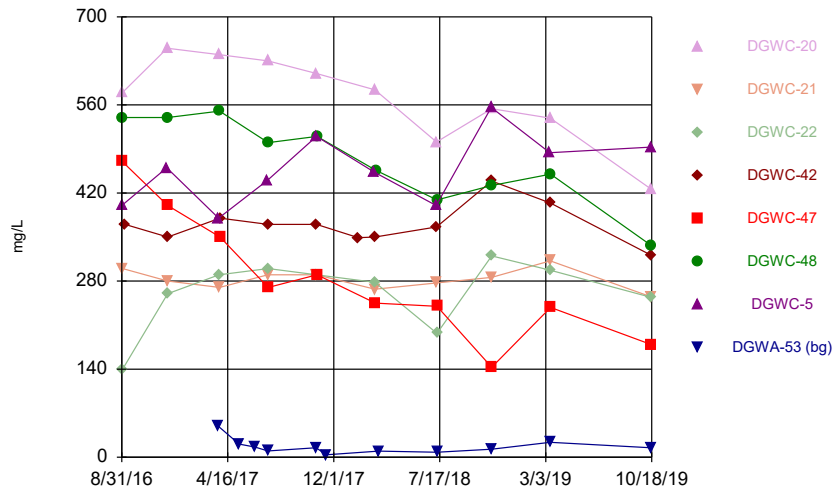
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McDonough Client: Golder Associates Data: McDonough Ash Pond

Time Series



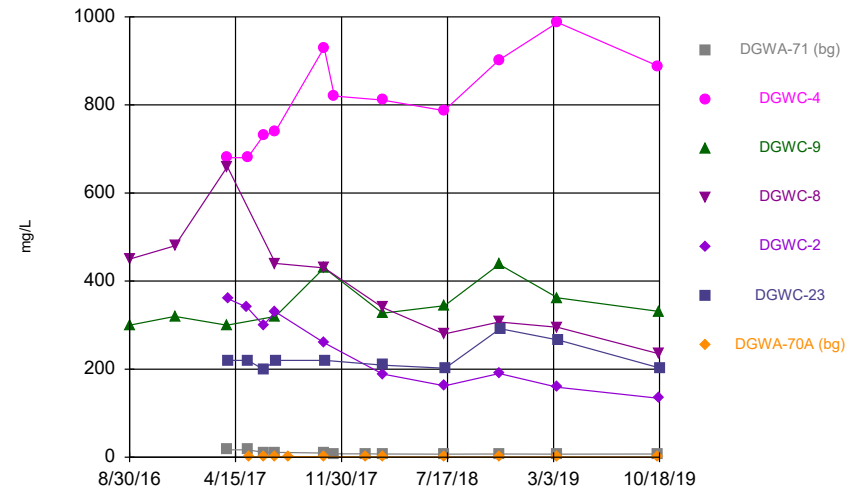
Constituent: Sulfate Analysis Run 2/13/2020 6:13 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

### Time Series



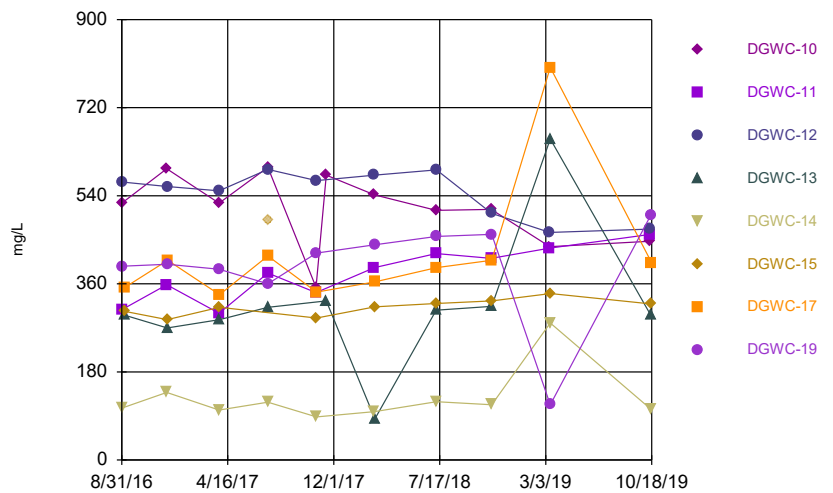
Constituent: Sulfate Analysis Run 2/13/2020 6:13 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

### Time Series



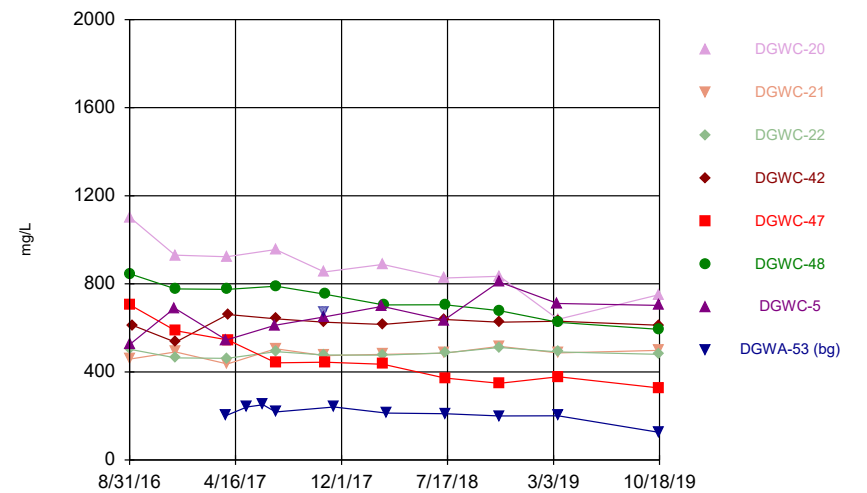
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McDonough Client: Golder Associates Data: McDonough Ash Pond

### Time Series



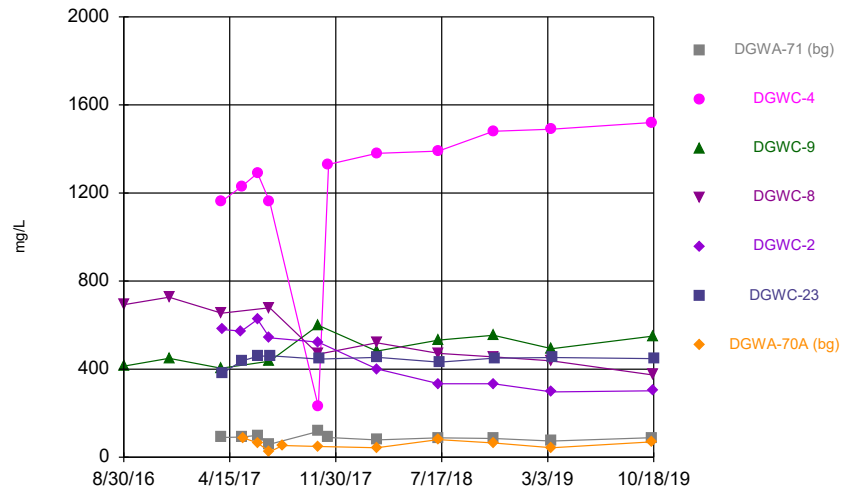
Constituent: TDS Analysis Run 2/13/2020 6:13 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

### Time Series



Constituent: TDS Analysis Run 2/13/2020 6:13 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

### Time Series



Constituent: TDS Analysis Run 2/13/2020 6:13 PM View: APP III\_AP234  
McDonough Client: Golder Associates Data: McDonough Ash Pond

**APPENDIX C**

# Well Installation Report

February 25, 2020

Project No. 166849618

**Mr. John Benjamin Hodges**

Georgia Power Company  
241 Ralph McGill Boulevard, NE  
Atlanta, GA 30308  
JohHodge@southernco.com

**INSTALLATION REPORT FOR SURFACE IMPOUNDMENT PIEZOMETERS – GEORGIA POWER PLANT  
MCDONOUGH, SMRYNA, GEORGIA**

Dear Mr. Hodges:

Golder Associates Inc. (Golder) is submitting this Piezometer Installation Report to Southern Company Services, Inc. (SCS) and Georgia Power Company (GPC), which documents the construction of piezometers at Plant McDonough in Smyrna, Georgia. Piezometer construction activities were performed in general accordance with the standards described in the *RCRA Technical Enforcement Guidance Document (1986)* and the *Georgia Water Wells Standards Act of 1985*. The installation of the piezometers was conducted under the oversight and direction of James Jones, PE and Timothy Richards, PG.

The field activities for this investigation were performed in September 2019 through December 2019. The field work consisted of the installation, development, and water level gauging of eight-teen (18) piezometers; T&PS Civil Field Services conducted a survey of the piezometers on November 7, 2019. A summary of the activities is presented below.

**PIEZOMETER DRILLING AND CONSTRUCTION ACTIVITIES**

Piezometers B-76, B-77, B-78, B-79, B-80, B-81, and B-82 were drilled and installed by Cascade Drilling. Piezometers B-83, B-84, B-85, B-86, B-87, B-88, B-89, B-90, B-91, B-92, and B-93 were drilled and installed by SCS. Cascade Drilling and SCS have a current and valid bond with the Water Wells Standards Advisory Council for the state of Georgia (Appendix A). The drillers' names are provided on the boring/construction diagrams presented in Appendix B.

An experienced Golder geologist was present on site to oversee and record the drilling and piezometer construction under the supervision of a professional geologist registered to practice in Georgia. Drilling methods employed for borehole advancement were sonic drilling, rotary hollow stem auger with collection of Standard Penetration Test (SPT) cores, and HQ rock coring techniques.

The drilling equipment consisted of a Rotosonic 1159, equipped with 6-inch casing, and a CME-550X drilling rig, equipped with 2.25 and 4.25-inch hollow stem augers. During the drilling, SPT core samples were logged in the field for lithologic and geotechnical properties. Rock core was collected at B-85, B-86, and B-89 using a HQ wireline coring device.

Prior to use, and between boreholes, downhole equipment was steam cleaned. The boring (lithologic) logs and piezometer construction records for the newly installed piezometers are included in Appendix B. The construction data are summarized in Table 1, and the locations of the piezometers are provided on Figure 1.

Piezometers were constructed within the borehole using factory-cleaned and sealed Schedule 40 polyvinyl chloride (PVC) products with flush-threaded fittings. Specifically, piezometers were constructed with a 10-foot section of 4-inch outer diameter (OD) and 2-inch inner diameter (ID), flush-threaded, 0.010-inch factory-slotted PVC U-pack screen, with the exception of B-68 and B87. These piezometers were installed with 2-inch PVC screen. The drillers filled the annulus of each U-pack screen section with No. 10 filter sand. In each case, the screen was placed near the bottom of the borehole, with the remainder of the piezometer being constructed from 10-foot sections of 2-inch ID, flush-threaded, PVC casing riser. A flush-threaded PVC end cap placed on the bottom of each piezometer to provide a 0.4-foot sump/sediment trap, and the top of the casing extend approximately six inches below grade. These were covered using either 8-inch round flush mount casings, or 4" stainless steel stickup casings, and a 4-foot by 4-foot by 4-inch concrete pad. The flush mount casings were secured and locked by a steel crossbar. Construction details for the piezometers are shown on the boring/piezometer construction logs in Appendix B. The PVC products used were American Society for Testing and Materials (ASTM) and National Sanitation Foundation (NSF) rated.

Following placement of the piezometer screen and casing, the annular space in each borehole adjacent to the screen was filled with U.S. Standard Sieve size No. 20-40 filter pack sand as appropriate for the formation. The filter pack sand was placed into the borehole and extends approximately 2 feet above each screen. Immediately following placement of the filter pack, the piezometers were pumped using a portable submersible pump for a minimum of one hour or until visibly clear water was discharged. If settling occurred during pumping, additional sand was placed so that the filter sand thickness was approximately 2 feet above the screen. A filter pack seal, composed of approximately 2-3 feet of hydrated time-release coated bentonite pellets, was then placed on top of the filter pack by slowly pouring the material down the borehole and tamping it into place with a tremie pipe. The bentonite was hydrated using potable water and allowed to cure prior to grouting the piezometer.

Following hydration of the bentonite, the remaining annular space was grouted with a Portland cement / bentonite mixture consisting of approximately 30% bentonite, and approximately 10 pounds per gallon, to 3 feet below ground surface using a tremie method. Each piezometer surface was completed as listed above.

## **PIEZOMETER DEVELOPMENT ACTIVITIES**

The newly installed piezometers were developed in accordance with the Monitoring Well Development Procedures prepared by Southern Company Services, Inc. (March 2016). The piezometers were surged using a Waterra inertial pump system and/or a Reclaimer (pneumatic) pump system. During development, water quality measurements of pH, temperature, specific conductance, and turbidity were periodically collected using field-calibrated water quality equipment after the piezometer responded to improving conditions. Development activities were conducted utilizing an In-Situ SmarTroll and a Lamotte 2020we turbidimeter for monitoring water quality measurements. Piezometer development and SmarTroll forms are included in Appendix B and summarized on Table 2. As presented on the development forms, development water volumes removed ranged between 14 gallons and 313 gallons. During development, attempts were made for each piezometer to achieve a turbidity value below 10 nephelometric turbidity units (NTUs).

A full round of water levels for the newly installed and developed piezometers was collected on between January 13, 2020 and January 14, 2020 (Table 3). The measurements were collected using a decontaminated electronic



water level indicator. The surveyed point on the top of the casing was used as reference, and the measurements were recorded to within 0.01 foot.

## PIEZOMETER SURVEY

The newly installed piezometers were surveyed on November 7, 2019, by T&PS Civil Field Services. The survey was completed using LEICA GS14 Antenna and CS15 Sensor with a positional tolerance of 0.10'H:V. Surveyed locations and elevations are presented on the boring/construction diagrams, and a site map showing the locations of the newly installed piezometers is presented in Figure 1.

## CLOSING

We appreciate the opportunity to assist SCS and GPC with this project. Should you have any questions or require additional information, please contact the undersigned at (770) 496-1893.

Sincerely,

**Golder Associates Inc.**



Brian Steele, PG  
*Senior Project Geologist*



Tim Richards, PG  
*Associate & Senior Consultant*



BS/TIR/kld

### Attachments:




- Figure 1: Monitoring Well/Piezometer Location Map
- Table 1: Piezometer Installation Summary
- Table 2: Summary of Piezometer Development Data
- Table 3: Summary of Post-Development Water Level and Survey Data
- Appendix A: Drilling Bonds
- Appendix B: Boring Logs/Construction Diagrams and Development Forms

Figure





**LEGEND**

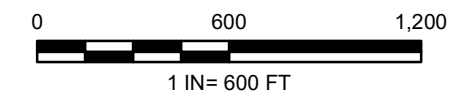
-  PIEZOMETER
-  PERMIT BOUNDARY
-  PROPERTY BOUNDARY

**NOTES**

1. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.

**REFERENCE**

1. AERIAL IMAGE DATED NOVEMBER 2018 FROM GOOGLE EARTH.
2. COORDINATE SYSTEM: NAD 1983 STATE PLANE GEORGIA WEST (U.S. FEET).
3. MONITORING WELL/PIEZOMETER LOCATIONS PROVIDED BY SOUTHERN COMPANY SERVICES.



CLIENT  
 GEORGIA POWER COMPANY  
 PLANT MCDONOUGH  
 PROJECT  
 FIELD SAMPLING PLAN

TITLE  
**PLANT MCDONOUGH MONITORING WELL AND PIEZOMETER LOCATIONS - AP-1 AND AP-2, 3/4**

CONSULTANT	YYYY-MM-DD	2020-02-13
	PREPARED	SEB
	DESIGN	SEB
	REVIEW	--
	APPROVED	--

PROJECT No.  
 166849618

Rev.  
 0

FIGURE  
 2



## Tables

**TABLE 1**  
**Piezometer Installation Summary**  
**Georgia Power Company - Plant McDonough**  
**Atlanta, GA**

Piezometer	Monitoring Well Designation	Driller	Date Well Started	Date Well Completed	Drill Method	Drill Depth (feet-bgs)	Total Well Depth (feet-bgs)	Well Screen Interval (feet-bgs)	Depth to Top of Sand Pack (feet-bgs)	Depth to Top of Annular Seal (feet-bgs)
B-72	B-72	SCS	4/19/2017	4/19/2017	Geoprobe 7822DT	21.9	21.9	11.5 - 21.5	9.8	7.7
B-73	B-73	SCS	4/19/2017	4/19/2017	Geoprobe 7822DT	15.8	15.8	5.4 - 15.4	3.2	0.5
B-74	B-74	SCS	4/24/2017	4/25/2017	Geoprobe 7822DT	16.5	16.2	10.8 - 15.8	9.0	4.8
B-76	B-76	Cascade Drilling	9/16/2019	9/16/2019	Rotosonic 1159	38.5	38.5	28.5 - 38.5	26.5	17.0
B-77	B-77	Cascade Drilling	9/17/2019	9/17/2019	Rotosonic 1159	42.0	42.0	32 - 42	30.0	22.0
B-78	B-78	Cascade Drilling	9/22/2019	9/22/2019	Rotosonic 1159	30.0	30.0	19.5 - 29.5	17.5	9.0
B-79	B-79	Cascade Drilling	9/20/2019	9/21/2019	Rotosonic 1159	35.0	34.93	24.43 - 34.43	22.0	14.0
B-80	B-80	Cascade Drilling	9/20/2019	9/20/2019	Rotosonic 1159	30.0	30.0	19.5 - 29.5	17.5	9.0
B-81	B-81	Cascade Drilling	9/20/2019	9/22/2019	Rotosonic 1159	50.0	50.0	39.67 - 49.67	37.0	17.0
B-82	B-82	Cascade Drilling	9/21/2019	9/21/2019	Rotosonic 1159	45.0	45.0	34.5 - 44.5	32.5	26.5
B-83	B-83	SCS	9/30/2019	9/30/2009	CME550X	50	50	38.6 - 48.6	36.6	30.7
B-84	B-84	SCS	10/1/2019	10/1/2019	CME550X	50	49.5	39.1 - 49.1	36.0	30.6
B-85	B-85	SCS	11/17/2019	11/18/2019	CME550X	34.5	34.5	24.2 - 34.2	21.6	16.6
B-86	B-86	SCS	11/18/1819	11/18/2020	CME550X	34.1	34.1	24.1 - 34.1	22.1	17.0
B-87	B-87	SCS	11/17/2019	11/17/2019	CME550X	42.0	42	31.7 - 41.7	29.2	24.0
B-88	B-88	SCS	11/15/2019	11/15/2019	CME550X	72.4	72.4	62 - 72	60.0	55.0
B-89	B-89	SCS	11/19/2019	11/19/2019	CME550X	49.5	49.5	35.5 - 49.5	33.5	28.5
B-90	B-90	SCS	12/10/2019	12/10/2019	CME550X	33.4	33.4	23.4 - 33.4	21.4	15.4
B-91	B-91	SCS	12/11/2019	12/11/2019	CME550X	35	35	24.6 - 34.6	22.8	17.5
B-92	B-92	SCS	12/11/2019	12/11/2019	CME550X	25.0	25	14.6 - 24.6	12.5	7.5
B-93	B-93	SCS	12/12/2019	12/12/2019	CME550X	29.2	29.2	18.9 - 28.9	16.9	11.9

**NOTES:**

bgs = below ground surface; SCS = Southern Company Services

**TABLE 2**  
**Summary of Piezometer Development Data**  
**Georgia Power Company - Plant McDonough**  
**Atlanta, GA**

Piezometer	Monitoring Well Designation	Date Started	Time Started (hr:min)	Date Completed	Elapsed Time (hr:min)	Development Method	Measured Depth of Well (feet bgs)	Initial Water Level (feet btoc)	Final Water Level (feet btoc)	Volume of Casing (gal)	Total Volume Removed (gal)	pH (SU)	Specific Cond (mS/cm)	Temp (°C)	Turb (NTU)	ORP (mv)	DO (mg/L)
B-72	B-72	5/2/2017	10:04	5/3/2017	14:57	Surging / Pumping	22.2	2.01	2.95	3.10	1074	6.06	0.390	21.60	8.53	42.43	0.66
B-73	B-73	4/26/2017	12:45	4/28/2017	8:57	Surging / Pumping	16.0	4.11	10.66	1.90	113	6.35	0.371	17.40	4.38	89.34	1.92
B-74	B-74	4/28/2017	9:36	4/28/2017	7:48	Surging / Pumping	16.3	3.61	10.42	2.10	76	6.09	0.263	15.70	3.33	55.09	0.27
B-76	B-76	9/17/2019	17:27	9/18/2019	5:54	Surging / Pumping	38.5	18.3	25.4	3.37	59	5.03	1.128	24.47	9.97	125.12	0.56
B-77	B-77	9/18/2019	10:05	9/18/2019	3:40	Surging / Pumping	43.4	32.58	39.62	1.81	14	NA	NA	NA	NA	NA	NA
B-78	B-78	9/23/2019	9:50	9/23/2019	1:54	Surging / Pumping	31.7	9.2	9.9	3.76	85	4.90	1.125	19.73	1.37	322.73	0.31
B-79	B-79	9/21/2019	15:50	9/21/2019	3:05	Surging / Pumping	36.7	5.35	7.71	5.23	61	5.46	1.149	20.78	9.90	NA	NA
B-80	B-80	9/20/2019	13:06	9/20/2019	3:14	Surging / Pumping	30.4	14.8	18.6	2.61	46	5.64	1.290	20.71	2.16	76.9	1.20
B-81	B-81	9/21/2019	9:47	9/21/2019	3:13	Surging / Pumping	50.5	28.9	36.2	3.59	38	6.07	0.750	23.05	5.51	65.8	3.89
B-82	B-82	9/23/2019	11:25	9/23/2019	1:45	Surging / Pumping	49.6	14.66	15.51	5.83	170	6.42	0.557	25.54	11.90	NA	NA
B-83	B-83	10/3/2019	10:15	10/4/2019	11:45	Surging / Pumping	48.8	32.40	32.60	2.75	95	5.53	0.378	24.94	8.82	58.71	0.19
B-84	B-84	10/4/2019	10:45	10/4/2019	5:45	Surging / Pumping	49.4	32.95	39.00	2.75	40	5.85	0.695	24.01	9.58	62.8	0.5
B-85	B-85	11/20/2019	10:30	11/20/2019	6:16	Surging / Pumping	27.7	6.4	3.1	3.55	127	5.38	1.167	18.39	4.83	34.0	0.12
B-86	B-86	11/20/2019	9:57	11/20/2019	5:05	Surging / Pumping	35.8	4.5	5.4	5.23	317	5.42	1.122	18.75	4.38	76.1	0.49
B-87	B-87	11/21/2019	10:25	11/21/2019	3:00	Surging / Pumping	45.0	16.51	34.59	4.76	150	5.86	2.020	17.49	20.10	NA	NA
B-88	B-88	11/21/2019	10:30	11/21/2019	5:45	Surging / Pumping	75.1	32.7	33.0	7.08	286	5.55	1.320	17.72	3.27	69.4	0.41
B-89	B-89	11/22/2019	9:10	11/22/2019	3:03	Surging / Pumping	48.9	23.2	24.0	4.29	183	5.73	0.457	20.14	0.38	51.5	2.44
B-90	B-90	12/14/2019	8:00	12/14/2019	4:45	Surging / Pumping	33.0	1.2	11.1	5.31	137	5.63	1.207	18.34	4.29	86.5	0.45
B-91	B-91	12/15/2019	12:17	12/15/2019	4:35	Surging / Pumping	35.2	3.4	11.1	5.32	313	5.30	1.175	18.40	6.38	124.3	0.68
B-92	B-92	12/16/2019	14:39	12/16/2019	1:05	Surging / Pumping	24.8	4.6	9.2	3.38	162	4.88	0.971	18.53	4.02	341.1	0.58
B-93	B-93	12/16/2019	14:58	12/17/2019	6:59	Surging / Pumping	29.3	6.85	15.10	3.75	33	5.75	1.149	17.92	3.07	NA	NA

**NOTES:**

hr:min - hours:minutes; bgs - below ground surface; btoc - below top of casing; gal - gallons; SU - Standard Units; mS/cm - millisiemens per centimeter; °C - degrees Celsius; NTU - nephelometric turbidity units; mv - millivolts; mg/L - milligrams per liter; Cond - conductivity; Temp - temperature; Turb - turbidity; ORP - oxygen reduction potential; DO - dissolved oxygen; NA - not available

**TABLE 3**  
**Summary of Post Development Water Level and Survey Data**  
**Georgia Power Company - Plant McDonough**  
**Atlanta, GA**

Piezometer	Monitoring Well Designation	Survey Date	Water Level Date	Water Level	Water Elevation	NAD 83 Northing	NAD 83 Easting	Latitude	Longitude	Elevation Top of Casing	Ground Surface Elevation
				(feet BTOC)	(feet MSL)	(feet)	(feet)	(dd)	(dd)	(feet MSL)	(feet MSL)
B-72	B-72	5/15/2017	5/4/2017	2.78	756.07	1391242.15	2200723.92	33.824208	-84.4823130	758.85	758.63
B-73	B-73	5/15/2017	5/2/2017	4.15	755.31	1391352.40	2200697.45	33.824511	-84.4824020	759.46	759.20
B-74	B-74	5/15/2017	5/3/2017	3.7	755.71	1391279.82	2200665.34	33.8243110	-84.4825070	759.44	759.38
B-76	B-76	11/7/2019	1/14/2020	13.91	746.40	1390716.87	2202755.99	33.8227814	-84.4756169	760.31	760.54
B-77	B-77	11/7/2019	1/13/2020	28.5	748.25	1390949.76	2202941.41	33.8234230	-84.4750087	776.75	777.06
B-78	B-78	11/7/2019	1/13/2020	9.05	781.60	1394327.62	2202958.92	33.8327061	-84.4749843	790.65	787.31
B-79	B-79	11/7/2019	1/13/2020	5.92	782.63	1394458.16	2203223.80	33.8330670	-84.4741134	788.55	785.50
B-80	B-80	11/7/2019	1/13/2020	16.48	787.97	1394373.86	2203534.26	33.8328379	-84.4730901	804.45	801.52
B-81	B-81	11/7/2019	1/13/2020	31.39	789.12	1394366.17	2203741.53	33.8328185	-84.4724075	820.51	816.75
B-82	B-82	11/7/2019	1/13/2020	8.9	801.08	1393750.42	2204256.96	33.8311305	-84.4707042	809.98	807.15
B-83	B-83	11/7/2019	1/13/2020	28.75	748.14	1390736.31	2202695.17	33.8228343	-84.4758174	776.89	777.05
B-84	B-84	11/7/2019	1/14/2020	30.12	746.12	1390411.65	2202242.51	33.8219384	-84.4773046	776.24	776.27
B-85	B-85	11/7/2019	1/13/2020	2.27	780.40	1394433.14	2203135.02	33.8329975	-84.4744055	782.67	782.80
B-86	B-86	11/7/2019	1/13/2020	0.91	783.49	1394479.84	2203207.19	33.8331265	-84.4741683	784.40	784.50
B-87	B-87	11/7/2019	1/13/2020	15.56	787.98	1394401.16	2203531.64	33.8329129	-84.4730990	803.54	800.40
B-88	B-88	11/7/2019	1/13/2020	31.47	788.64	1394400.23	2203738.46	33.8329120	-84.4724180	820.11	816.60
B-89	B-89	11/7/2019	1/13/2020	21.78	800.72	1394399.07	2204048.84	33.8329114	-84.4713958	822.50	822.50
B-90	B-90	11/7/2019	1/14/2020	0.88	783.30	1394500.73	2203212.95	33.8331839	-84.4741495	784.18	784.20
B-91	B-91	11/7/2019	1/14/2020	2.90	780.17	1394447.87	2203124.30	33.8330379	-84.4744409	783.07	783.10
B-92	B-92	11/7/2019	1/14/2020	3.88	781.34	1394393.54	2203026.60	33.8328878	-84.4747621	785.22	785.30
B-93	B-93	11/7/2019	1/14/2020	4.86	784.28	1394348.37	2202947.29	33.8327630	-84.4750228	789.14	789.20

**NOTES:**

BTOC = below top of casing; MSL = mean sea level; NAD = North American Datum; dd = decimal degrees

Survey data collected by T&PS Civil Field Services, November 7, 2019; Georgia NAD83 West Zone

**APPENDIX A**

## Drilling Bond



**CLIENT'S COPY**

**SURETY BOND CONTINUATION CERTIFICATE**

TO: State of Georgia  
Division of Environmental Protection  
2 Martin Luther King Jr. Drive SE  
Suite 1252  
Atlanta, GA 30334

To be attached to and form a part of: Performance Bond for Well Contractors and Drillers

Principal on the Bond: Michael C. Rice/Cascade Drilling, L.P.

Surety Bond Number: K08315607

Bond Amount: Twenty Thousand and 00/100 Dollars ( \$20,000.00)

In consideration of the agreed premium charged for this bond, it is understood and agreed that the following change shall be made to this obligation:

**[ x ] CONTINUATION CERTIFICATE**

This certificate extends the life of the bond to June 30, 2017. It is executed upon the express condition that the surety's liability under said bond, together with this and all previous continuation certificates, shall not be cumulative and shall in no event exceed the amount specifically set forth in said bond or any existing certificate changing the amount of said bond.

Signed, sealed and dated this 26th day of May , 2015 .

Westchester Fire Insurance Company

By: Katie J

Katie Snider, Attorney-in-Fact

Surety of Record: Westchester Fire Insurance Company  
436 Walnut Street  
Philadelphia, PA 19106  
Phone: (415) 547-4513

Agent of Record: Kibble & Prentice, a USI Company  
601 Union Street, Suite 1000  
Seattle, WA 98101  
Phone: (206) 441-6300



# Power of Attorney

## WESTCHESTER FIRE INSURANCE COMPANY

Know all men by these presents: That WESTCHESTER FIRE INSURANCE COMPANY, a corporation of the Commonwealth of Pennsylvania pursuant to the following Resolution, adopted by the Board of Directors of the said Company on December 11, 2006, to wit:

"RESOLVED, that the following authorizations relate to the execution, for and on behalf of the Company, of bonds, undertakings, recognizances, contracts and other written commitments of the Company entered into the ordinary course of business (each a "Written Commitment"):

- (1) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise.
- (2) Each duly appointed attorney-in-fact of the Company is hereby authorized to execute any Written Commitment for and on behalf of the Company, under the seal of the Company or otherwise, to the extent that such action is authorized by the grant of powers provided for in such persons written appointment as such attorney-in-fact.
- (3) Each of the Chairman, the President and the Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to appoint in writing any person the attorney-in-fact of the Company with full power and authority to execute, for and on behalf of the Company, under the seal of the Company or otherwise, such Written Commitments of the Company as may be specified in such written appointment, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (4) Each of the Chairman, the President and Vice Presidents of the Company is hereby authorized, for and on behalf of the Company, to delegate in writing any other officer of the Company the authority to execute, for and on behalf of the Company, under the Company's seal or otherwise, such Written Commitments of the Company as are specified in such written delegation, which specification may be by general type or class of Written Commitments or by specification of one or more particular Written Commitments.
- (5) The signature of any officer or other person executing any Written Commitment or appointment or delegation pursuant to this Resolution, and the seal of the Company, may be affixed by facsimile on such Written Commitment or written appointment or delegation.

FURTHER RESOLVED, that the foregoing Resolution shall not be deemed to be an exclusive statement of the powers and authority of officers, employees and other persons to act for and on behalf of the Company, and such Resolution shall not limit or otherwise affect the exercise of any such power or authority otherwise validly granted or vested.

Does hereby nominate, constitute and appoint Heather Allen, Holly E Ulfers, Katie Snider, Nancy N Hill, Roxana Palacios, Steven W Palmer, all of the City of SEATTLE, Washington, each individually if there be more than one named, its true and lawful attorney-in-fact, to make, execute, seal and deliver on its behalf, and as its act and deed any and all bonds, undertakings, recognizances, contracts and other writings in the nature thereof in penalties not exceeding Fifteen million dollars & zero cents (\$15,000,000.00) and the execution of such writings in pursuance of these presents shall be as binding upon said Company, as fully and amply as if they had been duly executed and acknowledged by the regularly elected officers of the Company at its principal office,

IN WITNESS WHEREOF, the said Stephen M. Haney, Vice-President, has hereunto subscribed his name and affixed the Corporate seal of the said WESTCHESTER FIRE INSURANCE COMPANY this 22 day of December 2014.

WESTCHESTER FIRE INSURANCE COMPANY



*Stephen M. Haney*  
Stephen M. Haney, Vice President

COMMONWEALTH OF PENNSYLVANIA  
COUNTY OF PHILADELPHIA

ss.

On this 22 day of December, AD. 2014 before me, a Notary Public of the Commonwealth of Pennsylvania in and for the County of Philadelphia came Stephen M. Haney, Vice-President of the WESTCHESTER FIRE INSURANCE COMPANY to me personally known to be the individual and officer who executed the preceding instrument, and he acknowledged that he executed the same, and that the seal affixed to the preceding instrument is the corporate seal of said Company; that the said corporate seal and his signature were duly affixed by the authority and direction of the said corporation, and that Resolution, adopted by the Board of Directors of said Company, referred to in the preceding instrument, is now in force.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my official seal at the City of Philadelphia the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
NOTARIAL SEAL  
KAREN E. BRANDT, Notary Public  
City of Philadelphia, Phila. County  
My Commission Expires Sept. 26, 2018

*Karen E. Brandt*  
Notary Public

I, the undersigned Assistant Secretary of the WESTCHESTER FIRE INSURANCE COMPANY, do hereby certify that the original POWER OF ATTORNEY, of which the foregoing is a substantially true and correct copy, is in full force and effect.

In witness whereof, I have hereunto subscribed my name as Assistant Secretary, and affixed the corporate seal of the Corporation, this 26<sup>th</sup> day of May, 2015.



*William L. Kelly*  
William L. Kelly, Assistant Secretary

THIS POWER OF ATTORNEY MAY NOT BE USED TO EXECUTE ANY BOND WITH AN INCEPTION DATE AFTER December 22, 2016.





CONTINUATION  
CERTIFICATE

SAFECO Insurance Company of America

, Surety upon

a certain Bond No. 4993104

dated effective June 30, 1987  
(MONTH-DAY-YEAR)

on behalf of Southern Company Services, Inc.  
(PRINCIPAL)

and in favor of Georgia - Dept. of Natural Resources  
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2016  
(MONTH-DAY-YEAR)

and ending on June 30, 2017  
(MONTH-DAY-YEAR)

Amount of bond \$10,000.00

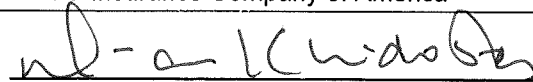
Description of bond Water Well Contractors & Drillers

**PROVIDED:** That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on April 07, 2016  
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By



D-Ann Kleidosty, Attorney-in-Fact

**THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.**

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7310252

First National Insurance Company of America  
General Insurance Company of America  
Safeco Insurance Company of America

**POWER OF ATTORNEY**

KNOWN ALL PERSONS BY THESE PRESENTS: That First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; William G. Moody

all of the city of Atlanta, state of GA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 1st day of April, 2016.



First National Insurance Company of America  
General Insurance Company of America  
Safeco Insurance Company of America

By: David M. Carey  
David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

STATE OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 1st day of April, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Plymouth Twp., Montgomery County  
My Commission Expires March 28, 2017  
Member, Pennsylvania Association of Notaries

By: Teresa Pastella  
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-law and Authorizations of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

**ARTICLE IV - OFFICERS** - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

**Certificate of Designation** - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

**Authorization** - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary, of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 7th day of April, 2016.



By: Gregory W. Davenport  
Gregory W. Davenport, Assistant Secretary

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

CONTINUATION  
CERTIFICATE

SAFECO Insurance Company of America

, Surety upon

a certain Bond No. 4993104

dated effective June 30, 1987  
(MONTH-DAY-YEAR)

on behalf of Southern Company Services, Inc.  
(PRINCIPAL)

and in favor of Georgia - Dept. of Natural Resources  
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2016  
(MONTH-DAY-YEAR)

and ending on June 30, 2017  
(MONTH-DAY-YEAR)

Amount of bond \$10,000.00

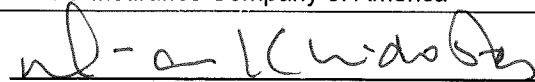
Description of bond Water Well Contractors & Drillers

**PROVIDED:** That this continuation certificate does not create a new obligation and is executed upon the express condition and provision that the Surety's liability under said bond and this and all Continuation Certificates issued in connection therewith shall not be cumulative and that the said Surety's aggregate liability under said bond and this and all such Continuation Certificates on account of all defaults committed during the period (regardless of the number of years) said bond had been and shall be in force, shall not in any event exceed the amount of said bond as hereinbefore set forth.

Signed and dated on April 07, 2016  
(MONTH-DAY-YEAR)

SAFECO Insurance Company of America

By



D-Ann Kleidosty, Attorney-in-Fact

**THIS POWER OF ATTORNEY IS NOT VALID UNLESS IT IS PRINTED ON RED BACKGROUND.**

This Power of Attorney limits the acts of those named herein, and they have no authority to bind the Company except in the manner and to the extent herein stated.

Certificate No. 7310252

First National Insurance Company of America  
General Insurance Company of America  
Safeco Insurance Company of America

**POWER OF ATTORNEY**

KNOWN ALL PERSONS BY THESE PRESENTS: That First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America are corporations duly organized under the laws of the State of New Hampshire (herein collectively called the "Companies"), pursuant to and by authority herein set forth, does hereby name, constitute and appoint, Brooke A. Sharp; Christine Doczy; D-Ann Kleidosty; Gary D. Eklund; Sharon J. Potts; Sylvia M. Ogle; William G. Moody

all of the city of Atlanta, state of GA each individually if there be more than one named, its true and lawful attorney-in-fact to make, execute, seal, acknowledge and deliver, for and on its behalf as surety and as its act and deed, any and all undertakings, bonds, recognizances and other surety obligations, in pursuance of these presents and shall be as binding upon the Companies as if they have been duly signed by the president and attested by the secretary of the Companies in their own proper persons.

IN WITNESS WHEREOF, this Power of Attorney has been subscribed by an authorized officer or official of the Companies and the corporate seals of the Companies have been affixed thereto this 1st day of April, 2016.



First National Insurance Company of America  
General Insurance Company of America  
Safeco Insurance Company of America

By: David M. Carey  
David M. Carey, Assistant Secretary

Not valid for mortgage, note, loan, letter of credit, currency rate, interest rate or residual value guarantees.

STATE OF PENNSYLVANIA ss  
COUNTY OF MONTGOMERY

On this 1st day of April, 2016, before me personally appeared David M. Carey, who acknowledged himself to be the Assistant Secretary of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, and that he, as such, being authorized so to do, execute the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed my notarial seal at Plymouth Meeting, Pennsylvania, on the day and year first above written.



COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Teresa Pastella, Notary Public  
Plymouth Twp., Montgomery County  
My Commission Expires March 28, 2017  
Member, Pennsylvania Association of Notaries

By: Teresa Pastella  
Teresa Pastella, Notary Public

This Power of Attorney is made and executed pursuant to and by authority of the following By-law and Authorizations of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America, which are now in full force and effect reading as follows:

**ARTICLE IV - OFFICERS** - Section 12. Power of Attorney. Any officer or other official of the Corporation authorized for that purpose in writing by the Chairman or the President, and subject to such limitation as the Chairman or the President may prescribe, shall appoint such attorneys-in-fact, as may be necessary to act in behalf of the Corporation to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations. Such attorneys-in-fact, subject to the limitations set forth in their respective powers of attorney, shall have full power to bind the Corporation by their signature and executed, such instruments shall be as binding as if signed by the President and attested to by the Secretary. Any power or authority granted to any representative or attorney-in-fact under the provisions of this article may be revoked at any time by the Board, the Chairman, the President or by the officer or officers granting such power or authority.

**Certificate of Designation** - The President of the Company, acting pursuant to the Bylaws of the Company, authorizes David M. Carey, Assistant Secretary to appoint such attorneys-in-fact as may be necessary to act on behalf of the Company to make, execute, seal, acknowledge and deliver as surety any and all undertakings, bonds, recognizances and other surety obligations.

**Authorization** - By unanimous consent of the Company's Board of Directors, the Company consents that facsimile or mechanically reproduced signature of any assistant secretary of the Company, wherever appearing upon a certified copy of any power of attorney issued by the Company in connection with surety bonds, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

I, Gregory W. Davenport, the undersigned, Assistant Secretary, of First National Insurance Company of America, General Insurance Company of America, and Safeco Insurance Company of America do hereby certify that the original power of attorney of which the foregoing is a full, true and correct copy of the Power of Attorney executed by said Companies, is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 7th day of April, 2016.



By: Gregory W. Davenport  
Gregory W. Davenport, Assistant Secretary

To confirm the validity of this Power of Attorney call 1-610-832-8240 between 9:00 am and 4:30 pm EST on any business day.

GENERAL PURPOSE RIDER

To be attached to and form part of Bond Number 09157828 effective June 30, 2015 issued by the Fidelity and Deposit Company of Maryland in the amount of Twenty Thousand and No/100 (\$20,000.00), on behalf of Craig Penton dba Terracon Consultants, Inc. as Principal, and in favor of Director of the Environmental Protection Division, Department of Natural Resources, State of Georgia as Obligee:

NOW Therefore, it is agreed that:

**The expiration date of the bond is hereby amended to:**

**June 30, 2017**

It is further understood and agreed that all other terms and conditions of this bond shall remain unchanged.

This rider is to be effective the 30th day of June , 2015 .

Signed, sealed and dated this 4th day of November , 2015 .

Craig Penton dba Terracon Consultants, Inc.  
Principal

\_\_\_\_\_

Fidelity and Deposit Company of Maryland  
Surety

\_\_\_\_\_

Christy M. Braile, Attorney-in-Fact

6/4/14 sent to  
Craig Penton  
(Stacy Adams)

FOR YOUR RECORDS

Bond Number 09157828

**Performance Bond For Water Well Contractors And Drillers**

Name of Water Well Contractor or Driller Craig Penton dba Terracon Consultants, Inc.

Know All Men By These Present

That we Craig Penton dba Terracon Consultants, Inc. AND ANY AND ALL EMPLOYEES, OFFICERS AND PARTNERS, as Principal, and Fidelity and Deposit Company of Maryland as Surety, are held and firmly bound unto the Director of the Environmental Protection Division (Director), Department of Natural Resources, State of Georgia and his or her Successor or Successors in office, as Obligee, in the full sum of **TWENTY THOUSAND AND NO/00 DOLLARS (\$20,000.00)** for the payment of which will and truly to be made, we bind ourselves, our heir, administrators, successors and assigns, jointly and severally, by the present.

WHEREAS, the WATER WELL STANDARDS ACT OF 1985 (Ga. Laws 1985, p. 1192) (the "ACT") requires that water well contractors and drillers file performance bonds with the director to ensure compliance with the ACT; and WHEREAS the above bound PRINCIPAL is subject to the terms and provisions of said ACT. NOW, THEREFORE, the conditions of this obligation are such that if the above bound PRINCIPAL shall fully and faithfully perform the duties and in all things comply with the procedures and standards set forth in the ACT as now and hereafter amended, and the rules and regulations promulgated pursuant thereto, including but not limited to the correction of any violation of such procedures and standards upon discovery, irrespective of whether such discovery is made before completion of any well subject to this bond, then this obligation shall be void; otherwise of full force and effect.

And Surety, for value received, agrees that no amendment to existing laws, rules or regulations, or adoption of new laws, rules or regulations shall in anyway discharge its obligation on this bond, and does hereby waive notice of any such amendment, adoption or modification.

This bond shall be effective from date of issuance and shall continue in effect until terminated by expiration, mutual agreement or cancellation upon sixty (60) days written notice to Principal and Obligee; provided that the rights of the obligee and beneficiaries under this bond which arose prior to such termination shall continue.

The bond is effective June 4, 2014 and unless sooner terminated, this bond shall terminate June 30, 2015. In Witness Thereof the Principal and Surety have caused these present to be duly signed and sealed, this 4th day of, June 2014.

PRINCIPAL, BY \_\_\_\_\_ (L.S.) TITLE: \_\_\_\_\_

SURETY BY: Christy M. McCart, Attorney-in-Fact

GEORGIA REGISTERED AGENT N/A SEAL:

Revised December 2012



**APPENDIX B**

**Boring Logs/Construction Diagrams  
and Development Forms**

# RECORD OF BOREHOLE B-72

SHEET 1 of 1

PROJECT: SCS-Plant McDonough  
 PROJECT NUMBER: 1779172  
 DRILLED DEPTH: 21.90 ft  
 LOCATION: ~50' SSE of B-68

DRILL RIG: Geoprobe 7822DT  
 DATE STARTED: 4/19/17  
 DATE COMPLETED: 4/19/17

NORTHING: 1,391,242.15  
 EASTING: 220,723.92  
 GS ELEVATION: 758.09  
 TOC ELEVATION: 758.85 ft

DEPTH W.L.: 2.90  
 DATE W.L.: 5/2/2017  
 TIME W.L.: 09:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE
0		0.00 - 5.00 ML, SILT, with trace fine sand and gravels (rock fragments), low plasticity; brown; cohesive, moist, w<PL, soft.	ML							<p>8" Diameter Round Flush Mount</p> <p>Pure Gold Grout Mixture</p> <p>Pel-Plug 3/8" Bentonite Pellets</p> <p>FilterSil gravel pack</p> <p>Pre-pack 0.010" Slotted Schedule PVC</p>	<p><b>WELL CASING</b> Interval: 0' - 21.9' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p><b>SURFACE CASING</b> Interval: Material: Diameter:</p> <p><b>WELL SCREEN</b> Interval: 11.5' - 21.5' Material: Schedule 40 PVC Pre-Pack Diameter: 2" Slot Size: 0.010" End Cap: 21.5' - 21.9'</p> <p><b>FILTER PACK</b> Interval: 9.8' - 21.9' Type: FilterSil gravel pack</p> <p><b>FILTER PACK SEAL</b> Interval: 7.7' - 9.8' Type: Pel-Plug 3/8" Bentonite Pellets</p> <p><b>ANNULUS SEAL</b> Interval: 0' - 7.7' Type: Pure Gold Grout Mixture</p> <p><b>WELL COMPLETION</b> Pad: 4' x 4' concrete Protective Casing: 8" Diameter Round Flush Mount</p> <p><b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID HSA Rock Drill: N/A</p> <p><b>NOTES</b></p>
5	753.09	5.00 - 13.50 SP-SM, Poorly-graded SAND with Silt, fine, low plasticity; red-orange brown, relic structure, highly micaceous; cohesive, wet, w<PL, very soft.	SP-SM								
15	744.59	13.50 - 18.50 SM, Silty SAND with trace fine gravels, non-plastic to low plasticity; dark brown to dark gray, highly micaceous; non-cohesive, dry to moist, w<PL, compact.	SM		S1	OD	25-50/3	50/3	0.75 1.50		
20	739.59	18.50 - 21.50 ML, SILT, with trace sand and large gravels, low plasticity; brown to dark gray black, saprolitic, highly micaceous, gneiss; cohesive, wet, w<PL, soft to firm.	ML		S2	OD	17-34-8	42	1.50 1.50		
21.90	736.59	Boring completed at 21.90 ft									

BOREHOLE RECORD 1779172.GPJ PIEDMONT.GDT 5/18/17

LOG SCALE: 1 in = 5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG  
 CHECKED BY: Rachel Kirkman, PG  
 DATE: 5/17/17



# RECORD OF BOREHOLE B-73

SHEET 1 of 1

PROJECT: SCS-Plant McDonough  
 PROJECT NUMBER: 1779172  
 DRILLED DEPTH: 15.80 ft  
 LOCATION: ~50' NNW of B-68

DRILL RIG: Geoprobe 7822DT  
 DATE STARTED: 4/19/17  
 DATE COMPLETED: 4/19/17

NORTHING: 1,391,352.40  
 EASTING: 2,200,697.45  
 GS ELEVATION: 758.85  
 TOC ELEVATION: 759.46 ft

DEPTH W.L.: 4.11  
 DATE W.L.: 4/26/2017  
 TIME W.L.: 12:00

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE
0	758.85	0.00 - 8.50 SP-SM, Poorly-graded SAND with Silt, non-plastic; red-orange brown; non-chesive, dry to moist, w<PL, loose.	SP-SM	[Graphic Log: Dotted pattern]						8" Diameter Round Flush Mount Pure Gold Grout Mixture Pel-Plug 3/8" Bentonite Pellets	<b>WELL CASING</b> Interval: 0' - 15.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>SURFACE CASING</b> Interval: Material: Diameter:  <b>WELL SCREEN</b> Interval: 5.4' - 15.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 15.4' - 15.8'  <b>FILTER PACK</b> Interval: 3.2' - 15.8' Type: FilterSil  <b>FILTER PACK SEAL</b> Interval: 0.5' - 3.2' Type: Pel-Plug 3/8" Bentonite Pellets  <b>ANNULUS SEAL</b> Interval: 0 - 0.5' Type: Pure Gold Grout Mixture  <b>WELL COMPLETION</b> Pad: 4' x 4' concrete Protective Casing: 8" Diameter Round Flush Mount  <b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID HSA Rock Drill: N/A  <b>NOTES</b>
755	755.35										
750	750.35	8.50 - 9.50 CL, CLAY, with some silt, low plasticity; red brown; cohesive, moist, w<PL, soft.	CL	[Graphic Log: Diagonal lines]	S1	OD	1-8-15	23	1.50	Pre-pack 0.010" Slotted Schedule PVC	
745	749.35	9.50 - 15.50 SP-SM, Poorly-graded SAND with Silt, non-plastic to low plasticity; white to dark gray, Saprolitic; non-chesive, dry to moist, w<PL, compact to dense.	SP-SM	[Graphic Log: Dotted pattern]							
740	743.35				S2	OD	12-29-35	64	1.50	FilterSil gravel pack	
15.80	15.50	Boring completed at 15.80 ft									

BOREHOLE RECORD 1779172.GPJ PIEDMONT.GDT 5/18/17

LOG SCALE: 1 in = 5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG  
 CHECKED BY: Rachel Kirkman, PG  
 DATE: 5/17/17



# RECORD OF BOREHOLE B-74

SHEET 1 of 1

PROJECT: SCS-Plant McDonough  
 PROJECT NUMBER: 1779172  
 DRILLED DEPTH: 16.50 ft  
 LOCATION: ~50' West of B-68

DRILL RIG: Geoprobe 7822DT  
 DATE STARTED: 4/24/17  
 DATE COMPLETED: 4/25/17

NORTHING: 1,391,279.82  
 EASTING: 2,200,665.34  
 GS ELEVATION: 758.96  
 TOC ELEVATION: 759.44 ft

DEPTH W.L.: 3.3'  
 DATE W.L.: 4/25/2017  
 TIME W.L.: 09:37

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0		0.00 - 4.00 CL, CLAY, with some silt, low plasticity; red brown, fill; cohesive, moist, w<PL, soft.	CL		754.96 4.00							<b>WELL CASING</b> Interval: 0' - 16.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>SURFACE CASING</b> Interval: Material: Diameter:
5		4.00 - 13.50 SP-SM, Poorly-graded SAND with Silt and trace gravel, fine to coarse, non-plastic; white to tan, deeply weathered, granitic; non-cohesive, moist, w<PL, loose/soft.	SP-SM			S1	OD	3-18-20	38	0.75 1.50		<b>WELL SCREEN</b> Interval: 10.8' - 15.8' Material: Pre-pack Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: 15.8' - 16.2'  <b>FILTER PACK</b> Interval: 9.0' - 16.5' Type: FilterSil gravel pack  <b>FILTER PACK SEAL</b> Interval: 4.8' - 9.0' Type: Pel-Plug 3/8" Bentonite Pellets
10		13.50 - 16.50 SM, Silty SAND, non-plastic; white to light gray; non-cohesive, dry to moist, w<PL, dense.	SM		745.46 13.50	S2	OD	50/3	50/3	0.25 1.50		<b>ANNULUS SEAL</b> Interval: 0' - 4.8' Type: Pure Gold Grout Mixture  <b>WELL COMPLETION</b> Pad: 4' x 4' concrete Protective Casing: 8" Diameter Round Flush Mount  <b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID HSA Rock Drill: N/A  <b>NOTES</b> N/A
15		Boring completed at 16.50 ft			742.46							
20												
25												
30												
35												
40												

BOREHOLE RECORD: 1779172.GPJ\_PIEDMONT.GDT 5/18/17

LOG SCALE: 1 in = 5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: Michael Boatman PG  
 CHECKED BY: Rachel Kirkman, PG  
 DATE: 5/17/17



# RECORD OF BOREHOLE B-76

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 38.50 ft  
 LOCATION: South by river, SE of B-83

DRILL RIG: Rotasonic 1159  
 DATE STARTED: 9/16/19  
 DATE COMPLETED: 9/16/19

NORTHING: 1,390,716.87  
 EASTING: 2,202,755.99  
 GS ELEVATION: 760.54  
 TOC ELEVATION: 760.31 ft

DEPTH W.L.: 13.91  
 DATE W.L.: 11/14/2020  
 TIME W.L.: 12:05  
 GW ELEVATION: 746.40

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	760	0.00 - 11.00 Hydrovac, no soil recovery due to Hydrovac								<p><b>WELL CASING</b> Interval: 0'-28.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p><b>WELL SCREEN</b> Interval: 28.5'-38.5' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p><b>FILTER PACK</b> Interval: 26.5'-38.5' Type: Filter Media</p> <p><b>FILTER PACK SEAL</b> Interval: 17.0'-26.5' Type: PEL-PLUG 3/8"</p> <p><b>ANNULUS SEAL</b> Interval: 0'-17.0' Type: AquaGuard Bentonite Grout</p> <p><b>WELL COMPLETION</b> Pad: Protective Casing: 4" Stainless Steel</p> <p><b>DRILLING METHODS</b> Soil Drill: Sonic Rock Drill: Sonic</p>
5	755									
10	750	11.00 - 19.00 Gravelly SILT, trace clay and sand, cohesive, low plasticity, moist to wet, w<PL, stiff.	ML		749.54 11.00	S1	ROTO SONIC	3.60 8.00		
15	745									
20	740	19.00 - 30.00 Gravelly CLAY, some fine sand, trace silt, cohesive, medium to high plasticity, wet, w> PL, soft, brown.	CL-CH		741.54 19.00	S2	ROTO SONIC	7.30 11.00		
25	735									
30	730	30.00 - 38.50 Silty CLAY, trace weathered rock, cohesive, moderate plasticity, w~PL, wet, soft to firm, brown. PWR from 37.5 to 38.5	CL-ML		730.54 30.00	S3	ROTO SONIC	7.00 7.50		
35	725									
40	720	Boring completed at 38.50 ft			722.04			0.010" Slotted Schedule 40 PVC		

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Cascade Drilling  
 DRILLER: Jose

GA INSPECTOR: D. Thomas  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/10/20



# RECORD OF BOREHOLE B-77

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 42.00 ft  
 LOCATION: South by river, SW of B-63

DRILL RIG: Rotasonic 1159  
 DATE STARTED: 9/17/19  
 DATE COMPLETED: 9/17/19

NORTHING: 1,390,949.76  
 EASTING: 2,202,941.41  
 GS ELEVATION: 777.06  
 TOC ELEVATION: 776.75 ft

DEPTH W.L.: 28.50  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 14:39  
 GW ELEVATION: 748.25

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	775	0.00 - 8.00 Hydrovac, no soil recovery due to Hydrovac							AquaGuard Bentonite – Grout	<p><b>WELL CASING</b> Interval: 0'-32' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p><b>WELL SCREEN</b> Interval: 32'-42' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p><b>FILTER PACK</b> Interval: 30'-42' Type: Filter Media</p> <p><b>FILTER PACK SEAL</b> Interval: 22'-30' Type: PEL-PLUG 3/8"</p> <p><b>ANNULUS SEAL</b> Interval: 0'-22' Type: AquaGuard Bentonite Grout</p> <p><b>WELL COMPLETION</b> Pad: Protective Casing: 4" Stainless Steel</p> <p><b>DRILLING METHODS</b> Soil Drill: Sonic Rock Drill: Sonic</p>
5	770	8.00 - 10.00 Fill		[Cross-hatched]	769.06 8.00	S1	ROTO SONIC	2.00 2.00		
10	765	10.00 - 20.00 Sandy SILT, trace clay, some gravel, reddish brown, low plasticity, w<PL, moist, firm, cohesive	MLS	[Vertical lines]	767.06 10.00					
15	760				757.06 20.00	S2	ROTO SONIC	8.00 10.00		
20	755	20.00 - 30.00 Sandy SILT, micaceous, trace clay, some gravel, reddish brown, low plasticity, w<PL, moist, firm, cohesive	MLS	[Vertical lines]		S3	ROTO SONIC	4.50 10.00	PEL-PLUG 3/8" Bentonite Pellets	
25	750				747.06 30.00					
30	745	30.00 - 40.00 Silty CLAY, some sand, transitioning from reddish-brown to brownish gray, w~PL, moderate plasticity, moist to wet, soft to firm, cohesive,	CL-ML	[Diagonal lines]		S4	ROTO SONIC	6.20 10.00	#2 FilterSil –	
35	740				737.06 40.00				0.010" Slotted Schedule 40 PVC	
40	735	40.00 - 42.00 Silty CLAY, some sand, transitioning from reddish-brown to brownish gray, w~PL, moderate plasticity, soft to firm, moist to wet, transition to PWR, cohesive	CL-ML	[Diagonal lines]	735.06	S5	ROTO SONIC	2.00 2.00		
45		Boring completed at 42.00 ft								

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Cascade Drilling  
 DRILLER: Jose

GA INSPECTOR: D. Thomas  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



# RECORD OF BOREHOLE B-78

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 30.00 ft  
 LOCATION: South of road on north side of plant property

DRILL RIG: Rotosonic 1159  
 DATE STARTED: 9/22/19  
 DATE COMPLETED: 9/22/19

NORTHING: 1,394,327.62  
 EASTING: 2,202,958.92  
 GS ELEVATION: 787.31  
 TOC ELEVATION: 790.65 ft

DEPTH W.L.: 9.05  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 13:44  
 GW ELEVATION: 781.60

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	785	0.00 - 8.70 Hydrovac							Concrete Surface Completion	<b>WELL CASING</b> Interval: 0.0 - 20.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>WELL SCREEN</b> Interval: 20.0-29.5' Material: Schedule 40 PVC Schedule 40 PVC Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 17.5 - 30.0 Type: 20/40 FilterSil  <b>FILTER PACK SEAL</b> Interval: 9.0 - 17.5' Type: Pel-Plug 3/8" Bentonite Pellets  <b>ANNULUS SEAL</b> Interval: 0.4 - 9.0' Type: Baroid 3/8" Bentonite Chips (Holeplug)  <b>WELL COMPLETION</b> Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel  <b>DRILLING METHODS</b> Soil Drill: Sonic Rock Drill: Sonic
5	780				0		0.00 8.70		Baroid 3/8" Bentonite Chips (Holeplug)	
10	775	8.70 - 11.20 (MLS) sandy SILT, low plasticity fines, fine to medium sub-angular sand, trace organics (roots); light brown (5YR 5/6) to Pale Brown (5YR 2/2), residual soil with frequent micaceous minerals present; cohesive, w-PL, soft	MLS		778.61 8.70					
15	770	11.20 - 17.00 (MLS) sandy SILT, non to low plasticity fines, fine sub-angular sand, trace soft (crumbles with pressure from fingers) gravels with relic foliations; pale yellowish brown (10YR 6/2) with light gray (N7) and dark yellowish brown (10YR 4/2) foliations, high	MLS		776.11 11.20	1	ROTO SONIC	11.30 11.30	Pel-Plug 3/8" Bentonite Pellets	
20	765	17.00 - 25.10 (SM) SILTY SAND, fine sub-angular to sub-rounded sand, non-plastic fines, trace fine angular soft (crumbles with pressure from fingers) with relic foliations; pale yellowish brown (10YR 6/2) with very pale orange (10YR 8/2) and dark yellowish brown (10YR	SM		770.31 17.00				20/40 FilterSil - Sandpack	
25	760	25.10 - 30.00 BEDROCK, GNEISS, slightly to moderately weathered (W2 - W3), medium dark gray (N4), with light bluish gray (5B 5/1) and light gray (N7) foliations, fine to medium grained, medium strong rock (R3)	GNEISS		762.21 25.10	3	ROTO SONIC	3.70 5.00	2"ID, 4"OD 0.010 Slot SCH 40 PVC U-Pack Screen	
30	755	Boring completed at 30.00 ft							PVC Cap	

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Cascade Drilling  
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/12/20



# RECORD OF BOREHOLE B-79

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 35.00 ft  
 LOCATION: South of road on north side of plant property

DRILL RIG: Rotasonic 1159  
 DATE STARTED: 9/20/19  
 DATE COMPLETED: 9/21/19

NORTHING: 1,394,458.16  
 EASTING: 2,203,223.80  
 GS ELEVATION: 785.5  
 TOC ELEVATION: 788.55 ft

DEPTH W.L.: 5.92  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 14:26  
 GW ELEVATION: 782.63

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	785	0.00 - 9.20 Hydrovac							Concrete Surface Completion	<b>WELL CASING</b> Interval: 0.0 - 29.43' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>WELL SCREEN</b> Interval: 24.93-34.43' Material: Schedule 40 PVC Schedule 40 PVC Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC
5	780		NA			0		0.00 9.20		
10	775	9.20 - 13.70 (ML) sandy SILT, non to low plasticity fines, fine sand; layered light brown (5YR 5/6) with dark yellowish brown (10YR 4/2) and pale yellowish brown (10YR 6/2) layers, some relic curved laminated layers (relic foliations); non-cohesive, wet, loose	ML		776.3 9.20				Baroid 3/8" Bentonite Chips (Holeplug)	<b>FILTER PACK</b> Interval: 22.0 - 35.0' Type: 20/40 FilterSil  <b>FILTER PACK SEAL</b> Interval: 14.0 - 22.0' Type: Pel-Plug 3/8" Bentonite Pellets  <b>ANNULUS SEAL</b> Interval: 0.4 - 14.0' Type: Baroid 3/8" Bentonite Chips (Holeplug)
15	770	13.70 - 30.00 (SM) silty SAND, fine sub-angular sand, non-plastic fines, some soft (crumbles with pressure from fingers) fine to coarse sub-angular gravels; pale yellowish brown (10YR 6/2) with some light brown (5YR 5/6) iron oxide staining, PWR with frequent micaceous mineral; non-cohesive, wet, loose			771.8 13.70	1	ROTO SONIC	9.20 10.80		
20	765		SM			2	ROTO SONIC	5.00 5.00	Pel-Plug 3/8" Bentonite Pellets	<b>WELL COMPLETION</b> Pad: Protective Casing: 4" Stainless Steel  <b>DRILLING METHODS</b> Soil Drill: Sonic Rock Drill: Sonic
25	760					3	ROTO SONIC	5.00 5.00		
30	755	30.00 - 35.00 (SM) SILTY SAND, fine sub-angular sand, non-plastic fines, trace soft (crumbles with pressure from fingers) fine gravels with some relic foliations; pale yellowish brown (10YR 6/2) to dark yellowish brown (10YR 4/2) layers, PWB; non-cohesive, moist, compact	SM		755.5 30.00	4	ROTO SONIC	4.60 5.00	2"ID, 4"OD 0.010 Slot SCH 40 PVC U-Pack Screen	
35	750	Boring completed at 35.00 ft			750.5				PVC Cap - Backfill	
40	745									
45										

BOREHOLE RECORD: MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Cascade Drilling  
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/12/20





# RECORD OF BOREHOLE B-80

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 30.00 ft  
 LOCATION: North to northeast of CCR Unit

DRILL RIG: Rotosonic 1159  
 DATE STARTED: 9/20/19  
 DATE COMPLETED: 9/20/19

NORTHING: 1,394,373.86  
 EASTING: 2,203,534.26  
 GS ELEVATION: 801.52  
 TOC ELEVATION: 804.45 ft

DEPTH W.L.: 16.48  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 14:46  
 GW ELEVATION: 787.97

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	800	0.00 - 8.70 Hydrovac	NA			0		0.00 8.70	Concrete Surface Completion  High Solids Bentonite (Aquagaurd)	<b>WELL CASING</b> Interval: 0.0 - 19.8' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>WELL SCREEN</b> Interval: 19.8-29.3' Material: Schedule 40 PVC Schedule 40 PVC Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 17.5 - 30.0' Type: 20/40 FilterSil  <b>FILTER PACK SEAL</b> Interval: 9.0 - 17.5' Type: Pel-Plug 3/8" Bentonite Pellets  <b>ANNULUS SEAL</b> Interval: 0.4 - 9.0' Type: High Solids Bentonite (Aquagaurd)  <b>WELL COMPLETION</b> Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel  <b>DRILLING METHODS</b> Soil Drill: Sonic Rock Drill: Sonic
5	795				792.82					
10	790	8.70 - 10.00 (ML) sandy SILT, non-plastic to low plasticity fines, fine to medium sub-rounded sand, trace organics (roots); moderate brown (5YR 4/4) to pale yellowish brown (10YR 6/2); non-cohesive, dry, loose  10.00 - 13.20 (ML and SP) SILT and SAND, non-plastic to low plasticity fines, fine sub-angular sand; light brown (5YR 5/6) with some moderate reddish brown (10R 4/6) layers, some laminated layers (relic foliations), SAPROLITE; non-cohesive, moist, loose	ML  ML & SP		8.70 791.52 10.00	1	ROTO SONIC	1.30 1.30	Pel-Plug 3/8" Bentonite Pellets	
15	785	13.20 - 25.90 (SM) SILTY SAND, non-plastic to low plasticity fines, fine sub-angular sand; light brown (5YR 5/6) and pale yellowish brown (10YR 6/2) with trace very pale orange (10YR 8/1) grains, SAPROLITE; non-cohesive, wet, loose	SM SM		788.32 13.20	2	ROTO SONIC	9.70 10.00	20/40 FilterSil - Sandpack	
20	780	20.00: SAA, with frequent weathered micaceous minerals								
25	775	25.90 - 30.00 (SM-SP) SAND, fine to medium sub-rounded sand, some non-plastic fines, trace angular fine to coarse soft (crumbles with pressure from fingers) gravels; very pale orange (10YR 8/2) with pale yellowish brown (10YR 6/2) mottling, PWR; non-cohesive, moist to wet, compact	SP-SM		775.62 25.90	3	ROTO SONIC	10.00 10.00	2"ID, 4"OD 0.010 Slot SCH 40 PVC U-Pack Screen	
30	770	Boring completed at 30.00 ft			771.52				PVC Cap	

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Cascade Drilling  
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/12/20



# RECORD OF BOREHOLE B-81

SHEET 1 of 2

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 50.00 ft  
 LOCATION: North to northeast of CCR Unit

DRILL RIG: Rotosonic 1159  
 DATE STARTED: 9/20/19  
 DATE COMPLETED: 9/22/19

NORTHING: 1,394,366.17  
 EASTING: 2,203,741.53  
 GS ELEVATION: 816.75  
 TOC ELEVATION: 820.51 ft

DEPTH W.L.: 31.39  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 15:06  
 GW ELEVATION: 789.12

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	815	0.00 - 9.00 Hydrovac							Concrete Surface Completion	<b>WELL CASING</b> Interval: 0.0 - 39.17' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>WELL SCREEN</b> Interval: 39.17 - 49.17' Material: 39.17 - 49.17' Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 37.0 - 50.0' Type: 20/40 FilterSil
5	810		NA			0	0.00 9.00			
10	805	9.00 - 13.10 (SM) SILTY SAND, fine to medium sub-rounded sand, non-plastic fines, trace organics (roots); light brown (5YR 5/6) and moderate reddish brown (10R 4/6), SAPROLITE; non-cohesive, dry, compact	SM		807.75 9.00				High Solids Bentonite (Aquaguard)	<b>FILTER PACK SEAL</b> Interval: 17.0 - 37.0' Type: Pel-Plug 3/8" Bentonite Pellets  <b>ANNULUS SEAL</b> Interval: 0.4 - 17.0' Type: High Solids Bentonite (Aquaguard)
15	800	13.10 - 17.90 (SM) SILTY SAND, fine sub-rounded sand, non-plastic fines; very pale orange (10YR 8/2) to grayish orange (10YR 7/6), PWR with frequent micaceous mineralization; non-cohesive, dry, loose	SM		803.65 13.10	1	ROTO SONIC 10.90 11.00	Cave in prior to installing Aquaguard due to sampling requirements		
20	795	17.90 - 19.00 (ML and SP) SILT and SAND, non-plastic fine, fine to medium sub-rounded sand; light brown (5YR 5/6), PWR; non-cohesive, dry, compact. 19.00 - 23.50 (SP-SM) SAND, fine to medium sub-rounded sand, some non-plastic fines; grayish orange (10YR 7/4) with light brown (5YR 5/6) and dark yellowish brown (10YR 2/2) grains, PWR; non-cohesive, dry, compact 20.00: SAA with some pale reddish brown (10R 5/6) coloration	ML & SP SP-SM SP-SM		798.85 17.90 797.75 19.00				Pel-Plug 3/8" Bentonite Pellets	<b>WELL COMPLETION</b> Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel  <b>DRILLING METHODS</b> Soil Drill: Sonic Rock Drill: Sonic
25	790	23.50 - 33.60 (ML) sandy SILT, non-plastic to low plasticity fines, fine sub-angular sand; pale yellowish brown (10YR 6/2) to light brown (5YR 5/6), PWR; non-cohesive, moist, loose	ML		793.25 23.50	2	ROTO SONIC 9.90 10.00			
30	785	30.00: SAA with some greenish gray (5G 6/1) layers, trace fine soft angular gravels (crumble with finger pressure).	ML						Backfill -  20/40 FilterSil - Sandpack	
35	780	33.60 - 40.00 (SM and SP) SILT and SAND, non-plastic to low plasticity fines, fine sub-rounded sand, trace sub-angular soft (crumbles with finger pressure) gravels; yellowish gray (5YR 8/1) to pale pink (5R 8/2) to greenish gray (5G 6/1), very micaceous, PWR; non-cohesive, moist, loose	ML & SP		783.15 33.60	3	ROTO SONIC 10.00 10.00			
40	775	40.00 - 41.30 (ML and SP) SILT and SAND, non-plastic to low plasticity fines, fine to medium sub-rounded sand; grayish orange (10YR 7/6) to light olive gray (5Y 5/2), highly weathered with some relic foliation layers, PWR; non-cohesive, moist, compact 41.30 - 45.40 (SP and ML) SAND and SILT, fine sand, non-plastic fines; yellowish gray (5Y 8/1), very micaceous, PWR; non-cohesive, moist, loose	ML & SP SP & ML		776.75 40.00 775.45 41.30	4	ROTO SONIC 10.00 10.00		2"ID, 4"OD 0.010 Slot	

Log continued on next page

BOREHOLE RECORD: MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Cascade Drilling  
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/12/20



# RECORD OF BOREHOLE B-81

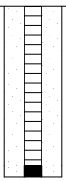
SHEET 2 of 2

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 50.00 ft  
 LOCATION: North to northeast of CCR Unit

DRILL RIG: Rotosonic 1159  
 DATE STARTED: 9/20/19  
 DATE COMPLETED: 9/22/19

NORTHING: 1,394,366.17  
 EASTING: 2,203,741.53  
 GS ELEVATION: 816.75  
 TOC ELEVATION: 820.51 ft

DEPTH W.L.: 31.39  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 15:06  
 GW ELEVATION: 789.12

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
45	770	45.40 - 47.50 (SM) SILTY SAND, fine sub-angular sand, non-plastic fines; yellowish gray (5Y 8/1), very micaceous, PWR; non-cohesive, moist, loose	SM		771.35 45.40	4	ROTO SONIC	10.00 10.00	SCH 40 PVC U-Pack Screen   PVC Cap -	<b>WELL CASING</b> Interval: 0.0 - 39.17' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>WELL SCREEN</b> Interval: 39.17 - 49.17' Material: 39.17 - 49.17' Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 37.0 - 50.0' Type: 20/40 FilterSil  <b>FILTER PACK SEAL</b> Interval: 17.0 - 37.0' Type: Pel-Plug 3/8" Bentonite Pellets  <b>ANNULUS SEAL</b> Interval: 0.4 - 17.0' Type: High Solids Bentonite (Aquagard)  <b>WELL COMPLETION</b> Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel  <b>DRILLING METHODS</b> Soil Drill: Sonic Rock Drill: Sonic
50		47.50 - 50.00 (SM) SILTY SAND, fine to medium sand, non-plastic fines, some weakly cemented some weakly cemented soft (crumbles with finger pressure) gravels; moderate yellowish brown (10YR 5/4) to dark yellowish brown (10YR 4/2), PWR; non-cohesive, moist, loose	SM		769.25 47.50					
50		Boring completed at 50.00 ft			766.75					

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Cascade Drilling  
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/12/20



# RECORD OF BOREHOLE B-82

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 45.00 ft  
 LOCATION: East of CCR Unit south of concrete plant

DRILL RIG: Rotosonic 1159  
 DATE STARTED: 9/21/19  
 DATE COMPLETED: 9/21/19

NORTHING: 1,393,750.42  
 EASTING: 2,204,256.96  
 GS ELEVATION: 807.15  
 TOC ELEVATION: 809.98 ft

DEPTH W.L.: 8.90  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 15:59  
 GW ELEVATION: 801.08

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0	805	0.00 - 8.70 Hydrovac	NA						Concrete Surface Completion  High Solids Bentonite - (Aquagaurd)  Pel-Plug 3/8" Bentonite - Pellets  20/40 FilterSil - Sandpack  2" ID, 4" OD 0.010 Slot SCH 40 PVC - U-Pack Screen  PVC Cap -	<b>WELL CASING</b> Interval: 0.0 - 35.0' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>WELL SCREEN</b> Interval: 35.0 - 44.5' Material: Schedule 40 PVC Schedule 40 PVC Diameter: 2" ID 4" OD Slot Size: 0.010 End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 32.5 - 45.0' Type: 20/40 FilterSil  <b>FILTER PACK SEAL</b> Interval: 26.5 - 32.5' Type: Pel-Plug 3/8" Bentonite Pellets  <b>ANNULUS SEAL</b> Interval: 0.4 - 26.5' Type: High Solids Bentonite (Aquagaurd)  <b>WELL COMPLETION</b> Pad: 4' x 4' x 4" Protective Casing: 4" Stainless Steel  <b>DRILLING METHODS</b> Soil Drill: Sonic Rock Drill: Sonic
5	800									
10	795	8.70 - 10.70 (ML) sandy SILT, non-plastic fines, fine sand; dark yellowish brown (10YR 4/2); non-cohesive, dry, loose	ML		798.45 8.70					
15	790	10.70 - 31.70 (SM) sandy SILT, fine to medium angular sand, non-plastic to low plasticity fines, some soft (crumble under finger pressure) fine angular gravel; dark yellowish brown (10YR 4/2) to pale yellowish brown (10YR 6/2), very micaceous, SAPROLITE; non-cohesive, dry, loose. Moist and compact starting at 20 feet bgs.	ML		796.45 10.70	1	ROTO SONIC	11.30 11.30		
20	785		ML							
25	780					2	ROTO SONIC	10.00 10.00		
30	775	31.70 - 35.50 (SP and ML) SAND and SILT, fine sub-angular sand, non-plastic to low plasticity fines; dark yellowish brown (10YR 4/2), highly micaceous, SAPROLITE; non-cohesive, wet, compact	SP & ML		775.45 31.70					
35	770	35.50 - 38.50 (CL) sandy SILTY CLAY, low to moderate plasticity fines, fine sand; moderate yellowish brown (10YR 4/2) to light brown (5YR 5/6), some relic foliations, highly micaceous, SAPROLITE; cohesive, w>PL, soft.	CL		771.65 35.50	3	ROTO SONIC	10.00 10.00		
40	765	38.50 - 40.00 (SC) CLAYEY SAND, fine angular sand, low to moderate plasticity fines; light brown (5YR 5/6) to moderate yellowish brown (10YR 5/4), iron oxide staining, very micaceous, some relic foliations, SAPROLITE; non-cohesive, wet, compact	SC		768.65 38.50					
45	762.15	40.00 - 45.00 (ML and SP) SILT and SAND, non-plastic to low plasticity fines, fine sand; dark yellowish brown (10YR 4/2) with frequent relic foliations, very micaceous, SAPROLITE; non-cohesive, wet to moist, compact	ML & SP		767.15 40.00	4	ROTO SONIC	5.00 5.00		
		Boring completed at 45.00 ft								

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Cascade Drilling  
 DRILLER: Jose

GA INSPECTOR: Jeff Ingram  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/12/20



# RECORD OF BOREHOLE B-83

SHEET 1 of 2

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 50.00 ft  
 LOCATION: South by river, NW of B-76

DRILL RIG: CME550X  
 DATE STARTED: 9/30/19  
 DATE COMPLETED: 9/30/09

NORTHING: 1,390,736.31  
 EASTING: 2,202,695.17  
 GS ELEVATION: 777.05  
 TOC ELEVATION: 776.89 ft

DEPTH W.L.: 28.75  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 14:52  
 GW ELEVATION: 748.14

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0 775 5 770 10 765 15 760 20 755 25 750 30 745 35 740 40 735 45		0.00 - 15.00 Hydrovac to 15' for utilities			762.05 15.00						AquaGuard Bentonite - Grout	<b>WELL CASING</b> Interval: 0'-38.6' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>WELL SCREEN</b> Interval: 38.6'-48.6' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 36.6'-50' Type: Filter Media  <b>FILTER PACK SEAL</b> Interval: 30.7'-36.6' Type: PEL-PLUG 3/8"  <b>ANNULUS SEAL</b> Interval: 0'-30.7' Type: AquaGuard Bentonite Grout  <b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush  <b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow-Stem Auger Rock Drill: N/A
		15.00 - 19.00 ML, Gravely SILT with some sand, brown-black, cohesive, W<PL, dry, soft	ML		758.05 19.00 757.05 20.00	S1	SS	6-4-4	8	1.25 1.50		
		19.00 - 20.00 ML, SILT, micaceous, brown, W<PL, moist, very soft	ML			S2	SS	2-1-3	4	1.50 1.50		
		20.00 - 33.50 ML, SILT, brown, moist, W-PL, firm to stiff	ML			S3	SS	1-1-2	3	1.50 1.50		
		33.50 - 38.50 CL, silty CLAY, micaceous, dark brown-tan, cohesive, moist, W>PL, very soft to soft	CL		743.55 33.50	S4	SS	1-1-2	3	1.50 1.50	PEL-PLUG 3/8" Bentonite Pellets	
		38.50 - 43.50 CL, silty CLAY, brown with black and red, W>PL, very soft to soft	CL		738.55 38.50	S5	SS	3-3-4	7	1.50 1.50	#2 FilterSil -	
		43.50 - 49.00 CL, silty CLAY, brown with orange, moist to wet, W<PL, very soft to firm	CL-ML		733.55 43.50	S6	SS	WOH-4-8	12	1.50 1.50	0.010" Slotted	

BOREHOLE RECORD: MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: K. Minkara  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



Log continued on next page

# RECORD OF BOREHOLE B-83

SHEET 2 of 2

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 50.00 ft  
 LOCATION: South by river, NW of B-76

DRILL RIG: CME550X  
 DATE STARTED: 9/30/19  
 DATE COMPLETED: 9/30/09

NORTHING: 1,390,736.31  
 EASTING: 2,202,695.17  
 GS ELEVATION: 777.05  
 TOC ELEVATION: 776.89 ft

DEPTH W.L.: 28.75  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 14:52  
 GW ELEVATION: 748.14

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC		
45	730	43.50 - 49.00 CL, silty CLAY, brown with orange, moist to wet, W<PL, very soft to firm ( <i>Continued</i> )	CL-ML	[Hatched Pattern]	728.05						Schedule 40 PVC 	<b>WELL CASING</b> Interval: 0'-38.6' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>WELL SCREEN</b> Interval: 38.6'-48.6' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 36.6'-50' Type: Filter Media  <b>FILTER PACK SEAL</b> Interval: 30.7'-36.6' Type: PEL-PLUG 3/8"  <b>ANNULUS SEAL</b> Interval: 0'-30.7' Type: AquaGuard Bentonite Grout  <b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush  <b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow-Stem Auger Rock Drill: N/A
50		49.00 - 50.00 SM, silty SAND, PWR, black-brown mica schist  Boring completed at 50.00 ft	SM	[Dotted Pattern]	49.00 727.05	S7	SS	8-15-18	33	1.50 1.50		
725												
55												
720												
60												
715												
65												
710												
70												
705												
75												
700												
80												
695												
85												
690												
90												

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: K. Minkara  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



## RECORD OF BOREHOLE B-84

SHEET 1 of 2

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 50.00 ft  
 LOCATION: NE of security gate, along road

DRILL RIG: CME550X  
 DATE STARTED: 10/1/19  
 DATE COMPLETED: 10/1/19

NORTHING: 1,390,411.65  
 EASTING: 2,202,242.51  
 GS ELEVATION: 776.27  
 TOC ELEVATION: 776.24 ft

DEPTH W.L.: 30.12  
 DATE W.L.: 1/14/2020  
 TIME W.L.: 12:32  
 GW ELEVATION: 746.12

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE
0	775	0.00 - 14.50 Hydrovac to 14.5' for utilities								AquaGuard Bentonite - Grout	<b>WELL CASING</b> Interval: 0'-39.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw  <b>WELL SCREEN</b> Interval: 39.1'-49.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 36.0'-49.5' Type: Filter Media  <b>FILTER PACK SEAL</b> Interval: 30.6'-36.0' Type: PEL-PLUG 3/8"  <b>ANNULUS SEAL</b> Interval: 0'-30.6' Type: AquaGuard Bentonite Grout  <b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush  <b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A
15	760	14.50 - 20.00 ML-CL, silty CLAY with some gravel, brown-black, micaceous, W-PL, moist, very soft	CL-ML		761.77 14.50						
20	755	20.00 - 25.00 ML, sandy SILT with some gravel, brown-black, dry, W<PL, very soft	ML		756.27 20.00	S1	SS	3-1-2	3	$\frac{0.75}{1.50}$	
25	750	25.00 - 30.00 CL, silty CLAY with some gravel, brown-black, micaceous, W-PL, moist, very soft to soft	CL		751.27 25.00	S2	SS	3-2-3	5	$\frac{0.75}{1.50}$	
30	745	30.00 - 35.00 CL, silty CLAY with some sand, brown-black with tan, W-PL, moist	CL		746.27 30.00	S3	SS	1-2-3	5	$\frac{1.50}{1.50}$	
35	740	35.00 - 39.00 CL, silty CLAY, brown-black, W-PL, wet to moist	CL		741.27 35.00	S4	SS	2-2-3	5	$\frac{1.50}{1.50}$	
40	735	39.00 - 40.00 SM, silty SAND with gravel, black-grey, moist, compact	SM		737.27 39.00	S5	SS	15-18-11	29	$\frac{1.50}{1.50}$	
40	735	40.00 - 44.00 CL, silty CLAY, brown-black, W-PL, moist, very soft to soft	CL		736.27 40.00						
45	732.27	44.00 - 45.00 ML, gravelly SILT with some sand, Log continued on next page	ML		732.27 44.00 731.27	S6	SS	7-7-8	17	$\frac{1.50}{1.50}$	

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: K. Minkara  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



# RECORD OF BOREHOLE B-84

SHEET 2 of 2

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 50.00 ft  
 LOCATION: NE of security gate, along road

DRILL RIG: CME550X  
 DATE STARTED: 10/1/19  
 DATE COMPLETED: 10/1/19

NORTHING: 1,390,411.65  
 EASTING: 2,202,242.51  
 GS ELEVATION: 776.27  
 TOC ELEVATION: 776.24 ft

DEPTH W.L.: 30.12  
 DATE W.L.: 1/14/2020  
 TIME W.L.: 12:32  
 GW ELEVATION: 746.12

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES					MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE	REC		
45	730	brown-black, micaceous, PWR, moist 45.00 - 50.00 ML, sandy SILT with gravel, brown-black, PWR, W<PL, wet to moist, PWR, very dense	ML		45.00						Schedule 40 PVC 	<p><b>WELL CASING</b> Interval: 0'-39.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screw</p> <p><b>WELL SCREEN</b> Interval: 39.1'-49.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p><b>FILTER PACK</b> Interval: 36.0'-49.5' Type: Filter Media</p> <p><b>FILTER PACK SEAL</b> Interval: 30.6'-36.0' Type: PEL-PLUG 3/8"</p> <p><b>ANNULUS SEAL</b> Interval: 0'-30.6' Type: AquaGuard Bentonite Grout</p> <p><b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p><b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A</p>
50		Boring completed at 50.00 ft			726.27	S7	SS	25-33-24	57	1.50 1.50		
55	725											
60	720											
65	715											
70	710											
75	705											
80	700											
85	695											
90	690											

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: K. Minkara  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20





# RECORD OF BOREHOLE B-85

SHEET 1 of 1

PROJECT: Plant McDonough  
PROJECT NUMBER: 1668496-01  
DRILLED DEPTH: 34.50 ft  
LOCATION: North of site, adjacent to B-54

DRILL RIG: CME 550  
DATE STARTED: 11/17/19  
DATE COMPLETED: 11/18/19

NORTHING: 1,394,433.14  
EASTING: 2,203,135.02  
GS ELEVATION: 782.80  
TOC ELEVATION: 782.67 ft

DEPTH W.L.: 2.27  
DATE W.L.: 1/13/2020  
TIME W.L.: 14:16  
GW ELEVATION: 780.40

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS		
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE	REC
0		0.00 - 10.00 Hydrovac to 10.0' to for utilities									AquaGuard Bentonite Grout  PEL-PLUG 3/8" Bentonite Pellets  #2 FilterSil -  0.010" Slotted Schedule 40 PVC	<b>WELL CASING</b> Interval: 0'-34.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen  <b>WELL SCREEN</b> Interval: 24.2'-34.2' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 21.6'-34.5' Type: Filter Media  <b>FILTER PACK SEAL</b> Interval: 16.6'-21.6' Type: PEL-PLUG 3/8"  <b>ANNULUS SEAL</b> Interval: 0'-16.6' Type: AquaGuard Bentonite Grout  <b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush  <b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: HQ Core Barrell
780												
5												
775												
10												
770		10.00 - 15.00 SM, silty SAND with trace clay, white to grey, fine to coarse sand, well foliated, saprolite, low to no plasticity, W<PL, moist, cohesive	SM		772.8 10.00	1	SPT	4-8-9	17	1.00 1.50		
15		15.00 - 20.00 SM, silty SAND with some clay and trace gravel, orange to brown and white to grey, fine to coarse sand, saprolite, no plasticity, W<PL, moist, cohesive, firm	SM		767.8 15.00	2	SPT	2-6-8	14	0.50 1.50		
765												
20		20.00 - 25.00 SW, SAND with some silt, white to grey and brown, fine to coarse sand, saprolite, non-cohesive, moist, compact	SP-SM		762.8 20.00	3	SPT	6-15-12	27	1.00 1.50		
760												
25		25.00 - 29.50 PWR, AUGEN GNEISS, gravelly sand, grey to white, some orange staining, fine to coarse, moist, very dense	PWR		757.8 25.00	4	SPT	27-50/1	>50	0.50 0.50		
755												
30		29.50 - 34.50 BEDROCK, AUGEN GNEISS, fresh to slightly weathered, white to light pink, feldspar porphyroclasts up to 1 cm in diameter, well foliated, strong to medium strong	GNEISS		753.3 29.50	5	CORE			4.80 5.00		
750												
35		Boring completed at 34.50 ft			748.3							
745												
40												
740												
45												

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
DRILLING COMPANY: Southern Company Services  
DRILLER: S. Milam

GA INSPECTOR: W.Ballow  
CHECKED BY: Brian Steele, PG  
DATE: 2/11/20



# RECORD OF BOREHOLE B-86

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 34.10 ft  
 LOCATION: North of site along fence adjacent to B-79

DRILL RIG: CME 550  
 DATE STARTED: 11/18/19  
 DATE COMPLETED: 11/18/20

NORTHING: 1,394,479.84  
 EASTING: 2,203,207.19  
 GS ELEVATION: 784.50  
 TOC ELEVATION: 784.40 ft

DEPTH W.L.: 0.91  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 14:54  
 GW ELEVATION: 783.49

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	780	0.00 - 7.00 Hydrovac to 7.00' to for utilities									AquaGuard Bentonite - Grout	<b>WELL CASING</b> Interval: 0'-34.1' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen  <b>WELL SCREEN</b> Interval: 21.4'-34.1' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 22.1'-34.1' Type: Filter Media  <b>FILTER PACK SEAL</b> Interval: 17'-22.1' Type: PEL-PLUG 3/8"  <b>ANNULUS SEAL</b> Interval: 0.0'-17' Type: AquaGuard Bentonite Grout  <b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush  <b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: HQ Core Barrell
		7.00 - 18.50 No Recovery										
		18.50 - 23.50 SM, silty SAND, white to black and brown, fine to medium sand, saprolite, non-cohesive, wet, compact	SM		1	SS	5-10-14	24	$\frac{1.00}{1.50}$			
		23.50 - 28.00 SW-SM, SAND with some silt and trace gravel, brown and white to black, saprolite, non-cohesive, wet, compact	SM		2	SS	4-9-17	26	$\frac{1.00}{1.50}$			
		28.00 - 34.10 Bedrock, AUGEN GNEISS, white to black, fresh to slightly weathered, strong	GNEISS		3	CORE			$\frac{4.00}{5.00}$		0.010" Slotted Schedule 40 PVC	
		Boring completed at 34.10 ft										

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



# RECORD OF BOREHOLE B-87

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 42.00 ft  
 LOCATION: North of site along fence, ~25 feet north of B-80

DRILL RIG: CME 550  
 DATE STARTED: 11/17/19  
 DATE COMPLETED: 11/17/19

NORTHING: 1,394,401.16  
 EASTING: 2,203,531.64  
 GS ELEVATION: 800.40  
 TOC ELEVATION: 803.54 ft

DEPTH W.L.: 15.56  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 14:54  
 GW ELEVATION: 787.98

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	800	0.00 - 10.00 Hydrovac to 10.00' to for utilities									AquaGuard Bentonite - Grout  #2 FilterSil -  PEL-PLUG 3/8" Bentonite Pellets  0.010" Slotted Schedule 40 PVC	<b>WELL CASING</b> Interval: 0'-42' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen  <b>WELL SCREEN</b> Interval: 31.7'-41.7' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 29.2'-42.1' Type: Filter Media  <b>FILTER PACK SEAL</b> Interval: 24'-29.2' Type: PEL-PLUG 3/8"  <b>ANNULUS SEAL</b> Interval: 0'-24' Type: AquaGuard Bentonite Grout  <b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush  <b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A
5	795											
10	790	10.00 - 15.00 ML, clayey SILT with trace sand, light orange brown, W<PL, firm, cohesive	ML		790.4 10.00	1	SS	3-4-5	9	1.50 1.50		
15	785	15.00 - 20.00 ML, clayey SILT with some sand, orange brown, saprolite, W<PL, soft to firm. cohesive	ML		785.4 15.00	2	SS	2-2-9	11	1.50 1.50		
20	780	20.00 - 25.00 MLS, sandy SILT with trace gravel, dark brown, saprolite, non-cohesive, moist, very dense	MLS		780.4 20.00	3	SS	9-14-44	>50	1.00 1.50		
25	775	25.00 - 28.90 SM, silty SAND with some gravel, fine to coarse sand, dark grey, saprolite, moist to wet, very dense	SM		775.4 25.00	4	SS	50/5	>50	0.40 0.40		
30	770	28.90 - 33.80 SM, silty SAND, dark grey, saprolite, moist to wet, very dense	SM		771.5 28.90	5	SS	50/4	>50	0.30 0.30		
35	765	33.80 - 38.80 SM, silty SAND with gravel, white and grey, augen gneiss, moist to wet, very dense	SM		766.6 33.80	6	SS	50/4	750	0.30 0.30		
40	760				761.6 38.80							
45		Boring completed at 42.00 ft										

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



# RECORD OF BOREHOLE B-88

SHEET 1 of 2

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 72.40 ft  
 LOCATION: North end of site along fence

DRILL RIG: CME 550  
 DATE STARTED: 11/15/19  
 DATE COMPLETED: 11/15/19

NORTHING: 1,394,400.23  
 EASTING: 2,203,738.46  
 GS ELEVATION: 816.60  
 TOC ELEVATION: 820.11 ft

DEPTH W.L.: 31.47  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 15:11  
 GW ELEVATION: 788.64

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES					MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
0	815	0.00 - 10.00 Hydrovac to 10.00' to for utilities										<p><b>WELL CASING</b> Interval: 0'-72' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p><b>WELL SCREEN</b> Interval: 62'-72' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p><b>FILTER PACK</b> Interval: 60'-72' Type: Filter Media</p> <p><b>FILTER PACK SEAL</b> Interval: 55'-60' Type: PEL-PLUG 3/8"</p> <p><b>ANNULUS SEAL</b> Interval: 0'-55' Type: AquaGuard Bentonite Grout</p> <p><b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p><b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A</p>
10	805	10.00 - 15.00 SM, silty SAND with trace gravel, white and orange, saprolite, non-cohesive, dry, loose	SM		806.6 10.00							
15	800	15.00 - 19.00 SM, silty SAND with trace gravel, white and orange, saprolite, non-cohesive, dry, loose	SM		801.6 15.00	1	SS	6-5-2	7	1.50 1.50		
20	795	19.00 - 20.00 CL-ML, silt CLAY with some sand, brown, W<PL, firm	CL-ML		797.6 19.00 796.6 20.00	2	SS	7-5-2	7	1.50 1.50		
25	790	20.00 - 25.00 SM, silty SAND with some clay, fine to medium sand, orange and tan, low to no plasticity, W<PL, firm, cohesive	SM									
25	790	25.00 - 30.00 SM, silty SAND with some clay, fine to medium sand, orange and tan with white, saprolite, low to no plasticity, W<PL, firm, cohesive	SM		791.6 25.00	3	SS	2-5-3	8	1.50 1.50		
30	785	30.00 - 34.00 SM, silty SAND with some clay, fine to medium sand, orange to tan with brown, saprolite, low to no plasticity, W<PL, firm, cohesive	SM		786.6 30.00	4	SS	2-2-5	7	1.50 1.50		
35	780	34.00 - 35.00 SM, silty SAND with some clay, fine sand, white, gneissic saprolite, non-cohesive, dense, dry	SM		782.6 34.00 781.6 35.00	5	SS	5-13-20	33	1.50 1.50		
35	780	35.00 - 40.00 SM, silty SAND, white and grey, fine to medium sand, saprolite, dry, dense	SM									
40	775	40.00 - 44.40 ML, clayey SILT with trace sand and gravel, grey and brown some orange, saprolite, W<PL, very dense	ML		776.6 40.00	6	SS	13-25-26	51	1.00 1.50		
45		Log continued on next page	SP		772.2 44.40	7	SS	13-50/4	<50	0.90 0.90		

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



# RECORD OF BOREHOLE B-88

SHEET 2 of 2

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 72.40 ft  
 LOCATION: North end of site along fence

DRILL RIG: CME 550  
 DATE STARTED: 11/15/19  
 DATE COMPLETED: 11/15/19

NORTHING: 1,394,400.23  
 EASTING: 2,203,738.46  
 GS ELEVATION: 816.60  
 TOC ELEVATION: 820.11 ft

DEPTH W.L.: 31.47  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 15:11  
 GW ELEVATION: 788.64

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES				MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop	N-VALUE			REC
45	770	44.40 - 48.80 SP, SAND with some gravel, fine to coarse sand, PWR, moist, very dense. PWR at 48.50 feet bgs. (Continued)	SP		767.8	8	SS	50/4	<50	0.30	<p>0.010" Slotted Schedule 40 PVC</p>	<p><b>WELL CASING</b> Interval: 0'-72' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p><b>WELL SCREEN</b> Interval: 62'-72' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p><b>FILTER PACK</b> Interval: 60'-72' Type: Filter Media</p> <p><b>FILTER PACK SEAL</b> Interval: 55'-60' Type: PEL-PLUG 3/8"</p> <p><b>ANNULUS SEAL</b> Interval: 0'-55' Type: AquaGuard Bentonite Grout</p> <p><b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p><b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A</p>
50	765	48.80 - 54.40 SP, SAND with some gravel, fine to coarse sand, PWR, moist, very dense	SP		48.80					0.30		
55	760	54.40 - 59.40 SP, SAND with some silt and gravel, white and orange, fine to coarse sand, saprolite, PWR, moist to wet, very dense	SP-SM		762.2	9	SS	33-50/3	<50	0.90		
60	755	59.40 - 63.80 SP, SAND with some silt and gravel, white and orange, fine to coarse sand, saprolite, PWR, moist to wet, very dense	SP-SM		757.2	10	SS	23-50/4	<50	0.90		
65	750	63.80 - 69.00 SP, SAND with some silt and gravel, white and orange, fine to coarse sand, saprolite, PWR, wet, very dense	SP-SM		752.8	11	SS	50/3	<50	0.30		
70	745	Boring completed at 72.40 ft			747.6	12	SS	38-50/1	<50	0.50		

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20





# RECORD OF BOREHOLE B-89



SHEET 2 of 2

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 49.50 ft  
 LOCATION: North of site in cement plant lot, next to retaining wall

DRILL RIG: CME 550  
 DATE STARTED: 11/19/19  
 DATE COMPLETED: 11/19/19

NORTHING: 1,394,399.07  
 EASTING: 2,204,048.84  
 GS ELEVATION: 822.50  
 TOC ELEVATION: 822.50 ft

DEPTH W.L.: 21.78  
 DATE W.L.: 1/13/2020  
 TIME W.L.: 16:36  
 GW ELEVATION: 800.72

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES				MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS	
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	BLOWS per 6 in 140 lb hammer 30 inch drop			N-VALUE
45		44.00 - 49.50 Bedrock, SCHIST, light grey to dark grey, fresh to slightly weathered, strong to very strong (Continued)			773					Schedule 40 PVC 	<b>WELL CASING</b> Interval: 0'-49.5' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen  <b>WELL SCREEN</b> Interval: 39.5'-49.5' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC  <b>FILTER PACK</b> Interval: 33.5'-49.5' Type: Filter Media  <b>FILTER PACK SEAL</b> Interval: 28.5'-33.5' Type: PEL-PLUG 3/8"  <b>ANNULUS SEAL</b> Interval: 0'-28.5' Type: AquaGuard Bentonite Grout  <b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush  <b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: HQ Core Barrell
775											
50		Boring completed at 49.50 ft									
770											
55											
765											
60											
760											
65											
755											
70											
750											
75											
745											
80											
740											
85											
735											
90											

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



# RECORD OF BOREHOLE B-90

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 33.40 ft  
 LOCATION: North of site along Plant Atkinson Road

DRILL RIG: CME 550  
 DATE STARTED: 12/10/19  
 DATE COMPLETED: 12/10/19

NORTHING: 1,394,500.73  
 EASTING: 2,203,212.95  
 GS ELEVATION: 784.20  
 TOC ELEVATION: 784.18 ft

DEPTH W.L.: 0.88  
 DATE W.L.: 1/14/2020  
 TIME W.L.: 12:32  
 GW ELEVATION: 783.30

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 6.00 CL, sandy CLAY, some gravel; gray to dark gray, cohesive, w > PL, wet	CLS		778.2				<p><b>WELL CASING</b> Interval: 0'-33.4' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p><b>WELL SCREEN</b> Interval: 23.4'-33.4' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p><b>FILTER PACK</b> Interval: 21.4'-33.4' Type: #2 FilterSil</p> <p><b>FILTER PACK SEAL</b> Interval: 15.4'-21.4' Type: PEL-PLUG 3/8" Bentonite Pellets</p> <p><b>ANNULUS SEAL</b> Interval: 0'-15.4' Type: AquaGuard Bentonite Grout</p> <p><b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p><b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A</p>
780									
5		6.00 - 10.00 ML, sandy SILT, medium to coarse sand, some clay, trace gravel; light brown, cohesive, w ~ PL, wet	MLS		774.2				
775									
10		10.00 - 15.00 CL, sandy CLAY, medium to coarse sand; light brown, w ~ PL	CLS		774.2				
770									
15		15.00 - 23.00 SM, silty SAND, medium to coarse, some clay; light brown, wet	SM		769.2			PEL-PLUG 3/8" Bentonite Pellets	
765								#2 FilterSil	
20									
760		23.00 - 33.00 SM, silty SAND, medium to coarse, some clay, some subround to subangular gravel as feldspar and quartz; light brown to brown, wet, flowing	SM		761.2			0.010" Slotted Schedule 40 PVC	
755									
30									
750		Boring completed at 33.40 ft			751.2				
35					33.00				
745									
40									
740									
45									

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20





# RECORD OF BOREHOLE B-91

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 35.00 ft  
 LOCATION: North of site along Plant Atkinson Road

DRILL RIG: CME 550  
 DATE STARTED: 12/11/19  
 DATE COMPLETED: 12/11/19

NORTHING: 1,394,447.87  
 EASTING: 2,203,124.30  
 GS ELEVATION: 783.10  
 TOC ELEVATION: 783.07 ft

DEPTH W.L.: 2.90  
 DATE W.L.: 1/14/2020  
 TIME W.L.: 12:34  
 GW ELEVATION: 780.17

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0		0.00 - 5.00 Fill, gravel							<p><b>WELL CASING</b> Interval: 0'-35' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p><b>WELL SCREEN</b> Interval: 24.6'-34.6' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p><b>FILTER PACK</b> Interval: 22.8'-35' Type: #2 FilterSil</p> <p><b>FILTER PACK SEAL</b> Interval: 17.5'-22.5' Type: PEL-PLUG 3/8" Bentonite Pellets</p> <p><b>ANNULUS SEAL</b> Interval: 0'-17.5' Type: Portland Cement, AquaGuard Bentonite Grout</p> <p><b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p><b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A</p>
5	778.1	5.00 - 10.00 ML, SILT, some fine to medium sand, trace gravel; brown and gray, cohesive, w ~ PL	ML		778.1				
10	775	10.00 - 25.00 SP, SAND, medium to coarse, some angular gravel, some clay; gray, noncohesive, wet			773.1				
15	770				10.00				
20	765		SP				PEL-PLUG 3/8" Bentonite Pellets		
25	760				758.1		#2 FilterSil -  0.010" Slotted Schedule 40 PVC		
30	755	25.00 - 35.00 SM, silty SAND, fine to coarse, trace gravel; light brown, wet			25.00				
35	750		SM						
40	745	Boring completed at 35.00 ft			748.1				
45	740								

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



# RECORD OF BOREHOLE B-92

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 25.00 ft  
 LOCATION: North of site along Plant Atkinson Road

DRILL RIG: CME 550  
 DATE STARTED: 12/11/19  
 DATE COMPLETED: 12/11/19

NORTHING: 1,394,393.54  
 EASTING: 2,203,026.60  
 GS ELEVATION: 785.30  
 TOC ELEVATION: 785.22 ft

DEPTH W.L.: 3.88  
 DATE W.L.: 1/14/2020  
 TIME W.L.: 12:36  
 GW ELEVATION: 781.34

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE			SAMPLES			MONITORING WELL/PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE		
0	785	0.00 - 2.00 SP, gravelly SAND, medium to coarse; brown, non-cohesive, moist	SP	(Graphic Log: SP)	783.3				<p><b>WELL CASING</b> Interval: 0'-25' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p><b>WELL SCREEN</b> Interval: 14.6'-24.6' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p><b>FILTER PACK</b> Interval: 12.5'-25.0' Type: #2 FilterSil</p> <p><b>FILTER PACK SEAL</b> Interval: 7.5'-12.5' Type: PEL-PLUG 3/8" Bentonite Pellets</p> <p><b>ANNULUS SEAL</b> Interval: 0'-7.5' Type: AquaGuard Bentonite Grout</p> <p><b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p><b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A</p>
5	780	2.00 - 10.00 CL-ML, silty CLAY, some sand, trace gravel; brown and gray, cohesive, w ~ PL	CL-ML	(Graphic Log: CL-ML)	2.00				
10	775	10.00 - 25.00 SC, clayey SAND, medium to coarse, some silt, some gravel; brown, wet	SC	(Graphic Log: SC)	775.3	10.00			
15	770	Boring completed at 25.00 ft							
25	760	Boring completed at 25.00 ft							
30	755	Boring completed at 25.00 ft							
35	750	Boring completed at 25.00 ft							
40	745	Boring completed at 25.00 ft							
45		Boring completed at 25.00 ft							

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



# RECORD OF BOREHOLE B-93

SHEET 1 of 1

PROJECT: Plant McDonough  
 PROJECT NUMBER: 1668496-01  
 DRILLED DEPTH: 29.20 ft  
 LOCATION: West of site on site along Plant Atkinson Road

DRILL RIG: CME 550  
 DATE STARTED: 12/12/19  
 DATE COMPLETED: 12/12/19

NORTHING: 1,394,348.37  
 EASTING: 2,202,947.29  
 GS ELEVATION: 789.20  
 TOC ELEVATION: 789.14 ft

DEPTH W.L.: 4.86  
 DATE W.L.: 1/14/2020  
 TIME W.L.: 12:38  
 GW ELEVATION: 784.28

DEPTH (ft)	ELEVATION (ft)	SOIL PROFILE				SAMPLES			MONITORING WELL/ PIEZOMETER DIAGRAM and NOTES	WELL CONSTRUCTION DETAILS
		DESCRIPTION	USCS	GRAPHIC LOG	ELEV. DEPTH (ft)	SAMPLE NO.	TYPE	REC		
0		0.00 - 5.00 SC, clayey SAND, fine to coarse; brown and orange-brown, non-cohesive, moist	SC		784.2					<p><b>WELL CASING</b> Interval: 0'-29.2' Material: Schedule 40 PVC Diameter: 2" Joint Type: Flush/Screen</p> <p><b>WELL SCREEN</b> Interval: 18.9'-28.9' Material: Schedule 40 PVC Diameter: 2" Slot Size: 0.010" End Cap: Schedule 40 PVC</p> <p><b>FILTER PACK</b> Interval: 16.9'-29.2' Type: #2 FilterSil</p> <p><b>FILTER PACK SEAL</b> Interval: 11.9'-16.9' Type: PEL-PLUG 3/8" Bentonite Pellets</p> <p><b>ANNULUS SEAL</b> Interval: 0'-11.9' Type: Portland Cement, AquaGuard Bentonite Grout</p> <p><b>WELL COMPLETION</b> Pad: 2' x 2' concrete Protective Casing: 8" Round Ground Flush</p> <p><b>DRILLING METHODS</b> Soil Drill: 4.25-inch ID Hollow Stem Auger Rock Drill: N/A</p>
5		5.00 - 10.00 ML, clayey SILT, some sand, trace gravel; brown to light brown, cohesive, w < PL	ML		5.00					
10		10.00 - 15.00 ML, sandy SILT, coarse sand, some clay; gray-brown, cohesive, w < PL	ML		779.2					
15		15.00 - 20.00 ML, sandy SILT, coarse sand, some clay; brown, cohesive, w ~ PL	ML		774.2					
20		20.00 - 29.20 SM, silty SAND, fine to coarse, some clay, trace gravel; brown and gray-brown, wet	SM		769.2					
30		Boring completed at 29.20 ft				760				

BOREHOLE RECORD MCDONOUGH MASTER LIST.GPJ PIEDMONT.GDT 2/17/20

LOG SCALE: 1 in = 5.5 ft  
 DRILLING COMPANY: Southern Company Services  
 DRILLER: S. Milam

GA INSPECTOR: W.Ballow  
 CHECKED BY: Brian Steele, PG  
 DATE: 2/11/20



**WELL DEVELOPMENT FIELD RECORD**

JOB NAME Plant Mc. Donagh JOB NO. \_\_\_\_\_ WELL NO. B-76  
 DEVELOPED BY D. Herrera / J. Arvenneule DATE OF INSTALL. 9/16/19 SHEET 1 OF 2  
 STARTED DEVEL. 9/17/19 1727 COMPLETED DEVEL. \_\_\_\_\_ / \_\_\_\_\_  
 DATE TIME DATE TIME  
 W.L. BEFORE DEVEL. 18.30 9/17/19 1730 AFTER DEVEL. \_\_\_\_\_ / \_\_\_\_\_  
 DEPTH DATE TIME DEPTH DATE TIME  
 WELL DEPTH: BEFORE DEVEL. 38.5 ft AFTER DEVEL. \_\_\_\_\_ WELL DIA. (In) \_\_\_\_\_  
 STANDING WATER COLUMN (FT.) 20.2 STANDING WELL VOLUME \_\_\_\_\_ gal.  
 SCREEN LENGTH 10 ft. DRILLING WATER LOSS \_\_\_\_\_ gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					REMARKS	
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	NTU OTHER			
9-17-19 1800						3490	lowered pump rate	
1810						3110		
1820						27.08	~ 1.5 gal/hr in past 10 min	
1830	3				69.3	27.42	~ 3 gal/hr submer <del>in</del> increase pump	
1840	3				67	27.92		
1850	3				69.4	27.72		
1900	3				60.1	27.74		
1910	3				607	29.10		
1920	3				105.6	30.51		
1930	3				68.1	30.31	no passid about 30 gal	
1935					30 NTU		developed about 1/2 of screen.	
9-18-19 0855						WD 18.79	start pumping	
0920	4				69	35 ft 25.82 ft	pumped ~ 35 ft	
0934						28.15	pump @ 28 ft	
0938	5				76	26.5	pump @ 29 ft	
0946					51	28.6	pump @ 29 ft	
0954	5				48	27.3		
0959					53.2	26.6	pump @ 30 ft	
	35	= TOTAL VOLUME REMOVED (gal.)						32

DEVELOPMENT METHOD: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NOTES:





## WELL DEVELOPMENT FIELD RECORD

JOB NAME McDONOUGH  
 DEVELOPED BY Arthur D. Rose III  
 STARTED LEVEL. 9-18-19 / 1005  
DATE TIME  
 W.L. BEFORE DEVEL. 32.58 / 9-18-19 / 0930  
DEPTH DATE TIME  
 WELL DEPTH: BEFORE DEVEL. 43.40  
 STANDING WATER COLUMN (FT.) 10.82  
 SCREEN LENGTH 10'

JOB NO. \_\_\_\_\_ WELL NO. B-77  
 DATE OF INSTALL. 9-17-19 SHEET 1 OF \_\_\_\_\_  
 COMPLETED LEVEL. \_\_\_\_\_ / \_\_\_\_\_  
DATE TIME  
 AFTER DEVEL. \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
DEPTH DATE TIME  
 AFTER DEVEL. \_\_\_\_\_ WELL DIA. (In) \_\_\_\_\_  
 STANDING WELL VOLUME \_\_\_\_\_ gal.  
 DRILLING WATER LOSS \_\_\_\_\_ gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					REMARKS	
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	NTU OTHER	<i>pth</i>		
9-18-19 1015	3.5					39.82		
1025	4.5					40.52		
1035	5.5					41.45		
1040	6.0						Stop purging to let well recharge	
1115	6.0					36.60		
1125	6.5					36.50		
1135	7.0					36.80		
1145	8.3					39.50		
1155	10					41.48		
1205	11					41.48	- stopped purging	
1225	11					38.50	- started purging slow surging the entire	
1235	12					40.21		
1245	12.5					41.48	- stopped	
1315	12.5					37.24	- started surging and dropped temp?	
1325	13.0					38.92		
1335	13.5					39.62		
1345	14.0						Stopped and pulled reclaimer	
	<u>14</u>	= TOTAL VOLUME REMOVED (gal.)						

DEVELOPMENT METHOD: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NOTES:









## WELL DEVELOPMENT FIELD RECORD

<p>JOB NAME <u>Plant McDonough</u></p> <p>DEVELOPED BY <u>Arthur D. Rose</u></p> <p>STARTED LEVEL. <u>9-20-19</u> / <u>1306</u></p> <p style="text-align: center; font-size: small;">DATE      TIME</p> <p>W.L. BEFORE LEVEL. <u>14.84</u> / <u>19-20-19</u> / <u>1220</u></p> <p style="text-align: center; font-size: small;">DEPTH   DATE   TIME</p> <p>WELL DEPTH: BEFORE LEVEL. <u>30.44</u></p> <p>STANDING WATER COLUMN (FT.) <u>15.6</u></p> <p>SCREEN LENGTH <u>10'</u></p>	<p>JOB NO. _____ WELL NO. <u>B-80</u></p> <p>DATE OF INSTALL. <u>9-20-19</u> SHEET <u>1</u> OF <u>1</u></p> <p>COMPLETED LEVEL. <u>9-20-19</u> / <u>1620</u></p> <p style="text-align: center; font-size: small;">DATE      TIME</p> <p>AFTER LEVEL. <u>18.58</u> / <u>19-20-19</u> / <u>1638</u></p> <p style="text-align: center; font-size: small;">DEPTH   DATE   TIME</p> <p>AFTER LEVEL. <u>30.44</u> WELL DIA. (in) <u>2"</u></p> <p>STANDING WELL VOLUME <u>2.5</u> gal.</p> <p>DRILLING WATER LOSS <u>NA</u> gal.</p>
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DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	OTHER		
9-20-19 1305	0					Surge	
1315	4					20.60 Surged	
1325	7					20.88 Surged	
1335	10				183	20.89 Surged	
1345	12.5				104	20.98 Surge; lifted up 1.5'	
1355	15				127	21.30 Surged	
1405	17.5				624	2170 Surged	
1415	20				187	2190 No surging	
1425	22				41.2	1845 No surging	
1435	24	1230	21.73	5.78	23.1	17.82 No surging	
1445	25	1193	21.63	5.79	20.4	18.12 No surging	
1455	27	1232	21.55	5.77	8.62	18.23 Surged more 1.5'	
1505	30	1236	21.60	5.76	54	18.45 No surging	
1515	32	1247	21.48	5.76	60.5	18.52 No surging	
1530	35	1266	21.38	5.74	30.7	18.52 No surging	
1540	37	1276	21.28	5.72	17.5	18.56 No surging	
1550	40	1349	20.88	5.707	15.1	19.04 No surging	
1600	42	1307	20.78	5.63	2.25	18.84 No surging	
1620	46	= TOTAL VOLUME REMOVED (gal.)					

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES:

1610 44                      1290                      20.71                      5.64                      216                      18.64                      No sur

1620 46                      1290                      20.71                      5.64                      210                      18.58                      no sur



## WELL DEVELOPMENT FIELD RECORD

JOB NAME <u>Plant McDonough</u>	JOB NO. _____	WELL NO. <u>B-81</u>
DEVELOPED BY <u>Arthur D. Rose #</u>	DATE OF INSTALL. <u>9-20-19</u>	SHEET <u>1</u> OF <u>1</u>
STARTED DEVEL. <u>9-21-19 / 0947</u>	COMPLETED DEVEL. <u>9-21-19 / 1308</u>	
DATE TIME	DATE TIME	
W.L. BEFORE DEVEL. <u>28.93 / 9-21-19 / 0926</u>	AFTER DEVEL. <u>36.22 / 9-2 / <del>38.22</del> 1300</u>	
DEPTH DATE TIME	DEPTH DATE TIME	
WELL DEPTH: BEFORE DEVEL. <u>50.45</u>	AFTER DEVEL. <u>50.45</u> WELL DIA. (In) <u>2</u>	
STANDING WATER COLUMN (FT.) <u>21.52</u>	STANDING WELL VOLUME <u>3.5</u> gal.	
SCREEN LENGTH <u>10</u>	DRILLING WATER LOSS <u>NA</u> gal.	

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					D <sub>tw</sub>	REMARKS	
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	MTU OTHER				
9-21-19 1010	5						39.92	Surged	
1020	7.5						40.21	Surged	
1030	10						40.50	Surged	
1040	12.0						40.55	Surged	
1050	14						40.62	Surged	
1108	16						40.25	Surged move pump 1.5'	
1110	19						43.02	Surged	
1120	20							Surge pump off to let recharge	
1130	20						38.08	Surged and started pump	
1140	22						41.02	Surge dropped pm 0.5' dia	
1150	25								
1200	30					127	43.20	Surged	
1210	31.5					71	41.60	No surging	
1220	33					57.8	40.08	No surging	
1230	35	613	23.74	6.75	14.4		40.18	No Surging	
1240	36	761.53	21.46	6.09	12.7		37.40	No Surged	
1250	37	752.64	21.55	6.02	5.39		36.82	No sur	
1300	38	751.62	22.06	6.05	5.51		36.22		
1300	38	= TOTAL VOLUME REMOVED (gal.)							

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES:

**WELL DEVELOPMENT FIELD RECORD**

JOB NAME McDonough JOB NO. 166849618 WELL NO. B-82  
 DEVELOPED BY K. M. / Kca DATE OF INSTALL. \_\_\_\_\_ SHEET 1 OF 2  
 STARTED LEVEL 9-23-191 ~~1122~~ 1125 COMPLETED LEVEL \_\_\_\_\_ / \_\_\_\_\_  
 DATE TIME DATE TIME  
 W.L. BEFORE DEVEL. 14.66 (bgs) 9-23-191 1100 AFTER DEVEL. \_\_\_\_\_ / \_\_\_\_\_  
 DEPTH DATE TIME DEPTH DATE TIME  
 WELL DEPTH: BEFORE DEVEL. 49.60 (bgs) AFTER DEVEL. \_\_\_\_\_ WELL DIA. (In) \_\_\_\_\_  
 STANDING WATER COLUMN (FT.) 29.94 STANDING WELL VOLUME \_\_\_\_\_ gal.  
 SCREEN LENGTH 35-45 DRILLING WATER LOSS \_\_\_\_\_ gal.

DATE/TIME	VOLUME REMOVED (GALS)	pS/cm FIELD PARAMETERS					REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	NTU		
9-23-19							
11:30	5	1 part hot			7000	WL = 33.40	pump @ 43'
11:40	10	482.7	33.10	6.48	7000	31.31	43'
11:50	25	536.5	25.75	6.60	7000	31.75	43'
12:00	35	544.2	24.34	6.59	18.0	31.15	pump @ 42'
12:10	45	553.0	22.81	6.46	44.7	30.80	42'
12:20	55	555.8	23.52	6.41	39.7	31.28	42'
12:40	75	532.0	24.08	6.49	48.1	31.00	pump @ 40'
12:50	85	562.9	24.25	6.44	19.2	30.00	40'
13:00	95	564.8	24.14	6.40	13.38	31.05	40'
13:10	105	565.8	24.34	6.41	16.90	31.09	pump @ 38'
13:20	115	557.0	24.31	6.44	30.2	30.00	38'
13:30	125	566.9	23.58	6.39	13.5	30.02	pump @ 36'
13:40	135	566.9	24.07	6.34	26.8	30.00	36'
13:50	145	551.8	25.24	6.40	19.8	31.09	pump @ 40'
14:00	155	562.9	24.87	6.30	18.7	30.08	40'
14:10	165	552.5	24.54	6.42	11.9	31.00	40'
Lowering pump rate - connecting small tank							
	165	= TOTAL VOLUME REMOVED (gal.) prior to reduced flow (400 l/min)					

DEVELOPMENT METHOD: Regimer, pump & surge

NOTES:

**WELL DEVELOPMENT FIELD RECORD**

JOB NAME <u>McDonough</u>	JOB NO. <u>166844618</u>	WELL NO. <u>B-82</u>
DEVELOPED BY <u>K.M. Kora</u>	DATE OF INSTALL. _____	SHEET <u>2</u> OF <u>2</u>
STARTED DEVEL. _____	COMPLETED DEVEL. _____	
DATE      TIME	DATE      TIME	
W.L. BEFORE DEVEL. <u>14.66 (hgs)</u> <u>11:25</u> 1100	AFTER DEVEL. <u>15.51</u> <u>15:36</u>	
DEPTH    DATE    TIME	DEPTH    DATE    TIME	
WELL DEPTH: BEFORE DEVEL. <u>44.60 (hgs)</u>	AFTER DEVEL. <u>44.65</u> WELL DIA. (In) _____	
STANDING WATER COLUMN (FT.) <u>29.94</u>	STANDING WELL VOLUME _____ gal.	
SCREEN LENGTH <u>35-45</u>	DRILLING WATER LOSS _____ gal.	

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	NTU OTHER	
<u>1410</u>	<u>165</u>				<u>NTU</u>	<u>Ended pump @ 1 gal/min</u>
						<u>changed flow rate to 400 gal/min</u>
<u>1422</u>					<u>12.54</u>	<u>Log started @ 400 gal/min</u>
						<u>no additional L proc</u>
		= TOTAL VOLUME REMOVED (gal.)				

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES:

**WELL DEVELOPMENT FIELD RECORD**

JOB NAME McDonough JOB NO. \_\_\_\_\_ WELL NO. B.83  
 DEVELOPED BY Yong Chang Goo DATE OF INSTALL. \_\_\_\_\_ SHEET 1 OF 2  
 STARTED LEVEL. 10/3/2019 10:15am COMPLETED LEVEL. \_\_\_\_\_ / \_\_\_\_\_  
 DATE TIME DATE TIME  
 W.L. BEFORE DEVEL. 32.4 10/3/19 9:35am AFTER DEVEL. \_\_\_\_\_ / \_\_\_\_\_  
 DEPTH DATE TIME DEPTH DATE TIME  
 WELL DEPTH: BEFORE DEVEL. 60.84 AFTER DEVEL. \_\_\_\_\_ WELL DIA. (In) \_\_\_\_\_  
 STANDING WATER COLUMN (FT.) 16.44 STANDING WELL VOLUME \_\_\_\_\_ gal.  
 SCREEN LENGTH 10 DRILLING WATER LOSS \_\_\_\_\_ gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				REMARKS
		SPEC. COND. (mS/cm)	TEMP. (°C)	pH (s.u.)	Turbidity (NTU)	
10/3 10:20am	-					Pump @ 38' WL=32.5' WFL=1200L
10/3 10:35am	5					WL=33.04'
10:50am	5					WL=33
11:00am	5					WL=33.3
11:15am	5					WL=33.3
10/3 11:55am	-					
12:15pm	5					Pump @ 39' WL=33.1
12:45pm	5					Pump @ 40' WL=33.9
1:15pm	5					Pump @ 41' WL=33.0
2pm	5					Pump @ 43' WL=33
2:25pm	5					Pump @ 45' WL=33
2:45pm	5					Pump @ 44' WL=33.2
3:00pm	5					Pump @ 42' WL=33.3
3:15pm	5					Pump @ 41' WL=33.3
3:50pm	5					Pump @ 40' WL=33.0
4:10pm	5					Pump @ 39' WL=33.5
						Pump @ 38' WL=33.0
	70	= TOTAL VOLUME REMOVED (gal.)				

DEVELOPMENT METHOD: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NOTES: \_\_\_\_\_  
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# WELL DEVELOPMENT FIELD RECORD

JOB NAME <u>McDonough</u> DEVELOPED BY <u>Yang Cheng Suo</u> STARTED DEVEL. <u>10/4/19</u> / <u>8:45 am.</u> DATE      TIME W.L. BEFORE DEVEL. <u>1</u> / <u>1</u> DEPTH   DATE    TIME WELL DEPTH: BEFORE DEVEL. _____ STANDING WATER COLUMN (FT.) _____ SCREEN LENGTH <u>10</u> _____	JOB NO. _____ WELL NO. <u>B-83</u> DATE OF INSTALL. _____ SHEET <u>2</u> OF <u>2</u> COMPLETED DEVEL. <u>10/4/19</u> / <u>15:10</u> DATE      TIME AFTER DEVEL. <u>32.6</u> / <u>10/4/19</u> / <u>15:30</u> DEPTH   DATE    TIME AFTER DEVEL. <u>489.32 ft</u> WELL DIA. (in) <u>2</u> STANDING WELL VOLUME <u>266</u> gal. DRILLING WATER LOSS _____ gal.
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DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				REMARKS
		SPEC. COND. (mS/cm)	TEMP. (°C)	pH (s.u.)	Turbidity (NTU)	
<u>10/4.</u>	-					
<u>12:45 pm</u>	<u>5</u>					<u>WL = 33.6 ft pump @ 43 ft</u>
<u>1:25 pm</u>	<u>5</u>					<u>WL = 32.8 ft pump @ 42.</u>
<u>1:45 pm</u>	<u>5</u>					<u>WL = 33.7 ft pump @ 42.</u>
<u>2:15 pm</u>	<u>5</u>					<u>WL = 33.1 ft pump @ 42.</u>
<u>2:30</u>	<u>4.5</u>					<u>WL = 32.7 pump @ 42</u>
	<b><u>24.5</u></b>	= TOTAL VOLUME REMOVED (gal.)				

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES:



WELL DEVELOPMENT FIELD RECORD

JOB NAME McDonough JOB NO. \_\_\_\_\_ WELL NO. B-84  
 DEVELOPED BY J. Quenteville DATE OF INSTALL. \_\_\_\_\_ SHEET 1 OF 2  
 STARTED DEVEL. 10/4/19 / 1045 COMPLETED DEVEL. 10/4/19 / 1655  
DATE TIME  
 W.L. BEFORE DEVEL. 32.95 / 10/4 / 1000 AFTER DEVEL. 39.0 / 10/4 / 1630  
DEPTH DATE TIME  
 WELL DEPTH: BEFORE DEVEL. 49.42 AFTER DEVEL. \_\_\_\_\_ WELL DIA. (In) 2  
 STANDING WATER COLUMN (FT.) \_\_\_\_\_ STANDING WELL VOLUME \_\_\_\_\_ gal.  
 SCREEN LENGTH 10 DRILLING WATER LOSS \_\_\_\_\_ gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	OTHER	
<del>1054</del>						<del>WL: 38.05 pump at 40</del> JQ
1050						Start pump at 38
1054	5 JQ					WL: 38.05 pump at 41
1114	5					WL: 39.08 pump at 42
1120						WL: 42.00 pump at 45
1130						WL: 40.6 pump at 46
1150	5					WL: 42.5 pump at 46
1215						WL: 40.7 pump at 47
1236	5					WL: 40.5 pump at 46
1254	5					WL: 43.5 pump at 45
1320	5					WL: 39.61 pump at 41
1341					190	WL: 42.8
1400	5					WL: 40.0 pump at 43
1415						Pump off let well recover
1458						WL: 33.52 pump at 38
1502	5					WL: 38.2 pump at 40
1513						WL: 39.31 pump at 41
1523						WL: 39.7 pump at 42
1536						WL: 41.75 pump at 43
1541	5				52	WL: 40.0 "
	35	= TOTAL VOLUME REMOVED (gal.)				

DEVELOPMENT METHOD: Reclaimer Pump

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NOTES:





# GOLDER

## WELL DEVELOPMENT FIELD RECORD

JOB NAME \_\_\_\_\_  
 DEVELOPED BY \_\_\_\_\_  
 STARTED LEVEL \_\_\_\_\_  
                                 DATE        TIME  
 W.L. BEFORE DEVEL. \_\_\_\_\_  
                                 DEPTH   DATE    TIME  
 WELL DEPTH: BEFORE DEVEL. \_\_\_\_\_  
 STANDING WATER COLUMN (FT.) \_\_\_\_\_  
 SCREEN LENGTH \_\_\_\_\_

JOB NO. \_\_\_\_\_ WELL NO. \_\_\_\_\_  
 DATE OF INSTALL. \_\_\_\_\_ SHEET 2 OF 2  
 COMPLETED LEVEL \_\_\_\_\_  
   DATE        TIME  
 AFTER DEVEL. \_\_\_\_\_  
   DEPTH   DATE    TIME  
 AFTER DEVEL. \_\_\_\_\_ WELL DIA. (In) \_\_\_\_\_  
 STANDING WELL VOLUME \_\_\_\_\_ gal.  
 DRILLING WATER LOSS \_\_\_\_\_ gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	NTU <del>OTHER</del>		
10/4 1600					67	42.53 Pump at 44	
1628	4.5				15.6	41.03 "	
1630					4.1	Start Smartroll	
	39.5	= TOTAL VOLUME REMOVED (gal.)					

DEVELOPMENT METHOD: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NOTES:





## WELL DEVELOPMENT FIELD RECORD

JOB NAME Plant McDonough JOB NO. 166849618 WELL NO. B-85  
 DEVELOPED BY Yung Cuing So DATE OF INSTALL. 11/19/19 SHEET 1 OF 1  
 STARTED DEVEL. 11/20/19 10:30 COMPLETED DEVEL. 11/20/19 14:30  
 W.L. BEFORE DEVEL. DATE 6-44 TIME 11/20/19 AFTER DEVEL. DATE 1 TIME 1  
 WELL DEPTH: BEFORE DEVEL. 27.71 AFTER DEVEL. 1 WELL DIA. (in) 2  
 STANDING WATER COLUMN (FT.) 21.27 STANDING WELL VOLUME 3.47 gal.  
 SCREEN LENGTH 10 ft DRILLING WATER LOSS - gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					(ft) DTW	REMARKS Flow Rate
		NS/cm SPEC. COND. (umhos/cm)	TEMP. C	pH (s.u.)	NTU -OTHER			
11/20/19 10:35	0	0.77	18.66	6.57	7100	20.15	1 gal/min.	
10:44	9	0.58	18.61	6.19	7100	16.30	0.5 gal/min.	
10:59	<del>7</del> 5.165	0.52	18.30	5.80	7100	14.02	0.5 gal/min.	
11:13	7.235	0.14	18.21	5.72	139	14.01	0.5 gal/min.	
11:28	31.0	1.14	18.26	5.42	53.2	13.71	0.5 gal/min. Surge pull up	
11:43	38.5	1.14	18.26	5.47	<del>7100</del> 109	16.15	0.5 gal/min.	
11:53	43.5	1.14	18.25	5.45	57.4	15.50	0.5 gal/min.	
12:08	51	1.14	18.27	5.54	76.7	16.21	0.5 gal/min.	
12:23	58.5	1.14	18.34	5.52	19.2	16.72	0.5 gal/min.	
12:38	66.0	1.14	18.94	5.18	17.5	15.81	0.5 gal/min.	
12:53	73.5	1.15	18.30	5.50	7100	13.55	0.5 gal/min.	
13:08	81.0	1.15	18.24	5.56	17.6	13.39	0.5 gal/min.	
13:30	92.0	1.15	18.32	5.41	7100	14.62	0.5 gal/min.	
13:45	99.5	1.16	18.35	5.41	130	14.0.0	0.5 gal/min.	
14:00	107	1.16	18.39	5.40	388	14.36	0.5 gal/min.	
14:20	117	1.16	18.44	5.41	35.3	14.58	500 ml/min	
14:30	118	1.16	18.48	5.32	12.81	9.08	500 ml/min	
— 14:30 Stop pumping for pad construction —								
= TOTAL VOLUME REMOVED (gal.)								

DEVELOPMENT METHOD: compress air power pump with MP150, electric air compressor, generator, Lamotte 2000, smart tool (in situ).

NOTES: at 10:35 pump at 26.71 hys. (1' above screen)  
 at 11:28 pull pump 2' up & surge. at 24.71'  
 11:53 2' at 22.71'  
 12:08 2' up & surge at 20.71'  
 12:23 2' up & surge at 18.71'  
 12:38 pull 2' up & surge @ 16.71.  
 13:08 pump @ 6" above bottom of well. (27').

**PURGING AND SAMPLING FORM**

Project #: 166849618	Project Name/Site Name: Plant McDonough Additional Sampling November 2019		Page: ___ of ___
Well ID #: B-85	Date: 11-20-19	Water Level (ft): 3.14	Time (WL): 1535
Physical Condition of Well:		Weather: Sunny	
Well Diameter (in): varies	Well Depth (ft): 27.71	Water Column (ft): 24.57	Well Volume (gal): 4.0
Start Purge: 15:38	End Purge: 1649	Top of Pump (ft): 22.71	
Evacuation Method: Low-Flow		Volume Removed (L): 35.5	
Evacuation Equipment: Vallex Geotech reclaimers		Purging Personnel: WB, JEB	
SmarTroll serial #: 613229		Lamotte serial #: 1479-4011	

**Purge Data/Field Parameters**

Time	Color & Appearance	Odor	pH (S.U.)	Cond. (uS/cm)	DO (mg/L)	Temp (C)	ORP (mV)	Turbidity (NTU)	DTW (ft BTOC)	Pumping Rate
1649	clear	no	5.38	1167.2	0.12	18.39	33.98	4.83	4.5	500

Stabilization Criteria: pH ± 0.1 S.U., Conductivity ± 5%, Dissolved Oxygen ± 10% or 0.2Mg/L (whichever is greater; for DO < 0.5mg/L, record only, no stabilization criteria), Turbidity ≤ 5 NTU; Purge volume ≥ 3L purge water, water level ≤ 0.3 ft; Temp and ORP record only

**Sample Description**

Sample ID: \_\_\_\_\_ Sample Date/Time: \_\_\_\_\_ Metals Date/Time: \_\_\_\_\_  
 Duplicate: \_\_\_\_\_ Dup Date/Time: \_\_\_\_\_ Final Turbidity NTU: \_\_\_\_\_  
 Field Blank: \_\_\_\_\_ Blank Date/Time: \_\_\_\_\_ Turbidity Date/Time: \_\_\_\_\_

# Sample Bottles	Container	Preservative	Analyte(s)
1	250 mL plastic	HNO <sub>3</sub>	Boron, Beryllium, Cobalt
1	250 mL plastic	--	Al, Mg, Mn, K, Na, Si, Ca
1	250 mL plastic	--	Alkalinity (Bicarbonate + Carbonate)
1	250 mL plastic	--	Ferrous + Ferric Iron
1	250 mL plastic	--	Cl, SO <sub>4</sub>

Signature:     JEB    





# GOLDER

## WELL DEVELOPMENT FIELD RECORD

JOB NAME Plant McDonough JOB NO. 166849618 WELL NO. B-86  
 DEVELOPED BY SEB DATE OF INSTALL. 11-19-19 SHEET 1 OF 2  
 STARTED DEVEL. 11-20-19 / 10:08 COMPLETED DEVEL. 11-19-19 / 1522  
DATE TIME  
 W.L. BEFORE DEVEL. 4.51 / 11-20-19 9:57 AFTER DEVEL. 5.38 / 11-19-19 1522  
DEPTH DATE TIME  
 WELL DEPTH: BEFORE DEVEL. 3583 AFTER DEVEL. \_\_\_\_\_ WELL DIA. (In) 2  
 STANDING WATER COLUMN (FT.) 31.32 STANDING WELL VOLUME 4.96 gal.  
 SCREEN LENGTH 10 feet DRILLING WATER LOSS \_\_\_\_\_ gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				DTW	REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°C)	pH (s.u.)	NTU OTHER		
11-20-19 10:08	0	1088.5	18.17	6.18	71000	5.61	1/2 gal/min
10:21	6.5	1089.6	17.94	5.82	>1000	10.21	1.25 gal/min
10:45	36.5	1122.6	17.83	5.77	99.5	17.11	1.25 gal/min
11:00	18.8	1111.3	17.81	5.58	62.6	11.39	1.25 gal/min
11:15	18.8	1001.2	17.83	5.62	77.9	11.51	1.25 gal/min
11:30	18.8	1111.6	17.85	5.62	99.2	11.22	1.25 gal/min
11:45	18.8	1112.3	17.88	5.62	106.2	10.75	1.25 gal/min
12:00	18.8	1114.4	17.82	5.60	46.7	11.45	1.25 gal/min
12:15	18.8	1113.3	17.90	5.58	110	11.26	1.25 gal/min
12:30	18.8	1116.1	17.90	5.60	49.3	11.42	1.25 gal/min
12:45	18.8	1112.3	17.89	5.5	71.4	11.68	1.25 gal/min
13:00	18.8	1116.0	17.90	5.57	84.5	11.88	1.25 gal/min
13:15	18.8	1114.5	17.92	5.56	45.5	11.95	1.25 gal/min
13:30	18.8	1117.7	17.94	5.55	136	11.65	1.25 gal/min
13:45	18.8	1116.7	17.94	5.56	51.4	11.55	1.25 gal/min
14:00	18.8	1114.6	17.94	5.54	144	12.12	1.25 gal/min
14:15	18.8	1108.8	17.90	5.53	40.6	12.05	1.25 gal/min
14:30	3.75	1124.8	18.26	5.44	12.02	6.70	0.25 gal/min
14:40	3.75	1122.2	18.57	5.45	4.89	6.17	0.25 gal/min
	313.7	= TOTAL VOLUME REMOVED (gal)					

DEVELOPMENT METHOD: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NOTES: 10:08 - pump 1 ft above bottom of screen  
 11:00 - pulled pump up to 3 ft and surged screen  
 12:00 - 5 ft below bottom of screen - surged  
 12:30 - 7 ft below bottom of screen - surged  
 13:15 - 9 ft below bottom of screen  
 13:45 - moved to 0.5 ft below bottom of screen - surged  
 14:15 - reduces pump rate

# PURGING AND SAMPLING FORM

Project #: 166849618	Project Name/Site Name: Plant McDonough Additional Sampling November 2019		Page: <u>2</u> of <u>2</u>
Well ID #: <u>B-86</u>	Date: <u>11-20-19</u>	Water Level (ft): <u>5.6</u> <del>4.0</del>	Time (WL): <u>1446</u>
Physical Condition of Well:		Weather: <u>sunny</u>	
Well Diameter (in): varies	Well Depth (ft): <u>35.83</u>	Water Column (ft): <u>30.23</u>	Well Volume (gal): <u>4.93</u>
Start Purge: <u>15:00</u>	End Purge: <u>1522</u>	Top of Pump (ft): <u>30</u> <del>4.0</del>	
Evacuation Method: Low-Flow		Volume Removed (L): <u>11</u>	
Evacuation Equipment: <u>AAKRS Geotech reclaimer</u>		Purging Personnel: <u>SEB, WB</u>	
SmarTroll serial #: <u>364452</u>		Lamotte serial #: <u>6411-1416</u>	

## Purge Data/Field Parameters

Time	Color & Appearance	Odor	pH (S.U.)	Cond. (uS/cm)	DO (mg/L)	Temp (C)	ORP (mV)	Turbidity (NTU)	DTW (ft BTOC)	Pumping Rate
<u>1522</u>	<u>clear</u>	<u>no</u>	<u>5.42</u>	<u>1122.5</u>	<u>0.49</u>	<u>18.75</u>	<u>76.10</u>	<u>4.38</u>	<u>5.38</u>	<u>500</u>

Stabilization Criteria: pH ± 0.1 S.U., Conductivity ± 5%, Dissolved Oxygen ± 10% or 0.2Mg/L (whichever is greater; for DO < 0.5mg/L, record only, no stabilization criteria), Turbidity ≤ 5 NTU; Purge volume ≥ 3L purge water, water level ≤ 0.3 ft; Temp and ORP record only

## Sample Description

Sample ID: \_\_\_\_\_ Sample Date/Time: \_\_\_\_\_ Metals Date/Time: \_\_\_\_\_  
 Duplicate: \_\_\_\_\_ Dup Date/Time: \_\_\_\_\_ Final Turbidity NTU: \_\_\_\_\_  
 Field Blank: \_\_\_\_\_ Blank Date/Time: \_\_\_\_\_ Turbidity Date/Time: \_\_\_\_\_

# Sample Bottles	Container	Preservative	Analyte(s)
1	250 mL plastic	HNO <sub>3</sub>	Boron, Beryllium, Cobalt
1	250 mL plastic	--	Al, Mg, Mn, K, Na, Si, Ca
1	250 mL plastic	--	Alkalinity (Bicarbonate + Carbonate)
1	250 mL plastic	--	Ferrous + Ferric Iron
1	250 mL plastic	--	Cl, SO <sub>4</sub>

Signature: AB

## WELL DEVELOPMENT FIELD RECORD

JOB NAME <u>Plant McDonough</u>	JOB NO. <u>166849618</u>	WELL NO. <u>B-87</u>
DEVELOPED BY <u>William Baslow / Yang Chong Soo</u>	DATE OF INSTALL. _____	SHEET <u>1</u> OF _____
STARTED DEVEL. <u>11/21/19</u> / <u>1025</u>	COMPLETED DEVEL. _____ / _____	DATE TIME
W.L. BEFORE DEVEL. <u>16.51</u> / <u>11/21/19</u> / <u>1005</u>	AFTER DEVEL. _____ / _____ / _____	DEPTH DATE TIME
WELL DEPTH: BEFORE DEVEL. <u>45.04</u>	AFTER DEVEL. _____	WELL DIA. (In) _____
STANDING WATER COLUMN (FT.) _____	STANDING WELL VOLUME _____	gal.
SCREEN LENGTH _____	DRILLING WATER LOSS _____	gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					#.	gal	REMARKS
		<u>us/cm</u> SPEC. COND. <small>(umhos/cm)</small>	TEMP. <small>(°F)</small>	pH <small>(s.u.)</small>	NTU OTHER	DTW			
<u>11/21/19 1025</u>	<u>-</u>	<u>1748.0</u>	<u>18.25</u>	<u>6.78</u>	<u>71000</u>	<u>32.89</u>	<u>0.75</u>	<u>g</u>	
<u>1030</u>	<u>3.75</u>	<u>1750.0</u>	<u>17.63</u>	<u>6.57</u>	<u>71000</u>	<u>33.30</u>	<u>0.5</u>		
<u>1045</u>	<u>7.5</u>	<u>1754.0</u>	<u>17.57</u>	<u>6.25</u>	<u>71000</u>	<u>34.61</u>	<u>0.5</u>		
<u>1100</u>	<u>18.75</u>	<u>1886.0</u>	<u>17.54</u>	<u>6.11</u>	<u>657 AU</u>	<u>33.90</u>	<u>0.5</u>		
		= TOTAL VOLUME REMOVED (gal.)							

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES:





## WELL DEVELOPMENT FIELD RECORD

JOB NAME <u>McDonough</u>	JOB NO. _____	WELL NO. <u>B-87</u>
DEVELOPED BY _____	DATE OF INSTALL. _____	SHEET <u>2</u> OF _____
STARTED LEVEL. <u>11/21/19</u>	COMPLETED LEVEL. _____	DATE _____ TIME _____
W.L. BEFORE LEVEL. _____	AFTER LEVEL. _____	DEPTH _____ DATE _____ TIME _____
WELL DEPTH: BEFORE DEVEL. _____	AFTER DEVEL. _____	WELL DIA. (In) _____
STANDING WATER COLUMN (FT.) _____	STANDING WELL VOLUME _____	gal.
SCREEN LENGTH _____	DRILLING WATER LOSS _____	gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				WL	REMARKS
		SPEC. COND. (mS/cm)	TEMP. (°C)	pH (s.u.)	Turbidity (NTU)		
<u>11/21/19 1115</u>		<u>1.93</u>	<u>17.50</u>	<u>6.10</u>	<u>111</u>	<u>33.79</u>	<u>0.5 gal/min</u>
<u>1130</u>		<u>1.97</u>	<u>17.37</u>	<u>6.10</u>	<u>&gt;1000</u>	<u>34.01</u>	<u>0.5 gal/min</u>
<u>1145</u>		<u>2.00</u>	<u>17.31</u>	<u>6.07</u>	<u>&gt;1000</u>	<u>34.85</u>	<u>0.5 gal/min</u>
<u>1200</u>		<u>2.01</u>	<u>17.14</u>	<u>6.06</u>	<u>123</u>	<u>34.65</u>	<u>0.5 gal/min</u>
<u>1200</u>		<u>1.95</u>	<u>17.55</u>	<u>6.07</u>	<u>&gt;1000</u>	<u>34.89</u>	<u>0.5 gal/min</u>
<u>1225</u>		<u>2.0</u>	<u>17.44</u>	<u>6.06</u>	<u>&gt;1000</u>	<u>34.79</u>	<u>0.5 gal/min</u>
<u>1230</u>		<u>1.98</u>	<u>17.58</u>	<u>6.73</u>	<u>166</u>	<u>34.71</u>	<u>0.5 gal/min</u>
<u>1245</u>		<u>2.01</u>	<u>17.63</u>	<u>5.97</u>	<u>662</u>	<u>33.91</u>	<u>0.5</u>
<u>1300</u>		<u>2.03</u>	<u>17.39</u>	<u>6.04</u>	<u>103.1</u>	<u>33.95</u>	<u>0.5</u>
<u>1305</u>		<u>2.03</u>	<u>17.34</u>	<u>5.97</u>	<u>75.8</u>	<u>33.85</u>	<u>0.5</u>
<u>1320</u>		<u>1.28</u>	<u>17.78</u>	<u>6.05</u>	<u>&gt;1000</u>	<u>31.80</u>	<u>0.5</u>
<u>1345</u>		<u>2.02</u>	<u>17.54</u>	<u>5.69</u>	<u>&gt;1000</u>	<u>33.03</u>	<u>0.5</u>
<u>1400</u>		<u>2.01</u>	<u>17.77</u>	<u>5.91</u>	<u>275</u>	<u>33.05</u>	<u>0.5</u>
<u>1415</u>		<u>2.04</u>	<u>17.72</u>	<u>5.75</u>	<u>43.6</u>	<u>33.70</u>	<u>0.5</u>
<u>1430</u>		<u>2.02</u>	<u>17.57</u>	<u>5.89</u>	<u>36.2</u>	<u>34.02</u>	<u>0.5</u>
= TOTAL VOLUME REMOVED (gal.)							

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES: 1115 - moved to 4 ft - Surged  
1200 - moved to 7 ft  
1230 - moved to 9 ft  
1315 - moved to 0.5 ft



## WELL DEVELOPMENT FIELD RECORD

JOB NAME <u>McDonough</u> DEVELOPED BY <u>SEP</u> STARTED DEVEL. <u>11/21/19 1030</u> <small>DATE TIME</small> W.L. BEFORE DEVEL. <u>32.65 11-21-19 9:22</u> <small>DEPTH DATE TIME</small> WELL DEPTH: BEFORE DEVEL. <u>75.05</u> STANDING WATER COLUMN (FT.) <u>42.4</u> SCREEN LENGTH <u>10 feet</u>	JOB NO. <u>166849618</u> WELL NO. <u>B-88</u> DATE OF INSTALL. _____ SHEET <u>1</u> OF <u>3</u> COMPLETED DEVEL. <u>11-21-19 1645</u> <small>DATE TIME</small> AFTER DEVEL. <u>33.0 11-21-19 1645</u> <small>DEPTH DATE TIME</small> AFTER DEVEL. _____ WELL DIA. (In) <u>2</u> STANDING WELL VOLUME <u>6.859</u> gal. DRILLING WATER LOSS _____ gal.
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DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				REMARKS	
		SPEC. COND. (mS/cm)	TEMP. (°C)	pH (s.u.)	Turbidity (NTU)	WL	FLOW (gpm)
11/21/19 1040	2.5	1.08	17.84	6.61	2100.2	33.70	0.25 gal/min
1045	10	1.10	17.76	6.50	2100.2	35.48	1.5 gal/min
1100	32.5	1.13	17.68	6.28	2100.0	35.35	1.5 gal/min
1115	55	1.16	17.63	6.18	44.8	35.51	1.5 gal/min
1130	92.5	1.20	17.36	6.19	73	35.12	1.5 gal/min
1145	<del>100.0</del>	1.21	17.29	6.17	34.8	35.30	1.5 gal/min
1200	122.5	1.22	17.72	5.98	79.7	35.5	1.5 gal/min
1215	145	1.24	17.27	6.12	42.2	35.65	1.5 gal/min
1230	167.5	1.28	17.45	6.05	86.3	35.85	1.5 gal/min
1245	190	1.30	17.	5.65	25.7	35.87	1.5 gal/min
1300	212.5	1.33	17.28	6.01	118	35.45	1.5 gal/min
1315	235	1.33	17.31	6.10	19.4	35.46	1.5 gal/min
1330	257.5	1.34	17.57	5.93	25.3	35.48	1.5 gal/min
1345	261.25	1.34	17.94	5.56	9.28	33.78	0.25
1400	265	1.34	17.90	5.67	10.29	33.48	0.25
1415	268.75	1.33	17.84	5.52	11.50	33.52	0.25
1430	272.5	1.34	17.54	5.77	9.29	33.55	0.25
1445	276.25	1.33	17.76	5.47	7.51	33.6	0.25
<del>276.25</del>		= TOTAL VOLUME REMOVED (gal.)					

DEVELOPMENT METHOD: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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- NOTES:
- 1130 ~~1130~~ - moved pump to 4 ft above screen bottom - surged
  - 1145 - moved pump to 7 ft above screen bottom
  - 1215 - moved pump to 9 ft
  - 1245 - moved pump to 0.5 ft " " " - surged
  - 1330 - reduced pump rate





## WELL DEVELOPMENT FIELD RECORD

JOB NAME McDonough  
 DEVELOPED BY SEB  
 STARTED DEVEL. 10-21-19 / 1030  
DATE TIME  
 W.L. BEFORE DEVEL. 32.65 / 11-21-19 9:22  
DEPTH DATE TIME  
 WELL DEPTH: BEFORE DEVEL. 75.05  
 STANDING WATER COLUMN (FT.) 42.4  
 SCREEN LENGTH 10 feet

JOB NO. 160849618 WELL NO. B-88  
 DATE OF INSTALL. 11 SHEET 2 OF 3  
 COMPLETED DEVEL. 11-21-19 / 1645  
DATE TIME  
 AFTER DEVEL. 33.0 / 11-21-19 1645  
DEPTH DATE TIME  
 AFTER DEVEL.          WELL DIA. (In) 2  
 STANDING WELL VOLUME 6.851 gal.  
 DRILLING WATER LOSS          gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				REMARKS	FLOW (gpm)	
		SPEC. COND. (mS/cm)	TEMP. (°C)	pH (s.u.)	Turbidity (NTU)			
<u>11/21/19 1500</u>	<u>280</u>	<u>1.34</u>	<u>17.35</u>	<u>5.80</u>	<u>5-12</u>	<u>33.65</u>	<u>0.25</u>	
	<u>280</u>	= TOTAL VOLUME REMOVED (gal.)						

DEVELOPMENT METHOD: \_\_\_\_\_

\_\_\_\_\_

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NOTES:

1500 - low flow

# PURGING AND SAMPLING FORM

Project #: 166849618	Project Name/Site Name: Plant McDonough Additional Sampling		Page: <u>3</u> of <u>3</u>
Well ID #: <u>B-88</u>	Date: <u>11-21-19</u>	Water Level (ft): <u>33.46</u>	Time (WL): <u>1520</u>
Physical Condition of Well:		Weather: <u>cloudy 64°F</u>	
Well Diameter (in): varies	Well Depth (ft): <del>75.05</del> <u>75.05</u>	Water Column (ft): <u>41.57</u>	Well Volume (gal): <u>6.78</u>
Start Purge: <u>15:35</u>	End Purge: <u>16:45</u>	Top of Pump (ft): <del>74.5</del> <u>74.5</u>	
Evacuation Method: Low-Flow		Volume Removed (L): <u>22.6</u>	
Evacuation Equipment: <u>Geotech reclaimer</u>		Purging Personnel: <u>SEB</u>	
SmarTroll serial #: <u>364452</u>		Lamotte serial #: <u>6411-1416</u>	

## Purge Data/Field Parameters

Time	Color & Appearance	Odor	pH (S.U.)	Cond. (uS/cm)	DO (mg/L)	Temp (C)	ORP (mV)	Turbidity (NTU)	DTW (ft BTOC)	Pumping Rate
<u>1645</u>	<u>clear</u>		<u>5.55</u>	<u>1320.06</u>	<u>0.41</u>	<u>17.72</u>	<u>69.40</u>	<u>3.27</u>	<u>33.0</u>	<u>280</u>

Stabilization Criteria: pH ± 0.1 S.U, Conductivity ± 5%, Dissolved Oxygen ± 10% or 0.2Mg/L (whichever is greater; for DO < 0.5mg/L, record only, no stabilization criteria), Turbidity ≤ 5 NTU; Purge volume ≥ 3L purge water, water level ≤ 0.3 ft; Temp and ORP record only

## Sample Description

Sample ID: \_\_\_\_\_ Sample Date/Time: \_\_\_\_\_ Metals Date/Time: \_\_\_\_\_  
 Duplicate: \_\_\_\_\_ Dup Date/Time: \_\_\_\_\_ Final Turbidity NTU: \_\_\_\_\_  
 Field Blank: \_\_\_\_\_ Blank Date/Time: \_\_\_\_\_ Turbidity Date/Time: \_\_\_\_\_

# Sample Bottles	Container	Preservative	Analyte(s)
1	250 mL plastic	HNO <sub>3</sub>	Boron, Beryllium, Cobalt
1	250 mL plastic	--	Al, Mg, Mn, K, Na, Si, Ca
1	250 mL plastic	--	Alkalinity (Bicarbonate + Carbonate)
1	250 mL plastic	--	Ferrous + Ferric Iron
1	250 mL plastic	--	Cl, SO <sub>4</sub>

Signature: SEB

Note: dropped flow rate to 280 mL/min @ 1600





# PURGING AND SAMPLING FORM

Project #: 166849618	Project Name/Site Name: Plant McDonough Additional Sampling November 2019		Page: <u>2</u> of <u>2</u>
Well ID #: <u>B-89</u>	Date: <u>11-22-19</u>	Water Level (ft): <u>26.91</u>	Time (WL): <u>1145</u>
Physical Condition of Well:		Weather: <u>Sunny</u>	
Well Diameter (in): varies	Well Depth (ft): <u>48.89</u>	Water Column (ft): <u>21.98</u>	Well Volume (gal): <u>3.58</u>
Start Purge: <u>1200</u>	End Purge: <u>1228</u>	Top of Pump (ft): <u>49.00</u>	
Evacuation Method: Low-Flow		Volume Removed (L): <u>6.72</u>	
Evacuation Equipment: <u>Geotech Reclaimer</u>		Purging Personnel: <u>SEB</u>	
SmarTroll serial #: <u>613229</u>		Lamotte serial #: <u>1479-4011</u>	

## Purge Data/Field Parameters

Time	Color & Appearance	Odor	pH (S.U.)	Cond. (uS/cm)	DO (mg/L)	Temp (C)	ORP (mV)	Turbidity (NTU)	DTW (ft BTOC)	Pumping Rate
<u>1228</u>	<u>clear</u>	<u>none</u>	<u>5.73</u>	<u>457.70</u>	<u>2.44</u>	<u>20.14</u>	<u>51.50</u>	<u>0.38</u>	<u>23.95</u>	<u>240</u>

Stabilization Criteria: pH ± 0.1 S.U., Conductivity ± 5%, Dissolved Oxygen ± 10% or 0.2Mg/L (whichever is greater; for DO < 0.5mg/L, record only, no stabilization criteria), Turbidity ≤ 5 NTU; Purge volume ≥ 3L purge water, water level ≤ 0.3 ft; Temp and ORP record only

## Sample Description

Sample ID: \_\_\_\_\_ Sample Date/Time: \_\_\_\_\_ Metals Date/Time: \_\_\_\_\_  
 Duplicate: \_\_\_\_\_ Dup Date/Time: \_\_\_\_\_ Final Turbidity NTU: \_\_\_\_\_  
 Field Blank: \_\_\_\_\_ Blank Date/Time: \_\_\_\_\_ Turbidity Date/Time: \_\_\_\_\_

# Sample Bottles	Container	Preservative	Analyte(s)
1	250 mL plastic	HNO <sub>3</sub>	Boron, Beryllium, Cobalt
1	250 mL plastic	--	Al, Mg, Mn, K, Na, Si, Ca
1	250 mL plastic	--	Alkalinity (Bicarbonate + Carbonate)
1	250 mL plastic	--	Ferrous + Ferric Iron
1	250 mL plastic	--	Cl, SO <sub>4</sub>

Signature: AB



## WELL DEVELOPMENT FIELD RECORD

<b>JOB NAME</b> <u>McDonough</u> <b>DEVELOPED BY</b> <u>Arthur D. Rose</u> <b>STARTED DEVEL.</b> <u>12-11-19</u> / <u>1455</u> DATE    TIME <b>W.L. BEFORE DEVEL.</b> <u>304</u> / <u>12-11-19</u> / <u>1450</u> DEPTH DATE TIME <b>WELL DEPTH: BEFORE DEVEL.</b> <u>34.35</u> <b>STANDING WATER COLUMN (FT.)</b> <u>31.31</u> <b>SCREEN LENGTH</b> <u>10'</u>	<b>JOB NO.</b> <b>DATE OF INSTALL.</b> <u>12-10-19</u> <b>WELL NO.</b> <u>B-90</u> <b>COMPLETED DEVEL.</b> <u>NA/12-11-19</u> <b>SHEET</b> <u>1</u> <b>OF</b> <u>1</u> DATE    TIME <b>AFTER DEVEL.</b> <u>12-11-19</u> / <u>1605</u> DATE    TIME <b>AFTER DEVEL.</b> <u>34.38</u> <b>WELL DIA. (in)</b> <u>2"</u> DEPTH DATE TIME <b>STANDING WELL VOLUME</b> <u>114</u> gal. <b>DRILLING WATER LOSS</b> <u>NA</u> gal.
--	--

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	MU OTHER	
12-11-19 1515	10				7100	6.21 Swaged well 1' from bot
1525	16				7100	7.42 Swaged well 2' from bot
1535	22				7100	8.47 swaged well 3' from bot
1545	28				7100	9.21 swaged well 5' from bot
1555	34				7100	10.41 swaged well 6' from bot
1605	40				7100	11.21 Swaged well 7' from bot
	40	= TOTAL VOLUME REMOVED (gal.)				

**DEVELOPMENT METHOD:** Reclaimer swaged well every 5 gallons

NOTES:



# GOLDER

## WELL DEVELOPMENT FIELD RECORD

JOB NAME McDonough  
 DEVELOPED BY Arthur O. Rosc III  
 STARTED DEVEL. 12-17-14 10957  
DATE TIME  
 W.L. BEFORE DEVEL. 3.04 12-17-14 10957  
DEPTH DATE TIME  
 WELL DEPTH: BEFORE DEVEL. 3.04  
 STANDING WATER COLUMN (FT.) 31.34  
 SCREEN LENGTH 10'

JOB NO. \_\_\_\_\_ WELL NO. R-90  
 DATE OF INSTALL. 12-11-14 SHEET 2 OF 2  
 COMPLETED DEVEL. 12-14-14 1300  
DATE TIME  
 AFTER DEVEL. NA, NA, NA  
DEPTH DATE TIME  
 AFTER DEVEL. NA WELL DIA. (in) 2"  
 STANDING WELL VOLUME NA gal.  
 DRILLING WATER LOSS NA gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	NTN OTHER	DTW	
12-12-14 1007	5				7100	1' from bottom surging	
1016	10				7100	10.99 2' from bottom surging	
1023	15				7100	11.75 3' from bottom surging	
1030	20				7100	10.85 3' from bottom surging	
1040	25				7100	10.62 4' from bottom sur	
1047	30				7100	11.70 4' from bottom surging	
1055	35				7100	13.50 4' from bottom sur	
1106	40				7100	10.75 4' from bottom sur	
1113	45				7100	12.82 4' from bottom sur	
1123	50				7100	10.98 4' from bottom surging	
1133	55				7100	11.52 4' from bottom <del>surging</del> surging	
1143	60				>100	12.73 4' from bottom No surging	
1153	65				7100	12.43 5' from bottom and surging	
1203	70				>100	12.94 6' from bottom and surging	
1212	75				7100	12.45 7' from bottom surging	
1222	80				>100	12.42 8' from bottom surging	
1231	85				>100	12.52 9' from bottom sur	
1240	90				7100	12.42 1' from bottom surging	
1253	95				>100	11.84 2' from bottom sur	
1310	100				>100	12.63 3' from bottom surging	
	1004 40	= TOTAL VOLUME REMOVED (gal.)					

today yesterday

DEVELOPMENT METHOD: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

NOTES:



# GOLDER

## WELL DEVELOPMENT FIELD RECORD

JOB NAME McDonough  
 DEVELOPED BY Arthur D. Dorrett III  
 STARTED DEVEL. 12-11-14 / 0957  
 DATE TIME  
 W.L. BEFORE DEVEL. 3.04 / 12-14-14 / 0957  
 DATE TIME  
 WELL DEPTH: BEFORE DEVEL. 3.04  
 STANDING WATER COLUMN (FT.) 31.34  
 SCREEN LENGTH 10'

JOB NO. \_\_\_\_\_ WELL NO. B-90  
 DATE OF INSTALL. 12-11-14 SHEET 2 OF 2  
 COMPLETED DEVEL. 12-14-14, 1300  
 DATE TIME  
 AFTER DEVEL. NA, NA, NA  
 DATE TIME  
 AFTER DEVEL. NA WELL DIA. (in) 2"  
 STANDING WELL VOLUME NA gal.  
 DRILLING WATER LOSS NA gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					DTW			REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	MTU OTHER					
<u>12-11-14</u> 1320	<del>105</del> <u>105</u>					<u>&gt;100</u>	<u>13.41</u>	<u>4</u>	<u>Y</u>	<u>Foot from bottom) 54.19 (mg) / gal</u>
1330	<u>110</u>					<u>7100</u>	<u>11.35</u>	<u>5</u>	<u>Y</u>	
1340	<u>115</u>					<u>7100</u>	<u>11.1</u>	<u>5</u>	<u>N</u>	
1350	<u>120</u>	<u>1207</u>	<u>1853</u>	<u>5.81</u>		<u>108.3</u>	<u>8.11</u>	<u>5</u>	<u>N</u>	
1355	<u>121</u>	<u>1284</u>	<u>1848</u>	<u>5.78</u>		<u>95.9</u>	<u>7.72</u>	<u>5</u>	<u>N</u>	
		= TOTAL VOLUME REMOVED (gal.)								

DEVELOPMENT METHOD: \_\_\_\_\_  
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 \_\_\_\_\_  
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NOTES:  
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# GOLDER

## WELL DEVELOPMENT FIELD RECORD

JOB NAME	<u>McDonough</u>	JOB NO.	<u>12-11-19</u>	WELL NO.	<u>B-90</u>
DEVELOPED BY	<u>Arthur D. Rose III</u>	DATE OF INSTALL.	<del>12-11-19</del>	SHEET	<u>1</u> OF <u>2</u>
STARTED LEVEL	<u>12-13-19 10930</u>	COMPLETED LEVEL	<u>12-14-19 11000</u>		
W.L. BEFORE DEVEL.	<u>1.32</u> DATE <u>12-17-19</u> TIME <u>09:10</u>	AFTER DEVEL.	<u>NA</u> DATE <u>NA</u> TIME <u>NA</u>		
WELL DEPTH: BEFORE DEVEL.	<u>32.96</u>	AFTER DEVEL.	<u>NA</u> WELL DIA. (in)	<u>2"</u>	
STANDING WATER COLUMN (FT.)	<u>NA</u>	STANDING WELL VOLUME	<u>NA</u>	gal.	
SCREEN LENGTH	<u>10'</u>	DRILLING WATER LOSS	<u>NA</u>	gal.	

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	NTU OTHER	D <sub>40</sub>	
12-13-19 1000	15	1196	18.08	5.97	80	6.62	
1010	19	1186	18.11	5.92	82.8	6.90	
1020	22.5	1178	18.12	5.89	42.9	6.96	
1030	25	1168	18.04	5.85	30.5	6.97	
1040	30	1161	18.03	5.82	21.6	7.06	
1050	35	1159	18.09	5.80	14.2	7.20	
1100	40	1145	18.14	5.78	10.47	7.32	
1110	45	1141	18.14	5.75	10.13	7.62	
1120	50	1156	18.16	5.74	9.21	7.96	
1130	55	1155	18.17	5.72	10.93	8.21	
1140	60	1156	18.15	5.71	7.40	7.79	
1150	65	1156	18.16	5.71	7.4	7.79	
1200	70	1153	18.16	5.71	12.14	<del>12.14</del> 7.68	
1210	75	1151	18.12	5.71	6.68	7.61	
1220	80	1151	18.17	5.71	11.4	7.59	
1230	85	1148	18.10	5.69	12.6	7.59	
1240	90	1148	18.16	5.69	9.60	7.70	
1250	95	1151	18.19	5.69	12.4	7.81	
1300	100	1151	18.21	5.69	83.2	7.32 lowered pump 2 feet	
1310	105	1153	18.21	5.68	14.2	6.87	

= TOTAL VOLUME REMOVED (gal.)

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES:





## WELL DEVELOPMENT FIELD RECORD

JOB NAME: <u>McDonough</u> DEVELOPED BY: <u>Arthur D. Rogo III</u> STARTED DEVEL: <u>12-13-19</u> / <u>0936</u> DATE      TIME W.L. BEFORE DEVEL: <u>132</u> / <u>12-13-19</u> / <u>0910</u> DEPTH  DATE  TIME WELL DEPTH: BEFORE DEVEL: <u>32.96</u> STANDING WATER COLUMN (FT.): <u>NA</u> SCREEN LENGTH: <u>10'</u>	JOB NO. _____ WELL NO. <u>B-90</u> DATE OF INSTALL: <u>12-11-19</u> SHEET <u>2</u> OF <u>2</u> COMPLETED DEVEL: <u>12-14-19</u> / <u>1300</u> DATE      TIME AFTER DEVEL: <u>NA, NA, NA</u> DEPTH  DATE  TIME AFTER DEVEL: <u>NA</u> WELL DIA. (in) <u>2"</u> STANDING WELL VOLUME: <u>NA</u> gal. DRILLING WATER LOSS: <u>NA</u> gal.
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DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	NTU OTHER	D/W	
1326	110	1149	18.21	5.68	72.8	6.85	
1330	115	1150	18.20	5.69	64.2	6.82	
1340	120	1150	18.20	5.69	44.5	6.79	
1350	125	1151	18.17	5.68	51.2	6.79	
1400	130	1152	18.16	5.67	57.2	6.75	
1410	140	1152	18.17	5.69	73.0	11.02	
1420	150	1157	18.35	5.69	39.7	11.22	
1430	160	1174	19.28	5.67	73.2	12.12	
1440	170	1176	18.30	5.66	9.01	11.93	
1450	180	1161	18.32	5.67	9.99	11.87	
1500	190	1159	18.34	5.67	9.13	11.87	
1510	200	1159	18.31	5.66	10.69	11.87	
1520	210	1164	18.32	5.65	9.55	11.87	
1530	220	1167	18.30	5.65	16.8	11.87	
1540	230	1173	18.24	5.65	9.26	11.87	
230+121+40		= TOTAL VOLUME REMOVED (gal.)					

DEVELOPMENT METHOD: bow your day out B&C

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NOTES:



# GOLDER

## WELL DEVELOPMENT FIELD RECORD

JOB NAME	<u>Mc Donough</u>	JOB NO.		WELL NO.	<u>B-90</u>
DEVELOPED BY	<u>Arthur D. Rosetti</u>	DATE OF INSTALL	<u>12-11-19</u>	SHEET	<u>1</u> OF <u>2</u>
STARTED LEVEL	<u>12-14-19 10:50 08 38</u>	COMPLETED LEVEL	<u>12-14-19 1300</u>		
W.L. BEFORE DEVEL.	<u>1.18 12-14-19 10830</u>	AFTER DEVEL.	<u>NA, NA, NA</u>		
WELL DEPTH: BEFORE DEVEL.	<u>32.96</u>	AFTER DEVEL.	<u>NA</u>	WELL DIA. (In)	<u>2 1/2</u>
STANDING WATER COLUMN (FT.)	<u>NA</u>	STANDING WELL VOLUME	<u>NA</u>		gal.
SCREEN LENGTH	<u>10'</u>	DRILLING WATER LOSS	<u>NA</u>		gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					REMARKS	
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	NTU OTHER	D <sub>10</sub>		
12-14-19 0900	15	1233	18.17	5.86	36.2	10.22	~2.5 feet from bottom	
12-14-19 0910	20	1222	18.26	5.75	15.6	10.74		
0920	25	1220	18.25	5.70	18.5	10.53		
0930	30	1218	18.25	5.69	12.3	10.52		
0940	35	1215	18.26	5.67	8.78	10.50		
0950	40	1213	18.29	5.66	8.79	10.50		
1000	45	1214	18.29	5.65	10.85	10.50	moved to 5' from bottom	
1010	50	1164	18.26	5.74	29.71	9.92		
1020	52	1204	18.24	5.76	106.1	12.00		
1030	58	1214	18.26	5.65	48.7	11.08		
1040	64	1214	18.26	5.65	14.5	11.02		
1050	70	1209	18.22	5.66	11.1	10.57		
1100	76	1206	18.26	5.65	9.04	10.87		
1110	82	1203	18.30	5.63	7.36	10.97		
1120	90	1186	18.25	5.68	13.2	11.08		
1130	96	1173	18.30	5.63	15.5	11.05		
1140	102	1208	18.30	5.63	8.97	11.08		
1150	108	1204	18.29	5.63	9.01	11.08		
1200	114	1210	18.30	5.63	5.72	11.08		
1210	120	1207	18.31	5.64	5.89	11.08		
		= TOTAL VOLUME REMOVED (gal.)						

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES:





## WELL DEVELOPMENT FIELD RECORD

JOB NAME <u>McDonough</u>	JOB NO. <u>166849618</u>	WELL NO. <u>B-91</u>
DEVELOPED BY <u>Will Ballou, Jude Wagespack</u>	DATE OF INSTALL. <u>12-11-2019</u>	SHEET <u>1</u> OF <u>1</u>
STARTED LEVEL <u>12-13-19 / 0940</u>	COMPLETED LEVEL <u>/</u>	
W.L. BEFORE DEVEL. <u>3.58' 12-13 /</u>	AFTER DEVEL. <u>/ /</u>	
WELL DEPTH: BEFORE DEVEL. <u>35.25'</u>	AFTER DEVEL. <u>WELL DIA. (in) <u>2</u></u>	
STANDING WATER COLUMN (FT.) <u>31.67'</u>	STANDING WELL VOLUME <u>5.16</u> gal.	
SCREEN LENGTH <u>10'</u>	DRILLING WATER LOSS <u>-</u> gal.	

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					RATE (gal/min)	REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	NTU OTHER			
0945								
12-13-19 0940	3.8	1267.3	17.91	5.97	>1000	0.75	8.91	
" 1015	26.3	1194.1	18.29	5.67	793	1.25	10.21	
" 1030	45.0	1230.9	18.31	5.76	913	1.25	15.71	
" 10:00	82.5	1232.8	18.34	5.75	90.2	1.25	16.95	
" 11:30	120	1235.3	18.27	5.71	118	1.25	16.35	
" 12:00	157	1235.1	18.24	5.70	56.8	1.25	15.61	
" 12:15	176	1231.6	18.17	5.67	12.9	1.25	15.87	
" 1245	203	1234.3	18.34	5.63	67.9	1.25	17.21	
" 1300	221	1234.9	18.20	5.62	85.7	1.25	17.40	
" 1330	258	1263.3	17.10	5.70	43.2	1.25	17.71	
" 1345	275	1235.4	17.45	5.44	11.9	0.5	10.50	
" 1355	280	1237.5	17.85	5.43	9.81	0.5	8.41	
" 1405	285	1237.5	17.96	5.45	19.7	0.5	8.00	
" 1415	290	1235.1	17.94	5.44	16.6	0.5	7.80	
" 1425	295.4	1231.1	16.20	5.44	12.9	300 ml/min	4.76	
" 1435		1236.8	16.38	5.42	13.6	300 ml/min	4.21	
" 1440		1233.4	16.20	5.39	14.0	300 ml/min	4.20	
" 1445		1237.8	16.20	5.41	13.8	300 ml/min	4.25	
" 1450		Stop flow - flow test well						LWS
" 1530		low flow test unsuccessful, continue dev. tomorrow						
		= TOTAL VOLUME REMOVED (gal.)						

DEVELOPMENT METHOD: Geotek Reclaimer 1.3, Heron Dipper T Instn SmartTrail, Kamotte 202 w/er, Honda generator, air compressor, surge well screen at different intervals w/ pump

NOTES: 0945: Pump 6" from bottom, 1015: move to 2' from bottom  
 1100: move to 5' from bottom, 11:30 move to 7' from bottom  
 00: move to 9' from bottom, 12:15 move to 2' from bottom  
 move to 5' from bottom, 1330 PROBE FELL OUT OF SOLUTION  
 own rate @ 1/2 gal/min Golder Associates @ 1420: flow rate 300 ml/min



## WELL DEVELOPMENT FIELD RECORD

JOB NAME <u>McDonough</u> DEVELOPED BY <u>Arthur O. Rosett</u> STARTED DEVEL. <u>12-14-19</u> / <u>1334</u> DATE      TIME W.L. BEFORE DEVEL. <u>336</u> / <u>12-14-19</u> / <u>1330</u> DEPTH   DATE    TIME WELL DEPTH: BEFORE DEVEL. _____ STANDING WATER COLUMN (FT.) _____ SCREEN LENGTH <u>10'</u>	JOB NO. _____ WELL NO. <u>B-91</u> DATE OF INSTALL. <u>12-14-19</u> SHEET <u>1</u> OF <u>2</u> COMPLETED DEVEL. _____ / _____ DATE      TIME AFTER DEVEL. _____ / _____ DEPTH   DATE    TIME AFTER DEVEL. _____ WELL DIA. (In) _____ STANDING WELL VOLUME _____ gal. DRILLING WATER LOSS _____ gal.
--	---

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				REMARKS
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)	OTHER	
12-14-19 1500	54				7100	Downsizing for 84 min throughout well screen
1510	60	1206	18.47	5.42	51.2	11.75 @ 5' above bottom
1520	66	1206	18.44	5.41	37.7	11.75
1530	72	1206	18.36	5.41	41.5	11.75
1540	79	1206	18.36	5.40	26.5	11.75
1550	86	1206	18.35	5.40	19.5	11.75
1600	93	1206	18.34	5.40	14.9	11.75
1610	100	1206	18.35	5.39	11.9	11.85
1620	107	1205	18.38	5.39	9.57	11.95
1630	114	1207	18.37	5.39	7.07	12.06 started surging again
1640	120	1207	18.37	5.39	2254	11.95 Surging
1650	126	1203	18.35	5.41	2490	11.95
1700	132	1207	18.30	5.40		
		= TOTAL VOLUME REMOVED (gal)				

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES:



## WELL DEVELOPMENT FIELD RECORD

<p>JOB NAME <u>McDonough</u></p> <p>DEVELOPED BY <u>Arthur D. Rose #</u></p> <p>STARTED DEVEL. <u>12-15-19</u> / <u>0930</u></p> <p>W.L. BEFORE DEVEL. <u>336</u> / <u>12-15-19</u> / <u>0825</u></p> <p>WELL DEPTH: BEFORE DEVEL. _____</p> <p>STANDING WATER COLUMN (FT.) _____</p> <p>SCREEN LENGTH <u>10'</u></p>	<p>JOB NO. _____ WELL NO. <u>B-91</u></p> <p>DATE OF INSTALL. <u>12-11-19</u> SHEET <u>1</u> OF <u>2</u></p> <p>COMPLETED DEVEL. <u>12-15-19</u> / <u>1659</u></p> <p>AFTER DEVEL. <u>NA</u> / <u>NA</u> / <u>M</u></p> <p>AFTER DEVEL. <u>3520</u> / _____ / _____</p> <p>STANDING WELL VOLUME <u>NA</u> gal.</p> <p>DRILLING WATER LOSS <u>NA</u> gal.</p>
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DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS					REMARKS	
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (S.U.)	MTU OTHER			
							first few hours surged vigorously @ d. float high then purged from top down covering every 6" till bottom	
1220	138	1153	19.75	5.28	63.7	9.50		
1230	144	1154	18.62	5.27	42.1	9.5		
1240	150	1150	18.63	5.27	34.0	9.5		
1250	156	1177	19.62	5.28	49.1	9.5		
1300	<del>162</del> 162	1176	19.59	5.28	36.8	9.5		
1310	168	1178	18.62	5.28	19.8	9.5		
1320	174	1177	18.70	5.28	21.6	9.5		
1330	180	1177	18.56	5.28	11.5	9.55		
1340	186	1177	18.63	5.29	17.8	9.55		
1350	192	1176	18.58	5.29	24.4	9.55		
1400	198	1177	18.57	5.29	31.6	9.55		
1410	203	1176	18.61	5.29	18.7	9.55	lift by pump up 6"	
1420	209	1176	18.61	5.29	22.6	<del>9.55</del> 9.60		
1430	215	1176	18.60	5.30	39.7	9.65		
1440	222	1176	18.57	5.29	18.3	9.90		
1450	229	1176	18.55	5.29	24.4	10.3		
1500	236	1176	18.57	5.29	22.3	10.6		
1510	243	1177	18.53	5.29	27.7	10.8		
		= TOTAL VOLUME REMOVED (gal.)						

DEVELOPMENT METHOD: \_\_\_\_\_

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# GOLDER

## WELL DEVELOPMENT FIELD RECORD

JOB NAME McDonough  
 DEVELOPED BY JUDE WAGNER/PAK  
 STARTED DEVEL. 12-16-19 10:35  
DATE TIME  
 W.L. BEFORE DEVEL. 4.58' 12-16-19 10:00  
DEPTH DATE TIME  
 WELL DEPTH: BEFORE DEVEL. 24.8'  
 STANDING WATER COLUMN (FT.) 20.22'  
 SCREEN LENGTH 10'

JOB NO. 166849618 WELL NO. B-92  
 DATE OF INSTALL. 12-12-19 SHEET 1 OF 1  
 COMPLETED DEVEL. 12-16-19 15:10  
DATE TIME  
 AFTER DEVEL. 915 12-16-19 15:10  
DEPTH DATE TIME  
 AFTER DEVEL. 24.84 WELL DIA. (In) 2"  
 STANDING WELL VOLUME 3.3 gal.  
 DRILLING WATER LOSS NA gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				NTU OTHER	gal/min RATE	REMARKS DTW	
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)					
12-16-19 10:35	0					>1000	1/2 gpm/min	4.8'	
10:47	5					>1000	1/2	7.15'	
10:53	10					>1000	0.5	7.7'	
11:00	15	989.9	18.5	4.82		>1000	0.5	7.8'	
11:06	20	992.2	18.5	4.86		>1000	0.5	9.3'	
11:27	30.5	1004.7	18.5	4.85	>2000		0.5	9.6'	
11:55	44.5	1012.8	18.5	4.86	>100		0.5	9.2'	
12:20	57	1017.4	18.5	4.88	>100		0.5	7.7'	
12:27	60.5	1014.5	18.5	4.91	>100		0.5	7.8'	
12:34	64	1020.5	18.5	4.84	>100		0.5	9.2'	
12:48	71	1022.9	18.5	4.83	>100		0.5	9.4'	
1330 <del>1400</del>	100	1010	18.73	5.08	>100		0.6		
1400	120	969	18.52	4.87	>100		0.6	9.0	
1410	126	969	18.53	4.89	180		0.6	9.0	
1420	132	968	18.52	4.86	71.1		0.6	9.05	
1430	138	969	18.53	4.89	88.5		0.6	9.10	
1440	144	969	18.53	4.86	32.6		0.6	9.14	
1450	150	970	18.53	4.88	9.04		0.6	9.15	
1500	156	970	18.52	4.87	5.14		0.6	9.15	
1510	162	971	18.58	4.88	4.02		0.6	9.15	
	163	= TOTAL VOLUME REMOVED (gal.)							

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES: 10:47: Pump 1' from bottom, surging 11:27: pump 2' from bot, surging  
 11:55: pump 3' from bot, surging 12:34: 4' from bottom + surging





# GOLDER

## WELL DEVELOPMENT FIELD RECORD

JOB NAME	<u>Plant McDonough</u>	JOB NO.	<u>166849618</u>	WELL NO.	<u>B-93</u>
DEVELOPED BY	<u>JUDE WAGVESTACK</u>	DATE OF INSTALL	<u>12-12-19</u>	SHEET	<u>1</u> OF <u>1</u>
STARTED DEVEL.	<u>12-16-19 1458</u>	COMPLETED DEVEL.	<u>12-17-19 1510</u>		
	DATE TIME		DATE TIME		
W.L. BEFORE DEVEL.	<u>6.85' 12-16 1447</u>	AFTER DEVEL.	<u>15.10 12-17 1510</u>		
	DEPTH DATE TIME		DEPTH DATE TIME		
WELL DEPTH: BEFORE DEVEL.	<u>29.30'</u>	AFTER DEVEL.	<u>29.00</u>	WELL DIA. (in)	<u>2</u> "
STANDING WATER COLUMN (FT.)	<u>22.45' x 1.163</u>	STANDING WELL VOLUME	<u>3.66</u>		gal.
SCREEN LENGTH	<u>10'</u>	DRILLING WATER LOSS	<u>NA</u>		gal.

DATE/TIME	VOLUME REMOVED (GALS)	FIELD PARAMETERS				NTU OTHER	REMARKS (gal/min)	DTW (ft')
		SPEC. COND. (umhos/cm)	TEMP. (°F)	pH (s.u.)				
12-16-19 1458	0				71000		6.85'	
1520	5				>10000		24'	
1555	8				71000		24'	
12-17-19 9:00	0						6.9'	
9:09	13	1093.2	17.54	6.15	71000	0.5	26'	
9:50	13	1102.4	18.73	5.98	71000	0.5 0.75	8.5'	
9:57	18	1114.5	18.79	6.15	>10000		26'	
10:40 <del>10:35</del>	18	1108.1	18.39	6.29	71000	0.75	7.6'	
12:08	18						8.3'	
12:57	23	1143.9	18.26	5.77	<del>71000</del>		11.25'	
13:55	28	1145.6	17.85	5.85	7.82		14.20'	
14:56	33	1149.0	17.94	5.76	2.75	400 mL/min	14.00'	
15:06		1149.0	17.92	5.75	3.07	400 mL/min	14.00'	
		= TOTAL VOLUME REMOVED (gal.)						

DEVELOPMENT METHOD: \_\_\_\_\_

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NOTES: 14:58 - pump 6" from bottom, purging; well ran dry - stopped pumping to recharge 12-17-19 9:09 dry, recharging <sup>x 5 gals pumped</sup> 12/17 12:08 peristaltic pump at 5' from bottom

Product Name: Low-Flow System

Date: 2019-09-18 17:55:04

Project Information:

Operator Name T. Rose  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type sampler pro  
Tubing Type polyethylene  
Tubing Diameter .170 in  
Tubing Length 45 ft

Pump placement from TOC 39 ft

Well Information:

Well ID B-77  
Well diameter 2 in  
Well Total Depth 43.40 ft  
Screen Length 10 ft  
Depth to Water 33.17 ft

Pumping Information:

Final Pumping Rate 150 mL/min  
Total System Volume 0.415854 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 17 in  
Total Volume Pumped 11 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10	+/- 10
Last 5	17:11:28	2100.03	22.20	6.13	242.53	18.40	34.46	2.17	56.73
Last 5	17:16:28	2400.03	22.23	6.14	243.27	14.10	34.53	2.18	54.81
Last 5	17:21:28	2700.03	22.18	6.14	243.27	11.60	34.56	2.19	53.21
Last 5	17:26:28	3000.04	22.05	6.14	241.31	9.01	34.64	2.13	51.36
Last 5	17:31:28	3300.03	22.00	6.14	240.52	7.08	34.68	2.10	49.44
Variance 0			-0.05	0.00	0.01			0.02	-1.61
Variance 1			-0.14	0.01	-1.96			-0.06	-1.85
Variance 2			-0.05	-0.00	-0.80			-0.03	-1.92

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-09-23 12:23:58

Project Information:

Operator Name J. Quenneville  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Reclaimer  
Tubing Type polyethylene  
Tubing Diameter .375 in  
Tubing Length 15 ft

Pump placement from TOC 15 ft

Well Information:

Well ID B-78  
Well diameter 2 in  
Well Total Depth 25 ft  
Screen Length 10 ft  
Depth to Water 12.13 ft

Pumping Information:

Final Pumping Rate 1600 mL/min  
Total System Volume 0.4157797 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 14.16 in  
Total Volume Pumped 48 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10	+/- 10
Last 5	12:00:34	600.02	19.18	4.94	1066.59	2.00	11.81	2.64	269.48
Last 5	12:05:34	900.02	19.15	4.95	997.22	1.52	11.65	3.66	299.36
Last 5	12:10:34	1200.02	19.77	4.89	1127.44	1.74	11.01	0.32	310.11
Last 5	12:15:34	1500.01	19.77	4.90	1125.28	1.62	10.93	0.31	315.73
Last 5	12:20:34	1800.01	19.73	4.90	1125.69	1.37	10.95	0.31	322.73
Variance 0			0.62	-0.06	130.21			-3.35	10.75
Variance 1			-0.00	0.00	-2.15			-0.01	5.62
Variance 2			-0.04	0.01	0.40			-0.00	7.00

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-09-20 16:23:55

Project Information:

Operator Name T. Rose  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Reclaimer  
Tubing Type polyethylene  
Tubing Diameter .375 in  
Tubing Length 25 ft

Pump placement from TOC 25 ft

Well Information:

Well ID B-80  
Well diameter 2 in  
Well Total Depth 30.44 ft  
Screen Length 10 ft  
Depth to Water 14.84 ft

Pumping Information:

Final Pumping Rate 750 mL/min  
Total System Volume 0.9751527 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 48 in  
Total Volume Pumped 174 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10	+/- 10
Last 5	15:36:21	4200.02	21.28	5.72	1276.55	15.10	19.04	1.14	81.08
Last 5	15:56:21	5400.02	20.88	5.77	1349.31	--	--	1.13	81.49
Last 5	16:06:21	6000.02	20.78	5.63	1307.22	2.25	18.84	1.18	79.08
Last 5	16:11:28	6307.02	20.80	5.63	1320.02	--	--	1.13	77.78
Last 5	16:16:28	6607.02	20.71	5.64	1290.23	2.16	18.84	1.20	76.89
Variance 0			-0.10	-0.14	-42.10			0.04	-2.41
Variance 1			0.01	-0.01	12.80			-0.04	-1.30
Variance 2			-0.08	0.01	-29.79			0.06	-0.88

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-09-21 13:11:34

Project Information:

Operator Name T. Rose  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Reclaimer  
Tubing Type polyethylene  
Tubing Diameter .375 in  
Tubing Length 46 ft

Pump placement from TOC 46 ft

Well Information:

Well ID B-82  
Well diameter 2 in  
Well Total Depth 50.45 ft  
Screen Length 10 ft  
Depth to Water 28.93 ft

Pumping Information:

Final Pumping Rate 750 mL/min  
Total System Volume 1.409526 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 87.48 in  
Total Volume Pumped 143 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10	+/- 10
Last 5	12:45:39	900.03	21.46	6.02	765.47	--	--	2.84	70.79
Last 5	12:50:39	1200.02	21.55	6.02	752.64	5.39	36.82	3.35	69.25
Last 5	12:55:39	1500.02	22.00	6.05	736.18	--	--	3.82	68.00
Last 5	13:00:39	1800.02	22.06	6.05	751.62	5.51	36.22	3.73	67.43
Last 5	13:05:39	2100.02	23.05	6.07	750.90	--	--	3.89	65.81
Variance 0			0.45	0.03	-16.46			0.47	-1.24
Variance 1			0.06	0.00	15.44			-0.09	-0.57
Variance 2			0.98	0.02	-0.72			0.16	-1.62

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-04 15:14:18

Project Information:

Operator Name Y. Soo  
Company Name Golder  
Project Name 166849618  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364455  
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type Reclaimer  
Tubing Type polyethylene  
Tubing Diameter .375 in  
Tubing Length 42 ft

Pump placement from TOC 42 ft

Well Information:

Well ID B-83  
Well diameter 2 in  
Well Total Depth 48.84 ft  
Screen Length 10 ft  
Depth to Water 32.4 ft

Pumping Information:

Final Pumping Rate 220 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 4.8 in  
Total Volume Pumped 356 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 0.3	+/- 10
Last 5	14:41:31	300.10	24.35	5.53	373.76	11.67	32.70	0.26	51.30
Last 5	14:46:31	600.03	24.31	5.53	378.01	10.60	32.80	0.22	53.66
Last 5	14:51:31	900.03	24.49	5.52	378.39	8.20	32.80	0.21	55.23
Last 5	14:56:31	1200.03	24.31	5.53	376.46	9.08	32.80	0.19	57.52
Last 5	15:01:31	1500.03	24.94	5.53	378.30	8.82	32.80	0.19	58.71
Variance 0			0.18	-0.00	0.38			-0.01	1.57
Variance 1			-0.18	0.01	-1.92			-0.01	2.29
Variance 2			0.63	-0.00	1.83			-0.01	1.18

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-04 16:57:25

Project Information:

Operator Name J. Quenneville  
Company Name Golder  
Project Name 166849618  
Site Name McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 465016  
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type Reclaimer  
Tubing Type polyethylene  
Tubing Diameter .375 in  
Tubing Length 44 ft

Pump placement from TOC 44 ft

Well Information:

Well ID B-84  
Well diameter 2 in  
Well Total Depth 49.42 ft  
Screen Length 10 ft  
Depth to Water 32.95 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 72.6 in  
Total Volume Pumped 150.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 0.3	+/- 10
Last 5	16:35:48	300.09	25.60	5.91	695.00	11.10	40.00	0.50	58.97
Last 5	16:40:48	600.02	25.32	5.83	704.11	9.85	39.40	0.37	58.03
Last 5	16:50:48	1200.02	24.46	5.85	695.67	9.90	39.89	0.44	60.11
Last 5	16:55:48	1500.02	24.01	5.85	695.31	9.58	39.00	0.50	62.80
Last 5									
Variance 0			-0.27	-0.08	9.11			-0.13	-0.93
Variance 1			-0.86	0.02	-8.44			0.06	2.08
Variance 2			-0.45	0.00	-0.36			0.06	2.69

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-11-20 16:50:52

Project Information:

Operator Name Yong Cheng Soo  
Company Name Golder  
Project Name Plant McDonough  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613229  
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.5 in  
Tubing Length 22.71 ft

Pump placement from TOC 22.71 ft

Well Information:

Well ID B-85  
Well diameter 2 in  
Well Total Depth 27.71 ft  
Screen Length 10 ft  
Depth to Water 6.44 ft

Pumping Information:

Final Pumping Rate 500 mL/min  
Total System Volume 0.9394404 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown -23.3 in  
Total Volume Pumped 479 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	16:23:13	2700.04	18.45	5.39	1166.28	7.08	4.69	0.17	41.09
Last 5	16:28:13	3000.04	18.44	5.40	1169.04	7.08	4.77	0.16	39.21
Last 5	16:33:13	3300.04	18.41	5.38	1168.52	3.47	4.64	0.13	37.11
Last 5	16:38:13	3600.04	18.40	5.37	1166.56	2.50	4.55	0.13	35.66
Last 5	16:43:13	3900.04	18.39	5.38	1167.20	4.83	4.50	0.12	33.98
Variance 0			-0.03	-0.02	-0.52			-0.02	-2.10
Variance 1			-0.01	-0.01	-1.96			-0.01	-1.45
Variance 2			-0.01	0.00	0.64			-0.00	-1.68

Notes

Grab Samples



Product Name: Low-Flow System

Date: 2019-11-20 15:29:26

Project Information:

Operator Name S. Brodie  
Company Name Golder  
Project Name Plant McDonough  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type Reclaimer  
Tubing Type polyethylene  
Tubing Diameter .5 in  
Tubing Length 30 ft

Pump placement from TOC 30 ft

Well Information:

Well ID B-86  
Well diameter 2 in  
Well Total Depth 35.83 ft  
Screen Length 10 ft  
Depth to Water 4.51 ft

Pumping Information:

Final Pumping Rate 500 mL/min  
Total System Volume 1.248328 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 10.44 in  
Total Volume Pumped 1197.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:06:45	300.09	18.83	5.40	1121.51	7.72	5.39	0.75	79.46
Last 5	15:11:45	600.03	18.88	5.41	1122.52	4.57	5.38	0.60	77.97
Last 5	15:16:45	900.03	18.81	5.41	1122.14	4.76	5.35	0.53	76.88
Last 5	15:21:45	1200.03	18.75	5.42	1122.55	4.38	5.38	0.49	76.11
Last 5									
Variance 0			0.05	0.00	1.01			-0.15	-1.49
Variance 1			-0.07	0.01	-0.38			-0.07	-1.09
Variance 2			-0.07	0.01	0.41			-0.04	-0.78

Notes

Low flow, not sampled

Grab Samples

Product Name: Low-Flow System

Date: 2019-11-21 16:29:19

Project Information:

Operator Name William Ballow  
Company Name Golder  
Project Name Plant McDonough  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613229  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type GeoTech Reclaimer  
Tubing Type Polyethylene  
Tubing Diameter 0.5 in  
Tubing Length 40 ft

Pump placement from TOC 40 ft

Well Information:

Well ID B-87  
Well diameter 2 in  
Well Total Depth 45.04 ft  
Screen Length 10 ft  
Depth to Water 16.51 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 2.634437 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 28.4 in  
Total Volume Pumped 582.54 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 3%	+/- 10		+/- 0.3	+/- 10
Last 5	16:06:33	1800.03	17.66	5.86	2087.32	4.25	18.98	0.75	3.98
Last 5	16:11:34	2101.03	17.65	5.86	2087.30	3.37	19.01	0.55	-2.38
Last 5	16:16:34	2401.06	17.66	5.85	2086.14	2.26	18.91	0.08	-12.15
Last 5	16:21:34	2701.06	17.69	5.85	2084.48	2.75	18.89	0.07	-19.78
Last 5	16:26:34	3001.04	17.71	5.85	2083.82	1.81	18.88	0.07	-26.74
Variance 0			0.01	-0.00	-1.16			-0.47	-9.77
Variance 1			0.03	-0.01	-1.66			-0.01	-7.63
Variance 2			0.01	0.01	-0.65			-0.00	-6.96

Notes

Post development test only. No samples collected  
WL came up during purge to recharge post development

Grab Samples

Product Name: Low-Flow System

Date: 2019-11-21 16:47:08

Project Information:

Operator Name S. Brodie  
Company Name Golder Associates Inc  
Project Name Plant McDonough  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type geotech reclaimer  
Tubing Type polyethylene  
Tubing Diameter 0.5 in  
Tubing Length 74.5 ft

Pump placement from TOC 74.5 ft

Well Information:

Well ID B-88  
Well diameter 2 in  
Well Total Depth 75.05 ft  
Screen Length 10 ft  
Depth to Water 32.65 ft

Pumping Information:

Final Pumping Rate 280 mL/min  
Total System Volume 2.966514 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 4.2 in  
Total Volume Pumped 1079.52 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	16:24:29	3000.95	17.77	5.52	1326.67	5.02	32.98	0.34	73.03
Last 5	16:29:29	3300.94	17.72	5.53	1324.91	8.35	32.98	0.32	71.75
Last 5	16:34:29	3600.93	17.72	5.54	1322.51	4.15	33.00	0.33	70.57
Last 5	16:39:29	3900.92	17.69	5.54	1320.59	4.26	33.00	0.36	69.70
Last 5	16:44:29	4200.92	17.72	5.55	1320.06	3.27	33.00	0.41	69.43
Variance 0			-0.00	0.01	-2.40			0.01	-1.18
Variance 1			-0.04	0.01	-1.92			0.03	-0.87
Variance 2			0.03	0.00	-0.53			0.05	-0.27

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-11-22 12:30:42

Project Information:

Operator Name S. Brodie  
Company Name Golder  
Project Name Plant McDonough  
Site Name Plant McDonough  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613229  
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type GeoTech Reclaimer  
Tubing Type polyethylene  
Tubing Diameter 0.5 in  
Tubing Length 44 ft

Pump placement from TOC 44 ft

Well Information:

Well ID B-89  
Well diameter 2 in  
Well Total Depth 48.89 ft  
Screen Length 10 ft  
Depth to Water 23.21ft

Pumping Information:

Final Pumping Rate 240 mL/min  
Total System Volume 1.788881 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 8.88 in  
Total Volume Pumped 693.31 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	12:07:37	600.03	19.54	5.84	492.22	0.95	24.04	3.41	57.69
Last 5	12:12:37	900.03	19.77	5.80	476.60	0.76	24.03	3.05	55.44
Last 5	12:17:37	1200.04	19.99	5.76	462.36	0.63	23.98	2.78	53.20
Last 5	12:22:37	1500.04	19.90	5.72	453.33	0.47	23.95	2.58	53.21
Last 5	12:27:37	1800.04	20.14	5.73	457.71	0.38	23.95	2.44	51.50
Variance 0			0.22	-0.04	-14.24			-0.27	-2.24
Variance 1			-0.09	-0.04	-9.02			-0.20	0.00
Variance 2			0.24	0.00	4.38			-0.14	-1.70

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-12-14 12:44:20

Project Information:

Operator Name Arthur Rose  
Company Name Golder  
Project Name McDonough  
Site Name Southern Company  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte

Pump Information:

Pump Model/Type reclaimer  
Tubing Type LDPE  
Tubing Diameter .375 in  
Tubing Length 27 ft

Pump placement from TOC 27 ft

Well Information:

Well ID B-90  
Well diameter 2 in  
Well Total Depth 32.96 ft  
Screen Length 10 ft  
Depth to Water 1.18 ft

Pumping Information:

Final Pumping Rate 700 mL/min  
Total System Volume 1.133746 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 119 in  
Total Volume Pumped 522 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 3%	+/- 10		+/- 0.3	+/- 10
Last 5	12:21:45	12299.91	18.38	5.63	1208.70	6.11	11.08	0.50	86.73
Last 5	12:26:45	12599.91	18.30	5.64	1204.92	5.24	11.08	0.47	86.46
Last 5	12:31:45	12899.91	18.29	5.63	1200.34	6.79	11.08	0.63	86.43
Last 5	12:36:45	13199.90	18.30	5.64	1206.72	6.15	11.08	0.54	86.29
Last 5	12:41:45	13499.90	18.34	5.63	1207.67	4.29	11.08	0.45	86.49
Variance 0			-0.00	-0.01	-4.57			0.16	-0.03
Variance 1			0.01	0.01	6.38			-0.09	-0.14
Variance 2			0.03	-0.01	0.95			-0.09	0.20

Notes

Development

Product Name: Low-Flow System

Date: 2019-12-15 16:52:20

Project Information:

Operator Name Arthur Rose  
Company Name Golder  
Project Name McDonough  
Site Name Southern Company  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte

Pump Information:

Pump Model/Type reclaimer  
Tubing Type LDPE  
Tubing Diameter .375 in  
Tubing Length 27 ft

Pump placement from TOC 27 ft

Well Information:

Well ID B-91  
Well diameter 2 in  
Well Total Depth 35.20 ft  
Screen Length 10 ft  
Depth to Water 3.36 ft

Pumping Information:

Final Pumping Rate 600 mL/min  
Total System Volume 1.133746 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 92 in  
Total Volume Pumped 1185 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 3%	+/- 10		+/- 0.3	+/- 10
Last 5	16:30:16	15299.88	18.39	5.30	1177.75	7.58	11.05	0.78	121.27
Last 5	16:35:16	15599.88	18.39	5.30	1175.36	9.88	11.05	0.69	121.22
Last 5	16:40:16	15899.88	18.40	5.30	1176.94	7.95	11.05	0.67	122.89
Last 5	16:45:16	16199.87	18.39	5.31	1178.25	6.44	11.05	0.73	123.24
Last 5	16:50:16	16499.87	18.40	5.30	1175.92	6.38	11.05	0.68	124.28
Variance 0			0.01	-0.01	1.58			-0.02	1.67
Variance 1			-0.01	0.01	1.31			0.07	0.35
Variance 2			0.01	-0.00	-2.33			-0.05	1.04

Notes

Development

Product Name: Low-Flow System

Date: 2019-12-16 15:44:52

Project Information:

Operator Name Arthur Rose  
Company Name Golder  
Project Name McDonough  
Site Name Southern Company  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 643819  
Turbidity Make/Model LaMotte

Pump Information:

Pump Model/Type reclaimer  
Tubing Type LDPE  
Tubing Diameter .375 in  
Tubing Length 20 ft

Pump placement from TOC 20 ft

Well Information:

Well ID B-92  
Well diameter 2 in  
Well Total Depth 24.8 ft  
Screen Length 10 ft  
Depth to Water 4.58 ft

Pumping Information:

Final Pumping Rate 600 mL/min  
Total System Volume 0.9165594 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 55 in  
Total Volume Pumped 613 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 3%	+/- 10		+/- 0.3	+/- 10
Last 5	14:50:54	2699.99	18.53	4.88	970.19	9.04	9.15	0.57	294.21
Last 5	14:55:54	2999.97	18.53	4.88	970.21	10.45	9.15	0.63	342.52
Last 5	15:00:54	3299.97	18.52	4.87	970.79	5.14	9.15	0.66	335.80
Last 5	15:05:54	3599.96	18.52	4.87	970.69	5.24	9.15	0.61	333.77
Last 5	15:10:54	3900.00	18.53	4.88	971.63	4.02	9.15	0.58	341.12
Variance 0			-0.00	-0.01	0.59			0.03	-6.72
Variance 1			0.00	-0.00	-0.11			-0.05	-2.04
Variance 2			0.01	0.01	0.94			-0.03	7.36

Notes

Development



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