2020 Annual Groundwater Monitoring and Corrective Action Report

Georgia Power Company – Plant Arkwright

Ash Pond 2 Dry Ash Stockpile

Project No.: 6122201429

Prepared for:

Georgia Power

Atlanta, Georgia

7/31/2020

CERTIFICATION STATEMENT

This *2020 Annual Groundwater Monitoring and Corrective Action Report, Georgia Power Company Plant Arkwright - Ash Pond 2 Dry Ash Stockpile* has been prepared in compliance with Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10 and 391-3-4-.14 under the supervision of a licensed professional engineer and a licensed professional geologist with Wood Environment & Infrastructure Solutions, Inc.

Gregory J. Wrenn, P.E.
Registered Professional Engineer
Professional Engineer No. 025565

Date: 7/31/2020

Nicholas J. McMillan, P.G.
Registered Professional Geologist
Georgia Registration No. 2308

Date: 7/31/2020

Table of Contents

List of Tables

List of Figures

List of Appendices

1.0 INTRODUCTION

In accordance with the Georgia Environmental Protection Division (GA EPD) Rules of Solid Waste Management 391-3-4-.10(6)(a)-(c) and 391-3-4-.14, this 2020 Annual Groundwater Monitoring and Corrective Action Report has been prepared to document groundwater monitoring activities conducted at Georgia Power Company's (GPC) former Plant Arkwright Ash Pond 2 Dry Ash Stockpile (AP-2DAS). To specify groundwater monitoring requirements, GA EPD Rule 391-3-4-.10(6)(a) incorporates by reference the United States Environmental Protection Agency (US EPA) Coal Combustion Residuals (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.

Groundwater monitoring and reporting for Plant Arkwright AP-2DAS are performed in accordance with the monitoring requirements of § 257.90 through § 257.95 and the Georgia EPD Rule 391-3-4-.10(6)(a)-(c) and in accordance with EPD Rule 391-3-4-.14. This annual report documents the activities completed during the second half of 2019 and the first half of 2020. Two semi-annual monitoring events were conducted in October 2019 and April 2020 for assessment monitoring and were the semi-annual compliance monitoring events for the second half of 2019 and the first half of 2020.

1.1 Site Description and Background

The Plant Arkwright site (the Site) is located in Bibb County, Georgia approximately 6 miles northwest of the city of Macon. The CCR unit area comprises approximately 11 acres. The disposal facility was formally closed in 2010 with the issuance of a closure certificate by GA EPD. Post closure care has been performed in accordance with the GA EPD Permit No. 011-031D(LI) following closure. **Figure 1: Site Location Map**, depicts the site location relative to the surrounding area.

Plant Arkwright was retired in 2002 and decommissioned in 2003. The CCR unit was closed in 2010 in accordance with the solid waste landfill regulations specified by GA EPD 391-3-4, in effect at the time of its closure. A closure certificate was issued by GA EPD for AP-2DAS on June 30, 2010. The Closure Certificate initiated the post-closure care period for the CCR unit.

AP-2DAS is exempt from the requirements in 40 CFR Part 257 Subpart D – Standard for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments in accordance with §257.50 (d) and (e), which states that the subpart does not apply to CCR landfills that have ceased receiving CCR prior to October 19, 2015. These CCR units are, however, subject to the requirements of relevant portions of Georgia EPD 391-3-4-.10. The CCR unit referred to as

AP-2DAS and is defined as an inactive CCR Landfill per Georgia Solid Waste Management Rule 391-3-4-.10(2)(a)(3).

Semi-annual groundwater monitoring at AP-2DAS is performed for an approved list of analytes in accordance with the post-closure care period requirements of GA EPD Permit #: 011-031D(LI). A minor modification approved by GA EPD on August 9, 2017 added the Appendix III and IV sample parameters to the groundwater monitoring plan. To meet the new requirements of GA EPD rule 391-3-4-.10, a permit application package for the Site was submitted to GA EPD in November 2018 and is currently under review.

1.2 Regional Geology & Hydrogeologic Setting

The geology and hydrogeology of the Plant Arkwright AP-2DAS are summarized below. The Plant Arkwright site is located along the southern edge of the Washington Slope physiographic district within the Piedmont Physiographic Province (Watson, 1981; Clark and Zisa, 1976). The Washington Slope is characterized by a gently undulating surface which generally slopes to the south and southeast toward the Coastal Plain Physiographic Province located approximately 3.8 miles to the southeast of the site.

Topography of the Washington Slope ranges from approximately 700 feet above sea level in the areas of southern Atlanta and Athens to approximately 300 feet above sea level at its southern limit along the Georgia Fall Line. Streams follow the structure of underlying crystalline rocks eastward toward the Ocmulgee River. Relief throughout the district is between 50 and 100 feet with the greatest relief being along the Ocmulgee River with steep walled valleys with elevation changes between 150 – 200 feet (Watson, 1981; Clark and Zisa, 1976). Ultimately, the area surface water flow is directed toward the Ocmulgee River.

Bedrock in the region is composed of moderate- to high-grade metamorphic rocks, such as biotite-granite gneiss, schist, and amphibolite, and igneous rocks like granite. In the southernmost Piedmont, in the area of the site, bedrock is predominantly composed of biotite gneiss. Major geologic structures in the region include the Ocmulgee fault, located approximately 7 miles to the northwest of the site which strikes mostly northeast – southwest. The top of bedrock surface is highly weathered and where exposed is generally soft and friable (LeGrand, 1962). The site is generally composed of fine to medium sandy silt to silty sand underlain by silty sand saprolite. Borings performed in the earlier site investigations indicated extremely weathered quartz-feldspathic gneiss, hornblende gneiss and schist.

1.2.1 Site Geology

The general geology beneath AP-2DAS consists of clays, silty and sandy clays, silty sands, sandy silts, and minor gravel at depth, underlain by silty sand saprolite and bedrock. Historic borings indicate bedrock occurs at depths ranging from approximately 14 feet to 63 feet below ground surface, and consists of weathered quartzofeldspathic gneiss, hornblende gneiss, and schist. Boring logs also indicate a relatively thin zone of partially weathered rock (PWR) above bedrock which ranges in thickness from 1 to 4 feet in the southern and eastern portions of the site, and up to 14 feet in the northeastern portion of the site.

1.2.2 Site Hydrogeology

Two main hydrostratigraphic units are present at the Site: the water table aquifer and the underlying bedrock aquifer. The water table aquifer is composed of the unconsolidated silty sands and sandy silts with clays and variable thicknesses of PWR mantling the bedrock surface. The water table aquifer is hydraulically connected to the underlying bedrock aquifer (Southern Company Services, 2005) and comprises the uppermost aquifer. The monitoring well network for AP-2DAS monitors the water table aquifer and the upper weathered and fractured bedrock.

Slug testing data from the site reflect a range of hydraulic conductivities from 10^{-3} to 10^{-4} centimeters per second. Groundwater level monitoring data from the site show stable water level trends and the potentiometric maps reflect groundwater generally flowing to the south across AP-2DAS.

1.3 Groundwater Monitoring System

Pursuant to § 257.91 and § 391-3-4-.10(6)(a), GPC installed a groundwater monitoring system within the uppermost aquifer at AP-2DAS. The monitoring system is designed to monitor groundwater passing the waste boundary of AP-2DAS within the uppermost aquifer. Wells were located to serve as upgradient and downgradient monitoring points based on groundwater flow direction (**Table 1A: Summary of Monitoring Well Network Well Construction**). The monitoring well locations are shown in **Figure 2: Monitoring Network Well Location Map.** The current monitoring well network at AP-2DAS consists of 5 monitoring wells: upgradient wells ARGWA-19 and ARGWA-20, and downgradient wells ARGWC-21, ARGWC-22, and ARGWC-23. The original groundwater monitoring network included ARGWC-19, ARGWC-20, and ARGWC-21, and was included in the 2008 Design and Operation Plans approved by GA EPD in 2010. ARGWC-22 and ARGWC-23 were added to the monitoring network in November 2019. Two piezometers, ARAMW-1 and ARAMW-2, were also installed at AP-2DAS in November 2019 (**Table 1B: Summary of Piezometer Construction).**

2.0 GROUNDWATER MONITORING ACTIVITIES

As required by § 257.90(e), the following describes monitoring-related activities performed during the October 2019 and April 2020 assessment compliance monitoring events during the second half of 2019 and first half of the 2020 calendar years. The groundwater sampling was performed in accordance with § 257.93. Samples were collected from each of the 3 existing groundwater monitoring network wells in October 2019 and from each of the 5 groundwater monitoring network wells in April 2020 as depicted in the monitoring system shown on **Figure 2**.

Based on results of the March 2019 sampling event, assessment monitoring was initiated under EPD Rule 391-3-4-.10(6) at the site. **Table 2, Groundwater Sampling Event Summary**, presents a summary of groundwater sampling events completed at the Site from the first background event in 2016 through the first half of 2020. Groundwater compliance events were conducted at the Site during August and October of 2019, and April 2020.

During the initial assessment monitoring constituent screening event in August 2019, groundwater samples were collected and analyzed for the full suite of Appendix IV constituents to meet the requirements of §257.95(b). During the subsequent semi-annual assessment monitoring events in October 2019 and April 2020, groundwater samples were collected for (1) Appendix III constituents, (2) the Appendix IV constituents detected during the August event, and (3) the state-specific list of Appendix I metals specified in the permit.

In addition to the compliance events, additional sampling events were conducted for background monitoring of newly installed wells and for additional parameters. The first background event for the newly installed downgradient background wells (ARGWC-22 and ARGWC-23) Appendix III and Appendix IV constituents took place in December 2019. Subsequent background events for ARGWC-22 and ARGWC-23 wells for Appendix III and Appendix IV constituents took place on January, February, March, April and May of 2020.

2.1 Monitoring Well Installation and Maintenance

Monitoring well-related activities conducted during the period included the following:

- Visual inspection of well conditions prior to sampling, recording the Site conditions, and performing exterior maintenance to perform sampling under safe and clean conditions.
- Installation of two new monitoring wells (ARGWC-22 and ARGWC-23) and two new piezometers (ARAMW-1 and ARAMW-2) for characterization of groundwater quality

downgradient of AP-2. The well installations are documented in **Appendix A: Well Installation Reports**.

- The Site monitoring network wells and additional wells were re-surveyed for top of casing elevations and horizontal location in June 2020 to confirm the top-of-casing elevations.

2.2 Detection Monitoring Program

In accordance with § 257.94(b), the detection groundwater monitoring program was implemented by collecting 8 background groundwater samples. The initial detection monitoring event was performed in March 2019. Groundwater samples were collected from each monitoring well and analyzed for Appendix III constituents according to § 257.94(a). The background study and the initial detection monitoring event were documented in the *2019 First Semiannual Groundwater Monitoring Report (August 2019)*. Background sampling events from new monitoring network wells ARGWC-22 and ARGWC-23 are ongoing with the most recent (6th background sampling event) conducted on May 27, 2020. Data reports for the background sampling events are included in **Appendix B: Field Sampling Logs and Analytical Reports for Background Sampling Events and Summary of Background Data**

2.3 Assessment Monitoring

Statistically Significant Increases (SSI) of Appendix III constituents were identified in the initial detection monitoring event (March 2019). A notice of assessment monitoring was placed in the operation record on November 13, 2019. Pursuant to § 257.94(e)(1), GPC implemented assessment monitoring in accordance with § 257.95. The initial assessment monitoring event was conducted August 20, 2019 for the full suite of Appendix IV constituents. Subsequently, two semi-annual monitoring events were performed in October 2019 and April 2020 for Appendix III constituents and those Appendix IV constituents detected during the initial assessment monitoring event in August 2019. Data reports for the October 2019 and April 2020 assessment monitoring events are included in **Appendix C: Field Sampling Logs and Analytical Data Reports for August and October 2019 and April 2020.** New wells ARGWC-22 and ARGWC-23 were first included into the semi-annual monitoring/assessment monitoring for the April 2020 event.

3.0 SAMPLE METHODOLOGY & ANALYSES

The following sections describe the methods used to complete groundwater monitoring at Plant Arkwright AP-2DAS.

3.1 Groundwater Elevation Measurements and Flow Direction

Prior to each sampling event, groundwater elevations were recorded from each well in the network for Plant Arkwright AP-2DAS. Groundwater elevations recorded during the initial assessment and semi-annual monitoring events are summarized **in Table 3: Summary of Groundwater Elevations**. Groundwater elevation data from the monitoring events were used to develop potentiometric surface elevation contour maps (**Figure 3: Potentiometric Surface – August 2019**, **Figure 4: Potentiometric Surface – October 2019**, and **Figure 5: Potentiometric Surface – April 2020)**. Groundwater flow in the uppermost aquifer **(Figures 3 through 5)** is to the south. The groundwater flow pattern observed during the August and October 2019 and April 2020 monitoring events are consistent with historical patterns with groundwater elevations at each of the wells maintaining a similar trend over time as can be seen in **Table 3: Summary of Groundwater Elevations**.

3.2 Groundwater Gradient and Flow Velocity

The groundwater flow velocity at Plant Arkwright AP-2DAS was calculated using a derivation of Darcy's Law. Specifically,

$$V = \frac{K * i}{n_e}$$

Where:

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

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

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

$n_e =$ Effective porosity

The general groundwater flow velocity was calculated for the site based on hydraulic gradients, average permeability based on previous slug test data, and an estimated effective porosity of 0.20 (based on a review of several sources, including Driscoll, 1986; US EPA, 1989; Freeze and Cherry, 1979). The general groundwater flow velocity calculation is presented in **Table 4: Groundwater Flow Velocity Calculations – August and October 2019 and April 2020**. Results for groundwater flow velocities were 0.27 feet/day (98.6 feet/year) in August 2019, 0.25 feet/day (91.3 feet/year) in October 2019, and 0.33 feet/day (120.5 feet/year) in April 2020.

3.3 Groundwater Sampling

Groundwater samples were collected for the August 2019, October 2019, and April 2020 assessment monitoring event in accordance with § 257.95(b) and (d). Each of the monitoring wells at the Site is equipped with a dedicated QED bladder pump except for wells installed in November 2019 (ARGWC-22, ARGWC-23), which were pumped with peristaltic or non-dedicated QED bladder pumps. The monitoring wells were purged and sampled using low-flow sampling procedures. Sampling equipment and pump intakes were placed at the midpoint of the well screen. Care was taken to maintain a water level above the top of screen and not draw the water level down below the pump during purging. Water level stabilization was achieved when three consecutive water level measurements vary by 0.3 foot or less at a pumping rate of no less than 100 milliliters per minute (mL/min). A SmarTroll (In-Situ field instrument) was used to monitor and record field water quality parameters (pH, conductivity, dissolved oxygen, temperature, and ORP) and a Hach 2100Q was used to measure turbidity during well purging to verify stabilization prior to sampling. Groundwater samples were collected when the following stabilization criteria were met:

- pH ± 0.1 Standard Units (S.U.);
- Specific conductance ± 5%;
- 10% for DO > 0.5 mg/l. No criterion applies if DO < 0.5 mg/L.
- Turbidity measurements less than 5 NTU
- Temperature – Record only, not used for stabilization criteria
- ORP – Record only, not used for stabilization criteria

Once stabilization was achieved, samples were collected into appropriately-preserved laboratory-supplied sample containers. Sample bottles were placed in ice-packed coolers and submitted to Eurofins TestAmerica Laboratories, Inc. (Eurofins TestAmerica) of Pittsburgh, Pennsylvania, and St. Louis, Missouri following chain-of-custody protocol. Stabilization logs for each well during each monitoring event are included in **Appendix C: Field Sampling Logs and Analytical Data Reports for August and October 2019 and April 2020**.

3.4 Laboratory Analyses

Groundwater samples collected in the October 2019 and April 2020 semi-annual monitoring events were analyzed for all of the Appendix III constituents and the Appendix IV constituents detected in the initial assessment screening monitoring event (August 2019). Antimony, beryllium, mercury, molybdenum, and thallium were not detected in the groundwater samples collected during the initial assessment monitoring event and were not analyzed during the subsequent semi-annual events (October 2019 and April 2020) in accordance with § 257.95(d)(1). Cadmium and lead, though not detected in August 2019, were analyzed for in the two

subsequent assessment events because they are Georgia solid waste permit required constituents. Analytical methods used for groundwater sample analysis are listed on the analytical laboratory reports included in **Appendix C: Field Sampling Logs and Analytical Data Reports for August and October 2019 and April 2020**.

Laboratory analyses were performed by Eurofins TestAmerica. Eurofins TestAmerica is accredited by National Environmental Laboratory Accreditation Program (NELAP) and maintains a NELAP certification for all constituents analyzed for this project. In addition, Eurofins TestAmerica is certified to perform analysis by the State of Georgia.

3.5 Quality Assurance & Quality Control

The analytical results provided in **Table 5: Analytical Data Summary – August and October 2019 and April 2020** provide concentrations from the August and October 2019 and April 2020 assessment sampling events as reported by the laboratory. During each sampling event, quality assurance/quality control (QA/QC) samples are collected at a rate of one QA/QC sample per 10 groundwater assessment samples. Equipment blanks (where non-dedicated sampling equipment is used) and duplicated samples were collected during each sampling event. QA/QC sample data were evaluated during data validation and are included in **Appendix C**

When values are followed by a "J" flag, this indicates 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 lowest level that can be reliably achieved within specified limits of precision and accuracy under routine laboratory operating conditions.

Quality control procedures included calculating the relative percent difference (RPD) between sample and sample duplicate concentrations. This is calculated as:

$$RPD = \frac{Conc\ 1 - Conc\ 2}{(Conc\ 1 + Conc\ 2) / 2}$$

Where:

RPD = Relative Percent Difference (%)

Conc1 = Higher concentration of the sample or field duplicate

Conc2 = Lower concentration of the sample or field duplicate

The RPD calculations are provided in **Table 6: RPD Calculations** for detected concentrations above the RL for wells and corresponding duplicates for the August and October 2019 and April 2020 assessment events. Other constituents were below the RL. For an RPD to be representative of the process, the concentrations have to be five times the RL in accordance with US EPA guidance on inorganic data review, (US EPA August 2014). The RPD is above 20% for the lithium concentrations in ARGWA-20 and Duplicate; however, the concentrations are less than five times the RL. The RPD values of concentrations five times the RL ranged with the allowable 20% RPD indicating good sampling precision.

4.0 STATISTICAL ANALYSIS

The Site has initiated assessment monitoring. Statistical analysis of Appendix III groundwater monitoring data was performed on samples collected from the groundwater monitoring network pursuant to § 257.93(f) and following the statistical analysis plan. The statistical analysis method used at the site was developed by Groundwater Stats Consulting, LLC (GSC) in accordance with § 257.93(f) using methodology presented in Statistical Analysis of Groundwater Data at RCRA Facilities, Unified Guidance, March 2009, EPA 530/R-09-007 (US EPA, 2009). To develop the statistical method, analytical data collected during the background period were evaluated and used to develop statistical limits for each Appendix III constituent. Subsequent detection monitoring results were compared to the statistical limits to determine if concentrations were statistically different from background.

Pursuant to § 257.95(d)(2), GPC established groundwater protection standards for the Appendix IV monitoring constituents and conducted statistical analysis of the Appendix IV groundwater monitoring data obtained during the October 2019 and the April 2020 semi-annual assessment monitoring events to evaluate if concentrations statistically exceeded the established state groundwater protection standards (GWPS). The following subsections provide an overview of the statistical methods used to evaluate Appendix III and IV parameters and statistical analyses results.

4.1 Statistical Method

Sanitas groundwater statistical software was used to perform the statistical analyses at the Site following the October 2019 semi-annual assessment monitoring event and again following the April 2020 semi-annual assessment monitoring event. Sanitas is a commercially available decision support software package that incorporates the statistical tests required of Subtitle C and D facilities by US EPA regulations and guidance as recommended in the Unified Guidance (US EPA, 2009) document. The Interwell method was used for the analysis of the Appendix III constituents. Confidence intervals were calculated for each of the detected Appendix IV parameters in each downgradient well. The following table provides a summary of the statistical methodology used at AP-2DAS for the monitoring events conducted in October 2019 and in April 2020 and will be used for routine monitoring in the future. Specific methodology information is described in **Table 7: Statistical Method Summary** and in the following paragraphs.

Table 7: Statistical Method Summary

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 parameter 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.
	Management of Non-Detects	When data contain less than 15% non-detects in background, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the practical quantitation limit (PQL) as reported by the laboratory. When data contain between 15-50% non-detects the Kaplan-Meier non-detect adjustment is applied to the background data. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
	Confidence Intervals	Used in Assessment and Corrective Action monitoring.
	No Statistical Testing	Statistical testing is not required for parameters containing 100% non-detects (US EPA Unified Guidance, 2009, Chapter 6).
	Verification Resample Plan	Optional 1-of-2 with minimum of 8 samples per well for interwell testing.
	Optional	▪ Initial statistical exceedance warrants optional independent resampling within 90 days. ▪ If resample passes, well/parameter is not a confirmed statistically significant increase (SSI). ▪ If resample exceeds, well/parameter has a confirmed SSI. ▪ If no resample is collected, the original result is deemed verified.

4.1.1 Appendix III Statistical Method

When using the interwell method, upgradient well data are pooled to establish a background statistical limit for each constituent. Appendix III data from the October 2019 monitoring event and April 2020 monitoring event were compared to the statistical limit to determine whether downgradient well concentrations exceed background statistical limits. The interwell statistical method uses an optional 1-of-2 verification resample plan. When an initial statistically significant increase (SSI) or questionable result occurs, a second sample may be collected to verify the initial result or determine if the result was an outlier. Interwell prediction limits (PL) were used for the following locations and constituents:

- AP-2DAS: Interwell statistical methods were used for boron, calcium, chloride, fluoride, sulfate, Total Dissolved Solids (TDS), and pH.

Data from groundwater samples from downgradient wells collected in the October 2019 and April 2020 monitoring events were compared to the statistical limits to evaluate whether concentrations exceed background statistical limits.

If data from a sampling event initially exceeds the PL, an optional resampling strategy can be used to verify the result. In 1-of-2 resampling, one independent resample is collected and evaluated within 90 days to determine whether the initial exceedance is verified. If the resample exceeds the PL, the initial exceedance is verified, and an SSI is identified. When a resample result does not verify the initial result, and does not exceed the PL, there is no SSI. If resampling is not performed, the initial exceedance is a confirmed exceedance. If the initial finding is not verified by a resampling result, the resampled value will replace the initial finding. When the resample confirms the initial finding, the exceedance will be reported.

4.1.2 Appendix IV Statistical Method

The assessment monitoring program statistics for Appendix IV constituents at Plant Arkwright were conducted in two parts. The first part was the calculation of tolerance limits for site-specific background limits for Appendix IV constituents. The second part was the calculation of confidence limits for individual downgradient well/constituent pairs.

Interwell tolerance limits were used to calculate the site-specific background limits from pooled upgradient well data for Appendix IV constituents. Parametric tolerance limits are used when data follow a normal or transformed-normal distribution such as for radium. When data contained greater than 50% nondetects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were used. The background limits were then used when determining

the groundwater protection standard (GWPS) under 40 CFR § 257.95(h) and Georgia EPD Rule 391-3-4-.10(6)(a).

As described in 40 CFR § 257.95(h) (1-3), the GWPS is:

- The maximum contaminant level (MCL) established under §141.62 and §141.66 of this title
- Where an MCL has not been established for a constituent, CCR-rule specified level (RSLs) have been specified for cobalt (0.006 mg/L), lead (0.015 mg/L), lithium (0.040 mg/L), and molybdenum (0.100 mg/L)
- The respective background level for a constituent when the background level is higher than the MCL or Federal CCR Rule identified GWPS

On July 30, 2018, USEPA revised the Federal CCR rule updating GWPS for cobalt, lead, lithium, and molybdenum as described above in 40 CFR § 257.95(h)(2). Georgia EPD has not incorporated the updated GWPS into the current Georgia EPD Rules for Solid Waste Management 391-3-4-.10(6)(a); therefore, for sites regulated under Georgia EPD Rules, the GWPS is:

- The MCL or
- The background concentration when an MCL is not established or when the background concentration is higher than the MCL.

Following the above Georgia EPD Rule requirements, GWPS were established for statistical comparison of Appendix IV constituents for the October 2019 and April 2020 sampling events. **Table 8: Summary of Groundwater Protection Standards** summarizes the background limits established for each Appendix IV constituent and the GWPS established under Georgia EPD Rules.

To complete the statistical comparison to GWPS, confidence intervals were constructed for each of the Appendix IV constituents in each downgradient well. The Sanitas software was used to calculate the tolerance limits and the confidence intervals. Those confidence intervals were compared to the GWPS established using the Georgia EPD Rules 391-3-4-.10(6)(a). Only when the entire confidence interval is above a GWPS is the downgradient well/constituent pair considered to exceed its respective standard. If there is an exceedance of the GWPS, a statistically significant level (SSL) exceedance is identified.

4.2 Statistical Analyses Results – Appendix I and Appendix III

Analytical data for Appendix I and Appendix III constituents from the October 2019 and April 2020 semi-annual monitoring events were analyzed in accordance with the statistical analysis

plan. The statistical analysis and comparison to prediction limits are included as **Appendix D: Statistical Analysis**.

4.3 Statistical Analyses - Appendix IV

Appendix D: Statistical Analyses shows the individual well/constituent pairs with their respective confidence intervals in comparison to the respective constituent state derived site GWPS. Based on the statistical results presented in **Appendix D**, **Table 9A: Statistical Analysis Results Summary Appendix IV October 2019** summarizes the SSLs identified during the October 2019 semi-annual monitoring event. The SSLs identified in April 2020 data are summarized in **Table 9B: Statistical Analysis Results Summary Appendix IV April 2019**

Table 9A: Statistical Analysis Results Summary Appendix IV October 2019

Constituent	Wells with Confidence Intervals Above GWPS
Lithium	ARGWC-21

Table 9B: Statistical Analysis Results Summary Appendix IV April 2020

Constituent	Wells with Confidence Intervals Above GWPS
Cobalt	ARGWC-22

The ARGWC-21 lithium confidence interval did not exceed the background level-based GWPS (0.013 mg/L) in April 2020 because the lithium tolerance limit increased from 0.0057 mg/L to 0.013 mg/L. The tolerance limit used as a background value is calculated using non-parametric statistical methods and a higher concentration was observed in upgradient well ARGWA-19 in October 2019 resulting in an increase in the background value for lithium. New well ARGWC-22 cobalt confidence interval exceeded the background level-based GWPS (0.0025 mg/L) in April 2020. Note that the new downgradient wells, ARGWC-22 and ARGWC-23, are still undergoing background evaluation.

5.0 MONITORING PROGRAM STATUS

Pursuant to 40 CFR 257.96(b), GPC will continue to monitor the groundwater at the Plant Arkwright AP-2 DAS in accordance with the assessment monitoring program regulations of 40 CFR 257.95. GPC initiated an Assessment of Corrective Measures (ACM) on July 9, 2020. An alternate source demonstration (ASD) is being evaluated to address the exceedances of lithium and cobalt concurrently with the initiation of an ACM.

6.0 CONCLUSIONS & FUTURE ACTIONS

GPC has initiated assessment monitoring pursuant to § 257.95 at Plant Arkwright AP-2DAS. An ASD will be evaluated to address the exceedances of lithium and cobalt. During the next semi-annual reporting period of 2020, GPC will update the groundwater protection standards for Appendix IV constituents and conduct statistical analysis according to the regulations. The next sampling event is tentatively planned for August 2020. Additionally, the final two background sampling events for ARGWC-22 and ARGWC-23 will be completed during the next reporting period.

7.0 REFERENCES

Freeze, R.A. and Cherry, JA. 1979, *Groundwater*, Prentice-Hall, Englewood Cliffs, New Jersey, 604 pp.

LeGrand, H. E. 1962, *Geology and Ground-water Resources of the Macon Area*, Georgia. The Geological Survey Bulletin No. 72.

Southern Company Services, Inc., 2005, Plant Arkwright Ash Ponds 2 and 3 and Ash Monofill Site Acceptability Report, Revision 1.

Sanitas: Groundwater Statistical Software, Sanitas Technologies, Shawnee, KS, 2007. www.sanitastech.com

U.S. Environmental Protection Agency (US EPA), 1989. US EPA 530/SW-89-031 Interim Final RCRA Investigation (RFI) Guidance, Volume I and II.

US EPA, 1993. Subpart E, Groundwater Monitoring and Corrective Action, in Chapter 5, Solid Waste Disposal Facility Criteria Technical Manual. EA530-R-93-017.

US EPA, 2000. Guidance for Data Quality Assessment: Practical Methods for data analysis; US EPA QA/G-9, QA00 Update. Environmental Protection Agency report US EPA/600/R-96/084, Office of Environmental Information, Washington, D.C.

US EPA, March 2009. Unified Guidance, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Office of Solid Waste Management Division, U.S. Environmental Protection Agency, Washington, D. C.

US EPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. Office of Resource Conservation and Recovery – Program Implementation and Information Division. March.

US EPA. 2011. Data Validation Standard Operating Procedures. Science and Ecosystem Support Division. Region IV. Athens, GA. September.

US EPA. 2015. Federal Register. Volume 80. No. 74. Friday April 17, 2015. Part II. Environmental Protection Agency. 40 CFR Parts 257and 261. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. [EPA-HQ-RCRA–2009–0640; FRL–9919–44–OSWER]. RIN–2050–AE81. April.

US EPA. 2017. National Functional Guidelines for Inorganic Superfund Methods Data. Office of Superfund Remediation and Technology Innovation. OLEM 9355.0-135 [EPA-540-R-2017-001]. Washington, DC. January.

TABLES

TABLE 1A
SUMMARY OF MONITORING WELL NETWORK WELL CONSTRUCTION

Well	Northing [1]	Easting [1]	Top of Casing Elevation (ft above msl)[2] (Prior to June 2020 Resurvey)	Top of Casing Elevation (ft above msl)[2] (June 2020 Resurvey)	Ground Surface Elevation(ft above msl)[3]	Top of Screen Elevation (ft above msl)[3]	Screen Bottom Elevation(ft above msl)[3]	Screen Length (feet)	Total Well Depth on Construction Log (ft below land surface)	Total Well Depth Measured June 22, 2016 (ft below TOC) [4]	Water Bearing Zone Screened	Location
ARGWA-19	1063774.45	2439488.71	343.48	343.30	339.86	300.2	290.2	10.0	30.44	52.74	Bedrock	Upgradient
ARGWA-20	1063732.73	2439088.01	331.48	331.28	327.73	303.2	293.2	10.0	18.00	37.70	Overburden	Upgradient
ARGWC-21	1062941.24	2439112.52	309.40	309.15	305.97	291.7	281.7	10.0	14.43	27.28	Overburden	Downgradient
ARGWC-22	1063039.36	2438925.04	310.18	309.95	307.01	292.0	282.0	10.0	N/A	27.78 [5]	Overburden	Downgradient
ARGWC-23	1062884.38	2439202.38	307.79	307.70	304.29	289.3	279.3	10.0	N/A	27.21 [5]	Overburden	Downgradient

Notes:
1. Horizontal locations referenced to Georgia State Plane West, North American Datum of 1983 surveyed in June 2020.
2. ft msl indicates feet mean sea level.
3. Elevations based on June 2020 survey.
4. TOC indicates top of casing.
5. Monitoring wells ARGWC-22 and ARGWC-23 were installed in November 2019 and total well depth was measured December 2, 2019.

TABLE 1B
SUMMARY OF PIEZOMETER CONSTRUCTION

Well	Northing [1]	Easting [1]	Top of Casing Elevation (ft above msl)[2] (Prior to June 2020 Resurvey)	Top of Casing Elevation (ft above msl)[2] (June 2020 Resurvey)	Ground Surface Elevation(ft above msl)[3]	Top of Screen Elevation (ft above msl)[3]	Screen Bottom Elevation (ft above msl)[3]	Screen Length (feet)	Total Well Depth on Construction Log (ft below land surface)	Total Well Depth Measured December 2, 2019 (ft below TOC) [4]	Water Bearing Zone Screened
ARAMW-1	1062938.38	2439120.006	308.67	308.51	305.07	271.1	261.1	10.0	44.0	45.33	Bedrock
ARAMW-2	1062925.96	2439114.973	308.52	308.27	305.12	293.1	283.1	10.0	22.0	24.84	Overburden

Notes:
1. Horizontal locations referenced to Georgia State Plane West, North American Datum of 1983 surveyed in June 2020.
2. ft msl indicates feet mean sea level.
3. Elevations based on June 2020 survey.
4. TOC indicates top of casing.
5. Piezometers ARAMW-1 and ARAMW-2 were installed in November 2019.

TABLE 2
GROUNDWATER SAMPLING EVENT SUMMARY

Well ID	Hydraulic Location	Summary of Sampling Events																	Status of Monitoring Well
		August 29 - 3, 2016	October 24-26, 2016	January 25, 2017	April 10, 2017	June 19-20, 017	October 24, 2017	April 9-10, 2018	October 16, 2018	March 26-27, 2019	August 20, 2019	October 7 - 8, 2019	December 16, 2019	January 14, 2020	February 11, 2020	March 9, 2020	April 7 - 9, 2020	May 27, 2020	
ASH POND #2 MONITORING WELL NETWORK																			
ARGWA-19	Upgradient	BG01	BG02	BG03	BG04	BG05	BG06	BG07	BG08	D01	Initial	A-01					A02		Assessment Monitoring
ARGWA-20	Upgradient	BG01	BG02	BG03	BG04	BG05	BG06	BG07	BG08	D01	Initial	A-01					A02		Assessment Monitoring
ARGWC-21	Downgradient	BG01	BG02	BG03	BG04	BG05	BG06	BG07	BG08	D01	Initial	A-01					A02		Assessment Monitoring
ARGWC-22	Downgradient												BG01	BG02	BG03	BG04	BG05/A02	BG06	Assessment Monitoring
ARGWC-23	Downgradient												BG01	BG02	BG03	BG04	BG05/A02	BG06	Assessment Monitoring

Notes:

BGXX - Background Event and Number
DXX - Detection Event Number
AXX - Assessment Event Number
Initial - Initial Assessment Screening Event

Table 3
Summary of Groundwater Elevations

Well ID	Top of Casing Elevation (feet above MSL) (Prior to June 2020 Resurvey)	8/19/2019 (Event #10)*	10/7/2019 (Event #11)*	Top of Casing Elevation (feet above MSL) (June 2020 Resurvey TOC Elevations)	Difference Between Surveyed TOC Elevations (feet)	4/6/2020 (Event #12)*	4/6/2020 (Event #12)**
ARGWA-19	343.48	314.10	313.04	343.30	-0.18	319.68	319.50
ARGWA-20	331.48	314.75	313.48	331.28	-0.20	320.13	319.93
ARGWC-21	309.4	294.93	294.97	309.15	-0.25	296.00	295.75
ARGWC-22	310.18	N/A	N/A	309.95	-0.23	297.12	296.89
ARGWC-23	307.79	N/A	N/A	307.70	-0.09	296.80	296.71

Notes:

1. All elevations are presented in feet relative to mean sea level.
2. Groundwater elevations were measured as depth to water from the top of casing.
3. N/A: Groundwater monitoring network well was not installed until November 2019

* Events #10, #11, and #12 groundwater elevations calculated using TOC elevations surveyed prior to June 2020

** Event #12 groundwater elevations calculated using TOC elevations surveyed in June 2020

TABLE 4
GROUNDWATER FLOW VELOCITY CALCULATIONS - AUGUST and OCTOBER 2019 and APRIL 2020

Potentiometric Map Date	Water-Bearing Zone	Location	Groundwater Elevations in Well Pairs (h_1, h_2) (feet)		Change in Elevation (Δh) (feet)	Distance Measured (L) (feet)	Hydraulic Gradient (i) (feet/feet)	Average Hydraulic Conductivity (K) (feet/day)	Estimated Effective Porosity (n_e)	Calculated Groundwater Flow Velocity (V) (feet/day)	Calculated Groundwater Flow Velocity (V) (feet/year)
August 2019	Water Table Aquifer	ARGWA-20 to ARGWC-21	314.75	294.93	19.82	792	0.025	2.18	0.2	0.27	98.6
October 2019	Water Table Aquifer	ARGWA-20 to ARGWC-21	313.48	294.97	18.51	792	0.023	2.18	0.2	0.25	91.3
April 2020	Water Table Aquifer	ARGWA-20 to ARGWC-21	320.13	296.00	24.13	792	0.030	2.18	0.2	0.33	120.5

TABLE 5
ANALYTICAL DATA SUMMARY -
AUGUST AND OCTOBER 2019 AND APRIL 2020

Substance		Well ID					
		ARGWA-19	ARGWA-19	ARGWA-19	ARGWA-20	ARGWA-20	ARGWA-20
		8/20/2019	10/07/2019	4/07/2020	8/20/2019	10/07/2019	4/06/2020
APPENDIX III	Boron	NA	<0.039	0.072 J	NA	<0.039	0.063 J
	Calcium	NA	14	14	NA	8.9	9.5
	Chloride	NA	11	11	NA	5.2	5.2
	Fluoride	0.045J	0.049 J	0.14	0.042 J	0.036 J	0.059 J
	Sulfate	NA	7.4	8.4	NA	17	15
	TDS	NA	150	120	NA	87	90
	pH	5.90	5.89	5.72	5.57	5.65	5.53
APPENDIX IV	Antimony	<0.00038	NA	NA	<0.00038	NA	NA
	Arsenic	0.00036 J	<0.00032	0.00060 J	0.00047 J	<0.00032	0.00042 J
	Barium	0.052	0.049	0.047	0.079	0.076	0.075
	Beryllium	<0.00018	NA	NA	<0.00018	NA	NA
	Cadmium	<0.00013	<0.00013	0.00034 J	<0.00013	<0.00013	<0.00022
	Chromium	0.0024	<0.0015	<0.0015	0.0078	0.0059	0.0057
	Cobalt	0.00011 J	0.00011 J	0.00038 J	0.00015 J	<0.000075	0.00039 J
	Lead	<0.00013	0.00018 J	0.00037 J	<0.00013	0.00014 J	0.00033 J
	Lithium	0.0044 J	0.013	0.0053	<0.0034	0.0066	<0.0034
	Mercury	<0.00010	NA	NA	<0.00010	NA	NA
	Molybdenum	<0.00061	NA	NA	<0.00061	NA	NA
	Radium	0.498	0.476 U	0.651	0.530	0.621 U	0.0720 U
	Selenium	<0.0015	<0.0015	<0.0015	0.0015 J	0.0016 J	0.0017 J
	Thallium	<0.00015	NA	NA	<0.00015	NA	NA
*	Silver	NA	0.00056 J	0.00018 J	NA	0.00031 J	<0.00018

Notes:
1. Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
2. < indicates the substance was not detected above the relevant laboratory method detection limit (MDL).
3. J indicates the substance was detected at such low levels that the precision of the laboratory instrument could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated value.
4. TDS indicates total dissolved solids.
5. U indicates the substance was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value. Therefore, the value followed by U is qualified by the laboratory as estimated.
6. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring.
7. * - Georgia Appendix I constituent that is not also included in Appendix IV.
8. NA indicates constituent was not analyzed.

TABLE 5
ANALYTICAL DATA SUMMARY -
AUGUST AND OCTOBER 2019 AND APRIL 2020

Substance		Well ID				
		ARGWC-21	ARGWC-21	ARGWC-21	ARGWC-22	ARGWC-23
		8/20/2019	10/08/2019	4/07/2020	4/07/2020	4/07/2020
APPENDIX III	Boron	NA	0.58	0.74	2.6	0.44
	Calcium	NA	60	69	190	65
	Chloride	NA	4.5	4.2	8.1	3.8
	Fluoride	0.098 J	0.065 J	0.12	0.068 J	0.18
	Sulfate	NA	170	180	710	58
	TDS	NA	420	460	1300	290
	pH	6.08	6.11	5.96	5.84	6.40
APPENDIX IV	Antimony	<0.00038	NA	NA	NA	NA
	Arsenic	0.0020	0.0012 J	0.00054 J	<0.00031	<0.00031
	Barium	0.10	0.096	0.050	0.040	0.16
	Beryllium	<0.00018	NA	NA	NA	NA
	Cadmium	<0.00013	<0.00013	<0.00022	<0.00022	<0.00022
	Chromium	0.0017 J	<0.0015	<0.0015	<0.0015	<0.0015
	Cobalt	0.0023	0.0018	0.00087	0.0090	0.0016
	Lead	<0.00013	0.00015 J	0.00026 J	0.00014 J	<0.00013
	Lithium	0.0098	0.015	0.011	0.012	0.032
	Mercury	<0.00010	NA	NA	NA	NA
	Molybdenum	<0.00061	NA	NA	NA	NA
	Radium	0.978	0.588	0.433 U	0.567	0.296 U
	Selenium	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
	Thallium	<0.00015	NA	NA	NA	NA
*	Silver	NA	0.00043 J	<0.00018	<0.00018	<0.00018

Notes:
1. Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
2. < indicates the substance was not detected above the relevant laboratory method detection limit (MDL).
3. J indicates the substance was detected at such low levels that the precision of the laboratory instrument could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated value.
4. TDS indicates total dissolved solids.
5. U indicates the substance was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value. Therefore, the value followed by U is qualified by the laboratory as estimated.
6. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring.
7. * - Georgia Appendix I constituent that is not also included in Appendix IV.
8. NA indicates constituent was not analyzed.

TABLE 6
RPD CALCULATIONS

Ash Pond #2			
Parameter	**Concentration 1**	**Concentration 2**	
8/20/2019	**DUP-2**	**ARGWA-20**	**RPD**
Barium	0.085	0.079	7%
Chromium	0.0071	0.0078	9%
Radium	0.642	0.53	19%
Parameter	**Concentration 1**	**Concentration 2**	
10/7/2019	**DUP-2**	**ARGWA-20**	**RPD**
Calcium	8.9	8.9	0%
Chloride	5.3	5.2	2%
Sulfate	17	17	0%
TDS	93	87	7%
Barium	0.08	0.076	5%
Chromium	0.0059	0.0059	0%
Lithium	0.013	0.0066	65%
Parameter	**Concentration 1**	**Concentration 2**	
4/7/2020	**DUP-2**	**ARGWA-19**	**RPD**
Calcium	14	14	0%
Chloride	11	11	0%
Sulfate	8.1	8.4	4%
TDS	130	120	8%
Barium	0.044	0.047	7%

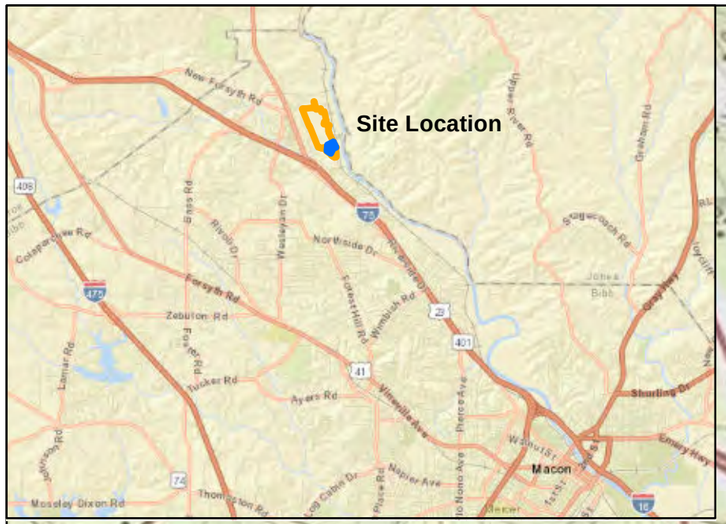
concentrations in mg/L

TABLE 8
SUMMARY OF GROUNDWATER PROTECTION STANDARDS

Constituent	Units	MCL	Federal CCR Rules Specified Limit	Site-Specific Background October 2019	State Derived Site GWPS [2] October 2019	Site-Specific Background April 2020	State Derived Site GWPS [2] April 2020
Antimony	mg/L	0.006		0.0025	0.006	0.002	0.006
Arsenic	mg/L	0.01		0.0015	0.01	0.0015	0.01
Barium	mg/L	2.0		0.1	2.0	0.1	2.0
Beryllium	mg/L	0.004		0.0025	0.004	0.001	0.004
Cadmium	mg/L	0.005		0.0025	0.005	0.001	0.005
Chromium	mg/L	0.1		0.0071	0.1	0.0078	0.1
Cobalt [1]	mg/L		0.006	0.0025	0.0025	0.0025	0.0025
Fluoride	mg/L	4.0		0.2	4.0	0.2	4.0
Lead [1]	mg/L		0.015	0.0013	0.0013	0.001	0.001
Lithium [1]	mg/L		0.04	0.0057	0.0057	0.013	0.013
Mercury	mg/L	0.002		0.0002	0.002	0.0002	0.002
Molybdenum [1]	mg/L		0.1	0.015	0.015	0.015	0.015
Combined Radium	piC/L	5.0		1.585	5.0	1.4	5.0
Selenium	mg/L	0.05		0.007	0.05	0.005	0.05
Silver	mg/L			0.0013	0.0013	0.001	0.001
Thallium	mg/L	0.002		0.0005	0.002	0.001	0.002

Notes:
mg/L - milligrams per liter
piC/L - picoCuries per liter
MCL - Maximum Contaminant Level: The MCL is the GWPS under the Federal CCR Rule unless background is greater.
Federal CCR Rules Specified Limit - Groundwater protection standard specified in the Federal CCR Rule 40 CFR § 257.95 (h) Amendment July 30, 2018
GWPS - Groundwater Protection Standard
(1) Constituent without an established MCL. The background limits were used when determining the groundwater protection standard (GWPS) under 40 CFR §257.95(h) and Georgia Environmental Protection Division (EPD) Rule 391-3-4-.10(6)(a).
(2) Under the existing Georgia EPD Rules, the GWPS is: (i) the MCL, (ii) where the MCL is not established, the background concentration, or (iii) background concentrations for constituents where the background level is higher than the MCL.

FIGURES



N

Pumping Sta
WT
Arkwright
Power Plant
BM 338
BM 321
INTERCHANGE 56
INTERCHANGE 55
BR 369
Substa
Sewage Disposal Pond
SHERATON
DRIVE
Deer R

Legend

- Ash Pond 2 Dry Ash Stockpile
- Ash Pond 3 Landfill and Monofill
- Approximate Property Boundary

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China

0 750 1,500 3,000 Feet

Plant Arkwright
Macon, Georgia

Site Location Map

Prepared By-Date: NJM - 7/23/2020	
Checked By-Date: RQ - 7/23/2020	wood.
Project Number: 6122201429	**Figure: 1**

Document Path: Z:\Arkwright\1_MXDs\Report_Figs\Site_Location_AP2.mxd

N

ARGWA-19

ARGWA-20

ARGWC-22

ARGWC-21

ARAMW-1

ARAMW-2

ARGWC-23

Legend

- Groundwater Monitoring Network Well
- Groundwater Monitoring Network Well Installed in November 2019
- Piezometer Installed November 2019
- Approximate Limits of AP-2DAS
- Approximate Property Boundary

0 50 100 200 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Plant Arkwright
Macon, Georgia

Monitoring Network Well Location Map

Prepared By-Date: NJM - 7/23/2020	
Checked By-Date: RQ - 7/23/2020	
Project Number: 6122201429	

wood.

Figure: 2

Document Path: Z:\Arkwright\1_MXDs\Report_Figs\2019_2020_Annual\AP2\MNW_Location_Map.mxd

N

ARGWA-20
314.75

ARGWA-19
314.10

310

310

305

305

300

300

ARGWC-21
294.93

295

295

Legend

294.93 Groundwater Elevation (ft amsl)

Groundwater Elevation Location

Groundwater Elevation Contour (ft amsl)

Groundwater Flow Direciton

Approximate Limits of Waste

Approximate Property Boundary

0 50 100 200 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Plant Arkwright
Macon, Georgia

Potentiometric Surface - August 2019

Prepared By-Date: NJM - 7/15/2020	
Checked By-Date: RQ - 7/15/2020	
Project Number: 6122201429	

wood.

Figure: 3

Document Path: Z:\Arkwright\1_MXDs\Report_Figs\2019_2020_Annual\AP2\August_2019_AP2_Pot_Map.mxd

N

ARGWA-20
313.48

ARGWA-19
313.04

310

310

305

305

300

300

ARGWC-21
294.97

295

295

Legend

294.97 Groundwater Elevation (ft amsl)

Groundwater Monitoring Network Well

Groundwater Elevation Contour (ft amsl)

Interpreted Groundwater Flow Direction

Approximate Limits of AP-2DAS Waste

Approximate Property Boundary

0 50 100 200 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Plant Arkwright
Macon, Georgia

Potentiometric Surface - October 2019

Prepared By-Date: NJM - 7/15/2020	
Checked By-Date: RQ - 7/15/2020	
Project Number: 6122201429	

wood.

Figure: 4

Document Path: Z:\Arkwright\1_MXDs\Report_Figs\2019_2020_Annual\AP2\Oct2019_AP2_PotMap.mxd

N

Notes:
* - Groundwater elevation was not used in contouring.
- Groundwater elevations calculated using top of casing measurements collected during the June 2020 site survey.

ARGWA-20
319.93

ARGWA-19
319.50

320

315

310

305

300

ARGWC-22
296.89

ARGWC-21
295.75

ARAMW-1
295.89

ARAMW-2
295.40*

ARGWC-23
296.71

Legend

296.89 Groundwater Elevation (ft amsl)

Groundwater Elevation Location

Groundwater Elevation Contour (ft amsl)

Interpreted Groundwater Flow Direction

Approximate Limits of AP-2DAS

Approximate Property Boundary

0 50 100 200 Feet

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Plant Arkwright
Macon, Georgia

Potentiometric Surface - April 2020

Prepared By-Date: NJM - 7/14/2020	
Checked By-Date: RQ - 7/14/2020	
Project Number: 6122201429	

wood.

Figure: 5

Document Path: Z:\Arkwright\1_MXDs\Report_Figs\2019_2020_Annual\AP2\April2020_AP2_PotMap.mxd

APPENDIX A

WELL INSTALLATION REPORTS

Georgia Power Company
Former Plant Arkwright
Closed Ash Pond No.2 Dry Ash Stockpile

PERMIT #: 011-031D(LI)

Bibb County

Groundwater Monitoring Well Installation Report

Atlantic Coast Consulting, Inc.

TABLE OF CONTENTS

Professional Geologist Certification

I, Evan B. Perry, certify that I am a qualified groundwater scientist as demonstrated by a Georgia state registered professional geologist certification. I have sufficient training and experience in groundwater hydrology and related fields to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that the data in this report have been prepared by me or a subordinate working under my direction.

Evan B. Perry, P.G.
Georgia P.G. Registration Number 1744

1.0 Introduction

Georgia Power Company (GPC) –former Plant Arkwright is located in Bibb County near Macon on Arkwright Road. Plant Arkwright was retired in 2002 and decommissioned in 2003. The CCR unit AP-2 Dry Ash Stack (AP-2DAS) was closed in 2010 in accordance with the solid waste regulations in effect at the time of its closure. A closure certificate was issued by the Georgia Environmental Protection Division (GA EPD) for AP-2DAS on June 30, 2010. The site operates during the post closure care period under EPD solid waste handling permit number 011-031D(LI). Figure 1, Well Location Map, depicts the location of the monitoring and assessment wells.

This report is prepared document details regarding the design, installation, and development of monitoring well ARAMW-1 and ARAMW-2 installed at GPC Plant Arkwright, Ash AP-2. These locations are intended to assess groundwater conditions at ARGWC-21 vertically and hydraulically downgradient.

2.0 Drilling and Well Installation

Installation details and descriptions of procedures are provided in the following sections.

2.1 Drilling Method

Groundwater monitoring wells were installed by Cascade Environmental, LP (Cascade) using rotosonic drilling techniques. Cascade has current surety bond on file with the Georgia Water Well Standards Advisory Council. A copy of Cascade's bond is included in Appendix A, Driller Bond Certificate.

Drilling equipment was steam-cleaned before the start of drilling and between each boring. Borings for groundwater wells were drilled with a 6-inch outer diameter core barrel. Groundwater wells were extended to depths deep enough to provide a sufficient water column for sampling efforts targeted within the uppermost aquifer at the site. Boring and well construction logs are included in Appendix B, Boring and Well Construction Logs.

2.2 Screened Interval

The wells are screened in unconsolidated silty sand with gravel as shown in the boring and well installation logs provided as Appendix B. The wells are constructed with 10 feet lengths of screen.

2.3 Well Casing and Screens

The wells are constructed of 2-inch diameter, American Society for Testing and Materials (ASTM)-rated, flush-threaded, Schedule 40 PVC casing flush-threaded to pre-packed dual-wall slotted PVC screens. The casing and pre-packed screen arrived pre-cleaned and packaged by the manufacturer. Well construction materials are sufficiently durable to resist chemical and physical degradation and not interfere with the quality of groundwater samples. Solvent or glue was not used to construct the wells. Casing and screen sections are flush-threaded. Wells were constructed in accordance with accepted industry standards and followed guidelines within the Manual for Groundwater Monitoring (GA EPD, 1991).

2.4 Well Intake Design

The wells are designed and constructed to: (1) allow sufficient groundwater flow to the well for sampling; (2) minimize the passage of formation materials (turbidity) into the wells; and (3) ensure sufficient structural integrity to prevent collapse of the well. The well is screened using 0.010-inch slotted PVC pre-packed dual-wall well screen. The pre-packed dual-wall well screen combines a centralized inner well screen, a void for site-specific filter sand pack, and an outer conductor screen in one integrated unit. Based on the nature of deposits, the screen will retain at least 90 percent of the filter pack and 40 percent of the formation.

2.5 Filter Pack

During groundwater well construction, filter sand was slowly washed with potable water into the annular space surrounding the well screen to approximately two feet above the screened interval. Filter sand is approximately 20/30 grade silica sand from Standard Sand and Silica Co. A grain size curve for the filter pack is provided in Appendix C, Filter Pack Grain Size Curve.

Filter pack material was placed within the pre-packed dual-wall well screens and in the annular space between the outside of the pre-pack screen and borehole wall to ensure an adequate thickness of filter pack material between the well and the formation. Filter pack material placed in the annular space outside of the well screen extended approximately 2 feet above the top of screen. No bridging occurred during filter pack placement.

After placing the filter pack, the wells were pumped to ensure settlement of the filter pack, prior to installing the annular seal. The depth of top of filter pack was measured and recorded in the well construction log provided in Appendix B.

2.6 Annular Seal

Two to four feet of hydrated sodium bentonite overlies the filter pack. A high solid bentonite grout slurry was placed into the annual space from the bottom to the top with tremie pipe. A cement apron 4-feet by 4-feet by 4-inches was poured around the wells. The pads are mounded slightly outward to direct surface drainage away from the well.

2.7 Cap and Protective Casing

The well risers are fitted with a locking cap and a lockable cover. A one-quarter inch vent hole in the PVC riser pipe provides an avenue for the escape of gas. The protective cap guards the casing from damage and the locking cap serves as a security device to prevent well tampering. Bollards were installed around the corners of the wells to protect the wells from damage as necessary.

Wells are clearly marked with signage with the proper designation. A weep hole was drilled in the outer protective casing near the bottom above the concrete pad. Pea gravel was placed inside the protective casing between the riser pipe and the outer casing.

3.0 Well Development

The monitoring wells were developed using a combination of surging and pumping to (1) restore the natural hydraulic conductivity of the formation, and (2) to remove fine-grained sediment to ensure low- turbidity groundwater samples. The well was alternately surged and purged until

visually clear of particulates. Turbidity, pH, temperature, and conductivity measurements were made to ensure that each well was fully developed. All equipment and tubing placed in the well was decontaminated or new. Development forms are included in Appendix D, Well Development Forms.

4.0 Survey

The horizontal and vertical location of the newly installed monitoring locations was surveyed by Southern Company Civil Field Services T&PS. under the direction of a Georgia Registered Land Surveyor (RLS). The horizontal location and vertical elevation of the wells were surveyed to the nearest, 0.01-foot. The elevations were measured on a survey pin embedded in the concrete pad, ground surface, and the top of PVC well casing. The survey for the new monitoring wells was completed On December 13, 2019. Elevations are referenced to mean sea level (MSL) in feet; depth is referenced from TOC in feet. Well coordinates are provided in Table 1. A site map depicting the surveyed locations is included in Figure 1; a survey data sheet sealed by a Georgia RLS is included in Appendix E, Survey Data. The well locations shown on Figure 1 have been referenced in the recent Groundwater Monitoring Plan.

5.0 General References

Georgia Environmental Protection Division, Georgia Department of Natural Resources. Manual for Groundwater Monitoring, September 1991.

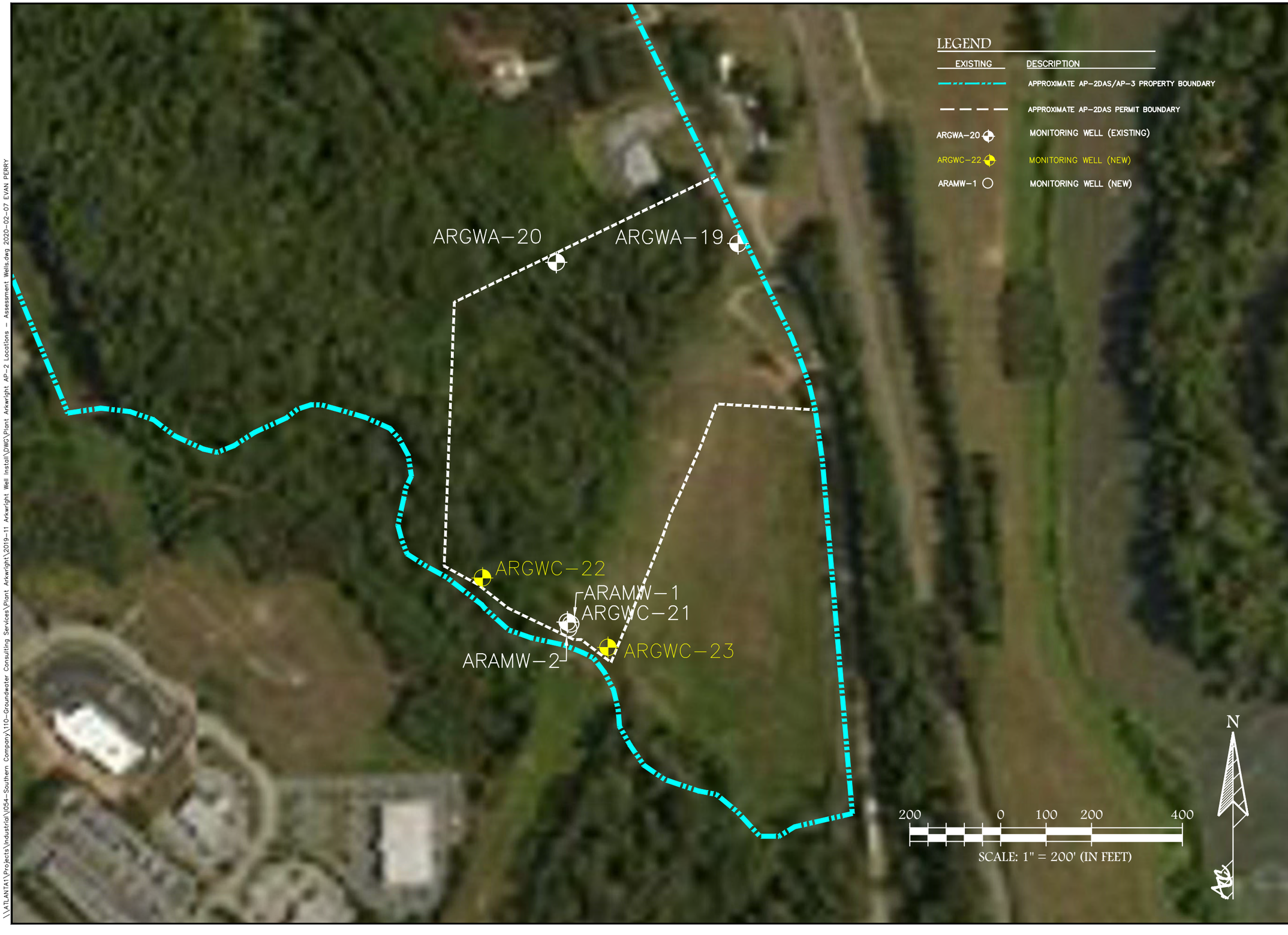
TABLE

Table 1
Summary of Well Installation Dates, Coordinates, Elevation Screen Interval and Purpose

Well	Installation Date (mm/dd/yyyy)	Northing	Easting	Ground Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen Elevation (ft MSL)	Bottom of Screen Elevation (ft MSL)	Total Depth (ft BTOC)	Purpose
ARAMW-1	11/20/2019	1,062,937.14	2,439,119.67	305.69	308.67	273.64	263.64	45.33	Vertical Assessment of ARGWC-21
ARAMW-2	11/20/2019	1,062,926.91	2,439,115.22	305.47	308.52	294.02	284.02	24.80	Horizontal Assessment of ARGWC-21

Notes:
1. ft BTOC indicates feet below top of casing.
2. ft MSL indicates feet mean sea level.

FIGURE



ATLANTIC COAST CONSULTING, INC.
1150 Northmeadow Pkwy.
Suite 100
Roswell, GA 30076
770.594.5998
www.atlcc.net

PROJECT:

PLANT ARKWRIGHT

5001 ARKWRIGHT ROAD
MACON, GEORGIA

REVISIONS

Drawn by: RW

Checked by: MM

PROJECT NUMBER:

I054-110

January 2020

ASSESSMENT
WELL LOCATION
MAP

FIGURE 1

APPENDICES

APPENDIX A

Driller Bond Certificate

COPY

CONTINUATION CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. **800031223**

dated effective June 30, 2017
(MONTH-DAY-YEAR)

on behalf of Michael C. Rice and Cascade Drilling, L.P., any and all employees, officers and partners
(PRINCIPAL)

and in favor of State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2019
(MONTH-DAY-YEAR)

and ending on June 30, 2021
(MONTH-DAY-YEAR)

Amount of bond Thirty Thousand and Zero/100 ($30,000.00)

Description of bond Water Well Contractor Performance Bond

Premium: $1,200.00

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 May 9, 2019
(MONTH-DAY-YEAR)
Atlantic Specialty Insurance Company

By _____
Attorney-in-Fact Elizabeth R. Hahn

Parker, Smith & Feek, Inc.
Agent

2233 112th Ave NE Bellevue, WA 98004
Address of Agent

(425) 709-3600
Telephone Number of Agent

S-0157/GE 8/08

XDP

OneBeacon
INSURANCE GROUP

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher, Andrew P. Larsen, Nicholas Fredrickson**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **sixty million dollars ($60,000,000)** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-sixth day of October, 2017.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

On this twenty-sixth day of October, 2017, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

TARA JANELLE STAFFORD
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2020

_____
Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 9 day of May 2019

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
October 1, 2019

_____
Christopher V. Jerry, Secretary

APPENDIX B

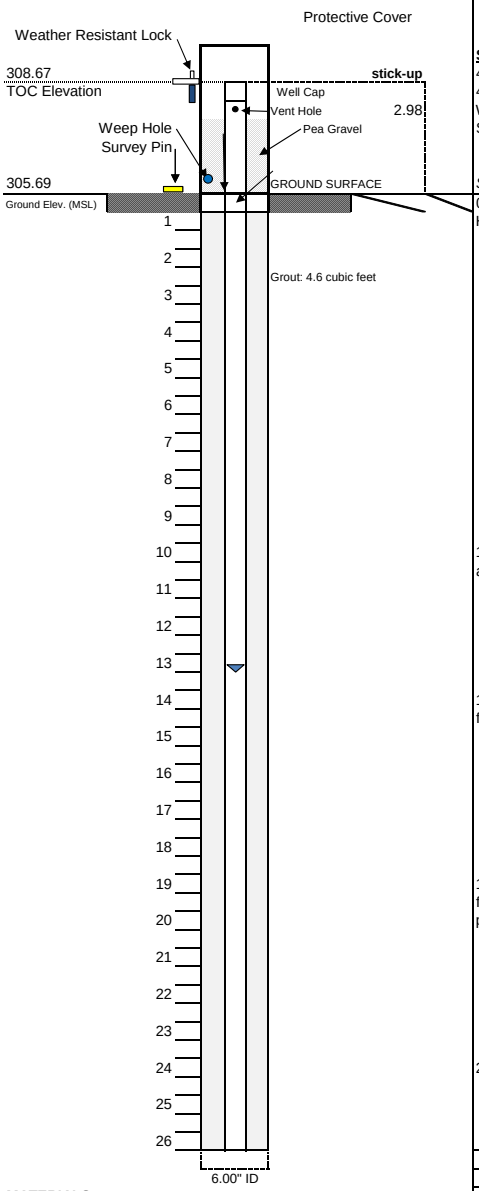
BORING AND WELL CONSTRUCTION LOGS

ATLANTIC COAST CONSULTING, INC.

ARAMW-1

BORING ID

PROJECT:	Plant Arkwright	**PROJECT NO.:**	I054-110
TOTAL DEPTH:	45.33 ft. BTOC	**SITE LOCATION:**	Macon, Georgia
DATE BEGIN:	20-Nov-2019	**DRILLER:**	Isaac Young
DATE COMPLETE:	20-Nov-2019	**RIG TYPE:**	T-300 Rotosonic
INSTALLED BY:	Cascade	**METHOD:**	Rotosonic
SUPERVISED BY:	Taylor Goble		
WATER 1ST ENCOUNTERED:	14' BGS		
WATER AFTER 48 HOURS:	13.43' BTOC		



Northing: 1062937.141
Easting: 2439119.673

SURFACE COMPLETION:
4"x4" Aluminum Protective Casing
4'x4'x4" Concrete Pad
Weather Resistant Lock
Survey Pin

SOIL DESCRIPTION

0-10' Red silty clay (CL). Micaceous. Color change to light brown. Hang augered

10-14' No recovery when driller switched to rock coring techniques at 14' bgs

14-19' Rock. Gneiss with high quartz content. Iron staining and light fracturing evident from 14-17'. Harder rock from 17-19'

19-24' Extremely fractured section. Mottled dark brown moist silty sand from 19-20'. Return to gneiss found above at 20'. Extremely large core pieces. No fracturing or iron staining.

24-29' As above.

Core Photos

MATERIALS:

GROUT:	Bentonite Grout
MANUFACTURER:	AquaGuard
BENTONITE SEAL:	3/8" Bentonite Pellets
MANUFACTURER:	Pel-Plug
FILTER PACK SAND:	20/30 Mesh
MANUFACTURER:	Standard Sand & Silica
WELL SCREEN:	Sch. 40 - 2" PVC
MANUFACTURER:	Campbell Monoflex
SLOT SIZE:	0.010-Inch Slot
WELL CASING:	Sch. 40 - 2" PVC
MANUFACTURER:	Campbell Monoflex

Soil Descriptions from Unified Soil Classification System

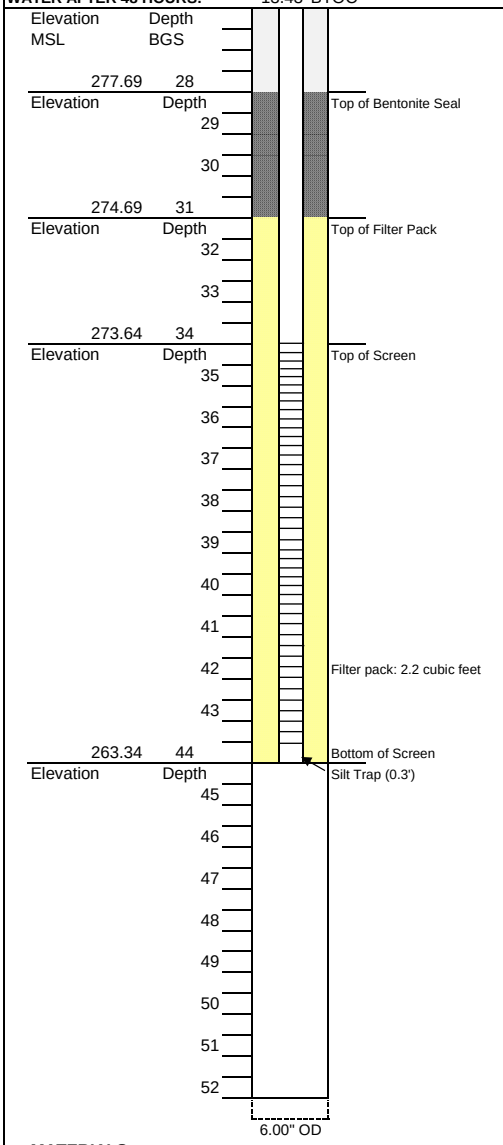
BTOC - Below Top of Casing
ID - Inside Diameter; OD - Outside Diameter
MSL - Mean Sea Level
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

ARAMW-1

BORING ID

PROJECT:	Plant Arkwright	**PROJECT NO.:**	I054-110
TOTAL DEPTH:	45.33 ft. BTOC	**SITE LOCATION:**	Macon, Georgia
DATE BEGIN:	20-Nov-2019	**DRILLER:**	Isaac Young
DATE COMPLETE:	20-Nov-2019	**RIG TYPE:**	T-300 Rotosonic
INSTALLED BY:	Cascade	**METHOD:**	Rotosonic
SUPERVISED BY:	Taylor Goble		
WATER 1ST ENCOUNTERED:	14' BGS		
WATER AFTER 48 HOURS:	13.43' BTOC		



29-34' As above. Some fracturing and iron staining present. Layer of mottled gold and black sand, moist, from 32-34'

34-39' Hard gneiss. No fracturing or iron staining. Large pieces.

39-44' As above. Some fracturing and iron staining ~44'. Limited recovery

Total well depth 44.0' BGS

Core Photos

MATERIALS:

GROUT:	Bentonite Grout
MANUFACTURER:	AquaGuard
BENTONITE SEAL:	3/8" Bentonite Pellets
MANUFACTURER:	Pel-Plug
FILTER PACK SAND:	20/30 Mesh
MANUFACTURER:	Filter Media
WELL SCREEN:	Sch. 40 - 2" PVC
MANUFACTURER:	Silver-Line
SLOT SIZE:	0.010-Inch Slot
WELL CASING:	Sch. 40 - 2" PVC
MANUFACTURER:	Silver-Line

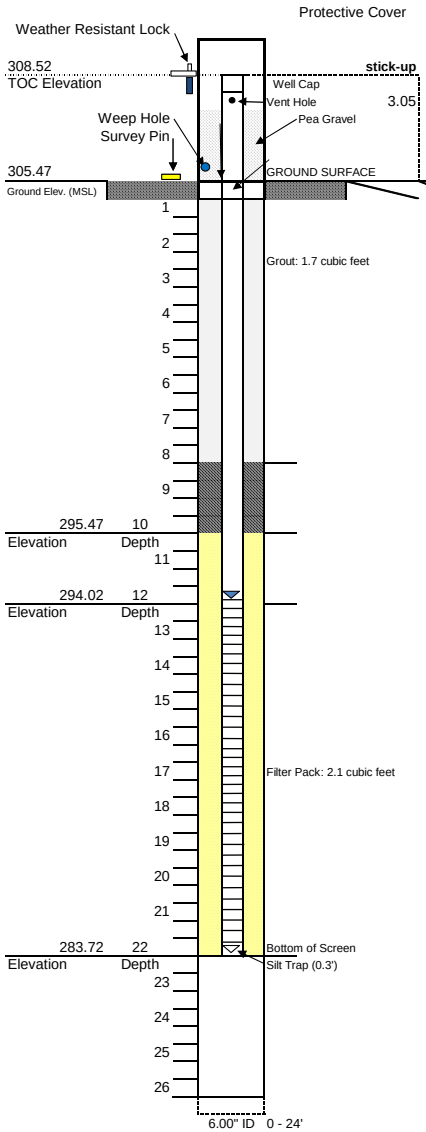
TOC - Top of Casing
ID - Inside Diameter; OD - Outside Diameter
MSL - Mean Sea Level
BGS - Below Ground Surface

ATLANTIC COAST CONSULTING, INC.

ARAMW-2

BORING ID

PROJECT:	Plant Arkwright	**PROJECT NO.:**	I054-110
TOTAL DEPTH:	24.80 ft. BTOC	**SITE LOCATION:**	Macon, Georgia
DATE BEGIN:	20-Nov-2019	**DRILLER:**	Isaac Young
DATE COMPLETE:	20-Nov-2019	**RIG TYPE:**	T-300 Rotosonic
INSTALLED BY:	Cascade	**METHOD:**	Rotosonic
SUPERVISED BY:	Taylor Goble		
WATER 1ST ENCOUNTERED:	12.0' BGS		
WATER AFTER 48 HOURS:	13.49' BTOC		



Northing: 1062926.908
Easting: 2439115.223

SURFACE COMPLETION:
4"x4" Aluminum Protective Casing
4'x4'x4" Concrete Pad
Weather Resistant Lock
Survey Pin

SOIL DESCRIPTION

0-9' Red silty clay (CL). Micaceous. Color change to light brown. Hand augered.

9-15' Gray silty sand (SC). Dry. Becomes wet around 12'. Changes in color to a red brown coarse sand (S) around 13.5'.

15-22' Continue gray coarse sand (S). Moist. Transitions into a dry and gravelly brown sand at 19'. Bigger gravel pieces and rock pieces apparent from 19-22' (SG).

Total well depth 22.0' BGS

Core Photos

MATERIALS:

GROUT:	Bentonite Grout
MANUFACTURER:	AquaGuard
BENTONITE SEAL:	3/8" Bentonite Pellets
MANUFACTURER:	Pel-Plug
FILTER PACK SAND:	20/30 Mesh
MANUFACTURER:	Filter Media
WELL SCREEN:	Sch. 40 - 2" PVC
MANUFACTURER:	Campbell Monoflex
SLOT SIZE:	0.010-Inch Slot
WELL CASING:	Sch. 40 - 2" PVC
MANUFACTURER:	Campbell Monoflex

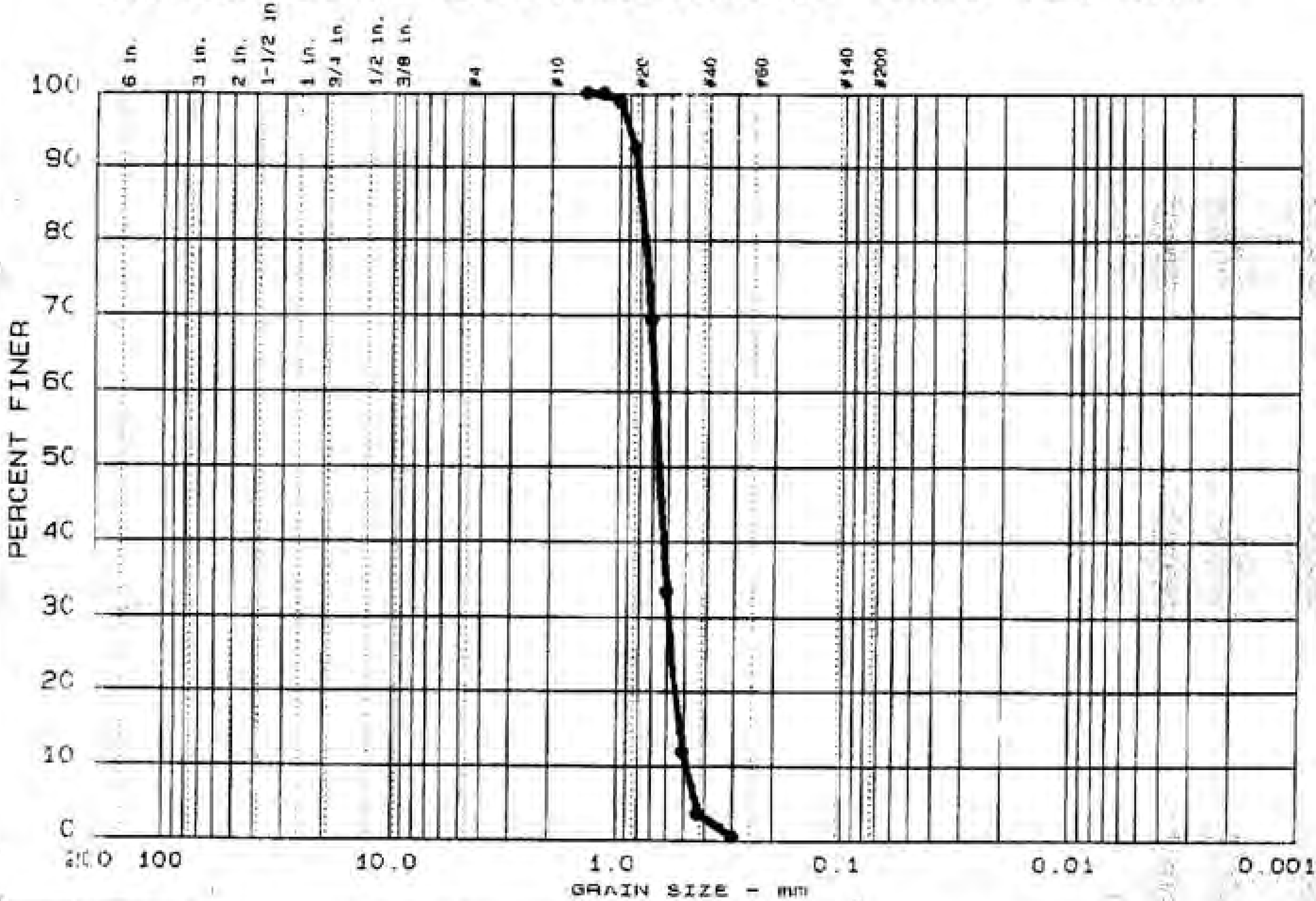
Soil Descriptions from Unified Soil Classification System

BTOC - Below Top of Casing
ID - Inside Diameter; OD - Outside Diameter
MSL - Mean Sea Level
BGS - Below Ground Surface

APPENDIX C

FILTER PACK GRAIN SIZE CURVE

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	100.0		

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	ND	ND	0.78	0.68	0.65	0.588	0.5182	0.4814	1.06	1.4

MATERIAL DESCRIPTION	USCS	AASHTO
● WELL GRAVEL PACK #1	ND	ND

Project No.: 30774-2-5010-01
Project: SOUTHERN PRODUCTS & SILICA COMPANY
● Location: WELL GRAVEL PACK #1

Date: 01-22-02

Remarks:
ND=NOT DETERMINED

GRAIN SIZE DISTRIBUTION TEST REPORT
LAW ENGINEERING, INC.

Figure No. 01

REVIEWED BY: [signature]

APPENDIX D

WELL DEVELOPMENT FORMS

Job Name: Plant Arkwright | Job No. I054-110 | Well No. ARAMW-1

Developed By: A. Schnittker | Date of Installation: 11/20/2019 | Sheet 1 of 1

Started Dev. 12-02-19 / 1330 (Date / Time) | Completed Dev. 12-02-19 / 1402 (Date / Time)

W.L. Before Dev. 13.43 / 12-02-19 / 1325 (BTOC / Date / Time) | W.L. After Dev. 14.09 / 12-02-19 / 1413 (BTOC / Date / Time)

Well Depth Before Dev.: 45.29 BTOC | Well Depth After Dev.: 45.33 BTOC

Water Column (H): 31.86 Ft. | Well Dia.: 2 In. | Well Volume: 5.09 Gal.

Screen Length: 10 Ft.

Date / Time	Volume Removed (Gal.)	Field Parameters				Remarks
		Specific Cond. (umhos/cm)	Temperature (oC)	pH (S.U.)	Turbidity (NTU)	
12-02-19 1337	12	720	19.42	7.01	7.32	
12-02-19 1342	15	717	19.33	6.59	4.6	Re-surged with whale pump
12-02-19 1347	18	714	19.40	6.38	26.6	
12-02-19 1352	21	713	19.41	6.29	4.39	Re-surged with whale pump
12-02-19 1357	26	707	19.46	6.26	12.3	
12-02-19 1402	30	707	19.41	6.24	3.1	Development complete
		Total Volume Removed (gal): 30				

Development Method: Surged Pump Q= 0.9 gpm

Surged with surge blockers and foot valve before starting development with submersible whale pump

Notes: H = well depth (BTOC) - W.L. (BTOC)

Well volume in pipe:

2" diameter well: 0.16 X H = volume in gallons

4" diameter well: 0.66 X H = voume in gallons

Product Name: Low-Flow System

Date: 2019-12-02 14:18:26

Project Information:		Pump Information:	
Operator Name	Anna Schnittker.	Pump Model/Type	Whale
Company Name	ACC	Tubing Type	Poly
Project Name	Arkwright	Tubing Diameter	.37 in
Site Name	Default Site	Tubing Length	50 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	445707		
Turbidity Make/Model	Hach 2100	Pump placement from TOC	45 ft

Well Information:		Pumping Information:	
Well ID	ARAMW-1	Final Pumping Rate	0 mL/min
Well diameter	2 in	Total System Volume	1.147167 L
Well Total Depth	45.29 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	13.43 ft	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 100		+/- 0.2	+/- 100
Last 5	13:42:26	600.87	19.33	6.59	717.40	4.60	--	0.21	-41.89
Last 5	13:47:26	900.86	19.40	6.38	714.12	26.60	--	0.21	-44.21
Last 5	13:52:26	1200.86	19.41	6.29	713.04	4.39	--	0.27	-48.73
Last 5	13:57:26	1500.87	19.46	6.26	707.91	12.30	--	0.23	-50.40
Last 5	14:02:26	1800.87	19.41	6.24	707.22	--	--	0.29	-52.16
Variance 0			0.01	-0.09	-1.09			0.05	-4.52
Variance 1			0.05	-0.03	-5.13			-0.03	-1.67
Variance 2			-0.05	-0.02	-0.69			0.06	-1.76

Notes

Start: 1330 WL: 13.43 BTOC: 45.29. End: 14:02 WL: 14.09 BTOC: 45.33

Grab Samples

Atlantic Coast Consulting, Inc.
Well Development Field Record

Job Name: Plant Arkwright | Job No. I054-110 | Well No. ARAMW-2

Developed By: A. Schnittker/ O. Fuquea | Date of Installation: 11/20/2019 | Sheet 1 of 1

Started Dev. 12-02-19 / 1140 (Date / Time) | Completed Dev. 12-02-19 / 1300 (Date / Time)

W.L. Before Dev. 13.49 / 12-02-19 / 1138 (BTOC / Date / Time) | W.L. After Dev. 13.64 / 12-02-19 / 1304 (BTOC / Date / Time)

Well Depth Before Dev.: 24.80 BTOC | Well Depth After Dev.: 24.84 BTOC

Water Column (H): 11.31 Ft. | Well Dia.: 2 In. | Well Volume: 1.8 Gal.

Screen Length: 10 Ft.

Date / Time	Volume Removed (Gal.)	Field Parameters: Specific Cond. (umhos/cm)	Temperature (oC)	pH (S.U.)	Turbidity (NTU)	Remarks
12-02-19 1231	33	1187	20.16	6.03	799	
12-02-19 1236	36	1194	20.20	6.02	50	
12-02-19 1241	40	1216	20.20	6.02	19	
12-02-19 1245	43	1231	20.20	6.03	14	
12-02-19 1251	48.5	1254	20.18	6.04	6.81	
12-02-19 1300	53	1278	20.20	6.05	4.24	Development complete
		Total Volume Removed (gal): 53				

Development Method: Surged Pump Q= 0.7 gpm

Surged with surge blockers and foot valve before starting development with submersible whale pump

Notes: H = well depth (BTOC) - W.L. (BTOC)

Well volume in pipe:

2" diameter well: 0.16 X H = volume in gallons

4" diameter well: 0.66 X H = voume in gallons

Product Name: Low-Flow System

Date: 2019-09-16 16:27:35

Project Information:		Pump Information:	
Operator Name	Anna Schnittker	Pump Model/Type	Whale
Company Name	ACC	Tubing Type	poly
Project Name	Arkwright	Tubing Diameter	.37 in
Site Name	Default Site	Tubing Length	30 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369557		
Turbidity Make/Model	Hach 2100	Pump placement from TOC	24.8 ft

Well Information:		Pumping Information:	
Well ID	ARAMW-2	Final Pumping Rate	0 mL/min
Well diameter	2 in	Total System Volume	0.7243003 L
Well Total Depth	24.80 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	13.49 ft	Total Volume Pumped	200.6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 100	+/- 0.1	+/- 5%	+/- 100		+/- 0.2	+/- 100
Last 5	15:59:59	900.02	20.17	6.02	1216.86	19.10	--	0.10	-5.93
Last 5	16:04:59	1200.02	20.20	6.03	1231.87	14.60	--	0.11	-5.12
Last 5	16:09:59	1500.02	20.18	6.04	1254.78	6.89	--	0.12	-3.49
Last 5	16:14:59	1800.02	20.18	6.04	1270.68	6.81	--	0.12	-2.54
Last 5	16:19:59	2100.02	20.16	6.05	1278.22	4.24	--	0.12	-1.01
Variance 0			-0.03	0.00	22.91			0.01	1.63
Variance 1			0.00	0.00	15.90			0.00	0.96
Variance 2			-0.02	0.01	7.54			0.01	1.53

Notes

Start develop @ 11:38 end at 1300. WL start 13.49 TOC end: 13.64. Well depth start: 24.8 end 24.84 Btoc

Grab Samples

APPENDIX E

SURVEY DATA

ARKWRIGHT PIEZOMETER AND MONITORING WELLS 12-13-2019
FIELD WORK 12-13-2019 BY FL BULLARD & FRANK KENNEY T&PS CIVIL FIELD SERVICES
NAD 83 GEORGIA WEST ZONE, NAVD 1988, LAT-LONG, NORTHING & EASTING ARE FOR THE NAIL IN THE CONCRETE PAD

PIEZOMETER ID	LATITUDE DD	LONGITUDE DD	NAD 83 NORTHING	NAD 83 EASTING	ELEVATION TOP NAIL	ELEVATION TOP OF PVC	COMMENTS	ELEVATION GROUND
ARAMW1	32.9214266	83.7021468	1,062,937.14	2,439,119.67	305.69	308.67	AP2	305.59
ARAMW2	32.9213986	83.7021615	1,062,926.91	2,439,115.22	305.47	308.52	AP2	305.47
ARAMW3	32.9258269	83.7071719	1,064,531.31	2,437,570.76	352.38	355.35	AP3	352.35
ARAMW4	32.9283825	83.7057470	1,065,462.99	2,438,003.90	364.61	367.61	AP3	364.40
ARAMW6	32.9255748	83.7070522	1,064,439.75	2,437,607.88	334.48	337.34	AP3	334.47
ARPZ23	32.9212837	83.7018796	1,062,885.48	2,439,201.88	304.81	307.79	AP3	304.48
ARPZ22	32.9217073	83.7027774	1,063,038.40	2,438,925.73	307.31	310.18	AP3	307.13

GEORGIA REGISTERED No.2269 PROFESSIONAL LAND SURVEYOR F.L. BULLARD

12-20-2019

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING AND VERTICAL ELEVATION OF THE NAIL AS LISTED ABOVE
DATE OF FIELD SURVEY & INSPECTION 12-13-2019
FIELD SURVEY POSITIONAL TOLERANCE = 0.5 FEET HORIZONTAL-NAD 83, 0.1 FEET VERTICAL-NAD88
EQUIPMENT USED TO RECORD DATA, LEICA (GPS) GS14 ANTENNA AND CS15 SENSOR

Georgia Power Company
Former Plant Arkwright
Closed Ash Pond No. 2 Dry Ash Stockpile

PERMIT #: 011-031D(LI)

Bibb County

Groundwater Monitoring Well Installation Report

Atlantic Coast Consulting, Inc.

TABLE OF CONTENTS

Professional Geologist Certification

I, Evan B. Perry, certify that I am a qualified groundwater scientist as demonstrated by a Georgia state registered professional geologist certification. I have sufficient training and experience in groundwater hydrology and related fields to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that the data in this report have been prepared by me or a subordinate working under my direction.

_____
Evan B. Perry, P.G.
Georgia P.G. Registration Number 1744

1.0 Introduction

Georgia Power Company (GPC) –former Plant Arkwright is located in Bibb County near Macon on Arkwright Road. Plant Arkwright was retired in 2002 and decommissioned in 2003. The CCR unit AP-2 Dry Ash Stack (AP-2DAS) was closed in 2010 in accordance with the solid waste regulations in effect at the time of its closure. A closure certificate was issued by the Georgia Environmental Protection Division (GA EPD) for AP-2DAS on June 30, 2010. The site operates during the post closure care period under EPD solid waste handling permit number 011-031D(LI). Figure 1, Well Location Map, depicts the location of the previously approved monitoring network and two new wells to expand the well network to meet GA EPD's CCR regulations.

AP-2DAS is subject to the requirements of relevant portions of Georgia Rules for Solid Waste Management Chapter 391-3-4-.10. Chapter 391-3-4-.10(6) includes 40 Code of Federal Regulations (CFR) § 257.91(c)(1) by reference which requires a minimum of three downgradient network wells. The facility was previously permitted by GA EPD with one downgradient monitoring well (ARGWC-21). In order to meet the requirements of § 257.91(c)(1) two new wells have been added to the downgradient monitoring network (ARGWC-22 and ARGWC-23). The locations for the wells were selected based on the configuration of the waste footprint, groundwater elevation and flow direction, site topography, and drilling accessibility considerations. Potentiometric maps for more than 15 years from the site show consistent flow directions towards existing downgradient monitoring well ARGWC-21, which is also located close to the property boundary. Addition of these two new wells, ARGWC-22 and ARGWC-23 provides better data resolution at the downgradient area, while meeting the new CCR requirements.

2.0 Drilling and Well Installation

Installation details and descriptions of procedures are provided in the following sections.

2.1 Drilling Method

Groundwater monitoring wells were installed by Cascade Environmental, LP (Cascade) using rotosonic drilling techniques. Cascade has current surety bond on file with the Georgia Water Well Standards Advisory Council. A copy of Cascade's bond is included in Appendix A, Driller Bond Certificate.

Drilling equipment was steam-cleaned before the start of drilling and between each boring. Borings for groundwater wells were drilled with a 6-inch outer diameter core barrel. Groundwater wells were extended to depths deep enough to provide a sufficient water column for sampling efforts targeted within the uppermost aquifer at the site. Boring and well construction logs are included in Appendix B, Boring and Well Construction Logs.

2.2 Screened Interval

The wells are screened in unconsolidated silty sand with gravel as shown in the boring and well installation logs provided as Appendix B. The wells are constructed with 10 feet lengths of screen.

2.3 Well Casing and Screens

The wells are constructed of 2-inch diameter, American Society for Testing and Materials (ASTM)-rated, flush-threaded, Schedule 40 PVC casing flush-threaded to pre-packed dual-wall slotted

PVC screens. The casing and pre-packed screen arrived pre-cleaned and packaged by the manufacturer. Well construction materials are sufficiently durable to resist chemical and physical degradation and not interfere with the quality of groundwater samples. Solvent or glue was not used to construct the wells. Casing and screen sections are flush-threaded. Wells were constructed in accordance with accepted industry standards and followed guidelines within the Manual for Groundwater Monitoring (GA EPD, 1991).

2.4 Well Intake Design

The wells are designed and constructed to: (1) allow sufficient groundwater flow to the well for sampling; (2) minimize the passage of formation materials (turbidity) into the wells; and (3) ensure sufficient structural integrity to prevent collapse of the well. The well is screened using 0.010-inch slotted PVC pre-packed dual-wall well screen. The pre-packed dual-wall well screen combines a centralized inner well screen, a void for site-specific filter sand pack, and an outer conductor screen in one integrated unit. Based on the nature of deposits, the screen will retain at least 90 percent of the filter pack and 40 percent of the formation.

2.5 Filter Pack

During groundwater well construction, filter sand was slowly washed with potable water into the annular space surrounding the well screen to approximately two feet above the screened interval. Filter sand is approximately 20/30 grade silica sand from Standard Sand and Silica Co. A grain size curve for the filter pack is provided in Appendix C, Filter Pack Grain Size Curve.

Filter pack material was placed within the pre-packed dual-wall well screens and in the annular space between the outside of the pre-pack screen and borehole wall to ensure an adequate thickness of filter pack material between the well and the formation. Filter pack material placed in the annular space outside of the well screen extended approximately 2 feet above the top of screen. No bridging occurred during filter pack placement.

After placing the filter pack, the wells were pumped to ensure settlement of the filter pack, prior to installing the annular seal. The depth of top of filter pack was measured and recorded in the well construction log provided in Appendix A.

2.6 Annular Seal

Two to four feet of hydrated sodium bentonite overlies the filter pack. A high solid bentonite grout slurry was placed into the annual space from the bottom to the top with tremie pipe. A cement apron 4-feet by 4-feet by 4-inches was poured around the wells. The pads are mounded slightly outward to direct surface drainage away from the well.

2.7 Cap and Protective Casing

The well risers are fitted with a locking cap and a lockable cover. A one-quarter inch vent hole in the PVC riser pipe provides an avenue for the escape of gas. The protective cap guards the casing from damage and the locking cap serves as a security device to prevent well tampering. Bollards were installed around the corners of the wells to protect the wells from damage as necessary.

Wells are clearly marked with signage with the proper designation. A weep hole was drilled in the outer protective casing near the bottom above the concrete pad. Pea gravel was placed inside the protective casing between the riser pipe and the outer casing.

3.0 Well Development

The monitoring wells were developed using a combination of surging and pumping to (1) restore the natural hydraulic conductivity of the formation, and (2) to remove fine-grained sediment to ensure low- turbidity groundwater samples. The well was alternately surged and purged until visually clear of particulates. Turbidity, pH, temperature, and conductivity measurements were made to ensure that each well was fully developed. All equipment and tubing placed in the well was decontaminated or new. Development forms are included in Appendix D, Well Development Forms.

4.0 Survey

The horizontal and vertical location of the newly installed monitoring locations was surveyed by Southern Company Civil Field Services T&PS. under the direction of a Georgia Registered Land Surveyor (RLS). The horizontal location and vertical elevation of the wells were surveyed to the nearest, 0.01-foot. The elevations were measured on a survey pin embedded in the concrete pad, ground surface, and the top of PVC well casing. The survey for the new monitoring wells was completed On December 13, 2019. Elevations are referenced to mean sea level (MSL) in feet; depth is referenced from TOC in feet. Well coordinates are provided in Table 1. A site map depicting the surveyed locations is included in Figure 1; a survey data sheet sealed by a Georgia RLS is included in Appendix E, Survey Data. The well locations shown on Figure 1 have been referenced in the recent Groundwater Monitoring Plan.

5.0 General References

Georgia Environmental Protection Division, Georgia Department of Natural Resources. Manual for Groundwater Monitoring, September 1991.

TABLE

Table 1
Summary of Well Installation Dates, Coordinates, Elevation Screen Interval and Purpose

Well	Installation Date (mm/dd/yyyy)	Northing	Easting	Ground Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen Elevation (ft MSL)	Bottom of Screen Elevation (ft MSL)	Total Depth (ft)	Purpose
ARGWC-22	11/19/2019	1,063,038.40	2,438,925.73	307.13	310.18	297.43	282.43	25.0	Expand monitoring network
ARGWC-23	11/20/2019	1,062,885.48	2,439,201.88	304.48	307.79	289.78	279.78	25.0	Expand monitoring network

Notes:
1. ft BTOC indicates feet below top of casing.
2. ft MSL indicates feet mean sea level.

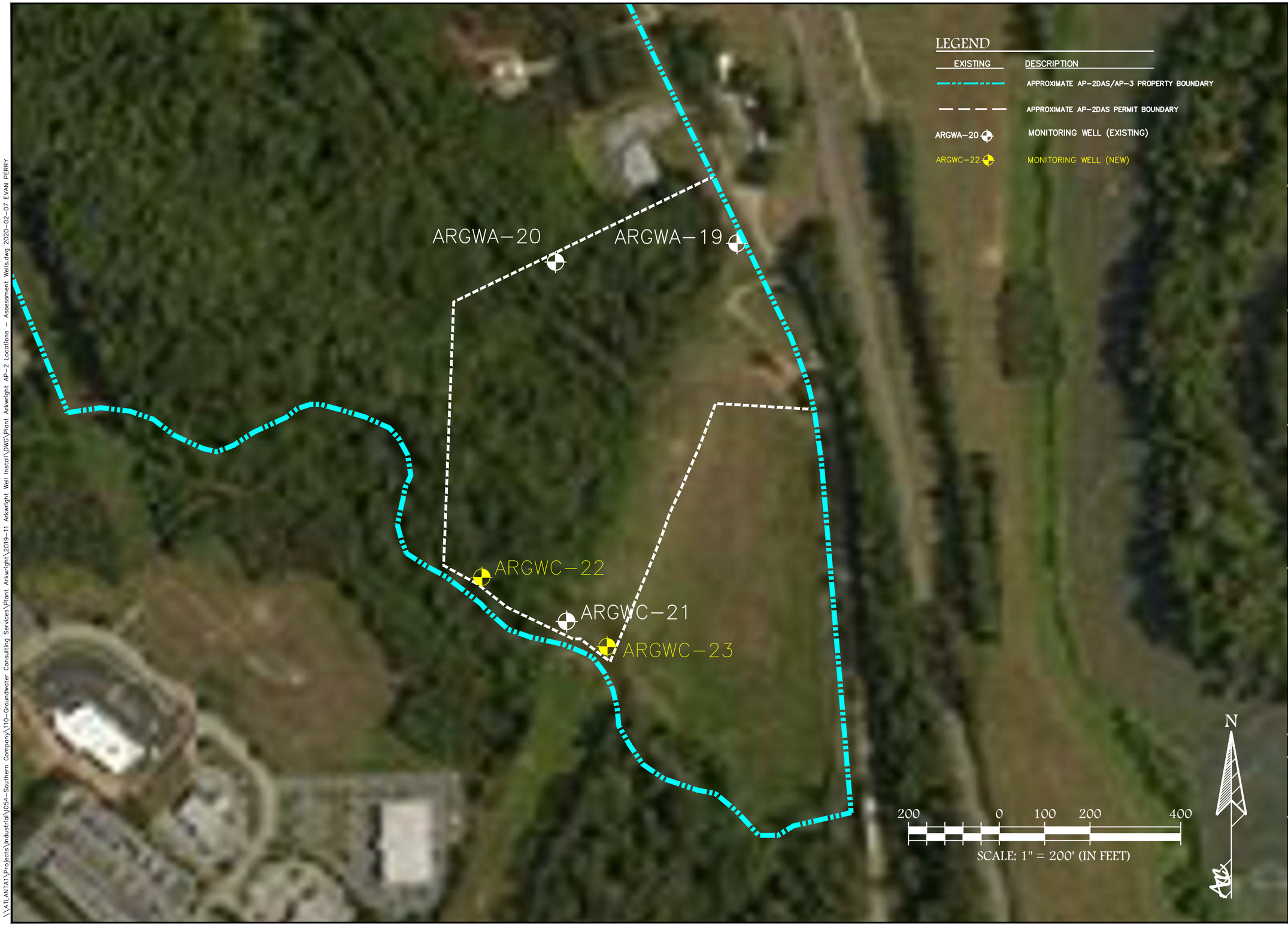
TABLE

Table 1
Summary of Well Installation Dates, Coordinates, Elevation Screen Interval and Purpose

Well	Installation Date (mm/dd/yyyy)	Northing	Easting	Ground Elevation (ft MSL)	Top of Casing Elevation (ft MSL)	Top of Screen Elevation (ft MSL)	Bottom of Screen Elevation (ft MSL)	Total Depth (ft)	Purpose
ARGWC-22	11/19/2019	1,063,038.40	2,438,925.73	307.13	310.18	297.43	282.43	25.0	Expand monitoring network
ARGWC-23	11/20/2019	1,062,885.48	2,439,201.88	304.48	307.79	289.78	279.78	25.0	Expand monitoring network

Notes:
1. ft BTOC indicates feet below top of casing.
2. ft MSL indicates feet mean sea level.

FIGURE



ATLANTIC COAST CONSULTING, INC.
1150 Northmeadow Pkwy.
Suite 100
Roswell, GA 30076
770.594.5998
www.atlcc.net

PROJECT:

PLANT ARKWRIGHT

5001 ARKWRIGHT ROAD
MACON, GEORGIA

REVISIONS

Drawn by: RW

Checked by: MM

PROJECT NUMBER:

I054-110

January 2020

NEW WELL LOCATION MAP

FIGURE 1

APPENDICES

APPENDIX A

Driller Bond Certificate

COPY

CONTINUATION CERTIFICATE

Atlantic Specialty Insurance Company , Surety upon

a certain Bond No. **800031223**

dated effective June 30, 2017
(MONTH-DAY-YEAR)

on behalf of Michael C. Rice and Cascade Drilling, L.P., any and all employees, officers and partners
(PRINCIPAL)

and in favor of State of Georgia
(OBLIGEE)

does hereby continue said bond in force for the further period

beginning on June 30, 2019
(MONTH-DAY-YEAR)

and ending on June 30, 2021
(MONTH-DAY-YEAR)

Amount of bond Thirty Thousand and Zero/100 ($30,000.00)

Description of bond Water Well Contractor Performance Bond

Premium: $1,200.00

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 May 9, 2019
(MONTH-DAY-YEAR)
Atlantic Specialty Insurance Company

By _____
Attorney-in-Fact Elizabeth R. Hahn

Parker, Smith & Feek, Inc.
Agent

2233 112th Ave NE Bellevue, WA 98004
Address of Agent

(425) 709-3600
Telephone Number of Agent

S-0157/GE 8/08

XDP

OneBeacon
INSURANCE GROUP

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that ATLANTIC SPECIALTY INSURANCE COMPANY, a New York corporation with its principal office in Plymouth, Minnesota, does hereby constitute and appoint: **Deanna M. French, Susan B. Larson, Elizabeth R. Hahn, Jana M. Roy, Scott McGilvray, Mindee L. Rankin, Ronald J. Lange, John R. Claeys, Roger Kaltenbach, Guy Armfield, Scott Fisher, Andrew P. Larsen, Nicholas Fredrickson**, each individually if there be more than one named, its true and lawful Attorney-in-Fact, to make, execute, seal and deliver, for and on its behalf as surety, any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof; provided that no bond or undertaking executed under this authority shall exceed in amount the sum of: **sixty million dollars ($60,000,000)** and the execution of such bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof in pursuance of these presents, shall be as binding upon said Company as if they had been fully signed by an authorized officer of the Company and sealed with the Company seal. This Power of Attorney is made and executed by authority of the following resolutions adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the

Resolved: That the President, any Senior Vice President or Vice-President (each an "Authorized Officer") may execute for and in behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and affix the seal of the Company thereto; and that the Authorized Officer may appoint and authorize an Attorney-in-Fact to execute on behalf of the Company any and all such instruments and to affix the Company seal thereto; and that the Authorized Officer may at any time remove any such Attorney-in-Fact and revoke all power and authority given to any such Attorney-in-Fact.

Resolved: That the Attorney-in-Fact may be given full power and authority to execute for and in the name and on behalf of the Company any and all bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof, and any such instrument executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed and sealed by an Authorized Officer and, further, the Attorney-in-Fact is hereby authorized to verify any affidavit required to be attached to bonds, recognizances, contracts of indemnity, and all other writings obligatory in the nature thereof.

This power of attorney is signed and sealed by facsimile under the authority of the following Resolution adopted by the Board of Directors of ATLANTIC SPECIALTY INSURANCE COMPANY on the twenty-fifth day of September, 2012:

Resolved: That the signature of an Authorized Officer, the signature of the Secretary or the Assistant Secretary, and the Company seal may be affixed by facsimile to any power of attorney or to any certificate relating thereto appointing an Attorney-in-Fact for purposes only of executing and sealing any bond, undertaking, recognizance or other written obligation in the nature thereof, and any such signature and seal where so used, being hereby adopted by the Company as the original signature of such officer and the original seal of the Company, to be valid and binding upon the Company with the same force and effect as though manually affixed.

IN WITNESS WHEREOF, ATLANTIC SPECIALTY INSURANCE COMPANY has caused these presents to be signed by an Authorized Officer and the seal of the Company to be affixed this twenty-sixth day of October, 2017.

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

By _____
Paul J. Brehm, Senior Vice President

STATE OF MINNESOTA
HENNEPIN COUNTY

On this twenty-sixth day of October, 2017, before me personally came Paul J. Brehm, Senior Vice President of ATLANTIC SPECIALTY INSURANCE COMPANY, to me personally known to be the individual and officer described in and who executed the preceding instrument, and he acknowledged the execution of the same, and being by me duly sworn, that he is the said officer of the Company aforesaid, and that the seal affixed to the preceding instrument is the seal of said Company and that the said seal and the signature as such officer was duly affixed and subscribed to the said instrument by the authority and at the direction of the Company.

TARA JANELLE STAFFORD
NOTARY PUBLIC - MINNESOTA
My Commission Expires
January 31, 2020

_____
Notary Public

I, the undersigned, Secretary of ATLANTIC SPECIALTY INSURANCE COMPANY, a New York Corporation, do hereby certify that the foregoing power of attorney is in full force and has not been revoked, and the resolutions set forth above are now in force.

Signed and sealed. Dated 9 day of May 2019

ATLANTIC SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1986 NEW YORK

This Power of Attorney expires
October 1, 2019

_____
Christopher V. Jerry, Secretary

APPENDIX B

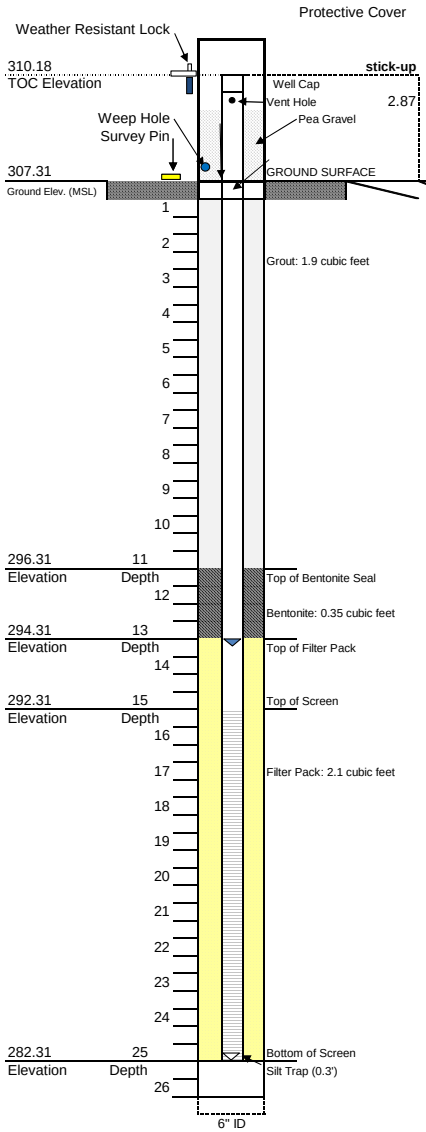
BORING AND WELL CONSTRUCTION LOGS

ATLANTIC COAST CONSULTING, INC.

ARGWC-22

BORING ID

PROJECT:	Plant Arkwright	**PROJECT NO.:**	I054-110
TOTAL DEPTH:	27.78 ft. BTOC	**SITE LOCATION:**	Macon, Georgia
DATE BEGIN:	19-Nov-2019	**DRILLER:**	Jaime Everson
DATE COMPLETE:	19-Nov-2019	**RIG TYPE:**	T-300 Rotosonic
INSTALLED BY:	Cascade	**METHOD:**	Rotosonic
SUPERVISED BY:	Taylor Goble		
WATER 1ST ENCOUNTERED:	10.95' BGS		
WATER AFTER 48 HOURS:	13.03' BTOC		



Northing: 1063038.395
Easting: 2438925.733

SURFACE COMPLETION:
4"x4" Aluminum Protective Casing
4'x4'x4" Concrete Pad
Weather Resistant Lock
Survey Pin

SOIL DESCRIPTION

0-10' Red silty clay (CL). Micaceous. Slight plasticity. Color change to a light brown/gray color at 7.0' BGS. Hand augered

10-15' Dark gray silty clay (CL). Wet at ~10' bgs. High plasticity. Micaceous

15-20' Dark gray silty sand (SC). Very coarse. Wet. Color change to a brown silty sand at ~17'. Sand grains remain course and wet. High plasticity

20-25' Brown silty sand (SC) with some gravel pieces. Change to gray coarse sand at ~22'. Wet. High plasticity.

Total well depth 25.0' BGS

Core Photos

MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Standard Sand & Silica
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex

Soil Descriptions from Unified Soil Classification System

BTOC - Below Top of Casing
ID - Inside Diameter; OD - Outside Diameter
MSL - Mean Sea Level
BGS - Below Ground Surface

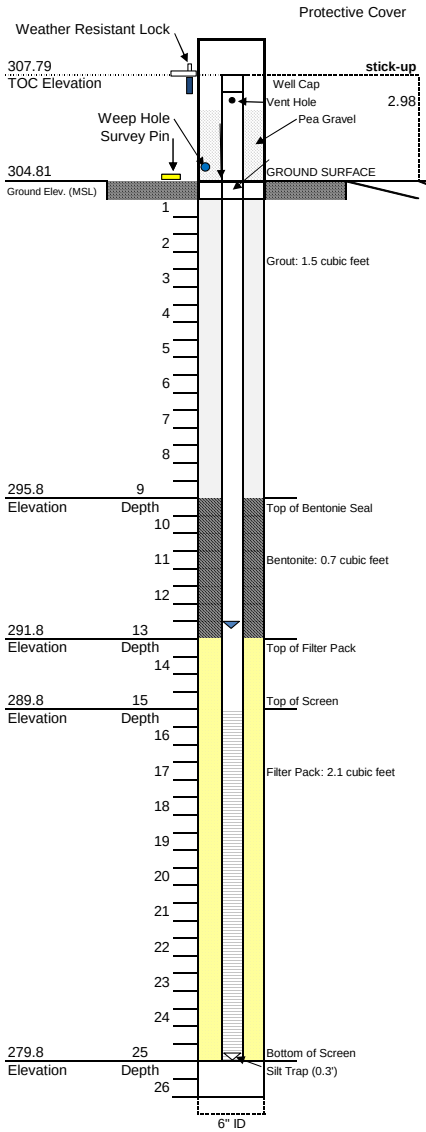
EVAN B. PERRY
GEORGIA REGISTERED PROFESSIONAL GEOLOGIST
No. 1744

ATLANTIC COAST CONSULTING, INC.

ARGWC-23

BORING ID

PROJECT:	Plant Arkwright	**PROJECT NO.:**	I054-110
TOTAL DEPTH:	27.21 ft. BTOC	**SITE LOCATION:**	Macon, Georgia
DATE BEGIN:	20-Nov-2019	**DRILLER:**	Isaac Young
DATE COMPLETE:	20-Nov-2019	**RIG TYPE:**	T-300 Rotosonic
INSTALLED BY:	Cascade	**METHOD:**	Rotosonic
SUPERVISED BY:	Taylor Goble		
WATER 1ST ENCOUNTERED:	10.95' BGS		
WATER AFTER 48 HOURS:	12.51' BTOC		



Northing: 1062885.484
Easting: 2439201.881

SURFACE COMPLETION:
4"x4" Aluminum Protective Casing
4'x4'x4" Concrete Pad
Weather Resistant Lock
Survey Pin

SOIL DESCRIPTION

0-9' Red silty clay (CL). Slight plasticity. Color change to a light brown at ~7.0 bgs. Hand augered

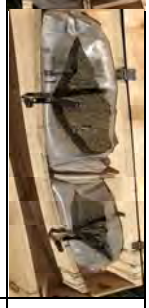
9-14' Light brown silty sand (SC). Micaceous. Dry. Progression to a darker brown silty sand at ~11' bgs. Moist after this point.

14-19' Dark brown/gold colored silty sand (SC). Moist. Mottled white and black.

19-25' Brown/gray silty sand (SC) with some gravel pieces. Moist. Progresses to a coarse gray sand at ~22. bgs. Very wet.

Total well depth 25.0' BGS

Core Photos



MATERIALS:

GROUT:		Bentonite Grout
MANUFACTURER:		AquaGuard
BENTONITE SEAL:		3/8" Bentonite Pellets
MANUFACTURER:		Pel-Plug
FILTER PACK SAND:		20/30 Mesh
MANUFACTURER:		Standard Sand & Silica
WELL SCREEN:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex
SLOT SIZE:		0.010-Inch Slot
WELL CASING:		Sch. 40 - 2" PVC
MANUFACTURER:		Campbell Monoflex

Soil Descriptions from Unified Soil Classification System

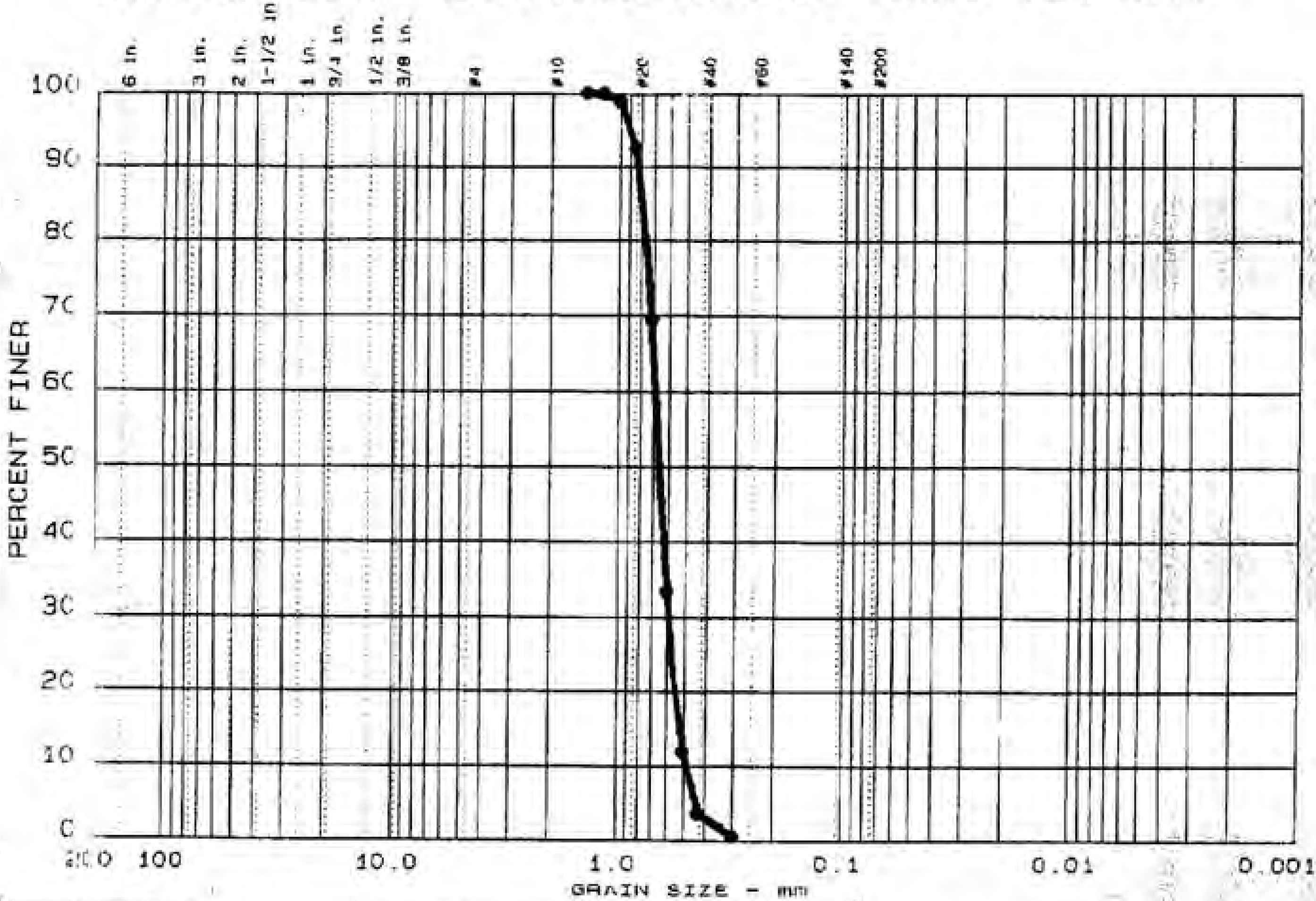
BTOC - Below Top of Casing
ID - Inside Diameter; OD - Outside Diameter
MSL - Mean Sea Level
BGS - Below Ground Surface

EVAN B. PERRY
GEORGIA REGISTERED PROFESSIONAL GEOLOGIST
No. 1744

APPENDIX C

FILTER PACK GRAIN SIZE CURVE

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +75mm	% GRAVEL	% SAND	% SILT	% CLAY
●	0.0	0.0	100.0		

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
●	ND	ND	0.78	0.68	0.65	0.588	0.5182	0.4814	1.06	1.4

MATERIAL DESCRIPTION	USCS	AASHTO
● WELL GRAVEL PACK #1	ND	ND

Project No.: 30774-2-5010-01

Project: SOUTHERN PRODUCTS & SILICA COMPANY

● Location: WELL GRAVEL PACK #1

Date: 01-22-02

Remarks:

ND=NOT DETERMINED

GRAIN SIZE DISTRIBUTION TEST REPORT

LAW ENGINEERING, INC.

Figure No. 01

REVIEWED BY: [signature]

APPENDIX D

WELL DEVELOPMENT FORMS

Product Name: Low-Flow System

Date: 2019-09-16 18:09:56

Project Information:		Pump Information:	
Operator Name	O. Fuquea	Pump Model/Type	whale
Company Name	ACC	Tubing Type	poly
Project Name	Arkwright	Tubing Diameter	.375 in
Site Name	Arkwright	Tubing Length	32 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369557		
Turbidity Make/Model	Hach 2100	Pump placement from TOC	27.78 ft

Well Information:		Pumping Information:	
Well ID	ARPZ-22	Final Pumping Rate	0 mL/min
Well diameter	2 in	Total System Volume	0.7849967 L
Well Total Depth	27.78 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	14.03 ft	Total Volume Pumped	117.3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 100	+/- 0.1	+/- 5%	+/- 100		+/- 0.2	+/- 100
Last 5	17:44:11	2400.02	18.50	5.81	1337.00	14.50	--	1.51	47.53
Last 5	17:49:11	2700.02	18.45	5.81	1337.01	3.99	--	1.43	46.34
Last 5	17:54:11	3000.02	18.51	5.82	1333.19	106.00	--	1.12	44.28
Last 5	17:59:11	3300.02	18.56	5.82	1331.35	9.35	--	1.24	43.02
Last 5	18:04:11	3600.02	18.59	5.82	1329.82	4.20	--	1.23	42.81
Variance 0			0.06	0.01	-3.82			-0.31	-2.06
Variance 1			0.06	-0.00	-1.84			0.13	-1.27
Variance 2			0.03	0.00	-1.53			-0.01	-0.21

Notes

Development start: 1331 end: 1447. WL start: 13.03 end: 21.5. BTOC start: 27.78 end: 17.78.

Grab Samples

Atlantic Coast Consulting, Inc.
Well Development Field Record

Job Name: ARKWRIGHT
Job No. 1054-110 T8 Well No. ARPZ-22
Developed By: O. FUQUEA
Date of Installation: Sheet 1 of 1
Started Dev. 12-2-19 1337 (Date / Time)
Completed Dev. 1443 12-2-19 (Date / Time)
W.L. Before Dev. 14.03 12-2-19 1331 (BTOC / Date / Time)
W.L. After Dev. 21.50 12-2-19 1447 (BTOC / Date / Time)
Well Depth Before Dev.: 27.78' BTOC
Well Depth After Dev.: 27.76 BTOC
Water Column (H): 13.75' Ft. Well Dia.: 2" In.
Well Volume: 2.2 Gal.
Screen Length: 10' Ft.
x5 = 11 gal.

Date / Time	Volume Removed (Gal.)	Field Parameters: Specific Cond. (umhos/cm)	Temperature (oC)	pH (S.U.)	Turbidity (NTU)	Remarks
12-2 1349	5.75	1350	18.69	5.84	360	
1355	8.5	1346.5	18.6	5.85	112	
1400	11	1333.9	18.6	5.88	159	
1404	14	1346.1	18.5	5.85	55.7	
1409	17	1339.8	18.5	5.83	22	
1420	21	1338.4	18.5	5.82	11.4	
1425	22.5	1337	18.5	5.81	14.5	
1429	25	1337	18.5	5.81	3.99	Resurge w/ pump
1433	26.5	1333.2	18.5	5.82	106	
1439	29	1331.3	18.56	5.82	9.35	
1443	31	1329.8	18.59	5.87	4.20	Development complete

Development Method: Surge w/ surge blocker & foot valve, purge w/ whale pump until <5 NTU. Resurge w/ pump, purge until <5 NTU.

Notes: H = well depth (BTOC) - W.L. (BTOC)
Well volume in pipe:
2" diameter well: 0.16 X H = volume in gallons
4" diameter well: 0.66 X H = voume in gallons

1HH

Product Name: Low-Flow System

Date: 2019-12-02 16:55:05

Project Information:		Pump Information:	
Operator Name	Anna Schnittker	Pump Model/Type	Whale
Company Name	ACC	Tubing Type	poly
Project Name	Arkwright	Tubing Diameter	.37 in
Site Name	Default Site	Tubing Length	34 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	445707		
Turbidity Make/Model	Hach 2100	Pump placement from TOC	27 ft

Well Information:		Pumping Information:	
Well ID	ARPZ-23	Final Pumping Rate	0 mL/min
Well diameter	2 in	Total System Volume	0.8088737 L
Well Total Depth	27.21 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	12.51 ft	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10	+/- 0.1	+/- 5%	+/- 100		+/- 0.2	+/- 100
Last 5	16:31:31	3299.88	19.67	6.73	470.25	43.30	--	3.27	-99.57
Last 5	16:36:31	3599.88	19.59	6.74	469.10	38.20	--	3.15	-99.18
Last 5	16:41:31	3899.88	19.77	6.72	473.21	13.50	--	3.41	-94.74
Last 5	16:46:31	4199.88	19.69	6.70	475.20	12.70	--	3.43	-91.80
Last 5	16:51:31	4499.88	19.47	6.70	472.51	1000.00	--	3.45	-88.81
Variance 0			0.18	-0.02	4.11			0.26	4.44
Variance 1			-0.08	-0.01	1.99			0.02	2.93
Variance 2			-0.23	-0.00	-2.69			0.02	2.99

Notes

Day 1. Start 15:10. WL: 12.51

Grab Samples

Atlantic Coast Consulting, Inc.
Well Development Field Record

Job Name: Arkwright Job No. 1054-100-T8 Well No. ARPZ-23

Developed By: A Schaffner Date of Installation: _____ Sheet 1 of 3

Started Dev. 12/02/19 ~~1440~~ 1510 (Date / Time) Completed Dev. 12/03/19 11:45 (Date / Time)

W.L. Before Dev. 12.51 12/2/19 1428 (BTOC / Date / Time) W.L. After Dev. 15.21 12/03/19 11:45 (BTOC / Date / Time)

Well Depth Before Dev.: 27.21 BTOC Well Depth After Dev.: 28.10 BTOC

Water Column (H): 14.7 Ft. Well Dia.: 2 In. Well Volume: 2.35 Gal.

Screen Length: 10 Ft. x5 = 11.75

Date / Time	Volume Removed (Gal.)	Field Parameters: Specific Cond. (umhos/cm)	Temperature (oC)	pH (S.U.)	Turbidity (NTU)	Remarks
1540	6	N/A	N/A	N/A	730	Began @ 1510
1541	7	442.6	20.17	7.10	112	>1000 Turbidity + Trouble
1546	9	441.7	19.95	7.10	46.6	flowing
1551	10	446.5	19.85	6.95	>1000	
1556	11	450.8	20.13	6.9	>1000	
1601	11	447.4	20.00	6.88	>1000	
1606	12	462.2	19.56	6.95	194	
1611	12.5	464.4	20.00	6.8	205	
1616	13.5	461	19.15	6.98	>1000	
1621	14.0	468.9	20.00	6.81	534	
1627	16	471.5	19.89	6.70	130	
1631	17	470.2	19.67	6.73	43.3	
1637	18	469.1	19.59	6.74	38.2	
1641	19	473.2	19.77	6.72	13.5	
1647	20	475.2	19.69	6.70	12.7	
1651	22	472	19.47	6.70	>1000	
0835	24	472.4	19.68	6.84	315	WL 13.71 Resume 12/3/19 8:30
0840	25	487.1	19.79	6.69	267	
0845	26	480.9	19.72	6.70	170	

Development Method:

Surge w/ surge blocker + foot valve. Then pump w/ submersible while pump for 56 gal until NTU < 5

Notes: H = well depth (BTOC) - W.L. (BTOC)

Well volume in pipe:

2" diameter well: 0.16 X H = volume in gallons

4" diameter well: 0.66 X H = voume in gallons

1111

Atlantic Coast Consulting, Inc.
Well Development Field Record

Job Name: Arkwright | Job No. | Well No. ARPZ-23

Developed By: A Schnitker | Date of Installation: | Sheet 2 of 3

Started Dev. 12/02/19 1510 (Date / Time) | Completed Dev. 12/03/19 11:45 (Date / Time)

W.L. Before Dev. 12.51 12/02/19 1428 (BTOC / Date / Time) | W.L. After Dev. 15.21 12/03/19 1155 (BTOC / Date / Time)

Well Depth Before Dev.: 27.21 BTOC | Well Depth After Dev.: 28.10 BTOC

Water Column (H): 14.7 Ft. | Well Dia.: 2 In. | Well Volume: 2.35 Gal.

Screen Length: 10 Ft. | ×5 = 11.75

Date / Time	Volume Removed (Gal.)	Field Parameters: Specific Cond. (umhos/cm)	Temperature (oC)	pH (S.U.)	Turbidity (NTU)	Remarks
0850	27	488.2	19.73	6.72	59.5	
0855	28	487.3	19.68	6.73	24.1	
0900	29	487.7	19.66	6.71	86.0	
0905	30	485.9	19.71	6.70	23.1	
0910	31	485.2	19.82	6.69	16.0	
0915	32	488.60	~~19.82~~ 19.69	6.67	188	
0920	33	479.2	19.84	6.66	32.8	
0925	34	478.30	19.68	6.65	11.4	
0930	35	481.3	19.61	6.64	8.78	
0935	—	—	—	—	—	— Pump Malfunction 9:35-10:05
0940	—	—	—	—	—	
0945	—	—	—	—	—	
0950	—	—	—	—	—	
0955	—	—	—	—	—	
1000	—	—	—	—	—	Resume pumping
1005	—	—	—	—	—	
1010	35.5	N/A	20.21	6.83	85.7	
1015	36.0	494.5	20.3	6.60	143	
1020	38.0	488.1	20.32	6.69	130	

Development Method:

Surge w/ surge blocker + foot valve. Then pump w/ submersible whale pump for 516 gal until NTU < 5.

Notes: H = well depth (BTOC) - W.L. (BTOC)

Well volume in pipe:

2" diameter well: 0.16 X H = volume in gallons

4" diameter well: 0.66 X H = voume in gallons

HH 1

Atlantic Coast Consulting, Inc.
Well Development Field Record

Job Name: Arkwright | Job No. | Well No. ARPZ-23

Developed By: A Schnitker | Date of Installation: | Sheet 3 of 3

Started Dev. 12/02/19 1510 (Date / Time) | Completed Dev. 12/03/19 1200 (Date / Time)

W.L. Before Dev. 12.61 12/02/19 1428 (BTOC / Date / Time) | W.L. After Dev. 15.21 12/3/19 1145 (BTOC / Date / Time)

Well Depth Before Dev.: 27.21 BTOC | Well Depth After Dev.: 28.10 BTOC

Water Column (H): 14.7 Ft. | Well Dia.: 2 In. | Well Volume: 2.35 Gal. x5 = 11.75

Screen Length: 10 Ft.

Date / Time	Volume Removed (Gal.)	Field Parameters: Specific Cond. (umhos/cm)	Temperature (oC)	pH (S.U.)	Turbidity (NTU)	Remarks
1025	39	488.10	20.39	6.68	139	
1030	40	483.1	20.39	6.68	72.6	
1035	41	471.7	20.53	6.76	44.1	
1040	42	485.1	20.04	6.68	16.4	
1045	43	484.7	20.30	6.67	7.93	
1050	44	484.8	20.24	6.65	6.88	
1055	45	481.3	20.32	6.63	5.51	
1100	46	478.8	20.17	6.61	9.56	
1105	47	479.3	20.32	6.60	10.6	
1110	48	479.4	20.3	6.59	8.52	
1115	49	465.5	20.34	6.58	14.5	
1120	50	482.5	20.23	6.60	17.9	
1125	51	485.5	20.44	6.58	23.0	
1130	53	485.2	20.42	6.57	20.1	
1135	54	Machine	didn't Take	reading	4.57	
1140	55	485.2	20.42	6.58	4.50	
1145	56	483.0	20.43	6.57	3.71	Development complete

Development Method:

Surge w/ surge blocker + foot valve. Then pump w/ submersible whale pump for 56 gal until NTU < 5.

Notes: H = well depth (BTOC) - W.L. (BTOC)

Well volume in pipe:

2" diameter well: 0.16 X H = volume in gallons

4" diameter well: 0.66 X H = voume in gallons

APPENDIX E

SURVEY DATA

ARKWRIGHT PIEZOMETER AND MONITORING WELLS 12-13-2019

FIELD WORK 12-13-2019 BY FL BULLARD & FRANK KENNEY T&PS CIVIL FIELD SERVICES

NAD 83 GEORGIA WEST ZONE, NAVD 1988, LAT-LONG, NORTHING & EASTING ARE FOR THE NAIL IN THE CONCRETE PAD

PIEZOMETER ID	LATITUDE DD	LONGITUDE DD	NAD 83 NORTHING	NAD 83 EASTING	ELEVATION TOP NAIL	ELEVATION TOP OF PVC	COMMENTS	ELEVATION GROUND
ARAMW1	32.9214266	83.7021468	1,062,937.14	2,439,119.67	334.48	337.46	AP2	334.38
ARAMW2	32.9213986	83.7021615	1,062,926.91	2,439,115.22	305.47	308.52	AP2	305.47
ARAMW3	32.9258269	83.7071719	1,064,531.31	2,437,570.76	352.38	355.35	AP2	352.35
ARAMW4	32.9283825	83.7057470	1,065,462.99	2,438,003.90	364.61	367.61	AP3	364.40
ARAMW6	32.9255748	83.7070522	1,064,439.75	2,437,607.88	334.48	337.34	AP3	334.47
ARPZ23	32.9212837	83.7018796	1,062,885.48	2,439,201.88	304.81	307.79	AP3	304.48
ARPZ22	32.9217073	83.7027774	1,063,038.40	2,438,925.73	307.31	310.18	AP3	307.13

GEORGIA REGISTERED No.2269 PROFESSIONAL LAND SURVEYOR F.L. BULLARD

12-20-2019

SURVEY DATA CERTIFICATION FOR SOUTHERN COMPANY TO DETERMINE NORTHING, EASTING AND VERTICAL ELEVATION OF THE NAIL AS LISTED ABOVE
DATE OF FIELD SURVEY & INSPECTION 12-13-2019
FIELD SURVEY POSITIONAL TOLERANCE = 0.5 FEET HORIZONTAL-NAD 83, 0.1 FEET VERTICAL-NAD88
EQUIPMENT USED TO RECORD DATA, LEICA (GPS) GS14 ANTENNA AND CS15 SENSOR

APPENDIX B

FIELD SAMPLING LOGS AND ANALYTICAL REPORTS FOR BACKGROUND SAMPLING EVENTS AND SUMMARY OF BACKGROUND DATA

Plant Arkwright AP-2DAS
Analytical Data Summary

Georgia Power is in the process of closing all of its ash ponds. As part of this process, the company is monitoring groundwater around its ash ponds as required by the Environmental Protection Agency's (EPA) Coal Combustion Residuals (CCR) Rule and the Georgia Environmental Protection Division's (EPD) CCR Rule (State CCR rule). The CCR Rule and the State CCR rule require at least eight independent groundwater sampling events to be conducted at monitoring wells around its coal ash ponds to determine background groundwater conditions. These data tables summarize the results from background sample events. Collective data from background sampling events will be required to establish background groundwater conditions at each facility.

Substance		Well ID					
		ARGWC-22	ARGWC-22	ARGWC-22	ARGWC-22	ARGWC-22	ARGWC-22
		12/16/2019	1/14/2020	2/11/2020	3/9/2020	4/7/2020	5/27/2020
APPENDIX III	Boron	2.7	2.7	3.0	2.7	2.6	2.5
	Calcium	200	210	180	180	190	200
	Chloride	5.8	5.5	9.0	11	8.1	7.3
	Fluoride	0.026 J	<0.026	0.056 J	0.064 J	0.068 J	0.060 J
	Sulfate	770	930	660	630	710	720
	TDS	1300	1400	1300	1200	1300	1300
APPENDIX IV	Antimony	<0.00038	<0.00038	<0.00038	<0.00038	NA	<0.00038
	Arsenic	0.00066 J	0.00038 J	0.00040 J	<0.0016	<0.00031	<0.00031
	Barium	0.076	0.071	0.046	0.039	0.04	0.054
	Beryllium	0.00050 J	0.00036 J	0.00023 J	0.00019 J	NA	0.00018 J
	Cadmium	<0.00013	<0.00022	<0.00022	<0.00022	<0.00022	<0.00022
	Chromium	<0.0015	<0.0015	0.0048	<0.0015	<0.0015	<0.0015
	Cobalt	0.018	0.0072	0.013	0.015	0.009	0.0059
	Lead	<0.00013	0.00022 J	<0.00013	<0.00013	0.00014 J	<0.00013
	Lithium	0.027	0.034	0.010	0.0071	0.012	0.017
	Mercury	<0.00010	<0.00010	<0.00010	<0.00010	NA	<0.00013
	Molybdenum	0.0018 J	0.0012 J	0.00093 J	0.00067 J	NA	<0.00061
	Radium	0.229 U	0.783	0.229 U	0.365	0.567	0.143 U
	Selenium	<0.0015	<0.0015	<0.0015	<0.0076	<0.0015	<0.0015
	Thallium	0.00078 J	0.00027 J	0.00034 J	0.00035 J	NA	<0.00015

Notes:

1. Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
2. < indicates the substance was not detected above the relevant laboratory method detection limit (MDL).
3. J indicates the substance was detected at such low levels that the precision of the laboratory instrument 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. U indicates the substance was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value. Therefore, the value followed by U is qualified by the laboratory as estimated.
6. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring.

Plant Arkwright AP-2DAS
Analytical Data Summary

Georgia Power is in the process of closing all of its ash ponds. As part of this process, the company is monitoring groundwater around its ash ponds as required by the Environmental Protection Agency's (EPA) Coal Combustion Residuals (CCR) Rule and the Georgia Environmental Protection Division's (EPD) CCR Rule (State CCR rule). The CCR Rule and the State CCR rule require at least eight independent groundwater sampling events to be conducted at monitoring wells around its coal ash ponds to determine background groundwater conditions. These data tables summarize the results from background sample events. Collective data from background sampling events will be required to establish background groundwater conditions at each facility.

Substance		Well ID					
		ARGWC-23	ARGWC-23	ARGWC-23	ARGWC-23	ARGWC-23	ARGWC-23
		12/16/2019	1/14/2020	2/11/2020	3/9/2020	4/7/2020	5/27/2020
APPENDIX III	Boron	0.42	0.43	0.079 J	0.25	0.44	0.45
	Calcium	69	65	10	46	65	69
	Chloride	3.9	4.0	4.7	3.7	3.8	4.0
	Fluoride	0.18 J	0.21	0.13	0.089 J	0.18	0.25
	Sulfate	66	68	18	49	58	65
	TDS	320	340	110	210	290	320
APPENDIX IV	Antimony	<0.00038	<0.00038	<0.00038	<0.00038	NA	<0.00038
	Arsenic	0.00075 J	0.00042 J	<0.00031	<0.00031	<0.00031	<0.00031
	Barium	0.096	0.075	0.046	0.14	0.16	0.18
	Beryllium	0.00033 J	<0.00018	<0.00018	<0.00018	NA	<0.00018
	Cadmium	<0.00013	<0.00022	<0.00022	<0.00022	<0.00022	<0.00022
	Chromium	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
	Cobalt	0.0023	0.0031	0.00056	0.00061 J	0.0016	0.0017 J
	Lead	<0.00013	0.00018 J	0.00026 J	<0.00013	<0.00013	<0.00013
	Lithium	0.020	0.022	0.0078	0.013	0.032	0.037
	Mercury	<0.00010	<0.00010	<0.00010	<0.00010	NA	<0.00013
	Molybdenum	0.025	0.032	0.021	0.013 J	NA	0.048
	Radium	0.166 U	0.869	0.0291 U	0.626	0.296 U	0.192 U
	Selenium	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
	Thallium	<0.00015	<0.00015	0.00028 J	0.00026 J	NA	0.00026 J

Notes:

1. Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
2. < indicates the substance was not detected above the relevant laboratory method detection limit (MDL).
3. J indicates the substance was detected at such low levels that the precision of the laboratory instrument 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. U indicates the substance was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value. Therefore, the value followed by U is qualified by the laboratory as estimated.
6. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring.

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-100210-1
Client Project/Site: CCR - Plant Arkwright

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
1/14/2020 4:47:00 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-1

Job ID: 180-100210-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-100210-1

Comments
No additional comments.

Receipt
The samples were received on 12/19/2019 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	01-31-20
Wisconsin	State	998027800	08-31-20

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-100210-1	ARGWC-23	Water	12/16/19 14:30	12/19/19 10:00	
180-100210-2	ARGWC-22	Water	12/16/19 15:35	12/19/19 10:00	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL PIT
EPA 6020	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-1

Client Sample ID: ARGWC-23

Lab Sample ID: 180-100210-1

Date Collected: 12/16/19 14:30

Matrix: Water

Date Received: 12/19/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			302389	12/24/19 17:30	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	302542	12/26/19 08:59	JL	TAL PIT
Total Recoverable	Analysis	EPA 6020		1	1.0 mL	1.0 mL	303329	01/06/20 21:02	WTR	TAL PIT
	Instrument ID: M									
Total/NA	Prep	7470A			50 mL	50 mL	303525	01/09/20 13:37	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			303645	01/10/20 12:55	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	302167	12/20/19 13:49	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-22

Lab Sample ID: 180-100210-2

Date Collected: 12/16/19 15:35

Matrix: Water

Date Received: 12/19/19 10:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			302389	12/24/19 21:59	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total/NA	Analysis	300.0		10			302389	12/24/19 22:14	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	302542	12/26/19 08:59	JL	TAL PIT
Total Recoverable	Analysis	EPA 6020		1	1.0 mL	1.0 mL	303329	01/06/20 21:41	WTR	TAL PIT
	Instrument ID: M									
Total/NA	Prep	7470A			50 mL	50 mL	303525	01/09/20 13:37	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			303645	01/10/20 12:56	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	302167	12/20/19 13:49	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

JL = James Lyu

NAM = Nicole Marfisi

Batch Type: Analysis

AVS = Abbey Smith

MJH = Matthew Hartman

NAM = Nicole Marfisi

WTR = Bill Reinheimer

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-1

Client Sample ID: ARGWC-23

Lab Sample ID: 180-100210-1
Date Collected: 12/16/19 14:30
Matrix: Water
Date Received: 12/19/19 10:00

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.9		1.0	0.32	mg/L			12/24/19 17:30	1
Fluoride	0.18	J	0.20	0.026	mg/L			12/24/19 17:30	1
Sulfate	66	F1	1.0	0.38	mg/L			12/24/19 17:30	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.42		0.080	0.039	mg/L		12/26/19 08:59	01/06/20 21:02	1
Calcium	69		0.50	0.13	mg/L		12/26/19 08:59	01/06/20 21:02	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		12/26/19 08:59	01/06/20 21:02	1
Antimony	<0.00038		0.0020	0.00038	mg/L		12/26/19 08:59	01/06/20 21:02	1
Lithium	0.020		0.0050	0.0034	mg/L		12/26/19 08:59	01/06/20 21:02	1
Beryllium	0.00033	J	0.0010	0.00018	mg/L		12/26/19 08:59	01/06/20 21:02	1
Barium	0.096		0.010	0.0016	mg/L		12/26/19 08:59	01/06/20 21:02	1
Molybdenum	0.025		0.0050	0.00061	mg/L		12/26/19 08:59	01/06/20 21:02	1
Arsenic	0.00075	J	0.0010	0.00032	mg/L		12/26/19 08:59	01/06/20 21:02	1
Selenium	<0.0015		0.0050	0.0015	mg/L		12/26/19 08:59	01/06/20 21:02	1
Chromium	<0.0015		0.0020	0.0015	mg/L		12/26/19 08:59	01/06/20 21:02	1
Cobalt	0.0023		0.00050	0.000075	mg/L		12/26/19 08:59	01/06/20 21:02	1
Lead	<0.00013		0.0010	0.00013	mg/L		12/26/19 08:59	01/06/20 21:02	1
Thallium	<0.00015		0.0010	0.00015	mg/L		12/26/19 08:59	01/06/20 21:02	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		01/09/20 13:37	01/10/20 12:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	320		10	10	mg/L			12/20/19 13:49	1

Client Sample ID: ARGWC-22

Lab Sample ID: 180-100210-2
Date Collected: 12/16/19 15:35
Matrix: Water
Date Received: 12/19/19 10:00

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.8		1.0	0.32	mg/L			12/24/19 21:59	1
Fluoride	0.026	J	0.20	0.026	mg/L			12/24/19 21:59	1
Sulfate	770		10	3.8	mg/L			12/24/19 22:14	10

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.7		0.080	0.039	mg/L		12/26/19 08:59	01/06/20 21:41	1
Calcium	200		0.50	0.13	mg/L		12/26/19 08:59	01/06/20 21:41	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		12/26/19 08:59	01/06/20 21:41	1
Antimony	<0.00038		0.0020	0.00038	mg/L		12/26/19 08:59	01/06/20 21:41	1
Lithium	0.027		0.0050	0.0034	mg/L		12/26/19 08:59	01/06/20 21:41	1
Beryllium	0.00050	J	0.0010	0.00018	mg/L		12/26/19 08:59	01/06/20 21:41	1
Barium	0.076		0.010	0.0016	mg/L		12/26/19 08:59	01/06/20 21:41	1
Molybdenum	0.0018	J	0.0050	0.00061	mg/L		12/26/19 08:59	01/06/20 21:41	1
Arsenic	0.00066	J	0.0010	0.00032	mg/L		12/26/19 08:59	01/06/20 21:41	1
Selenium	<0.0015		0.0050	0.0015	mg/L		12/26/19 08:59	01/06/20 21:41	1

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-1

Client Sample ID: ARGWC-22
Date Collected: 12/16/19 15:35
Date Received: 12/19/19 10:00

Lab Sample ID: 180-100210-2
Matrix: Water

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	<0.0015		0.0020	0.0015	mg/L		12/26/19 08:59	01/06/20 21:41	1
Cobalt	**0.018**		0.00050	0.000075	mg/L		12/26/19 08:59	01/06/20 21:41	1
Lead	<0.00013		0.0010	0.00013	mg/L		12/26/19 08:59	01/06/20 21:41	1
Thallium	**0.00078**	**J**	0.0010	0.00015	mg/L		12/26/19 08:59	01/06/20 21:41	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.20	0.10	ug/L		01/09/20 13:37	01/10/20 12:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1300**		10	10	mg/L			12/20/19 13:49	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 180-302389/47
Matrix: Water
Analysis Batch: 302389

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			12/24/19 17:14	1
Fluoride	<0.026		0.20	0.026	mg/L			12/24/19 17:14	1
Sulfate	<0.38		1.0	0.38	mg/L			12/24/19 17:14	1

Lab Sample ID: LCS 180-302389/46
Matrix: Water
Analysis Batch: 302389

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.9		mg/L		100	90 - 110
Fluoride	2.50	2.48		mg/L		99	90 - 110
Sulfate	50.0	49.9		mg/L		100	90 - 110

Lab Sample ID: 180-100210-1 MS
Matrix: Water
Analysis Batch: 302389

Client Sample ID: ARGWC-23
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.9		25.0	26.6		mg/L		91	80 - 120
Fluoride	0.18	J	1.25	1.35		mg/L		94	80 - 120
Sulfate	66	F1	25.0	80.2	F1	mg/L		55	80 - 120

Lab Sample ID: 180-100210-1 MSD
Matrix: Water
Analysis Batch: 302389

Client Sample ID: ARGWC-23
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	3.9		25.0	29.3		mg/L		102	80 - 120	10	20
Fluoride	0.18	J	1.25	1.42		mg/L		99	80 - 120	5	20
Sulfate	66	F1	25.0	83.8	F1	mg/L		69	80 - 120	4	20

Method: EPA 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-302542/1-A
Matrix: Water
Analysis Batch: 303329

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 302542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		12/26/19 08:59	01/06/20 19:27	1
Calcium	<0.13		0.50	0.13	mg/L		12/26/19 08:59	01/06/20 19:27	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		12/26/19 08:59	01/06/20 19:27	1
Antimony	<0.00038		0.0020	0.00038	mg/L		12/26/19 08:59	01/06/20 19:27	1
Lithium	<0.0034		0.0050	0.0034	mg/L		12/26/19 08:59	01/06/20 19:27	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		12/26/19 08:59	01/06/20 19:27	1
Barium	<0.0016		0.010	0.0016	mg/L		12/26/19 08:59	01/06/20 19:27	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		12/26/19 08:59	01/06/20 19:27	1
Arsenic	<0.00032		0.0010	0.00032	mg/L		12/26/19 08:59	01/06/20 19:27	1
Selenium	<0.0015		0.0050	0.0015	mg/L		12/26/19 08:59	01/06/20 19:27	1
Chromium	<0.0015		0.0020	0.0015	mg/L		12/26/19 08:59	01/06/20 19:27	1
Cobalt	<0.000075		0.00050	0.000075	mg/L		12/26/19 08:59	01/06/20 19:27	1

Method: EPA 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-302542/1-A
Matrix: Water
Analysis Batch: 303329

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 302542

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<0.00013		0.0010	0.00013	mg/L		12/26/19 08:59	01/06/20 19:27	1
Thallium	<0.00015		0.0010	0.00015	mg/L		12/26/19 08:59	01/06/20 19:27	1

Lab Sample ID: LCS 180-302542/2-A
Matrix: Water
Analysis Batch: 303329

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 302542

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.25	1.19		mg/L		95	80 - 120
Calcium	25.0	25.0		mg/L		100	80 - 120
Cadmium	0.500	0.522		mg/L		104	80 - 120
Antimony	0.250	0.251		mg/L		100	80 - 120
Lithium	0.500	0.560		mg/L		112	80 - 120
Beryllium	0.500	0.580		mg/L		116	80 - 120
Barium	1.00	1.11		mg/L		111	80 - 120
Molybdenum	0.500	0.530		mg/L		106	80 - 120
Arsenic	1.00	1.02		mg/L		102	80 - 120
Selenium	1.00	0.978		mg/L		98	80 - 120
Chromium	0.500	0.484		mg/L		97	80 - 120
Cobalt	0.500	0.486		mg/L		97	80 - 120
Lead	0.500	0.514		mg/L		103	80 - 120
Thallium	1.00	0.958		mg/L		96	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-303525/1-A
Matrix: Water
Analysis Batch: 303645

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 303525

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.104	J	0.20	0.10	ug/L		01/09/20 13:37	01/10/20 12:48	1

Lab Sample ID: LCS 180-303525/2-A
Matrix: Water
Analysis Batch: 303645

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 303525

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	2.50	2.61		ug/L		104	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-302167/2
Matrix: Water
Analysis Batch: 302167

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			12/20/19 13:49	1

Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 180-302167/1
Matrix: Water
Analysis Batch: 302167

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	188	172		mg/L		91	80 - 120

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-1

HPLC/IC

Analysis Batch: 302389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-100210-1	ARGWC-23	Total/NA	Water	300.0	
180-100210-2	ARGWC-22	Total/NA	Water	300.0	
180-100210-2	ARGWC-22	Total/NA	Water	300.0	
MB 180-302389/47	Method Blank	Total/NA	Water	300.0	
LCS 180-302389/46	Lab Control Sample	Total/NA	Water	300.0	
180-100210-1 MS	ARGWC-23	Total/NA	Water	300.0	
180-100210-1 MSD	ARGWC-23	Total/NA	Water	300.0	

Metals

Prep Batch: 302542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-100210-1	ARGWC-23	Total Recoverable	Water	3005A	
180-100210-2	ARGWC-22	Total Recoverable	Water	3005A	
MB 180-302542/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-302542/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 303329

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-100210-1	ARGWC-23	Total Recoverable	Water	EPA 6020	302542
180-100210-2	ARGWC-22	Total Recoverable	Water	EPA 6020	302542
MB 180-302542/1-A	Method Blank	Total Recoverable	Water	EPA 6020	302542
LCS 180-302542/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	302542

Prep Batch: 303525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-100210-1	ARGWC-23	Total/NA	Water	7470A	
180-100210-2	ARGWC-22	Total/NA	Water	7470A	
MB 180-303525/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-303525/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 303645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-100210-1	ARGWC-23	Total/NA	Water	EPA 7470A	303525
180-100210-2	ARGWC-22	Total/NA	Water	EPA 7470A	303525
MB 180-303525/1-A	Method Blank	Total/NA	Water	EPA 7470A	303525
LCS 180-303525/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	303525

General Chemistry

Analysis Batch: 302167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-100210-1	ARGWC-23	Total/NA	Water	SM 2540C	
180-100210-2	ARGWC-22	Total/NA	Water	SM 2540C	
MB 180-302167/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-302167/1	Lab Control Sample	Total/NA	Water	SM 2540C	

TestAmerica Pittsburg

Chain of Custody Record

681-Atlanta

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Chris Parker	Lab PM:	Carrier Tracking No(s): Acc to TA-ATL	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 404-988-5629	E-Mail:		Page: Page
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Total Number of containers	Special Instructions/Note:
Preservation Code:							D	N	D		
ARGWC-23	12/16/19	1430	G	Water	N	N	✓	✓	✓	4	APP III , APP IV
ARGWC-22	12/16/19	1535	G	Water	N	N	✓	✓	✓	4	
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

180-100210 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Chris Parker ACC	12/18/19 / 15:30	ACC		12/18/19 15:30	ETA
2	12/18/19	16:00	ETA		12/19/19 10:0	
3						

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

1/14/2020


GEORGE TAYLOR
EUROFINS TESTAMERICA
6500 MCDONOUGH DRIVE
SUITE C-10
NORCROSS, GA 30093
UNITED STATES US
ACTWGT: 37.00 LB
CAD: 859116/CAFE3211
BILL RECIPIENT
Part # 159469-434 RITT EXP 07/20
TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC-ARTWRIGHT
FedEx
Express
THU - 19 DEC 3:00P
TRK# 0201 1314 8602 6800
STANDARD OVERNIGHT
NA AGCA
15238
PA-US PIT
Uncorrected Temp
Thermometer ID
CF
Initials
PT-WI-SR-001 effective 11/8/18
180-100210 Waybill

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-100210-1

Login Number: 100210
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-100210-2
Client Project/Site: CCR - Plant Arkwright

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
1/28/2020 3:13:34 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-2

Job ID: 180-100210-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-100210-2

Comments
No additional comments.

Receipt
The samples were received on 12/19/2019 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6º C.

RAD
Methods 903.0, 9315: Ra-226 Prep Batch 160-455297
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

ARGWC-23 (180-100210-1), ARGWC-22 (180-100210-2), (LCS 160-455297/1-A), (MB 160-455297/22-A), (180-100175-A-7-A), (180-100175-A-7-B MS) and (180-100175-B-7-A MSD)

Methods 904.0, 9320: Radium-228 Prep Batch 160-455299
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
ARGWC-23 (180-100210-1), ARGWC-22 (180-100210-2), (LCS 160-455299/1-A), (MB 160-455299/22-A), (180-100175-A-7-C), (180-100175-A-7-D MS) and (180-100175-B-7-B MSD)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	01-31-20
Wisconsin	State	998027800	08-31-20

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-2

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-19 *
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-100210-1	ARGWC-23	Water	12/16/19 14:30	12/19/19 10:00	
180-100210-2	ARGWC-22	Water	12/16/19 15:35	12/19/19 10:00	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-2

Client Sample ID: ARGWC-23

Date Collected: 12/16/19 14:30
Date Received: 12/19/19 10:00

Lab Sample ID: 180-100210-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.2 mL	1.0 g	455297	12/26/19 11:30	MNH	TAL SL
Total/NA	Analysis	9315		1			457241	01/17/20 11:37	CJQ	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			999.2 mL	1.0 g	455299	12/26/19 11:59	MNH	TAL SL
Total/NA	Analysis	9320		1			456366	01/09/20 15:40	AJD	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			457410	01/21/20 08:07	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-22

Date Collected: 12/16/19 15:35
Date Received: 12/19/19 10:00

Lab Sample ID: 180-100210-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.8 mL	1.0 g	455297	12/26/19 11:30	MNH	TAL SL
Total/NA	Analysis	9315		1			457241	01/17/20 11:37	CJQ	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			999.8 mL	1.0 g	455299	12/26/19 11:59	MNH	TAL SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	456366	01/09/20 15:40	AJD	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			457410	01/21/20 08:07	SMP	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: TAL SL

Batch Type: Prep

MNH = Molly Howard

Batch Type: Analysis

AJD = Audra DeMariano
CJQ = Caleb Quinn
SMP = Siobhan Perry

Client Sample ID: ARGWC-23

Date Collected: 12/16/19 14:30
Date Received: 12/19/19 10:00

Lab Sample ID: 180-100210-1

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0704	U	0.0770	0.0772	1.00	0.124	pCi/L	12/26/19 11:30	01/17/20 11:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*12/26/19 11:30*	*01/17/20 11:37*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0960	U	0.214	0.214	1.00	0.367	pCi/L	12/26/19 11:59	01/09/20 15:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*12/26/19 11:59*	*01/09/20 15:40*	*1*
Y Carrier	*90.5*		*40 - 110*	*12/26/19 11:59*	*01/09/20 15:40*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.166	U	0.227	0.227	5.00	0.367	pCi/L		01/21/20 08:07	1

Client Sample ID: ARGWC-22

Date Collected: 12/16/19 15:35
Date Received: 12/19/19 10:00

Lab Sample ID: 180-100210-2

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0157	U	0.0643	0.0643	1.00	0.122	pCi/L	12/26/19 11:30	01/17/20 11:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.5*		*40 - 110*	*12/26/19 11:30*	*01/17/20 11:37*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.214	U	0.255	0.256	1.00	0.421	pCi/L	12/26/19 11:59	01/09/20 15:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.5*		*40 - 110*	*12/26/19 11:59*	*01/09/20 15:40*	*1*
Y Carrier	*88.7*		*40 - 110*	*12/26/19 11:59*	*01/09/20 15:40*	*1*

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-2

Client Sample ID: ARGWC-22
Date Collected: 12/16/19 15:35
Date Received: 12/19/19 10:00

Lab Sample ID: 180-100210-2
Matrix: Water

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.229	U	0.263	0.264	5.00	0.421	pCi/L		01/21/20 08:07	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-455297/22-A
Matrix: Water
Analysis Batch: 457223

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 455297

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.06202	U	0.0621	0.0624	1.00	0.0973	pCi/L	12/26/19 11:30	01/19/20 18:02	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*12/26/19 11:30*	*01/19/20 18:02*	*1*

Lab Sample ID: LCS 160-455297/1-A
Matrix: Water
Analysis Batch: 457241

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455297

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.14		1.05	1.00	0.102	pCi/L	89	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*107*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-455299/22-A
Matrix: Water
Analysis Batch: 456370

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 455299

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.03171	U	0.229	0.229	1.00	0.411	pCi/L	12/26/19 11:59	01/09/20 15:49	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*106*		*40 - 110*	*12/26/19 11:59*	*01/09/20 15:49*	*1*
Y Carrier	*90.2*		*40 - 110*	*12/26/19 11:59*	*01/09/20 15:49*	*1*

Lab Sample ID: LCS 160-455299/1-A
Matrix: Water
Analysis Batch: 456366

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455299

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.22	9.237		1.05	1.00	0.363	pCi/L	100	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*107*		*40 - 110*
Y Carrier	*88.1*		*40 - 110*

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-100210-2

Rad

Prep Batch: 455297

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-100210-1	ARGWC-23	Total/NA	Water	PrecSep-21	
180-100210-2	ARGWC-22	Total/NA	Water	PrecSep-21	
MB 160-455297/22-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-455297/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 455299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-100210-1	ARGWC-23	Total/NA	Water	PrecSep_0	
180-100210-2	ARGWC-22	Total/NA	Water	PrecSep_0	
MB 160-455299/22-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-455299/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

TestAmerica Pittsburg

Chain of Custody Record

681-Atlanta

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Chris Parker	Lab PM:	Carrier Tracking No(s): ACC to TA-ATL	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 404-988-5629	E-Mail:		Page: Page
Company: Southern Company		Analysis Requested		Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			Preservation Codes:
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			Other:

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Total Number of containers	Special Instructions/Note:
				Preservation Code:			D	N	D		
ARGWC-23	12/16/19	1430	G	Water	N	N	✓	✓	✓	4	APP III , APP IV
ARGWC-22	12/16/19	1535	G	Water	N	N	✓	✓	✓	4	
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

180-100210 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological

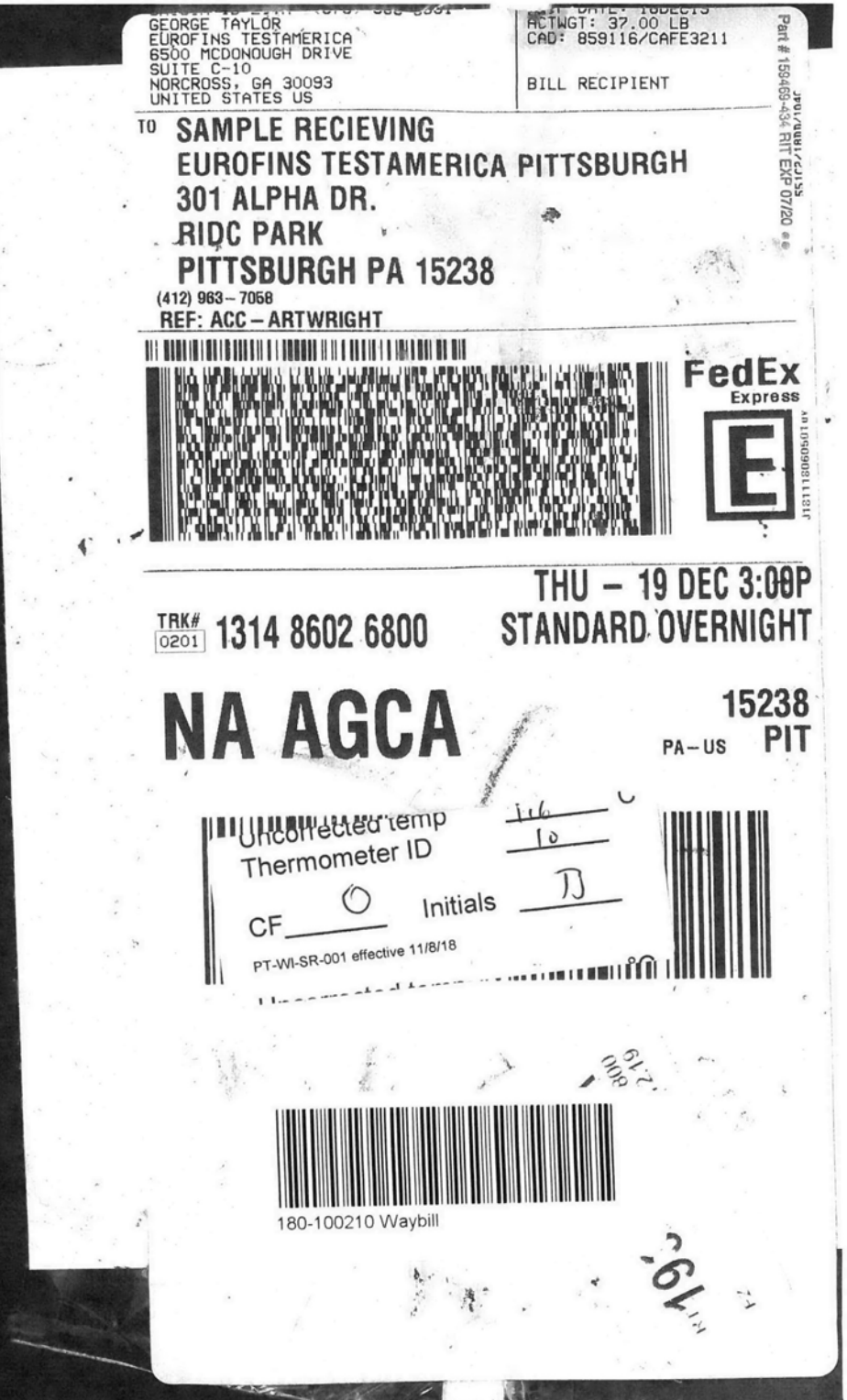
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☑ Disposal By Lab ☐ Archive For ________ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: Chris Parker ACC	Date/Time: 12/18/19 / 15:30	Company: ACC	Received by: [signature]	Date/Time: 12/18/19 15:30	Company: ETA
Relinquished by: [signature]	Date/Time: 12/18/19 16:00	Company: ETA	Received by: [signature]	Date/Time: 12/19/19 10:00	Company: [illegible]
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

Ver: 08/04/2016


GEORGE TAYLOR
EUROFINS TESTAMERICA
6500 MCDONOUGH DRIVE
SUITE C-10
NORCROSS, GA 30093
UNITED STATES US
ACTWGT: 37.00 LB
CAD: 859116/CAFE3211
BILL RECIPIENT
Part # 159469-434 RITT EXP 07/20
TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC-ARTWRIGHT
FedEx
Express
THU - 19 DEC 3:00P
TRK# 0201 1314 8602 6800
STANDARD OVERNIGHT
NA AGCA
15238
PA-US PIT
Uncorrected Temp 16 C
Thermometer ID 10
CF 0 Initials DJ
PT-WI-SR-001 effective 11/8/18
180-100210 Waybill

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-381360.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-100210-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 1/2/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant Arkwright	Project #: 18020201			
Site: Georgia Power Site Sampling Data (GW)	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium 226	9320_Ra228/PrecSep_0 Radium 228	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
ARGWC-23 (180-100210-1)	12/16/19	14:30 Eastern		Water			X	X	X	2	
ARGWC-22 (180-100210-2)	12/16/19	15:35 Eastern		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	[signature]	12/23/19 1700	DHT	Michael Thum	12-24-19 10:10	DHSR
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-100210-2

Login Number: 100210
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-100210-2

Login Number: 100210
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 12/24/19 11:16 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	22.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ATLANTIC COAST CONSULTING, INC.

Daily Instrument Calibration Log

SITE: Plant Arkwright

TECHNICIAN: C. Porter

WATER LEVEL: Solinst 101

WATER LEVEL S/N: 322101

INSTRUMENT S/N: 573204

INSTRUMENT TYPE: Insitu SmarTroll

CAL. SOLUTION/S:

ID: pH 4	LOT #: 96A1010	EXP. DATE: 1/21	PINE CALS
ID: 7	LOT #: 2308E52	EXP. DATE: 8/20	
ID: 10	LOT #: 96A1078	EXP. DATE: 1/21	
ID: ORP 240	LOT #: 96E1369	EXP. DATE: 2/20	
ID: ~~SC~~	LOT #: ~~96E1044~~	EXP. DATE: ~~1/20~~	
ID: SA	LOT #: 96A1072	EXP. DATE: 1/20	
ID:	LOT #:	EXP. DATE:	

Calibration Date: 12/16/19

RDO: 100% sat. = 98.3

PH: 4.00 = 4.77 7.00 = 7.44 10.00 = 10.08

CONDUCTIVITY: 1413 = 1428 µS/cm

ORP (mV) 240 = 229

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

ATLANTIC COAST CONSULTING, INC.

Daily Instrument Calibration Log

SITE: Plant Arkwright

TECHNICIAN: C. Parker

INSTRUMENT S/N: 1720C063767

INSTRUMENT TYPE: Hach 2100 Q

CAL. SOLUTION:
0 NTU - LOT # NA EXP. DATE: New DI water
10 NTU - LOT # A8199 EXP. DATE: Jul 20
20 NTU - LOT # A8215 EXP. DATE: Aug 20

Calibration Date: 12/16/19

Calibation Solution	Instrument Reading	
0.0	0.31	NTU
10.0	9.18	NTU
20.0	20.2	NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Product Name: Low-Flow System

Date: 2019-12-16 15:31:42

Project Information:		Pump Information:	
Operator Name	C Parker	Pump Model/Type	Peristaltic pump
Company Name	Atlantic Coast Consulting	Tubing Type	poly
Project Name	Plant Arkwright - Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright - Ash Pond 2	Tubing Length	27 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	573204		
Turbidity Make/Model	Hach 2100 Q	Pump placement from TOC	22 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-22	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.2105124 L
Well Total Depth	27.78 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	7 in
Depth to Water	13.52 ft	Total Volume Pumped	7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	15:09:39	300.04	20.29	5.79	1583.74	3.07	13.70	0.26	31.22
Last 5	15:14:39	600.03	20.02	5.71	1592.13	2.13	13.90	0.20	31.96
Last 5	15:19:39	900.01	19.80	5.69	1584.86	4.16	14.00	0.17	30.16
Last 5	15:24:39	1200.03	19.81	5.71	1544.18	4.02	14.00	0.16	19.31
Last 5	15:29:39	1500.02	19.66	5.74	1515.66	3.91	14.00	0.14	7.73
Variance 0			-0.23	-0.02	-7.27			-0.03	-1.79
Variance 1			0.01	0.02	-40.68			-0.01	-10.85
Variance 2			-0.14	0.03	-28.52			-0.02	-11.58

Notes

Sampled at 15:35. Sunny 70s.

Grab Samples

Product Name: Low-Flow System

Date: 2019-12-16 14:28:33

Project Information:		Pump Information:	
Operator Name	C Parker	Pump Model/Type	Peristaltic pump
Company Name	Atlantic Coast Consulting	Tubing Type	poly
Project Name	Plant Arkwright - Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright - Ash Pond 2	Tubing Length	27 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	573204		
Turbidity Make/Model	Hach 2100 Q	Pump placement from TOC	22 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-23	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.2105124 L
Well Total Depth	27.21 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	18 in
Depth to Water	11.97 ft	Total Volume Pumped	7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	14:05:56	300.09	22.43	6.35	492.93	8.70	13.30	0.50	-65.73
Last 5	14:10:56	600.03	22.16	6.39	494.42	5.34	13.50	0.37	-66.94
Last 5	14:15:56	900.02	22.34	6.38	494.77	3.38	13.50	0.21	-67.48
Last 5	14:20:56	1200.03	22.16	6.40	497.49	3.49	13.50	0.21	-61.67
Last 5	14:25:56	1500.01	22.34	6.41	500.37	3.09	13.50	0.19	-59.16
Variance 0			0.18	-0.01	0.36			-0.16	-0.53
Variance 1			-0.18	0.01	2.72			-0.00	5.81
Variance 2			0.18	0.01	2.88			-0.02	2.51

Notes

Sampled at 14:30. Sunny 70s.

Grab Samples

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-101076-1
Client Project/Site: CCR - Plant Arkwright

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Authorized for release by:
1/30/2020 3:57:01 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-1

Job ID: 180-101076-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-101076-1

Comments
No additional comments.

Receipt
The samples were received on 1/16/2020 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0º C.

GC Semi VOA
Method 300.0: The continuing calibration blank (CCB) for analytical batch 180-305040 contained Sulfate above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	01-31-20
Wisconsin	State	998027800	08-31-20

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-101076-1	ARGWC-22	Water	01/14/20 09:39	01/16/20 08:30	
180-101076-2	ARGWC-23	Water	01/14/20 10:59	01/16/20 08:30	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-1

Client Sample ID: ARGWC-22

Lab Sample ID: 180-101076-1

Date Collected: 01/14/20 09:39

Matrix: Water

Date Received: 01/16/20 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1	1 mL	1.0 mL	305040	01/27/20 11:04	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total/NA	Analysis	EPA 300.0 R2.1		10			305040	01/27/20 11:20	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	305060	01/27/20 07:32	RJR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			305452	01/29/20 17:27	RSK	TAL PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			50 mL	50 mL	305086	01/27/20 10:31	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			305250	01/28/20 14:00	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	304206	01/16/20 14:23	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-23

Lab Sample ID: 180-101076-2

Date Collected: 01/14/20 10:59

Matrix: Water

Date Received: 01/16/20 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			305040	01/27/20 10:48	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	305060	01/27/20 07:32	RJR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			305452	01/29/20 18:22	RSK	TAL PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			50 mL	50 mL	305086	01/27/20 10:31	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			305250	01/28/20 14:01	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	304206	01/16/20 14:23	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

RJR = Ron Rosenbaum

Batch Type: Analysis

AVS = Abbey Smith

MJH = Matthew Hartman

NAM = Nicole Marfisi

RSK = Robert Kurtz

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-1

Client Sample ID: ARGWC-22

Lab Sample ID: 180-101076-1

Date Collected: 01/14/20 09:39
Matrix: Water
Date Received: 01/16/20 08:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.5**		1.0	0.32	mg/L			01/27/20 11:04	1
Fluoride	<0.026		0.10	0.026	mg/L			01/27/20 11:04	1
Sulfate	**930**	^	10	3.8	mg/L			01/27/20 11:20	10

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00038**	J	0.0010	0.00031	mg/L		01/27/20 07:32	01/29/20 17:27	1
Barium	**0.071**		0.010	0.0016	mg/L		01/27/20 07:32	01/29/20 17:27	1
Beryllium	**0.00036**	J	0.0010	0.00018	mg/L		01/27/20 07:32	01/29/20 17:27	1
Boron	**2.7**		0.080	0.039	mg/L		01/27/20 07:32	01/29/20 17:27	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		01/27/20 07:32	01/29/20 17:27	1
Calcium	**210**		0.50	0.13	mg/L		01/27/20 07:32	01/29/20 17:27	1
Chromium	<0.0015		0.0020	0.0015	mg/L		01/27/20 07:32	01/29/20 17:27	1
Cobalt	**0.0072**		0.00050	0.00013	mg/L		01/27/20 07:32	01/29/20 17:27	1
Molybdenum	**0.0012**	J	0.0050	0.00061	mg/L		01/27/20 07:32	01/29/20 17:27	1
Lead	**0.00022**	J B	0.0010	0.00013	mg/L		01/27/20 07:32	01/29/20 17:27	1
Antimony	<0.00038		0.0020	0.00038	mg/L		01/27/20 07:32	01/29/20 17:27	1
Selenium	<0.0015		0.0050	0.0015	mg/L		01/27/20 07:32	01/29/20 17:27	1
Thallium	**0.00027**	J B	0.0010	0.00015	mg/L		01/27/20 07:32	01/29/20 17:27	1
Lithium	**0.034**		0.0050	0.0034	mg/L		01/27/20 07:32	01/29/20 17:27	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		01/27/20 10:31	01/28/20 14:00	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1400**		10	10	mg/L			01/16/20 14:23	1

Client Sample ID: ARGWC-23

Lab Sample ID: 180-101076-2

Date Collected: 01/14/20 10:59
Matrix: Water
Date Received: 01/16/20 08:30

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4.0**		1.0	0.32	mg/L			01/27/20 10:48	1
Fluoride	**0.21**		0.10	0.026	mg/L			01/27/20 10:48	1
Sulfate	**68**	^	1.0	0.38	mg/L			01/27/20 10:48	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00042**	J	0.0010	0.00031	mg/L		01/27/20 07:32	01/29/20 18:22	1
Barium	**0.075**		0.010	0.0016	mg/L		01/27/20 07:32	01/29/20 18:22	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		01/27/20 07:32	01/29/20 18:22	1
Boron	**0.43**		0.080	0.039	mg/L		01/27/20 07:32	01/29/20 18:22	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		01/27/20 07:32	01/29/20 18:22	1
Calcium	**65**		0.50	0.13	mg/L		01/27/20 07:32	01/29/20 18:22	1
Chromium	<0.0015		0.0020	0.0015	mg/L		01/27/20 07:32	01/29/20 18:22	1
Cobalt	**0.0031**		0.00050	0.00013	mg/L		01/27/20 07:32	01/29/20 18:22	1
Molybdenum	**0.032**		0.0050	0.00061	mg/L		01/27/20 07:32	01/29/20 18:22	1
Lead	**0.00018**	J B	0.0010	0.00013	mg/L		01/27/20 07:32	01/29/20 18:22	1

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-1

Client Sample ID: ARGWC-23
Date Collected: 01/14/20 10:59
Date Received: 01/16/20 08:30

Lab Sample ID: 180-101076-2
Matrix: Water

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		01/27/20 07:32	01/29/20 18:22	1
Selenium	<0.0015		0.0050	0.0015	mg/L		01/27/20 07:32	01/29/20 18:22	1
Thallium	<0.00015		0.0010	0.00015	mg/L		01/27/20 07:32	01/29/20 18:22	1
Lithium	**0.022**		0.0050	0.0034	mg/L		01/27/20 07:32	01/29/20 18:22	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		01/27/20 10:31	01/28/20 14:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**340**		10	10	mg/L			01/16/20 14:23	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 180-305040/6
Matrix: Water
Analysis Batch: 305040

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			01/27/20 05:28	1
Fluoride	<0.026		0.10	0.026	mg/L			01/27/20 05:28	1
Sulfate	<0.38		1.0	0.38	mg/L			01/27/20 05:28	1

Lab Sample ID: LCS 180-305040/5
Matrix: Water
Analysis Batch: 305040

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	48.2		mg/L		96	90 - 110
Fluoride	2.50	2.36		mg/L		94	90 - 110
Sulfate	50.0	47.4		mg/L		95	90 - 110

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-305060/1-A
Matrix: Water
Analysis Batch: 305452

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 305060

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		01/27/20 07:32	01/29/20 17:22	1
Barium	<0.0016		0.010	0.0016	mg/L		01/27/20 07:32	01/29/20 17:22	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		01/27/20 07:32	01/29/20 17:22	1
Boron	<0.039		0.080	0.039	mg/L		01/27/20 07:32	01/29/20 17:22	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		01/27/20 07:32	01/29/20 17:22	1
Calcium	<0.13		0.50	0.13	mg/L		01/27/20 07:32	01/29/20 17:22	1
Chromium	<0.0015		0.0020	0.0015	mg/L		01/27/20 07:32	01/29/20 17:22	1
Cobalt	<0.00013		0.00050	0.00013	mg/L		01/27/20 07:32	01/29/20 17:22	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		01/27/20 07:32	01/29/20 17:22	1
Lead	0.000199	J	0.0010	0.00013	mg/L		01/27/20 07:32	01/29/20 17:22	1
Antimony	<0.00038		0.0020	0.00038	mg/L		01/27/20 07:32	01/29/20 17:22	1
Selenium	<0.0015		0.0050	0.0015	mg/L		01/27/20 07:32	01/29/20 17:22	1
Thallium	0.000150	J	0.0010	0.00015	mg/L		01/27/20 07:32	01/29/20 17:22	1

Lab Sample ID: MB 180-305060/1-A
Matrix: Water
Analysis Batch: 305504

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 305060

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0034		0.0050	0.0034	mg/L		01/27/20 07:32	01/30/20 09:51	1

Lab Sample ID: LCS 180-305060/2-A
Matrix: Water
Analysis Batch: 305452

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 305060

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.908		mg/L		91	80 - 120
Barium	1.00	1.04		mg/L		104	80 - 120
Beryllium	0.500	0.514		mg/L		103	80 - 120
Boron	1.25	1.24		mg/L		99	80 - 120

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-305060/2-A
Matrix: Water
Analysis Batch: 305452

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 305060

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	0.500	0.528		mg/L		106	80 - 120
Calcium	25.0	25.4		mg/L		102	80 - 120
Chromium	0.500	0.531		mg/L		106	80 - 120
Cobalt	0.500	0.467		mg/L		93	80 - 120
Molybdenum	0.500	0.502		mg/L		100	80 - 120
Lead	0.500	0.519		mg/L		104	80 - 120
Antimony	0.250	0.246		mg/L		98	80 - 120
Selenium	1.00	0.906		mg/L		91	80 - 120
Thallium	1.00	1.08		mg/L		108	80 - 120
Lithium	0.500	0.488		mg/L		98	80 - 120

Lab Sample ID: 180-101076-1 MS
Matrix: Water
Analysis Batch: 305452

Client Sample ID: ARGWC-22
Prep Type: Total Recoverable
Prep Batch: 305060

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.00038	J	1.00	0.929		mg/L		93	75 - 125
Barium	0.071		1.00	1.12		mg/L		105	75 - 125
Beryllium	0.00036	J	0.500	0.498		mg/L		100	75 - 125
Boron	2.7		1.25	4.02		mg/L		104	75 - 125
Cadmium	<0.00022		0.500	0.532		mg/L		106	75 - 125
Calcium	210		25.0	244	4	mg/L		141	75 - 125
Chromium	<0.0015		0.500	0.527		mg/L		105	75 - 125
Cobalt	0.0072		0.500	0.468		mg/L		92	75 - 125
Molybdenum	0.0012	J	0.500	0.518		mg/L		103	75 - 125
Lead	0.00022	J B	0.500	0.509		mg/L		102	75 - 125
Antimony	<0.00038		0.250	0.250		mg/L		100	75 - 125
Selenium	<0.0015		1.00	0.891		mg/L		89	75 - 125
Thallium	0.00027	J B	1.00	1.06		mg/L		106	75 - 125
Lithium	0.034		0.500	0.529		mg/L		99	75 - 125

Lab Sample ID: 180-101076-1 MSD
Matrix: Water
Analysis Batch: 305452

Client Sample ID: ARGWC-22
Prep Type: Total Recoverable
Prep Batch: 305060

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.00038	J	1.00	0.906		mg/L		91	75 - 125	2	20
Barium	0.071		1.00	1.11		mg/L		104	75 - 125	1	20
Beryllium	0.00036	J	0.500	0.495		mg/L		99	75 - 125	1	20
Boron	2.7		1.25	3.92		mg/L		96	75 - 125	3	20
Cadmium	<0.00022		0.500	0.523		mg/L		105	75 - 125	2	20
Calcium	210		25.0	240	4	mg/L		125	75 - 125	2	20
Chromium	<0.0015		0.500	0.523		mg/L		105	75 - 125	1	20
Cobalt	0.0072		0.500	0.462		mg/L		91	75 - 125	1	20
Molybdenum	0.0012	J	0.500	0.521		mg/L		104	75 - 125	1	20
Lead	0.00022	J B	0.500	0.509		mg/L		102	75 - 125	0	20
Antimony	<0.00038		0.250	0.247		mg/L		99	75 - 125	1	20
Selenium	<0.0015		1.00	0.876		mg/L		88	75 - 125	2	20
Thallium	0.00027	J B	1.00	1.04		mg/L		104	75 - 125	2	20

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-101076-1 MSD
Matrix: Water
Analysis Batch: 305452

Client Sample ID: ARGWC-22
Prep Type: Total Recoverable
Prep Batch: 305060

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.034		0.500	0.508		mg/L		95	75 - 125	4	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-305086/1-A
Matrix: Water
Analysis Batch: 305250

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 305086

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		01/27/20 10:31	01/28/20 13:45	1

Lab Sample ID: LCS 180-305086/2-A
Matrix: Water
Analysis Batch: 305250

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 305086

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00243		mg/L		97	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-304206/2
Matrix: Water
Analysis Batch: 304206

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			01/16/20 14:23	1

Lab Sample ID: LCS 180-304206/1
Matrix: Water
Analysis Batch: 304206

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	661	780		mg/L		118	80 - 120

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-1

HPLC/IC

Analysis Batch: 305040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-101076-1	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-101076-1	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-101076-2	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
MB 180-305040/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-305040/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 305060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-101076-1	ARGWC-22	Total Recoverable	Water	3005A	
180-101076-2	ARGWC-23	Total Recoverable	Water	3005A	
MB 180-305060/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-305060/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-101076-1 MS	ARGWC-22	Total Recoverable	Water	3005A	
180-101076-1 MSD	ARGWC-22	Total Recoverable	Water	3005A	

Prep Batch: 305086

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-101076-1	ARGWC-22	Total/NA	Water	7470A	
180-101076-2	ARGWC-23	Total/NA	Water	7470A	
MB 180-305086/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-305086/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 305250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-101076-1	ARGWC-22	Total/NA	Water	EPA 7470A	305086
180-101076-2	ARGWC-23	Total/NA	Water	EPA 7470A	305086
MB 180-305086/1-A	Method Blank	Total/NA	Water	EPA 7470A	305086
LCS 180-305086/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	305086

Analysis Batch: 305452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-101076-1	ARGWC-22	Total Recoverable	Water	EPA 6020B	305060
180-101076-2	ARGWC-23	Total Recoverable	Water	EPA 6020B	305060
MB 180-305060/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	305060
LCS 180-305060/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	305060
180-101076-1 MS	ARGWC-22	Total Recoverable	Water	EPA 6020B	305060
180-101076-1 MSD	ARGWC-22	Total Recoverable	Water	EPA 6020B	305060

Analysis Batch: 305504

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-305060/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	305060

General Chemistry

Analysis Batch: 304206

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-101076-1	ARGWC-22	Total/NA	Water	SM 2540C	
180-101076-2	ARGWC-23	Total/NA	Water	SM 2540C	
MB 180-304206/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-304206/1	Lab Control Sample	Total/NA	Water	SM 2540C	

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Ryan Walker	Lab PM: Veronica Bartot	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-594-5998	E-Mail: Veronica.Bartot@testamericainc.com		Page: Page
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days): Standard			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
ARGWC-22	1-14-20	0939	G	Water	N	N	1	1	1	3	APP III , APP IV
ARGWC-23	1-14-20	1059	G	Water	N	N	1	1	1	3	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Ryan Walker	1-15-20 1430	ACC	[signature]	1/15/20 1430	ET
2	[signature]	1/15/20 1630	ACC	[signature]	1/16/20 830	ET MPH
3						

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016


180-101076 Waybill


FedEx
Express
TRK# 0201 1516 9322 8473
THU – 16 JAN 3:00P
STANDARD OVERNIGHT
NA AGCA
15238
PIT
-us
Uncorrected temp
Thermometer ID
CF
Initials
PT-WI-SR-001 effective 11/8/18

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-101076-1

Login Number: 101076
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-101076-2
Client Project/Site: CCR - Plant Arkwright

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Authorized for release by:
2/13/2020 11:33:07 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-101076-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-101076-2

Comments
No additional comments.

Receipt
The samples were received on 1/16/2020 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0º C.

RAD
Methods 903.0, 9315: Ra-226 Prep Batch 160-457542
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

ARGWC-22 (180-101076-1), ARGWC-23 (180-101076-2), (LCS 160-457542/1-A), (MB 160-457542/17-A), (240-125139-S-1-A) and (240-125139-S-1-B DU)

Methods 904.0, 9320: Radium-228 Batch 160-457557
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
ARGWC-22 (180-101076-1), ARGWC-23 (180-101076-2), (LCS 160-457557/1-A), (MB 160-457557/17-A), (240-125139-S-1-C) and (240-125139-S-1-D DU)

Method PrecSep_0: Radium 228 Prep Batch 160-457557:

Samples 560-84503-4, 240-125139-1, 240-125139-3, 180-101076-1, 180-101076-2, 600-199087-1 were prepared at a reduced aliquot due to limited volume.

Sample 310-174061-1 and 310-174061-5 were reduced due to a yellow/brown cloudy discoloration. Samples 310-174061-2, 310-174061-3, 310-174061-4, 310-17061-8 were reduced to having a slightly yellow cloudy discoloration. Sample 310-174061-6 was reduced due to yellow discoloration with floating particles. Sample 310-174061-7 was reduced due to a cloudy dark brown color.

Method PrecSep-21: Radium 226 Prep Batch 160-457542:

Samples 560-84503-4, 240-125139-1, 240-125139-3, 180-101076-1, 180-101076-2, 600-199087-1 were prepared at a reduced aliquot due to limited volume.

Sample 310-174061-1 and 310-174061-5 were reduced due to a yellow/brown cloudy discoloration. Samples 310-174061-2, 310-174061-3, 310-174061-4, 310-17061-8 were reduced to having a slightly yellow cloudy discoloration. Sample 310-174061-6 was reduced due to yellow discoloration with floating particles. Sample 310-174061-7 was reduced due to a cloudy dark brown color.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20 *
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	01-31-20 *
Wisconsin	State	998027800	08-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-2

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-19 *
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20 *
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-101076-1	ARGWC-22	Water	01/14/20 09:39	01/16/20 08:30	
180-101076-2	ARGWC-23	Water	01/14/20 10:59	01/16/20 08:30	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-2

Client Sample ID: ARGWC-22

Date Collected: 01/14/20 09:39
Date Received: 01/16/20 08:30

Lab Sample ID: 180-101076-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.5 mL	1.0 g	457542	01/22/20 09:36	RBR	TAL SL
Total/NA	Analysis	9315		1			460292	02/13/20 09:49	CJQ	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			750.5 mL	1.0 g	457557	01/22/20 11:25	EJQ	TAL SL
Total/NA	Analysis	9320		1			458956	01/31/20 13:38	AJD	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			460297	02/13/20 12:48	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-23

Date Collected: 01/14/20 10:59
Date Received: 01/16/20 08:30

Lab Sample ID: 180-101076-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.2 mL	1.0 g	457542	01/22/20 09:36	RBR	TAL SL
Total/NA	Analysis	9315		1			460292	02/13/20 09:49	CJQ	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			750.2 mL	1.0 g	457557	01/22/20 11:25	EJQ	TAL SL
Total/NA	Analysis	9320		1			458956	01/31/20 13:38	AJD	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			460297	02/13/20 12:48	SMP	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: TAL SL

Batch Type: Prep

EJQ = Erin Quinn

RBR = Rachael Ratcliff

Batch Type: Analysis

AJD = Audra DeMariano

CJQ = Caleb Quinn

SMP = Siobhan Perry

Client Sample ID: ARGWC-22

Lab Sample ID: 180-101076-1

Date Collected: 01/14/20 09:39

Matrix: Water

Date Received: 01/16/20 08:30

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.254		0.133	0.135	1.00	0.181	pCi/L	01/22/20 09:36	02/13/20 09:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.8*		*40 - 110*	*01/22/20 09:36*	*02/13/20 09:49*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.529	U	0.362	0.366	1.00	0.564	pCi/L	01/22/20 11:25	01/31/20 13:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.8*		*40 - 110*	*01/22/20 11:25*	*01/31/20 13:38*	*1*
Y Carrier	*88.1*		*40 - 110*	*01/22/20 11:25*	*01/31/20 13:38*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.783		0.386	0.390	5.00	0.564	pCi/L		02/13/20 12:48	1

Client Sample ID: ARGWC-23

Lab Sample ID: 180-101076-2

Date Collected: 01/14/20 10:59

Matrix: Water

Date Received: 01/16/20 08:30

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.153		0.0960	0.0970	1.00	0.127	pCi/L	01/22/20 09:36	02/13/20 09:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.7*		*40 - 110*	*01/22/20 09:36*	*02/13/20 09:49*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.715		0.457	0.462	1.00	0.703	pCi/L	01/22/20 11:25	01/31/20 13:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.7*		*40 - 110*	*01/22/20 11:25*	*01/31/20 13:38*	*1*
Y Carrier	*72.0*		*40 - 110*	*01/22/20 11:25*	*01/31/20 13:38*	*1*

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-2

Client Sample ID: ARGWC-23
Date Collected: 01/14/20 10:59
Date Received: 01/16/20 08:30

Lab Sample ID: 180-101076-2
Matrix: Water

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.869		0.467	0.472	5.00	0.703	pCi/L		02/13/20 12:48	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-457542/17-A
Matrix: Water
Analysis Batch: 460292

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 457542

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.05948	U	0.0598	0.0600	1.00	0.150	pCi/L	01/22/20 09:36	02/13/20 09:50	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*01/22/20 09:36*	*02/13/20 09:50*	*1*

Lab Sample ID: LCS 160-457542/1-A
Matrix: Water
Analysis Batch: 460292

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 457542

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			15.1	12.96		1.34	1.00	0.114	pCi/L	86	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*99.7*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-457557/17-A
Matrix: Water
Analysis Batch: 458752

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 457557

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.8565		0.415	0.422	1.00	0.621	pCi/L	01/22/20 11:25	01/31/20 13:35	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.4*		*40 - 110*	*01/22/20 11:25*	*01/31/20 13:35*	*1*
Y Carrier	*90.2*		*40 - 110*	*01/22/20 11:25*	*01/31/20 13:35*	*1*

Lab Sample ID: LCS 160-457557/1-A
Matrix: Water
Analysis Batch: 458956

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 457557

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			12.2	10.40		1.25	1.00	0.516	pCi/L	85	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*99.7*		*40 - 110*
Y Carrier	*91.1*		*40 - 110*

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101076-2

Rad

Prep Batch: 457542

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-101076-1	ARGWC-22	Total/NA	Water	PrecSep-21	
180-101076-2	ARGWC-23	Total/NA	Water	PrecSep-21	
MB 160-457542/17-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-457542/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 457557

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-101076-1	ARGWC-22	Total/NA	Water	PrecSep_0	
180-101076-2	ARGWC-23	Total/NA	Water	PrecSep_0	
MB 160-457557/17-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-457557/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information

Client Contact: Joju Abraham	Sampler: Ryan Walker	Lab PM: Veronica Bortot	Carrier Tracking No(s):
	Phone: 770-594-5998	E-Mail: Veronica.Bortot@testamericainc.com	COC No: 400-73521-29028.1
Company: Southern Company			Page: Page
Address: PO BOX 2641 GSC8	Due Date Requested:		Job #:
City: Birmingham	TAT Requested (days): Standard		
State, Zip: AL, 35291			
Phone:	PO #: SCS10347656		
Email: JAbraham@southernco.com	WO #:		
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712		
Site: Georgia	SSOW#:		

Analysis Requested

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Total Number of containers	Special Instructions/Note:
				Preservation Code:	X	X	D	N	D	X	
ARGWC-22	1-14-20	0939	G	Water	N	N	1	1	1	3	APP III , APP IV
ARGWC-23	1-14-20	1059	G	Water	N	N	1	1	1	3	

Preservation Codes:
A - HCL
B - NaOH
C - Zn Acetate
D - Nitric Acid
E - NaHSO4
F - MeOH
G - Amchlor
H - Ascorbic Acid
I - Ice
J - DI Water
K - EDTA
L - EDA
M - Hexane
N - None
O - AsNaO2
P - Na2O4S
Q - Na2SO3
R - Na2S2O3
S - H2SO4
T - TSP Dodecahydrate
U - Acetone
V - MCAA
W - pH 4-5
Z - other (specify)
Other:

180-101076 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ________ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	1-15-20 / 1430	Acc	[signature]	1/15/20 1830	ETA
[signature]	1/15/20 [illegible]	ATA	[signature]	1/16/20 830	EMPIT

Custody Seals Intact: Δ Yes Δ No
Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016


180-101076 Waybill


FedEx
Express
TRK# 0201 1516 9322 8473
THU – 16 JAN 3:00P
STANDARD OVERNIGHT
NA AGCA
15238
PIT
-us
Uncorrected temp
Thermometer ID
CF
Initials
PT-WI-SR-001 effective 11/8/18

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-383030.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-101076-2
Address: 13715 Rider Trail North,	Due Date Requested: 2/13/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant Arkwright	Project #: 18020201			
Site: Arkwright	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium 226	9320_Ra228/PrecSep_0 Radium 228	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
ARGWC-22 (180-101076-1)	1/14/20	09:39 Eastern		Water			X	X	X	1	
ARGWC-23 (180-101076-2)	1/14/20	10:59 Eastern		Water			X	X	X	1	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 1/20/20 1700	Company: PLT	Received by:	Date/Time: 1-21-20 0911	Company: EIA SRL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-101076-2

Login Number: 101076
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-101076-2

Login Number: 101076
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 01/21/20 12:44 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Product Name: Low-Flow System

Date: 2020-01-14 09:41:45

Project Information:		Pump Information:	
Operator Name	Ryan Walker	Pump Model/Type	Peristaltic pump
Company Name	Atlantic Coast Consulting	Tubing Type	poly
Project Name	Plant Arkwright - Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright	Tubing Length	27 ft
Latitude	32° 55' 18.28"		
Longitude	-83° -42' -10.19"		
Sonde SN	369557		
Turbidity Make/Model	Hack 2100Q	Pump placement from TOC	22 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-22	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.2105124 L
Well Total Depth	27.78 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	5 in
Depth to Water	9.91 ft	Total Volume Pumped	6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 0.3	+/- 10
Last 5	09:19:39	600.01	18.09	5.96	1601.00	15.50	10.30	0.22	-40.07
Last 5	09:24:39	900.00	18.11	5.92	1598.60	8.90	10.30	0.19	-42.68
Last 5	09:29:39	1200.00	18.14	5.92	1595.21	6.43	10.30	0.18	-45.00
Last 5	09:34:39	1500.00	18.16	5.91	1590.74	5.65	10.30	0.17	-46.25
Last 5	09:39:39	1799.99	18.24	5.91	1584.95	4.13	10.30	0.16	-47.28
Variance 0			0.03	-0.01	-3.39			-0.01	-2.32
Variance 1			0.01	-0.01	-4.47			-0.01	-1.26
Variance 2			0.08	0.00	-5.79			-0.01	-1.03

Notes

Sampled at 09:39. Light rain, 60’s.

Grab Samples

Product Name: Low-Flow System

Date: 2020-01-14 11:00:33

Project Information:		Pump Information:	
Operator Name	Ryan Walker	Pump Model/Type	Peristaltic pump
Company Name	Atlantic Coast Consulting	Tubing Type	poly
Project Name	Plant Arkwright - Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright	Tubing Length	27 ft
Latitude	32° 55' 16.92"		
Longitude	-83° -42' -7.13"		
Sonde SN	369557		
Turbidity Make/Model	Hach 2100Q	Pump placement from TOC	22 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-23	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.2105124 L
Well Total Depth	27.21 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	13 in
Depth to Water	7.50 ft	Total Volume Pumped	7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 0.3	+/- 10
Last 5	10:39:51	900.01	19.27	6.66	482.20	6.83	8.60	0.48	9.75
Last 5	10:44:51	1200.00	19.27	6.65	481.86	14.60	8.60	0.48	13.97
Last 5	10:49:51	1500.00	19.32	6.64	481.12	6.16	8.60	0.47	10.56
Last 5	10:54:51	1799.99	19.35	6.62	482.05	4.97	8.60	0.44	7.08
Last 5	10:59:51	2099.99	19.41	6.62	480.24	4.89	8.60	0.42	8.39
Variance 0			0.05	-0.01	-0.73			-0.01	-3.41
Variance 1			0.03	-0.01	0.93			-0.03	-3.48
Variance 2			0.06	0.00	-1.81			-0.02	1.31

Notes

Sampled at 10:59. Light rain, 60’s.

Grab Samples

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-102295-1
Client Project/Site: CCR - Plant Arkwright

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
2/29/2020 5:56:21 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-1

Job ID: 180-102295-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-102295-1

Comments
No additional comments.

Receipt
The samples were received on 2/13/2020 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.4° C.

GC Semi VOA
Methods 300.0, 9056A: The continuing calibration verification (CCV) associated with batch 180-308008 recovered outside acceptance criteria, low biased, for Fluoride. A reporting limit (RL) standard was analyzed, and the target analyte was detected. Since the associated samples were non-detect or estimated (J) for this analyte, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20 *
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-102295-1	ARGWC-23	Water	02/11/20 13:10	02/13/20 09:00	
180-102295-2	ARGWC-22	Water	02/11/20 14:20	02/13/20 09:00	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
Field Sampling	Field Sampling	EPA	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-1

Client Sample ID: ARGWC-23

Lab Sample ID: 180-102295-1

Date Collected: 02/11/20 13:10

Matrix: Water

Date Received: 02/13/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			308276	02/27/20 12:04	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	307272	02/17/20 11:20	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			307748	02/20/20 17:00	RSK	TAL PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			50 mL	50 mL	307460	02/18/20 15:50	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			307605	02/19/20 15:53	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	307102	02/14/20 11:59	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			307817	02/11/20 13:10	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-22

Lab Sample ID: 180-102295-2

Date Collected: 02/11/20 14:20

Matrix: Water

Date Received: 02/13/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			308008	02/25/20 22:15	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 300.0 R2.1		10			308008	02/25/20 22:30	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	307272	02/17/20 11:20	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			307748	02/20/20 17:12	RSK	TAL PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			50 mL	50 mL	307460	02/18/20 15:50	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			307605	02/19/20 15:56	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	307102	02/14/20 11:59	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			307817	02/11/20 14:20	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-1

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KEM = Kimberly Mahoney
NAM = Nicole Marfisi

Batch Type: Analysis

AVS = Abbey Smith
FDS = Sampler Field
MJH = Matthew Hartman
NAM = Nicole Marfisi
RSK = Robert Kurtz

Client Sample ID: ARGWC-23

Lab Sample ID: 180-102295-1

Date Collected: 02/11/20 13:10

Matrix: Water

Date Received: 02/13/20 09:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.7		1.0	0.32	mg/L			02/27/20 12:04	1
Fluoride	0.13		0.10	0.026	mg/L			02/27/20 12:04	1
Sulfate	18		1.0	0.38	mg/L			02/27/20 12:04	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		02/17/20 11:20	02/20/20 17:00	1
Barium	0.046		0.010	0.0016	mg/L		02/17/20 11:20	02/20/20 17:00	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		02/17/20 11:20	02/20/20 17:00	1
Boron	0.079	J	0.080	0.039	mg/L		02/17/20 11:20	02/20/20 17:00	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		02/17/20 11:20	02/20/20 17:00	1
Calcium	10		0.50	0.13	mg/L		02/17/20 11:20	02/20/20 17:00	1
Chromium	<0.0015		0.0020	0.0015	mg/L		02/17/20 11:20	02/20/20 17:00	1
Cobalt	0.00056		0.00050	0.00013	mg/L		02/17/20 11:20	02/20/20 17:00	1
Molybdenum	0.021		0.0050	0.00061	mg/L		02/17/20 11:20	02/20/20 17:00	1
Lead	0.00026	J	0.0010	0.00013	mg/L		02/17/20 11:20	02/20/20 17:00	1
Antimony	<0.00038		0.0020	0.00038	mg/L		02/17/20 11:20	02/20/20 17:00	1
Selenium	<0.0015		0.0050	0.0015	mg/L		02/17/20 11:20	02/20/20 17:00	1
Thallium	0.00028	J B	0.0010	0.00015	mg/L		02/17/20 11:20	02/20/20 17:00	1
Lithium	0.0078		0.0050	0.0034	mg/L		02/17/20 11:20	02/20/20 17:00	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		02/18/20 15:50	02/19/20 15:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	110		10	10	mg/L			02/14/20 11:59	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.71				SU			02/11/20 13:10	1

Client Sample ID: ARGWC-22

Lab Sample ID: 180-102295-2

Date Collected: 02/11/20 14:20

Matrix: Water

Date Received: 02/13/20 09:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.0		1.0	0.32	mg/L			02/25/20 22:15	1
Fluoride	0.056	J	0.10	0.026	mg/L			02/25/20 22:15	1
Sulfate	660		10	3.8	mg/L			02/25/20 22:30	10

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00040	J	0.0010	0.00031	mg/L		02/17/20 11:20	02/20/20 17:12	1
Barium	0.046		0.010	0.0016	mg/L		02/17/20 11:20	02/20/20 17:12	1
Beryllium	0.00023	J	0.0010	0.00018	mg/L		02/17/20 11:20	02/20/20 17:12	1
Boron	3.0		0.080	0.039	mg/L		02/17/20 11:20	02/20/20 17:12	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		02/17/20 11:20	02/20/20 17:12	1
Calcium	180		0.50	0.13	mg/L		02/17/20 11:20	02/20/20 17:12	1

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-1

Client Sample ID: ARGWC-22
Date Collected: 02/11/20 14:20
Date Received: 02/13/20 09:00

Lab Sample ID: 180-102295-2
Matrix: Water

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	**0.0048**		0.0020	0.0015	mg/L		02/17/20 11:20	02/20/20 17:12	1
Cobalt	**0.013**		0.00050	0.00013	mg/L		02/17/20 11:20	02/20/20 17:12	1
Molybdenum	**0.00093**	**J**	0.0050	0.00061	mg/L		02/17/20 11:20	02/20/20 17:12	1
Lead	<0.00013		0.0010	0.00013	mg/L		02/17/20 11:20	02/20/20 17:12	1
Antimony	<0.00038		0.0020	0.00038	mg/L		02/17/20 11:20	02/20/20 17:12	1
Selenium	<0.0015		0.0050	0.0015	mg/L		02/17/20 11:20	02/20/20 17:12	1
Thallium	**0.00034**	**J B**	0.0010	0.00015	mg/L		02/17/20 11:20	02/20/20 17:12	1
Lithium	**0.010**		0.0050	0.0034	mg/L		02/17/20 11:20	02/20/20 17:12	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		02/18/20 15:50	02/19/20 15:56	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1300**		10	10	mg/L			02/14/20 11:59	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.90**				SU			02/11/20 14:20	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 180-308008/50
Matrix: Water
Analysis Batch: 308008

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			02/25/20 18:56	1
Fluoride	<0.026		0.10	0.026	mg/L			02/25/20 18:56	1
Sulfate	<0.38		1.0	0.38	mg/L			02/25/20 18:56	1

Lab Sample ID: MB 180-308008/6
Matrix: Water
Analysis Batch: 308008

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			02/25/20 05:32	1
Fluoride	<0.026		0.10	0.026	mg/L			02/25/20 05:32	1
Sulfate	<0.38		1.0	0.38	mg/L			02/25/20 05:32	1

Lab Sample ID: LCS 180-308008/49
Matrix: Water
Analysis Batch: 308008

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.3		mg/L		103	90 - 110
Fluoride	2.50	2.29		mg/L		92	90 - 110
Sulfate	50.0	49.3		mg/L		99	90 - 110

Lab Sample ID: MB 180-308276/6
Matrix: Water
Analysis Batch: 308276

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			02/27/20 04:55	1
Fluoride	<0.026		0.10	0.026	mg/L			02/27/20 04:55	1
Sulfate	<0.38		1.0	0.38	mg/L			02/27/20 04:55	1

Lab Sample ID: LCS 180-308276/5
Matrix: Water
Analysis Batch: 308276

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.1		mg/L		102	90 - 110
Fluoride	2.50	2.56		mg/L		102	90 - 110
Sulfate	50.0	50.6		mg/L		101	90 - 110

Lab Sample ID: 180-102295-1 MS
Matrix: Water
Analysis Batch: 308276

Client Sample ID: ARGWC-23
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4.7		25.0	28.6		mg/L		96	80 - 120
Fluoride	0.13		1.25	1.32		mg/L		95	80 - 120
Sulfate	18		25.0	40.4		mg/L		90	80 - 120

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 180-102295-1 MSD
Matrix: Water
Analysis Batch: 308276

Client Sample ID: ARGWC-23
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	4.7		25.0	29.2		mg/L		98	80 - 120	2	20
Fluoride	0.13		1.25	1.35		mg/L		97	80 - 120	2	20
Sulfate	18		25.0	41.0		mg/L		93	80 - 120	1	20

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-307272/1-A
Matrix: Water
Analysis Batch: 307748

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 307272

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		02/17/20 11:20	02/20/20 16:55	1
Barium	<0.0016		0.010	0.0016	mg/L		02/17/20 11:20	02/20/20 16:55	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		02/17/20 11:20	02/20/20 16:55	1
Boron	<0.039		0.080	0.039	mg/L		02/17/20 11:20	02/20/20 16:55	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		02/17/20 11:20	02/20/20 16:55	1
Calcium	<0.13		0.50	0.13	mg/L		02/17/20 11:20	02/20/20 16:55	1
Chromium	<0.0015		0.0020	0.0015	mg/L		02/17/20 11:20	02/20/20 16:55	1
Cobalt	<0.00013		0.00050	0.00013	mg/L		02/17/20 11:20	02/20/20 16:55	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		02/17/20 11:20	02/20/20 16:55	1
Lead	<0.00013		0.0010	0.00013	mg/L		02/17/20 11:20	02/20/20 16:55	1
Antimony	<0.00038		0.0020	0.00038	mg/L		02/17/20 11:20	02/20/20 16:55	1
Selenium	<0.0015		0.0050	0.0015	mg/L		02/17/20 11:20	02/20/20 16:55	1
Thallium	0.000186	J	0.0010	0.00015	mg/L		02/17/20 11:20	02/20/20 16:55	1

Lab Sample ID: MB 180-307272/1-A
Matrix: Water
Analysis Batch: 307853

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 307272

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0034		0.0050	0.0034	mg/L		02/17/20 11:20	02/21/20 10:38	1

Lab Sample ID: LCS 180-307272/2-A
Matrix: Water
Analysis Batch: 307748

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 307272

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.07		mg/L		107	80 - 120
Barium	1.00	1.02		mg/L		102	80 - 120
Beryllium	0.500	0.510		mg/L		102	80 - 120
Boron	1.25	1.25		mg/L		100	80 - 120
Cadmium	0.500	0.528		mg/L		106	80 - 120
Calcium	25.0	25.9		mg/L		104	80 - 120
Chromium	0.500	0.520		mg/L		104	80 - 120
Cobalt	0.500	0.494		mg/L		99	80 - 120
Molybdenum	0.500	0.555		mg/L		111	80 - 120
Lead	0.500	0.517		mg/L		103	80 - 120
Antimony	0.250	0.244		mg/L		98	80 - 120
Selenium	1.00	1.05		mg/L		105	80 - 120

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-307272/2-A
Matrix: Water
Analysis Batch: 307748

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 307272

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Thallium	1.00	1.08		mg/L		108	80 - 120
Lithium	0.500	0.471		mg/L		94	80 - 120

Lab Sample ID: 180-102295-1 MS
Matrix: Water
Analysis Batch: 307748

Client Sample ID: ARGWC-23
Prep Type: Total Recoverable
Prep Batch: 307272

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00031		1.00	1.10		mg/L		110	75 - 125
Barium	0.046		1.00	1.10		mg/L		105	75 - 125
Beryllium	<0.00018		0.500	0.520		mg/L		104	75 - 125
Boron	0.079	J	1.25	1.34		mg/L		101	75 - 125
Cadmium	<0.00022		0.500	0.550		mg/L		110	75 - 125
Calcium	10		25.0	36.1		mg/L		104	75 - 125
Chromium	<0.0015		0.500	0.541		mg/L		108	75 - 125
Cobalt	0.00056		0.500	0.495		mg/L		99	75 - 125
Molybdenum	0.021		0.500	0.598		mg/L		115	75 - 125
Lead	0.00026	J	0.500	0.528		mg/L		105	75 - 125
Antimony	<0.00038		0.250	0.251		mg/L		100	75 - 125
Selenium	<0.0015		1.00	1.10		mg/L		110	75 - 125
Thallium	0.00028	J B	1.00	1.11		mg/L		111	75 - 125
Lithium	0.0078		0.500	0.503		mg/L		99	75 - 125

Lab Sample ID: 180-102295-1 MSD
Matrix: Water
Analysis Batch: 307748

Client Sample ID: ARGWC-23
Prep Type: Total Recoverable
Prep Batch: 307272

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00031		1.00	1.09		mg/L		109	75 - 125	1	20
Barium	0.046		1.00	1.10		mg/L		105	75 - 125	0	20
Beryllium	<0.00018		0.500	0.502		mg/L		100	75 - 125	3	20
Boron	0.079	J	1.25	1.32		mg/L		99	75 - 125	2	20
Cadmium	<0.00022		0.500	0.540		mg/L		108	75 - 125	2	20
Calcium	10		25.0	35.9		mg/L		104	75 - 125	0	20
Chromium	<0.0015		0.500	0.527		mg/L		105	75 - 125	3	20
Cobalt	0.00056		0.500	0.489		mg/L		98	75 - 125	1	20
Molybdenum	0.021		0.500	0.587		mg/L		113	75 - 125	2	20
Lead	0.00026	J	0.500	0.521		mg/L		104	75 - 125	1	20
Antimony	<0.00038		0.250	0.252		mg/L		101	75 - 125	1	20
Selenium	<0.0015		1.00	1.03		mg/L		103	75 - 125	7	20
Thallium	0.00028	J B	1.00	1.13		mg/L		112	75 - 125	1	20
Lithium	0.0078		0.500	0.507		mg/L		100	75 - 125	1	20

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-1

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-307460/1-A
Matrix: Water
Analysis Batch: 307605

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 307460

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		02/18/20 15:50	02/19/20 15:41	1

Lab Sample ID: LCS 180-307460/2-A
Matrix: Water
Analysis Batch: 307605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 307460

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00210		mg/L		84	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-307102/2
Matrix: Water
Analysis Batch: 307102

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			02/14/20 11:59	1

Lab Sample ID: LCS 180-307102/1
Matrix: Water
Analysis Batch: 307102

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	661	650		mg/L		98	80 - 120

HPLC/IC

Analysis Batch: 308008

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-102295-2	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-102295-2	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
MB 180-308008/50	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
MB 180-308008/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-308008/49	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 308276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-102295-1	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
MB 180-308276/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-308276/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-102295-1 MS	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
180-102295-1 MSD	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 307272

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-102295-1	ARGWC-23	Total Recoverable	Water	3005A	
180-102295-2	ARGWC-22	Total Recoverable	Water	3005A	
MB 180-307272/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-307272/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-102295-1 MS	ARGWC-23	Total Recoverable	Water	3005A	
180-102295-1 MSD	ARGWC-23	Total Recoverable	Water	3005A	

Prep Batch: 307460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-102295-1	ARGWC-23	Total/NA	Water	7470A	
180-102295-2	ARGWC-22	Total/NA	Water	7470A	
MB 180-307460/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-307460/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 307605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-102295-1	ARGWC-23	Total/NA	Water	EPA 7470A	307460
180-102295-2	ARGWC-22	Total/NA	Water	EPA 7470A	307460
MB 180-307460/1-A	Method Blank	Total/NA	Water	EPA 7470A	307460
LCS 180-307460/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	307460

Analysis Batch: 307748

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-102295-1	ARGWC-23	Total Recoverable	Water	EPA 6020B	307272
180-102295-2	ARGWC-22	Total Recoverable	Water	EPA 6020B	307272
MB 180-307272/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	307272
LCS 180-307272/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	307272
180-102295-1 MS	ARGWC-23	Total Recoverable	Water	EPA 6020B	307272
180-102295-1 MSD	ARGWC-23	Total Recoverable	Water	EPA 6020B	307272

Analysis Batch: 307853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-307272/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	307272

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-1

General Chemistry

Analysis Batch: 307102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-102295-1	ARGWC-23	Total/NA	Water	SM 2540C	
180-102295-2	ARGWC-22	Total/NA	Water	SM 2540C	
MB 180-307102/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-307102/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 307817

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-102295-1	ARGWC-23	Total/NA	Water	Field Sampling	
180-102295-2	ARGWC-22	Total/NA	Water	Field Sampling	

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Chris Parker	Lab PM: Bortot, Veronica	Carrier Tracking No(s): ACC to TA-ATL	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 404-988-5629	E-Mail: <Veronica.Bortot@testamericainc.com>		Page: Page
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			

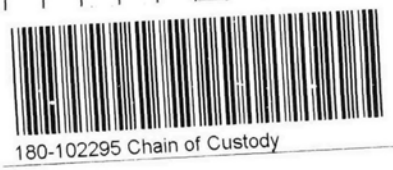
Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
ARGWC-23	2/11/20	1310	G	Water	N	N	✓	✓	✓	3	APP III , APP IV pH = 6.71
ARGWC-22	2/11/20	1420	G	Water	N	N	✓	✓	✓	3	pH = 5.90
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							



Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

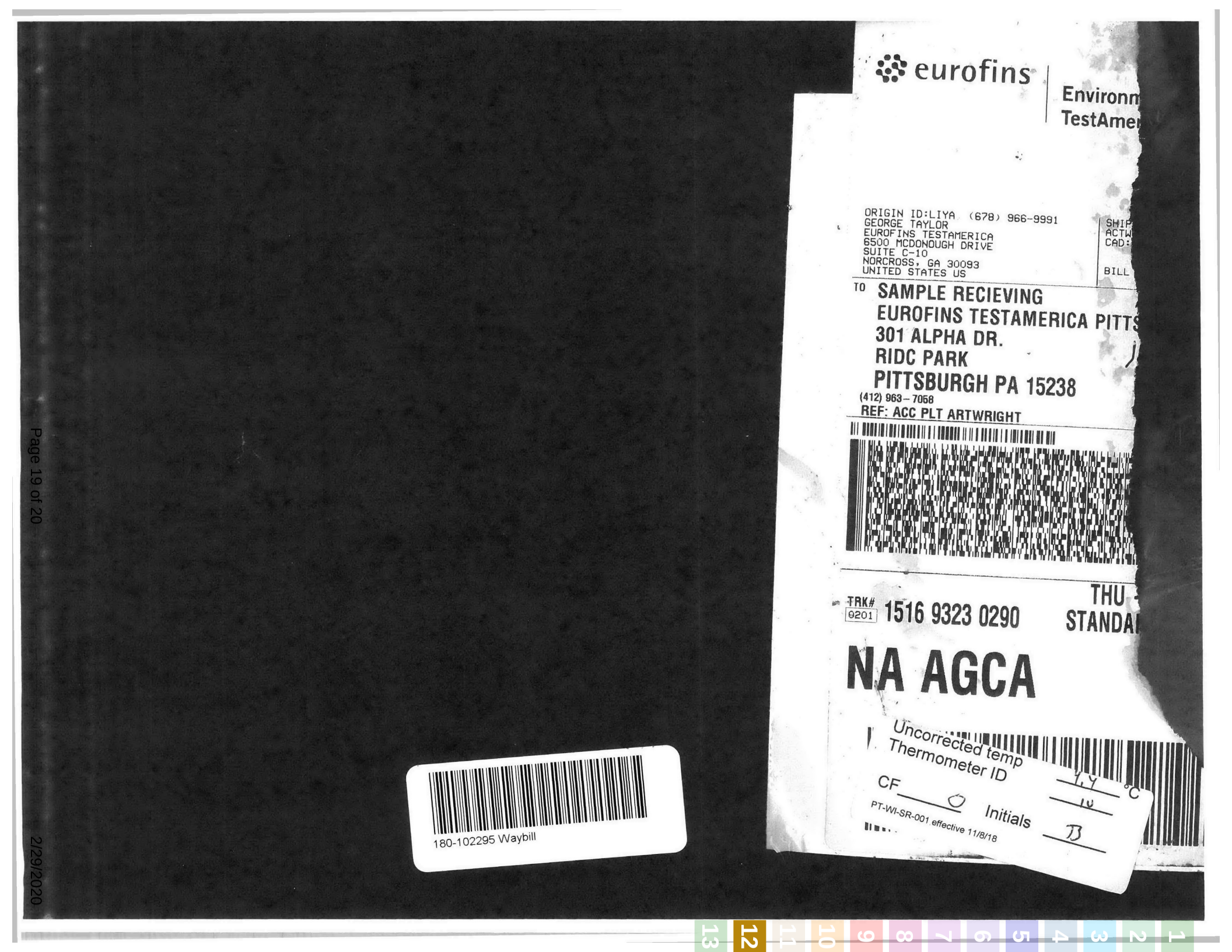
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	2/12/20 14:40	ACC		2/12/20 14:40	ETA
Relinquished by:	2/12/20 16:00	ETA	Received by:	2/13/20 900	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016


eurofins
Environm
TestAmer
ORIGIN ID:LIYA (678) 966-9991
GEORGE TAYLOR
EUROFINS TESTAMERICA
6500 MCDONOUGH DRIVE
SUITE C-10
NORCROSS, GA 30093
UNITED STATES US
SHIP
ACTW
CAD:
BILL
TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTS
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC PLT ARTWRIGHT
TRK# 9201 1516 9323 0290
THU
STANDA
NA AGCA
Uncorrected temp
Thermometer ID
CF
Initials
°C
PT-WI-SR-001 effective 11/8/18
180-102295 Waybill
Page 19 of 20
2/29/2020

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-102295-1

Login Number: 102295
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-102295-2
Client Project/Site: CCR - Plant Arkwright

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
3/23/2020 11:04:44 AM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-2

Job ID: 180-102295-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-102295-2

Comments
No additional comments.

Receipt
The samples were received on 2/13/2020 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.4° C.

RAD
Methods 903.0, 9315: Radium-226 Prep Batch 160-460621
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

ARGWC-23 (180-102295-1), ARGWC-22 (180-102295-2), (LCS 160-460621/1-A), (MB 160-460621/22-A) and (180-102295-A-2-B DU)

Methods 904.0, 9320: Radium-228 Prep Batch 160-460625
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
ARGWC-23 (180-102295-1), ARGWC-22 (180-102295-2), (LCS 160-460625/1-A), (MB 160-460625/22-A) and (180-102295-A-2-D DU)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-2

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20 *
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-102295-1	ARGWC-23	Water	02/11/20 13:10	02/13/20 09:00	
180-102295-2	ARGWC-22	Water	02/11/20 14:20	02/13/20 09:00	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-2

Client Sample ID: ARGWC-23

Date Collected: 02/11/20 13:10
Date Received: 02/13/20 09:00

Lab Sample ID: 180-102295-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.85 mL	1.0 g	460621	02/17/20 11:37	MNH	TAL SL
Total/NA	Analysis	9315		1			463541	03/10/20 11:01	KLS	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			999.85 mL	1.0 g	460625	02/17/20 12:02	MNH	TAL SL
Total/NA	Analysis	9320		1			462662	03/03/20 17:38	AJD	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			464942	03/19/20 11:20	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-22

Date Collected: 02/11/20 14:20
Date Received: 02/13/20 09:00

Lab Sample ID: 180-102295-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.76 mL	1.0 g	460621	02/17/20 11:37	MNH	TAL SL
Total/NA	Analysis	9315		1			463541	03/10/20 11:02	KLS	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			999.76 mL	1.0 g	460625	02/17/20 12:02	MNH	TAL SL
Total/NA	Analysis	9320		1			462662	03/03/20 17:38	AJD	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			464942	03/19/20 11:20	SMP	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: TAL SL

Batch Type: Prep

MNH = Molly Howard

Batch Type: Analysis

AJD = Audra DeMariano

KLS = Kody Saulters

SMP = Siobhan Perry

Client Sample ID: ARGWC-23

Lab Sample ID: 180-102295-1

Date Collected: 02/11/20 13:10

Matrix: Water

Date Received: 02/13/20 09:00

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0559	U	0.0578	0.0580	1.00	0.0896	pCi/L	02/17/20 11:37	03/10/20 11:01	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.7*		*40 - 110*	*02/17/20 11:37*	*03/10/20 11:01*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0268	U	0.230	0.230	1.00	0.416	pCi/L	02/17/20 12:02	03/03/20 17:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.7*		*40 - 110*	*02/17/20 12:02*	*03/03/20 17:38*	*1*
Y Carrier	*85.2*		*40 - 110*	*02/17/20 12:02*	*03/03/20 17:38*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0291	U	0.237	0.237	2.00	0.416	pCi/L		03/19/20 11:20	1

Client Sample ID: ARGWC-22

Lab Sample ID: 180-102295-2

Date Collected: 02/11/20 14:20

Matrix: Water

Date Received: 02/13/20 09:00

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.0956**		0.0687	0.0692	1.00	0.0912	pCi/L	02/17/20 11:37	03/10/20 11:02	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.2*		*40 - 110*	*02/17/20 11:37*	*03/10/20 11:02*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.133	U	0.232	0.232	1.00	0.395	pCi/L	02/17/20 12:02	03/03/20 17:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.2*		*40 - 110*	*02/17/20 12:02*	*03/03/20 17:38*	*1*
Y Carrier	*83.7*		*40 - 110*	*02/17/20 12:02*	*03/03/20 17:38*	*1*

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-2

Client Sample ID: ARGWC-22

Date Collected: 02/11/20 14:20
Date Received: 02/13/20 09:00

Lab Sample ID: 180-102295-2

Matrix: Water

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.229	U	0.242	0.242	2.00	0.395	pCi/L		03/19/20 11:20	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-460621/22-A
Matrix: Water
Analysis Batch: 463541

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 460621

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.01227	U	0.0475	0.0475	1.00	0.0934	pCi/L	02/17/20 11:37	03/10/20 13:26	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.5*		*40 - 110*	*02/17/20 11:37*	*03/10/20 13:26*	*1*

Lab Sample ID: LCS 160-460621/1-A
Matrix: Water
Analysis Batch: 463541

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 460621

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	9.510		1.03	1.00	0.0982	pCi/L	84	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*84.9*		*40 - 110*

Lab Sample ID: 180-102295-2 DU
Matrix: Water
Analysis Batch: 463541

Client Sample ID: ARGWC-22
Prep Type: Total/NA
Prep Batch: 460621

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-226	0.0956			0.07983	U	0.0675	1.00	0.0960	pCi/L			0.11	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*84.9*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-460625/22-A
Matrix: Water
Analysis Batch: 462661

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 460625

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2903	U	0.272	0.273	1.00	0.440	pCi/L	02/17/20 12:02	03/03/20 17:42	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.5*		*40 - 110*	*02/17/20 12:02*	*03/03/20 17:42*	*1*
Y Carrier	*89.3*		*40 - 110*	*02/17/20 12:02*	*03/03/20 17:42*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-460625/1-A
Matrix: Water
Analysis Batch: 462662

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 460625

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.05	9.016		1.09	1.00	0.461	pCi/L	100	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*84.9*		*40 - 110*
Y Carrier	*89.7*		*40 - 110*

Lab Sample ID: 180-102295-2 DU
Matrix: Water
Analysis Batch: 462662

Client Sample ID: ARGWC-22
Prep Type: Total/NA
Prep Batch: 460625

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit			RER	RER Limit
Radium-228	0.133	U		0.2138	U	0.278	1.00	0.461	pCi/L			0.16	1

Carrier	*DU %Yield*	*DU Qualifier*	*Limits*
Ba Carrier	*84.9*		*40 - 110*
Y Carrier	*84.9*		*40 - 110*

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-102295-2

Rad

Prep Batch: 460621

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-102295-1	ARGWC-23	Total/NA	Water	PrecSep-21	
180-102295-2	ARGWC-22	Total/NA	Water	PrecSep-21	
MB 160-460621/22-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-460621/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
180-102295-2 DU	ARGWC-22	Total/NA	Water	PrecSep-21	

Prep Batch: 460625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-102295-1	ARGWC-23	Total/NA	Water	PrecSep_0	
180-102295-2	ARGWC-22	Total/NA	Water	PrecSep_0	
MB 160-460625/22-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-460625/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
180-102295-2 DU	ARGWC-22	Total/NA	Water	PrecSep_0	

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Chris Parker	Lab PM: Bortot, Veronica	Carrier Tracking No(s): ACC to TA-ATL	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 404-988-5629	E-Mail: <Veronica.Bortot@testamericainc.com>		Page: Page
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			

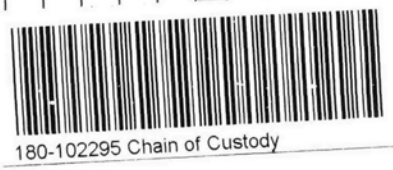
Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
ARGWC-23	2/11/20	1310	G	Water	N	N	✓	✓	✓	3	APP III , APP IV pH = 6.71
ARGWC-22	2/11/20	1420	G	Water	N	N	✓	✓	✓	3	pH = 5.90
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							



Possible Hazard Identification
☐ *Non-Hazard* ☐ *Flammable* ☐ *Skin Irritant* ☐ *Poison B* ☒ *Unknown* ☐ *Radiological*

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☒ *Disposal By Lab* ☐ *Archive For _____ Months*

Deliverable Requested: I, II, III, IV, Other (specify)

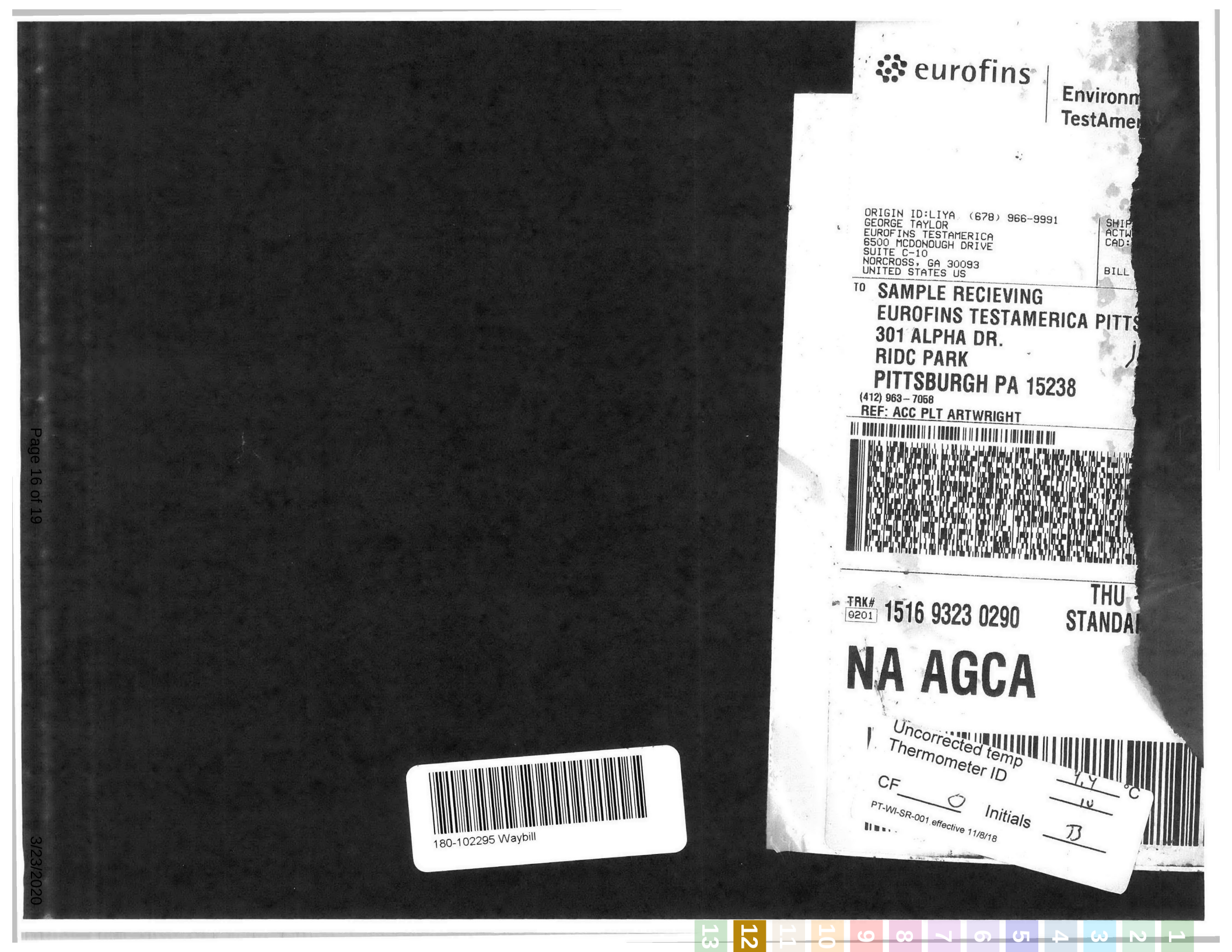
Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	2/12/20 14:40	ACC		2/12/20 14:40	ETA
Relinquished by:	2/12/20 16:00	ETA	Received by:	2/13/20 900	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016


eurofins
Environm
TestAmer
ORIGIN ID:LIYA (678) 966-9991
GEORGE TAYLOR
EUROFINS TESTAMERICA
6500 MCDONOUGH DRIVE
SUITE C-10
NORCROSS, GA 30093
UNITED STATES US
SHIP
ACTW
CAD:
BILL
TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTS
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC PLT ARTWRIGHT
TRK# 9201 1516 9323 0290
THU
STANDA
NA AGCA
Uncorrected temp
Thermometer ID
CF
Initials
°C
PT-WI-SR-001 effective 11/8/18
180-102295 Waybill
Page 16 of 19
3/23/2020

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-385221.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-102295-2
Address: 13715 Rider Trail North,	Due Date Requested: 3/16/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant Arkwright	Project #: 18020201			
Site: Arkwright	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Standard Target List	9315_Ra226/PrecSep_21 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
ARGWL-23 (180-102295-1)	2/11/20	13:10 Eastern		Water			X	X	X	1	
ARGWL-22 (180-102295-2)	2/11/20	14:20 Eastern		Water			X	X	X	1	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by: Matthew Jacobs	Date/Time: 2/13/2020 1700	Company ETA Pitt	Received by:	Date/Time: 2/14/20 9:30	Company ETA STL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-102295-2

Login Number: 102295
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-102295-2

Login Number: 102295
List Number: 2
Creator: Harris, Lorin C

List Source: Eurofins TestAmerica, St. Louis
List Creation: 02/14/20 03:51 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	False	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ATLANTIC COAST CONSULTING, INC.

Daily Instrument Calibration Log

SITE: Plant Arkwright

TECHNICIAN: C. Parker

WATER LEVEL: Solinst 101

WATER LEVEL S/N: 322101

INSTRUMENT S/N: 024479

INSTRUMENT TYPE: Insitu SmarTroll

CAL. SOLUTION/S:

ID:	pH 4	LOT # :	96I282	EXP. DATE:	9/21
ID:	7	LOT # :	96H1160	EXP. DATE:	8/21
ID:	10	LOT # :	96A1078	EXP. DATE:	1/21
ID:	SC	LOT # :	96I176	EXP. DATE:	9/20
ID:	ORP	LOT # :	96K142	EXP. DATE:	8/20
ID:		LOT # :		EXP. DATE:	
ID:		LOT # :		EXP. DATE:	

Calibration Date: 2/10/20

RDO: 100% sat. = ~~96.5~~ @ 97.2

PH: 4.00 = 4.85 7.00 = 7.61 10.00 = 10.38

CONDUCTIVITY: 1413 = 1343 µS/cm

ORP (mV) 240 = 806

Calibration Date: 2/11/20

RDO: 100% sat. = 96.0

PH: 4.00 = 4.94 7.00 = 7.82 10.00 = 10.49

CONDUCTIVITY: 1413 = 1356 µS/cm

ORP (mV) 236 = 198

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

ATLANTIC COAST CONSULTING, INC.

Daily Instrument Calibration Log

SITE:	Plant Arkwright
TECHNICIAN:	C. Parker
INSTRUMENT S/N:	16000C052230 (Pine)
INSTRUMENT TYPE:	Hach 2100 Q
CAL. SOLUTION:	0 NTU - LOT # NA EXP. DATE: New DI water
	10 NTU - LOT # A9270 EXP. DATE: 01/21
	20 NTU - LOT # A9037 EXP. DATE: 05/20

Calibration Date: 2/10/20

Calibation Solution	Instrument Reading	
0.0	0.24	NTU
10.0	10.6	NTU
20.0	20.7	NTU

Calibration Date: 2/11/20

Calibation Solution	Instrument Reading	
0.0	0.25	NTU
10.0	10.7	NTU
20.0	20.7	NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Product Name: Low-Flow System

Date: 2020-02-11 14:17:27

Project Information:		Pump Information:	
Operator Name	C Parker	Pump Model/Type	Peri Pump
Company Name	ACC	Tubing Type	poly
Project Name	Plant Arkwright	Tubing Diameter	.17 in
Site Name	Plant Arkwright	Tubing Length	28 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	445707		
Turbidity Make/Model	Hach 2100Q	Pump placement from TOC	23 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-22	Final Pumping Rate	250 mL/min
Well diameter	2 in	Total System Volume	0.2149758 L
Well Total Depth	27.78 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	5 in
Depth to Water	12.18 ft	Total Volume Pumped	10 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 2	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 100
Last 5	13:55:51	600.01	19.14	5.91	1545.38	8.13	12.60	0.15	-41.59
Last 5	14:00:51	900.00	19.09	5.92	1542.33	6.02	12.60	0.13	-40.75
Last 5	14:05:51	1200.00	19.15	5.91	1538.52	5.76	12.60	0.11	-39.10
Last 5	14:10:51	1500.00	19.44	5.90	1535.45	5.26	12.60	0.10	-38.86
Last 5	14:15:51	1800.01	19.53	5.90	1535.45	3.78	12.60	0.10	-38.30
Variance 0			0.06	-0.00	-3.81			-0.02	1.66
Variance 1			0.29	-0.01	-3.07			-0.01	0.23
Variance 2			0.09	0.00	-0.00			-0.00	0.56

Notes

Sampled at 14:20. Cloudy 70s

Grab Samples

Product Name: Low-Flow System

Date: 2020-02-11 13:10:33

Project Information:		Pump Information:	
Operator Name	C Parker	Pump Model/Type	Peri Pump
Company Name	ACC	Tubing Type	poly
Project Name	Plant Arkwright	Tubing Diameter	.17 in
Site Name	Plant Arkwright	Tubing Length	27 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	445707		
Turbidity Make/Model	Hach 2100Q	Pump placement from TOC	22 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-23	Final Pumping Rate	300 mL/min
Well diameter	2 in	Total System Volume	0.2105124 L
Well Total Depth	27.21 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	40 in
Depth to Water	8.70 ft	Total Volume Pumped	65 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 2	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 100
Last 5	12:47:30	8699.86	20.03	6.43	116.03	11.00	12.00	3.07	71.40
Last 5	12:52:30	8999.85	19.90	6.40	116.50	11.00	12.00	3.08	71.52
Last 5	12:57:30	9299.84	19.77	6.42	116.63	10.00	12.00	2.93	70.43
Last 5	13:02:30	9599.84	19.83	6.40	117.79	10.00	12.00	2.94	70.30
Last 5	13:07:30	9899.83	19.81	6.41	118.40	9.78	12.00	2.91	70.04
Variance 0			-0.12	0.02	0.13			-0.15	-1.09
Variance 1			0.06	-0.02	1.16			0.02	-0.13
Variance 2			-0.02	0.01	0.61			-0.03	-0.26

Notes

Sampled at 13:10. Light rain ,70s

Grab Samples

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-103434-1
Client Project/Site: CCR - Plant Arkwright

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
4/14/2020 4:18:39 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-103434-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-103434-1

Comments
No additional comments.

Receipt
The samples were received on 3/11/2020 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.5º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
Method 6020B: The following sample was diluted to bring the concentration of target analytes within the calibration range: ARGWC-22 (180-103434-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Field Service
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-103434-1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-103434-1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	03-31-20
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-103434-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-103434-1	ARGWC-22	Water	03/09/20 16:21	03/11/20 09:00	
180-103434-2	ARGWC-23	Water	03/09/20 15:16	03/11/20 09:00	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-103434-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
Field Sampling	Field Sampling	EPA	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-103434-1

Client Sample ID: ARGWC-22

Date Collected: 03/09/20 16:21
Date Received: 03/11/20 09:00

Lab Sample ID: 180-103434-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			310688	03/21/20 22:48	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 300.0 R2.1		5			310688	03/21/20 23:03	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	310194	03/17/20 11:48	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			310808	03/22/20 14:12	WTR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	310194	03/17/20 11:48	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		5			310945	03/23/20 16:56	RSK	TAL PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			50 mL	50 mL	310061	03/16/20 12:05	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			310256	03/17/20 15:52	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	309877	03/13/20 10:05	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			309650	03/09/20 16:21	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-23

Date Collected: 03/09/20 15:16
Date Received: 03/11/20 09:00

Lab Sample ID: 180-103434-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			310688	03/21/20 23:18	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	310194	03/17/20 11:48	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			310808	03/22/20 14:20	WTR	TAL PIT
	Instrument ID: NEMO									
Total Recoverable	Prep	3005A			50 mL	50 mL	310194	03/17/20 11:48	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			310945	03/23/20 16:59	RSK	TAL PIT
	Instrument ID: NEMO									
Total/NA	Prep	7470A			50 mL	50 mL	310061	03/16/20 12:05	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			310256	03/17/20 15:53	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	309877	03/13/20 10:05	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			309650	03/09/20 15:16	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-103434-1

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KEM = Kimberly Mahoney

RJR = Ron Rosenbaum

Batch Type: Analysis

AVS = Abbey Smith

FDS = Sampler Field

NAM = Nicole Marfisi

RSK = Robert Kurtz

SAC = Shawn Clemente

WTR = Bill Reinheimer

Client Sample ID: ARGWC-22

Lab Sample ID: 180-103434-1

Date Collected: 03/09/20 16:21

Matrix: Water

Date Received: 03/11/20 09:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	**0.064**	**J**	0.10	0.026	mg/L			03/21/20 22:48	1
Chloride	**11**		1.0	0.32	mg/L			03/21/20 22:48	1
Sulfate	**630**		5.0	1.9	mg/L			03/21/20 23:03	5

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.0016		0.0050	0.0016	mg/L		03/17/20 11:48	03/23/20 16:56	5
Barium	**0.039**		0.010	0.0016	mg/L		03/17/20 11:48	03/22/20 14:12	1
Beryllium	**0.00019**	**J B**	0.0025	0.00018	mg/L		03/17/20 11:48	03/22/20 14:12	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		03/17/20 11:48	03/22/20 14:12	1
Chromium	<0.0015		0.0020	0.0015	mg/L		03/17/20 11:48	03/22/20 14:12	1
Cobalt	**0.015**		0.0025	0.00013	mg/L		03/17/20 11:48	03/22/20 14:12	1
Molybdenum	**0.00067**	**J**	0.015	0.00061	mg/L		03/17/20 11:48	03/22/20 14:12	1
Lead	<0.00013		0.0010	0.00013	mg/L		03/17/20 11:48	03/22/20 14:12	1
Antimony	<0.00038		0.0020	0.00038	mg/L		03/17/20 11:48	03/22/20 14:12	1
Selenium	<0.0076		0.025	0.0076	mg/L		03/17/20 11:48	03/23/20 16:56	5
Thallium	**0.00035**	**J B**	0.0010	0.00015	mg/L		03/17/20 11:48	03/22/20 14:12	1
Lithium	**0.0071**		0.0050	0.0034	mg/L		03/17/20 11:48	03/22/20 14:12	1
Calcium	**180**		2.5	0.64	mg/L		03/17/20 11:48	03/23/20 16:56	5
Boron	**2.7**		0.40	0.19	mg/L		03/17/20 11:48	03/23/20 16:56	5

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		03/16/20 12:05	03/17/20 15:52	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1200**		10	10	mg/L			03/13/20 10:05	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.97**				SU			03/09/20 16:21	1

Client Sample ID: ARGWC-23

Lab Sample ID: 180-103434-2

Date Collected: 03/09/20 15:16

Matrix: Water

Date Received: 03/11/20 09:00

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	**0.089**	**J**	0.10	0.026	mg/L			03/21/20 23:18	1
Chloride	**3.7**		1.0	0.32	mg/L			03/21/20 23:18	1
Sulfate	**49**		1.0	0.38	mg/L			03/21/20 23:18	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		03/17/20 11:48	03/23/20 16:59	1
Barium	**0.14**		0.010	0.0016	mg/L		03/17/20 11:48	03/22/20 14:20	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		03/17/20 11:48	03/22/20 14:20	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		03/17/20 11:48	03/22/20 14:20	1
Chromium	<0.0015		0.0020	0.0015	mg/L		03/17/20 11:48	03/22/20 14:20	1
Cobalt	**0.00061**	**J**	0.0025	0.00013	mg/L		03/17/20 11:48	03/22/20 14:20	1

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-103434-1

Client Sample ID: ARGWC-23
Date Collected: 03/09/20 15:16
Date Received: 03/11/20 09:00

Lab Sample ID: 180-103434-2
Matrix: Water

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	**0.013**	**J**	0.015	0.00061	mg/L		03/17/20 11:48	03/22/20 14:20	1
Lead	<0.00013		0.0010	0.00013	mg/L		03/17/20 11:48	03/22/20 14:20	1
Antimony	<0.00038		0.0020	0.00038	mg/L		03/17/20 11:48	03/22/20 14:20	1
Selenium	<0.0015		0.0050	0.0015	mg/L		03/17/20 11:48	03/23/20 16:59	1
Thallium	**0.00026**	**J B**	0.0010	0.00015	mg/L		03/17/20 11:48	03/22/20 14:20	1
Lithium	**0.013**		0.0050	0.0034	mg/L		03/17/20 11:48	03/22/20 14:20	1
Calcium	**46**		0.50	0.13	mg/L		03/17/20 11:48	03/23/20 16:59	1
Boron	**0.25**		0.080	0.039	mg/L		03/17/20 11:48	03/23/20 16:59	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		03/16/20 12:05	03/17/20 15:53	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**210**		10	10	mg/L			03/13/20 10:05	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.97**				SU			03/09/20 15:16	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 180-310688/6
Matrix: Water
Analysis Batch: 310688

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			03/21/20 15:48	1
Chloride	<0.32		1.0	0.32	mg/L			03/21/20 15:48	1
Sulfate	<0.38		1.0	0.38	mg/L			03/21/20 15:48	1

Lab Sample ID: LCS 180-310688/5
Matrix: Water
Analysis Batch: 310688

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	2.50	2.51		mg/L		100	90 - 110
Chloride	50.0	48.6		mg/L		97	90 - 110
Sulfate	50.0	50.5		mg/L		101	90 - 110

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-310194/1-A
Matrix: Water
Analysis Batch: 310808

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 310194

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	<0.0016		0.010	0.0016	mg/L		03/17/20 11:48	03/22/20 13:53	1
Beryllium	0.000183	J	0.0025	0.00018	mg/L		03/17/20 11:48	03/22/20 13:53	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		03/17/20 11:48	03/22/20 13:53	1
Chromium	<0.0015		0.0020	0.0015	mg/L		03/17/20 11:48	03/22/20 13:53	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		03/17/20 11:48	03/22/20 13:53	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		03/17/20 11:48	03/22/20 13:53	1
Lead	<0.00013		0.0010	0.00013	mg/L		03/17/20 11:48	03/22/20 13:53	1
Antimony	<0.00038		0.0020	0.00038	mg/L		03/17/20 11:48	03/22/20 13:53	1
Thallium	0.000349	J	0.0010	0.00015	mg/L		03/17/20 11:48	03/22/20 13:53	1
Lithium	<0.0034		0.0050	0.0034	mg/L		03/17/20 11:48	03/22/20 13:53	1

Lab Sample ID: MB 180-310194/1-A
Matrix: Water
Analysis Batch: 310945

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 310194

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		03/17/20 11:48	03/23/20 16:36	1
Calcium	<0.13		0.50	0.13	mg/L		03/17/20 11:48	03/23/20 16:36	1
Boron	<0.039		0.080	0.039	mg/L		03/17/20 11:48	03/23/20 16:36	1

Lab Sample ID: LCS 180-310194/2-A
Matrix: Water
Analysis Batch: 310808

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 310194

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	1.00	0.960		mg/L		96	80 - 120
Beryllium	0.500	0.499		mg/L		100	80 - 120
Cadmium	0.500	0.490		mg/L		98	80 - 120
Chromium	0.500	0.472		mg/L		94	80 - 120
Cobalt	0.500	0.479		mg/L		96	80 - 120

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-310194/2-A
Matrix: Water
Analysis Batch: 310808

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 310194

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	0.500	0.488		mg/L		98	80 - 120
Lead	0.500	0.472		mg/L		94	80 - 120
Antimony	0.250	0.232		mg/L		93	80 - 120
Thallium	1.00	0.992		mg/L		99	80 - 120
Lithium	0.500	0.459		mg/L		92	80 - 120

Lab Sample ID: LCS 180-310194/2-A
Matrix: Water
Analysis Batch: 310945

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 310194

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.994		mg/L		99	80 - 120
Barium	1.00	1.02		mg/L		102	80 - 120
Calcium	25.0	25.3		mg/L		101	80 - 120
Boron	1.25	1.13		mg/L		90	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-310061/1-A
Matrix: Water
Analysis Batch: 310256

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 310061

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		03/16/20 12:05	03/17/20 15:36	1

Lab Sample ID: LCS 180-310061/2-A
Matrix: Water
Analysis Batch: 310256

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 310061

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00210		mg/L		84	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-309877/2
Matrix: Water
Analysis Batch: 309877

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			03/13/20 10:05	1

Lab Sample ID: LCS 180-309877/1
Matrix: Water
Analysis Batch: 309877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	661	662		mg/L		100	80 - 120

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-103434-1

HPLC/IC

Analysis Batch: 310688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103434-1	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-103434-1	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-103434-2	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
MB 180-310688/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-310688/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 310061

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103434-1	ARGWC-22	Total/NA	Water	7470A	
180-103434-2	ARGWC-23	Total/NA	Water	7470A	
MB 180-310061/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-310061/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 310194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103434-1	ARGWC-22	Total Recoverable	Water	3005A	
180-103434-2	ARGWC-23	Total Recoverable	Water	3005A	
MB 180-310194/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-310194/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 310256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103434-1	ARGWC-22	Total/NA	Water	EPA 7470A	310061
180-103434-2	ARGWC-23	Total/NA	Water	EPA 7470A	310061
MB 180-310061/1-A	Method Blank	Total/NA	Water	EPA 7470A	310061
LCS 180-310061/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	310061

Analysis Batch: 310808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103434-1	ARGWC-22	Total Recoverable	Water	EPA 6020B	310194
180-103434-2	ARGWC-23	Total Recoverable	Water	EPA 6020B	310194
MB 180-310194/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	310194
LCS 180-310194/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	310194

Analysis Batch: 310945

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103434-1	ARGWC-22	Total Recoverable	Water	EPA 6020B	310194
180-103434-2	ARGWC-23	Total Recoverable	Water	EPA 6020B	310194
MB 180-310194/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	310194
LCS 180-310194/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	310194

General Chemistry

Analysis Batch: 309877

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103434-1	ARGWC-22	Total/NA	Water	SM 2540C	
180-103434-2	ARGWC-23	Total/NA	Water	SM 2540C	
MB 180-309877/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-309877/1	Lab Control Sample	Total/NA	Water	SM 2540C	

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-103434-1

Field Service / Mobile Lab

Analysis Batch: 309650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103434-1	ARGWC-22	Total/NA	Water	Field Sampling	
180-103434-2	ARGWC-23	Total/NA	Water	Field Sampling	

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Ryan Walker	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-594-5998	E-Mail: <Veronica.Bortot@testamericainc.com>		Page: 1 of 1
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #:			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
ARGWC-22	3-9-20	1621	G	Water	N	N	✓	✓	✓	3	pH = 5.97
ARGWC-23	3-9-20	1516	G	Water	N	N	✓	✓	✓	3	pH = 6.32
			G	Water							pH =
			G	Water							pH =
			G	Water							pH =
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							pH =

180-103434 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		3/10/20 1133	ACC		3/10/20 11:33	ETA
2		3/10/20 1600	ETA		3-11-20	ETA
3		Date/Time:	Company	Received by:	Date/Time: 9:00	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Ryan Walker	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-594-5998	E-Mail: <Veronica.Bortot@testamericainc.com>		Page: 1 of 1
Company: Southern Company		Analysis Requested		Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			Other:
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #:			
Site: Georgia	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
ARGWC-22	3-9-20	1621	G	Water	N	N	✓	✓	✓	3	pH = 5.97
ARGWC-23	3-9-20	1516	G	Water	N	N	✓	✓	✓	3	pH = 6.32
			G	Water							pH =
			G	Water							pH =
			G	Water							pH =
			G	W							
			G	W							
			G								
			G								
			G	Water							
			G	Water							pH =

180-103434-D-1
ARGWC-22
Bottle: No Container
Sampled: 3/9/2020 4:21 PM 180-3625212

180-103434-D-2
ARGWC-23
Bottle: No Container
Sampled: 3/9/2020 3:16 PM 180-3625213

180-103434 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/10/20 1133	ACC		3/10/20 11:33	ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/10/20 1610	ETA		3-11-20	ETA PH
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				9:00	

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

ORIGIN ID:SAVA (412) 963-2435
VERONICA BORTOT

SEE CHEERS 5 BEFORE BILL
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 09MAR20
ACTWGT: 45.90 LB
CAD: 6994920/SSFE2021
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO VERONICA BORTOT

301 ALPHA DR

PITTSBURGH PA 15238

(412) 963-2435 REF:

INV: DEPT:

PO:

FedEx Express

J201020011301uv

TRK# 0201 3909 8199 3408

TUE - 10 MAR 10:30A
PRIORITY OVERNIGHT

15238
PA-US PIT

XH AGA

Uncorrected temp 4.5 °C
Thermometer ID 17
CF 0 Initials JJ
PT-WI-SR-001 effective 11/8/18

Part # 1582[illegible] XP 01/21

eurofins | Environment Testing TestAmerica

Temperature Controlled

IF THIS SHIPMENT IS DELAYED IN TRANSIT,
STORE REFRIGERATED (2° TO 8° C / 36°

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-103434-1

Login Number: 103434
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-103434-2
Client Project/Site: CCR - Plant Arkwright Ash Pond 2

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
4/30/2020 7:31:59 AM
Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

Designee for

Shali Brown, Project Manager II
(615)301-5031
shali.brown@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-103434-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-103434-2

Comments
No additional comments.

Receipt
The samples were received on 3/11/2020 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.5º C.

RAD
Method 9315: Radium-226 Prep Batch 160-464489
The following samples have a barium carrier recovery above the 110% QC limit. Affected samples had a barium correction applied, however, there is significant concentrations of salt-like compounds (i.e. calcium, magnesium, sodium, and strontium) that can interfere with a barium sulfate recovery. The LCS (laboratory control sample) has an acceptable spike recovery demonstrating acceptable sample preparation and instrument performance. The samples have been truncated to 100% to reduce any potential bias a high carrier recovery may have. The data have been qualified and reported.

ARGWC-23 (180-103434-2)

Methods 903.0, 9315: Ra-226 Prep Batch 160-464489
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

ARGWC-22 (180-103434-1), ARGWC-23 (180-103434-2), (LCS 160-464489/1-A), (LCSD 160-464489/2-A) and (MB 160-464489/23-A)

Method 9320: Radium-228 Prep Batch 160-464492
The following samples have a barium carrier recovery above the 110% QC limit. Affected samples had a barium correction applied, however, there is significant concentrations of salt-like compounds (i.e. calcium, magnesium, sodium, and strontium) that can interfere with a barium sulfate recovery. The LCS (laboratory control sample) has an acceptable spike recovery demonstrating acceptable sample preparation and instrument performance. The samples have been truncated to 100% to reduce any potential bias a high carrier recovery may have. The data have been qualified and reported.

ARGWC-23 (180-103434-2)

Methods 904.0, 9320: Ra-228 Prep Batch 160-464492
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

ARGWC-22 (180-103434-1), ARGWC-23 (180-103434-2), (LCS 160-464492/1-A), (LCSD 160-464492/2-A) and (MB 160-464492/23-A)

Method PrecSep_0: Radium-228 Prep Batch 160-464492:
The barium carrier recovery is outside the upper control limit (110%) for the following sample: ARGWC-23 (180-103434-2). The samples were re-heated to dry on a hot plate at high temp for one hour to ensure very little water molecules could contribute to a high bias of the carrier recovery. The QC samples associated with the batch have acceptable carrier recovery indicating the possibility of matrix interference.

Job ID: 180-103434-2 (Continued)

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

A native barium result was applied to the sample (180-103433-1) which brought the recovery below the 110% limit. The barium recovery is now 89%.
CJQ 4/13/20 7:11

Method PrecSep-21: Radium-226 Prep Batch 160-464489:
The barium carrier recovery is outside the upper control limit (110%) for the following sample: ARGWC-23 (180-103434-2). The samples were re-heated to dry on a hot plate at high temp for one hour to ensure very little water molecules could contribute to a high bias of the carrier recovery. The QC samples associated with the batch have acceptable carrier recovery indicating the possibility of matrix interference.

A native barium result was applied to the sample (180-103433-1) which brought the recovery below the 110% limit. The barium recovery is now 88%.
CJQ 4/13/20 07:04

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Job ID: 180-103434-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
X	Carrier is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-103434-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-103434-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-103434-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-103434-1	ARGWC-22	Water	03/09/20 16:21	03/11/20 09:00	
180-103434-2	ARGWC-23	Water	03/09/20 15:16	03/11/20 09:00	

Method Summary

Client: Southern Company
Job ID: 180-103434-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-103434-2

Client Sample ID: ARGWC-22

Date Collected: 03/09/20 16:21
Date Received: 03/11/20 09:00

Lab Sample ID: 180-103434-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.50 mL	1.0 g	464489	03/17/20 07:35	MNH	TAL SL
Total/NA	Analysis	9315		1			467299	04/09/20 05:45	CJQ	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			999.50 mL	1.0 g	464492	03/17/20 07:51	MNH	TAL SL
Total/NA	Analysis	9320		1			467126	04/08/20 12:38	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			467506	04/13/20 07:29	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-23

Date Collected: 03/09/20 15:16
Date Received: 03/11/20 09:00

Lab Sample ID: 180-103434-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.88 mL	1.0 g	464489	03/17/20 07:35	MNH	TAL SL
Total/NA	Analysis	9315		1			467299	04/09/20 05:45	CJQ	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			999.88 mL	1.0 g	464492	03/17/20 07:51	MNH	TAL SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	467126	04/08/20 12:38	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			467506	04/13/20 07:29	SMP	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: TAL SL

Batch Type: Prep

MNH = Molly Howard

Batch Type: Analysis

CJQ = Caleb Quinn

KLS = Kody Saulters

SMP = Siobhan Perry

Client Sample ID: ARGWC-22

Date Collected: 03/09/20 16:21
Date Received: 03/11/20 09:00

Lab Sample ID: 180-103434-1

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0975	U	0.117	0.118	1.00	0.190	pCi/L	03/17/20 07:35	04/09/20 05:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.7*		*40 - 110*	*03/17/20 07:35*	*04/09/20 05:45*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.268	U	0.227	0.228	1.00	0.360	pCi/L	03/17/20 07:51	04/08/20 12:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.7*		*40 - 110*	*03/17/20 07:51*	*04/08/20 12:38*	*1*
Y Carrier	*86.0*		*40 - 110*	*03/17/20 07:51*	*04/08/20 12:38*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.365**		0.255	0.257	2.00	0.360	pCi/L		04/13/20 07:29	1

Client Sample ID: ARGWC-23

Date Collected: 03/09/20 15:16
Date Received: 03/11/20 09:00

Lab Sample ID: 180-103434-2

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.219**		0.149	0.150	1.00	0.193	pCi/L	03/17/20 07:35	04/09/20 05:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*111*	*X*	*40 - 110*	*03/17/20 07:35*	*04/09/20 05:45*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.407**		0.250	0.253	1.00	0.381	pCi/L	03/17/20 07:51	04/08/20 12:38	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*111*	*X*	*40 - 110*	*03/17/20 07:51*	*04/08/20 12:38*	*1*
Y Carrier	*84.5*		*40 - 110*	*03/17/20 07:51*	*04/08/20 12:38*	*1*

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-103434-2

Client Sample ID: ARGWC-23
Date Collected: 03/09/20 15:16
Date Received: 03/11/20 09:00

Lab Sample ID: 180-103434-2
Matrix: Water

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.626		0.291	0.294	2.00	0.381	pCi/L		04/13/20 07:29	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-464489/23-A
Matrix: Water
Analysis Batch: 467244

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464489

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04966	U	0.107	0.108	1.00	0.201	pCi/L	03/17/20 07:35	04/08/20 23:03	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.4*		*40 - 110*	*03/17/20 07:35*	*04/08/20 23:03*	*1*

Lab Sample ID: LCS 160-464489/1-A
Matrix: Water
Analysis Batch: 467244

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464489

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	8.787		1.13	1.00	0.203	pCi/L	77	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*106*		*40 - 110*

Lab Sample ID: LCSD 160-464489/2-A
Matrix: Water
Analysis Batch: 467244

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 464489

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	9.504		1.22	1.00	0.229	pCi/L	84	75 - 125	0.30	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*98.1*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-464492/23-A
Matrix: Water
Analysis Batch: 467126

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 464492

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2712	U	0.240	0.242	1.00	0.384	pCi/L	03/17/20 07:51	04/08/20 12:38	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.4*		*40 - 110*	*03/17/20 07:51*	*04/08/20 12:38*	*1*
Y Carrier	*81.9*		*40 - 110*	*03/17/20 07:51*	*04/08/20 12:38*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-464492/1-A
Matrix: Water
Analysis Batch: 467264

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 464492

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.95	6.927		0.860	1.00	0.374	pCi/L	77	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*106*		*40 - 110*
Y Carrier	*81.9*		*40 - 110*

Lab Sample ID: LCSD 160-464492/2-A
Matrix: Water
Analysis Batch: 467264

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 464492

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			8.95	7.121		0.902	1.00	0.423	pCi/L	80	75 - 125	0.11	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*98.1*		*40 - 110*
Y Carrier	*78.9*		*40 - 110*

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-103434-2

Rad

Prep Batch: 464489

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103434-1	ARGWC-22	Total/NA	Water	PrecSep-21	
180-103434-2	ARGWC-23	Total/NA	Water	PrecSep-21	
MB 160-464489/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-464489/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-464489/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 464492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-103434-1	ARGWC-22	Total/NA	Water	PrecSep_0	
180-103434-2	ARGWC-23	Total/NA	Water	PrecSep_0	
MB 160-464492/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-464492/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-464492/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Ryan Walker	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-594-5998	E-Mail: <Veronica.Bortot@testamericainc.com>		Page: 1 of 1
Company: Southern Company		Analysis Requested		Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			Other:
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #:			
Site: Georgia	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
ARGWC - 22	3-9-20	1621	G	Water	N	N	✓	✓	✓	3	pH = 5.97
ARGWC - 23	3-9-20	1516	G	Water	N	N	✓	✓	✓	3	pH = 6.32
			G	Water							pH =
			G	Water							pH =
			G	Water							pH =
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							
			G	Water							pH =

180-103434 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/10/20 1133	ACC		3/10/20 11:33	ETA
	3/10/20 1600	ETA		3-11-20	ETA
	Date/Time:	Company	Received by:	Date/Time: 9:00	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Page 16 of 21

4/30/2020

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Ryan Walker	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-594-5998	E-Mail: <Veronica.Bortot@testamericainc.com>		Page: 1 of 1
Company: Southern Company		Analysis Requested		Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			Preservation Codes:
City: Birmingham	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: AL, 35291				Other:
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #:			
Site: Georgia	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
ARGWC-22	3-9-20	1621	G	Water	N	N	✓	✓	✓	3	pH = 5.97
ARGWC-23	3-9-20	1516	G	Water	N	N	✓	✓	✓	3	pH = 6.32
			G	Water							pH =
			G	Water							pH =
			G	Water							pH =
			G	W							
			G	W							
			G	W							
			G	W							
			G	Water							
			G	Water							pH =

180-103434-D-1
ARGWC-22
Bottle: No Container
Sampled: 3/9/2020 4:21 PM 180-3625212

180-103434-D-2
ARGWC-23
Bottle: No Container
Sampled: 3/9/2020 3:16 PM 180-3625213

180-103434 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/10/20 1133	ACC		3/10/20 11:33	ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/10/20 1600	ETA		3-11-20	ETA PH
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				9:00	

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

180-103434 Waybill

ORIGIN ID:SAVA (412) 963-2435
VERONICA BORTOT

SEE CHEERS 5 BEFORE BILL
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 09MAR20
ACTWGT: 45.90 LB
CAD: 6994920/SSFE2021
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO **VERONICA BORTOT**

301 ALPHA DR

PITTSBURGH PA 15238

(412) 963-2435 REF:
INV:
PO: DEPT:

FedEx Express

E

J201020011301uv

TUE - 10 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 **3909 8199 3408**

15238
PA-US **PIT**

XH AGIA

Uncorrected temp 4.5 °C
Thermometer ID 17
CF 0 Initials JJ
PT-WI-SR-001 effective 11/8/18

Temperature Controlled

eurofins | Environment Testing TestAmerica

IF THIS SHIPMENT IS DELAYED IN TRANSIT,
STORE REFRIGERATED (2° TO 8° C / 36° ...

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-387589.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-103434-2
Address: 13715 Rider Trail North,	Due Date Requested: 4/6/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant Arkwright	Project #: 18020201			
Site: Arkwright	SSOW#:			

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Standard Target List	9315_Ra226/PrecSep_21 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
ARGWC-22 (180-103434-1)	3/9/20	16:21 Eastern		Water			X	X	X	1	
ARGWC-23 (180-103434-2)	3/9/20	15:16 Eastern		Water			X	X	X	1	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* ______ *Months*

Deliverable Requested: I, II, III, IV, Other (specify) | Primary Deliverable Rank: 2 | Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: [signature]	Date/Time: 3/13/20 1700	Company: [signature]	Received by: FE	Date/Time:	Company
Relinquished by: FE	Date/Time:	Company	Received by: Micha Koninlings	Date/Time: 3/14/2020	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-103434-2

Login Number: 103434
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-103434-2

Login Number: 103434
List Number: 2
Creator: Korrinhizer, Micha L

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/16/20 03:50 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ATLANTIC COAST CONSULTING, INC.

Daily Instrument Calibration Log

SITE: Plant Arkwright

TECHNICIAN: Ryan Walker

WATER LEVEL: Heron

WATER LEVEL S/N: 24424

INSTRUMENT S/N: 714293

INSTRUMENT TYPE: Insitu SmarTroll

CAL. SOLUTION/S:

ID: pH4	LOT #: 9GL003	EXP. DATE:	12/21
ID: pH7	LOT #: 2808E52	EXP. DATE:	8/20
ID: pH10	LOT #: 9GF073	EXP. DATE:	06/2021
ID: Con	LOT #: 9GE1018	EXP. DATE:	05/20
ID: ORP	LOT #: 9GL592	EXP. DATE:	09/20
ID:	LOT #:	EXP. DATE:	
ID:	LOT #:	EXP. DATE:	

Calibration Date: 3/9/20

RDO: 100% sat. = 91.54

PH: 4.00 = 3.95 7.00 = 7.21 10.00 = 9.93

CONDUCTIVITY: 1,191

ORP (mV) 224.3

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

ATLANTIC COAST CONSULTING, INC.

Daily Instrument Calibration Log

SITE: Plant Arkwright

TECHNICIAN: Ryan Walker

INSTRUMENT S/N: 1712C063767

INSTRUMENT TYPE: Hach 2100 Q

CAL. SOLUTION:
0 NTU - LOT # NA EXP. DATE: New DI water
10 NTU - LOT # A8199 EXP. DATE: 07/2020
20 NTU - LOT # A8215 EXP. DATE: 08/2020

Calibration Date: 3/9/20

Calibation Solution	Instrument Reading	
0.0	0.33	NTU
10.0	9.05	NTU
20.0	19.3	NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Low-Flow Test Report:

Test Date / Time: 3/9/2020 3:51:18 PM
Project: Plant Arkwright - Pond 2
Operator Name: Ryan Walker

Location Name: ARGWC-22 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 17 ft** **Total Depth: 27.78 ft** **Initial Depth to Water: 11.61 ft**	**Pump Type: Peristaltic pump** **Tubing Type: Poly** **Pump Intake From TOC: 22 ft** **Estimated Total Volume Pumped: 5.25 liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 250 ml/min** **Final Draw Down: 5 in**	**Instrument Used: Aqua TROLL 400** **Serial Number: 714293**

Test Notes:

Weather Conditions:
Cloudy, 70 s

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 3 %	+/- 0.3	+/- 10	+/- 10	+/- 5	
3/9/2020 3:51 PM	00:00	5.94 pH	19.62 °C	1,387.1 µS/cm	0.71 mg/L		52.7 mV	11.61 ft	250.00 ml/min
3/9/2020 3:56 PM	05:00	5.96 pH	18.71 °C	1,428.2 µS/cm	0.39 mg/L	12.90 NTU	34.5 mV	12.00 ft	250.00 ml/min
3/9/2020 4:01 PM	10:00	5.97 pH	18.73 °C	1,433.6 µS/cm	0.29 mg/L	9.28 NTU	29.0 mV	12.00 ft	250.00 ml/min
3/9/2020 4:06 PM	15:00	5.96 pH	18.82 °C	1,428.2 µS/cm	0.24 mg/L	13.30 NTU	26.3 mV	12.00 ft	250.00 ml/min
3/9/2020 4:11 PM	20:00	5.97 pH	18.71 °C	1,430.9 µS/cm	0.23 mg/L	7.96 NTU	24.0 mV	12.00 ft	250.00 ml/min
3/9/2020 4:16 PM	25:00	5.97 pH	18.55 °C	1,431.1 µS/cm	0.20 mg/L	4.97 NTU	22.2 mV	12.00 ft	250.00 ml/min
3/9/2020 4:21 PM	30:00	5.97 pH	18.57 °C	1,437.3 µS/cm	0.19 mg/L	4.50 NTU	20.5 mV	12.00 ft	250.00 ml/min

Samples

Sample ID:	Description:
ARGWC-22	

Low-Flow Test Report:

Test Date / Time: 3/9/2020 2:46:07 PM
Project: Plant Arkwright - Pond 2
Operator Name: Ryan Walker

Location Name: ARGWC-23 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 17 ft** **Total Depth: 27.21 ft** **Initial Depth to Water: 9.16 ft**	**Pump Type: Peristaltic pump** **Tubing Type: Poly** **Pump Intake From TOC: 22 ft** **Estimated Total Volume Pumped: 8 liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 300 ml/min** **Final Draw Down: 28 in**	**Instrument Used: Aqua TROLL 400** **Serial Number: 714293**

Test Notes:

Weather Conditions:
Sunny, 70 s

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 0.5	+/- 3 %	+/- 0.3	+/- 10	+/- 10	+/- 5	
3/9/2020 2:46 PM	00:00	6.32 pH	19.55 °C	305.22 µS/cm	0.55 mg/L		114.8 mV	9.16 ft	300.00 ml/min
3/9/2020 2:51 PM	05:00	6.32 pH	19.67 °C	301.35 µS/cm	0.49 mg/L	4.23 NTU	118.0 mV	11.10 ft	300.00 ml/min
3/9/2020 2:56 PM	10:00	6.33 pH	19.47 °C	308.97 µS/cm	0.40 mg/L	3.59 NTU	113.4 mV	11.30 ft	300.00 ml/min
3/9/2020 3:01 PM	15:00	6.32 pH	19.35 °C	316.82 µS/cm	0.35 mg/L	3.09 NTU	114.1 mV	11.40 ft	300.00 ml/min
3/9/2020 3:06 PM	20:00	6.33 pH	19.42 °C	315.32 µS/cm	0.31 mg/L	2.76 NTU	113.1 mV	11.50 ft	300.00 ml/min
3/9/2020 3:11 PM	25:00	6.32 pH	19.59 °C	321.79 µS/cm	0.30 mg/L	2.40 NTU	113.1 mV	11.50 ft	300.00 ml/min
3/9/2020 3:16 PM	30:00	6.32 pH	19.88 °C	319.54 µS/cm	0.31 mg/L	2.43 NTU	112.2 mV	11.50 ft	300.00 ml/min

Samples

Sample ID:	Description:
ARGWC-23	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-106373-1
Client Project/Site: CCR - Plant Arkwright Ash Pond 2

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Authorized for release by:
6/12/2020 10:35:18 AM

Shali Brown, Project Manager II
(615)301-5031
shali.brown@testamericainc.com

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-1

Job ID: 180-106373-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-106373-1

Comments
No additional comments.

Receipt
The samples were received on 5/29/2020 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Field Service / Mobile Lab
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Job ID: 180-106373-1
Project/Site: CCR - Plant Arkwright Ash Pond 2

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-106373-1
Project/Site: CCR - Plant Arkwright Ash Pond 2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	05-23-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20 *
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-106373-1	ARGWC-23	Water	05/27/20 16:23	05/29/20 08:45	
180-106373-2	ARGWC-22	Water	05/27/20 18:52	05/29/20 08:45	
180-106373-3	DUP	Water	05/27/20 00:00	05/29/20 08:45	
180-106373-4	EB	Water	05/27/20 14:40	05/29/20 08:45	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
Field Sampling	Field Sampling	EPA	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-1

Client Sample ID: ARGWC-23

Date Collected: 05/27/20 16:23
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			317665	06/06/20 23:00	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317672	06/05/20 21:30	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317940	06/06/20 18:09	RSK	TAL PIT
	Instrument ID: DORY									
Total/NA	Prep	7470A			50 mL	50 mL	317376	06/03/20 19:40	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			317535	06/04/20 17:41	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	316997	05/30/20 08:44	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			317243	05/27/20 16:23	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-22

Date Collected: 05/27/20 18:52
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			317665	06/06/20 23:47	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 300.0 R2.1		5			317665	06/07/20 00:03	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317672	06/05/20 21:33	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317940	06/06/20 18:12	RSK	TAL PIT
	Instrument ID: DORY									
Total/NA	Prep	7470A			50 mL	50 mL	317376	06/03/20 19:40	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			317535	06/04/20 17:46	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	316997	05/30/20 08:44	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			317243	05/27/20 18:52	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-1

Client Sample ID: DUP

Date Collected: 05/27/20 00:00
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			317665	06/07/20 00:19	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317672	06/05/20 21:36	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317940	06/06/20 18:16	RSK	TAL PIT
	Instrument ID: DORY									
Total/NA	Prep	7470A			50 mL	50 mL	317376	06/03/20 19:40	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			317535	06/04/20 17:46	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	316997	05/30/20 08:44	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: EB

Date Collected: 05/27/20 14:40
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			317665	06/07/20 00:35	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317672	06/05/20 21:40	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317940	06/06/20 18:19	RSK	TAL PIT
	Instrument ID: DORY									
Total/NA	Prep	7470A			50 mL	50 mL	317376	06/03/20 19:40	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			317535	06/04/20 17:47	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	316997	05/30/20 08:44	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KEM = Kimberly Mahoney
NAM = Nicole Marfisi

Batch Type: Analysis

AVS = Abbey Smith
FDS = Sampler Field
MJH = Matthew Hartman
NAM = Nicole Marfisi
RSK = Robert Kurtz

Client Sample ID: ARGWC-23

Date Collected: 05/27/20 16:23
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-1

Matrix: Water

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.0		1.0	0.32	mg/L			06/06/20 23:00	1
Fluoride	0.25		0.10	0.026	mg/L			06/06/20 23:00	1
Sulfate	65	F1	1.0	0.38	mg/L			06/06/20 23:00	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 21:30	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 21:30	1
Barium	0.18	B	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 21:30	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		06/01/20 08:43	06/05/20 21:30	1
Boron	0.45	B	0.080	0.039	mg/L		06/01/20 08:43	06/06/20 18:09	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		06/01/20 08:43	06/05/20 21:30	1
Calcium	69		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 21:30	1
Chromium	<0.0015		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 21:30	1
Cobalt	0.0017	J	0.0025	0.00013	mg/L		06/01/20 08:43	06/05/20 21:30	1
Lead	<0.00013		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 21:30	1
Lithium	0.037		0.0050	0.0034	mg/L		06/01/20 08:43	06/05/20 21:30	1
Molybdenum	0.048		0.015	0.00061	mg/L		06/01/20 08:43	06/05/20 21:30	1
Selenium	<0.0015		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 21:30	1
Thallium	0.00026	J	0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 21:30	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		06/03/20 19:40	06/04/20 17:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	320		10	10	mg/L			05/30/20 08:44	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.3				SU			05/27/20 16:23	1

Client Sample ID: ARGWC-22

Date Collected: 05/27/20 18:52
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-2

Matrix: Water

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.3		1.0	0.32	mg/L			06/06/20 23:47	1
Fluoride	0.060	J	0.10	0.026	mg/L			06/06/20 23:47	1
Sulfate	720		5.0	1.9	mg/L			06/07/20 00:03	5

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 21:33	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 21:33	1
Barium	0.054	B	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 21:33	1
Beryllium	0.00018	J	0.0025	0.00018	mg/L		06/01/20 08:43	06/05/20 21:33	1
Boron	2.5	B	0.080	0.039	mg/L		06/01/20 08:43	06/06/20 18:12	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		06/01/20 08:43	06/05/20 21:33	1

Client Sample ID: ARGWC-22

Date Collected: 05/27/20 18:52
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-2

Matrix: Water

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**200**		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 21:33	1
Chromium	<0.0015		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 21:33	1
Cobalt	**0.0059**		0.0025	0.00013	mg/L		06/01/20 08:43	06/05/20 21:33	1
Lead	<0.00013		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 21:33	1
Lithium	**0.017**		0.0050	0.0034	mg/L		06/01/20 08:43	06/05/20 21:33	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/01/20 08:43	06/05/20 21:33	1
Selenium	<0.0015		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 21:33	1
Thallium	<0.00015		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 21:33	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		06/03/20 19:40	06/04/20 17:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1300**		10	10	mg/L			05/30/20 08:44	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.69**				SU			05/27/20 18:52	1

Client Sample ID: DUP

Date Collected: 05/27/20 00:00
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-3

Matrix: Water

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3.8**		1.0	0.32	mg/L			06/07/20 00:19	1
Fluoride	**0.25**		0.10	0.026	mg/L			06/07/20 00:19	1
Sulfate	**66**		1.0	0.38	mg/L			06/07/20 00:19	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 21:36	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 21:36	1
Barium	**0.18**	**B**	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 21:36	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		06/01/20 08:43	06/05/20 21:36	1
Boron	**0.47**	**B**	0.080	0.039	mg/L		06/01/20 08:43	06/06/20 18:16	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		06/01/20 08:43	06/05/20 21:36	1
Calcium	**70**		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 21:36	1
Chromium	<0.0015		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 21:36	1
Cobalt	**0.0017**	**J**	0.0025	0.00013	mg/L		06/01/20 08:43	06/05/20 21:36	1
Lead	<0.00013		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 21:36	1
Lithium	**0.038**		0.0050	0.0034	mg/L		06/01/20 08:43	06/05/20 21:36	1
Molybdenum	**0.048**		0.015	0.00061	mg/L		06/01/20 08:43	06/05/20 21:36	1
Selenium	<0.0015		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 21:36	1
Thallium	<0.00015		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 21:36	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		06/03/20 19:40	06/04/20 17:46	1

Client Sample ID: DUP
Lab Sample ID: 180-106373-3
Date Collected: 05/27/20 00:00
Matrix: Water
Date Received: 05/29/20 08:45

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**330**		10	10	mg/L			05/30/20 08:44	1

Client Sample ID: EB
Lab Sample ID: 180-106373-4
Date Collected: 05/27/20 14:40
Matrix: Water
Date Received: 05/29/20 08:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			06/07/20 00:35	1
Fluoride	**0.036**	**J**	0.10	0.026	mg/L			06/07/20 00:35	1
Sulfate	**0.48**	**J**	1.0	0.38	mg/L			06/07/20 00:35	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 21:40	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 21:40	1
Barium	**0.013**	**B**	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 21:40	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		06/01/20 08:43	06/05/20 21:40	1
Boron	**0.049**	**J B**	0.080	0.039	mg/L		06/01/20 08:43	06/06/20 18:19	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		06/01/20 08:43	06/05/20 21:40	1
Calcium	**0.13**	**J**	0.50	0.13	mg/L		06/01/20 08:43	06/05/20 21:40	1
Chromium	<0.0015		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 21:40	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		06/01/20 08:43	06/05/20 21:40	1
Lead	<0.00013		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 21:40	1
Lithium	<0.0034		0.0050	0.0034	mg/L		06/01/20 08:43	06/05/20 21:40	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/01/20 08:43	06/05/20 21:40	1
Selenium	<0.0015		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 21:40	1
Thallium	<0.00015		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 21:40	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		06/03/20 19:40	06/04/20 17:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			05/30/20 08:44	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 180-317665/54
Matrix: Water
Analysis Batch: 317665

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			06/06/20 22:44	1
Fluoride	<0.026		0.10	0.026	mg/L			06/06/20 22:44	1
Sulfate	<0.38		1.0	0.38	mg/L			06/06/20 22:44	1

Lab Sample ID: LCS 180-317665/53
Matrix: Water
Analysis Batch: 317665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.6		mg/L		107	90 - 110
Fluoride	2.50	2.46		mg/L		98	90 - 110
Sulfate	50.0	48.3		mg/L		97	90 - 110

Lab Sample ID: 180-106373-1 MS
Matrix: Water
Analysis Batch: 317665

Client Sample ID: ARGWC-23
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4.0		50.0	56.9		mg/L		106	90 - 110
Fluoride	0.25		2.50	2.70		mg/L		98	90 - 110
Sulfate	65	F1	50.0	111		mg/L		91	90 - 110

Lab Sample ID: 180-106373-1 MSD
Matrix: Water
Analysis Batch: 317665

Client Sample ID: ARGWC-23
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	4.0		50.0	54.3		mg/L		101	90 - 110	5	20
Fluoride	0.25		2.50	2.56		mg/L		93	90 - 110	5	20
Sulfate	65	F1	50.0	105	F1	mg/L		80	90 - 110	5	20

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-317054/1-A
Matrix: Water
Analysis Batch: 317672

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 317054

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 20:44	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 20:44	1
Barium	0.00761	J	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 20:44	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		06/01/20 08:43	06/05/20 20:44	1
Boron	0.0647	J	0.080	0.039	mg/L		06/01/20 08:43	06/05/20 20:44	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		06/01/20 08:43	06/05/20 20:44	1
Calcium	<0.13		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 20:44	1
Chromium	<0.0015		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 20:44	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		06/01/20 08:43	06/05/20 20:44	1
Lead	<0.00013		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 20:44	1
Lithium	<0.0034		0.0050	0.0034	mg/L		06/01/20 08:43	06/05/20 20:44	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/01/20 08:43	06/05/20 20:44	1

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-317054/1-A
Matrix: Water
Analysis Batch: 317672

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 317054

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<0.0015		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 20:44	1
Thallium	<0.00015		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 20:44	1

Lab Sample ID: LCS 180-317054/2-A
Matrix: Water
Analysis Batch: 317672

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 317054

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.250	0.242		mg/L		97	80 - 120
Arsenic	1.00	0.967		mg/L		97	80 - 120
Barium	1.00	0.956		mg/L		96	80 - 120
Beryllium	0.500	0.475		mg/L		95	80 - 120
Cadmium	0.500	0.475		mg/L		95	80 - 120
Calcium	25.0	26.3		mg/L		105	80 - 120
Chromium	0.500	0.486		mg/L		97	80 - 120
Cobalt	0.500	0.466		mg/L		93	80 - 120
Lead	0.500	0.496		mg/L		99	80 - 120
Lithium	0.500	0.473		mg/L		95	80 - 120
Molybdenum	0.500	0.491		mg/L		98	80 - 120
Selenium	1.00	0.961		mg/L		96	80 - 120
Thallium	1.00	1.06		mg/L		106	80 - 120

Lab Sample ID: LCS 180-317054/2-A
Matrix: Water
Analysis Batch: 317940

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 317054

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.25	1.10		mg/L		88	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-317376/1-A
Matrix: Water
Analysis Batch: 317535

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317376

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		06/03/20 19:40	06/04/20 17:34	1

Lab Sample ID: LCS 180-317376/2-A
Matrix: Water
Analysis Batch: 317535

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317376

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00233		mg/L		93	80 - 120

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 180-106373-1 MS
Matrix: Water
Analysis Batch: 317535

Client Sample ID: ARGWC-23
Prep Type: Total/NA
Prep Batch: 317376

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	<0.00013		0.00100	0.000878		mg/L		88	75 - 125		

Lab Sample ID: 180-106373-1 MSD
Matrix: Water
Analysis Batch: 317535

Client Sample ID: ARGWC-23
Prep Type: Total/NA
Prep Batch: 317376

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.00013		0.00100	0.000871		mg/L		87	75 - 125	1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-316997/2
Matrix: Water
Analysis Batch: 316997

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			05/30/20 08:44	1

Lab Sample ID: LCS 180-316997/1
Matrix: Water
Analysis Batch: 316997

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			192	204		mg/L		106	80 - 120		

Lab Sample ID: 180-106373-3 DU
Matrix: Water
Analysis Batch: 316997

Client Sample ID: DUP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	330			308		mg/L				6	10

HPLC/IC

Analysis Batch: 317665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
180-106373-2	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-106373-2	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-106373-3	DUP	Total/NA	Water	EPA 300.0 R2.1	
180-106373-4	EB	Total/NA	Water	EPA 300.0 R2.1	
MB 180-317665/54	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-317665/53	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-106373-1 MS	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
180-106373-1 MSD	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 317054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total Recoverable	Water	3005A	
180-106373-2	ARGWC-22	Total Recoverable	Water	3005A	
180-106373-3	DUP	Total Recoverable	Water	3005A	
180-106373-4	EB	Total Recoverable	Water	3005A	
MB 180-317054/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-317054/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 317376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	7470A	
180-106373-2	ARGWC-22	Total/NA	Water	7470A	
180-106373-3	DUP	Total/NA	Water	7470A	
180-106373-4	EB	Total/NA	Water	7470A	
MB 180-317376/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-317376/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-106373-1 MS	ARGWC-23	Total/NA	Water	7470A	
180-106373-1 MSD	ARGWC-23	Total/NA	Water	7470A	

Analysis Batch: 317535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	EPA 7470A	317376
180-106373-2	ARGWC-22	Total/NA	Water	EPA 7470A	317376
180-106373-3	DUP	Total/NA	Water	EPA 7470A	317376
180-106373-4	EB	Total/NA	Water	EPA 7470A	317376
MB 180-317376/1-A	Method Blank	Total/NA	Water	EPA 7470A	317376
LCS 180-317376/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	317376
180-106373-1 MS	ARGWC-23	Total/NA	Water	EPA 7470A	317376
180-106373-1 MSD	ARGWC-23	Total/NA	Water	EPA 7470A	317376

Analysis Batch: 317672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total Recoverable	Water	EPA 6020B	317054
180-106373-2	ARGWC-22	Total Recoverable	Water	EPA 6020B	317054
180-106373-3	DUP	Total Recoverable	Water	EPA 6020B	317054
180-106373-4	EB	Total Recoverable	Water	EPA 6020B	317054
MB 180-317054/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	317054
LCS 180-317054/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	317054

QC Association Summary

Client: Southern Company
Job ID: 180-106373-1
Project/Site: CCR - Plant Arkwright Ash Pond 2

Metals

Analysis Batch: 317940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total Recoverable	Water	EPA 6020B	317054
180-106373-2	ARGWC-22	Total Recoverable	Water	EPA 6020B	317054
180-106373-3	DUP	Total Recoverable	Water	EPA 6020B	317054
180-106373-4	EB	Total Recoverable	Water	EPA 6020B	317054
LCS 180-317054/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	317054

General Chemistry

Analysis Batch: 316997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	SM 2540C	
180-106373-2	ARGWC-22	Total/NA	Water	SM 2540C	
180-106373-3	DUP	Total/NA	Water	SM 2540C	
180-106373-4	EB	Total/NA	Water	SM 2540C	
MB 180-316997/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-316997/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-106373-3 DU	DUP	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 317243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	Field Sampling	
180-106373-2	ARGWC-22	Total/NA	Water	Field Sampling	

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

681-Atlanta

eurofins | Environment Testing America

Client Information	Sampler: D.Howard /N. McMillan	Lab PM: Brown, Shali	Carrier Tracking No(s):	COC No: 180-60862-12387.1
Client Contact: Joju Abraham	Phone:	E-Mail: shali.brown@testamericainc.com		Page: Page 1 of 1
Company: Southern Company				Job #:
Address: 241 Ralph McGill Blvd SE B10185	Due Date Requested: standard			
City: Atlanta	TAT Requested (days):			
State, Zip: GA, 30308				
Phone:	PO #: SCS10382606			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR - Plant Arkwright App III/IV	Project #: 18020201			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226 - Radium 226	Ra226Ra228_GFPC - Ra 226/228	9320_Ra228 - Radium 228	300_ORGFM_28D - Chloride Fluoride Sulfate	6020B, 7470A	2540C_Calcd - Solids, Total Dissolved (TDS)	6020B - Lead	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	D	N	D		
ARGWC-23	5/27/20	1623	G	W			X	X	X	X	X	X			pH = 6.30
ARGWC-22		1852	G	W			X	X	X	X	X	X			pH = 5.69
DUP		-	G	W			X	X	X	X	X	X			
EB		1440	G	W			X	X	X	X	X	X			
ARGWC-10		1910	G	W									X	1	pH = 5.98
Temp Blank															

180-106373 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

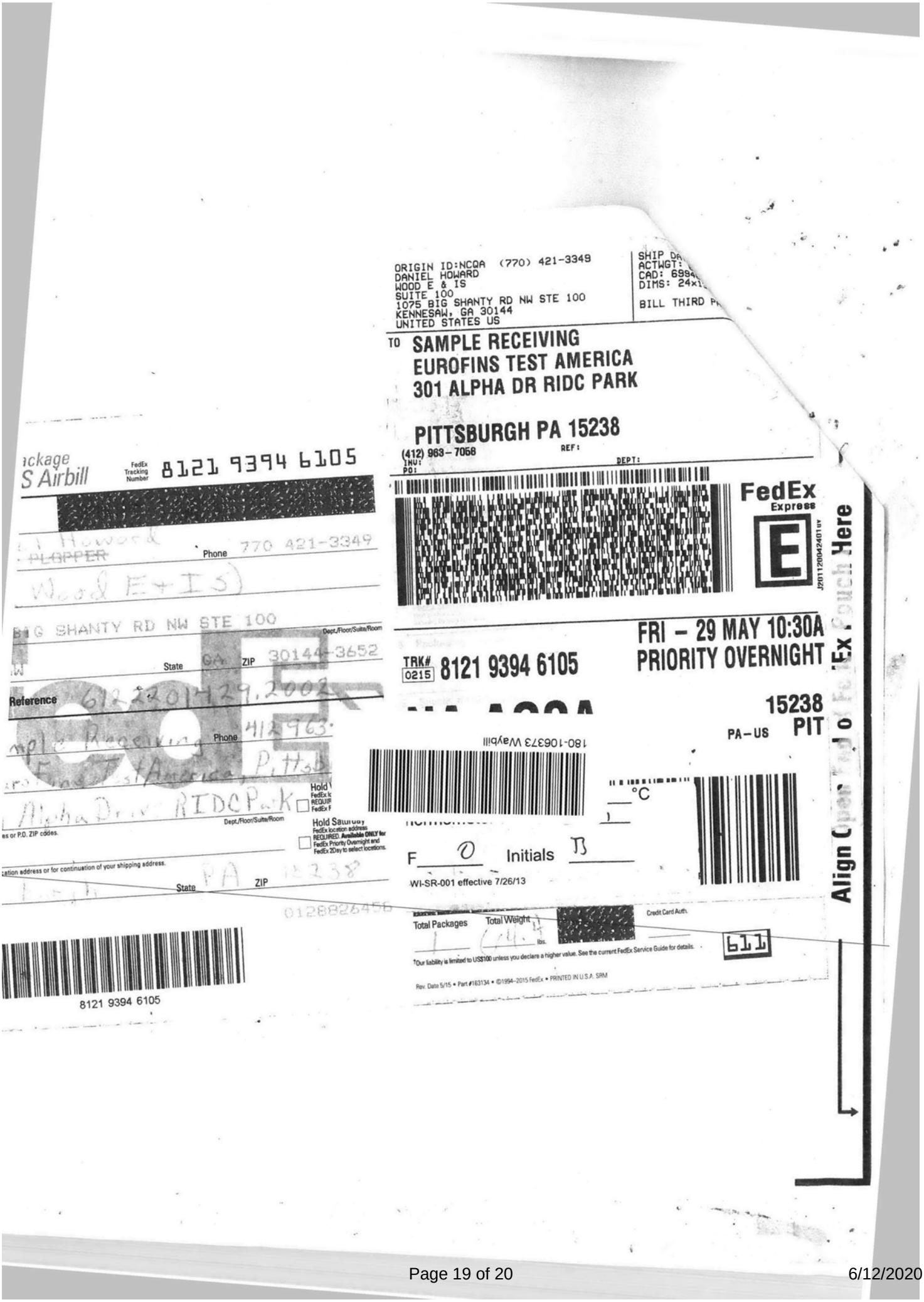
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Daniel K Howard	5/28/20/1415		Willie Watts	5-29-20	FEDEX
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 845	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019


ackage
S Airbill
FedEx Tracking Number
8121 9394 6105
Phone 770 421-3349
Wood E+IS)
BIG SHANTY RD NW STE 100
Dept./Floor/Suite/Room
State GA ZIP 30144-3652
Reference
Phone
Dept./Floor/Suite/Room
Hold Saturday
FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.
State PA ZIP
8121 9394 6105
ORIGIN ID:NCGA (770) 421-3349
DANIEL HOWARD
WOOD E & IS
SUITE 100
1075 BIG SHANTY RD NW STE 100
KENNESAW, GA 30144
UNITED STATES US
BILL THIRD P
TO SAMPLE RECEIVING
EUROFINS TEST AMERICA
301 ALPHA DR RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF:
DEPT:
FedEx Express
FRI - 29 MAY 10:30A
PRIORITY OVERNIGHT
TRK# 0215 8121 9394 6105
15238
PA-US PIT
180-10637J WaybIII
°C
F Initials
WI-SR-001 effective 7/26/13
Total Packages
Total Weight
lbs.
Credit Card Auth.
611
Our liability is limited to US$100 unless you declare a higher value. See the current FedEx Service Guide for details.
Rev. Date 5/15 • Part #163134 • ©1994–2015 FedEx • PRINTED IN U.S.A. SRM
Align Clear Pouch Here

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-106373-1

Login Number: 106373
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Product Name: Low-Flow System

Date: 2020-05-27 18:54:49

Project Information:		Pump Information:	
Operator Name	Nicholas McMillan	Pump Model/Type	PINE Peristaltic
Company Name	Wood	Tubing Type	HDP
Project Name	Plant Arkwright Ash Pond 2	Tubing Diameter	0.17 in
Site Name	ARGWC-22	Tubing Length	27.8 ft
Latitude	32° 55' 17.97"		
Longitude	-83° -42' -10.21"		
Sonde SN	601533		
Turbidity Make/Model	HACH	Pump placement from TOC	22.8 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-22	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.2140832 L
Well Total Depth	27.78 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	4.92 in
Depth to Water	13.37 ft	Total Volume Pumped	15 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond mS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	18:31:39	4204.01	18.74	5.69	1.58	7.19	13.78	0.08	54.33
Last 5	18:36:39	4504.01	18.79	5.68	1.59	6.39	13.78	0.08	54.56
Last 5	18:41:39	4804.01	18.88	5.68	1.57	6.34	13.78	0.07	53.94
Last 5	18:46:39	5104.01	18.83	5.69	1.57	4.89	13.78	0.07	53.14
Last 5	18:51:39	5404.01	18.83	5.69	1.57	4.72	13.78	0.07	52.72
Variance 0			0.09	0.00	-0.01			-0.00	-0.62
Variance 1			-0.04	0.01	-0.00			-0.00	-0.80
Variance 2			0.00	0.00	-0.00			-0.00	-0.42

Notes

Sample collected 1852

Grab Samples

Product Name: Low-Flow System

Date: 2020-05-27 16:23:40

Project Information:		Pump Information:	
Operator Name	Nicholas McMillan	Pump Model/Type	PINE Peristaltic Pump
Company Name	Wood	Tubing Type	HDP
Project Name	Plant Arkwright Ash Pond 2	Tubing Diameter	.17 in
Site Name	ARGWC-23	Tubing Length	27.2 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	601533		
Turbidity Make/Model	HACH	Pump placement from TOC	22.2 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-23	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.2114051 L
Well Total Depth	27.21 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	11.50 ft	Total Volume Pumped	4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond mS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	16:00:33	900.03	20.71	6.32	0.50	2.34	14.03	0.16	82.63
Last 5	16:05:33	1200.02	20.61	6.31	0.50	2.01	13.58	0.19	83.05
Last 5	16:10:33	1500.02	20.66	6.31	0.50	1.48	13.71	0.17	82.04
Last 5	16:15:33	1800.02	20.57	6.30	0.50	2.53	13.71	0.15	82.19
Last 5	16:20:35	2102.02	20.48	6.30	0.50	1.59	13.65	0.16	82.10
Variance 0			0.05	-0.00	0.00			-0.02	-1.01
Variance 1			-0.09	-0.01	-0.00			-0.01	0.14
Variance 2			-0.09	0.00	0.00			0.01	-0.09

Notes

Arrived at 1510; DUP-1

Sample collected at 1623; DUP

Grab Samples

APPENDIX C

FIELD SAMPLING LOGS AND ANALYTICAL DATA REPORTS FOR AUGUST AND OCTOBER 2019 AND APRIL 2020

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-94596-1
Laboratory Sample Delivery Group: 1
Client Project/Site: CCR - Plant Arkwright Ash Pond 2
Sampling Event: PLANTARKWRIGHT - AP-2

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
9/12/2019 4:28:29 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-1
SDG: 1

Job ID: 180-94596-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-94596-1

Comments
No additional comments.

Receipt
The samples were received on 8/23/2019 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.9º C, 1.0º C, 1.1º C, 2.3º C and 2.4º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-1
SDG: 1

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-1
SDG: 1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
Arkansas DEQ	State Program	88-0690	06-27-20
California	State	2891	04-30-20
California	State Program	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Connecticut	State Program	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Florida	NELAP	E871008	06-30-20
Illinois	NELAP	200005	06-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	01-31-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State Program	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-19
Kentucky (WW)	State Program	KY98043	12-31-19
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-19
Minnesota	NELAP	042-999-482	12-31-19
Nevada	State	PA00164	07-31-20
Nevada	State Program	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	03-31-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State Program	434	12-31-19
North Dakota	State	R-227	04-30-20
North Dakota	State Program	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20
Oregon	NELAP	PA-2151	02-06-20
Pennsylvania	NELAP	02-00416	04-30-20
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-30-19
Rhode Island	State Program	LAO00362	12-30-19
South Carolina	State Program	89014	04-30-20
Texas	NELAP	T104704528-15-2	03-31-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462015-4	05-31-20
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	460189	09-14-19
Virginia	NELAP	10043	09-14-19
West Virginia DEP	State	142	01-31-20
West Virginia DEP	State Program	142	01-31-20
Wisconsin	State	998027800	08-31-20
Wisconsin	State Program	998027800	08-31-20

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-1
SDG: 1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-94596-1	ARGWA-19	Water	08/20/19 13:26	08/23/19 08:40	
180-94596-2	ARGWA-20	Water	08/20/19 09:54	08/23/19 08:40	
180-94596-3	ARGWC-21	Water	08/20/19 15:12	08/23/19 08:40	
180-94596-4	EB-2-20-19	Water	08/20/19 15:25	08/23/19 08:40	
180-94596-5	FB-2-20-19	Water	08/20/19 13:45	08/23/19 08:40	
180-94596-6	DUP-2	Water	08/20/19 00:00	08/23/19 08:40	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-1
SDG: 1

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL PIT
EPA 6020	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-1
SDG: 1

Client Sample ID: ARGWA-19
Date Collected: 08/20/19 13:26
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			290138	09/04/19 17:50	CMR	TAL PIT
	Instrument ID: CHICS2000									
Total Recoverable	Prep	3005A			50 mL	50 mL	289413	08/27/19 10:33	KAK	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			290864	09/10/19 19:18	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	289568	08/28/19 11:36	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A		1			289762	08/29/19 17:10	KAK	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: ARGWA-20
Date Collected: 08/20/19 09:54
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			290138	09/04/19 18:35	CMR	TAL PIT
	Instrument ID: CHICS2000									
Total Recoverable	Prep	3005A			50 mL	50 mL	289413	08/27/19 10:33	KAK	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			290864	09/10/19 19:21	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	289568	08/28/19 11:36	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A		1			289762	08/29/19 17:11	KAK	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: ARGWC-21
Date Collected: 08/20/19 15:12
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			290138	09/04/19 18:50	CMR	TAL PIT
	Instrument ID: CHICS2000									
Total Recoverable	Prep	3005A			50 mL	50 mL	289413	08/27/19 10:33	KAK	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			290864	09/10/19 19:25	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	289568	08/28/19 11:36	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A		1			289762	08/29/19 17:12	KAK	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: EB-2-20-19
Date Collected: 08/20/19 15:25
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			290138	09/04/19 19:04	CMR	TAL PIT
	Instrument ID: CHICS2000									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-1
SDG: 1

Client Sample ID: EB-2-20-19
Date Collected: 08/20/19 15:25
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	289413	08/27/19 10:33	KAK	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			290864	09/10/19 19:28	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	289568	08/28/19 11:36	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A		1			289762	08/29/19 17:13	KAK	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: FB-2-20-19
Date Collected: 08/20/19 13:45
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			290138	09/04/19 19:19	CMR	TAL PIT
	Instrument ID: CHICS2000									
Total Recoverable	Prep	3005A			50 mL	50 mL	289414	08/27/19 10:34	KAK	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			290747	09/07/19 14:47	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	289568	08/28/19 11:36	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A		1			289762	08/29/19 17:14	KAK	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: DUP-2
Date Collected: 08/20/19 00:00
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			290138	09/04/19 20:04	CMR	TAL PIT
	Instrument ID: CHICS2000									
Total Recoverable	Prep	3005A			50 mL	50 mL	289414	08/27/19 10:34	KAK	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			290747	09/07/19 14:51	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	289568	08/28/19 11:36	MM1	TAL PIT
Total/NA	Analysis	EPA 7470A		1			289762	08/29/19 17:20	KAK	TAL PIT
	Instrument ID: HGZ									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KAK = Kayla Kalamasz

MM1 = Mary Beth Miller

Batch Type: Analysis

CMR = Carl Reagle

KAK = Kayla Kalamasz

RSK = Robert Kurtz

Client Sample ID: ARGWA-19

Lab Sample ID: 180-94596-1
Date Collected: 08/20/19 13:26
Matrix: Water
Date Received: 08/23/19 08:40

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.045	J	0.20	0.026	mg/L			09/04/19 17:50	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00036	J	0.0010	0.00032	mg/L		08/27/19 10:33	09/10/19 19:18	1
Barium	0.052		0.010	0.0016	mg/L		08/27/19 10:33	09/10/19 19:18	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		08/27/19 10:33	09/10/19 19:18	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:33	09/10/19 19:18	1
Cobalt	0.00011	J	0.00050	0.000075	mg/L		08/27/19 10:33	09/10/19 19:18	1
Chromium	0.0024		0.0020	0.0015	mg/L		08/27/19 10:33	09/10/19 19:18	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		08/27/19 10:33	09/10/19 19:18	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:33	09/10/19 19:18	1
Antimony	<0.00038		0.0020	0.00038	mg/L		08/27/19 10:33	09/10/19 19:18	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/27/19 10:33	09/10/19 19:18	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/27/19 10:33	09/10/19 19:18	1
Lithium	0.0044	J	0.0050	0.0034	mg/L		08/27/19 10:33	09/10/19 19:18	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		08/28/19 11:36	08/29/19 17:10	1

Client Sample ID: ARGWA-20

Lab Sample ID: 180-94596-2
Date Collected: 08/20/19 09:54
Matrix: Water
Date Received: 08/23/19 08:40

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.042	J	0.20	0.026	mg/L			09/04/19 18:35	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00047	J	0.0010	0.00032	mg/L		08/27/19 10:33	09/10/19 19:21	1
Barium	0.079		0.010	0.0016	mg/L		08/27/19 10:33	09/10/19 19:21	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		08/27/19 10:33	09/10/19 19:21	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:33	09/10/19 19:21	1
Cobalt	0.00015	J	0.00050	0.000075	mg/L		08/27/19 10:33	09/10/19 19:21	1
Chromium	0.0078		0.0020	0.0015	mg/L		08/27/19 10:33	09/10/19 19:21	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		08/27/19 10:33	09/10/19 19:21	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:33	09/10/19 19:21	1
Antimony	<0.00038		0.0020	0.00038	mg/L		08/27/19 10:33	09/10/19 19:21	1
Selenium	0.0015	J	0.0050	0.0015	mg/L		08/27/19 10:33	09/10/19 19:21	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/27/19 10:33	09/10/19 19:21	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/27/19 10:33	09/10/19 19:21	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		08/28/19 11:36	08/29/19 17:11	1

Client Sample ID: ARGWC-21

Date Collected: 08/20/19 15:12
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-3

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	**0.098**	**J**	0.20	0.026	mg/L			09/04/19 18:50	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0020**		0.0010	0.00032	mg/L		08/27/19 10:33	09/10/19 19:25	1
Barium	**0.10**		0.010	0.0016	mg/L		08/27/19 10:33	09/10/19 19:25	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		08/27/19 10:33	09/10/19 19:25	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:33	09/10/19 19:25	1
Cobalt	**0.0023**		0.00050	0.000075	mg/L		08/27/19 10:33	09/10/19 19:25	1
Chromium	**0.0017**	**J**	0.0020	0.0015	mg/L		08/27/19 10:33	09/10/19 19:25	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		08/27/19 10:33	09/10/19 19:25	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:33	09/10/19 19:25	1
Antimony	<0.00038		0.0020	0.00038	mg/L		08/27/19 10:33	09/10/19 19:25	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/27/19 10:33	09/10/19 19:25	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/27/19 10:33	09/10/19 19:25	1
Lithium	**0.0098**		0.0050	0.0034	mg/L		08/27/19 10:33	09/10/19 19:25	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		08/28/19 11:36	08/29/19 17:12	1

Client Sample ID: EB-2-20-19

Date Collected: 08/20/19 15:25
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-4

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	**0.039**	**J**	0.20	0.026	mg/L			09/04/19 19:04	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00052**	**J**	0.0010	0.00032	mg/L		08/27/19 10:33	09/10/19 19:28	1
Barium	<0.0016		0.010	0.0016	mg/L		08/27/19 10:33	09/10/19 19:28	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		08/27/19 10:33	09/10/19 19:28	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:33	09/10/19 19:28	1
Cobalt	<0.000075		0.00050	0.000075	mg/L		08/27/19 10:33	09/10/19 19:28	1
Chromium	**0.0023**		0.0020	0.0015	mg/L		08/27/19 10:33	09/10/19 19:28	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		08/27/19 10:33	09/10/19 19:28	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:33	09/10/19 19:28	1
Antimony	<0.00038		0.0020	0.00038	mg/L		08/27/19 10:33	09/10/19 19:28	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/27/19 10:33	09/10/19 19:28	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/27/19 10:33	09/10/19 19:28	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/27/19 10:33	09/10/19 19:28	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		08/28/19 11:36	08/29/19 17:13	1

Client Sample ID: FB-2-20-19

Lab Sample ID: 180-94596-5

Date Collected: 08/20/19 13:45
Matrix: Water
Date Received: 08/23/19 08:40

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	**0.027**	**J**	0.20	0.026	mg/L			09/04/19 19:19	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00032		0.0010	0.00032	mg/L		08/27/19 10:34	09/07/19 14:47	1
Barium	<0.0016		0.010	0.0016	mg/L		08/27/19 10:34	09/07/19 14:47	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		08/27/19 10:34	09/07/19 14:47	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:34	09/07/19 14:47	1
Cobalt	<0.000075		0.00050	0.000075	mg/L		08/27/19 10:34	09/07/19 14:47	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/27/19 10:34	09/07/19 14:47	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		08/27/19 10:34	09/07/19 14:47	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:34	09/07/19 14:47	1
Antimony	<0.00038		0.0020	0.00038	mg/L		08/27/19 10:34	09/07/19 14:47	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/27/19 10:34	09/07/19 14:47	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/27/19 10:34	09/07/19 14:47	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/27/19 10:34	09/07/19 14:47	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		08/28/19 11:36	08/29/19 17:14	1

Client Sample ID: DUP-2

Lab Sample ID: 180-94596-6

Date Collected: 08/20/19 00:00
Matrix: Water
Date Received: 08/23/19 08:40

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	**0.031**	**J**	0.20	0.026	mg/L			09/04/19 20:04	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00032		0.0010	0.00032	mg/L		08/27/19 10:34	09/07/19 14:51	1
Barium	**0.085**		0.010	0.0016	mg/L		08/27/19 10:34	09/07/19 14:51	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		08/27/19 10:34	09/07/19 14:51	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:34	09/07/19 14:51	1
Cobalt	<0.000075		0.00050	0.000075	mg/L		08/27/19 10:34	09/07/19 14:51	1
Chromium	**0.0071**		0.0020	0.0015	mg/L		08/27/19 10:34	09/07/19 14:51	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		08/27/19 10:34	09/07/19 14:51	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:34	09/07/19 14:51	1
Antimony	<0.00038		0.0020	0.00038	mg/L		08/27/19 10:34	09/07/19 14:51	1
Selenium	**0.0015**	**J**	0.0050	0.0015	mg/L		08/27/19 10:34	09/07/19 14:51	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/27/19 10:34	09/07/19 14:51	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/27/19 10:34	09/07/19 14:51	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		08/28/19 11:36	08/29/19 17:20	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 180-290138/32
Matrix: Water
Analysis Batch: 290138

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.20	0.026	mg/L			09/04/19 17:35	1

Lab Sample ID: LCS 180-290138/31
Matrix: Water
Analysis Batch: 290138

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	1.25	1.26		mg/L		101	90 - 110

Lab Sample ID: 180-94596-1 MS
Matrix: Water
Analysis Batch: 290138

Client Sample ID: ARGWA-19
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.045	J	1.25	1.25		mg/L		97	80 - 120

Lab Sample ID: 180-94596-1 MSD
Matrix: Water
Analysis Batch: 290138

Client Sample ID: ARGWA-19
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.045	J	1.25	1.26		mg/L		97	80 - 120	0	20

Method: EPA 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-289413/1-A
Matrix: Water
Analysis Batch: 290864

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 289413

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00032		0.0010	0.00032	mg/L		08/27/19 10:33	09/10/19 17:54	1
Barium	<0.0016		0.010	0.0016	mg/L		08/27/19 10:33	09/10/19 17:54	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		08/27/19 10:33	09/10/19 17:54	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:33	09/10/19 17:54	1
Cobalt	<0.000075		0.00050	0.000075	mg/L		08/27/19 10:33	09/10/19 17:54	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/27/19 10:33	09/10/19 17:54	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		08/27/19 10:33	09/10/19 17:54	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:33	09/10/19 17:54	1
Antimony	<0.00038		0.0020	0.00038	mg/L		08/27/19 10:33	09/10/19 17:54	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/27/19 10:33	09/10/19 17:54	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/27/19 10:33	09/10/19 17:54	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/27/19 10:33	09/10/19 17:54	1

Lab Sample ID: LCS 180-289413/2-A
Matrix: Water
Analysis Batch: 290864

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 289413

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.08		mg/L		108	80 - 120
Barium	1.00	0.999		mg/L		100	80 - 120

Method: EPA 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-289413/2-A
Matrix: Water
Analysis Batch: 290864

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 289413

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Beryllium	0.500	0.480		mg/L		96	80 - 120
Cadmium	0.500	0.521		mg/L		104	80 - 120
Cobalt	0.500	0.533		mg/L		107	80 - 120
Chromium	0.500	0.530		mg/L		106	80 - 120
Molybdenum	0.500	0.506		mg/L		101	80 - 120
Lead	0.500	0.520		mg/L		104	80 - 120
Antimony	0.250	0.261		mg/L		105	80 - 120
Selenium	1.00	1.00		mg/L		100	80 - 120
Thallium	1.00	1.07		mg/L		107	80 - 120
Lithium	0.500	0.460		mg/L		92	80 - 120

Lab Sample ID: MB 180-289414/1-A
Matrix: Water
Analysis Batch: 290747

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 289414

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00032		0.0010	0.00032	mg/L		08/27/19 10:34	09/07/19 14:34	1
Barium	<0.0016		0.010	0.0016	mg/L		08/27/19 10:34	09/07/19 14:34	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		08/27/19 10:34	09/07/19 14:34	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:34	09/07/19 14:34	1
Cobalt	<0.000075		0.00050	0.000075	mg/L		08/27/19 10:34	09/07/19 14:34	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/27/19 10:34	09/07/19 14:34	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		08/27/19 10:34	09/07/19 14:34	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/27/19 10:34	09/07/19 14:34	1
Antimony	<0.00038		0.0020	0.00038	mg/L		08/27/19 10:34	09/07/19 14:34	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/27/19 10:34	09/07/19 14:34	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/27/19 10:34	09/07/19 14:34	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/27/19 10:34	09/07/19 14:34	1

Lab Sample ID: LCS 180-289414/2-A
Matrix: Water
Analysis Batch: 290747

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 289414

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.983		mg/L		98	80 - 120
Barium	1.00	1.06		mg/L		106	80 - 120
Beryllium	0.500	0.507		mg/L		101	80 - 120
Cadmium	0.500	0.533		mg/L		107	80 - 120
Cobalt	0.500	0.499		mg/L		100	80 - 120
Chromium	0.500	0.531		mg/L		106	80 - 120
Molybdenum	0.500	0.516		mg/L		103	80 - 120
Lead	0.500	0.512		mg/L		102	80 - 120
Antimony	0.250	0.261		mg/L		104	80 - 120
Selenium	1.00	1.06		mg/L		106	80 - 120
Thallium	1.00	1.02		mg/L		102	80 - 120
Lithium	0.500	0.493		mg/L		99	80 - 120

Method: EPA 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 180-94596-C-6-B MS
Matrix: Water
Analysis Batch: 290747

Client Sample ID: 180-94596-C-6-B MS
Prep Type: Total Recoverable
Prep Batch: 289414

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00032		1.00	0.975		mg/L		97	75 - 125
Barium	0.085		1.00	1.11		mg/L		103	75 - 125
Beryllium	<0.00018		0.500	0.508		mg/L		102	75 - 125
Cadmium	<0.00013		0.500	0.522		mg/L		104	75 - 125
Cobalt	<0.000075		0.500	0.493		mg/L		99	75 - 125
Chromium	0.0071		0.500	0.524		mg/L		103	75 - 125
Molybdenum	<0.00061		0.500	0.500		mg/L		100	75 - 125
Lead	<0.00013		0.500	0.507		mg/L		101	75 - 125
Antimony	<0.00038		0.250	0.257		mg/L		103	75 - 125
Selenium	0.0015	J	1.00	1.01		mg/L		101	75 - 125
Thallium	<0.00015		1.00	1.01		mg/L		101	75 - 125
Lithium	<0.0034		0.500	0.503		mg/L		101	75 - 125

Lab Sample ID: 180-94596-C-6-C MSD
Matrix: Water
Analysis Batch: 290747

Client Sample ID: 180-94596-C-6-C MSD
Prep Type: Total Recoverable
Prep Batch: 289414

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00032		1.00	0.936		mg/L		94	75 - 125	4	20
Barium	0.085		1.00	1.08		mg/L		99	75 - 125	3	20
Beryllium	<0.00018		0.500	0.477		mg/L		95	75 - 125	6	20
Cadmium	<0.00013		0.500	0.502		mg/L		100	75 - 125	4	20
Cobalt	<0.000075		0.500	0.486		mg/L		97	75 - 125	2	20
Chromium	0.0071		0.500	0.507		mg/L		100	75 - 125	3	20
Molybdenum	<0.00061		0.500	0.489		mg/L		98	75 - 125	2	20
Lead	<0.00013		0.500	0.489		mg/L		98	75 - 125	4	20
Antimony	<0.00038		0.250	0.246		mg/L		98	75 - 125	4	20
Selenium	0.0015	J	1.00	0.995		mg/L		99	75 - 125	1	20
Thallium	<0.00015		1.00	0.970		mg/L		97	75 - 125	4	20
Lithium	<0.0034		0.500	0.473		mg/L		95	75 - 125	6	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-289568/1-A
Matrix: Water
Analysis Batch: 289762

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 289568

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		08/28/19 11:36	08/29/19 16:55	1

Lab Sample ID: LCS 180-289568/2-A
Matrix: Water
Analysis Batch: 289762

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 289568

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00249		mg/L		100	80 - 120

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 180-94596-5 MS
Matrix: Water
Analysis Batch: 289762

Client Sample ID: FB-2-20-19
Prep Type: Total/NA
Prep Batch: 289568

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	<0.00010		0.00100	0.00102		mg/L		102	75 - 125		

Lab Sample ID: 180-94596-5 MSD
Matrix: Water
Analysis Batch: 289762

Client Sample ID: FB-2-20-19
Prep Type: Total/NA
Prep Batch: 289568

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.00010		0.00100	0.00102		mg/L		102	75 - 125	0	20

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-1
SDG: 1

HPLC/IC

Analysis Batch: 290138

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-94596-1	ARGWA-19	Total/NA	Water	300.0	
180-94596-2	ARGWA-20	Total/NA	Water	300.0	
180-94596-3	ARGWC-21	Total/NA	Water	300.0	
180-94596-4	EB-2-20-19	Total/NA	Water	300.0	
180-94596-5	FB-2-20-19	Total/NA	Water	300.0	
180-94596-6	DUP-2	Total/NA	Water	300.0	
MB 180-290138/32	Method Blank	Total/NA	Water	300.0	
LCS 180-290138/31	Lab Control Sample	Total/NA	Water	300.0	
180-94596-1 MS	ARGWA-19	Total/NA	Water	300.0	
180-94596-1 MSD	ARGWA-19	Total/NA	Water	300.0	

Metals

Prep Batch: 289413

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-94596-1	ARGWA-19	Total Recoverable	Water	3005A	
180-94596-2	ARGWA-20	Total Recoverable	Water	3005A	
180-94596-3	ARGWC-21	Total Recoverable	Water	3005A	
180-94596-4	EB-2-20-19	Total Recoverable	Water	3005A	
MB 180-289413/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-289413/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 289414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-94596-5	FB-2-20-19	Total Recoverable	Water	3005A	
180-94596-6	DUP-2	Total Recoverable	Water	3005A	
MB 180-289414/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-289414/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-94596-C-6-B MS	180-94596-C-6-B MS	Total Recoverable	Water	3005A	
180-94596-C-6-C MSD	180-94596-C-6-C MSD	Total Recoverable	Water	3005A	

Prep Batch: 289568

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-94596-1	ARGWA-19	Total/NA	Water	7470A	
180-94596-2	ARGWA-20	Total/NA	Water	7470A	
180-94596-3	ARGWC-21	Total/NA	Water	7470A	
180-94596-4	EB-2-20-19	Total/NA	Water	7470A	
180-94596-5	FB-2-20-19	Total/NA	Water	7470A	
180-94596-6	DUP-2	Total/NA	Water	7470A	
MB 180-289568/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-289568/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-94596-5 MS	FB-2-20-19	Total/NA	Water	7470A	
180-94596-5 MSD	FB-2-20-19	Total/NA	Water	7470A	

Analysis Batch: 289762

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-94596-1	ARGWA-19	Total/NA	Water	EPA 7470A	289568
180-94596-2	ARGWA-20	Total/NA	Water	EPA 7470A	289568
180-94596-3	ARGWC-21	Total/NA	Water	EPA 7470A	289568
180-94596-4	EB-2-20-19	Total/NA	Water	EPA 7470A	289568
180-94596-5	FB-2-20-19	Total/NA	Water	EPA 7470A	289568

Metals (Continued)

Analysis Batch: 289762 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-94596-6	DUP-2	Total/NA	Water	EPA 7470A	289568
MB 180-289568/1-A	Method Blank	Total/NA	Water	EPA 7470A	289568
LCS 180-289568/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	289568
180-94596-5 MS	FB-2-20-19	Total/NA	Water	EPA 7470A	289568
180-94596-5 MSD	FB-2-20-19	Total/NA	Water	EPA 7470A	289568

Analysis Batch: 290747

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-94596-5	FB-2-20-19	Total Recoverable	Water	EPA 6020	289414
180-94596-6	DUP-2	Total Recoverable	Water	EPA 6020	289414
MB 180-289414/1-A	Method Blank	Total Recoverable	Water	EPA 6020	289414
LCS 180-289414/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	289414
180-94596-C-6-B MS	180-94596-C-6-B MS	Total Recoverable	Water	EPA 6020	289414
180-94596-C-6-C MSD	180-94596-C-6-C MSD	Total Recoverable	Water	EPA 6020	289414

Analysis Batch: 290864

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-94596-1	ARGWA-19	Total Recoverable	Water	EPA 6020	289413
180-94596-2	ARGWA-20	Total Recoverable	Water	EPA 6020	289413
180-94596-3	ARGWC-21	Total Recoverable	Water	EPA 6020	289413
180-94596-4	EB-2-20-19	Total Recoverable	Water	EPA 6020	289413
MB 180-289413/1-A	Method Blank	Total Recoverable	Water	EPA 6020	289413
LCS 180-289413/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	289413

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Taylor Goble	Lab PM: Veronica Bortot	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-594-5998	E-Mail: Veronica.Bortot@testamericainc.com		Page: Page
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. IV (EPA 6020/7470)	Flouride	Radium 226 & 228 (SW-846 9315/9320)		Total Number of containers	Special I
Preservation Code:							D	D	N	D		
ARGWA-19	8-20-19	1326	G	Water	N	N	✓	✓	✓		3	
ARGWA-20	8-20-19	0954	G	Water	N	N	✓	✓	✓		3	
ARGWC-21	8-20-19	1512	G	Water	N	N	✓	✓	✓		3	
EB-2-20-19	8-20-19	1525	G	Water	N	N	✓	✓	✓		3	
FB-2-20-19	8-20-19	1345	G	Water	N	N	✓	✓	✓		3	
Dup-2	8-20-19	—	G	Water	N	N	✓	✓	✓		3	
				Water								
				Water								
				Water								
				Water								
				Water								

180-94596 Chain of Custody

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Taylor Goble	8-22-19/1520	ACC	[signature] 8/22/19	15:27	ETA
2	[signature] 8/22/19	15:30	ETA	[signature]	8-23-19	TAL HT
3					840	

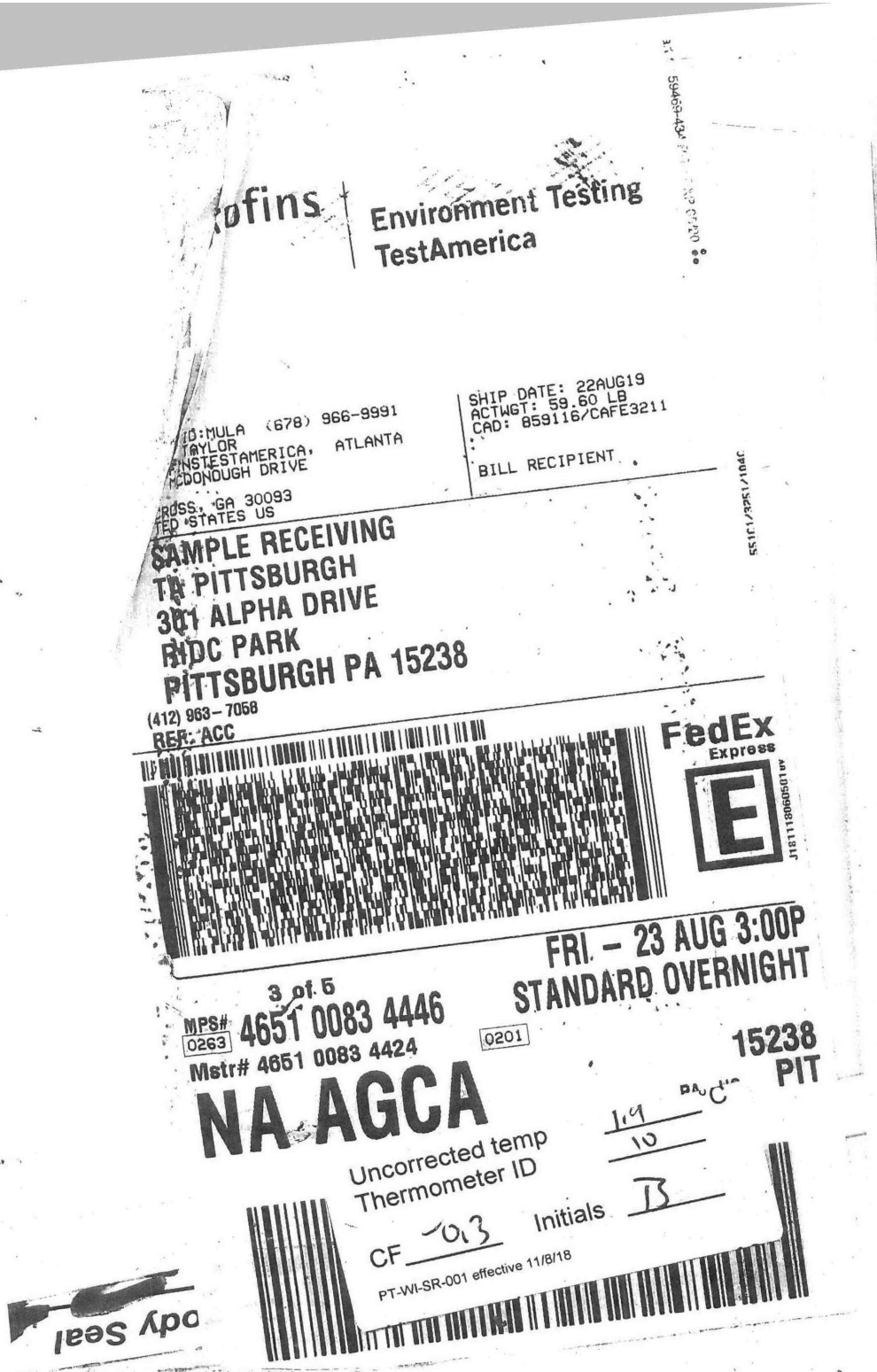
Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016


eurofins
Environment Testing
TestAmerica
Part # 159469-434 RIT2 EXP 05/20
ORIGIN ID:MULA (678) 966-9991
GEORGE TAYLOR
EUROFINSTESTAMERICA, ATLANTA
6500 MCDONOUGH DRIVE
NORCROSS, GA 30093
UNITED STATES US
SHI
ACT
CAD
BILL
TO SAMPLE RECEIVING
TA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
REF: ACC
180-94596 Waybill
FedEx
Express
1 of 5
TRK# 4651 0083 4424
0201
MASTER
NA AGCA
FRI – 23 AUG 3:00
STANDARD OVERN
4 of 5
MPS# 4651 0083 4457
4651 0083 4424
0201
FRI – 23 AUG 3:
STANDARD OVERN
PA-US
PIT
Mstr#
NA AGCA
Uncorrected temp 26
°C
Thermometer ID 10
Initials B
CF 0.3
PT-WI-SR-001 effective 11/6/18
2.7
CF-.3
#10
TS



...ofins | Environment Testing
TestAmerica

...ID:MULA (678) 966-9991
...TAYLOR
...EUROFINSTESTAMERICA, ATLANTA
...6500 MCDONOUGH DRIVE
...NORCROSS, GA 30093
...UNITED STATES US

SHIP DATE: 22AUG19
ACTWGT: 59.60 LB
CAD: 859116/CAFE3211

BILL RECIPIENT

TO SAMPLE RECEIVING
TA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC

FedEx Express

FRI - 23 AUG 3:00P
STANDARD OVERNIGHT

3 of 5
MPS# 0263 4651 0083 4446
Mstr# 4651 0083 4424
0201

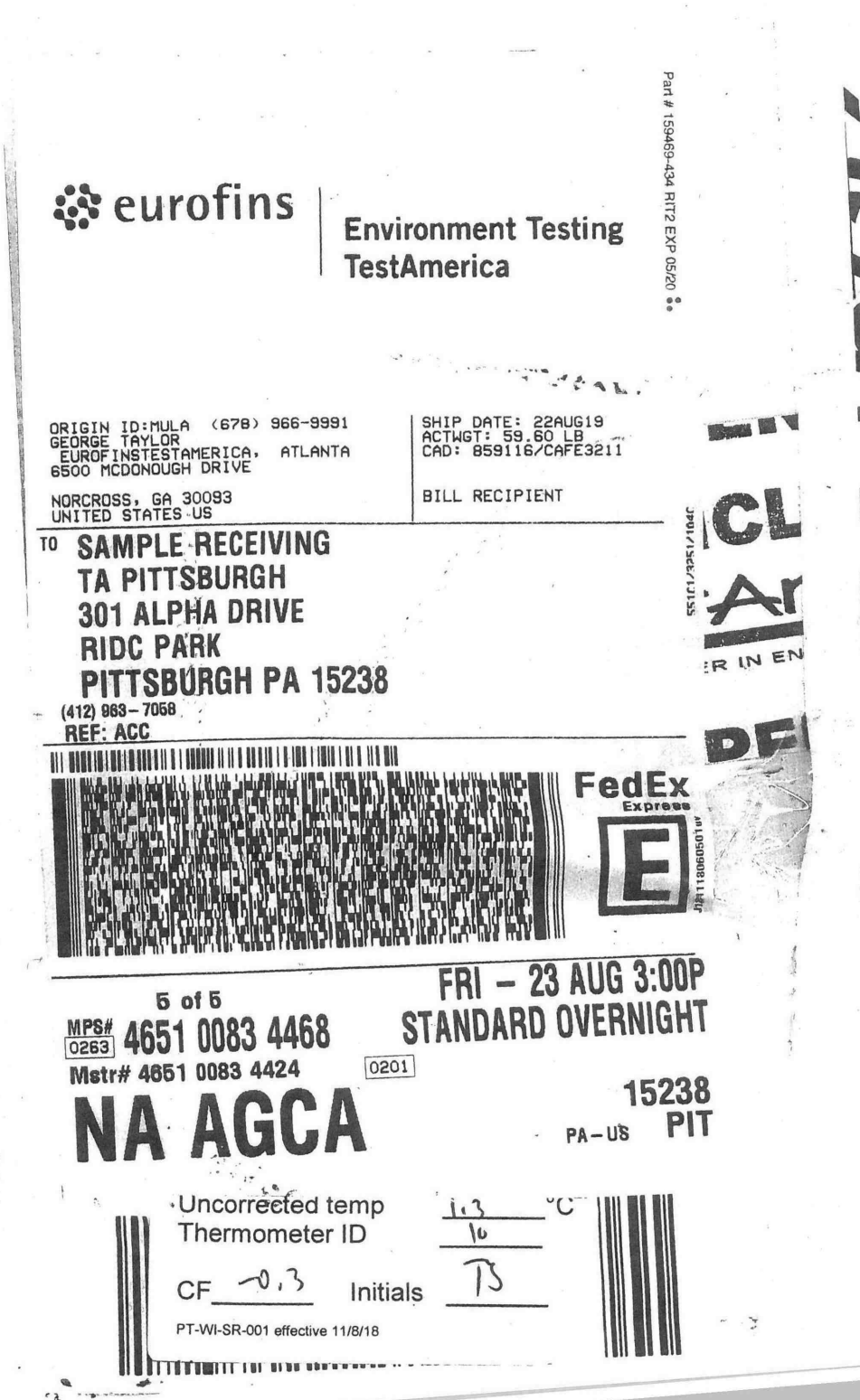
15238
PIT

NA AGCA

Uncorrected temp 1.9 °C
Thermometer ID 10
CF -0.3 Initials TS

PT-WI-SR-001 effective 11/8/18

...dy Seal



eurofins | Environment Testing
TestAmerica

Part # 159469-434 RIT2 EXP 05/20

ORIGIN ID:MULA (678) 966-9991
GEORGE TAYLOR
EUROFINSTESTAMERICA, ATLANTA
6500 MCDONOUGH DRIVE
NORCROSS, GA 30093
UNITED STATES US

SHIP DATE: 22AUG19
ACTWGT: 59.60 LB
CAD: 859116/CAFE3211

BILL RECIPIENT

TO SAMPLE RECEIVING
TA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC

FedEx Express

FRI - 23 AUG 3:00P
STANDARD OVERNIGHT

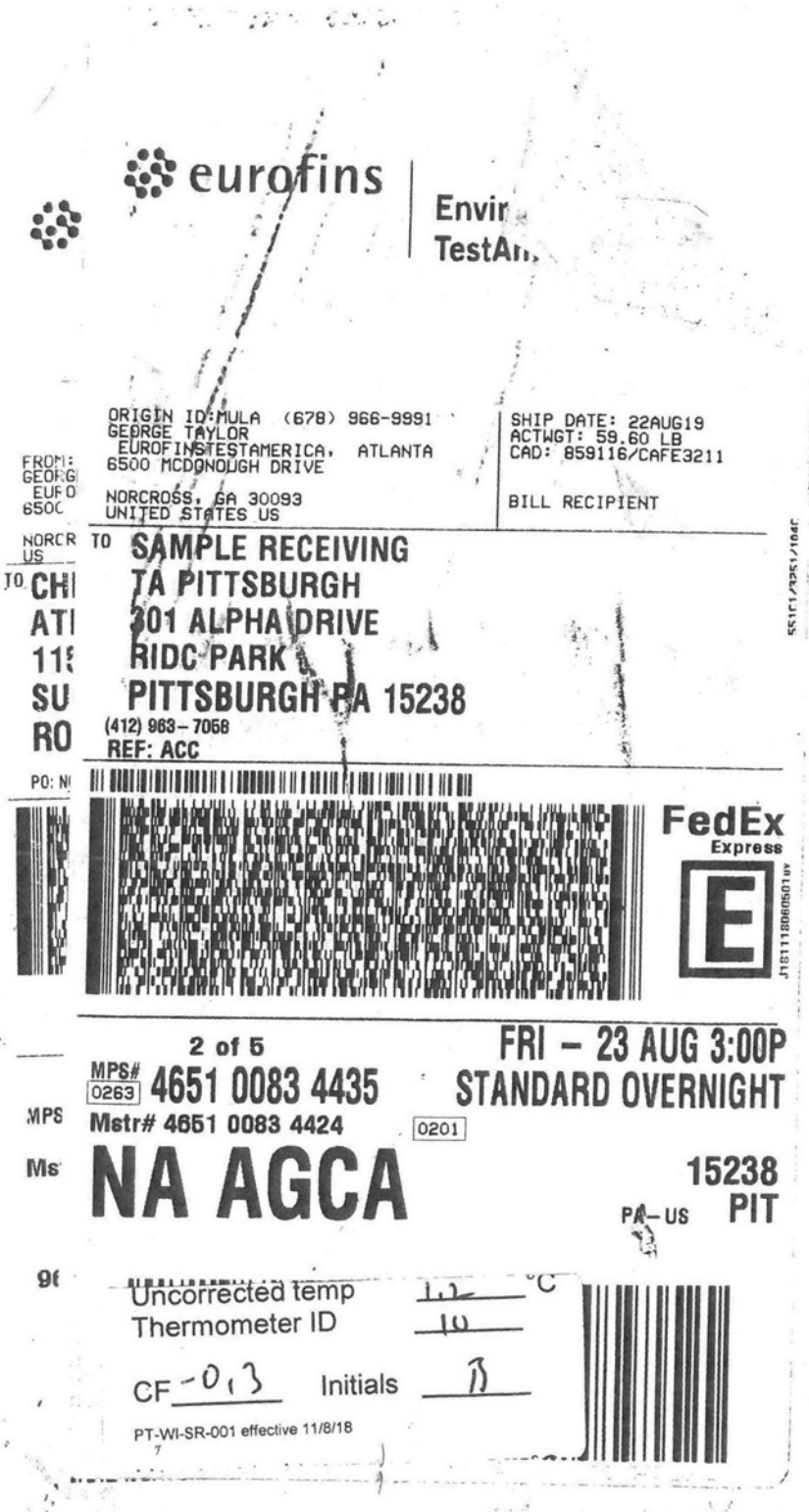
5 of 5
MPS# 0263 4651 0083 4468
Mstr# 4651 0083 4424
0201

15238
PA-US PIT

NA AGCA

Uncorrected temp 1.3 °C
Thermometer ID 10
CF -0.3 Initials TS

PT-WI-SR-001 effective 11/8/18



eurofins | Envir... TestAm...

ORIGIN ID:MULA (678) 966-9991
GEORGE TAYLOR
EUROFINSTESTAMERICA, ATLANTA
6500 MCDONOUGH DRIVE

NORCROSS, GA 30093
UNITED STATES US

SHIP DATE: 22AUG19
ACTWGT: 59.60 LB
CAD: 859116/CAFE3211

BILL RECIPIENT

FROM: GEORG... EUF... 650...

NORCR... US

TO SAMPLE RECEIVING
TA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7068
REF: ACC

TO CH... ATI... 11... SU... RO...

PO: N...

FedEx Express

2 of 5
MPS# 0263 4651 0083 4435
Mstr# 4651 0083 4424

FRI - 23 AUG 3:00P
STANDARD OVERNIGHT

0201

NA AGCA

15238
PA-US PIT

MPS...

Ms...

9(...

Uncorrected temp 1.1 °C
Thermometer ID 10
CF -0.3 Initials JJ

PT-WI-SR-001 effective 11/8/18

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-371861.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-94596-1
Address: 13715 Rider Trail North,	Due Date Requested: 9/5/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant Arkwright Ash Pond 2	Project #: 18020201			
Site: Georgia Power Site Sampling Data (GW)	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Standard Target List	9320_Ra228/PrecSep_0 Standard Target List	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
ARGWA-19 (180-94596-1)	8/20/19	13:26 Eastern		Water			X	X	X	1	
ARGWA-20 (180-94596-2)	8/20/19	09:54 Eastern		Water			X	X	X	1	
ARGWC-21 (180-94596-3)	8/20/19	15:12 Eastern		Water			X	X	X	1	
EB-2-20-19 (180-94596-4)	8/20/19	15:25 Eastern		Water			X	X	X	1	
FB-2-20-19 (180-94596-5)	8/20/19	13:45 Eastern		Water			X	X	X	1	
DUP-2 (180-94596-6)	8/20/19	Eastern		Water			X	X	X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification
Unconfirmed

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 8/26/19 1200	Company: ENV	Received by:	Date/Time: 8-27-19 09:30	Company: TA STL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

9/12/2019

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-94596-1
SDG Number: 1

Login Number: 94596
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-94596-2
Laboratory Sample Delivery Group: 1
Client Project/Site: CCR - Plant Arkwright Ash Pond 2
Sampling Event: PLANTARKWRIGHT - AP-2

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
9/30/2019 4:32:58 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-2
SDG: 1

Job ID: 180-94596-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-94596-2

Comments
No additional comments.

Receipt
The samples were received on 8/23/2019 8:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.9º C, 1.0º C, 1.1º C, 2.3º C and 2.4º C.

RAD
Method(s) 9315: Radium-226 prep batch 160-441087

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
ARGWA-19 (180-94596-1), ARGWA-20 (180-94596-2), ARGWC-21 (180-94596-3), EB-2-20-19 (180-94596-4), FB-2-20-19 (180-94596-5), DUP-2 (180-94596-6), (LCS 160-441087/1-A), (MB 160-441087/23-A), (240-117851-H-13-A), (240-117851-A-13-A MS) and (240-117851-A-13-B MSD)

Method(s) 9320: Radium-228 Prep Batch 160-441106

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

ARGWA-19 (180-94596-1), ARGWA-20 (180-94596-2), ARGWC-21 (180-94596-3), EB-2-20-19 (180-94596-4), FB-2-20-19 (180-94596-5), DUP-2 (180-94596-6), (LCS 160-441106/1-A), (MB 160-441106/23-A), (240-117851-H-13-B), (240-117851-A-13-C MS) and (240-117851-A-13-D MSD)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-2
SDG: 1

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-2
SDG: 1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
Arkansas DEQ	State Program	88-0690	06-27-20
California	State	2891	04-30-20
California	State Program	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Connecticut	State Program	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Florida	NELAP	E871008	06-30-20
Illinois	NELAP	200005	06-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	01-31-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (UST)	State Program	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-19
Kentucky (WW)	State Program	KY98043	12-31-19
Louisiana	NELAP	04041	06-30-20
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-19
Minnesota	NELAP	042-999-482	12-31-19
Nevada	State	PA00164	07-31-20
Nevada	State Program	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	03-31-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State Program	434	12-31-19
North Dakota	State	R-227	04-30-20
North Dakota	State Program	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20
Oregon	NELAP	PA-2151	02-06-20
Pennsylvania	NELAP	02-00416	04-30-20
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-30-19
Rhode Island	State Program	LAO00362	12-30-19
South Carolina	State Program	89014	04-30-20
Texas	NELAP	T104704528-15-2	03-31-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462015-4	05-31-20
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	460189	09-14-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	01-31-20
West Virginia DEP	State Program	142	01-31-20
Wisconsin	State	998027800	08-31-20
Wisconsin	State Program	998027800	08-31-20

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-2
SDG: 1

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	DoD	L2305	04-06-22
ANAB	DOE	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-19
Arizona	State Program	AZ0813	12-08-19 *
California	State	2886	06-30-20
California	State Program	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Connecticut	State Program	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
Florida	NELAP	E87689	06-30-20
Hawaii	State Program	NA	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	200023	11-30-19
Illinois	NELAP	004553	11-30-19
Iowa	State Program	373	12-01-20
Kansas	NELAP	E-10236	10-31-19 *
Kentucky (DW)	State	KY90125	12-31-19
Kentucky (DW)	State Program	KY90125	12-31-19
Louisiana	NELAP	04080	06-30-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	NELAP	LA011	12-31-19
Louisiana (DW)	State	LA011	12-31-19
Maryland	State	310	09-30-20
Maryland	State Program	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Michigan	State Program	9005	06-30-20
Missouri	State	780	06-30-22
Missouri	State Program	780	06-30-20
Nevada	State	MO000542020-1	07-31-20
Nevada	State Program	MO000542018-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	03-31-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
North Dakota	State Program	R207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Oklahoma	State Program	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20
Pennsylvania	NELAP	68-00540	02-28-20
South Carolina	State	85002001	06-30-20
South Carolina	State Program	85002001	06-30-20
Texas	NELAP	T104704193-19-14	07-31-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	Federal	058448	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-2
SDG: 1

Laboratory: Eurofins TestAmerica, St. Louis (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
USDA	Federal	P330-17-0028	02-02-20
USDA	US Federal Programs	P330-17-00028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	460230	06-14-20
Virginia	NELAP	10310	06-14-20
Washington	State Program	C592	08-30-19 *
West Virginia DEP	State Program	381	10-31-19 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-2
SDG: 1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-94596-1	ARGWA-19	Water	08/20/19 13:26	08/23/19 08:40	
180-94596-2	ARGWA-20	Water	08/20/19 09:54	08/23/19 08:40	
180-94596-3	ARGWC-21	Water	08/20/19 15:12	08/23/19 08:40	
180-94596-4	EB-2-20-19	Water	08/20/19 15:25	08/23/19 08:40	
180-94596-5	FB-2-20-19	Water	08/20/19 13:45	08/23/19 08:40	
180-94596-6	DUP-2	Water	08/20/19 00:00	08/23/19 08:40	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-2
SDG: 1

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-2
SDG: 1

Client Sample ID: ARGWA-19
Date Collected: 08/20/19 13:26
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.13 mL	1.0 g	441087	08/28/19 13:14	ORM	TAL SL
Total/NA	Analysis	9315		1			443365	09/19/19 16:59	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.13 mL	1.0 g	441106	08/28/19 14:30	ORM	TAL SL
Total/NA	Analysis	9320		1			442968	09/16/19 09:41	KLS	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			444224	09/26/19 08:20	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWA-20
Date Collected: 08/20/19 09:54
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.41 mL	1.0 g	441087	08/28/19 13:14	ORM	TAL SL
Total/NA	Analysis	9315		1			443365	09/19/19 16:59	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.41 mL	1.0 g	441106	08/28/19 14:30	ORM	TAL SL
Total/NA	Analysis	9320		1			442968	09/16/19 09:41	KLS	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			444224	09/26/19 08:20	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-21
Date Collected: 08/20/19 15:12
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.76 mL	1.0 g	441087	08/28/19 13:14	ORM	TAL SL
Total/NA	Analysis	9315		1			443365	09/19/19 16:59	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.76 mL	1.0 g	441106	08/28/19 14:30	ORM	TAL SL
Total/NA	Analysis	9320		1			442968	09/16/19 09:41	KLS	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			444224	09/26/19 08:20	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: EB-2-20-19
Date Collected: 08/20/19 15:25
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.79 mL	1.0 g	441087	08/28/19 13:14	ORM	TAL SL
Total/NA	Analysis	9315		1			443365	09/19/19 16:59	KLS	TAL SL
	Instrument ID: GFPCBLUE									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-2
SDG: 1

Client Sample ID: EB-2-20-19
Date Collected: 08/20/19 15:25
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1000.79 mL	1.0 g	441106	08/28/19 14:30	ORM	TAL SL
Total/NA	Analysis	9320		1			442968	09/16/19 09:41	KLS	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			444224	09/26/19 08:20	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: FB-2-20-19
Date Collected: 08/20/19 13:45
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.44 mL	1.0 g	441087	08/28/19 13:14	ORM	TAL SL
Total/NA	Analysis	9315		1			443365	09/19/19 16:59	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.44 mL	1.0 g	441106	08/28/19 14:30	ORM	TAL SL
Total/NA	Analysis	9320		1			442968	09/16/19 09:41	KLS	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			444224	09/26/19 08:20	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: DUP-2
Date Collected: 08/20/19 00:00
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.21 mL	1.0 g	441087	08/28/19 13:14	ORM	TAL SL
Total/NA	Analysis	9315		1			443365	09/19/19 16:59	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.21 mL	1.0 g	441106	08/28/19 14:30	ORM	TAL SL
Total/NA	Analysis	9320		1			442968	09/16/19 09:42	KLS	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			444224	09/26/19 08:20	SMP	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: TAL SL

Batch Type: Prep

ORM = Octavia Moore

Batch Type: Analysis

KLS = Kody Saulters

SMP = Siobhan Perry

Client Sample ID: ARGWA-19

Date Collected: 08/20/19 13:26
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-1

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0646	U	0.0963	0.0965	1.00	0.165	pCi/L	08/28/19 13:14	09/19/19 16:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.6*		*40 - 110*	*08/28/19 13:14*	*09/19/19 16:59*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.433**		0.244	0.247	1.00	0.367	pCi/L	08/28/19 14:30	09/16/19 09:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.6*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:41*	*1*
Y Carrier	*91.2*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:41*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.498**		0.262	0.265	5.00	0.367	pCi/L		09/26/19 08:20	1

Client Sample ID: ARGWA-20

Date Collected: 08/20/19 09:54
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-2

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.216**		0.120	0.121	1.00	0.150	pCi/L	08/28/19 13:14	09/19/19 16:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.7*		*40 - 110*	*08/28/19 13:14*	*09/19/19 16:59*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.314	U	0.254	0.256	1.00	0.403	pCi/L	08/28/19 14:30	09/16/19 09:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.7*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:41*	*1*
Y Carrier	*83.7*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:41*	*1*

Client Sample ID: ARGWA-20

Lab Sample ID: 180-94596-2
Date Collected: 08/20/19 09:54
Matrix: Water
Date Received: 08/23/19 08:40

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.530		0.281	0.283	5.00	0.403	pCi/L		09/26/19 08:20	1

Client Sample ID: ARGWC-21

Lab Sample ID: 180-94596-3
Date Collected: 08/20/19 15:12
Matrix: Water
Date Received: 08/23/19 08:40

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0213	U	0.0865	0.0865	1.00	0.187	pCi/L	08/28/19 13:14	09/19/19 16:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*08/28/19 13:14*	*09/19/19 16:59*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.999		0.364	0.376	1.00	0.513	pCi/L	08/28/19 14:30	09/16/19 09:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.6*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:41*	*1*
Y Carrier	*81.1*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:41*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.978		0.374	0.386	5.00	0.513	pCi/L		09/26/19 08:20	1

Client Sample ID: EB-2-20-19

Lab Sample ID: 180-94596-4
Date Collected: 08/20/19 15:25
Matrix: Water
Date Received: 08/23/19 08:40

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00595	U	0.0857	0.0857	1.00	0.168	pCi/L	08/28/19 13:14	09/19/19 16:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.9*		*40 - 110*	*08/28/19 13:14*	*09/19/19 16:59*	*1*

Client Sample ID: EB-2-20-19

Lab Sample ID: 180-94596-4

Date Collected: 08/20/19 15:25
Matrix: Water
Date Received: 08/23/19 08:40

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.484		0.272	0.275	1.00	0.411	pCi/L	08/28/19 14:30	09/16/19 09:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.9*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:41*	*1*
Y Carrier	*86.0*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:41*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.489		0.285	0.288	5.00	0.411	pCi/L		09/26/19 08:20	1

Client Sample ID: FB-2-20-19

Lab Sample ID: 180-94596-5

Date Collected: 08/20/19 13:45
Matrix: Water
Date Received: 08/23/19 08:40

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0960	U	0.0972	0.0976	1.00	0.152	pCi/L	08/28/19 13:14	09/19/19 16:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*08/28/19 13:14*	*09/19/19 16:59*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.361	U	0.268	0.270	1.00	0.422	pCi/L	08/28/19 14:30	09/16/19 09:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:41*	*1*
Y Carrier	*87.9*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:41*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.457		0.285	0.287	5.00	0.422	pCi/L		09/26/19 08:20	1

Client Sample ID: DUP-2

Date Collected: 08/20/19 00:00
Date Received: 08/23/19 08:40

Lab Sample ID: 180-94596-6

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0227	U	0.0813	0.0814	1.00	0.156	pCi/L	08/28/19 13:14	09/19/19 16:59	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.9*		*40 - 110*	*08/28/19 13:14*	*09/19/19 16:59*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.620**		0.300	0.306	1.00	0.448	pCi/L	08/28/19 14:30	09/16/19 09:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.9*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:42*	*1*
Y Carrier	*86.7*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:42*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.642**		0.311	0.317	5.00	0.448	pCi/L		09/26/19 08:20	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-441087/23-A
Matrix: Water
Analysis Batch: 443554

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441087

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.08947	U	0.0759	0.0763	1.00	0.187	pCi/L	08/28/19 13:14	09/20/19 05:53	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.6*		*40 - 110*	*08/28/19 13:14*	*09/20/19 05:53*	*1*

Lab Sample ID: LCS 160-441087/1-A
Matrix: Water
Analysis Batch: 443365

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441087

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	9.758		1.10	1.00	0.170	pCi/L	86	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*89.3*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-441106/23-A
Matrix: Water
Analysis Batch: 442963

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 441106

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1465	U	0.226	0.227	1.00	0.381	pCi/L	08/28/19 14:30	09/16/19 09:45	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.6*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:45*	*1*
Y Carrier	*85.6*		*40 - 110*	*08/28/19 14:30*	*09/16/19 09:45*	*1*

Lab Sample ID: LCS 160-441106/1-A
Matrix: Water
Analysis Batch: 442968

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 441106

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.58	9.327		1.11	1.00	0.464	pCi/L	97	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*89.3*		*40 - 110*
Y Carrier	*83.4*		*40 - 110*

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-94596-2
SDG: 1

Rad

Prep Batch: 441087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-94596-1	ARGWA-19	Total/NA	Water	PrecSep-21	
180-94596-2	ARGWA-20	Total/NA	Water	PrecSep-21	
180-94596-3	ARGWC-21	Total/NA	Water	PrecSep-21	
180-94596-4	EB-2-20-19	Total/NA	Water	PrecSep-21	
180-94596-5	FB-2-20-19	Total/NA	Water	PrecSep-21	
180-94596-6	DUP-2	Total/NA	Water	PrecSep-21	
MB 160-441087/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-441087/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 441106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-94596-1	ARGWA-19	Total/NA	Water	PrecSep_0	
180-94596-2	ARGWA-20	Total/NA	Water	PrecSep_0	
180-94596-3	ARGWC-21	Total/NA	Water	PrecSep_0	
180-94596-4	EB-2-20-19	Total/NA	Water	PrecSep_0	
180-94596-5	FB-2-20-19	Total/NA	Water	PrecSep_0	
180-94596-6	DUP-2	Total/NA	Water	PrecSep_0	
MB 160-441106/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-441106/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Taylor Goble	Lab PM: Veronica Bortot	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-594-5998	E-Mail: Veronica.Bortot@testamericainc.com		Page: Page
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. IV (EPA 6020/7470)	Flouride	Radium 226 & 228 (SW-846 9315/9320)		Total Number of containers	Special I
			Preservation Code:				D	D	N	D		
ARGWA-19	8-20-19	1326	G	Water	N	N	✓	✓	✓		3	
ARGWA-20	8-20-19	0954	G	Water	N	N	✓	✓	✓		3	
ARGWC-21	8-20-19	1512	G	Water	N	N	✓	✓	✓		3	
EB-2-20-19	8-20-19	1525	G	Water	N	N	✓	✓	✓		3	
FB-2-20-19	8-20-19	1345	G	Water	N	N	✓	✓	✓		3	
Dup-2	8-20-19	—	G	Water	N	N	✓	✓	✓		3	
				Water								
				Water								
				Water								
				Water								
				Water								

180-94596 Chain of Custody

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Taylor Goble	8-22-19/1520	ACC	[signature] 8/22/19	15:27	ETA
2	[signature] 8/22/19	15:30	ETA	[signature]	8-23-19	TAL HT
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 840	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

eurofins | Environment Testing
TestAmerica

Part # 159469-434 RIT2 EXP 05/20

ORIGIN ID:MULA (678) 966-9991
GEORGE TAYLOR
EUROFINSTESTAMERICA, ATLANTA
6500 MCDONOUGH DRIVE

NORCROSS, GA 30093
UNITED STATES US

SHI
ACT
CAD

BILI

TO SAMPLE RECEIVING
TA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC

180-94596 Waybill

FedEx Express
E

1 of 5
TRK# 0201 4651 0083 4424
MASTER

FRI – 23 AUG 3:00
STANDARD OVERN

NA AGCA

2.7
CF=.3
#10
TS

SAMPLE RECEIVING
TA PITTSBURGH
301 AL
RIDC P
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC

FedEx Express
E

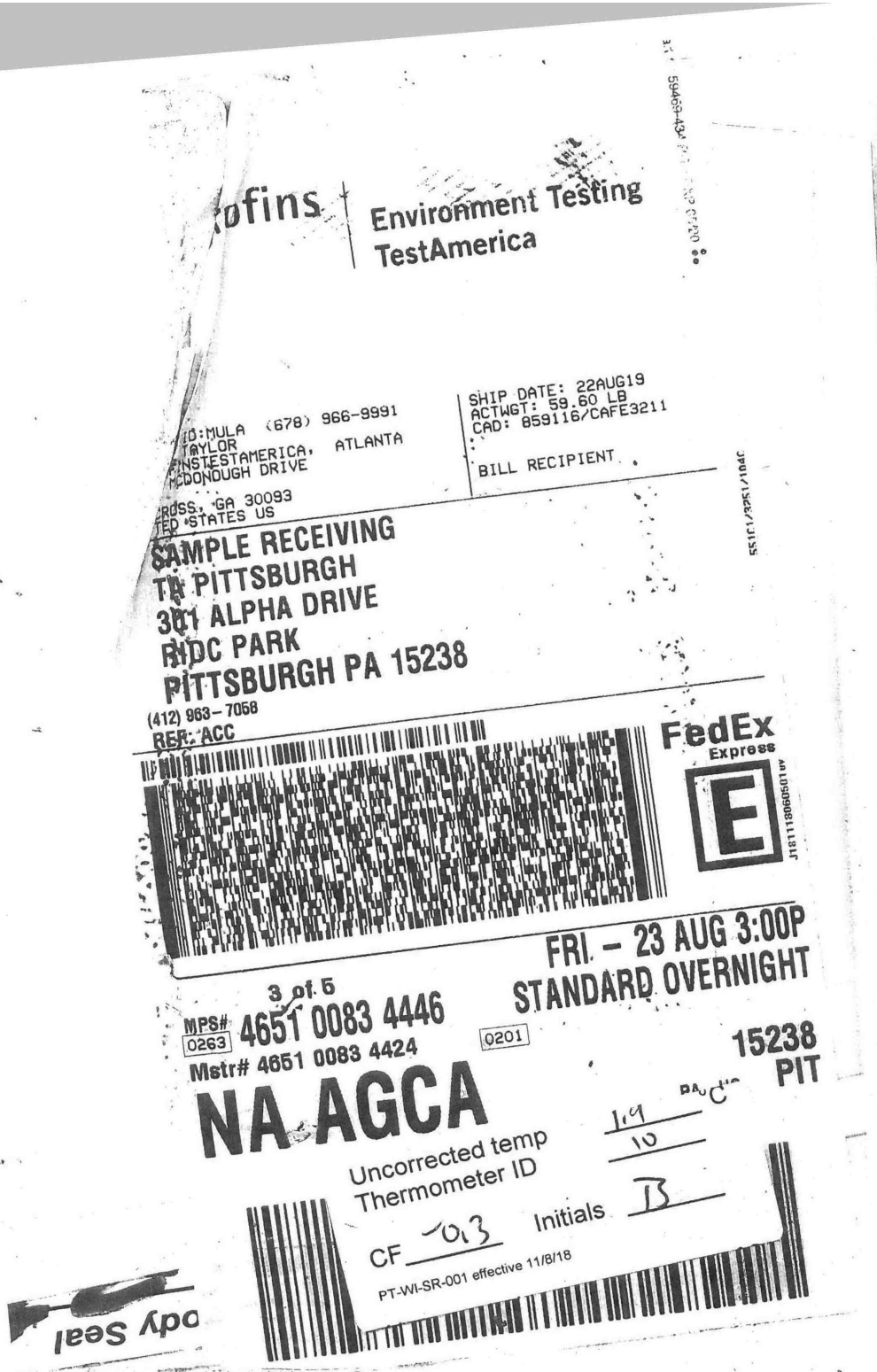
4 of 5
MPS# 4651 0083 4457
Mstr# 4651 0083 4424
0201

FRI – 23 AUG 3:
STANDARD OVERN

0263
NA AGCA
PA-US
PIT

Uncorrected temp 2.6 °C
Thermometer ID 10
CF -0.3 Initials TJ
PT-WI-SR-001 effective 11/8/18

Seal
22



ofins | Environment Testing
TestAmerica

ID:MULA (678) 966-9991
TAYLOR
EUROFINSTESTAMERICA, ATLANTA
MCDONOUGH DRIVE

NORCROSS, GA 30093
UNITED STATES US

SHIP DATE: 22AUG19
ACTWGT: 59.60 LB
CAD: 859116/CAFE3211

BILL RECIPIENT

SAMPLE RECEIVING
TA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC

FedEx Express

3 of 5
MPS# 0263 4651 0083 4446
Mstr# 4651 0083 4424
0201

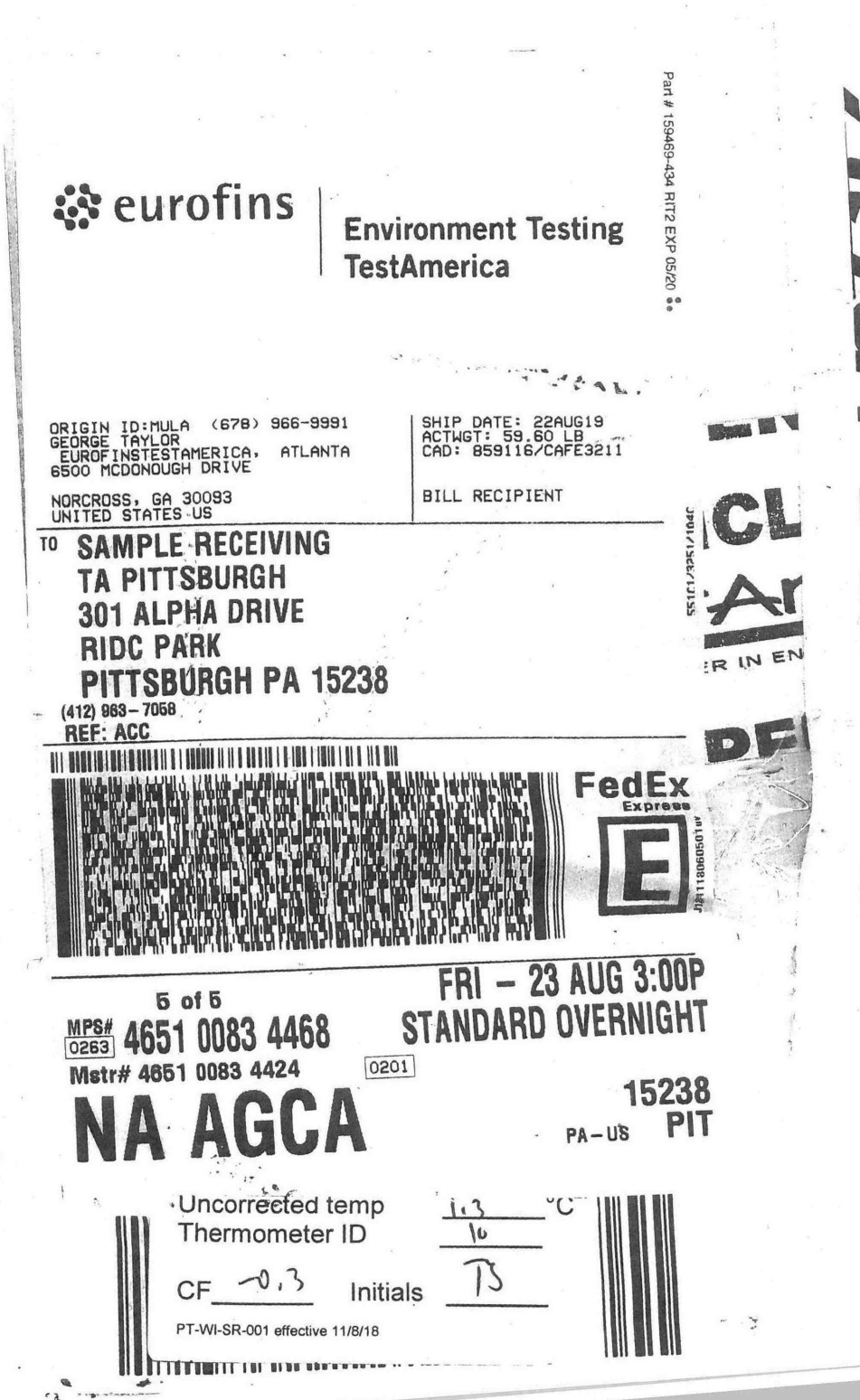
FRI - 23 AUG 3:00P
STANDARD OVERNIGHT

15238
PIT

NA AGCA

Uncorrected temp 1.9 °C
Thermometer ID 10
CF -0.3 Initials TS

PT-WI-SR-001 effective 11/8/18



eurofins | Environment Testing
TestAmerica

ORIGIN ID:MULA (678) 966-9991
GEORGE TAYLOR
EUROFINSTESTAMERICA, ATLANTA
6500 MCDONOUGH DRIVE

NORCROSS, GA 30093
UNITED STATES US

SHIP DATE: 22AUG19
ACTWGT: 59.60 LB
CAD: 859116/CAFE3211

BILL RECIPIENT

TO SAMPLE RECEIVING
TA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC

FedEx Express

5 of 5
MPS# 0263 4651 0083 4468
Mstr# 4651 0083 4424
0201

FRI - 23 AUG 3:00P
STANDARD OVERNIGHT

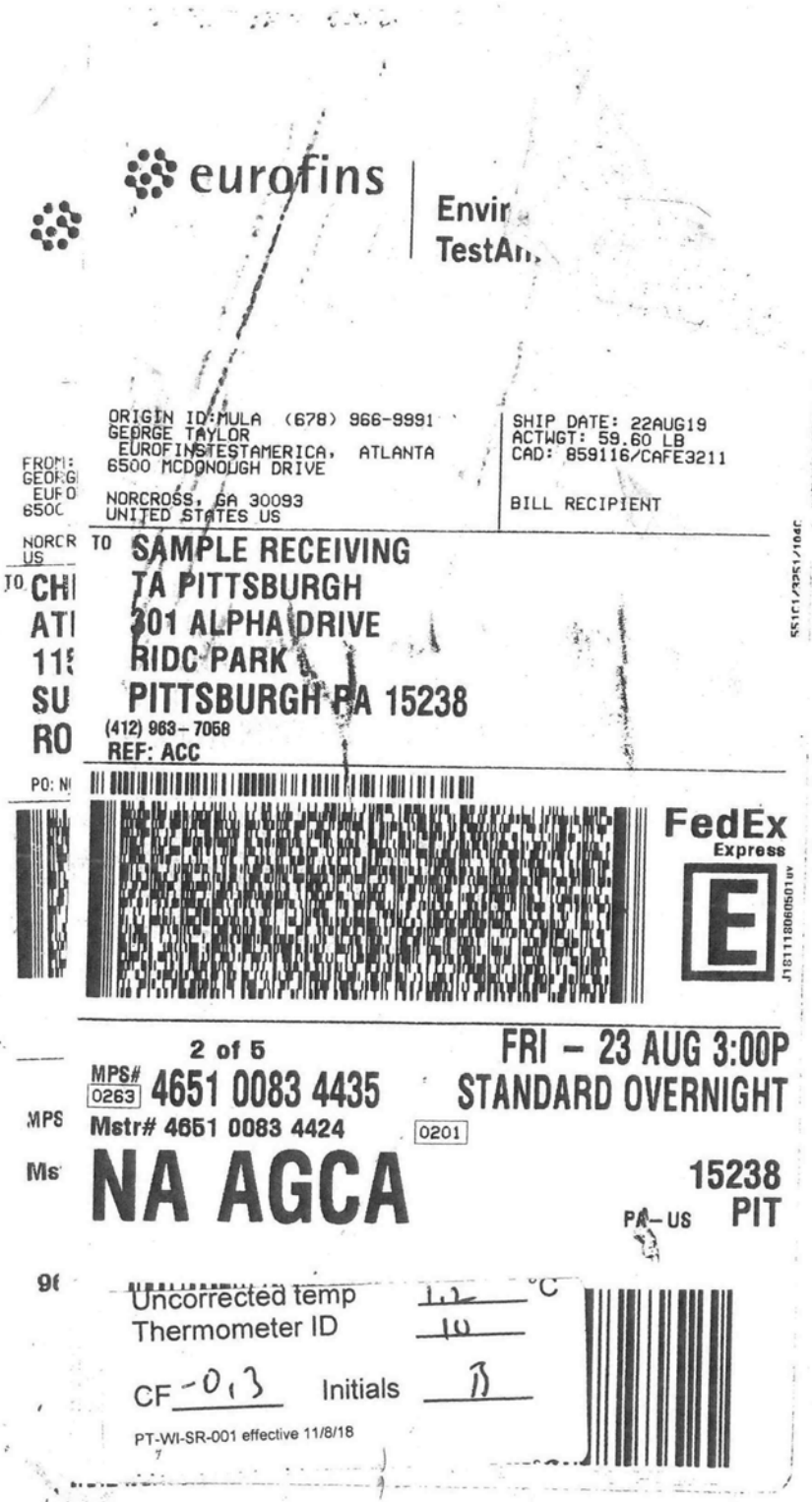
15238
PA-US PIT

NA AGCA

Uncorrected temp 1.3 °C
Thermometer ID 10
CF -0.3 Initials TS

PT-WI-SR-001 effective 11/8/18

Part # 159469-434 RIT2 EXP 05/20


eurofins
Envir
TestAr
ORIGIN ID:MULA (678) 966-9991
GEORGE TAYLOR
EUROFINSTESTAMERICA, ATLANTA
6500 MCDONOUGH DRIVE
NORCROSS, GA 30093
UNITED STATES US
SHIP DATE: 22AUG19
ACTWGT: 59.60 LB
CAD: 859116/CAFE3211
BILL RECIPIENT
TO SAMPLE RECEIVING
TA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7068
REF: ACC
FedEx
Express
2 of 5
MPS# 0263 4651 0083 4435
Mstr# 4651 0083 4424
0201
FRI - 23 AUG 3:00P
STANDARD OVERNIGHT
NA AGCA
15238
PA-US PIT
Uncorrected temp 1.1 °C
Thermometer ID 10
CF -0.3 Initials JJ
PT-WI-SR-001 effective 11/8/18

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-94596-2
SDG Number: 1

Login Number: 94596
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-94596-2
SDG Number: 1

Login Number: 94596
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 08/27/19 03:53 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	22.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LEVEL 2A LABORATORY DATA VALIDATIONS

Plant Arkwright Ash Pond 2

Scan Event

August 2019

Georgia Power Company – Plant Arkwright Ash Pond 2

Quality Control Review of Analytical Data – August 2019

This narrative presents results of the Quality Control (QC) data review performed on analytical data submitted by Eurofins TestAmerica, Pittsburgh and St. Louis for groundwater samples collected at Plant Arkwright Ash Pond 2 on August 20, 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 of this Appendix.

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 detected 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 (USEPA Method 300.0), Solids in Water (Standard Methods 2540C), Radium-226 (USEPA 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 Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy (September 2011, Rev. 2.0)[1] and the National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2017)[2]. The review included an assessment of the results for completeness, precision (laboratory duplicate recoveries and matrix spike/matrix spike duplicate recoveries), accuracy (laboratory control samples and matrix spike samples), and blank contamination (field, equipment, and laboratory blanks). Sample receipt conditions, holding times, and chains of custody (COCs) were reviewed. Where there was a discrepancy between the QC criteria in the guidelines and the QC criterion established in the analytical methodology, method-specific criteria or professional judgment were used.

DATA QUALITY OBJECTIVES

Laboratory Precision: Laboratory goals for precision were met.

Field Precision: Field goals for precision were met, with the exception of Fluoride on ARGWA-20 (180-94596-2) and DUP-2 (180-94596-6) as described in the qualifications section below.

Accuracy: Laboratory goals for accuracy were met.

Detection Limits: Project goals for detection limits were met.

Completeness: There were no rejected analytical results for this event, resulting in a completion of 100%.

Holding Times: Holding time requirements were met.

QUALIFICATIONS

In general, chemical results for the samples collected at the site were qualified on the basis of low precision or low 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 validation process:

J: The analyte was positively identified above the method detection limit; however, the associated numerical value is the approximate concentration of the analyte in the sample

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. The applied qualifications may not have been required for all samples collected at the site. A summary of sample qualifications can be found in Table 2 of this Appendix.

- Samples ARGWA-20 (180-94596-2) and DUP-2 (180-94596-6) were qualified as estimated (J) for Fluoride as the field relative percent difference (RPD) exceeded QC criteria (30.1% above limit of 25).

Atlantic Coast Consulting, Inc. reviewed the laboratory data from the Plant Arkwright Ash Pond 2 sampled on August 20, 2019 in accordance with the analytical methods, the laboratory-specified QC criteria, and the guidelines. As described above, the results were acceptable for project use.

REFERENCES

[1]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

[2]USEPA, January 2017, National Office of Superfund Remediation and Technology Innovation, National Functional Guidelines for Inorganic Superfund Methods Data Review, Revision 0.0

TABLE 1

Georgia Power Company – Plant Arkwright Ash Pond 2

Sample Summary Table – August 2019

						Analyses			
SDG	Field Identification	Collection Date	Lab Identification	Matrix	QC Samples	Metals (6020B, 7470A)	Anions (300.0)	TDS (SM 2540C)	Radium-226/-228 (9315, 9320)
94596	ARGWA-19	8/20/2019	180-94596-1	GW		X	X	X	X
94596	ARGWA-20	8/20/2019	180-94596-2	GW		X	X	X	X
94596	ARGWC-21	8/20/2019	180-94596-3	GW		X	X	X	X
94596	EB-2-20-19	8/20/2019	180-94596-4	WQ	EB	X	X	X	X
94596	FB-2-20-19	8/20/2019	180-94596-5	WQ	FB	X	X	X	X
94596	DUP-2	8/20/2019	180-94596-6	GW	FD (ARGWA-20)	X	X	X	X

Abbreviations:
EB – Equipment Blank
FB – Field Blank
FD – Field Duplicate
GW – Groundwater
QC – Quality Control
TDS – Total Dissolved Solids
WQ – Water Quality Control

TABLE 2

Georgia Power Company – Plant Arkwright Ash Pond 2

Qualifier Summary Table – August 2019

SDG	Field Identification	Constituent	New RL	New MDL or MDC	Qualifier	Reason
94596	ARGWA-20	Fluoride			J	RPD exceeds field goal
94596	DUP-2	Fluoride			J	RPD exceeds field goal

Abbreviations:
MDC – Minimum Detectable Concentration
MS/MSD – Matrix Spike / Matrix Spike Duplicate
MDL – Method Detection Limit
RL – Reporting Limit
RPD – Relative Percent Difference
SDG – Sample Delivery Group

Qualifiers:
J – Estimated Result
ND – Non-Detect Result

Product Name: Low-Flow System

Date: 2019-08-20 13:27:08

Project Information:		Pump Information: QED	
Operator Name	Taylor Goble	Bladder	QED Bladder
Company Name	Atlantic Coast Consulting	Pump Model/Type	poly
Project Name	Plant Arkwright	Tubing Type poly	.17 in
Site Name	Plant Arkwright - Ash Pond 2	Tubing Diameter 0.17 inches	52 ft
Latitude	0° 0' 0"	Tubing Length 53	
Longitude	0° 0' 0"		
Sonde SN	573204		
Turbidity Make/Model	Hach 2100Q		47 ft
		Pump placement from TOC	

Well Information:		Pumping Information:	150 mL/min
Well ID	ARGWA-19	Final Pumping Rate	0.322098 L
Well diameter	2 in	Total System Volume	300 sec
Well Total Depth	52.74 ft	Calculated Sample Rate	0 in
Screen Length	10 ft	Stabilization Drawdown	22 L
Depth to Water	29.62 ft	Total Volume Pumped	

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 3%	+/- 10		+/- 0.3	+/- 10
Last 5	13:01:19	8432.90	22.86	5.89	195.00	0.84	29.62	4.69	370.21
Last 5	13:11:20	9033.89	22.75	5.90	194.98	0.80	29.62	6.12	332.07
Last 5	13:16:20	9333.89	22.71	5.88	195.27	0.77	29.62	5.17	321.04
Last 5	13:21:20	9633.88	23.39	5.89	194.56	0.74	29.62	5.43	330.04
Last 5	13:26:22	9935.87	23.50	5.90	194.90	0.66	29.62	5.11	324.76
Variance 0			-0.04	-0.01	0.29			-0.95	-11.04
Variance 1			0.69	0.01	-0.71			0.26	9.00
Variance 2			0.10	0.00	0.34			-0.31	-5.28

Notes

Sampled at 1326. Sunny 86 degrees

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-20 09:55:59

Project Information:		Pump Information: QED	
Operator Name	Taylor Goble	Bladder	
Company Name	Atlantic Coast Consulting	Pump Model/Type	
Project Name	Plant Arkwright	Tubing Type poly	in
Site Name	Plant Arkwright - Ash Pond 2	Tubing Diameter 0.17	ft
Latitude	0° 0' 0"	Tubing Length 37	
Longitude	0° 0' 0"		
Sonde SN	573204		
Turbidity Make/Model	Hach 2100Q		ft
		Pump placement from TOC	

Well Information:			
Well ID	ARGWA-20	Pumping Information:	350 mL/min
Well diameter	in	Final Pumping Rate	0.09 L
Well Total Depth	37.70 ft	Total System Volume	300 sec
Screen Length	10 ft	Calculated Sample Rate	2 in
Depth to Water	16.76 ft	Stabilization Drawdown	14 L
		Total Volume Pumped	

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpC µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 3%	+/- 10		+/- 0.3	+/- 10
Last 5	09:34:06	1500.01	18.73	5.54	126.61	4.39	16.96	6.22	171.76
Last 5	09:39:06	1800.01	18.64	5.55	127.22	4.42	16.95	6.14	172.84
Last 5	09:44:06	2100.01	18.69	5.56	128.07	4.31	16.95	6.08	179.76
Last 5	09:49:06	2400.00	18.69	5.56	128.12	4.42	16.95	6.28	178.99
Last 5	09:54:06	2700.00	18.64	5.57	128.48	4.44	16.95	6.05	176.32
Variance 0			0.04	0.01	0.85			-0.06	6.92
Variance 1			0.00	0.01	0.04			0.20	-0.77
Variance 2			-0.05	0.01	0.37			-0.23	-2.68

Notes

Sampled at 0954. Sunny 78 degrees

Grab Samples

Product Name: Low-Flow System

Date: 2019-08-20 15:12:14

Project Information:		Pump Information:	
Operator Name	Taylor Goble	Pump Model/Type	QED BLADDER
Company Name	Atlantic Coast Consulting	Tubing Type	poly
Project Name	Plant Arkwright	Tubing Diameter	.17 in
Site Name	Plant Arkwright - Ash Pond 2	Tubing Length	27 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	573204		
Turbidity Make/Model	Hach 2100Q	Pump placement from TOC	22 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-21	Final Pumping Rate	50 mL/min
Well diameter	2 in	Total System Volume	0.2105124 L
Well Total Depth	27.28 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	13 in
Depth to Water	14.49 ft	Total Volume Pumped	3.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 3%	+/- 10		+/- 0.3	+/- 10
Last 5	14:51:16	2401.00	25.00	6.09	590.84	8.81	15.45	0.91	51.66
Last 5	14:56:16	2700.98	24.96	6.09	591.24	8.33	15.47	0.80	50.75
Last 5	15:01:18	3002.99	24.99	6.09	589.67	6.65	15.50	0.75	50.13
Last 5	15:06:18	3302.99	25.18	6.08	591.56	5.72	15.52	0.70	48.60
Last 5	15:11:18	3602.98	25.39	6.08	591.32	4.88	15.55	0.67	47.33
Variance 0			0.03	0.00	-1.57			-0.05	-0.62
Variance 1			0.18	-0.00	1.89			-0.06	-1.53
Variance 2			0.21	0.00	-0.24			-0.03	-1.28

Notes

Sampled 1512. Sunny 89 degrees

Grab Samples

Georgia Power Site Sampling Data (GW)

Site Name : Plant Arkwright Date : 8/19 - 8/21/19

Well ID	Sample Date	Sample Time	Additional Comments
ASH POND #3			
ARGWA-3	8-20-19	1244	Dup-1 here
ARGWA-5	8-20-19	1649	
ARGWA-12	8-20-19	1402	
ARGWA-13	8-19-19	1659	
ARGWA-14	8-21-19	0910	
ARGWC-7	8-21-19	0940	
ARGWC-8	8-21-19	1322	Extra sad here
ARGWC-9	8-21-19	1133	
ARGWC-10	8-21-19	1445	EB-1 here
ARGWC-15	8-21-19	1130	
ARGWC-16	8-20-19	1659	
ARGWC-17	8-21-19	1355	
ARGWC-18	8-21-19	1018	
EB-1-8-21-19	8-21-19	1505	Equipment type: WL
Dup-1	8-20-19	1244	Parent Sample: ARGWA-3
FB-1-8-21-19	8-21-19	1035	Poured at: ARGWC-18
ASH POND #2			
ARGWA-19	8-20-19	1326	
ARGWA-20	8-20-19	0954	
ARGWC-21	8-20-19	1512	
EB-2-8-20-19	8-20-19	1525	Equipment type: Gloves
Dup-2	8-20-19	0954	Parent Sample: ARGWA-20
FB-2-8-20-19	8-20-19	1345	Poured at: ARGWA-19

Additional comments :

* Add date to EB and FB sample IDs.

WELL CONDITION SUMMARY

ATLANTIC COAST CONSULTING, INC.

Site: Plant Arkwright

Personell: RW / TG

Date(s): 8/19 - 8/22/19

Page: 1 of 2

Well ID	Protective Casing	Well Casing	Label	Bollards	Lock	Well Pad	Weep Hole	Vent Hole	Notes
ARGWA-3	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWA-5	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWA-12	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWA-13	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWA-14	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☐ OK ☒ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	Well pad undercut - causing "wobbling motion"
ARGWC-7	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWC-8	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☐ OK ☒ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	One bollard undercut
ARGWC-9	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWC-10	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWC-15	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	

WELL CONDITION SUMMARY

ATLANTIC COAST CONSULTING, INC.

Site: Plant Arkwright

Personell: RW/TG

Date(s): 8/19-8/22/19

Page: 2 of 2

Well ID	Protective Casing	Well Casing	Label	Bollards	Lock	Well Pad	Weep Hole	Vent Hole	Notes
ARGWC-16	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWC-17	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWC-18	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWA-19	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWA-20	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
ARGWC-21	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Deficient	☒ OK ☐ Deficient	☒ Yes ☐ No	☒ OK ☐ Damaged	☒ Yes ☐ No	☒ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-97057-1
Laboratory Sample Delivery Group: AP2
Client Project/Site: CCR - Plant Arkwright Ash Pond 2
Revision: 1

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
12/16/2019 10:12:17 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Job ID: 180-97057-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-97057-1

Revised: to deleted duplicate selenium results

Comments
No additional comments.

Receipt
The samples were received on 10/10/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.1º C, 2.1º C and 2.4º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

RAD
Method 9315: Radium-226 Prep Batch 160-446085

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
DUP-2 (180-97057-1), ARGWA-19 (180-97057-2), FB-2-10-7-19 (180-97057-3), ARGWA-20 (180-97057-4), ARGWC-21 (180-97057-5), EB-2-10-8-19 (180-97057-6), (LCS 160-446085/1-A), (MB 160-446085/21-A), (310-167066-C-3-A), (310-167066-D-3-A MS) and (310-167066-D-3-B MSD)

Method 9320: Ra-228 Prep Batch 160-446088
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

DUP-2 (180-97057-1), ARGWA-19 (180-97057-2), FB-2-10-7-19 (180-97057-3), ARGWA-20 (180-97057-4), ARGWC-21 (180-97057-5), EB-2-10-8-19 (180-97057-6), (LCS 160-446088/1-A), (MB 160-446088/21-A), (310-167066-C-3-B), (310-167066-D-3-C MS) and (310-167066-D-3-D MSD)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-19
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-19
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State	434	12-31-19
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-30-19
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	01-31-20
Wisconsin	State	998027800	08-31-20

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-19
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-19
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-19
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-19
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-20
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-20
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	02-02-20
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	12-31-19

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-97057-1	DUP-2	Water	10/07/19 00:00	10/10/19 09:00	
180-97057-2	ARGWA-19	Water	10/07/19 13:25	10/10/19 09:00	
180-97057-3	FB-2-10-7-19	Water	10/07/19 13:20	10/10/19 09:00	
180-97057-4	ARGWA-20	Water	10/07/19 14:40	10/10/19 09:00	
180-97057-5	ARGWC-21	Water	10/08/19 15:30	10/10/19 09:00	
180-97057-6	EB-2-10-8-19	Water	10/08/19 15:15	10/10/19 09:00	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL PIT
EPA 6020	Metals (ICP/MS)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.
TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Client Sample ID: DUP-2
Date Collected: 10/07/19 00:00
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			296903	11/03/19 05:48	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	294901	10/15/19 12:22	MWW	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			295911	10/23/19 14:31	WTR	TAL PIT
	Instrument ID: NEMO									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	294600	10/11/19 12:06	AGP	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			1000.42 mL	1.0 g	446085	10/14/19 15:32	ORM	TAL SL
Total/NA	Analysis	9315		1			449238	11/06/19 09:32	AJD	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.42 mL	1.0 g	446088	10/14/19 16:21	ORM	TAL SL
Total/NA	Analysis	9320		1			448159	10/29/19 17:41	AJD	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			449547	11/08/19 07:24	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWA-19
Date Collected: 10/07/19 13:25
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			296903	11/03/19 06:04	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	294901	10/15/19 12:22	MWW	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			295911	10/23/19 14:34	WTR	TAL PIT
	Instrument ID: NEMO									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	294600	10/11/19 12:06	AGP	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			1000.77 mL	1.0 g	446085	10/14/19 15:32	ORM	TAL SL
Total/NA	Analysis	9315		1			449238	11/06/19 09:32	AJD	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.77 mL	1.0 g	446088	10/14/19 16:21	ORM	TAL SL
Total/NA	Analysis	9320		1			448159	10/29/19 17:41	AJD	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			449547	11/08/19 07:24	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: FB-2-10-7-19
Date Collected: 10/07/19 13:20
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			296903	11/03/19 07:23	MJH	TAL PIT
	Instrument ID: CHICS2100B									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Client Sample ID: FB-2-10-7-19
Date Collected: 10/07/19 13:20
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	294901	10/15/19 12:22	MWW	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			295911	10/23/19 14:36	WTR	TAL PIT
	Instrument ID: NEMO									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	294600	10/11/19 12:06	AGP	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			1000.22 mL	1.0 g	446085	10/14/19 15:32	ORM	TAL SL
Total/NA	Analysis	9315		1			449238	11/06/19 09:32	AJD	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.22 mL	1.0 g	446088	10/14/19 16:21	ORM	TAL SL
Total/NA	Analysis	9320		1			448159	10/29/19 17:42	AJD	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			449547	11/08/19 07:24	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWA-20
Date Collected: 10/07/19 14:40
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			296903	11/03/19 07:54	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	294901	10/15/19 12:22	MWW	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			295911	10/23/19 14:38	WTR	TAL PIT
	Instrument ID: NEMO									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	294600	10/11/19 12:06	AGP	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			1000.40 mL	1.0 g	446085	10/14/19 15:32	ORM	TAL SL
Total/NA	Analysis	9315		1			449238	11/06/19 09:32	AJD	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.40 mL	1.0 g	446088	10/14/19 16:21	ORM	TAL SL
Total/NA	Analysis	9320		1			448159	10/29/19 17:42	AJD	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			449547	11/08/19 07:24	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-21
Date Collected: 10/08/19 15:30
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			296903	11/03/19 06:19	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	294901	10/15/19 12:22	MWW	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			295911	10/23/19 14:41	WTR	TAL PIT
	Instrument ID: NEMO									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Client Sample ID: ARGWC-21

Date Collected: 10/08/19 15:30
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	294600	10/11/19 12:06	AGP	TAL PIT
Total/NA	Prep	PrecSep-21			1000.02 mL	1.0 g	446085	10/14/19 15:32	ORM	TAL SL
Total/NA	Analysis	9315		1			449238	11/06/19 09:32	AJD	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.02 mL	1.0 g	446088	10/14/19 16:21	ORM	TAL SL
Total/NA	Analysis	9320		1			448159	10/29/19 17:42	AJD	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			449547	11/08/19 07:24	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: EB-2-10-8-19

Date Collected: 10/08/19 15:15
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			296903	11/03/19 07:38	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	294901	10/15/19 12:22	MWW	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			295911	10/23/19 14:43	WTR	TAL PIT
	Instrument ID: NEMO									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	294600	10/11/19 12:06	AGP	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Prep	PrecSep-21			1000.70 mL	1.0 g	446085	10/14/19 15:32	ORM	TAL SL
Total/NA	Analysis	9315		1			449238	11/06/19 12:15	AJD	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.70 mL	1.0 g	446088	10/14/19 16:21	ORM	TAL SL
Total/NA	Analysis	9320		1			448159	10/29/19 17:42	AJD	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			449547	11/08/19 07:24	SMP	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Analyst References:

Lab: TAL PIT
- Batch Type: Prep
  - MWW = Margaret Wanyoike
- Batch Type: Analysis
  - AGP = Angela Partridge
  - MJH = Matthew Hartman
  - WTR = Bill Reinheimer

Lab: TAL SL
- Batch Type: Prep
  - ORM = Octavia Moore
- Batch Type: Analysis
  - AJD = Audra DeMariano
  - SMP = Siobhan Perry

Client Sample ID: DUP-2
Date Collected: 10/07/19 00:00
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-1
Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.3		1.0	0.32	mg/L			11/03/19 05:48	1
Fluoride	0.036	J	0.20	0.026	mg/L			11/03/19 05:48	1
Sulfate	17		1.0	0.38	mg/L			11/03/19 05:48	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00057	J B	0.0013	0.00032	mg/L		10/15/19 12:22	10/23/19 14:31	1
Barium	0.080		0.0025	0.0016	mg/L		10/15/19 12:22	10/23/19 14:31	1
Cadmium	0.00020	J B	0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:31	1
Lead	0.00033	J B	0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:31	1
Selenium	0.0025	J B	0.0050	0.0015	mg/L		10/15/19 12:22	10/23/19 14:31	1
Lithium	0.013		0.0050	0.0034	mg/L		10/15/19 12:22	10/23/19 14:31	1
Silver	0.00071	J B	0.0010	0.00018	mg/L		10/15/19 12:22	10/23/19 14:31	1
Calcium	8.9		0.50	0.13	mg/L		10/15/19 12:22	10/23/19 14:31	1
Boron	0.045	J	0.080	0.039	mg/L		10/15/19 12:22	10/23/19 14:31	1
Cobalt	0.00014	J	0.00050	0.000075	mg/L		10/15/19 12:22	10/23/19 14:31	1
Chromium	0.0059		0.0020	0.0015	mg/L		10/15/19 12:22	10/23/19 14:31	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	93		10	10	mg/L			10/11/19 12:06	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.439		0.142	0.148	1.00	0.141	pCi/L	10/14/19 15:32	11/06/19 09:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.5*		*40 - 110*	*10/14/19 15:32*	*11/06/19 09:32*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0820	U	0.297	0.297	1.00	0.518	pCi/L	10/14/19 16:21	10/29/19 17:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.5*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:41*	*1*
Y Carrier	*84.5*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:41*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.521		0.329	0.332	5.00	0.518	pCi/L		11/08/19 07:24	1

Client Sample ID: ARGWA-19

Date Collected: 10/07/19 13:25
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-2

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11**		1.0	0.32	mg/L			11/03/19 06:04	1
Fluoride	**0.049**	**J**	0.20	0.026	mg/L			11/03/19 06:04	1
Sulfate	**7.4**		1.0	0.38	mg/L			11/03/19 06:04	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00032		0.0013	0.00032	mg/L		10/15/19 12:22	10/23/19 14:34	1
Barium	**0.049**		0.0025	0.0016	mg/L		10/15/19 12:22	10/23/19 14:34	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:34	1
Lead	**0.00018**	**J B**	0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:34	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/15/19 12:22	10/23/19 14:34	1
Lithium	**0.013**	**B**	0.0050	0.0034	mg/L		10/15/19 12:22	10/23/19 14:34	1
Silver	**0.00056**	**J B**	0.0010	0.00018	mg/L		10/15/19 12:22	10/23/19 14:34	1
Calcium	**14**		0.50	0.13	mg/L		10/15/19 12:22	10/23/19 14:34	1
Boron	<0.039		0.080	0.039	mg/L		10/15/19 12:22	10/23/19 14:34	1
Cobalt	**0.00011**	**J**	0.00050	0.000075	mg/L		10/15/19 12:22	10/23/19 14:34	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/15/19 12:22	10/23/19 14:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**150**		10	10	mg/L			10/11/19 12:06	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.204**		0.110	0.112	1.00	0.145	pCi/L	10/14/19 15:32	11/06/19 09:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.8*		*40 - 110*	*10/14/19 15:32*	*11/06/19 09:32*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.273	U	0.311	0.312	1.00	0.512	pCi/L	10/14/19 16:21	10/29/19 17:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.8*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:41*	*1*
Y Carrier	*84.5*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:41*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.476	U	0.330	0.331	5.00	0.512	pCi/L		11/08/19 07:24	1

Client Sample ID: FB-2-10-7-19

Date Collected: 10/07/19 13:20
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-3

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			11/03/19 07:23	1
Fluoride	**0.030**	**J**	0.20	0.026	mg/L			11/03/19 07:23	1
Sulfate	<0.38		1.0	0.38	mg/L			11/03/19 07:23	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00032		0.0013	0.00032	mg/L		10/15/19 12:22	10/23/19 14:36	1
Barium	<0.0016		0.0025	0.0016	mg/L		10/15/19 12:22	10/23/19 14:36	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:36	1
Lead	**0.00014**	**J B**	0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:36	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/15/19 12:22	10/23/19 14:36	1
Lithium	**0.0080**	**B**	0.0050	0.0034	mg/L		10/15/19 12:22	10/23/19 14:36	1
Silver	**0.00032**	**J B**	0.0010	0.00018	mg/L		10/15/19 12:22	10/23/19 14:36	1
Calcium	<0.13		0.50	0.13	mg/L		10/15/19 12:22	10/23/19 14:36	1
Boron	<0.039		0.080	0.039	mg/L		10/15/19 12:22	10/23/19 14:36	1
Cobalt	<0.000075		0.00050	0.000075	mg/L		10/15/19 12:22	10/23/19 14:36	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/15/19 12:22	10/23/19 14:36	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			10/11/19 12:06	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.120	U	0.108	0.108	1.00	0.168	pCi/L	10/14/19 15:32	11/06/19 09:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.8*		*40 - 110*	*10/14/19 15:32*	*11/06/19 09:32*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0261	U	0.306	0.306	1.00	0.543	pCi/L	10/14/19 16:21	10/29/19 17:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.8*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:42*	*1*
Y Carrier	*83.4*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:42*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.146	U	0.324	0.324	5.00	0.543	pCi/L		11/08/19 07:24	1

Client Sample ID: ARGWA-20

Date Collected: 10/07/19 14:40
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-4

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.2**		1.0	0.32	mg/L			11/03/19 07:54	1
Fluoride	**0.036**	**J**	0.20	0.026	mg/L			11/03/19 07:54	1
Sulfate	**17**	**F1**	1.0	0.38	mg/L			11/03/19 07:54	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00032		0.0013	0.00032	mg/L		10/15/19 12:22	10/23/19 14:38	1
Barium	**0.076**		0.0025	0.0016	mg/L		10/15/19 12:22	10/23/19 14:38	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:38	1
Lead	**0.00014**	**J B**	0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:38	1
Selenium	**0.0016**	**J B**	0.0050	0.0015	mg/L		10/15/19 12:22	10/23/19 14:38	1
Lithium	**0.0066**	**B**	0.0050	0.0034	mg/L		10/15/19 12:22	10/23/19 14:38	1
Silver	**0.00031**	**J B**	0.0010	0.00018	mg/L		10/15/19 12:22	10/23/19 14:38	1
Calcium	**8.9**		0.50	0.13	mg/L		10/15/19 12:22	10/23/19 14:38	1
Boron	<0.039		0.080	0.039	mg/L		10/15/19 12:22	10/23/19 14:38	1
Cobalt	<0.000075		0.00050	0.000075	mg/L		10/15/19 12:22	10/23/19 14:38	1
Chromium	**0.0059**		0.0020	0.0015	mg/L		10/15/19 12:22	10/23/19 14:38	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**87**		10	10	mg/L			10/11/19 12:06	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.209**		0.116	0.118	1.00	0.154	pCi/L	10/14/19 15:32	11/06/19 09:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.8*		*40 - 110*	*10/14/19 15:32*	*11/06/19 09:32*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.412	U	0.585	0.587	1.00	0.979	pCi/L	10/14/19 16:21	10/29/19 17:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.8*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:42*	*1*
Y Carrier	*44.5*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:42*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.621	U	0.596	0.599	5.00	0.979	pCi/L		11/08/19 07:24	1

Client Sample ID: ARGWC-21

Date Collected: 10/08/19 15:30
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-5

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4.5**		1.0	0.32	mg/L			11/03/19 06:19	1
Fluoride	**0.065**	**J**	0.20	0.026	mg/L			11/03/19 06:19	1
Sulfate	**170**		1.0	0.38	mg/L			11/03/19 06:19	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0012**	**J B**	0.0013	0.00032	mg/L		10/15/19 12:22	10/23/19 14:41	1
Barium	**0.096**		0.0025	0.0016	mg/L		10/15/19 12:22	10/23/19 14:41	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:41	1
Lead	**0.00015**	**J B**	0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:41	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/15/19 12:22	10/23/19 14:41	1
Lithium	**0.015**	**B**	0.0050	0.0034	mg/L		10/15/19 12:22	10/23/19 14:41	1
Silver	**0.00043**	**J B**	0.0010	0.00018	mg/L		10/15/19 12:22	10/23/19 14:41	1
Calcium	**60**		0.50	0.13	mg/L		10/15/19 12:22	10/23/19 14:41	1
Boron	**0.58**		0.080	0.039	mg/L		10/15/19 12:22	10/23/19 14:41	1
Cobalt	**0.0018**		0.00050	0.000075	mg/L		10/15/19 12:22	10/23/19 14:41	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/15/19 12:22	10/23/19 14:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**420**		10	10	mg/L			10/11/19 12:06	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.270**		0.118	0.120	1.00	0.141	pCi/L	10/14/19 15:32	11/06/19 09:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.0*		*40 - 110*	*10/14/19 15:32*	*11/06/19 09:32*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.318	U	0.289	0.291	1.00	0.466	pCi/L	10/14/19 16:21	10/29/19 17:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.0*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:42*	*1*
Y Carrier	*86.7*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:42*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**0.588**		0.312	0.315	5.00	0.466	pCi/L		11/08/19 07:24	1

Client Sample ID: EB-2-10-8-19

Date Collected: 10/08/19 15:15
Date Received: 10/10/19 09:00

Lab Sample ID: 180-97057-6

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			11/03/19 07:38	1
Fluoride	**0.031**	**J**	0.20	0.026	mg/L			11/03/19 07:38	1
Sulfate	<0.38		1.0	0.38	mg/L			11/03/19 07:38	1

Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00032		0.0013	0.00032	mg/L		10/15/19 12:22	10/23/19 14:43	1
Barium	<0.0016		0.0025	0.0016	mg/L		10/15/19 12:22	10/23/19 14:43	1
Cadmium	<0.00013		0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:43	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:43	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/15/19 12:22	10/23/19 14:43	1
Lithium	**0.0063**	**B**	0.0050	0.0034	mg/L		10/15/19 12:22	10/23/19 14:43	1
Silver	**0.00032**	**J B**	0.0010	0.00018	mg/L		10/15/19 12:22	10/23/19 14:43	1
Calcium	<0.13		0.50	0.13	mg/L		10/15/19 12:22	10/23/19 14:43	1
Boron	<0.039		0.080	0.039	mg/L		10/15/19 12:22	10/23/19 14:43	1
Cobalt	<0.000075		0.00050	0.000075	mg/L		10/15/19 12:22	10/23/19 14:43	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/15/19 12:22	10/23/19 14:43	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			10/11/19 12:06	1

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.212**		0.103	0.105	1.00	0.130	pCi/L	10/14/19 15:32	11/06/19 12:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*40 - 110*	*10/14/19 15:32*	*11/06/19 12:15*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0570	U	0.284	0.284	1.00	0.513	pCi/L	10/14/19 16:21	10/29/19 17:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.5*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:42*	*1*
Y Carrier	*86.0*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:42*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.155	U	0.302	0.303	5.00	0.513	pCi/L		11/08/19 07:24	1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 180-296903/81
Matrix: Water
Analysis Batch: 296903

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			11/03/19 01:51	1
Fluoride	<0.026		0.20	0.026	mg/L			11/03/19 01:51	1
Sulfate	<0.38		1.0	0.38	mg/L			11/03/19 01:51	1

Lab Sample ID: LCS 180-296903/80
Matrix: Water
Analysis Batch: 296903

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	48.5		mg/L		97	90 - 110
Fluoride	2.50	2.43		mg/L		97	90 - 110
Sulfate	50.0	49.1		mg/L		98	90 - 110

Lab Sample ID: 180-97057-4 MS
Matrix: Water
Analysis Batch: 296903

Client Sample ID: ARGWA-20
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.2		125	144		mg/L		111	80 - 120
Fluoride	0.036	J	6.25	5.75		mg/L		91	80 - 120
Sulfate	17	F1	125	198	F1	mg/L		145	80 - 120

Lab Sample ID: 180-97057-4 MSD
Matrix: Water
Analysis Batch: 296903

Client Sample ID: ARGWA-20
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	5.2		125	144		mg/L		111	80 - 120	0	20
Fluoride	0.036	J	6.25	5.80		mg/L		92	80 - 120	1	20
Sulfate	17	F1	125	198	F1	mg/L		145	80 - 120	0	20

Method: EPA 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-294901/1-A
Matrix: Water
Analysis Batch: 295911

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 294901

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.000358	J	0.0010	0.00032	mg/L		10/15/19 12:22	10/23/19 14:27	1
Barium	<0.0016		0.010	0.0016	mg/L		10/15/19 12:22	10/23/19 14:27	1
Cadmium	0.000268	J	0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:27	1
Lead	0.000420	J	0.0010	0.00013	mg/L		10/15/19 12:22	10/23/19 14:27	1
Selenium	0.00151	J	0.0050	0.0015	mg/L		10/15/19 12:22	10/23/19 14:27	1
Lithium	17.4		5.0	3.4	ug/L		10/15/19 12:22	10/23/19 14:27	1
Calcium	<0.13		0.50	0.13	mg/L		10/15/19 12:22	10/23/19 14:27	1
Boron	<0.039		0.080	0.039	mg/L		10/15/19 12:22	10/23/19 14:27	1
Cobalt	<0.075		0.50	0.075	ug/L		10/15/19 12:22	10/23/19 14:27	1
Chromium	<1.5		2.0	1.5	ug/L		10/15/19 12:22	10/23/19 14:27	1

Method: EPA 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-294901/1-A
Matrix: Water
Analysis Batch: 297456

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 294901

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<3.4		5.0	3.4	ug/L		10/15/19 12:22	11/07/19 06:01	1
Calcium	<0.13		0.50	0.13	mg/L		10/15/19 12:22	11/07/19 06:01	1
Boron	<0.039		0.080	0.039	mg/L		10/15/19 12:22	11/07/19 06:01	1
Cobalt	<0.075		0.50	0.075	ug/L		10/15/19 12:22	11/07/19 06:01	1
Chromium	<1.5		2.0	1.5	ug/L		10/15/19 12:22	11/07/19 06:01	1

Lab Sample ID: LCS 180-294901/2-A
Matrix: Water
Analysis Batch: 295911

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 294901

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	0.926		mg/L		93	80 - 120
Barium	1.00	0.984		mg/L		98	80 - 120
Cadmium	0.500	0.499		mg/L		100	80 - 120
Lead	0.500	0.461		mg/L		92	80 - 120
Selenium	1.00	0.925		mg/L		92	80 - 120
Lithium	500	474		ug/L		95	80 - 120
Silver	0.250	0.215		mg/L		86	80 - 120
Calcium	25.0	25.4		mg/L		102	80 - 120
Boron	1.25	1.13		mg/L		91	80 - 120
Cobalt	500	462		ug/L		92	80 - 120
Chromium	500	495		ug/L		99	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-294600/2
Matrix: Water
Analysis Batch: 294600

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			10/11/19 12:06	1

Lab Sample ID: LCS 180-294600/1
Matrix: Water
Analysis Batch: 294600

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	633	628		mg/L		99	80 - 120

Lab Sample ID: 180-97057-5 DU
Matrix: Water
Analysis Batch: 294600

Client Sample ID: ARGWC-21
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	420		428		mg/L		0.9	10

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-446085/21-A
Matrix: Water
Analysis Batch: 449238

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446085

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.07641	U	0.0764	0.0767	1.00	0.121	pCi/L	10/14/19 15:32	11/06/19 12:16	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.3*		*40 - 110*	*10/14/19 15:32*	*11/06/19 12:16*	*1*

Lab Sample ID: LCS 160-446085/1-A
Matrix: Water
Analysis Batch: 449238

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446085

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	10.05		1.09	1.00	0.155	pCi/L	89	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*74.9*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-446088/21-A
Matrix: Water
Analysis Batch: 448150

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 446088

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2521	U	0.242	0.243	1.00	0.390	pCi/L	10/14/19 16:21	10/29/19 17:44	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.3*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:44*	*1*
Y Carrier	*86.0*		*40 - 110*	*10/14/19 16:21*	*10/29/19 17:44*	*1*

Lab Sample ID: LCS 160-446088/1-A
Matrix: Water
Analysis Batch: 448159

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 446088

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.45	10.31		1.28	1.00	0.646	pCi/L	109	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*74.9*		*40 - 110*
Y Carrier	*87.1*		*40 - 110*

HPLC/IC

Analysis Batch: 296903

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-97057-1	DUP-2	Total/NA	Water	300.0	
180-97057-2	ARGWA-19	Total/NA	Water	300.0	
180-97057-3	FB-2-10-7-19	Total/NA	Water	300.0	
180-97057-4	ARGWA-20	Total/NA	Water	300.0	
180-97057-5	ARGWC-21	Total/NA	Water	300.0	
180-97057-6	EB-2-10-8-19	Total/NA	Water	300.0	
MB 180-296903/81	Method Blank	Total/NA	Water	300.0	
LCS 180-296903/80	Lab Control Sample	Total/NA	Water	300.0	
180-97057-4 MS	ARGWA-20	Total/NA	Water	300.0	
180-97057-4 MSD	ARGWA-20	Total/NA	Water	300.0	

Metals

Prep Batch: 294901

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-97057-1	DUP-2	Total Recoverable	Water	3005A	
180-97057-2	ARGWA-19	Total Recoverable	Water	3005A	
180-97057-3	FB-2-10-7-19	Total Recoverable	Water	3005A	
180-97057-4	ARGWA-20	Total Recoverable	Water	3005A	
180-97057-5	ARGWC-21	Total Recoverable	Water	3005A	
180-97057-6	EB-2-10-8-19	Total Recoverable	Water	3005A	
MB 180-294901/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-294901/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 295911

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-97057-1	DUP-2	Total Recoverable	Water	EPA 6020	294901
180-97057-2	ARGWA-19	Total Recoverable	Water	EPA 6020	294901
180-97057-3	FB-2-10-7-19	Total Recoverable	Water	EPA 6020	294901
180-97057-4	ARGWA-20	Total Recoverable	Water	EPA 6020	294901
180-97057-5	ARGWC-21	Total Recoverable	Water	EPA 6020	294901
180-97057-6	EB-2-10-8-19	Total Recoverable	Water	EPA 6020	294901
MB 180-294901/1-A	Method Blank	Total Recoverable	Water	EPA 6020	294901
LCS 180-294901/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	294901

Analysis Batch: 297456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-294901/1-A	Method Blank	Total Recoverable	Water	EPA 6020	294901

General Chemistry

Analysis Batch: 294600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-97057-1	DUP-2	Total/NA	Water	SM 2540C	
180-97057-2	ARGWA-19	Total/NA	Water	SM 2540C	
180-97057-3	FB-2-10-7-19	Total/NA	Water	SM 2540C	
180-97057-4	ARGWA-20	Total/NA	Water	SM 2540C	
180-97057-5	ARGWC-21	Total/NA	Water	SM 2540C	
180-97057-6	EB-2-10-8-19	Total/NA	Water	SM 2540C	
MB 180-294600/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-294600/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-97057-5 DU	ARGWC-21	Total/NA	Water	SM 2540C	

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-97057-1
SDG: AP2

Rad

Prep Batch: 446085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-97057-1	DUP-2	Total/NA	Water	PrecSep-21	
180-97057-2	ARGWA-19	Total/NA	Water	PrecSep-21	
180-97057-3	FB-2-10-7-19	Total/NA	Water	PrecSep-21	
180-97057-4	ARGWA-20	Total/NA	Water	PrecSep-21	
180-97057-5	ARGWC-21	Total/NA	Water	PrecSep-21	
180-97057-6	EB-2-10-8-19	Total/NA	Water	PrecSep-21	
MB 160-446085/21-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-446085/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 446088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-97057-1	DUP-2	Total/NA	Water	PrecSep_0	
180-97057-2	ARGWA-19	Total/NA	Water	PrecSep_0	
180-97057-3	FB-2-10-7-19	Total/NA	Water	PrecSep_0	
180-97057-4	ARGWA-20	Total/NA	Water	PrecSep_0	
180-97057-5	ARGWC-21	Total/NA	Water	PrecSep_0	
180-97057-6	EB-2-10-8-19	Total/NA	Water	PrecSep_0	
MB 160-446088/21-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-446088/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

TestAmerica Pitts

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: JBarford, AS	Lab PM:	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-344-5948	E-Mail:		Page: Page
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals - App III (Boron, Calcium)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	State Metals (arsenic, barium, cadmium, lead, silver, and selenium)	Detected A4: Radium 226 & 228 (SW-846 9315/9320)	Detected A4: Metals (Arsenic, Barium, Chromium, Cobalt, Lithium, Selenium)	Total Number of containers	Special Instructions/Note:
			Preservation Code:										
DUP-2	—	—	G	Water	N	N	✓	✓	✓	✓	✓	3	
ARGWA-19	10-7-19	1325	G	Water	N	N	✓	✓	✓	✓	✓	3	
FB-2-10-7-19	10-7-19	1320	G	Water	N	N	✓	✓	✓	✓	✓	3	
ARGWA-20	10-7-19	1440	G	Water	N	N	✓	✓	✓	✓	✓	3	
ARGWC-21	10-8-19	1530	G	Water	N	N	✓	✓	✓	✓	✓	3	
EB-2-10-8-19	10-8-19	1515	G	Water	N	N	✓	✓	✓	✓	✓	3	
			G	Water									
			G	Water									
			G	Water									
			G	Water									
			G	Water									

180-97057 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10-9-19 11:25	ACC		10/09/19 11:25	ETH
2		10/9/19 1600	ETH		10-10-19 9:00	TAL
3						

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Detected APP IV: Arsenic, Barium, Chromium, Cobalt, Fluoride, Lithium, Selenium, Radium

NORCROSS, GA 30093
UNITED STATES US

BILL RECIPIENT

TO SAMPLE RECEIVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC

FedEx Express

J18111806050luv

2 of 3
MPS# 0263 4651 0084 1481
Mstr# 4651 0084 1470

0201

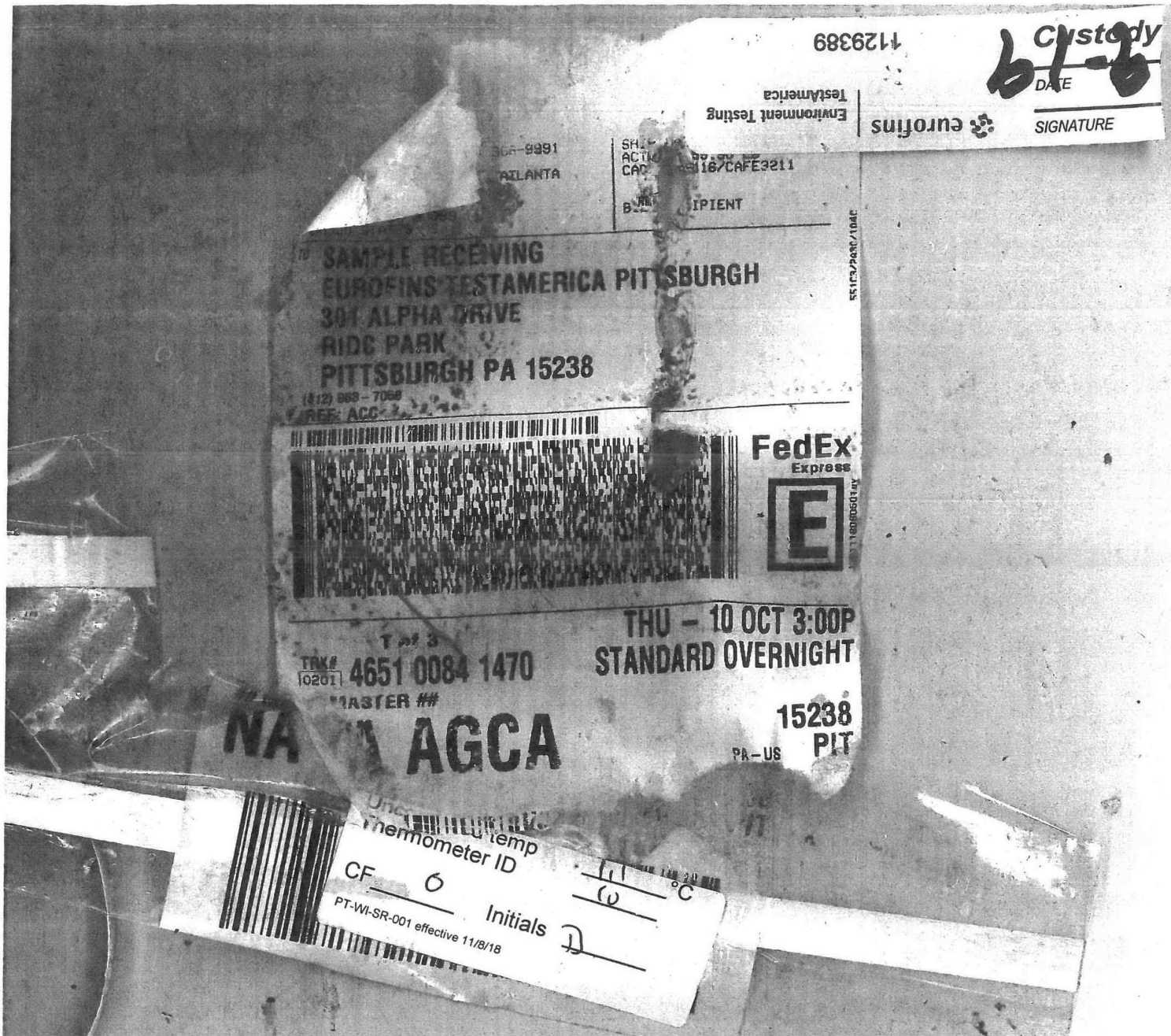
THU - 10 OCT 3:00P
STANDARD OVERNIGHT

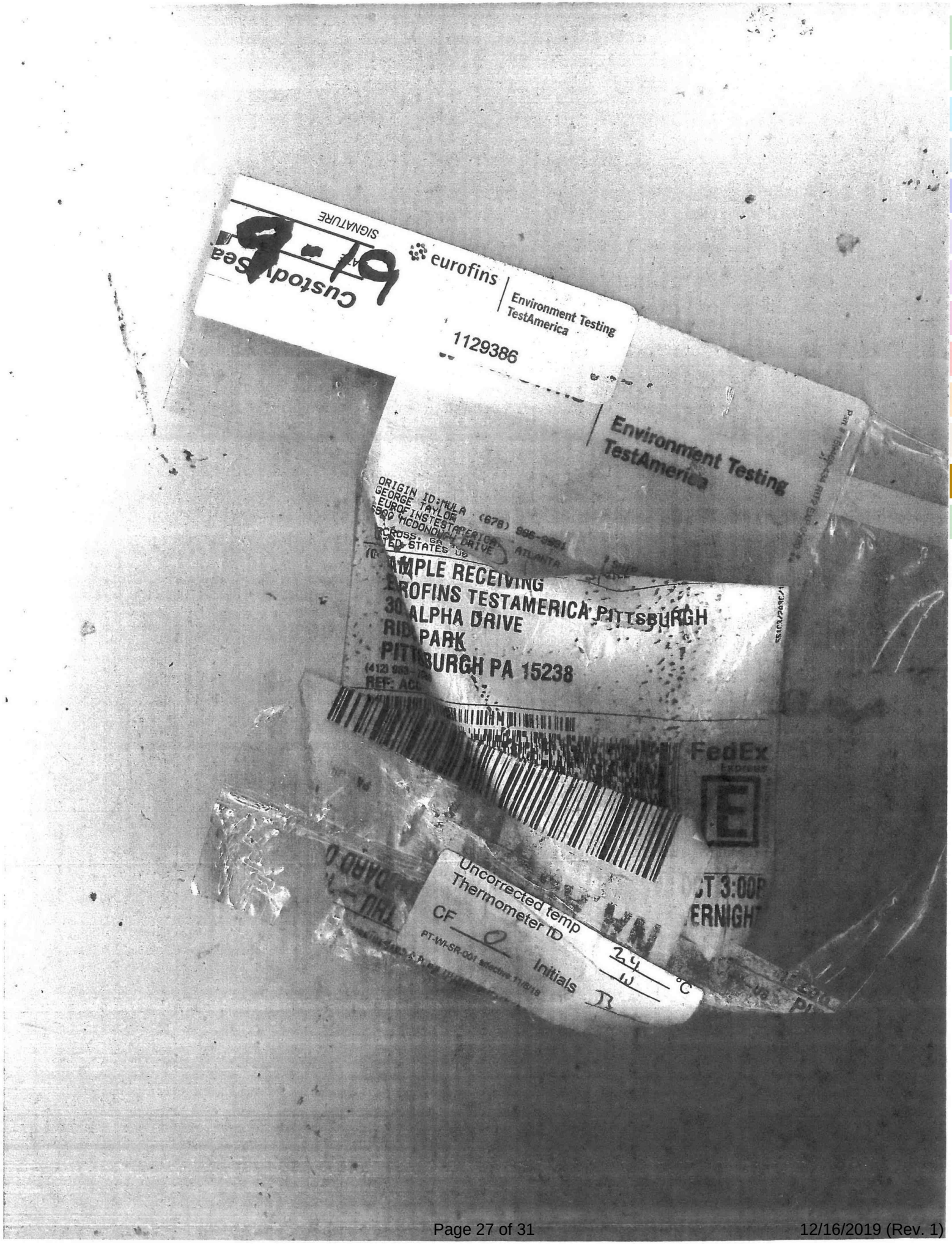
NA AGCA

15238
PA-US PIT

Uncorrected temp
Thermometer ID
CF 0
Initials
21.0 °C
PT-WI-SR-001 effective 11/8/18

180-97057 Waybill


Custody
DATE
SIGNATURE
eurofins
Environment Testing
TestAmerica
1129389
SAMPLE RECEIVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DRIVE
RIDC PARK
PITTSBURGH PA 15238
FedEx
Express
THU - 10 OCT 3:00P
STANDARD OVERNIGHT
4651 0084 1470
15238
PIT
PA-US
AGCA
Thermometer ID
CF 6
Initials
PT-WI-SR-001 effective 11/8/18


Custody Sea
SIGNATURE
eurofins
Environment Testing
TestAmerica
1129386
Environment Testing
TestAmerica
ORIGIN ID:MULA
GEORGE TAYLOR
EUROFINS TESTAMERICA
500 MCDONOUGH DRIVE
ATLANTA
UNITED STATES US
MPLE RECEIVING
ROFINS TESTAMERICA PITTSBURGH
30 ALPHA DRIVE
RIDGE PARK
PITTSBURGH PA 15238
FedEx
Uncorrected temp
Thermometer ID
CF 0
Initials
24
W
°C

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-375855.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-97057-1
Address: 13715 Rider Trail North,	Due Date Requested: 10/22/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant Arkwright Ash Pond 2	Project #: 18020201			
Site: Georgia Power Site Sampling Data (GW)	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium 226	9320_Ra228/PrecSep_0 Radium 228	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
DUP-2 (180-97057-1)	10/7/19	Eastern		Water			X	X	X	1	
ARGWA-19 (180-97057-2)	10/7/19	13:25 Eastern		Water			X	X	X	1	
FB-2-10-7-19 (180-97057-3)	10/7/19	13:20 Eastern		Water			X	X	X	1	
ARGWA-20 (180-97057-4)	10/7/19	14:40 Eastern		Water			X	X	X	1	
ARGWC-21 (180-97057-5)	10/8/19	15:30 Eastern		Water			X	X	X	1	
EB-2-10-8-19 (180-97057-6)	10/8/19	15:15 Eastern		Water			X	X	X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	10/10/19 1700			10-11-19 09:10	TAL SR
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-375855.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-97057-1
Address: 13715 Rider Trail North,	Due Date Requested: 10/22/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045	PO #:			
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	WO #:			
Email:				
Project Name: CCR - Plant Arkwright Ash Pond 2	Project #: 18020201			
Site: Georgia Power Site Sampling Data (GW)	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium 226	9320_Ra228/PrecSep_0 Radium 228	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
DUP-2 (180-97057-1)	10/7/19	Eastern		Water			X	X	X	1	
ARGWA-19 (180-97057-2)	10/7/19	13:25 Eastern		Water			X	X	X	1	
FB-2-10-7-19 (180-97057-3)	10/7/19	13:20 Eastern		Water			X	X	X	1	
ARGWA-20 (180-97057-4)	10/7/19	14:40 Eastern		Water			X	X	X	1	
ARGWC-21 (180-97057-5)	10/8/19	15:30 Eastern		Water			X	X	X	1	
EB-2-10-8-19 (180-97057-6)	10/8/19	15:15 Eastern		Water			X	X	X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/10/19 1700			10-11-19 09:10	TH STL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-97057-1
SDG Number: AP2

Login Number: 97057
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-97057-1
SDG Number: AP2

Login Number: 97057
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 10/11/19 01:51 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

LEVEL 2A LABORATORY DATA VALIDATIONS

Plant Arkwright Ash Pond 2

2nd Semi-Annual Event

October 2019

Georgia Power Company – Plant Arkwright Ash Pond 2

Quality Control Review of Analytical Data – October 2019

This narrative presents results of the Quality Control (QC) data review performed on analytical data submitted by Eurofins TestAmerica, Pittsburgh and St. Louis for groundwater samples collected at Plant Arkwright Ash Pond 2 between October 7, 2019 and October 8, 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 of this Appendix.

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 detected 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 (USEPA Method 300.0), Solids in Water (Standard Methods 2540C), Radium-226 (USEPA 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 Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy (September 2011, Rev. 2.0)[1] and the National Functional Guidelines for Inorganic Superfund Methods Data Review (January 2017)[2]. The review included an assessment of the results for completeness, precision (laboratory duplicate recoveries and matrix spike/matrix spike duplicate recoveries), accuracy (laboratory control samples and matrix spike samples), and blank contamination (field, equipment, and laboratory blanks). Sample receipt conditions, holding times, and chains of custody (COCs) were reviewed. Where there was a discrepancy between the QC criteria in the guidelines and the QC criterion established in the analytical methodology, method-specific criteria or professional judgment were used.

DATA QUALITY OBJECTIVES

Laboratory Precision: Laboratory goals for precision were met.

Field Precision: Field goals for precision were met, with the exceptions of Selenium, Lead, Lithium, and Silver on ARGWA-20 (180-97057-4) and DUP-2 (180-97057-1) as described in the qualifications section below.

Accuracy: Laboratory goals for accuracy were met, with the exception of Sulfate on ARGWA-20 (180-97057-4) as described in the qualifications section below.

Detection Limits: Project goals for detection limits were met.

Completeness: There were no rejected analytical results for this event, resulting in a completion of 100%.

Holding Times: Holding time requirements were met.

QUALIFICATIONS

In general, chemical results for the samples collected at the site were qualified on the basis of low precision or low 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 validation process:

J: The analyte was positively identified above the method detection limit; however, the associated numerical value is the approximate concentration of the analyte in the sample

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. The applied qualifications may not have been required for all samples collected at the site. A summary of sample qualifications can be found in Table 2 of this Appendix.

- Samples ARGWA-20 (180-97057-4) and DUP-2 (180-97057-1) were qualified as estimated (J) for Selenium, Lead, Lithium, and Silver as the respective field RPDs exceeded QC criteria (43.9%, 80.8%, 65.3%, and 78.4%, respectively, above limit of 25).

- Sample ARGWA-20 (180-97057-4) was qualified as estimated (J) for Sulfate as the matrix spike and matrix spike duplicate recoveries exceeded QC criteria (both 145% above range of 80-120).

- Certain metals analytes in SDG 97057 were qualified as non-detect (U) due to the analyte being detected at a similar concentration in an associated blank sample. As shown in Table 2, when the original sample result was above the reporting limit (RL), both the RL and method detection limit (MDL) were raised to the sample result as part of the qualification process. When the original sample result was between the RL, only the MDL was raised to the sample result as part of the qualification process.

- Certain radium results in SDG 97057 were qualified as non-detect (U) due to the analyte being detected at a similar concentration in an associated blank sample. As shown in Table 2, the minimum detectable concentration (MDC) was raised to the sample result as part of the qualification process.

Atlantic Coast Consulting, Inc. reviewed the laboratory data from the Plant Arkwright Ash Pond 2 sampled between October 7, 2019 and October 8, 2019 in accordance with the analytical methods, the laboratory-specified QC criteria, and the guidelines. As described above, the results were acceptable for project use.

REFERENCES

[1]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

[2]USEPA, January 2017, National Office of Superfund Remediation and Technology Innovation, National Functional Guidelines for Inorganic Superfund Methods Data Review, Revision 0.0

TABLE 1

Georgia Power Company – Plant Arkwright Ash Pond 2

Sample Summary Table – October 2019

						Analyses			
SDG	Field Identification	Collection Date	Lab Identification	Matrix	QC Samples	Metals (6020B, 7470A)	Anions (300.0)	TDS (SM 2540C)	Radium-226/-228 (9315, 9320)
97057	DUP-2	10/7/2019	180-97057-1	GW	FD (ARGWA-20)	X	X	X	X
97057	ARGWA-19	10/7/2019	180-97057-2	GW		X	X	X	X
97057	FB-2-10-7-19	10/7/2019	180-97057-3	WQ	FB	X	X	X	X
97057	ARGWA-20	10/7/2019	180-97057-4	GW		X	X	X	X
97057	ARGWC-21	10/8/2019	180-97057-5	GW		X	X	X	X
97057	EB-2-10-8-19	10/8/2019	180-97057-6	WQ	EB	X	X	X	X

Abbreviations:
EB – Equipment Blank
FB – Field Blank
FD – Field Duplicate
GW – Groundwater
QC – Quality Control
TDS – Total Dissolved Solids
WQ – Water Quality Control

TABLE 2

Georgia Power Company – Plant Arkwright Ash Pond 2

Qualifier Summary Table – October 2019

SDG	Field Identification	Constituent	New RL	New MDL or MDC	Qualifier	Reason
97057	ARGWA-19	Lead		0.00018	U	Blank detection
97057	ARGWA-19	Lithium	0.013	0.013	U	Blank detection
97057	ARGWA-19	Radium-228		0.273	U	Blank detection
97057	ARGWA-20	Sulfate			J	MS/MSD exceed QC criteria
97057	ARGWA-20	Selenium			J	RPD exceeds field goal
97057	ARGWA-20	Lead			J	RPD exceeds field goal
97057	ARGWA-20	Lithium			J	RPD exceeds field goal
97057	ARGWA-20	Silver			J	RPD exceeds field goal
97057	DUP-2	Selenium			J	RPD exceeds field goal
97057	DUP-2	Lead			J	RPD exceeds field goal
97057	DUP-2	Lithium			J	RPD exceeds field goal
97057	DUP-2	Silver			J	RPD exceeds field goal
97057	ARGWA-20	Radium-228		0.412	U	Blank detection
97057	ARGWC-21	Arsenic		0.0012	U	Blank detection
97057	ARGWC-21	Lead		0.00015	U	Blank detection
97057	ARGWC-21	Lithium	0.015	0.015	U	Blank detection
97057	ARGWC-21	Radium-228		0.318	U	Blank detection

Abbreviations:
MDC – Minimum Detectable Concentration
MS/MSD – Matrix Spike / Matrix Spike Duplicate
MDL – Method Detection Limit
RL – Reporting Limit
RPD – Relative Percent Difference
SDG – Sample Delivery Group

Qualifiers:
J – Estimated Result
ND – Non-Detect Result

Product Name: Low-Flow System

Date: 2019-10-07 13:27:13

Project Information:		Pump Information:	
Operator Name	Jordan Berisford	Pump Model/Type	QED Bladder Pump
Company Name	Atlantic Coast Consulting	Tubing Type	poly
Project Name	Plant Arkwright - Ash Pond 2	Tubing Diameter	0.25 in
Site Name	Plant Arkwright	Tubing Length	52 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	588863		
Turbidity Make/Model	HACH 2100Q	Pump placement from TOC	47 ft

Well Information:		Pumping Information:	
Well ID	ARGWA-19	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.986942 L
Well Total Depth	52.74 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	1.9 in
Depth to Water	30.49 ft	Total Volume Pumped	3.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 100	+/- 0.1	+/- 5%	+/- 100		+/- 10%	+/- 100
Last 5	13:05:16	300.09	26.69	6.20	204.96	0.62	30.60	4.25	79.12
Last 5	13:10:15	600.02	25.45	5.90	210.65	0.88	30.60	4.30	64.43
Last 5	13:15:15	900.02	23.95	5.87	208.87	0.97	30.60	4.23	61.76
Last 5	13:20:15	1200.01	23.25	5.88	208.15	0.39	30.60	4.25	61.35
Last 5	13:25:16	1501.01	23.97	5.89	207.68	0.51	30.60	4.23	59.19
Variance 0			-1.50	-0.03	-1.78			-0.07	-2.67
Variance 1			-0.70	0.01	-0.71			0.02	-0.41
Variance 2			0.72	0.01	-0.48			-0.02	-2.16

Notes

Sunny, 80s, sample Time -1325,FB-2-10-7-19 here at 1320

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-07 14:41:57

Project Information:		Pump Information:	
Operator Name	Jordan Berisford	Pump Model/Type	QED Bladder Pump
Company Name	Atlantic Coast Consulting	Tubing Type	poly
Project Name	Plant Arkwright - Ash Pond 2	Tubing Diameter	0.25 in
Site Name	Plant Arkwright	Tubing Length	37 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	588863		
Turbidity Make/Model	HACH 2100Q	Pump placement from TOC	32 ft

Well Information:		Pumping Information:	
Well ID	ARGWA-20	Final Pumping Rate	350 mL/min
Well diameter	2 in	Total System Volume	0.8421511 L
Well Total Depth	37.70 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0.4 in
Depth to Water	18.00 ft	Total Volume Pumped	12.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 100	+/- 0.1	+/- 5%	+/- 100		+/- 10%	+/- 100
Last 5	14:20:11	900.01	18.46	5.63	133.94	1.58	18.20	6.07	55.65
Last 5	14:25:11	1200.01	18.25	5.63	141.71	1.83	18.20	5.99	57.62
Last 5	14:30:11	1500.01	18.07	5.63	134.83	1.92	18.20	6.13	58.18
Last 5	14:35:11	1800.00	18.02	5.66	135.54	2.84	18.20	5.97	57.99
Last 5	14:40:12	2101.00	17.87	5.65	136.31	2.06	18.20	6.03	59.89
Variance 0			-0.18	0.00	-6.88			0.14	0.56
Variance 1			-0.05	0.03	0.71			-0.16	-0.19
Variance 2			-0.16	-0.01	0.77			0.06	1.89

Notes

Sunny, 80s sample Time 1440, DUP-2 here

Grab Samples

Product Name: Low-Flow System

Date: 2019-10-08 15:33:03

Project Information:		Pump Information:	
Operator Name	Anna Schnittker	Pump Model/Type	QED Bladder Pump
Company Name	Atlantic Coast Consulting	Tubing Type	poly
Project Name	Plant Arkwright - Ash Pond 2	Tubing Diameter	.25 in
Site Name	Plant Arkwright	Tubing Length	27 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	647057		
Turbidity Make/Model	HACH 2100Q	Pump placement from TOC	22 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-21	Final Pumping Rate	60 mL/min
Well diameter	2 in	Total System Volume	0.7456238 L
Well Total Depth	27.28 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	16 in
Depth to Water	14.43 ft	Total Volume Pumped	3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 100	+/- 0.1	+/- 5%	+/- 100		+/- 10%	+/- 100
Last 5	15:10:40	1800.47	24.31	6.10	630.74	7.89	15.74	0.72	93.79
Last 5	15:15:40	2100.47	24.33	6.10	632.84	6.42	15.86	0.66	91.04
Last 5	15:20:41	2401.47	24.82	6.11	633.27	5.05	15.86	0.53	88.24
Last 5	15:25:41	2701.47	24.31	6.11	630.62	4.43	15.86	0.42	86.42
Last 5	15:30:42	3002.47	24.08	6.11	632.85	3.32	15.86	0.36	84.57
Variance 0			0.49	0.00	0.43			-0.14	-2.79
Variance 1			-0.51	0.00	-2.65			-0.11	-1.83
Variance 2			-0.23	0.00	2.23			-0.05	-1.85

Notes

Sunny, 85. Sample time: 15:30. Equipment Blank: Gloves @ 15:15.

Grab Samples

WELL CONDITION SUMMARY

ATLANTIC COAST CONSULTING, INC.

Site: Plant Arkwright

Personell: AS / SB

Date(s): 10/7/19

Page: 1 of 2

Well ID	Protective Casing	Well Casing	Label	Bollards	Lock	Well Pad	Weep Hole	Vent Hole	Notes
ARGWA-3	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-5	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-12	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-13	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-14	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	well pad loose
ARGWC-7	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-8	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	one of the Bollards is loose wellpad loose
ARGWC-9	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-10	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-15	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	

WELL CONDITION SUMMARY

ATLANTIC COAST CONSULTING, INC.

Site: Plant Arkwright

Personell: AS / JB

Date(s): 10/7/19

Page: 2 of 2

Well ID	Protective Casing	Well Casing	Label	Bollards	Lock	Well Pad	Weep Hole	Vent Hole	Notes
ARGWC-16	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-17	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-18	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-19	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-20	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-21	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	

Georgia Power Site Sampling Data (GW)

Site Name : Plant Arkwright Date :

Well ID	Sample Date	Sample Time	Additional Comments
ASH POND #3			
ARGWA-3	10-8-19	1220	PH check : good
ARGWA-5	10-8-19	0940	
ARGWA-12	10-8-19	1100	
ARGWA-13	10-8-19	1405	
ARGWA-14	10-7-19	1625	
ARGWC-7	10-9-19	1115	
ARGWC-8	10-9-19	1315	PH check: good
ARGWC-9	10-9-19	1250	
ARGWC-10	10-9-19	1405	
ARGWC-15	10-8-19	1410	
ARGWC-16	10-9-19	0955	
ARGWC-17	10-9-19	1540	
ARGWC-18	10-9-19	1005	
EB-1-10-9-19	10-9-19	1430	Equipment type: Water level
Dup-1	10-8-10	1220	Parent Sample: ARGWA-3
FB-1-10-9-19	10-9-19	0930	Poured at: ARGWC-18
ASH POND #2			
ARGWA-19	10-7-19	1325	PH check : good
ARGWA-20	10-7-19	1440	
ARGWC-21	10-8-19	1530	
EB-2-10-8-19	10-8-19	1515	Equipment type: Gloves
Dup-2	10-7-19	1440	Parent Sample: ARGWA-20
FB-2-10-7-19	10-7-19	1320	Poured at: ARGWA-19

Additional comments :

* Add date to EB and FB sample IDs.

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-101057-1
Client Project/Site: CCR - Plant Arkwright

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Kathy Myers

Authorized for release by:
1/20/2020 1:54:30 PM
Kathy Myers, Project Management Assistant I
(412)963-2447
kathy.myers@testamericainc.com

Designee for

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101057-1

Job ID: 180-101057-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-101057-1

Comments
No additional comments.

Receipt
The samples were received on 1/16/2020 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101057-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101057-1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	01-31-20
Wisconsin	State	998027800	08-31-20

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101057-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-101057-1	ARAMW-1	Water	01/14/20 13:20	01/16/20 08:30	
180-101057-2	ARAMW-2	Water	01/14/20 14:39	01/16/20 08:30	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101057-1

Method	Method Description	Protocol	Laboratory
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101057-1

Client Sample ID: ARAMW-1

Date Collected: 01/14/20 13:20
Date Received: 01/16/20 08:30

Lab Sample ID: 180-101057-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	304164	01/16/20 11:43	RJR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1	1.0 mL	1.0 mL	304363	01/18/20 00:46	WTR	TAL PIT
	Instrument ID: M									

Client Sample ID: ARAMW-2

Date Collected: 01/14/20 14:39
Date Received: 01/16/20 08:30

Lab Sample ID: 180-101057-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	304164	01/16/20 11:43	RJR	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1	1.0 mL	1.0 mL	304363	01/18/20 01:11	WTR	TAL PIT
	Instrument ID: M									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

RJR = Ron Rosenbaum

Batch Type: Analysis

WTR = Bill Reinheimer

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101057-1

Client Sample ID: ARAMW-1

Lab Sample ID: 180-101057-1

Date Collected: 01/14/20 13:20

Matrix: Water

Date Received: 01/16/20 08:30

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0090		0.0050	0.0034	mg/L		01/16/20 11:43	01/18/20 00:46	1
Boron	1.1		0.080	0.039	mg/L		01/16/20 11:43	01/18/20 00:46	1

Client Sample ID: ARAMW-2

Lab Sample ID: 180-101057-2

Date Collected: 01/14/20 14:39

Matrix: Water

Date Received: 01/16/20 08:30

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.086		0.0050	0.0034	mg/L		01/16/20 11:43	01/18/20 01:11	1
Boron	1.8		0.080	0.039	mg/L		01/16/20 11:43	01/18/20 01:11	1

QC Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101057-1

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-304164/1-A
Matrix: Water
Analysis Batch: 304363

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 304164

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0034		0.0050	0.0034	mg/L		01/16/20 11:43	01/18/20 00:36	1
Boron	<0.039		0.080	0.039	mg/L		01/16/20 11:43	01/18/20 00:36	1

Lab Sample ID: LCS 180-304164/2-A
Matrix: Water
Analysis Batch: 304363

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 304164

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.500	0.490		mg/L		98	80 - 120
Boron	1.25	1.11		mg/L		89	80 - 120

Lab Sample ID: 180-101057-1 MS
Matrix: Water
Analysis Batch: 304363

Client Sample ID: ARAMW-1
Prep Type: Total Recoverable
Prep Batch: 304164

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0090		0.500	0.539		mg/L		106	75 - 125
Boron	1.1		1.25	2.23		mg/L		91	75 - 125

Lab Sample ID: 180-101057-1 MSD
Matrix: Water
Analysis Batch: 304363

Client Sample ID: ARAMW-1
Prep Type: Total Recoverable
Prep Batch: 304164

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lithium	0.0090		0.500	0.530		mg/L		104	75 - 125	2	20
Boron	1.1		1.25	2.22		mg/L		91	75 - 125	0	20

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 180-101057-1

Metals

Prep Batch: 304164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-101057-1	ARAMW-1	Total Recoverable	Water	3005A	
180-101057-2	ARAMW-2	Total Recoverable	Water	3005A	
MB 180-304164/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-304164/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-101057-1 MS	ARAMW-1	Total Recoverable	Water	3005A	
180-101057-1 MSD	ARAMW-1	Total Recoverable	Water	3005A	

Analysis Batch: 304363

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-101057-1	ARAMW-1	Total Recoverable	Water	EPA 6020B	304164
180-101057-2	ARAMW-2	Total Recoverable	Water	EPA 6020B	304164
MB 180-304164/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	304164
LCS 180-304164/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	304164
180-101057-1 MS	ARAMW-1	Total Recoverable	Water	EPA 6020B	304164
180-101057-1 MSD	ARAMW-1	Total Recoverable	Water	EPA 6020B	304164

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Ryan Walker	Lab PM: Veronica Bortot	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-594-5998	E-Mail: Veronica.Bortot@testamericainc.com		Page: Page
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days): 2 DAY TAT			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals (boron and lithium)	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D		
ARAMW-1	1-14-20	1320	G	Water	N	N	1	1	
ARAMW-2	1-14-20	1439	G	Water	N	N	1	1	
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					
				Water					

180-101057 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		1-15-20 1430	HCL		1/15/20 1430	ETA
2		1/15/20 1640	ETA			
3					1/16/20 830	ETAPIA

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-101057-1

Login Number: 101057
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Product Name: Low-Flow System

Date: 2020-01-14 13:21:04

Project Information:		Pump Information:	
Operator Name	Ryan Walker	Pump Model/Type	Peristaltic pump
Company Name	Atlantic Coast Consulting	Tubing Type	poly
Project Name	Plant Arkwright - Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright	Tubing Length	45 ft
Latitude	32° 55' 17.15"		
Longitude	-83° -42' -7.91"		
Sonde SN	369557		
Turbidity Make/Model	Hach 2100Q	Pump placement from TOC	40 ft

Well Information:		Pumping Information:	
Well ID	ARAMW-1	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.290854 L
Well Total Depth	45.33 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	2 in
Depth to Water	7.92 ft	Total Volume Pumped	5.1 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 0.3	+/- 10
Last 5	12:58:23	300.04	19.64	6.17	768.47	1.01	8.10	0.31	21.97
Last 5	13:03:23	600.02	19.50	6.13	768.28	1.38	8.10	0.25	17.88
Last 5	13:08:23	900.01	19.45	6.10	766.99	1.05	8.10	0.24	16.57
Last 5	13:13:23	1200.00	19.40	6.08	768.19	1.05	8.10	0.23	15.27
Last 5	13:18:23	1499.99	19.36	6.07	767.66	0.90	8.10	0.22	12.68
Variance 0			-0.05	-0.03	-1.28			-0.01	-1.31
Variance 1			-0.05	-0.02	1.20			-0.01	-1.30
Variance 2			-0.05	-0.01	-0.53			-0.01	-2.59

Notes

Sampled at 13:20. Cloudy, 60’s.

Grab Samples

Product Name: Low-Flow System

Date: 2020-01-14 14:40:23

Project Information:		Pump Information:	
Operator Name	Ryan Walker	Pump Model/Type	Peristaltic pump
Company Name	Atlantic Coast Consulting	Tubing Type	poly
Project Name	Plant Arkwright - Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright	Tubing Length	24 ft
Latitude	32° 55' 16.98"		
Longitude	-83° -42' -8.02"		
Sonde SN	369557		
Turbidity Make/Model	Hach 2100Q	Pump placement from TOC	19 ft

Well Information:		Pumping Information:	
Well ID	ARAMW-2	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.1971222 L
Well Total Depth	24.84 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	1 in
Depth to Water	7.56 ft	Total Volume Pumped	9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 0.3	+/- 10
Last 5	14:19:43	1500.00	18.91	6.11	1156.91	4.22	7.60	0.19	-23.22
Last 5	14:24:43	1799.99	18.87	6.11	1188.26	2.33	7.60	0.17	-23.41
Last 5	14:29:43	2099.99	18.89	6.11	1215.88	1.14	7.60	0.15	-23.45
Last 5	14:34:43	2399.98	18.87	6.12	1240.83	0.86	7.60	0.15	-23.49
Last 5	14:39:43	2699.98	18.87	6.12	1251.67	3.01	7.60	0.14	-23.37
Variance 0			0.02	0.01	27.62			-0.02	-0.04
Variance 1			-0.02	0.01	24.95			0.00	-0.05
Variance 2			-0.00	0.00	10.84			-0.01	0.13

Notes

Sampled at 14:39. Raining, 60’s.

Grab Samples

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

Laboratory Job ID: 400-184345-1
Laboratory Sample Delivery Group: Ash Pond 2
Client Project/Site: CCR - Plant Arkwright

For:
Southern Company
PO BOX 2641 GSC8
Birmingham, Alabama 35291

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
2/27/2020 4:49:35 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

Table of Contents

Job ID: 400-184345-1

Laboratory: Eurofins TestAmerica, Pensacola

Narrative

Job Narrative
400-184345-1

Comments
No additional comments.

Receipt
The sample was received on 2/25/2020 9:33 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.2º C.

Metals
Method 6020: The ISTD recovery outside SOP's criteria. The LCS recover within SOP's limits; therefore data is report.

(CCV 400-479706/29) and (LCS 400-479414/2-A ^5)

Method 6020: The matrix spike and matrix spike duplicate (MS/MSD) for the following sample associated with preparation batch 400-479414 and analytical batch 400-479706 recovered outside acceptance limits for Lithium, (400-184345-A-1-B MS ^5) and (400-184345-A-1-C MSD ^5). A post digestion spike (PDS) was performed with acceptable recoveries obtained. The results have been reported.

Method 6020: The ISTD recover outside SOP's criteria.

(CCB 400-479706/37)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184345-1
SDG: Ash Pond 2

Client Sample ID: ARAMW-2

Lab Sample ID: 400-184345-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.19	F2 F1	0.0050	0.0019	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184345-1
SDG: Ash Pond 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
400-184345-1	ARAMW-2	Water	02/24/20 10:11	02/25/20 09:33	

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184345-1
SDG: Ash Pond 2

Client Sample ID: ARAMW-2
Date Collected: 02/24/20 10:11
Date Received: 02/25/20 09:33

Lab Sample ID: 400-184345-1
Matrix: Water

Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.19	F2 F1	0.0050	0.0019	mg/L		02/25/20 15:15	02/26/20 19:20	5

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184345-1
SDG: Ash Pond 2

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184345-1
SDG: Ash Pond 2

Metals

Prep Batch: 479414

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-184345-1	ARAMW-2	Total Recoverable	Water	3005A	
MB 400-479414/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-479414/2-A ^5	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 479706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-184345-1	ARAMW-2	Total Recoverable	Water	6020	479414
MB 400-479414/1-A ^5	Method Blank	Total Recoverable	Water	6020	479414
LCS 400-479414/2-A ^5	Lab Control Sample	Total Recoverable	Water	6020	479414

QC Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184345-1
SDG: Ash Pond 2

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-479414/1-A ^5
Matrix: Water
Analysis Batch: 479706

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 479414

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0019		0.0050	0.0019	mg/L		02/25/20 15:15	02/26/20 19:09	5

Lab Sample ID: LCS 400-479414/2-A ^5
Matrix: Water
Analysis Batch: 479706

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 479414

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0500	0.0472		mg/L		94	80 - 120

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184345-1
SDG: Ash Pond 2

Client Sample ID: ARAMW-2

Lab Sample ID: 400-184345-1

Date Collected: 02/24/20 10:11

Matrix: Water

Date Received: 02/25/20 09:33

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	479414	02/25/20 15:15	NET	TAL PEN
Total Recoverable	Analysis	6020		5			479706	02/26/20 19:20	LDC	TAL PEN

Client Sample ID: Method Blank

Lab Sample ID: MB 400-479414/1-A ^5

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	479414	02/25/20 15:15	NET	TAL PEN
Total Recoverable	Analysis	6020		5	1.0 mL	5 mL	479706	02/26/20 19:09	LDC	TAL PEN

Client Sample ID: Lab Control Sample

Lab Sample ID: LCS 400-479414/2-A ^5

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	479414	02/25/20 15:15	NET	TAL PEN
Total Recoverable	Analysis	6020		5	1.0 mL	5 mL	479706	02/26/20 19:14	LDC	TAL PEN

Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184345-1
SDG: Ash Pond 2

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184345-1
SDG: Ash Pond 2

Laboratory: Eurofins TestAmerica, Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alabama	State	40150	07-01-20
ANAB	ISO/IEC 17025	L2471	02-23-23
Arizona	State	AZ0710	01-13-21
Arkansas DEQ	State	88-0689	09-01-20
California	State	2510	07-01-20
Florida	NELAP	E81010	06-30-20
Georgia	State	E81010(FL)	06-30-20
Illinois	NELAP	004586	10-09-19 *
Illinois	NELAP	004586	10-09-20
Iowa	State	367	08-01-20
Kansas	NELAP	E-10253	08-16-20
Kentucky (UST)	State	53	06-30-20
Kentucky (WW)	State	KY98030	12-31-20
Louisiana	NELAP	30976	06-30-20
Louisiana (DW)	State	LA017	12-31-20
Maryland	State	233	09-30-20
Massachusetts	State	M-FL094	06-30-20
Michigan	State	9912	05-06-20
Minnesota	NELAP	012-999-481	12-31-20
New Jersey	NELAP	FL006	06-30-20
New York	NELAP	12115	04-30-20
New York	NELAP Secondary AB	12115	04-01-20
North Carolina (WW/SW)	State	314	12-31-20
Oklahoma	State	9810-186	08-31-20
Pennsylvania	NELAP	68-00467	01-31-21
Rhode Island	State	LAO00307	12-30-20
South Carolina	State	96026002	06-30-20
Tennessee	State	TN02907	06-30-20
Texas	NELAP	T104704286	09-30-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-18-00148	05-17-21
Virginia	NELAP	460166	06-14-20
Washington	State	C915	05-15-20
West Virginia DEP	State	136	06-30-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184345-1
SDG: Ash Pond 2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20 *
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pittsburgh Pensacola
301 Alpha Drive RIDC Park 3355 McLemore Dr
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468 Pensacola, FL 32514

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL

400-184345 COC

Client Information	Sampler: JBenshel	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-598-3448	E-Mail: <Veronica.Bortot@testamericainc.com>		Page: Page
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days): 2 DAY !			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals App. III and APP IV (EPA 6020/7470)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	Radium 226 & 228 (SW-846 9315/9320)	Lithium 6020	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D	D		
ARAMW-2	2/24/20	1011	G	Water	N	N				✓	1	~~APP III, APP IV~~
			G	Water								
			G	Water								
			G	Water								681-Atlanta
			G	Water								
			G	Water								
			G	Water								
			G	Water								
			G	Water								
			G	Water								
			G	Water								

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time	Company		Date/Time	Company
Relinquished by:	2/24/20 1230	Acc	Received by:	2/24/20 1230	ETA
Relinquished by:	2/24/20 1600	ETA	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	2-25-20 9:33	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		2.2°C IR8

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-184345-1
SDG Number: Ash Pond 2

Login Number: 184345
List Number: 1
Creator: Conrady, Hank W

List Source: Eurofins TestAmerica, Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2°C IR-8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Low-Flow Test Report:

Test Date / Time: 2/24/2020 9:00:21 AM
Project: Plant Arkwright - Ash Pond 2
Operator Name: Jordan Berisford

Location Name: ARAMW-2 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 14.84 ft** **Total Depth: 24.84 ft** **Initial Depth to Water: 12.07 ft**	**Pump Type: Peri Pump** **Tubing Type: Poly** **Pump Intake From TOC: 19 ft** **Estimated Total Volume Pumped: 25 L** **Flow Cell Volume: 90 ml** **Final Flow Rate: 350 ml/min Final Draw Down: 3 in**	**Instrument Used: Aqua TROLL 400** **Serial Number: 714302**

Test Notes:
Sampled at 10:11
Purged over 3 wells volumes.
3 well volumes =23,204 ml

Weather Conditions:
Light rain, 60s

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 100	+/- 5 %	+/- 10 %	+/- 100	+/- 100	+/- 0.3	
2/24/2020 9:00 AM	00:00	5.18 pH	14.08 °C	750.54 µS/cm	2.39 mg/L		156.0 mV	12.07 ft	350.00 ml/min
2/24/2020 9:05 AM	05:00	5.15 pH	14.22 °C	823.95 µS/cm	1.60 mg/L	52.00 NTU	136.1 mV	12.20 ft	350.00 ml/min
2/24/2020 9:10 AM	10:00	5.11 pH	13.95 °C	873.69 µS/cm	1.29 mg/L	24.00 NTU	166.4 mV	12.30 ft	350.00 ml/min
2/24/2020 9:15 AM	15:00	5.10 pH	14.38 °C	921.22 µS/cm	1.04 mg/L	17.00 NTU	165.3 mV	12.30 ft	350.00 ml/min
2/24/2020 9:20 AM	20:00	5.07 pH	14.43 °C	955.09 µS/cm	0.89 mg/L	11.00 NTU	123.3 mV	12.30 ft	350.00 ml/min
2/24/2020 9:25 AM	25:00	5.07 pH	14.51 °C	987.90 µS/cm	0.80 mg/L	10.00 NTU	159.6 mV	12.30 ft	350.00 ml/min
2/24/2020 9:29 AM	29:10	5.07 pH	14.79 °C	1,015.0 µS/cm	0.73 mg/L	9.12 NTU	160.6 mV	12.30 ft	350.00 ml/min
2/24/2020 9:34 AM	34:10	5.00 pH	14.97 °C	1,030.5 µS/cm	0.66 mg/L	7.38 NTU	121.9 mV	12.30 ft	350.00 ml/min
2/24/2020 9:36 AM	36:11	5.06 pH	14.86 °C	1,032.7 µS/cm	0.64 mg/L	6.68 NTU	155.9 mV	12.30 ft	350.00 ml/min
2/24/2020 9:41 AM	41:11	5.02 pH	14.85 °C	1,045.6 µS/cm	0.62 mg/L	6.07 NTU	160.5 mV	12.30 ft	350.00 ml/min
2/24/2020 9:46 AM	46:11	5.03 pH	14.82 °C	1,054.9 µS/cm	0.60 mg/L	5.39 NTU	120.2 mV	12.30 ft	350.00 ml/min
2/24/2020 9:51 AM	51:11	5.05 pH	14.80 °C	1,058.4 µS/cm	0.58 mg/L	4.72 NTU	159.2 mV	12.30 ft	350.00 ml/min

2/24/2020 9:56 AM	56:11	5.03 pH	14.80 °C	1,061.4 µS/cm	0.58 mg/L	4.63 NTU	119.6 mV	12.30 ft	350.00 ml/min
2/24/2020 10:01 AM	01:01:11	5.07 pH	15.14 °C	1,061.8 µS/cm	0.57 mg/L	4.35 NTU	118.5 mV	12.30 ft	350.00 ml/min
2/24/2020 10:06 AM	01:06:11	5.02 pH	15.19 °C	1,058.8 µS/cm	0.56 mg/L	4.54 NTU	117.4 mV	12.30 ft	350.00 ml/min
2/24/2020 10:11 AM	01:11:11	5.05 pH	14.98 °C	1,053.0 µS/cm	0.56 mg/L	4.64 NTU	116.8 mV	12.30 ft	350.00 ml/min
2/24/2020 10:11 AM	01:11:35	5.06 pH	14.95 °C	1,053.6 µS/cm	0.56 mg/L	4.64 NTU	145.7 mV	12.30 ft	350.00 ml/min

Samples

Sample ID:	Description:

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Pensacola
3355 McLemore Drive
Pensacola, FL 32514
Tel: (850)474-1001

Laboratory Job ID: 400-184504-1
Client Project/Site: CCR - Plant Arkwright

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
2/29/2020 8:07:11 PM

Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Job ID: 400-184504-1

Laboratory: Eurofins TestAmerica, Pensacola

Narrative

Job Narrative
400-184504-1

Comments
No additional comments.

Receipt
The sample was received on 2/27/2020 9:25 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.6º C.

Metals
Methods 200.8, 6020, 6020B: The ICV for 400-480013 passed recovery/accuracy criteria which serves the ICV purpose of verifying the calibration standards. The replicate RSD for the elements were outside of the criteria for standards but within the criteria for field samples. Data has therefore been reported and narrated accordingly.

(ICV 400-480013/15)

Method 6020B: The ICV for 400-480057 passed recovery/accuracy criteria which serves the ICV purpose of verifying the calibration standards. The replicate RSD for the elements were outside of the criteria for standards but within the criteria for field samples. Data has therefore been reported and narrated accordingly.

(ICV 400-480057/12)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Client Sample ID: ARAMW-1

Lab Sample ID: 400-184504-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	4.6	J	5.0	1.9	ug/L	5		6020B	Total Recoverable

This Detection Summary does not include radiochemical test results.

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
400-184504-1	ARAMW-1	Water	02/26/20 13:40	02/27/20 09:25	

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Client Sample ID: ARAMW-1
Date Collected: 02/26/20 13:40
Date Received: 02/27/20 09:25

Lab Sample ID: 400-184504-1
Matrix: Water

Method: 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	4.6	J	5.0	1.9	ug/L		02/28/20 10:17	02/29/20 14:56	5

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Metals

Prep Batch: 479853

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-184504-1	ARAMW-1	Total Recoverable	Water	3005A	
MB 400-479853/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-479853/2-A ^5	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 480057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-184504-1	ARAMW-1	Total Recoverable	Water	6020B	479853
MB 400-479853/1-A ^5	Method Blank	Total Recoverable	Water	6020B	479853
LCS 400-479853/2-A ^5	Lab Control Sample	Total Recoverable	Water	6020B	479853

QC Sample Results

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Method: 6020B - Metals (ICP/MS)

Lab Sample ID: MB 400-479853/1-A ^5
Matrix: Water
Analysis Batch: 480057

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 479853

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<1.9		5.0	1.9	ug/L		02/28/20 10:17	02/29/20 14:45	5

Lab Sample ID: LCS 400-479853/2-A ^5
Matrix: Water
Analysis Batch: 480057

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 479853

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Lithium			50.0	48.0		ug/L		96	80 - 120		

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Client Sample ID: ARAMW-1
Date Collected: 02/26/20 13:40
Date Received: 02/27/20 09:25

Lab Sample ID: 400-184504-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	479853	02/28/20 10:17	NET	TAL PEN
Total Recoverable	Analysis	6020B		5			480057	02/29/20 14:56	LDC	TAL PEN

Client Sample ID: Method Blank
Date Collected: N/A
Date Received: N/A

Lab Sample ID: MB 400-479853/1-A ^5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	479853	02/28/20 10:17	NET	TAL PEN
Total Recoverable	Analysis	6020B		5			480057	02/29/20 14:45	LDC	TAL PEN

Client Sample ID: Lab Control Sample
Date Collected: N/A
Date Received: N/A

Lab Sample ID: LCS 400-479853/2-A ^5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	479853	02/28/20 10:17	NET	TAL PEN
Total Recoverable	Analysis	6020B		5			480057	02/29/20 14:51	LDC	TAL PEN

Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Method	Method Description	Protocol	Laboratory
6020B	Metals (ICP/MS)	SW846	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Laboratory: Eurofins TestAmerica, Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alabama	State	40150	07-01-20
ANAB	ISO/IEC 17025	L2471	02-23-23
Arizona	State	AZ0710	01-13-21
Arkansas DEQ	State	88-0689	09-01-20
California	State	2510	07-01-20
Florida	NELAP	E81010	06-30-20
Georgia	State	E81010(FL)	06-30-20
Illinois	NELAP	004586	10-09-19 *
Illinois	NELAP	004586	10-09-20
Iowa	State	367	08-01-20
Kansas	NELAP	E-10253	08-16-20
Kentucky (UST)	State	53	06-30-20
Kentucky (WW)	State	KY98030	12-31-20
Louisiana	NELAP	30976	06-30-20
Louisiana (DW)	State	LA017	12-31-20
Maryland	State	233	09-30-20
Massachusetts	State	M-FL094	06-30-20
Michigan	State	9912	05-06-20
Minnesota	NELAP	012-999-481	12-31-20
New Jersey	NELAP	FL006	06-30-20
New York	NELAP	12115	04-30-20
New York	NELAP Secondary AB	12115	04-01-20
North Carolina (WW/SW)	State	314	12-31-20
Oklahoma	State	9810-186	08-31-20
Pennsylvania	NELAP	68-00467	01-31-21
Rhode Island	State	LAO00307	12-30-20
South Carolina	State	96026002	06-30-20
Tennessee	State	TN02907	06-30-20
Texas	NELAP	T104704286	09-30-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-18-00148	05-17-21
Virginia	NELAP	460166	06-14-20
Washington	State	C915	05-15-20
West Virginia DEP	State	136	06-30-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright

Job ID: 400-184504-1

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	03-31-20
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-04-20
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-20
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-20 *
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (412) 963-2468

681-Atlanta

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Hunter Auld	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-594-5998	E-Mail: <Veronica.Bortot@testamericainc.com>		Page: Page
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days): 2 DAY TAT			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2	Project #: 40007712			
Site: Georgia	SSOW#:			

Analysis Requested

400-184504 COC

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Lithium	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D		
ARA MW-1	2-26-20	~~1540~~ 1340	G	Water	N	N	✓	1	Sample Time: 1340
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					
			G	Water					

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		2-26-20 / 1540	ACC		2-26-20	1540
2		2-26-20 1545				
3					2-27-20 9:25	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 3.6 c IR8

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-184504-1

Login Number: 184504
List Number: 1
Creator: Hinrichsen, Megan E

List Source: Eurofins TestAmerica, Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.6°C IR-8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Low-Flow Test Report:

Test Date / Time: 2/26/2020 11:14:59 AM
Project: Plant Arkwright - Ash Pond 2
Operator Name: H. Auld

Location Name: ARAMW-1 **Well Diameter: 2 in** **Casing Type: PVC** **Screen Length: 10 ft** **Top of Screen: 35 ft** **Total Depth: 45.33 ft** **Initial Depth to Water: 8.85 ft**	**Pump Type: Peristaltic Pump** **Tubing Type: Poly** **Pump Intake From TOC: 40 ft** **Estimated Total Volume Pumped: 68 liter** **Flow Cell Volume: 90 ml** **Final Flow Rate: 400 ml/min** **Final Draw Down: 9 in**	**Instrument Used: Aqua TROLL 400** **Serial Number: 714344**

Test Notes:
Sampled at 1340 on 2-26-20. Purged 3 well volumes.

Weather Conditions:
Cloudy, 60s.

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water	Flow
		+/- 0.1	+/- 100	+/- 5 %	+/- 10 %	+/- 10	+/- 100	+/- 0.3	
2/26/2020 11:14 AM	00:00	6.31 pH	17.63 °C	461.84 µS/cm	0.80 mg/L		42.3 mV	8.85 ft	400.00 ml/min
2/26/2020 11:19 AM	05:00	6.29 pH	18.16 °C	421.89 µS/cm	0.34 mg/L	3.70 NTU	35.7 mV	9.40 ft	400.00 ml/min
2/26/2020 11:24 AM	10:00	6.28 pH	18.25 °C	420.70 µS/cm	0.26 mg/L	3.80 NTU	32.0 mV	9.40 ft	400.00 ml/min
2/26/2020 11:29 AM	15:00	6.26 pH	18.25 °C	422.51 µS/cm	0.22 mg/L	3.00 NTU	30.0 mV	9.40 ft	400.00 ml/min
2/26/2020 11:34 AM	20:00	6.24 pH	18.30 °C	422.25 µS/cm	0.20 mg/L	3.00 NTU	27.5 mV	9.40 ft	400.00 ml/min
2/26/2020 11:39 AM	25:00	6.20 pH	18.36 °C	419.38 µS/cm	0.21 mg/L	2.10 NTU	25.1 mV	9.50 ft	400.00 ml/min
2/26/2020 11:44 AM	30:00	6.19 pH	18.36 °C	418.62 µS/cm	0.21 mg/L	1.90 NTU	23.8 mV	9.50 ft	400.00 ml/min
2/26/2020 11:49 AM	35:00	6.17 pH	18.41 °C	419.70 µS/cm	0.20 mg/L	1.80 NTU	23.6 mV	9.50 ft	400.00 ml/min
2/26/2020 11:54 AM	40:00	6.16 pH	18.52 °C	421.77 µS/cm	0.20 mg/L	1.50 NTU	24.1 mV	9.50 ft	400.00 ml/min
2/26/2020 11:59 AM	45:00	6.15 pH	18.52 °C	423.39 µS/cm	0.21 mg/L	1.50 NTU	24.7 mV	9.50 ft	400.00 ml/min
2/26/2020 12:04 PM	50:00	6.15 pH	18.54 °C	423.74 µS/cm	0.22 mg/L	1.80 NTU	24.7 mV	9.50 ft	400.00 ml/min
2/26/2020 12:09 PM	55:00	6.14 pH	18.52 °C	424.86 µS/cm	0.24 mg/L	1.60 NTU	25.2 mV	9.50 ft	400.00 ml/min
2/26/2020 12:14 PM	01:00:00	6.13 pH	18.52 °C	426.32 µS/cm	0.25 mg/L	1.30 NTU	25.3 mV	9.50 ft	400.00 ml/min

2/26/2020 12:19 PM	01:05:00	6.13 pH	18.51 °C	426.61 µS/cm	0.26 mg/L	1.30 NTU	25.9 mV	9.50 ft	400.00 ml/min
2/26/2020 12:24 PM	01:10:00	6.13 pH	18.51 °C	425.45 µS/cm	0.28 mg/L	1.40 NTU	28.6 mV	9.50 ft	400.00 ml/min
2/26/2020 12:29 PM	01:15:00	6.13 pH	18.44 °C	428.36 µS/cm	0.29 mg/L	1.40 NTU	26.5 mV	9.50 ft	400.00 ml/min
2/26/2020 12:34 PM	01:20:00	6.13 pH	18.43 °C	430.28 µS/cm	0.31 mg/L	1.20 NTU	26.8 mV	9.50 ft	400.00 ml/min
2/26/2020 12:39 PM	01:25:00	6.13 pH	18.44 °C	429.43 µS/cm	0.32 mg/L	1.10 NTU	26.9 mV	9.50 ft	400.00 ml/min
2/26/2020 12:44 PM	01:30:00	6.13 pH	18.43 °C	430.72 µS/cm	0.33 mg/L	1.00 NTU	27.3 mV	9.50 ft	400.00 ml/min
2/26/2020 12:49 PM	01:35:00	6.12 pH	18.43 °C	430.75 µS/cm	0.35 mg/L	1.00 NTU	27.4 mV	9.50 ft	400.00 ml/min
2/26/2020 12:54 PM	01:40:00	6.13 pH	18.46 °C	432.46 µS/cm	0.36 mg/L	1.10 NTU	28.8 mV	9.50 ft	400.00 ml/min
2/26/2020 12:59 PM	01:45:00	6.13 pH	18.52 °C	431.94 µS/cm	0.38 mg/L	1.10 NTU	28.1 mV	9.50 ft	400.00 ml/min
2/26/2020 1:04 PM	01:50:00	6.13 pH	18.49 °C	432.65 µS/cm	0.40 mg/L	1.10 NTU	28.1 mV	9.50 ft	400.00 ml/min
2/26/2020 1:09 PM	01:55:00	6.13 pH	18.47 °C	434.21 µS/cm	0.41 mg/L	1.00 NTU	28.2 mV	9.60 ft	400.00 ml/min
2/26/2020 1:14 PM	02:00:00	6.14 pH	18.43 °C	434.31 µS/cm	0.42 mg/L	1.00 NTU	28.1 mV	9.60 ft	400.00 ml/min
2/26/2020 1:19 PM	02:05:00	6.14 pH	18.42 °C	434.33 µS/cm	0.43 mg/L	1.00 NTU	28.2 mV	9.60 ft	400.00 ml/min
2/26/2020 1:24 PM	02:10:00	6.14 pH	18.34 °C	437.19 µS/cm	0.45 mg/L	0.90 NTU	28.6 mV	9.60 ft	400.00 ml/min
2/26/2020 1:29 PM	02:15:00	6.14 pH	18.32 °C	436.94 µS/cm	0.47 mg/L	0.90 NTU	28.4 mV	9.60 ft	400.00 ml/min
2/26/2020 1:34 PM	02:20:00	6.15 pH	18.28 °C	436.99 µS/cm	0.48 mg/L	1.00 NTU	28.2 mV	9.60 ft	400.00 ml/min

Samples

Sample ID:	Description:

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-104442-1
Client Project/Site: CCR - Plant Arkwright Ash Pond 2
Revision: 2

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Authorized for release by:
5/11/2020 1:30:49 PM
Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

Designee for

Shali Brown, Project Manager II
(615)301-5031
shali.brown@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-1

Job ID: 180-104442-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-104442-1

Comments
050520 Revised report to add 6020 metals; this report replaces the report previously issued on 050420.

Receipt
The samples were received on 4/9/2020 8:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 1.4º C, 1.6º C and 1.8º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Field Service
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Job ID: 180-104442-1
Project/Site: CCR - Plant Arkwright Ash Pond 2

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-104442-1
Project/Site: CCR - Plant Arkwright Ash Pond 2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-20
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

Sample Summary

Client: Southern Company
Job ID: 180-104442-1
Project/Site: CCR - Plant Arkwright Ash Pond 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-104442-1	ARGWA-19	Water	04/07/20 10:08	04/09/20 08:20	
180-104442-2	ARGWA-20	Water	04/06/20 16:22	04/09/20 08:20	
180-104442-3	ARGWC-21	Water	04/07/20 16:19	04/09/20 08:20	
180-104442-4	EB-2-4-7-20	Water	04/07/20 14:45	04/09/20 08:20	
180-104442-5	FB-2-4-6-20	Water	04/06/20 15:20	04/09/20 08:20	
180-104442-6	DUP-2	Water	04/07/20 00:00	04/09/20 08:20	
180-104442-7	ARGWC-22	Water	04/07/20 14:18	04/09/20 08:20	
180-104442-8	ARGWC-23	Water	04/07/20 12:00	04/09/20 08:20	

Method Summary

Client: Southern Company
Job ID: 180-104442-1
Project/Site: CCR - Plant Arkwright Ash Pond 2

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
Field Sampling	Field Sampling	EPA	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-1

Client Sample ID: ARGWA-19

Date Collected: 04/07/20 10:08
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			313124	04/17/20 23:21	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	312570	04/10/20 08:53	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			313140	04/16/20 21:51	WTR	TAL PIT
	Instrument ID: A									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	312559	04/10/20 07:50	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			312629	04/07/20 10:08	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWA-20

Date Collected: 04/06/20 16:22
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			313124	04/17/20 23:36	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	312570	04/10/20 08:53	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			313140	04/16/20 21:54	WTR	TAL PIT
	Instrument ID: A									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	312559	04/10/20 07:50	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			312629	04/06/20 16:22	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-21

Date Collected: 04/07/20 16:19
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			313124	04/17/20 21:34	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	312570	04/10/20 08:53	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			313140	04/16/20 21:57	WTR	TAL PIT
	Instrument ID: A									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	312559	04/10/20 07:50	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			312629	04/07/20 16:19	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-1

Client Sample ID: EB-2-4-7-20

Date Collected: 04/07/20 14:45
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			313124	04/17/20 22:04	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	312570	04/10/20 08:53	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			313140	04/16/20 22:07	WTR	TAL PIT
	Instrument ID: A									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	312559	04/10/20 07:50	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: FB-2-4-6-20

Date Collected: 04/06/20 15:20
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			313124	04/17/20 22:19	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	312570	04/10/20 08:53	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			313140	04/16/20 22:10	WTR	TAL PIT
	Instrument ID: A									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	312562	04/10/20 07:53	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: DUP-2

Date Collected: 04/07/20 00:00
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			313124	04/17/20 22:35	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	312570	04/10/20 08:53	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			313140	04/16/20 22:14	WTR	TAL PIT
	Instrument ID: A									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	312559	04/10/20 07:50	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-22

Date Collected: 04/07/20 14:18
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			313124	04/18/20 02:24	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 300.0 R2.1		10			313124	04/18/20 02:39	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	312570	04/10/20 08:53	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			313140	04/16/20 22:17	WTR	TAL PIT
	Instrument ID: A									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-1

Client Sample ID: ARGWC-22

Date Collected: 04/07/20 14:18
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	312559	04/10/20 07:50	AVS	TAL PIT
Total/NA	Analysis	Field Sampling		1			312629	04/07/20 14:18	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-23

Date Collected: 04/07/20 12:00
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			313124	04/17/20 21:18	SAC	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	312570	04/10/20 08:53	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			313140	04/16/20 22:20	WTR	TAL PIT
	Instrument ID: A									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	312559	04/10/20 07:50	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			312629	04/07/20 12:00	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KEM = Kimberly Mahoney

Batch Type: Analysis

AVS = Abbey Smith
FDS = Sampler Field
SAC = Shawn Clemente
WTR = Bill Reinheimer

Client Sample ID: ARGWA-19
Lab Sample ID: 180-104442-1
Date Collected: 04/07/20 10:08
Matrix: Water
Date Received: 04/09/20 08:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		1.0	0.32	mg/L			04/17/20 23:21	1
Fluoride	0.14		0.10	0.026	mg/L			04/17/20 23:21	1
Sulfate	8.4		1.0	0.38	mg/L			04/17/20 23:21	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00060	J	0.0010	0.00031	mg/L		04/10/20 08:53	04/16/20 21:51	1
Barium	0.047		0.010	0.0016	mg/L		04/10/20 08:53	04/16/20 21:51	1
Boron	0.072	J	0.080	0.039	mg/L		04/10/20 08:53	04/16/20 21:51	1
Cadmium	0.00034	J	0.0025	0.00022	mg/L		04/10/20 08:53	04/16/20 21:51	1
Calcium	14		0.50	0.13	mg/L		04/10/20 08:53	04/16/20 21:51	1
Chromium	<0.0015		0.0020	0.0015	mg/L		04/10/20 08:53	04/16/20 21:51	1
Cobalt	0.00038	J	0.0025	0.00013	mg/L		04/10/20 08:53	04/16/20 21:51	1
Lead	0.00037	J	0.0010	0.00013	mg/L		04/10/20 08:53	04/16/20 21:51	1
Lithium	0.0053		0.0050	0.0034	mg/L		04/10/20 08:53	04/16/20 21:51	1
Selenium	<0.0015		0.0050	0.0015	mg/L		04/10/20 08:53	04/16/20 21:51	1
Silver	0.00018	J	0.0010	0.00018	mg/L		04/10/20 08:53	04/16/20 21:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	120		10	10	mg/L			04/10/20 07:50	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.72				SU			04/07/20 10:08	1

Client Sample ID: ARGWA-20
Lab Sample ID: 180-104442-2
Date Collected: 04/06/20 16:22
Matrix: Water
Date Received: 04/09/20 08:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.2		1.0	0.32	mg/L			04/17/20 23:36	1
Fluoride	0.059	J	0.10	0.026	mg/L			04/17/20 23:36	1
Sulfate	15		1.0	0.38	mg/L			04/17/20 23:36	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00042	J	0.0010	0.00031	mg/L		04/10/20 08:53	04/16/20 21:54	1
Barium	0.075		0.010	0.0016	mg/L		04/10/20 08:53	04/16/20 21:54	1
Boron	0.063	J	0.080	0.039	mg/L		04/10/20 08:53	04/16/20 21:54	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		04/10/20 08:53	04/16/20 21:54	1
Calcium	9.5		0.50	0.13	mg/L		04/10/20 08:53	04/16/20 21:54	1
Chromium	0.0057		0.0020	0.0015	mg/L		04/10/20 08:53	04/16/20 21:54	1
Cobalt	0.00039	J	0.00050	0.00013	mg/L		04/10/20 08:53	04/16/20 21:54	1
Lead	0.00033	J	0.0010	0.00013	mg/L		04/10/20 08:53	04/16/20 21:54	1
Lithium	<0.0034		0.0050	0.0034	mg/L		04/10/20 08:53	04/16/20 21:54	1
Selenium	0.0017	J	0.0050	0.0015	mg/L		04/10/20 08:53	04/16/20 21:54	1
Silver	<0.00018		0.0010	0.00018	mg/L		04/10/20 08:53	04/16/20 21:54	1

Client Sample ID: ARGWA-20
Lab Sample ID: 180-104442-2
Date Collected: 04/06/20 16:22
Matrix: Water
Date Received: 04/09/20 08:20

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	90		10	10	mg/L			04/10/20 07:50	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.53				SU			04/06/20 16:22	1

Client Sample ID: ARGWC-21
Lab Sample ID: 180-104442-3
Date Collected: 04/07/20 16:19
Matrix: Water
Date Received: 04/09/20 08:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.2		1.0	0.32	mg/L			04/17/20 21:34	1
Fluoride	0.12		0.10	0.026	mg/L			04/17/20 21:34	1
Sulfate	180		1.0	0.38	mg/L			04/17/20 21:34	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00054	J	0.0010	0.00031	mg/L		04/10/20 08:53	04/16/20 21:57	1
Barium	0.050		0.010	0.0016	mg/L		04/10/20 08:53	04/16/20 21:57	1
Boron	0.74		0.080	0.039	mg/L		04/10/20 08:53	04/16/20 21:57	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		04/10/20 08:53	04/16/20 21:57	1
Calcium	69		0.50	0.13	mg/L		04/10/20 08:53	04/16/20 21:57	1
Chromium	<0.0015		0.0020	0.0015	mg/L		04/10/20 08:53	04/16/20 21:57	1
Cobalt	0.00087		0.00050	0.00013	mg/L		04/10/20 08:53	04/16/20 21:57	1
Lead	0.00026	J	0.0010	0.00013	mg/L		04/10/20 08:53	04/16/20 21:57	1
Lithium	0.011		0.0050	0.0034	mg/L		04/10/20 08:53	04/16/20 21:57	1
Selenium	<0.0015		0.0050	0.0015	mg/L		04/10/20 08:53	04/16/20 21:57	1
Silver	<0.00018		0.0010	0.00018	mg/L		04/10/20 08:53	04/16/20 21:57	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	460		10	10	mg/L			04/10/20 07:50	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.96				SU			04/07/20 16:19	1

Client Sample ID: EB-2-4-7-20
Lab Sample ID: 180-104442-4
Date Collected: 04/07/20 14:45
Matrix: Water
Date Received: 04/09/20 08:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			04/17/20 22:04	1
Fluoride	0.053	J	0.10	0.026	mg/L			04/17/20 22:04	1
Sulfate	<0.38		1.0	0.38	mg/L			04/17/20 22:04	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		04/10/20 08:53	04/16/20 22:07	1
Barium	<0.0016		0.010	0.0016	mg/L		04/10/20 08:53	04/16/20 22:07	1

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-1

Client Sample ID: EB-2-4-7-20

Lab Sample ID: 180-104442-4

Date Collected: 04/07/20 14:45

Matrix: Water

Date Received: 04/09/20 08:20

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		04/10/20 08:53	04/16/20 22:07	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		04/10/20 08:53	04/16/20 22:07	1
Calcium	**0.16**	**J**	0.50	0.13	mg/L		04/10/20 08:53	04/16/20 22:07	1
Chromium	<0.0015		0.0020	0.0015	mg/L		04/10/20 08:53	04/16/20 22:07	1
Cobalt	<0.00013		0.00050	0.00013	mg/L		04/10/20 08:53	04/16/20 22:07	1
Lead	<0.00013		0.0010	0.00013	mg/L		04/10/20 08:53	04/16/20 22:07	1
Lithium	<0.0034		0.0050	0.0034	mg/L		04/10/20 08:53	04/16/20 22:07	1
Selenium	<0.0015		0.0050	0.0015	mg/L		04/10/20 08:53	04/16/20 22:07	1
Silver	<0.00018		0.0010	0.00018	mg/L		04/10/20 08:53	04/16/20 22:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			04/10/20 07:50	1

Client Sample ID: FB-2-4-6-20

Lab Sample ID: 180-104442-5

Date Collected: 04/06/20 15:20

Matrix: Water

Date Received: 04/09/20 08:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			04/17/20 22:19	1
Fluoride	**0.048**	**J**	0.10	0.026	mg/L			04/17/20 22:19	1
Sulfate	<0.38		1.0	0.38	mg/L			04/17/20 22:19	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		04/10/20 08:53	04/16/20 22:10	1
Barium	<0.0016		0.010	0.0016	mg/L		04/10/20 08:53	04/16/20 22:10	1
Boron	<0.039		0.080	0.039	mg/L		04/10/20 08:53	04/16/20 22:10	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		04/10/20 08:53	04/16/20 22:10	1
Calcium	**0.16**	**J**	0.50	0.13	mg/L		04/10/20 08:53	04/16/20 22:10	1
Chromium	<0.0015		0.0020	0.0015	mg/L		04/10/20 08:53	04/16/20 22:10	1
Cobalt	<0.00013		0.00050	0.00013	mg/L		04/10/20 08:53	04/16/20 22:10	1
Lead	<0.00013		0.0010	0.00013	mg/L		04/10/20 08:53	04/16/20 22:10	1
Lithium	<0.0034		0.0050	0.0034	mg/L		04/10/20 08:53	04/16/20 22:10	1
Selenium	<0.0015		0.0050	0.0015	mg/L		04/10/20 08:53	04/16/20 22:10	1
Silver	<0.00018		0.0010	0.00018	mg/L		04/10/20 08:53	04/16/20 22:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			04/10/20 07:53	1

Client Sample ID: DUP-2

Lab Sample ID: 180-104442-6

Date Collected: 04/07/20 00:00

Matrix: Water

Date Received: 04/09/20 08:20

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11**		1.0	0.32	mg/L			04/17/20 22:35	1
Fluoride	**0.065**	**J**	0.10	0.026	mg/L			04/17/20 22:35	1
Sulfate	**8.1**		1.0	0.38	mg/L			04/17/20 22:35	1

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-1

Client Sample ID: DUP-2

Date Collected: 04/07/20 00:00
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-6
Matrix: Water

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		04/10/20 08:53	04/16/20 22:14	1
Barium	**0.044**		0.010	0.0016	mg/L		04/10/20 08:53	04/16/20 22:14	1
Boron	<0.039		0.080	0.039	mg/L		04/10/20 08:53	04/16/20 22:14	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		04/10/20 08:53	04/16/20 22:14	1
Calcium	**14**		0.50	0.13	mg/L		04/10/20 08:53	04/16/20 22:14	1
Chromium	<0.0015		0.0020	0.0015	mg/L		04/10/20 08:53	04/16/20 22:14	1
Cobalt	<0.00013		0.00050	0.00013	mg/L		04/10/20 08:53	04/16/20 22:14	1
Lead	<0.00013		0.0010	0.00013	mg/L		04/10/20 08:53	04/16/20 22:14	1
Lithium	**0.0041**	**J**	0.0050	0.0034	mg/L		04/10/20 08:53	04/16/20 22:14	1
Selenium	<0.0015		0.0050	0.0015	mg/L		04/10/20 08:53	04/16/20 22:14	1
Silver	<0.00018		0.0010	0.00018	mg/L		04/10/20 08:53	04/16/20 22:14	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**130**		10	10	mg/L			04/10/20 07:50	1

Client Sample ID: ARGWC-22

Date Collected: 04/07/20 14:18
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-7
Matrix: Water

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.1**		1.0	0.32	mg/L			04/18/20 02:24	1
Fluoride	**0.068**	**J**	0.10	0.026	mg/L			04/18/20 02:24	1
Sulfate	**710**		10	3.8	mg/L			04/18/20 02:39	10

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		04/10/20 08:53	04/16/20 22:17	1
Barium	**0.040**		0.010	0.0016	mg/L		04/10/20 08:53	04/16/20 22:17	1
Boron	**2.6**		0.080	0.039	mg/L		04/10/20 08:53	04/16/20 22:17	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		04/10/20 08:53	04/16/20 22:17	1
Calcium	**190**		0.50	0.13	mg/L		04/10/20 08:53	04/16/20 22:17	1
Chromium	<0.0015		0.0020	0.0015	mg/L		04/10/20 08:53	04/16/20 22:17	1
Cobalt	**0.0090**		0.00050	0.00013	mg/L		04/10/20 08:53	04/16/20 22:17	1
Lead	**0.00014**	**J**	0.0010	0.00013	mg/L		04/10/20 08:53	04/16/20 22:17	1
Lithium	**0.012**		0.0050	0.0034	mg/L		04/10/20 08:53	04/16/20 22:17	1
Selenium	<0.0015		0.0050	0.0015	mg/L		04/10/20 08:53	04/16/20 22:17	1
Silver	<0.00018		0.0010	0.00018	mg/L		04/10/20 08:53	04/16/20 22:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1300**		10	10	mg/L			04/10/20 07:50	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.84**				SU			04/07/20 14:18	1

Client Sample ID: ARGWC-23

Date Collected: 04/07/20 12:00
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-8

Matrix: Water

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3.8**		1.0	0.32	mg/L			04/17/20 21:18	1
Fluoride	**0.18**		0.10	0.026	mg/L			04/17/20 21:18	1
Sulfate	**58**		1.0	0.38	mg/L			04/17/20 21:18	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		04/10/20 08:53	04/16/20 22:20	1
Barium	**0.16**		0.010	0.0016	mg/L		04/10/20 08:53	04/16/20 22:20	1
Boron	**0.44**		0.080	0.039	mg/L		04/10/20 08:53	04/16/20 22:20	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		04/10/20 08:53	04/16/20 22:20	1
Calcium	**65**		0.50	0.13	mg/L		04/10/20 08:53	04/16/20 22:20	1
Chromium	<0.0015		0.0020	0.0015	mg/L		04/10/20 08:53	04/16/20 22:20	1
Cobalt	**0.0016**		0.00050	0.00013	mg/L		04/10/20 08:53	04/16/20 22:20	1
Lead	<0.00013		0.0010	0.00013	mg/L		04/10/20 08:53	04/16/20 22:20	1
Lithium	**0.032**		0.0050	0.0034	mg/L		04/10/20 08:53	04/16/20 22:20	1
Selenium	<0.0015		0.0050	0.0015	mg/L		04/10/20 08:53	04/16/20 22:20	1
Silver	<0.00018		0.0010	0.00018	mg/L		04/10/20 08:53	04/16/20 22:20	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**290**		10	10	mg/L			04/10/20 07:50	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**6.40**				SU			04/07/20 12:00	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 180-313124/39
Matrix: Water
Analysis Batch: 313124

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			04/17/20 15:27	1
Fluoride	<0.026		0.10	0.026	mg/L			04/17/20 15:27	1
Sulfate	<0.38		1.0	0.38	mg/L			04/17/20 15:27	1

Lab Sample ID: MB 180-313124/75
Matrix: Water
Analysis Batch: 313124

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			04/18/20 00:37	1
Fluoride	<0.026		0.10	0.026	mg/L			04/18/20 00:37	1
Sulfate	<0.38		1.0	0.38	mg/L			04/18/20 00:37	1

Lab Sample ID: LCS 180-313124/38
Matrix: Water
Analysis Batch: 313124

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	48.8		mg/L		98	90 - 110
Fluoride	2.50	2.51		mg/L		100	90 - 110
Sulfate	50.0	47.7		mg/L		95	90 - 110

Lab Sample ID: LCS 180-313124/74
Matrix: Water
Analysis Batch: 313124

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	47.9		mg/L		96	90 - 110
Fluoride	2.50	2.45		mg/L		98	90 - 110
Sulfate	50.0	47.3		mg/L		95	90 - 110

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-312570/1-A
Matrix: Water
Analysis Batch: 313140

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 312570

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		04/10/20 08:53	04/16/20 21:28	1
Barium	<0.0016		0.010	0.0016	mg/L		04/10/20 08:53	04/16/20 21:28	1
Boron	<0.039		0.080	0.039	mg/L		04/10/20 08:53	04/16/20 21:28	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		04/10/20 08:53	04/16/20 21:28	1
Calcium	<0.13		0.50	0.13	mg/L		04/10/20 08:53	04/16/20 21:28	1
Chromium	<0.0015		0.0020	0.0015	mg/L		04/10/20 08:53	04/16/20 21:28	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		04/10/20 08:53	04/16/20 21:28	1
Lead	<0.00013		0.0010	0.00013	mg/L		04/10/20 08:53	04/16/20 21:28	1
Lithium	<0.0034		0.0050	0.0034	mg/L		04/10/20 08:53	04/16/20 21:28	1
Selenium	<0.0015		0.0050	0.0015	mg/L		04/10/20 08:53	04/16/20 21:28	1
Silver	<0.00018		0.0010	0.00018	mg/L		04/10/20 08:53	04/16/20 21:28	1

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-312570/2-A
Matrix: Water
Analysis Batch: 313140

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 312570

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.00	1.01		mg/L		101	80 - 120
Barium	1.00	0.978		mg/L		98	80 - 120
Boron	1.25	1.16		mg/L		93	80 - 120
Cadmium	0.500	0.508		mg/L		102	80 - 120
Calcium	25.0	27.9		mg/L		112	80 - 120
Chromium	0.500	0.488		mg/L		98	80 - 120
Cobalt	0.500	0.506		mg/L		101	80 - 120
Lead	0.500	0.502		mg/L		100	80 - 120
Lithium	0.500	0.456		mg/L		91	80 - 120
Selenium	1.00	0.946		mg/L		95	80 - 120

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-312559/2
Matrix: Water
Analysis Batch: 312559

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			04/10/20 07:50	1

Lab Sample ID: LCS 180-312559/1
Matrix: Water
Analysis Batch: 312559

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	242	286		mg/L		118	80 - 120

Lab Sample ID: MB 180-312562/2
Matrix: Water
Analysis Batch: 312562

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			04/10/20 07:53	1

Lab Sample ID: LCS 180-312562/1
Matrix: Water
Analysis Batch: 312562

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	242	262		mg/L		108	80 - 120

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-1

HPLC/IC

Analysis Batch: 313124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-104442-1	ARGWA-19	Total/NA	Water	EPA 300.0 R2.1	
180-104442-2	ARGWA-20	Total/NA	Water	EPA 300.0 R2.1	
180-104442-3	ARGWC-21	Total/NA	Water	EPA 300.0 R2.1	
180-104442-4	EB-2-4-7-20	Total/NA	Water	EPA 300.0 R2.1	
180-104442-5	FB-2-4-6-20	Total/NA	Water	EPA 300.0 R2.1	
180-104442-6	DUP-2	Total/NA	Water	EPA 300.0 R2.1	
180-104442-7	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-104442-7	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-104442-8	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
MB 180-313124/39	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
MB 180-313124/75	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-313124/38	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-313124/74	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 312570

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-104442-1	ARGWA-19	Total Recoverable	Water	3005A	
180-104442-2	ARGWA-20	Total Recoverable	Water	3005A	
180-104442-3	ARGWC-21	Total Recoverable	Water	3005A	
180-104442-4	EB-2-4-7-20	Total Recoverable	Water	3005A	
180-104442-5	FB-2-4-6-20	Total Recoverable	Water	3005A	
180-104442-6	DUP-2	Total Recoverable	Water	3005A	
180-104442-7	ARGWC-22	Total Recoverable	Water	3005A	
180-104442-8	ARGWC-23	Total Recoverable	Water	3005A	
MB 180-312570/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-312570/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 313140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-104442-1	ARGWA-19	Total Recoverable	Water	EPA 6020B	312570
180-104442-2	ARGWA-20	Total Recoverable	Water	EPA 6020B	312570
180-104442-3	ARGWC-21	Total Recoverable	Water	EPA 6020B	312570
180-104442-4	EB-2-4-7-20	Total Recoverable	Water	EPA 6020B	312570
180-104442-5	FB-2-4-6-20	Total Recoverable	Water	EPA 6020B	312570
180-104442-6	DUP-2	Total Recoverable	Water	EPA 6020B	312570
180-104442-7	ARGWC-22	Total Recoverable	Water	EPA 6020B	312570
180-104442-8	ARGWC-23	Total Recoverable	Water	EPA 6020B	312570
MB 180-312570/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	312570
LCS 180-312570/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	312570

General Chemistry

Analysis Batch: 312559

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-104442-1	ARGWA-19	Total/NA	Water	SM 2540C	
180-104442-2	ARGWA-20	Total/NA	Water	SM 2540C	
180-104442-3	ARGWC-21	Total/NA	Water	SM 2540C	
180-104442-4	EB-2-4-7-20	Total/NA	Water	SM 2540C	
180-104442-6	DUP-2	Total/NA	Water	SM 2540C	
180-104442-7	ARGWC-22	Total/NA	Water	SM 2540C	

General Chemistry (Continued)

Analysis Batch: 312559 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-104442-8	ARGWC-23	Total/NA	Water	SM 2540C	
MB 180-312559/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-312559/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 312562

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-104442-5	FB-2-4-6-20	Total/NA	Water	SM 2540C	
MB 180-312562/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-312562/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 312629

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-104442-1	ARGWA-19	Total/NA	Water	Field Sampling	
180-104442-2	ARGWA-20	Total/NA	Water	Field Sampling	
180-104442-3	ARGWC-21	Total/NA	Water	Field Sampling	
180-104442-7	ARGWC-22	Total/NA	Water	Field Sampling	
180-104442-8	ARGWC-23	Total/NA	Water	Field Sampling	

TestAmerica

681-Atlanta

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: T.Goble / R.walker	Lab PM: Veronica Bartot	Carrier Tracking No(s): ACC to TA	COC No: 400-73521-29028.1
Client Contact: Joju Abraham	Phone: 770-594-5998	E-Mail: Veronica.Bartot@testamericainc.com		Page: Page 1 of 1
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days):			
State, Zip: AL, 35291				
Phone:	PO #: SCS10347656			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR Plant Arkwright - Ash Pond 2 - 1st 2020 SA GWM	Project #: 40007712			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Metals - App III (Boron, Calcium)	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	State Metals (Arsenic, Barium, Cadmium, Lead, Silver, and Selenium)		Detected A4: Radium 226 & 228 (SW-846 9315/9320)	Detected A4: Metals (Arsenic, Barium, Cadmium, Chromium, Cobalt, Lead, Lithium, Selenium)					Total Number of containers	Special Instructions/Note:
			Preservation Code:															
ARGWA-19	4-7-20	1008	G	Water	N	N	✓	✓	✓		✓	✓					3	pH = 5.72
ARGWA-20	4-6-20	1622	G	Water	N	N	✓	✓	✓		✓	✓					3	pH = 5.53
ARGWA-21	4-7-20	1619	G	Water	N	N	✓	✓	✓		✓	✓					3	pH = 5.96
EB-2-4-7-20	4-7-20	1445	G	Water	N	N	✓	✓	✓		✓	✓					3	pH = —
FB-2-4-6-20	4-6-20	1520	G	Water	N	N	✓	✓	✓		✓	✓					3	pH = —
Dup-2	4-7-20	—	G	Water	N	N	✓	✓	✓		✓	✓					3	pH = —
ARGWC-22	4-7-20	1418	G	Water	N	N	✓	✓	✓		✓	✓					3	pH = 5.84
ARGWC-23	4-7-20	1200	G	Water	N	N	✓	✓	✓		✓	✓					3	pH = 6.40
			G	Water														pH =
			G	Water														
			G	Water														

180-104442 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assesse
☐ Return To Client ☒ Disposal

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

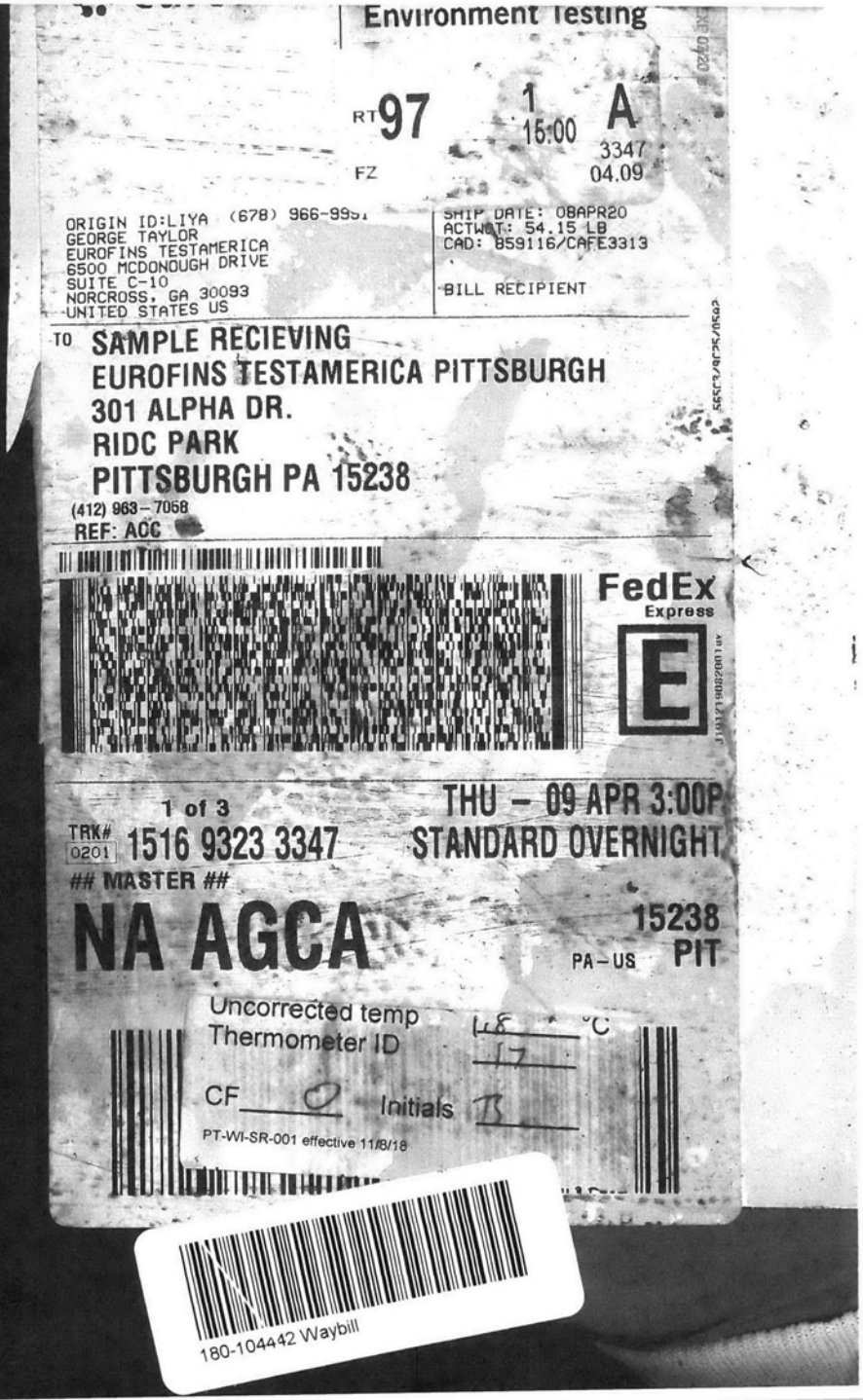
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	4-8-20 / 1515	ACC		4-8-20	TA
Relinquished by:	Date/Time: 4-8-20 1510	Company	Received by:	Date/Time: 4/9/20 820	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Detected APP IV: Arsenic, Barium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Selenium, Radium


Environment Testing
RT 97
1
15:00
A
3347
04.09
FZ
ORIGIN ID:LIYA (678) 966-9951
GEORGE TAYLOR
EUROFINS TESTAMERICA
6500 MCDONOUGH DRIVE
SUITE C-10
NORCROSS, GA 30093
UNITED STATES US
SHIP DATE: 08APR20
ACTWGT: 54.15 LB
CAD: 859116/CAFE3313
BILL RECIPIENT
TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC
FedEx
Express
1 of 3
TRK# 0201 1516 9323 3347
MASTER
THU - 09 APR 3:00P
STANDARD OVERNIGHT
NA AGCA
15238
PA-US
PIT
Uncorrected temp
Thermometer ID
°C
CF
Initials
PT-WI-SR-001 effective 11/8/18
180-104442 Waybill


Environment Testing
TestAmerica
ORIGIN ID:LIYA (678) 966-9991
GEORGE TAYLOR
EUROFINS TESTAMERICA
6500 MCDONOUGH DRIVE
SUITE C-10
NORCROSS, GA 30093
UNITED STATES US
SHIP DATE: 08APR20
ACTWGT: 54.15 LB
CAD: 859116/CAFE3313
BILL RECIPIENT
TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC
FedEx Express
2 of 3
MPS# 1516 9323 3358
Mstr# 1516 9323 3347
THU - 09 APR 3:00P
STANDARD OVERNIGHT
0263
0201
NA AGCA
15238
PA-US
PIT
Uncorrected temp 1.4 °C
Thermometer ID 17
CF 0
Initials JS
PT-WI-SR-001 effective 11/8/18
3 of 3
MPS# 1516 9323 3369
Mstr# 1516 9323 3347
THU - 09 APR 3:00
STANDARD OVERNIGH
NA AGCA
15238
PA-US
PIT
Uncorrected temp 1.6 °C
Thermometer ID 17
CF 0
Initials JS
PT-WI-SR-001 effective 11/8/18

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-104442-1

Login Number: 104442
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-104442-2
Client Project/Site: CCR - Plant Arkwright Ash Pond 2

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
5/11/2020 1:47:54 PM
Veronica Bortot, Senior Project Manager
(412)963-2435
veronica.bortot@testamericainc.com

Designee for

Shali Brown, Project Manager II
(615)301-5031
shali.brown@testamericainc.com

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-104442-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-104442-2

Receipt
The samples were received on 4/9/2020 8:20 AM; the samples arrived in good condition, properly preserved, and where required, on ice. The temperatures of the 3 coolers at receipt time were 1.4°C, 1.6°C and 1.8°C

Department Gas Flow Proportional Counter
Method 9315_Ra226: Radium 226 Prep Batch 160-467807:

Insufficient sample volume was available to perform a sample duplicate for the following samples: ARGWA-19 (180-104442-1), ARGWA-20 (180-104442-2), ARGWC-21 (180-104442-3), EB-2-4-7-20 (180-104442-4), FB-2-4-6-20 (180-104442-5), DUP-2 (180-104442-6), ARGWC-22 (180-104442-7) and ARGWC-23 (180-104442-8). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision

Method 9315_Ra226: Radium-226 Prep Batch 160-467807
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
ARGWA-19 (180-104442-1), ARGWA-20 (180-104442-2), ARGWC-21 (180-104442-3), EB-2-4-7-20 (180-104442-4), FB-2-4-6-20 (180-104442-5), DUP-2 (180-104442-6), ARGWC-22 (180-104442-7), ARGWC-23 (180-104442-8), (LCS 160-467807/1-A), (LCSD 160-467807/2-A) and (MB 160-467807/23-A

Method 9320_Ra228: Radium 228 Prep Batch 160-467811:

Insufficient sample volume was available to perform a sample duplicate for the following samples: ARGWA-19 (180-104442-1), ARGWA-20 (180-104442-2), ARGWC-21 (180-104442-3), EB-2-4-7-20 (180-104442-4), FB-2-4-6-20 (180-104442-5), DUP-2 (180-104442-6), ARGWC-22 (180-104442-7) and ARGWC-23 (180-104442-8). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision

Method 9320_Ra228: Ra-228 Prep Batch 160-467811
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.

ARGWA-19 (180-104442-1), ARGWA-20 (180-104442-2), ARGWC-21 (180-104442-3), EB-2-4-7-20 (180-104442-4), FB-2-4-6-20 (180-104442-5), DUP-2 (180-104442-6), ARGWC-22 (180-104442-7), ARGWC-23 (180-104442-8), (LCS 160-467811/1-A), (LCSD 160-467811/2-A) and (MB 160-467811/23-

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Department Rad
No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Job ID: 180-104442-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-104442-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-20 *
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-20 *
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-20 *
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-20 *
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-20 *
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-104442-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-20
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Sample Summary

Client: Southern Company
Job ID: 180-104442-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-104442-1	ARGWA-19	Water	04/07/20 10:08	04/09/20 08:20	
180-104442-2	ARGWA-20	Water	04/06/20 16:22	04/09/20 08:20	
180-104442-3	ARGWC-21	Water	04/07/20 16:19	04/09/20 08:20	
180-104442-4	EB-2-4-7-20	Water	04/07/20 14:45	04/09/20 08:20	
180-104442-5	FB-2-4-6-20	Water	04/06/20 15:20	04/09/20 08:20	
180-104442-6	DUP-2	Water	04/07/20 00:00	04/09/20 08:20	
180-104442-7	ARGWC-22	Water	04/07/20 14:18	04/09/20 08:20	
180-104442-8	ARGWC-23	Water	04/07/20 12:00	04/09/20 08:20	

Method Summary

Client: Southern Company
Job ID: 180-104442-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-2

Client Sample ID: ARGWA-19

Date Collected: 04/07/20 10:08
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.58 mL	1.0 g	467807	04/15/20 06:56	RBR	TAL SL
Total/NA	Analysis	9315		1			469778	05/07/20 04:15	KLS	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1000.58 mL	1.0 g	467811	04/15/20 08:04	RBR	TAL SL
Total/NA	Analysis	9320		1			469238	04/30/20 12:36	KRR	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			469788	05/07/20 09:21	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWA-20

Date Collected: 04/06/20 16:22
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.14 mL	1.0 g	467807	04/15/20 06:56	RBR	TAL SL
Total/NA	Analysis	9315		1			469778	05/07/20 04:15	KLS	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1000.14 mL	1.0 g	467811	04/15/20 08:04	RBR	TAL SL
Total/NA	Analysis	9320		1			469238	04/30/20 12:36	KRR	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			469788	05/07/20 09:21	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-21

Date Collected: 04/07/20 16:19
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.65 mL	1.0 g	467807	04/15/20 06:56	RBR	TAL SL
Total/NA	Analysis	9315		1			469778	05/07/20 04:15	KLS	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1000.65 mL	1.0 g	467811	04/15/20 08:04	RBR	TAL SL
Total/NA	Analysis	9320		1			469238	04/30/20 12:36	KRR	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			469788	05/07/20 09:21	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: EB-2-4-7-20

Date Collected: 04/07/20 14:45
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.14 mL	1.0 g	467807	04/15/20 06:56	RBR	TAL SL
Total/NA	Analysis	9315		1			469778	05/07/20 06:06	KLS	TAL SL
	Instrument ID: GFPCRED									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-2

Client Sample ID: EB-2-4-7-20

Date Collected: 04/07/20 14:45
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1000.14 mL	1.0 g	467811	04/15/20 08:04	RBR	TAL SL
Total/NA	Analysis	9320		1			469238	04/30/20 12:36	KRR	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			469788	05/07/20 09:21	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: FB-2-4-6-20

Date Collected: 04/06/20 15:20
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.23 mL	1.0 g	467807	04/15/20 06:56	RBR	TAL SL
Total/NA	Analysis	9315		1			469778	05/07/20 06:06	KLS	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1000.23 mL	1.0 g	467811	04/15/20 08:04	RBR	TAL SL
Total/NA	Analysis	9320		1			469237	04/30/20 12:31	KRR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			469788	05/07/20 09:21	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: DUP-2

Date Collected: 04/07/20 00:00
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.43 mL	1.0 g	467807	04/15/20 06:56	RBR	TAL SL
Total/NA	Analysis	9315		1			469778	05/07/20 06:06	KLS	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1000.43 mL	1.0 g	467811	04/15/20 08:04	RBR	TAL SL
Total/NA	Analysis	9320		1			469237	04/30/20 12:31	KRR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			469788	05/07/20 09:21	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-22

Date Collected: 04/07/20 14:18
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.35 mL	1.0 g	467807	04/15/20 06:56	RBR	TAL SL
Total/NA	Analysis	9315		1			469778	05/07/20 06:06	KLS	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1000.35 mL	1.0 g	467811	04/15/20 08:04	RBR	TAL SL
Total/NA	Analysis	9320		1			469237	04/30/20 12:31	KRR	TAL SL
	Instrument ID: GFPCORANGE									

Lab Chronicle

Client: Southern Company
Job ID: 180-104442-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Client Sample ID: ARGWC-22
Lab Sample ID: 180-104442-7
Date Collected: 04/07/20 14:18
Matrix: Water
Date Received: 04/09/20 08:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1			469788	05/07/20 09:21	SMP	TAL SL

Client Sample ID: ARGWC-23
Lab Sample ID: 180-104442-8
Date Collected: 04/07/20 12:00
Matrix: Water
Date Received: 04/09/20 08:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.88 mL	1.0 g	467807	04/15/20 06:56	RBR	TAL SL
Total/NA	Analysis	9315		1			469778	05/07/20 06:06	KLS	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1000.88 mL	1.0 g	467811	04/15/20 08:04	RBR	TAL SL
Total/NA	Analysis	9320		1			469237	04/30/20 12:32	KRR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			469788	05/07/20 09:21	SMP	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:

Lab: TAL SL

Batch Type: Prep

RBR = Rachael Ratcliff

Batch Type: Analysis

KLS = Kody Saulters

KRR = Kellene Robbs

SMP = Siobhan Perry

Client Sample ID: ARGWA-19

Date Collected: 04/07/20 10:08
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-1

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.215		0.0981	0.100	1.00	0.107	pCi/L	04/15/20 06:56	05/07/20 04:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*40 - 110*	*04/15/20 06:56*	*05/07/20 04:15*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.437	U	0.299	0.301	1.00	0.463	pCi/L	04/15/20 08:04	04/30/20 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.2*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:36*	*1*
Y Carrier	*82.6*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:36*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.651		0.315	0.317	2.00	0.463	pCi/L		05/07/20 09:21	1

Client Sample ID: ARGWA-20

Date Collected: 04/06/20 16:22
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-2

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0997	U	0.0765	0.0770	1.00	0.111	pCi/L	04/15/20 06:56	05/07/20 04:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*04/15/20 06:56*	*05/07/20 04:15*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0276	U	0.229	0.229	1.00	0.412	pCi/L	04/15/20 08:04	04/30/20 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:36*	*1*
Y Carrier	*87.1*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:36*	*1*

Client Sample ID: ARGWA-20

Date Collected: 04/06/20 16:22
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-2
Matrix: Water

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0720	U	0.241	0.242	2.00	0.412	pCi/L		05/07/20 09:21	1

Client Sample ID: ARGWC-21

Date Collected: 04/07/20 16:19
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-3
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0259	U	0.0574	0.0574	1.00	0.106	pCi/L	04/15/20 06:56	05/07/20 04:15	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.5*		*40 - 110*	*04/15/20 06:56*	*05/07/20 04:15*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.407	U	0.330	0.333	1.00	0.525	pCi/L	04/15/20 08:04	04/30/20 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.5*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:36*	*1*
Y Carrier	*74.0*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:36*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.433	U	0.335	0.338	2.00	0.525	pCi/L		05/07/20 09:21	1

Client Sample ID: EB-2-4-7-20

Date Collected: 04/07/20 14:45
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-4
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0255	U	0.0475	0.0475	1.00	0.0858	pCi/L	04/15/20 06:56	05/07/20 06:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*04/15/20 06:56*	*05/07/20 06:06*	*1*

Client Sample ID: EB-2-4-7-20

Date Collected: 04/07/20 14:45
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-4
Matrix: Water

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.170	U	0.266	0.266	1.00	0.447	pCi/L	04/15/20 08:04	04/30/20 12:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:36*	*1*
Y Carrier	*83.4*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:36*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.196	U	0.270	0.270	2.00	0.447	pCi/L		05/07/20 09:21	1

Client Sample ID: FB-2-4-6-20

Date Collected: 04/06/20 15:20
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-5
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.104	U	0.0827	0.0832	1.00	0.123	pCi/L	04/15/20 06:56	05/07/20 06:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*04/15/20 06:56*	*05/07/20 06:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0661	U	0.207	0.208	1.00	0.363	pCi/L	04/15/20 08:04	04/30/20 12:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:31*	*1*
Y Carrier	*83.0*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:31*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.170	U	0.223	0.224	2.00	0.363	pCi/L		05/07/20 09:21	1

Client Sample ID: DUP-2

Date Collected: 04/07/20 00:00
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-6
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.104**		0.0653	0.0660	1.00	0.0804	pCi/L	04/15/20 06:56	05/07/20 06:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.5*		*40 - 110*	*04/15/20 06:56*	*05/07/20 06:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.000	U	0.185	0.185	1.00	0.338	pCi/L	04/15/20 08:04	04/30/20 12:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.5*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:31*	*1*
Y Carrier	*81.9*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:31*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.104	U	0.196	0.196	2.00	0.338	pCi/L		05/07/20 09:21	1

Client Sample ID: ARGWC-22

Date Collected: 04/07/20 14:18
Date Received: 04/09/20 08:20

Lab Sample ID: 180-104442-7
Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.135**		0.0763	0.0772	1.00	0.0836	pCi/L	04/15/20 06:56	05/07/20 06:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.1*		*40 - 110*	*04/15/20 06:56*	*05/07/20 06:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	**0.432**		0.269	0.272	1.00	0.404	pCi/L	04/15/20 08:04	04/30/20 12:31	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*84.1*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:31*	*1*
Y Carrier	*80.4*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:31*	*1*

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-2

Client Sample ID: ARGWC-22

Lab Sample ID: 180-104442-7

Date Collected: 04/07/20 14:18

Matrix: Water

Date Received: 04/09/20 08:20

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.567		0.280	0.283	2.00	0.404	pCi/L		05/07/20 09:21	1

Client Sample ID: ARGWC-23

Lab Sample ID: 180-104442-8

Date Collected: 04/07/20 12:00

Matrix: Water

Date Received: 04/09/20 08:20

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.120		0.0693	0.0702	1.00	0.0810	pCi/L	04/15/20 06:56	05/07/20 06:06	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*04/15/20 06:56*	*05/07/20 06:06*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.176	U	0.253	0.253	1.00	0.423	pCi/L	04/15/20 08:04	04/30/20 12:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*99.1*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:32*	*1*
Y Carrier	*85.6*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:32*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.296	U	0.262	0.263	2.00	0.423	pCi/L		05/07/20 09:21	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-467807/23-A
Matrix: Water
Analysis Batch: 469778

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467807

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.01854	U	0.0461	0.0461	1.00	0.0875	pCi/L	04/15/20 06:56	05/07/20 06:07	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.6*		*40 - 110*	*04/15/20 06:56*	*05/07/20 06:07*	*1*

Lab Sample ID: LCS 160-467807/1-A
Matrix: Water
Analysis Batch: 469778

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467807

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	10.00		1.06	1.00	0.0930	pCi/L	88	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*91.5*		*40 - 110*

Lab Sample ID: LCSD 160-467807/2-A
Matrix: Water
Analysis Batch: 469778

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 467807

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.3	9.993		1.06	1.00	0.128	pCi/L	88	75 - 125	0.01	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*95.1*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-467811/23-A
Matrix: Water
Analysis Batch: 469237

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 467811

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.03821	U	0.223	0.223	1.00	0.395	pCi/L	04/15/20 08:04	04/30/20 12:32	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.6*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:32*	*1*
Y Carrier	*78.5*		*40 - 110*	*04/15/20 08:04*	*04/30/20 12:32*	*1*

Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-467811/1-A
Matrix: Water
Analysis Batch: 469238

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 467811

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.88	9.602		1.16	1.00	0.552	pCi/L	108	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*91.5*		*40 - 110*
Y Carrier	*82.2*		*40 - 110*

Lab Sample ID: LCSD 160-467811/2-A
Matrix: Water
Analysis Batch: 469238

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 467811

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			8.88	9.120		1.10	1.00	0.457	pCi/L	103	75 - 125	0.21	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*95.1*		*40 - 110*
Y Carrier	*82.6*		*40 - 110*

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-104442-2

Rad

Prep Batch: 467807

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-104442-1	ARGWA-19	Total/NA	Water	PrecSep-21	
180-104442-2	ARGWA-20	Total/NA	Water	PrecSep-21	
180-104442-3	ARGWC-21	Total/NA	Water	PrecSep-21	
180-104442-4	EB-2-4-7-20	Total/NA	Water	PrecSep-21	
180-104442-5	FB-2-4-6-20	Total/NA	Water	PrecSep-21	
180-104442-6	DUP-2	Total/NA	Water	PrecSep-21	
180-104442-7	ARGWC-22	Total/NA	Water	PrecSep-21	
180-104442-8	ARGWC-23	Total/NA	Water	PrecSep-21	
MB 160-467807/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-467807/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-467807/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 467811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-104442-1	ARGWA-19	Total/NA	Water	PrecSep_0	
180-104442-2	ARGWA-20	Total/NA	Water	PrecSep_0	
180-104442-3	ARGWC-21	Total/NA	Water	PrecSep_0	
180-104442-4	EB-2-4-7-20	Total/NA	Water	PrecSep_0	
180-104442-5	FB-2-4-6-20	Total/NA	Water	PrecSep_0	
180-104442-6	DUP-2	Total/NA	Water	PrecSep_0	
180-104442-7	ARGWC-22	Total/NA	Water	PrecSep_0	
180-104442-8	ARGWC-23	Total/NA	Water	PrecSep_0	
MB 160-467811/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-467811/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-467811/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

TestAmerica

681-Atlanta

Chain of Custody Record

TestAmerica — THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: T. Goble / R. walker
Client Contact: Joju Abraham	Phone: 770-594-5998
Lab PM: Veronica Bortot	E-Mail: Veronica.Bortot@testamericainc.com
Carrier Tracking No(s): ACC to TA	COC No: 400-73521-29028.1
Page: Page 1 of 1	Job #:
Company: Southern Company	
Address: PO BOX 2641 GSC8	Due Date Requested:
City: Birmingham	TAT Requested (days):
State, Zip: AL, 35291	
Phone:	PO #: SCS10347656
Email: JAbraham@southernco.com	WO #:
Project Name: CCR Plant Arkwright - Ash Pond 2 - 1st 2020 SA GWM	Project #: 40007712
Site: Georgia	SSOW#:

Analysis Requested

Columns: Field Filtered Sample (Yes or No); Perform MS/MSD (Yes or No); Metals - App III (Boron, Calcium); 300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS; State Metals (Arsenic, Barium, Cadmium, Lead, Silver, and Selenium); Detected A4: Radium 226 & 228 (SW-846 9315/9320); Detected A4: Metals (Arsenic, Barium, Cadmium, Chromium, Cobalt, Lead, Lithium, Selenium); Total Number of containers

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA

M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample	Perform MS/MSD	Metals - App III	300_ORGFM_28D / 2540C TDS	State Metals	Detected A4: Radium 226 & 228	Detected A4: Metals	Total Number of containers	Special Instructions/Note:
			Preservation Code:										
ARGWA-19	4-7-20	1008	G	Water	N	N	✓	✓	✓	✓	✓	3	pH = 5.72
ARGWA-20	4-6-20	1622	G	Water	N	N	✓	✓	✓	✓	✓	3	pH = 5.53
ARGWA-21	4-7-20	1619	G	Water	N	N	✓	✓	✓	✓	✓	3	pH = 5.96
EB-2-4-7-20	4-7-20	1445	G	Water	N	N	✓	✓	✓	✓	✓	3	pH = —
FB-2-4-6-20	4-6-20	1520	G	Water	N	N	✓	✓	✓	✓	✓	3	pH = —
Dup-2	4-7-20	—	G	Water	N	N	✓	✓	✓	✓	✓	3	pH = —
ARGWC-22	4-7-20	1418	G	Water	N	N	✓	✓	✓	✓	✓	3	pH = 5.84
ARGWC-23	4-7-20	1200	G	Water	N	N	✓	✓	✓	✓	✓	3	pH = 6.40
			G	Water									pH =
			G	Water									
			G	Water									

180-104442 Chain of Custody

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assesse

☐ Return To Client ☒ Disposal

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	4-8-20 / 1515	ACC	[signature]	4-8-20	TS / S
[signature]	4-8-20 1516		[signature]	4/9/20 820	[illegible]

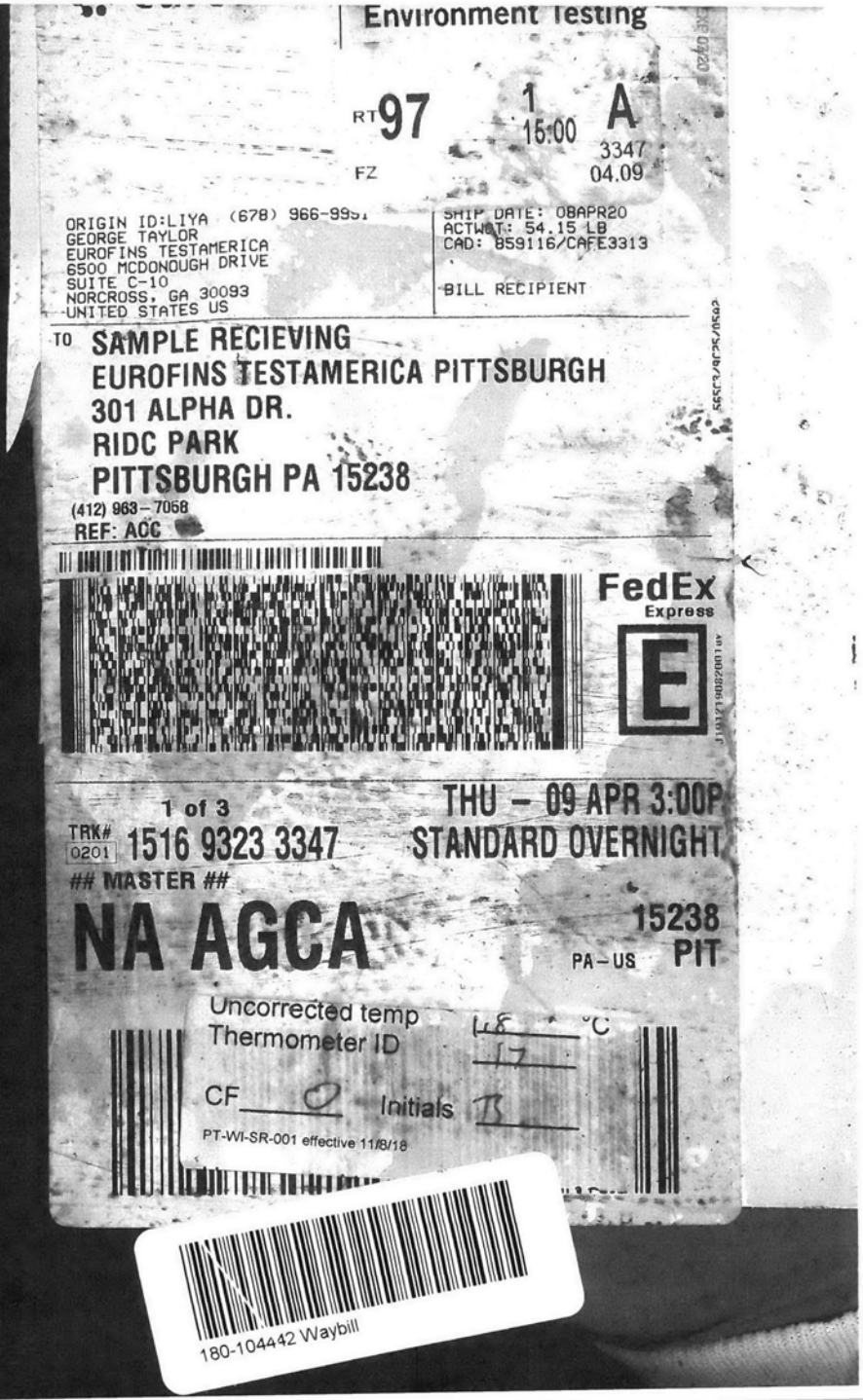
Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 08/04/2016

Detected APP IV: Arsenic, Barium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Selenium, Radium


Environment Testing
RT 97
1
15:00
A
3347
04.09
FZ
ORIGIN ID:LIYA (678) 966-9951
GEORGE TAYLOR
EUROFINS TESTAMERICA
6500 MCDONOUGH DRIVE
SUITE C-10
NORCROSS, GA 30093
UNITED STATES US
SHIP DATE: 08APR20
ACTWGT: 54.15 LB
CAD: 859116/CAFE3313
BILL RECIPIENT
TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC
FedEx
Express
1 of 3
TRK# 0201 1516 9323 3347
THU - 09 APR 3:00P
STANDARD OVERNIGHT
MASTER
NA AGCA
15238
PA-US
PIT
Uncorrected temp
Thermometer ID
°C
CF
Initials
PT-WI-SR-001 effective 11/8/18
180-104442 Waybill


eurofins
Environment Testing
TestAmerica
ORIGIN ID:LIYA (678) 966-9991
GEORGE TAYLOR
EUROFINS TESTAMERICA
6500 MCDONOUGH DRIVE
SUITE C-10
NORCROSS, GA 30093
UNITED STATES US
SHIP DATE: 08APR20
ACTWGT: 54.15 LB
CAD: 859116/CAFE3313
BILL RECIPIENT
TO SAMPLE RECIEVING
EUROFINS TESTAMERICA PITTSBURGH
301 ALPHA DR.
RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF: ACC
FedEx Express
2 of 3
MPS# 1516 9323 3358
Mstr# 1516 9323 3347
THU - 09 APR 3:00P
STANDARD OVERNIGHT
0263
0201
NA AGCA
15238
PIT
PA-US
Uncorrected temp 1.4 °C
Thermometer ID 17
CF 0 Initials JS
PT-WI-SR-001 effective 11/8/18
3 of 3
MPS# 1516 9323 3369
Mstr# 1516 9323 3347
THU - 09 APR 3:00
STANDARD OVERNIGH
NA AGCA
15238
PIT
PA-US
Uncorrected temp 1.6 °C
Thermometer ID 17
CF 0 Initials JS
PT-WI-SR-001 effective 11/8/18

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-390690.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-104442-2
Address: 13715 Rider Trail North,	Due Date Requested: 5/7/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant Arkwright Ash Pond 2	Project #: 18020201			
Site: Arkwright	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Radium 228	9315_Ra226/PrecSep_21 Radium 226	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
ARGWA-19 (180-104442-1)	4/7/20	10:08 Eastern		Water			X	X	X	1	
ARGWA-20 (180-104442-2)	4/6/20	16:22 Eastern		Water			X	X	X	1	
ARGWC-21 (180-104442-3)	4/7/20	16:19 Eastern		Water			X	X	X	1	
EB-2-4-7-20 (180-104442-4)	4/7/20	14:45 Eastern		Water			X	X	X	1	
FB-2-4-6-20 (180-104442-5)	4/6/20	15:20 Eastern		Water			X	X	X	1	
DUP-2 (180-104442-6)	4/7/20	Eastern		Water			X	X	X	1	
ARGWC-22 (180-104442-7)	4/7/20	14:18 Eastern		Water			X	X	X	1	
ARGWC-23 (180-104442-8)	4/7/20	12:00 Eastern		Water			X	X	X	1	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		4/13/20 1700	PLT	FED EX		
2	FED EX				4/14/2020 09:19	EFA SOL
3						

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-104442-2

Login Number: 104442
List Number: 1
Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-104442-2

Login Number: 104442
List Number: 2
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 04/14/20 01:45 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ATLANTIC COAST CONSULTING, INC.

Daily Instrument Calibration Log

SITE: Plant Arkwright

TECHNICIAN: T. Goble

WATER LEVEL: Solinst

WATER LEVEL S/N: 236986

INSTRUMENT S/N: 025476

INSTRUMENT TYPE: Insitu SmarTroll

CAL. SOLUTION/S:

ID: pH 4	LOT # : 9GT282	EXP. DATE:	09/21
ID: pH 7	LOT # : 9GK721	EXP. DATE:	11/21
ID: pH 10	LOT # : 9GK672	EXP. DATE:	11/21
ID: Cond	LOT # : 9GT170	EXP. DATE:	9/20
ID: ORP 240	LOT # : 9GK142	EXP. DATE:	8/20
ID:	LOT # :	EXP. DATE:	
ID:	LOT # :	EXP. DATE:	

Calibration Date: 4-6-20

RDO: 100% sat. = 98.5

PH: 4.00 = 4.65 7.00 = 7.53 10.00 =

CONDUCTIVITY: 1413 = 1415

ORP (mV) 228 = 177.7

Calibration Date: 4-7-20

RDO: 100% sat. = 101.3

PH: 4.00 = 4.71 7.00 = 7.44 10.00 = 10.28

CONDUCTIVITY: 1413 = 1506

ORP (mV) 233 = 195.1

Calibration Date: 4-8-20

RDO: 100% sat. = 99.2

PH: 4.00 = 4.77 7.00 = 7.44 10.00 = 10.21

CONDUCTIVITY: 1413 = 1544

ORP (mV) 235 = 198.6

Calibration Date: 4-9-20

RDO: 100% sat. = 100.3

PH: 4.00 = 4.74 7.00 = 7.44 10.00 = 10.24

CONDUCTIVITY: 1413 = 1596

ORP (mV) 234 = 196.5

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

HACH: # 16040C049743

10 : 48199 Jul 20.

20 48215 Aug 20

100 48222

800 48229

4.6

0.0 = 0.34

10.0 = 9.9

20.0 = 20.3

4.7

0.0 = 0.24

10.0 = 9.8

20.0 = 20.2

4.8

0.0 = 0.31

10.0 = 10.1

20.0 = 20.3

4.9

0.0 = 0.42

10.0 = 10.2

20.0 = 20.2

ATLANTIC COAST CONSULTING, INC.

Daily Instrument Calibration Log

SITE: Plant Arkwright

TECHNICIAN: Ryan Walker

WATER LEVEL: Heron

WATER LEVEL S/N: 24424

INSTRUMENT S/N: ~~714293~~ 714293

INSTRUMENT TYPE: Insitu ~~SmarTroll~~ Aquatroll

CAL. SOLUTION/S:	ID:	LOT #:	EXP. DATE:
	pH 4	96L003	12/21
	pH 7	2808E52	08/20
	pH 10	96F073	06/21
	ORP	96L592	09/20
	Con	96E1018	05/20

Calibration Date: 4/6/20

RDO: 100% sat. = 99.40

PH: 4.00 = 4.02 7.00 = 7.02 10.00 = 9.74

CONDUCTIVITY: 1308

ORP (mV) 219.9

Calibration Date: 4/7/20

RDO: 100% sat. = 100.72

PH: 4.00 = 4.01 7.00 = 6.99 10.00 = 10.06

CONDUCTIVITY: 1425

ORP (mV) 234.3

Calibration Date: 4/8/20

RDO: 100% sat. = 99.83

PH: 4.00 = 4.01 7.00 = 7.03 10.00 = 10.05

CONDUCTIVITY: 1472

ORP (mV) 235.0

Calibration Date: 4/9/20

RDO: 100% sat. = 99.90

PH: 4.00 = 3.99 7.00 = 7.01 10.00 = 10.02

CONDUCTIVITY: 1386

ORP (mV) 232.1

Calibration Date:

RDO: 100% sat. =

PH: 4.00 = 7.00 = 10.00 =

CONDUCTIVITY:

ORP (mV)

ATLANTIC COAST CONSULTING, INC.

Daily Instrument Calibration Log

SITE: Plant Arkwright

TECHNICIAN: Ryan Walker

INSTRUMENT S/N: 17120C06376 7

INSTRUMENT TYPE: Hach 2100 Q

CAL. SOLUTION:

0 NTU - LOT # NA	EXP. DATE: New DI water
10 NTU - LOT # A8194	EXP. DATE: 07/20
20 NTU - LOT # A8215	EXP. DATE: 08/20

Calibration Date: 4/6/20

Calibation Solution	Instrument Reading	
0.0	0.39	NTU
10.0	9.35	NTU
20.0	19.1	NTU

Calibration Date: 4/7/20

Calibation Solution	Instrument Reading	
0.0	0.43	NTU
10.0	9.31	NTU
20.0	21.5	NTU

Calibration Date: 4/8/20

Calibation Solution	Instrument Reading	
0.0	0.39	NTU
10.0	9.06	NTU
20.0	19.8	NTU

Calibration Date: 4/9/20

Calibation Solution	Instrument Reading	
0.0	0.39	NTU
10.0	10.9	NTU
20.0	21.2	NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Calibration Date:

Calibation Solution	Instrument Reading	
0.0		NTU
10.0		NTU
20.0		NTU

Product Name: Low-Flow System

Date: 2020-04-07 10:09:46

Project Information:		Pump Information:	
Operator Name	Taylor Goble	Pump Model/Type	QED Bladder Pump
Company Name	ACC	Tubing Type	poly
Project Name	Plant Arkwright Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright Ash Pond 2	Tubing Length	53 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	369807		
Turbidity Make/Model	HACH	Pump placement from TOC	48 ft

Well Information:		Pumping Information:	
Well ID	ARGWA-19	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3265614 L
Well Total Depth	52.74 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	23.80 ft	Total Volume Pumped	8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 25
Last 5	09:48:52	900.00	19.43	5.97	175.78	2.26	23.80	4.32	142.32
Last 5	09:53:52	1200.01	19.63	5.89	173.21	2.35	23.80	4.46	142.11
Last 5	09:58:52	1500.00	19.72	5.76	175.91	2.53	23.80	4.22	140.89
Last 5	10:03:52	1800.00	19.77	5.74	174.31	2.22	23.80	4.36	140.45
Last 5	10:08:52	2099.99	19.70	5.72	176.07	1.88	23.80	4.27	140.12
Variance 0			0.09	-0.13	2.70			-0.24	-1.22
Variance 1			0.04	-0.02	-1.60			0.13	-0.43
Variance 2			-0.07	-0.02	1.76			-0.08	-0.33

Notes

Sampled at 1008. Sunny 69 degrees

Grab Samples

Product Name: Low-Flow System

Date: 2020-04-06 16:23:48

Project Information:		Pump Information:	
Operator Name	Taylor Goble	Pump Model/Type	QED Bladder Pump
Company Name	ACC	Tubing Type	poly
Project Name	Plant Arkwright Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright Ash Pond 2	Tubing Length	38 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	369807		
Turbidity Make/Model	HACH	Pump placement from TOC	33 ft

Well Information:		Pumping Information:	
Well ID	ARGWA-20	Final Pumping Rate	250 mL/min
Well diameter	2 in	Total System Volume	0.2596101 L
Well Total Depth	37.70 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	4 in
Depth to Water	11.32 ft	Total Volume Pumped	25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 25
Last 5	16:02:22	3599.98	18.19	5.50	134.26	6.12	11.73	5.62	164.66
Last 5	16:07:22	3899.98	18.16	5.51	134.35	5.88	11.76	5.61	161.29
Last 5	16:12:22	4199.97	18.21	5.52	134.45	5.30	11.79	5.59	160.86
Last 5	16:17:22	4499.97	18.16	5.52	134.71	5.55	11.82	5.62	160.44
Last 5	16:22:22	4799.97	18.21	5.53	134.71	4.79	11.85	5.60	159.76
Variance 0			0.05	0.00	0.10			-0.01	-0.43
Variance 1			-0.05	0.01	0.26			0.02	-0.42
Variance 2			0.05	0.01	-0.00			-0.02	-0.68

Notes

Sampled at 1622. Partly cloudy 83 degrees

Grab Samples

Product Name: Low-Flow System

Date: 2020-04-07 16:20:25

Project Information:		Pump Information:	
Operator Name	Taylor Goble	Pump Model/Type	QED Bladder Pump
Company Name	ACC	Tubing Type	poly
Project Name	Plant Arkwright Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright Ash Pond 2	Tubing Length	28 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	369807		
Turbidity Make/Model	HACH	Pump placement from TOC	23 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-21	Final Pumping Rate	60 mL/min
Well diameter	2 in	Total System Volume	0.2149758 L
Well Total Depth	27.28 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	10 in
Depth to Water	13.46 ft	Total Volume Pumped	5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 25
Last 5	15:59:53	3299.98	19.38	5.96	612.84	12.20	14.14	0.38	98.56
Last 5	16:04:53	3599.97	19.37	5.96	613.04	10.60	14.14	0.37	98.42
Last 5	16:09:54	3900.97	19.34	5.96	612.81	7.97	14.14	0.34	97.95
Last 5	16:14:54	4200.96	19.32	5.96	613.02	6.30	14.14	0.33	96.90
Last 5	16:19:54	4500.96	19.32	5.96	613.11	4.82	14.15	0.31	96.09
Variance 0			-0.02	-0.00	-0.23			-0.03	-0.47
Variance 1			-0.02	-0.00	0.20			-0.01	-1.04
Variance 2			0.00	-0.00	0.09			-0.01	-0.82

Notes

Sampled at 1619. Partly cloudy 76 degrees

Grab Samples

Product Name: Low-Flow System

Date: 2020-04-07 14:19:26

Project Information:		Pump Information:	
Operator Name	Taylor Goble	Pump Model/Type	QED Bladder Pump
Company Name	ACC	Tubing Type	poly
Project Name	Plant Arkwright Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright Ash Pond 2	Tubing Length	28 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	369807		
Turbidity Make/Model	HACH	Pump placement from TOC	23 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-22	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.2149758 L
Well Total Depth	27.54 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	5 in
Depth to Water	13.88 ft	Total Volume Pumped	5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 25
Last 5	13:58:01	900.00	18.74	5.89	1444.49	7.24	14.14	0.16	34.25
Last 5	14:03:01	1200.00	18.74	5.87	1434.63	9.31	14.18	0.16	32.32
Last 5	14:08:01	1499.99	18.74	5.84	1446.31	6.43	14.23	0.16	31.04
Last 5	14:13:01	1799.99	18.70	5.83	1436.08	5.77	14.29	0.15	29.42
Last 5	14:18:01	2099.98	18.55	5.84	1423.01	4.54	14.35	0.15	29.12
Variance 0			-0.00	-0.02	11.69			-0.01	-1.28
Variance 1			-0.05	-0.01	-10.24			-0.01	-1.63
Variance 2			-0.15	0.00	-13.06			0.00	-0.29

Notes

Sampled at 1418. Partly cloudy 78 degrees

Grab Samples

Product Name: Low-Flow System

Date: 2020-04-07 12:01:11

Project Information:		Pump Information:	
Operator Name	Taylor Goble	Pump Model/Type	QED Bladder Pump
Company Name	ACC	Tubing Type	poly
Project Name	Plant Arkwright Ash Pond 2	Tubing Diameter	.17 in
Site Name	Plant Arkwright Ash Pond 2	Tubing Length	28 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	369807		
Turbidity Make/Model	HACH	Pump placement from TOC	23 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-23	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.2149758 L
Well Total Depth	27.85 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	13 in
Depth to Water	11.05 ft	Total Volume Pumped	15 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 25
Last 5	11:40:10	2399.99	19.95	6.44	430.40	7.57	12.30	0.24	84.25
Last 5	11:45:10	2699.99	19.90	6.44	431.67	6.90	12.32	0.26	83.55
Last 5	11:50:10	2999.98	19.90	6.43	432.39	6.13	12.35	0.22	82.63
Last 5	11:55:11	3300.98	19.86	6.43	431.32	4.93	12.38	0.20	81.90
Last 5	12:00:11	3600.98	19.88	6.40	432.06	4.66	12.38	0.19	81.22
Variance 0			0.00	-0.01	0.72			-0.04	-0.92
Variance 1			-0.05	-0.01	-1.07			-0.02	-0.73
Variance 2			0.02	-0.03	0.74			-0.01	-0.68

Notes

Sampled at 1200. Sunny 75 degrees

Grab Samples

WELL CONDITION SUMMARY

ATLANTIC COAST CONSULTING, INC.

Site: Plant Arkwright

Personell: RW/TG

Date(s): 4/6-4/9/20

Well ID	Protective Casing	Well Casing	Label	Bollards	Lock	Well Pad	Weep Hole	Vent Hole	Notes
ARGWA-3	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-5	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-12	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-13	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-14	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-7	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☐ OK ☑ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	One bollard down
ARGWC-8	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-9	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-10	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-15	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	

WELL CONDITION SUMMARY

ATLANTIC COAST CONSULTING, INC.

Site: Plant Arkwright

Personell: RW / TG

Date(s): 4/6 - 4/9/20

Page: 2 of 3

Well ID	Protective Casing	Well Casing	Label	Bollards	Lock	Well Pad	Weep Hole	Vent Hole	Notes
ARGWC-16	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-17	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-18	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-19	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWA-20	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARGWC-21	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARAMW-22	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARAMW-23	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARAMW-1	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARAMW-2	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	

ATLANTIC COAST CONSULTING, INC.

WELL CONDITION SUMMARY

Site: Plant Arkwright

Date(s): 4/6 - 4/9/20

Personell: RW/TG

Page: 3 of 3

Well ID	Protective Casing	Well Casing	Label	Bollards	Lock	Well Pad	Weep Hole	Vent Hole	Notes
ARAMW-3	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARAMW-4	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
ARAMW-6	☑ OK ☐ Damaged	☑ OK ☐ Damaged	☑ OK ☐ Deficient	☑ OK ☐ Deficient	☑ Yes ☐ No	☑ OK ☐ Damaged	☑ Yes ☐ No	☑ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Deficient	☐ OK ☐ Deficient	☐ Yes ☐ No	☐ OK ☐ Damaged	☐ Yes ☐ No	☐ Yes ☐ No	

Georgia Power Site Sampling Data (GW)

Site Name : Plant Arkwright Date : 4/6 – 4/9/20

Well ID	Sample Date	Sample Time	Additional Comments
ASH POND #3			
ARGWA-3	4-7-20	1045	pH=5.90
ARGWA-5	4-7-20	1146	pH=5.86
ARGWA-12	4-7-20	1346	pH=5.91
ARGWA-13	4-7-20	1532	pH=5.84 FB-1 here
ARGWA-14	4-6-20	1557	pH= 5.90
ARGWC-7	4-8-20	0955	pH= 5.75 Extra Rad here
ARGWC-8	4-9-20	1235	pH= 6.42
ARGWC-9	4-9-20	1025	pH=5.90 EB-1 here
ARGWC-10	4-8-20	1709	pH=5.95
ARGWC-15	4-8-20	1615	pH= 6.26
ARGWC-16	4-8-20	1115	pH= 5.07
ARGWC-17	4-8-20	1430	pH= 5.02
ARGWC-18	4-9-20	0940	pH= 5.98
EB-1-4-9-20	4-9-20	1040	Equipment type: WL
Dup-1	4-8-20	1115	Parent Sample: ARGWC-16
FB-1-4-7-20	4-7-20	1600	Poured at: ARGWA-13
ASH POND #2			
ARGWA-19	4-7-20	1008	pH= 5.72
ARGWA-20	4-6-20	1622	pH= 5.53
ARGWC-21	4-7-20	1619	pH= 5.96
ARGWC-22	4-7-20	1418	pH= 5.84
ARGWC-23	4-7-20	1200	pH= 6.40
EB-2-4-7-20	4-7-20	1445	Equipment type: Peri pump
Dup-2	4-7-20	1008	Parent Sample: ARGWA-19
FB-2-4-6-20	4-6-20	1520	Poured at: ARGWA-20

Additional comments :

* Add date to EB and FB sample IDs.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-106373-1
Client Project/Site: CCR - Plant Arkwright Ash Pond 2

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Authorized for release by:
6/12/2020 10:35:18 AM

Shali Brown, Project Manager II
(615)301-5031
shali.brown@testamericainc.com

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-1

Job ID: 180-106373-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-106373-1

Comments
No additional comments.

Receipt
The samples were received on 5/29/2020 8:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.8º C.

GC Semi VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Field Service / Mobile Lab
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Job ID: 180-106373-1
Project/Site: CCR - Plant Arkwright Ash Pond 2

Qualifiers

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-106373-1
Project/Site: CCR - Plant Arkwright Ash Pond 2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-20
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	05-23-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20 *
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-106373-1	ARGWC-23	Water	05/27/20 16:23	05/29/20 08:45	
180-106373-2	ARGWC-22	Water	05/27/20 18:52	05/29/20 08:45	
180-106373-3	DUP	Water	05/27/20 00:00	05/29/20 08:45	
180-106373-4	EB	Water	05/27/20 14:40	05/29/20 08:45	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
Field Sampling	Field Sampling	EPA	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

EPA = US Environmental Protection Agency

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-1

Client Sample ID: ARGWC-23

Date Collected: 05/27/20 16:23
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			317665	06/06/20 23:00	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317672	06/05/20 21:30	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317940	06/06/20 18:09	RSK	TAL PIT
	Instrument ID: DORY									
Total/NA	Prep	7470A			50 mL	50 mL	317376	06/03/20 19:40	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			317535	06/04/20 17:41	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	316997	05/30/20 08:44	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			317243	05/27/20 16:23	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-22

Date Collected: 05/27/20 18:52
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			317665	06/06/20 23:47	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total/NA	Analysis	EPA 300.0 R2.1		5			317665	06/07/20 00:03	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317672	06/05/20 21:33	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317940	06/06/20 18:12	RSK	TAL PIT
	Instrument ID: DORY									
Total/NA	Prep	7470A			50 mL	50 mL	317376	06/03/20 19:40	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			317535	06/04/20 17:46	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	316997	05/30/20 08:44	AVS	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	Field Sampling		1			317243	05/27/20 18:52	FDS	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-1

Client Sample ID: DUP

Date Collected: 05/27/20 00:00
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			317665	06/07/20 00:19	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317672	06/05/20 21:36	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317940	06/06/20 18:16	RSK	TAL PIT
	Instrument ID: DORY									
Total/NA	Prep	7470A			50 mL	50 mL	317376	06/03/20 19:40	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			317535	06/04/20 17:46	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	316997	05/30/20 08:44	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: EB

Date Collected: 05/27/20 14:40
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			317665	06/07/20 00:35	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317672	06/05/20 21:40	RSK	TAL PIT
	Instrument ID: DORY									
Total Recoverable	Prep	3005A			50 mL	50 mL	317054	06/01/20 08:43	KEM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			317940	06/06/20 18:19	RSK	TAL PIT
	Instrument ID: DORY									
Total/NA	Prep	7470A			50 mL	50 mL	317376	06/03/20 19:40	NAM	TAL PIT
Total/NA	Analysis	EPA 7470A		1			317535	06/04/20 17:47	NAM	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	316997	05/30/20 08:44	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Prep

KEM = Kimberly Mahoney
NAM = Nicole Marfisi

Batch Type: Analysis

AVS = Abbey Smith
FDS = Sampler Field
MJH = Matthew Hartman
NAM = Nicole Marfisi
RSK = Robert Kurtz

Client Sample ID: ARGWC-23

Date Collected: 05/27/20 16:23
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-1

Matrix: Water

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.0		1.0	0.32	mg/L			06/06/20 23:00	1
Fluoride	0.25		0.10	0.026	mg/L			06/06/20 23:00	1
Sulfate	65	F1	1.0	0.38	mg/L			06/06/20 23:00	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 21:30	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 21:30	1
Barium	0.18	B	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 21:30	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		06/01/20 08:43	06/05/20 21:30	1
Boron	0.45	B	0.080	0.039	mg/L		06/01/20 08:43	06/06/20 18:09	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		06/01/20 08:43	06/05/20 21:30	1
Calcium	69		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 21:30	1
Chromium	<0.0015		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 21:30	1
Cobalt	0.0017	J	0.0025	0.00013	mg/L		06/01/20 08:43	06/05/20 21:30	1
Lead	<0.00013		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 21:30	1
Lithium	0.037		0.0050	0.0034	mg/L		06/01/20 08:43	06/05/20 21:30	1
Molybdenum	0.048		0.015	0.00061	mg/L		06/01/20 08:43	06/05/20 21:30	1
Selenium	<0.0015		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 21:30	1
Thallium	0.00026	J	0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 21:30	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		06/03/20 19:40	06/04/20 17:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	320		10	10	mg/L			05/30/20 08:44	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.3				SU			05/27/20 16:23	1

Client Sample ID: ARGWC-22

Date Collected: 05/27/20 18:52
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-2

Matrix: Water

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.3		1.0	0.32	mg/L			06/06/20 23:47	1
Fluoride	0.060	J	0.10	0.026	mg/L			06/06/20 23:47	1
Sulfate	720		5.0	1.9	mg/L			06/07/20 00:03	5

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 21:33	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 21:33	1
Barium	0.054	B	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 21:33	1
Beryllium	0.00018	J	0.0025	0.00018	mg/L		06/01/20 08:43	06/05/20 21:33	1
Boron	2.5	B	0.080	0.039	mg/L		06/01/20 08:43	06/06/20 18:12	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		06/01/20 08:43	06/05/20 21:33	1

Client Sample ID: ARGWC-22

Date Collected: 05/27/20 18:52
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-2

Matrix: Water

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**200**		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 21:33	1
Chromium	<0.0015		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 21:33	1
Cobalt	**0.0059**		0.0025	0.00013	mg/L		06/01/20 08:43	06/05/20 21:33	1
Lead	<0.00013		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 21:33	1
Lithium	**0.017**		0.0050	0.0034	mg/L		06/01/20 08:43	06/05/20 21:33	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/01/20 08:43	06/05/20 21:33	1
Selenium	<0.0015		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 21:33	1
Thallium	<0.00015		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 21:33	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		06/03/20 19:40	06/04/20 17:46	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1300**		10	10	mg/L			05/30/20 08:44	1

Method: Field Sampling - Field Sampling

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	**5.69**				SU			05/27/20 18:52	1

Client Sample ID: DUP

Date Collected: 05/27/20 00:00
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-3

Matrix: Water

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**3.8**		1.0	0.32	mg/L			06/07/20 00:19	1
Fluoride	**0.25**		0.10	0.026	mg/L			06/07/20 00:19	1
Sulfate	**66**		1.0	0.38	mg/L			06/07/20 00:19	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 21:36	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 21:36	1
Barium	**0.18**	**B**	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 21:36	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		06/01/20 08:43	06/05/20 21:36	1
Boron	**0.47**	**B**	0.080	0.039	mg/L		06/01/20 08:43	06/06/20 18:16	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		06/01/20 08:43	06/05/20 21:36	1
Calcium	**70**		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 21:36	1
Chromium	<0.0015		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 21:36	1
Cobalt	**0.0017**	**J**	0.0025	0.00013	mg/L		06/01/20 08:43	06/05/20 21:36	1
Lead	<0.00013		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 21:36	1
Lithium	**0.038**		0.0050	0.0034	mg/L		06/01/20 08:43	06/05/20 21:36	1
Molybdenum	**0.048**		0.015	0.00061	mg/L		06/01/20 08:43	06/05/20 21:36	1
Selenium	<0.0015		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 21:36	1
Thallium	<0.00015		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 21:36	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		06/03/20 19:40	06/04/20 17:46	1

Client Sample ID: DUP
Lab Sample ID: 180-106373-3
Date Collected: 05/27/20 00:00
Matrix: Water
Date Received: 05/29/20 08:45

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**330**		10	10	mg/L			05/30/20 08:44	1

Client Sample ID: EB
Lab Sample ID: 180-106373-4
Date Collected: 05/27/20 14:40
Matrix: Water
Date Received: 05/29/20 08:45

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			06/07/20 00:35	1
Fluoride	**0.036**	**J**	0.10	0.026	mg/L			06/07/20 00:35	1
Sulfate	**0.48**	**J**	1.0	0.38	mg/L			06/07/20 00:35	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 21:40	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 21:40	1
Barium	**0.013**	**B**	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 21:40	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		06/01/20 08:43	06/05/20 21:40	1
Boron	**0.049**	**J B**	0.080	0.039	mg/L		06/01/20 08:43	06/06/20 18:19	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		06/01/20 08:43	06/05/20 21:40	1
Calcium	**0.13**	**J**	0.50	0.13	mg/L		06/01/20 08:43	06/05/20 21:40	1
Chromium	<0.0015		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 21:40	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		06/01/20 08:43	06/05/20 21:40	1
Lead	<0.00013		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 21:40	1
Lithium	<0.0034		0.0050	0.0034	mg/L		06/01/20 08:43	06/05/20 21:40	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/01/20 08:43	06/05/20 21:40	1
Selenium	<0.0015		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 21:40	1
Thallium	<0.00015		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 21:40	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		06/03/20 19:40	06/04/20 17:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			05/30/20 08:44	1

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 180-317665/54
Matrix: Water
Analysis Batch: 317665

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			06/06/20 22:44	1
Fluoride	<0.026		0.10	0.026	mg/L			06/06/20 22:44	1
Sulfate	<0.38		1.0	0.38	mg/L			06/06/20 22:44	1

Lab Sample ID: LCS 180-317665/53
Matrix: Water
Analysis Batch: 317665

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.6		mg/L		107	90 - 110
Fluoride	2.50	2.46		mg/L		98	90 - 110
Sulfate	50.0	48.3		mg/L		97	90 - 110

Lab Sample ID: 180-106373-1 MS
Matrix: Water
Analysis Batch: 317665

Client Sample ID: ARGWC-23
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4.0		50.0	56.9		mg/L		106	90 - 110
Fluoride	0.25		2.50	2.70		mg/L		98	90 - 110
Sulfate	65	F1	50.0	111		mg/L		91	90 - 110

Lab Sample ID: 180-106373-1 MSD
Matrix: Water
Analysis Batch: 317665

Client Sample ID: ARGWC-23
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	4.0		50.0	54.3		mg/L		101	90 - 110	5	20
Fluoride	0.25		2.50	2.56		mg/L		93	90 - 110	5	20
Sulfate	65	F1	50.0	105	F1	mg/L		80	90 - 110	5	20

Method: EPA 6020B - Metals (ICP/MS)

Lab Sample ID: MB 180-317054/1-A
Matrix: Water
Analysis Batch: 317672

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 317054

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		06/01/20 08:43	06/05/20 20:44	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		06/01/20 08:43	06/05/20 20:44	1
Barium	0.00761	J	0.010	0.0016	mg/L		06/01/20 08:43	06/05/20 20:44	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		06/01/20 08:43	06/05/20 20:44	1
Boron	0.0647	J	0.080	0.039	mg/L		06/01/20 08:43	06/05/20 20:44	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		06/01/20 08:43	06/05/20 20:44	1
Calcium	<0.13		0.50	0.13	mg/L		06/01/20 08:43	06/05/20 20:44	1
Chromium	<0.0015		0.0020	0.0015	mg/L		06/01/20 08:43	06/05/20 20:44	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		06/01/20 08:43	06/05/20 20:44	1
Lead	<0.00013		0.0010	0.00013	mg/L		06/01/20 08:43	06/05/20 20:44	1
Lithium	<0.0034		0.0050	0.0034	mg/L		06/01/20 08:43	06/05/20 20:44	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/01/20 08:43	06/05/20 20:44	1

Method: EPA 6020B - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 180-317054/1-A
Matrix: Water
Analysis Batch: 317672

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 317054

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<0.0015		0.0050	0.0015	mg/L		06/01/20 08:43	06/05/20 20:44	1
Thallium	<0.00015		0.0010	0.00015	mg/L		06/01/20 08:43	06/05/20 20:44	1

Lab Sample ID: LCS 180-317054/2-A
Matrix: Water
Analysis Batch: 317672

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 317054

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.250	0.242		mg/L		97	80 - 120
Arsenic	1.00	0.967		mg/L		97	80 - 120
Barium	1.00	0.956		mg/L		96	80 - 120
Beryllium	0.500	0.475		mg/L		95	80 - 120
Cadmium	0.500	0.475		mg/L		95	80 - 120
Calcium	25.0	26.3		mg/L		105	80 - 120
Chromium	0.500	0.486		mg/L		97	80 - 120
Cobalt	0.500	0.466		mg/L		93	80 - 120
Lead	0.500	0.496		mg/L		99	80 - 120
Lithium	0.500	0.473		mg/L		95	80 - 120
Molybdenum	0.500	0.491		mg/L		98	80 - 120
Selenium	1.00	0.961		mg/L		96	80 - 120
Thallium	1.00	1.06		mg/L		106	80 - 120

Lab Sample ID: LCS 180-317054/2-A
Matrix: Water
Analysis Batch: 317940

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 317054

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.25	1.10		mg/L		88	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-317376/1-A
Matrix: Water
Analysis Batch: 317535

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 317376

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		06/03/20 19:40	06/04/20 17:34	1

Lab Sample ID: LCS 180-317376/2-A
Matrix: Water
Analysis Batch: 317535

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 317376

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00233		mg/L		93	80 - 120

Method: EPA 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 180-106373-1 MS
Matrix: Water
Analysis Batch: 317535

Client Sample ID: ARGWC-23
Prep Type: Total/NA
Prep Batch: 317376

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	<0.00013		0.00100	0.000878		mg/L		88	75 - 125		

Lab Sample ID: 180-106373-1 MSD
Matrix: Water
Analysis Batch: 317535

Client Sample ID: ARGWC-23
Prep Type: Total/NA
Prep Batch: 317376

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.00013		0.00100	0.000871		mg/L		87	75 - 125	1	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-316997/2
Matrix: Water
Analysis Batch: 316997

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			05/30/20 08:44	1

Lab Sample ID: LCS 180-316997/1
Matrix: Water
Analysis Batch: 316997

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Dissolved Solids			192	204		mg/L		106	80 - 120		

Lab Sample ID: 180-106373-3 DU
Matrix: Water
Analysis Batch: 316997

Client Sample ID: DUP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	330			308		mg/L				6	10

HPLC/IC

Analysis Batch: 317665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
180-106373-2	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-106373-2	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-106373-3	DUP	Total/NA	Water	EPA 300.0 R2.1	
180-106373-4	EB	Total/NA	Water	EPA 300.0 R2.1	
MB 180-317665/54	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-317665/53	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-106373-1 MS	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
180-106373-1 MSD	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 317054

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total Recoverable	Water	3005A	
180-106373-2	ARGWC-22	Total Recoverable	Water	3005A	
180-106373-3	DUP	Total Recoverable	Water	3005A	
180-106373-4	EB	Total Recoverable	Water	3005A	
MB 180-317054/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-317054/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 317376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	7470A	
180-106373-2	ARGWC-22	Total/NA	Water	7470A	
180-106373-3	DUP	Total/NA	Water	7470A	
180-106373-4	EB	Total/NA	Water	7470A	
MB 180-317376/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-317376/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-106373-1 MS	ARGWC-23	Total/NA	Water	7470A	
180-106373-1 MSD	ARGWC-23	Total/NA	Water	7470A	

Analysis Batch: 317535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	EPA 7470A	317376
180-106373-2	ARGWC-22	Total/NA	Water	EPA 7470A	317376
180-106373-3	DUP	Total/NA	Water	EPA 7470A	317376
180-106373-4	EB	Total/NA	Water	EPA 7470A	317376
MB 180-317376/1-A	Method Blank	Total/NA	Water	EPA 7470A	317376
LCS 180-317376/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	317376
180-106373-1 MS	ARGWC-23	Total/NA	Water	EPA 7470A	317376
180-106373-1 MSD	ARGWC-23	Total/NA	Water	EPA 7470A	317376

Analysis Batch: 317672

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total Recoverable	Water	EPA 6020B	317054
180-106373-2	ARGWC-22	Total Recoverable	Water	EPA 6020B	317054
180-106373-3	DUP	Total Recoverable	Water	EPA 6020B	317054
180-106373-4	EB	Total Recoverable	Water	EPA 6020B	317054
MB 180-317054/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	317054
LCS 180-317054/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	317054

QC Association Summary

Client: Southern Company
Job ID: 180-106373-1
Project/Site: CCR - Plant Arkwright Ash Pond 2

Metals

Analysis Batch: 317940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total Recoverable	Water	EPA 6020B	317054
180-106373-2	ARGWC-22	Total Recoverable	Water	EPA 6020B	317054
180-106373-3	DUP	Total Recoverable	Water	EPA 6020B	317054
180-106373-4	EB	Total Recoverable	Water	EPA 6020B	317054
LCS 180-317054/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	317054

General Chemistry

Analysis Batch: 316997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	SM 2540C	
180-106373-2	ARGWC-22	Total/NA	Water	SM 2540C	
180-106373-3	DUP	Total/NA	Water	SM 2540C	
180-106373-4	EB	Total/NA	Water	SM 2540C	
MB 180-316997/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-316997/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-106373-3 DU	DUP	Total/NA	Water	SM 2540C	

Field Service / Mobile Lab

Analysis Batch: 317243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	Field Sampling	
180-106373-2	ARGWC-22	Total/NA	Water	Field Sampling	

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

681-Atlanta

eurofins | Environment Testing America

Client Information	Sampler: D.Howard /N. McMillan	Lab PM: Brown, Shali	Carrier Tracking No(s):	COC No: 180-60862-12387.1
Client Contact: Joju Abraham	Phone:	E-Mail: shali.brown@testamericainc.com		Page: Page 1 of 1
Company: Southern Company				Job #:
Address: 241 Ralph McGill Blvd SE B10185	Due Date Requested: standard			
City: Atlanta	TAT Requested (days):			
State, Zip: GA, 30308				
Phone:	PO #: SCS10382606			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR - Plant Arkwright App III/IV	Project #: 18020201			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226 - Radium 226	Ra226Ra228_GFPC - Ra 226/228	9320_Ra228 - Radium 228	300_ORGFM_28D - Chloride Fluoride Sulfate	6020B, 7470A	2540C_Calcd - Solids, Total Dissolved (TDS)	6020B - Lead	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	D	N	D		
ARGWC-23	5/27/20	1623	G	W			X	X	X	X	X	X			pH = 6.30
ARGWC-22		1852	G	W			X	X	X	X	X	X			pH = 5.69
DUP		-	G	W			X	X	X	X	X	X			
EB		1440	G	W			X	X	X	X	X	X			
ARGWC-10		1910	G	W									X	1	pH = 5.98
Temp Blank															

180-106373 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

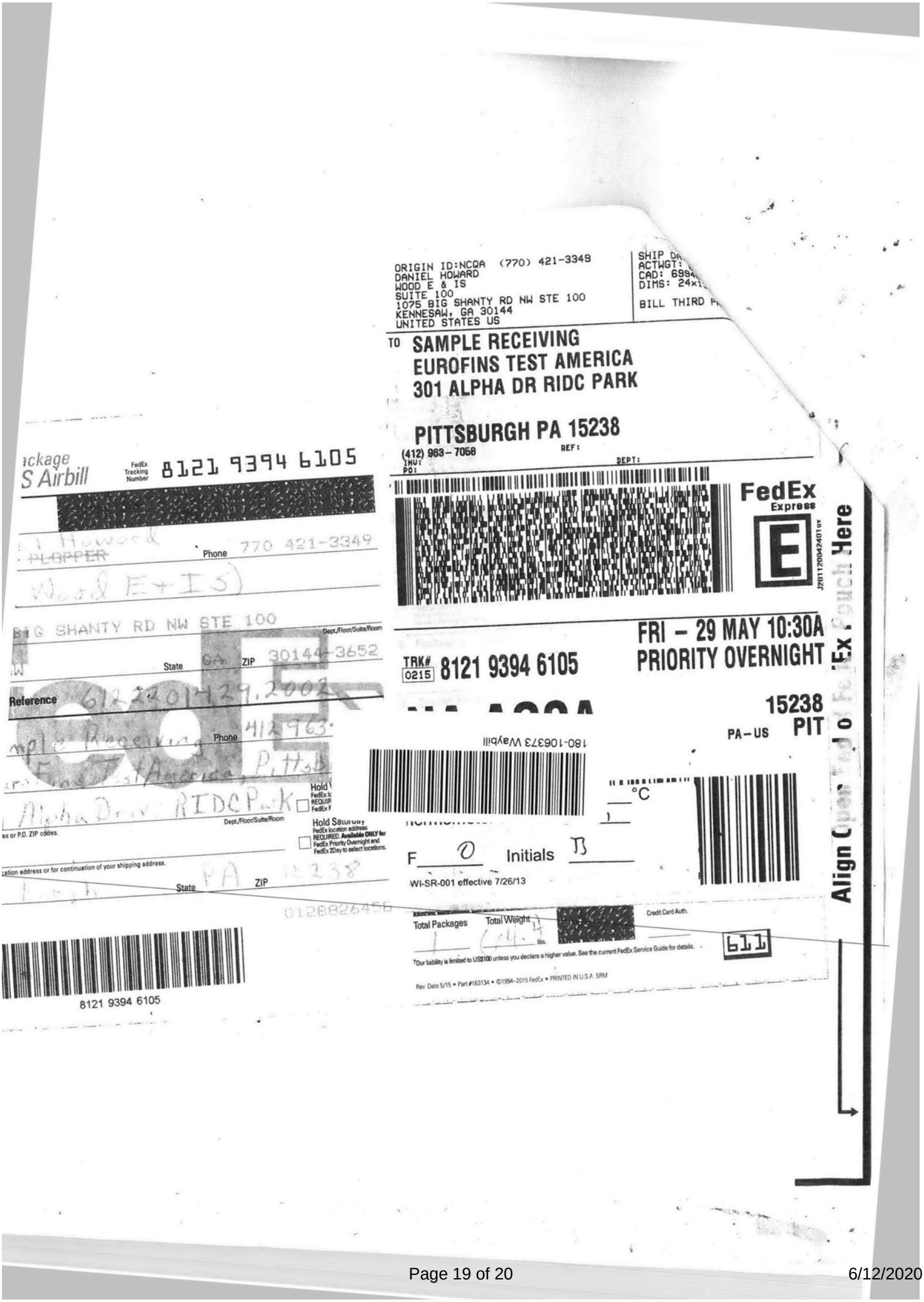
Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Daniel K Howard	5/28/20/1415		Willie Watts	5-29-20	FEDEX
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 845	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019


ackage
S Airbill
FedEx Tracking Number
8121 9394 6105
Phone 770 421-3349
Wood E+IS)
BIG SHANTY RD NW STE 100
Dept./Floor/Suite/Room
State GA ZIP 30144-3652
Reference
Phone
Dept./Floor/Suite/Room
Hold Saturday
FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.
State PA ZIP
8121 9394 6105
ORIGIN ID:NCGA (770) 421-3349
DANIEL HOWARD
WOOD E & IS
SUITE 100
1075 BIG SHANTY RD NW STE 100
KENNESAW, GA 30144
UNITED STATES US
BILL THIRD P
TO SAMPLE RECEIVING
EUROFINS TEST AMERICA
301 ALPHA DR RIDC PARK
PITTSBURGH PA 15238
(412) 963-7058
REF:
DEPT:
FedEx Express
FRI - 29 MAY 10:30A
PRIORITY OVERNIGHT
TRK# 0215 8121 9394 6105
15238
PA-US PIT
180-10637J WaybIII
°C
F Initials
WI-SR-001 effective 7/26/13
Total Packages
Total Weight
lbs.
Credit Card Auth.
611
Our liability is limited to US$100 unless you declare a higher value. See the current FedEx Service Guide for details.
Rev. Date 5/15 • Part #163134 • ©1994–2015 FedEx • PRINTED IN U.S.A. SRM
Align Clear Pouch Here

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-106373-1

Login Number: 106373
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

Laboratory Job ID: 180-106373-2
Client Project/Site: CCR - Plant Arkwright Ash Pond 2

For:
Southern Company
241 Ralph McGill Blvd SE
B10185
Atlanta, Georgia 30308

Attn: Joju Abraham

Authorized for release by:
6/30/2020 8:05:49 AM

Shali Brown, Project Manager II
(615)301-5031
shali.brown@testamericainc.com

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-106373-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-106373-2

Comments
No additional comments.

Receipt
The samples were received on 5/29/2020 8:45 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.8º C.

RAD
Methods 903.0, 9315: Ra-226 Prep Batch 160-471996
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
ARGWC-23 (180-106373-1), ARGWC-22 (180-106373-2), DUP (180-106373-3), EB (180-106373-4), (LCS 160-471996/1-A), (MB 160-471996/8-A), (160-38218-D-1-A) and (160-38218-D-1-B DU)

Methods 904.0, 9320: Radium-228 Prep Batch 160-472397
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
ARGWC-23 (180-106373-1), ARGWC-22 (180-106373-2), DUP (180-106373-3), EB (180-106373-4), (LCS 160-472397/1-A), (MB 160-472397/8-A), (160-38218-D-1-C) and (160-38218-D-1-D DU)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Southern Company
Job ID: 180-106373-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Qualifiers

Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-106373-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Laboratory: Eurofins TestAmerica, Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-26-20
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-20
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-20
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-20
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-20
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	05-23-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-20 *
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-106373-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Laboratory: Eurofins TestAmerica, St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-20
California	State	2886	06-30-20
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-20
HI - RadChem Recognition	State	n/a	06-30-20
Illinois	NELAP	004553	11-30-20
Iowa	State	373	09-17-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-20
MI - RadChem Recognition	State	9005	06-30-20
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-20
New Jersey	NELAP	MO002	06-30-20
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-20
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-20
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-20
Texas	NELAP	T104704193-19-13	07-31-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-20
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-20
West Virginia DEP	State	381	10-31-20

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-106373-1	ARGWC-23	Water	05/27/20 16:23	05/29/20 08:45	
180-106373-2	ARGWC-22	Water	05/27/20 18:52	05/29/20 08:45	
180-106373-3	DUP	Water	05/27/20 00:00	05/29/20 08:45	
180-106373-4	EB	Water	05/27/20 14:40	05/29/20 08:45	

Method Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-2

Method	Method Description	Protocol	Laboratory
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

Protocol References:

None = None

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

Laboratory References:

TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-2

Client Sample ID: ARGWC-23

Lab Sample ID: 180-106373-1
Date Collected: 05/27/20 16:23
Matrix: Water
Date Received: 05/29/20 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.22 mL	1.0 g	471996	06/04/20 07:18	RBR	TAL SL
Total/NA	Analysis	9315		1			474575	06/26/20 07:56	AJD	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1000.22 mL	1.0 g	472397	06/04/20 07:33	RBR	TAL SL
Total/NA	Analysis	9320		1			474543	06/25/20 13:03	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			474653	06/26/20 10:41	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: ARGWC-22

Lab Sample ID: 180-106373-2
Date Collected: 05/27/20 18:52
Matrix: Water
Date Received: 05/29/20 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.50 mL	1.0 g	471996	06/04/20 07:18	RBR	TAL SL
Total/NA	Analysis	9315		1			474575	06/26/20 07:56	AJD	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1000.50 mL	1.0 g	472397	06/04/20 07:33	RBR	TAL SL
Total/NA	Analysis	9320		1			474543	06/25/20 13:03	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			474653	06/26/20 10:41	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: DUP

Lab Sample ID: 180-106373-3
Date Collected: 05/27/20 00:00
Matrix: Water
Date Received: 05/29/20 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.51 mL	1.0 g	471996	06/04/20 07:18	RBR	TAL SL
Total/NA	Analysis	9315		1			474575	06/26/20 07:56	AJD	TAL SL
	Instrument ID: GFPCRED									
Total/NA	Prep	PrecSep_0			1000.51 mL	1.0 g	472397	06/04/20 07:33	RBR	TAL SL
Total/NA	Analysis	9320		1			474543	06/25/20 13:03	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			474653	06/26/20 10:41	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: EB

Lab Sample ID: 180-106373-4
Date Collected: 05/27/20 14:40
Matrix: Water
Date Received: 05/29/20 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.69 mL	1.0 g	471996	06/04/20 07:18	RBR	TAL SL
Total/NA	Analysis	9315		1			474575	06/26/20 07:56	AJD	TAL SL
	Instrument ID: GFPCRED									

Lab Chronicle

Client: Southern Company
Job ID: 180-106373-2
Project/Site: CCR - Plant Arkwright Ash Pond 2

Client Sample ID: EB
Date Collected: 05/27/20 14:40
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1000.69 mL	1.0 g	472397	06/04/20 07:33	RBR	TAL SL
Total/NA	Analysis	9320		1			474543	06/25/20 13:04	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Analysis	Ra226_Ra228		1			474653	06/26/20 10:41	SMP	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:
TAL SL = Eurofins TestAmerica, St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

Analyst References:
Lab: TAL SL
- Batch Type: Prep
  - RBR = Rachael Ratcliff
- Batch Type: Analysis
  - AJD = Audra DeMariano
  - KLS = Kody Saulters
  - SMP = Siobhan Perry

Client Sample ID: ARGWC-23

Date Collected: 05/27/20 16:23
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-1

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.135	U	0.121	0.121	1.00	0.173	pCi/L	06/04/20 07:18	06/26/20 07:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.9*		*40 - 110*	*06/04/20 07:18*	*06/26/20 07:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0574	U	0.243	0.243	1.00	0.423	pCi/L	06/04/20 07:33	06/25/20 13:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*97.9*		*40 - 110*	*06/04/20 07:33*	*06/25/20 13:03*	*1*
Y Carrier	*86.7*		*40 - 110*	*06/04/20 07:33*	*06/25/20 13:03*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.192	U	0.271	0.271	5.00	0.423	pCi/L		06/26/20 10:41	1

Client Sample ID: ARGWC-22

Date Collected: 05/27/20 18:52
Date Received: 05/29/20 08:45

Lab Sample ID: 180-106373-2

Matrix: Water

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.129	U	0.128	0.129	1.00	0.194	pCi/L	06/04/20 07:18	06/26/20 07:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.4*		*40 - 110*	*06/04/20 07:18*	*06/26/20 07:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0139	U	0.242	0.242	1.00	0.431	pCi/L	06/04/20 07:33	06/25/20 13:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*91.4*		*40 - 110*	*06/04/20 07:33*	*06/25/20 13:03*	*1*
Y Carrier	*85.2*		*40 - 110*	*06/04/20 07:33*	*06/25/20 13:03*	*1*

Client Sample ID: ARGWC-22

Lab Sample ID: 180-106373-2
Date Collected: 05/27/20 18:52
Matrix: Water
Date Received: 05/29/20 08:45

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.143	U	0.274	0.274	5.00	0.431	pCi/L		06/26/20 10:41	1

Client Sample ID: DUP

Lab Sample ID: 180-106373-3
Date Collected: 05/27/20 00:00
Matrix: Water
Date Received: 05/29/20 08:45

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.157	U	0.125	0.126	1.00	0.171	pCi/L	06/04/20 07:18	06/26/20 07:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*06/04/20 07:18*	*06/26/20 07:56*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.235	U	0.258	0.259	1.00	0.423	pCi/L	06/04/20 07:33	06/25/20 13:03	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*06/04/20 07:33*	*06/25/20 13:03*	*1*
Y Carrier	*84.9*		*40 - 110*	*06/04/20 07:33*	*06/25/20 13:03*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.392	U	0.287	0.288	5.00	0.423	pCi/L		06/26/20 10:41	1

Client Sample ID: EB

Lab Sample ID: 180-106373-4
Date Collected: 05/27/20 14:40
Matrix: Water
Date Received: 05/29/20 08:45

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0310	U	0.0965	0.0966	1.00	0.188	pCi/L	06/04/20 07:18	06/26/20 07:56	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*104*		*40 - 110*	*06/04/20 07:18*	*06/26/20 07:56*	*1*

Client Sample ID: EB
Lab Sample ID: 180-106373-4

Date Collected: 05/27/20 14:40
Matrix: Water
Date Received: 05/29/20 08:45

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.433	U	0.200	0.204	1.00	0.426	pCi/L	06/04/20 07:33	06/25/20 13:04	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*104*		*40 - 110*	*06/04/20 07:33*	*06/25/20 13:04*	*1*
Y Carrier	*87.1*		*40 - 110*	*06/04/20 07:33*	*06/25/20 13:04*	*1*

Method: Ra226_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.402	U	0.222	0.226	5.00	0.426	pCi/L		06/26/20 10:41	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-471996/8-A
Matrix: Water
Analysis Batch: 474575

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 471996

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.06856	U	0.0865	0.0867	1.00	0.229	pCi/L	06/04/20 07:18	06/26/20 07:56	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*06/04/20 07:18*	*06/26/20 07:56*	*1*

Lab Sample ID: LCS 160-471996/1-A
Matrix: Water
Analysis Batch: 474575

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 471996

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.3	9.482		1.15	1.00	0.184	pCi/L	84	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*102*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-472397/8-A
Matrix: Water
Analysis Batch: 474543

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 472397

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2104	U	0.242	0.243	1.00	0.398	pCi/L	06/04/20 07:33	06/25/20 13:04	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*102*		*40 - 110*	*06/04/20 07:33*	*06/25/20 13:04*	*1*
Y Carrier	*88.2*		*40 - 110*	*06/04/20 07:33*	*06/25/20 13:04*	*1*

Lab Sample ID: LCS 160-472397/1-A
Matrix: Water
Analysis Batch: 474543

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 472397

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			8.72	8.515		1.01	1.00	0.421	pCi/L	98	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*102*		*40 - 110*
Y Carrier	*86.7*		*40 - 110*

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-106373-2

Rad

Prep Batch: 471996

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	PrecSep-21	
180-106373-2	ARGWC-22	Total/NA	Water	PrecSep-21	
180-106373-3	DUP	Total/NA	Water	PrecSep-21	
180-106373-4	EB	Total/NA	Water	PrecSep-21	
MB 160-471996/8-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-471996/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 472397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-106373-1	ARGWC-23	Total/NA	Water	PrecSep_0	
180-106373-2	ARGWC-22	Total/NA	Water	PrecSep_0	
180-106373-3	DUP	Total/NA	Water	PrecSep_0	
180-106373-4	EB	Total/NA	Water	PrecSep_0	
MB 160-472397/8-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-472397/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

681-Atlanta

eurofins | Environment Testing America

Client Information	Sampler: D.Howard /N. McMillan	Lab PM: Brown, Shali	Carrier Tracking No(s):	COC No: 180-60862-12387.1
Client Contact: Joju Abraham	Phone:	E-Mail: shali.brown@testamericainc.com		Page: Page 1 of 1
Company: Southern Company				Job #:
Address: 241 Ralph McGill Blvd SE B10185	Due Date Requested: standard			
City: Atlanta	TAT Requested (days):			
State, Zip: GA, 30308				
Phone:	PO #: SCS10382606			
Email: JAbraham@southernco.com	WO #:			
Project Name: CCR - Plant Arkwright App III/IV	Project #: 18020201			
Site: Georgia	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226 - Radium 226	Ra226Ra228_GFPC - Ra 226/228	9320_Ra228 - Radium 228	300_ORGFM_28D - Chloride Fluoride Sulfate	6020B, 7470A	2540C_Calcd - Solids, Total Dissolved (TDS)	6020B - Lead	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	D	N	D	N	D		
ARGWC-23	5/27/20	1623	G	W			X	X	X	X	X	X			pH = 6.30
ARGWC-22		1852	G	W			X	X	X	X	X	X			pH = 5.69
DUP		-	G	W			X	X	X	X	X	X			
EB		1440	G	W			X	X	X	X	X	X			
ARGWC-10		1910	G	W									X	1	pH = 5.98
Temp Blank															

180-106373 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Daniel K Howard	5/28/20/1415		Willie Watts	5-29-20	ESAIT
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 845	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

ORIGIN ID:NCQA (770) 421-3349
DANIEL HOWARD
WOOD E & IS
SUITE 100
1075 BIG SHANTY RD NW STE 100
KENNESAW, GA 30144
UNITED STATES US

SHIP DA
ACTWGT:
CAD: 6994
DIMS: 24x1

BILL THIRD P

TO SAMPLE RECEIVING
EUROFINS TEST AMERICA
301 ALPHA DR RIDC PARK

PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx
Express
E

FRI - 29 MAY 10:30A
PRIORITY OVERNIGHT

TRK# 0215 8121 9394 6105

15238
PA-US PIT

180-10637 Waybill

°C

F 0 Initials TJ

WI-SR-001 effective 7/26/13

Align Open End of FedEx Pouch Here

ckage
S Airbill

FedEx Tracking Number 8121 9394 6105

[redacted]

Howard Phone 770 421-3349
PLOPPER
Wood E+IS)
BIG SHANTY RD NW STE 100 Dept./Floor/Suite/Room
State GA ZIP 30144-3652
Reference 612201429.2002
Sample Receiving Phone 412 963
Eurofins TestAmerica, Pittsb
Alpha Drive RIDC Park Dept./Floor/Suite/Room
es or P.O. ZIP codes.
Hold Saturday
FedEx location address REQUIRED. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.
ation address or for continuation of your shipping address.
State PA ZIP 15238

0128826456

8121 9394 6105

Total Packages 1 Total Weight 14.4 lbs.
Credit Card Auth.
611

†Our liability is limited to US$100 unless you declare a higher value. See the current FedEx Service Guide for details.

Rev. Date 5/15 • Part #163134 • ©1994-2015 FedEx • PRINTED IN U.S.A. SRM

Eurofins TestAmerica, Pittsburgh
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone: 412-963-7058 Fax: 412-963-2468

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Brown, Shali	Carrier Tracking No(s):	COC No: 180-396159.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: shali.brown@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-106373-2
Address: 13715 Rider Trail North,	Due Date Requested: 6/30/2020			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant Arkwright	Project #: 18020201			
Site: Arkwright	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226/PrecSep_21 Radium 226	9320_Ra228/PrecSep_0 Radium 228	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
ARGWC-23 (180-106373-1)	5/27/20	16:23 Eastern		Water			X	X	X	2	
ARGWC-22 (180-106373-2)	5/27/20	18:52 Eastern		Water			X	X	X	2	
DUP (180-106373-3)	5/27/20	Eastern		Water			X	X	X	2	
EB (180-106373-4)	5/27/20	14:40 Eastern		Water			X	X	X	2	

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins TestAmerica.

Possible Hazard Identification: Unconfirmed	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month): ☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:
Empty Kit Relinquished by: Date: Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Matthew Jacks	6/2/2020 1700	ETA PHL	FED EX		
2	FED EX					
3					6/3/2020 0905	ETA STL

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-106373-2

Login Number: 106373
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-106373-2

Login Number: 106373
List Number: 2
Creator: Mazariegos, Leonel A

List Source: Eurofins TestAmerica, St. Louis
List Creation: 06/03/20 02:10 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Product Name: Low-Flow System

Date: 2020-05-27 18:54:49

Project Information:		Pump Information:	
Operator Name	Nicholas McMillan	Pump Model/Type	PINE Peristaltic
Company Name	Wood	Tubing Type	HDP
Project Name	Plant Arkwright Ash Pond 2	Tubing Diameter	0.17 in
Site Name	ARGWC-22	Tubing Length	27.8 ft
Latitude	32° 55' 17.97"		
Longitude	-83° -42' -10.21"		
Sonde SN	601533		
Turbidity Make/Model	HACH	Pump placement from TOC	22.8 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-22	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.2140832 L
Well Total Depth	27.78 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	4.92 in
Depth to Water	13.37 ft	Total Volume Pumped	15 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond mS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	18:31:39	4204.01	18.74	5.69	1.58	7.19	13.78	0.08	54.33
Last 5	18:36:39	4504.01	18.79	5.68	1.59	6.39	13.78	0.08	54.56
Last 5	18:41:39	4804.01	18.88	5.68	1.57	6.34	13.78	0.07	53.94
Last 5	18:46:39	5104.01	18.83	5.69	1.57	4.89	13.78	0.07	53.14
Last 5	18:51:39	5404.01	18.83	5.69	1.57	4.72	13.78	0.07	52.72
Variance 0			0.09	0.00	-0.01			-0.00	-0.62
Variance 1			-0.04	0.01	-0.00			-0.00	-0.80
Variance 2			0.00	0.00	-0.00			-0.00	-0.42

Notes

Sample collected 1852

Grab Samples

Product Name: Low-Flow System

Date: 2020-05-27 16:23:40

Project Information:		Pump Information:	
Operator Name	Nicholas McMillan	Pump Model/Type	PINE Peristaltic Pump
Company Name	Wood	Tubing Type	HDP
Project Name	Plant Arkwright Ash Pond 2	Tubing Diameter	.17 in
Site Name	ARGWC-23	Tubing Length	27.2 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	601533		
Turbidity Make/Model	HACH	Pump placement from TOC	22.2 ft

Well Information:		Pumping Information:	
Well ID	ARGWC-23	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.2114051 L
Well Total Depth	27.21 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	11.50 ft	Total Volume Pumped	4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond mS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	16:00:33	900.03	20.71	6.32	0.50	2.34	14.03	0.16	82.63
Last 5	16:05:33	1200.02	20.61	6.31	0.50	2.01	13.58	0.19	83.05
Last 5	16:10:33	1500.02	20.66	6.31	0.50	1.48	13.71	0.17	82.04
Last 5	16:15:33	1800.02	20.57	6.30	0.50	2.53	13.71	0.15	82.19
Last 5	16:20:35	2102.02	20.48	6.30	0.50	1.59	13.65	0.16	82.10
Variance 0			0.05	-0.00	0.00			-0.02	-1.01
Variance 1			-0.09	-0.01	-0.00			-0.01	0.14
Variance 2			-0.09	0.00	0.00			0.01	-0.09

Notes

Arrived at 1510; DUP-1

Sample collected at 1623; DUP

Grab Samples

APPENDIX D

STATISTICAL ANALYSIS

Statistical Analysis Results Summary Appendix I October 2019

Constituent	Wells with Concentrations Above Prediction Limits
None	None

Statistical Analysis Results Summary Appendix I April 2020

Constituent	Wells with Concentrations Above Prediction Limits
Barium	ARGWC-23

Statistical Analysis Results Summary Appendix III October 2019

Constituent	Wells with Concentrations Above Prediction Limits
Boron	ARGWC-21
Calcium	ARGWC-21
pH	ARGWC-21
Sulfate	ARGWC-21
Total Dissolved Solids	ARGWC-21

Statistical Analysis Results Summary Appendix III April 2020

Constituent	Wells with Concentrations Above Prediction Limits
Boron	ARGWC-21, ARGWC-22, ARGWC-23
Calcium	ARGWC-21, ARGWC-22, ARGWC-23
Fluoride	ARGWC-23
pH	ARGWC-23
Sulfate	ARGWC-21, ARGWC-22, ARGWC-23
Total Dissolved Solids	ARGWC-21, ARGWC-22, ARGWC-23

ATLANTIC COAST CONSULTING, INC.

1150 Northmeadow Pkwy.
Suite 100
Roswell, GA 30076
(770) 594-5998
www.atlcc.net

April 10, 2020

Mr. Joju Abraham, P.G.
Southern Company – Environmental Solutions
241 Ralph McGill Blvd. NE, Bin 10160
Atlanta, Georgia 30308

RE: 2019 Semi-Annual Groundwater Monitoring & Corrective Action Statistical Summary
Former Plant Arkwright – Ash Pond No. 2 Dry Ash Stockpile (AP-2DAS)
GA EPD Permit No. 011-031D(LI)
Bibb County

Dear Mr. Abraham:

This letter presents statistical analysis for Georgia Power Company's Plant Arkwright AP-2DAS (Site) October 2019 assessment monitoring event. The statistical methods comply with the Georgia Environmental Protection Division (EPD) Rules for Solid Waste Management Chapter 391-3-4-.10 and follow the United States Environmental Protection Agency (USEPA) Unified Guidance (2009). Parameters required by the existing state permit (Appendix I/ II metals, chloride, and sulfate), Appendix III parameters, and Appendix IV parameters detected during the August 2019 monitoring event are included in the statistical analysis (Table 1, Summary of Groundwater Monitoring Parameters). Appendix I/II and III statistical methods and results for the Site were previously included in the *2019 Semiannual Groundwater Monitoring and Corrective Action Report* and are summarized in the following sections of this letter. The Appendix I/II, III, and IV statistical data are provided in Attachment A.

Table 1. Summary of Groundwater Monitoring Parameters

Appendix III (40 CFR 257)	Appendix IV (40 CFR 257)	Existing State Permit
Boron	Arsenic	Arsenic
Calcium	Barium	Barium
Chloride	Chromium	Cadmium
Fluoride	Cobalt	Chloride
pH	Fluoride	Lead
Sulfate	Lithium	Selenium
Total Dissolved Solids	Radium 226 and 228 combined	Silver
	Selenium	Sulfate

A perimeter groundwater monitoring system has been installed within the uppermost aquifer at the Site. The monitoring system is designed to monitor groundwater passing the unit boundary within the uppermost aquifer. The network includes two upgradient monitoring wells (ARGWA-19 and ARGWA-20) and one downgradient monitoring well (ARGWC-21)[1]. The existing groundwater

[1] "AR" prefix added to groundwater monitoring well identifiers in November 2018 permit application. Existing permit identifiers do not contain "AR" prefix.

monitoring network was included in the 2008 Design and Operation Plans approved by GA EPD in 2010. Two additional groundwater monitoring wells, ARGWC-22 and ARGWC-23 were installed in late 2019. These wells will be incorporated into the groundwater monitoring network upon EPD approval a permit minor modification.

Statistical Method

All screened historical background data through October 2019 were used to construct statistical limits for both Appendix I/II metals and Appendix III constituents. Sanitas groundwater statistical software was used to perform the statistical analyses. Sanitas is a decision support software package that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations. Wells and analytes with all data below the reporting limit (i.e., 100% non-detect) do not require statistical analysis.

- **Appendix I/II Groundwater Monitoring Data:** Statistical tests consist of interwell prediction limits combined with a 1-of-2 verification resample plan for all required metals. Interwell prediction limits pool upgradient well data to establish a background limit for an individual constituent, and the most recent sample from each downgradient well is compared to the same limit for each parameter. If a result from a sampling event initially exceeds the PL, then verification resampling may be used. In 1-of-2 resampling, an independent resample may be collected and evaluated within 90 days to determine whether the initial exceedance is verified. If a resample exceeds the PL, the initial exceedance is verified, and a statistically significant increase (SSI) is identified. When a re-sample result does not verify the initial result, and does not exceed the PL, there is no SSI. If resampling is not performed, the initial exceedance is a confirmed exceedance.

- **Appendix III Groundwater Monitoring Data**: Statistical tests consist of interwell prediction limits combined with a 1-of-2 verification resample plan for Appendix III parameters. If the most recent sample exceeds its respective background statistical limit, an initial SSI is identified.

- **Confidence Intervals for Appendix I/II Metals and Appendix IV Parameters:** Parametric tolerance limits were used to calculate background limits, when pooled upgradient well data followed a normal or transformed-normal distribution, with a target of 95% confidence and 95% coverage. Nonparametric tolerance limits are used when the percentage of nondetects is greater than 50% or when data do not follow a normal or transformed normal distribution. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples. The background limits were then used when determining the groundwater protection standard (GWPS) established under 40 CFR § 257.95(h) and GA EPD Rule 391-3-4-.10(6)(a).

  As described in 40 CFR § 257.95(h)(1-3), the GWPS is:
  (1) The maximum contaminant level (MCL);
  (2) Where an MCL has not been established, the background concentration;
  (3) Background maximum contaminant level levels for constituents where the background level is higher than the MCL.

  USEPA revised the Federal Coal Combustion Residual (CCR) Rule on July 30, 2018, providing GWPS for cobalt, lead, lithium, and molybdenum as described above in 40 CFR 257.95(h)(2). Presently those updated GWPS have not yet been incorporated in the current GA EPD Rules for Solid Waste Management 391-3-4-.10(6)(a); and therefore, background concentrations are considered when determining the GWPS for constituents where an MCL has not been established (or where background is higher than the MCL), and used to evaluate the existence of a statistically significant level (SSL).

Following the above rule requirements, GWPS have been established for statistical comparison of Appendix I/II and IV constituents and are presented in Table 2, Summary of Background Levels and Groundwater Protection Standards. To complete the statistical comparison to GWPS, confidence intervals were constructed for each of the Appendix I/II and Appendix IV parameters in each downgradient well. Those confidence intervals were compared to the GWPS established under the State rules. Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed the GWPS at an SSL.

Table 2. Summary of Background Levels and Groundwater Protection Standards

Constituent	Units	Site Background	MCL	RSL	State GWPS
Antimony	mg/L	0.0025	0.006		0.006
Arsenic	mg/L	0.0015	0.010		0.01
Barium	mg/L	0.1	2		2
Beryllium	mg/L	0.0025	0.004		0.004
Cadmium	mg/L	0.0025	0.005		0.005
Chromium	mg/L	0.0071	0.1		0.1
Cobalt	mg/L	0.0025		0.006	0.0025
Fluoride	mg/L	0.2	4		4
Lead	mg/L	0.0013		0.015	0.0013
Lithium	mg/L	0.0057		0.040	0.0057
Mercury	mg/L	0.0002	0.002		0.002
Molybdenum	mg/L	0.015		0.1	0.015
Selenium	mg/L	0.007	0.050		0.050
Silver	mg/L	0.0013			0.0013
Radium	pCi/L	1.59	5		5
Thallium	mg/L	0.0005	0.002		0.002

Notes:
1. Site Background = Tolerance limits calculated from pooled upgradient well data through October 2019.
2. MCL = Maximum Contaminant Level, per Georgia EPD Rule 391-3-5-.18(1)(a).
3. RSL = Regional Screening Level, per 40 CFR 257.95(h)(1-3).
4. State GWPS = Groundwater protection standard, per Georgia EPD Rule 391-3-4-.10(6)(a).
5. Units are milligrams per liter (mg/L), except for radium, which are picocuries per liter (pCi/L).

Statistical Results

- **Appendix I/II Groundwater Monitoring Data (Previously Reported):** Concentrations of target metals were within their respective interwell prediction limits during the October 2019 sampling event. Sulfate and chloride are required by the existing permit and are included in the Appendix III summary.
- **Appendix III Groundwater Monitoring Data (Previously Reported)**: Analytical data from the October 2019 monitoring event at the Site were analyzed in accordance with the statistical methods.

  The following Appendix III SSIs were reported:

  - Boron: GWC-21
  - Calcium: GWC-21
  - pH: GWC-21
  - Sulfate: GWC-21

ATLANTIC COAST CONSULTING, INC.

- TDS: GWC-21

- **Confidence Intervals for Appendix I/II Metals and Appendix IV Parameters:** Review of the statistical analysis included in Attachment A indicates that using the GWPS established according to 391-3-4-.10(6)(a), the following SSL was identified:
  - Lithium: GWC-21

If you have any questions regarding this letter or the attached data, please contact either of the undersigned at (770) 594-5998.

Sincerely,
Atlantic Coast Consulting, Inc.

William M. Malone
Project Scientist

Evan Perry, P.G.
Project Manager
Date: 2020-04-10

EVAN B. PERRY
GEORGIA REGISTERED PROFESSIONAL GEOLOGIST
No. 1744

Enclosures
Copy: ACC Project Folder

ATTACHMENT A

Appendix I/II Statistics (from *2019 Semiannual Groundwater Monitoring and Corrective Action Report*)

Interwell Prediction Limits All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 2/20/2020, 3:30 PM

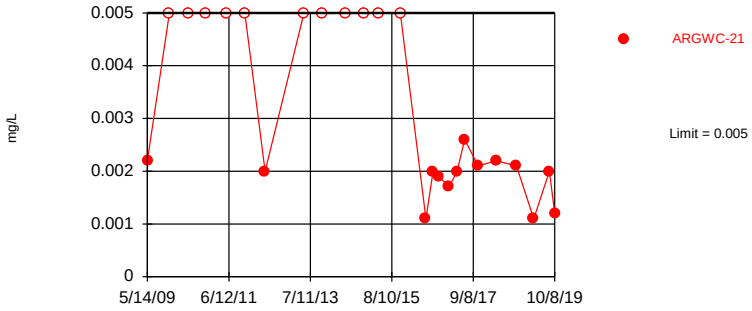
Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Arsenic (mg/L)	ARGWC-21	0.005	10/8/2019	0.0012	No	50	86	n/a	0.0007528	NP (NDs) 1 of 2
Barium (mg/L)	ARGWC-21	0.1	10/8/2019	0.096	No	50	0	n/a	0.0007528	NP (normality) 1 of 2
Lead (mg/L)	ARGWC-21	0.013	10/8/2019	0.00015	No	50	94	n/a	0.0007528	NP (NDs) 1 of 2
Selenium (mg/L)	ARGWC-21	0.013	10/8/2019	0.005ND	No	50	62	n/a	0.0007528	NP (NDs) 1 of 2
Silver (mg/L)	ARGWC-21	0.01	10/8/2019	0.00043	No	42	90.48	n/a	0.001077	NP (NDs) 1 of 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 50 background values. 86% NDs. Annual per-constituent alpha = 0.001505. Individual comparison alpha = 0.0007528 (1 of 2).

Constituent: Arsenic Analysis Run 2/20/2020 3:12 PM View: Interwell PL

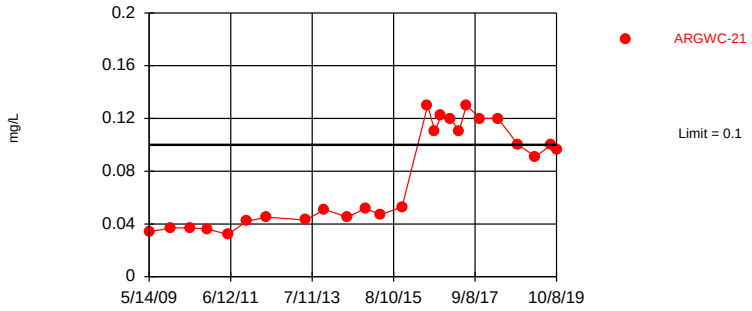
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 50 background values. Annual per-constituent alpha = 0.001505. Individual comparison alpha = 0.0007528 (1 of 2).

Constituent: Barium Analysis Run 2/20/2020 3:12 PM View: Interwell PL

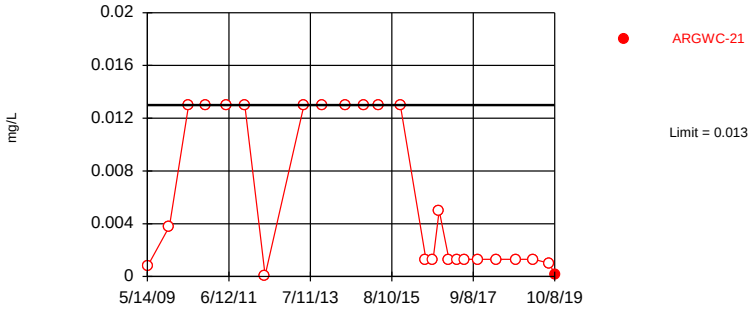
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 50 background values. 94% NDs. Annual per-constituent alpha = 0.001505. Individual comparison alpha = 0.0007528 (1 of 2).

Constituent: Lead Analysis Run 2/20/2020 3:12 PM View: Interwell PL

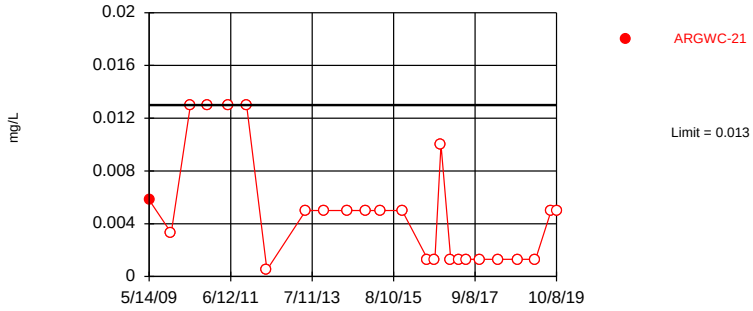
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 50 background values. 62% NDs. Annual per-constituent alpha = 0.001505. Individual comparison alpha = 0.0007528 (1 of 2).

Constituent: Selenium Analysis Run 2/20/2020 3:12 PM View: Interwell PL

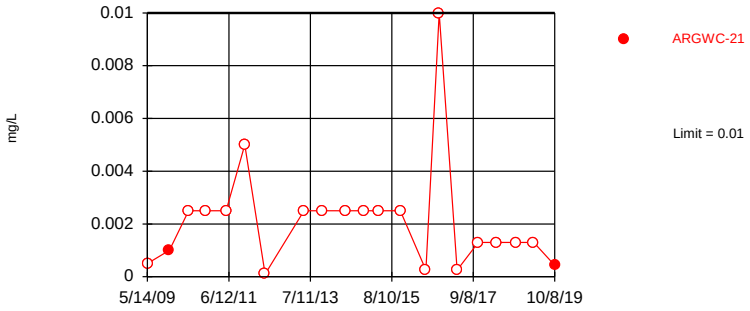
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 42 background values. 90.48% NDs. Annual per-constituent alpha = 0.002154. Individual comparison alpha = 0.001077 (1 of 2).

Constituent: Silver Analysis Run 2/20/2020 3:12 PM View: Interwell PL

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Prediction Limit

Constituent: Arsenic (mg/L) Analysis Run 2/20/2020 3:30 PM View: Interwell PL

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)
5/5/2009	<0.001		
5/14/2009		0.0022	
5/15/2009			0.0015
12/5/2009	<0.005	<0.005	<0.005
6/1/2010	<0.005		<0.005
6/2/2010		<0.005	
11/11/2010	<0.005	<0.005	<0.005
5/17/2011	<0.005	<0.005	<0.005
11/8/2011	<0.005	<0.005	<0.005
5/16/2012	<0.0012	0.002 (J)	<0.0012
5/14/2013	<0.005	<0.005	<0.005
11/5/2013	<0.005	<0.005	<0.005
6/9/2014	<0.005	<0.005	<0.005
11/18/2014		<0.005	<0.005
11/19/2014	<0.005		
4/14/2015	<0.005	<0.005	<0.005
10/29/2015		<0.005	
11/4/2015	<0.005		<0.005
6/22/2016	<0.0013		0.00084 (J)
6/23/2016		0.0011 (J)	
8/29/2016	<0.0013		0.00049 (J)
8/30/2016		0.002	
10/24/2016	<0.005		<0.005
10/26/2016		0.0019 (J)	
1/25/2017	<0.0013	0.0017	<0.0013
4/10/2017	<0.0013	0.002	0.00056 (J)
6/19/2017	<0.0013	0.0026	
6/20/2017			0.00068 (J)
10/24/2017	<0.0013	0.0021	<0.0013
4/9/2018			<0.0013
4/10/2018	<0.0013	0.0022	
10/16/2018	<0.0013	0.0021	<0.0013
3/26/2019	<0.0013		
3/27/2019		0.0011 (J)	<0.0013
8/20/2019	0.00036 (J)	0.002	0.00047 (J)
10/7/2019	<0.0013		<0.0013
10/8/2019		0.0012 (J)	

Prediction Limit

Constituent: Barium (mg/L) Analysis Run 2/20/2020 3:30 PM View: Interwell PL

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)
5/5/2009	0.057		
5/14/2009		0.034	
5/15/2009			0.1
12/5/2009	0.05	0.037	0.079
6/1/2010	0.037		0.077
6/2/2010		0.037	
11/11/2010	0.039	0.036	0.072
5/17/2011	0.037	0.032	0.064
11/8/2011	0.045	0.042	0.07
5/16/2012	0.0518	0.0451	0.0741
5/14/2013	0.067	0.043	0.074
11/5/2013	0.066	0.051	0.075
6/9/2014	0.062	0.045	0.08
11/18/2014		0.052	0.078
11/19/2014	0.054		
4/14/2015	0.046	0.047	0.073
10/29/2015		0.053	
11/4/2015	0.046		0.077
6/22/2016	0.039		0.078
6/23/2016		0.13	
8/29/2016	0.04		0.07
8/30/2016		0.11	
10/24/2016	0.0444		0.0738
10/26/2016		0.122	
1/25/2017	0.045	0.12	0.084
4/10/2017	0.039	0.11	0.073
6/19/2017	0.041	0.13	
6/20/2017			0.078
10/24/2017	0.041	0.12	0.081
4/9/2018			0.081
4/10/2018	0.044	0.12	
10/16/2018	0.047	0.1	0.08
3/26/2019	0.056		
3/27/2019		0.091	0.082
8/20/2019	0.052	0.1	0.079
10/7/2019	0.049		0.076
10/8/2019		0.096	

Prediction Limit

Constituent: Lead (mg/L) Analysis Run 2/20/2020 3:30 PM View: Interwell PL

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)
5/5/2009	<0.00075		
5/14/2009		<0.00075	
5/15/2009			<0.00075
12/5/2009	<0.0038	<0.0038	<0.0038
6/1/2010	<0.013		<0.013
6/2/2010		<0.013	
11/11/2010	<0.013	<0.013	<0.013
5/17/2011	<0.013	<0.013	<0.013
11/8/2011	<0.013	<0.013	<0.013
5/16/2012	<9E-05	<9E-05	<9E-05
5/14/2013	<0.013	<0.013	<0.013
11/5/2013	<0.013	<0.013	<0.013
6/9/2014	<0.013	<0.013	<0.013
11/18/2014		<0.013	<0.013
11/19/2014	<0.013		
4/14/2015	<0.013	<0.013	<0.013
10/29/2015		<0.013	
11/4/2015	<0.013		<0.013
6/22/2016	<0.0013		<0.0013
6/23/2016		<0.0013	
8/29/2016	<0.0013		<0.0013
8/30/2016		<0.0013	
10/24/2016	<0.005		<0.005
10/26/2016		<0.005	
1/25/2017	<0.0013	<0.0013	0.00037 (J)
4/10/2017	<0.0013	<0.0013	<0.0013
6/19/2017	<0.0013	<0.0013	
6/20/2017			<0.0013
10/24/2017	<0.0013	<0.0013	<0.0013
4/9/2018			<0.0013
4/10/2018	<0.0013	<0.0013	
10/16/2018	<0.0013	<0.0013	<0.0013
3/26/2019	<0.0013		
3/27/2019		<0.0013	<0.0013
8/20/2019	<0.001	<0.001	<0.001
10/7/2019	0.00018 (J)		0.00014 (J)
10/8/2019		0.00015 (J)	

Prediction Limit

Constituent: Selenium (mg/L) Analysis Run 2/20/2020 3:30 PM View: Interwell PL

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)
5/5/2009	0.0043		
5/14/2009		0.0058	
5/15/2009			0.007
12/5/2009	<0.0033	<0.0033	<0.0033
6/1/2010	<0.013		<0.013
6/2/2010		<0.013	
11/11/2010	<0.013	<0.013	<0.013
5/17/2011	<0.013	<0.013	<0.013
11/8/2011	<0.013	<0.013	<0.013
5/16/2012	<0.0005	<0.0005	0.0024 (J)
5/14/2013	<0.005	<0.005	<0.005
11/5/2013	<0.005	<0.005	<0.005
6/9/2014	<0.005	<0.005	<0.005
11/18/2014		<0.005	<0.005
11/19/2014	<0.005		
4/14/2015	<0.005	<0.005	<0.005
10/29/2015		<0.005	
11/4/2015	<0.005		<0.005
6/22/2016	0.00025 (J)		0.0019
6/23/2016		<0.0013	
8/29/2016	0.0004 (J)		0.0019
8/30/2016		<0.0013	
10/24/2016	<0.01		0.0023 (J)
10/26/2016		<0.01	
1/25/2017	<0.0013	<0.0013	0.0015
4/10/2017	<0.0013	<0.0013	0.0011 (J)
6/19/2017	0.00025 (J)	<0.0013	
6/20/2017			0.0016
10/24/2017	<0.0013	<0.0013	0.0012 (J)
4/9/2018			0.0012 (J)
4/10/2018	0.00074 (J)	<0.0013	
10/16/2018	<0.0013	<0.0013	0.0015
3/26/2019	<0.0013		
3/27/2019		<0.0013	0.0015
8/20/2019	<0.005	<0.005	0.0015 (J)
10/7/2019	<0.005		0.0016 (J)
10/8/2019		<0.005	

Prediction Limit

Constituent: Silver (mg/L) Analysis Run 2/20/2020 3:30 PM View: Interwell PL

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)
5/5/2009	<0.0005		
5/14/2009		<0.0005	
5/15/2009			<0.0005
12/5/2009	0.00075	0.001	0.00043
6/1/2010	<0.0025		<0.0025
6/2/2010		<0.0025	
11/11/2010	<0.0025	<0.0025	<0.0025
5/17/2011	<0.0025	<0.0025	<0.0025
11/8/2011	<0.005	<0.005	<0.005
5/16/2012	<0.0001	<0.0001	<0.0001
5/14/2013	<0.0025	<0.0025	<0.0025
11/5/2013	<0.0025	<0.0025	<0.0025
6/9/2014	<0.0025	<0.0025	<0.0025
11/18/2014		<0.0025	<0.0025
11/19/2014	<0.0025		
4/14/2015	<0.0025	<0.0025	<0.0025
10/29/2015		<0.0025	
11/4/2015	<0.0025		<0.0025
6/22/2016	<0.00025		<0.00025
6/23/2016		<0.00025	
10/24/2016	<0.01		<0.01
10/26/2016		<0.01	
4/10/2017	<0.00025	<0.00025	<0.00025
10/24/2017	<0.0013	<0.0013	<0.0013
4/9/2018			<0.0013
4/10/2018	<0.0013	<0.0013	
10/16/2018	<0.0013	<0.0013	<0.0013
3/26/2019	<0.0013		
3/27/2019		<0.0013	<0.0013
10/7/2019	0.00056 (J)		0.00031 (J)
10/8/2019		0.00043 (J)	

Appendix III Statistics (from *2019 Semiannual Groundwater Monitoring and Corrective Action Report*)

Interwell Prediction Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 2/11/2020, 8:12 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	**ARGWC-21**	**0.05259**	**n/a**	**10/8/2019**	**0.58**	**Yes**	**20**	**35**	**sqrt(x)**	**0.007498**	Param 1 of 2
Calcium (mg/L)	**ARGWC-21**	**13.99**	**n/a**	**10/8/2019**	**60**	**Yes**	**20**	**0**	**No**	**0.007498**	Param 1 of 2
pH (SU)	**ARGWC-21**	**5.973**	**5.498**	**10/8/2019**	**6.11**	**Yes**	**21**	**0**	**No**	**0.003749**	Param 1 of 2
Sulfate (mg/L)	**ARGWC-21**	**21**	**n/a**	**10/8/2019**	**170**	**Yes**	**45**	**0**	**n/a**	**0.000...**	NP (normality) 1 of 2
Total Dissolved Solids (mg/L)	**ARGWC-21**	**148.2**	**n/a**	**10/8/2019**	**420**	**Yes**	**20**	**0**	**No**	**0.007498**	Param 1 of 2

Interwell Prediction Limit

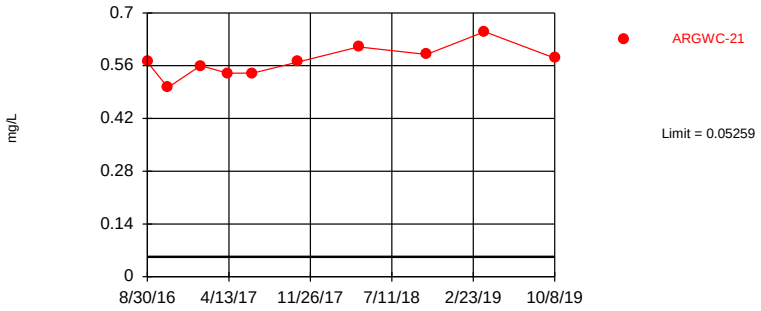
Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 2/11/2020, 8:12 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	**ARGWC-21**	**0.05259**	**n/a**	**10/8/2019**	**0.58**	**Yes**	**20**	**35**	**sqrt(x)**	**0.007498**	Param 1 of 2
Calcium (mg/L)	**ARGWC-21**	**13.99**	**n/a**	**10/8/2019**	**60**	**Yes**	**20**	**0**	**No**	**0.007498**	Param 1 of 2
Chloride (mg/L)	ARGWC-21	16.2	n/a	10/8/2019	4.5	No	45	0	n/a	0.000...	NP (normality) 1 of 2
Fluoride (mg/L)	ARGWC-21	0.1	n/a	10/8/2019	0.065	No	22	63.64	n/a	0.003707	NP (NDs) 1 of 2
pH (SU)	**ARGWC-21**	**5.973**	**5.498**	**10/8/2019**	**6.11**	**Yes**	**21**	**0**	**No**	**0.003749**	Param 1 of 2
Sulfate (mg/L)	**ARGWC-21**	**21**	**n/a**	**10/8/2019**	**170**	**Yes**	**45**	**0**	**n/a**	**0.000...**	NP (normality) 1 of 2
Total Dissolved Solids (mg/L)	**ARGWC-21**	**148.2**	**n/a**	**10/8/2019**	**420**	**Yes**	**20**	**0**	**No**	**0.007498**	Param 1 of 2

Exceeds Limit: ARGWC-21

Prediction Limit

Interwell Parametric



Background Data Summary (based on square root transformation) (after Kaplan-Meier Adjustment): Mean=0.1782, Std. Dev.=0.03351, n=20, 35% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8907, critical = 0.868. Kappa = 1.526 (c=7, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498.

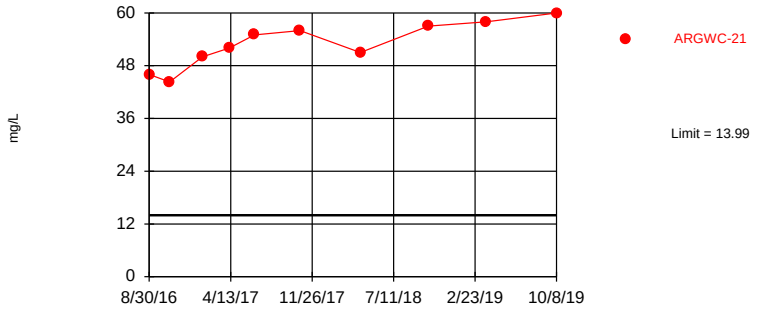
Constituent: Boron Analysis Run 2/11/2020 8:11 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limit: ARGWC-21

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=10.83, Std. Dev.=2.071, n=20. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9524, critical = 0.868. Kappa = 1.526 (c=7, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498.

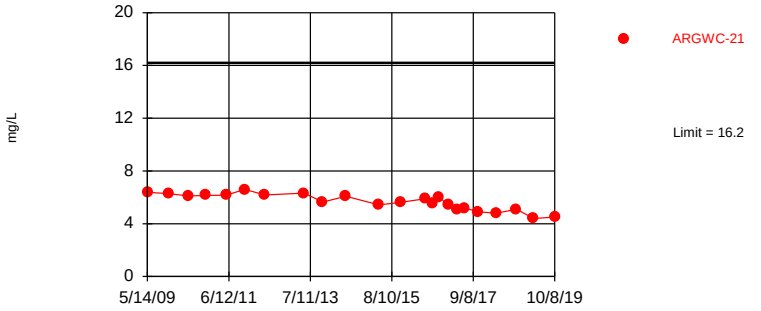
Constituent: Calcium Analysis Run 2/11/2020 8:11 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

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 45 background values. Annual per-constituent alpha = 0.001911. Individual comparison alpha = 0.0009557 (1 of 2). Seasonality was not detected with 95% confidence.

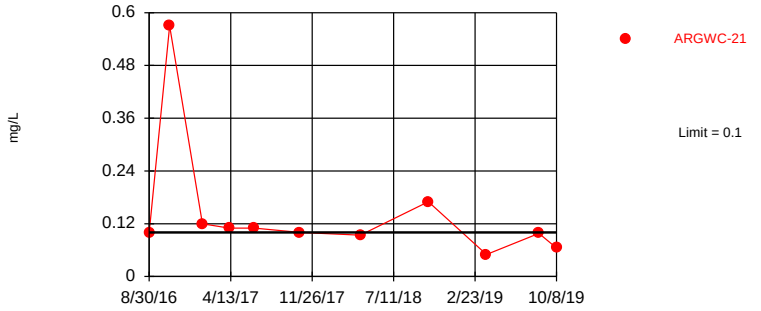
Constituent: Chloride Analysis Run 2/11/2020 8:11 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 63.64% NDs. Annual per-constituent alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2). Insufficient data to test for seasonality; data will not be deseasonalized.

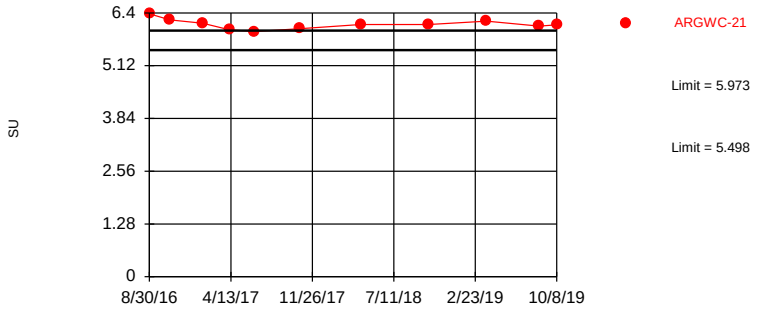
Constituent: Fluoride Analysis Run 2/11/2020 8:11 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limits: ARGWC-21

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=5.736, Std. Dev.=0.1565, n=21. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9438, critical = 0.873. Kappa = 1.518 (c=7, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498.

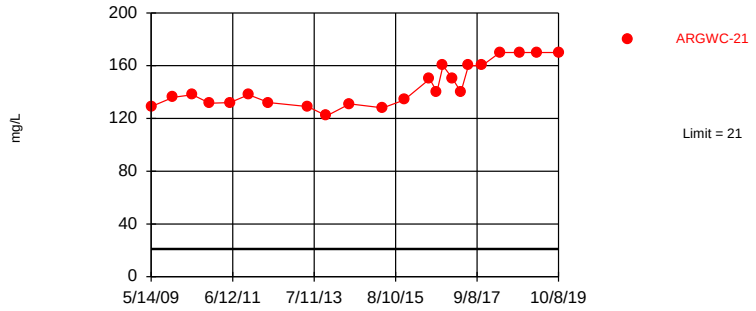
Constituent: pH Analysis Run 2/11/2020 8:11 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limit: ARGWC-21

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 45 background values. Annual per-constituent alpha = 0.001911. Individual comparison alpha = 0.0009557 (1 of 2). Seasonality was not detected with 95% confidence.

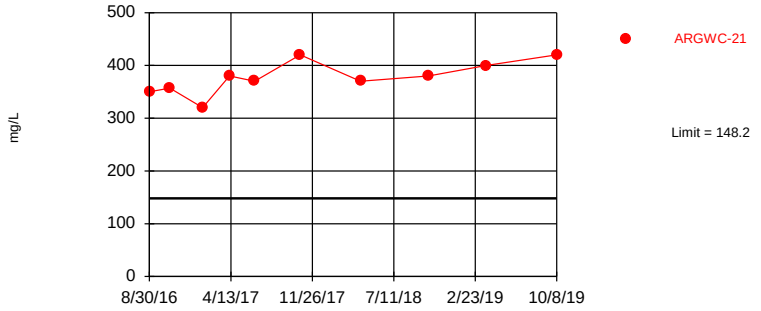
Constituent: Sulfate Analysis Run 2/11/2020 8:11 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limit: ARGWC-21

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=112.1, Std. Dev.=23.68, n=20. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9639, critical = 0.868. Kappa = 1.526 (c=7, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498.

Constituent: Total Dissolved Solids Analysis Run 2/11/2020 8:11 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 2/11/2020 8:12 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21
8/29/2016	0.024 (J)	<0.05	
8/30/2016			0.57
10/24/2016	0.0339 (J)	0.0194 (J)	
10/26/2016			0.502
1/25/2017	0.048 (J)	0.026 (J)	0.56
4/10/2017	0.022 (J)	<0.05	0.54
6/19/2017	<0.05		0.54
6/20/2017		0.032 (J)	
10/24/2017	0.021 (J)	0.054	0.57
4/9/2018		0.06	
4/10/2018	0.022 (J)		0.61
10/16/2018	<0.05	0.036 (J)	0.59
3/26/2019	<0.05		
3/27/2019		0.046 (J)	0.65
10/7/2019	<0.08	<0.08	
10/8/2019			0.58

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 2/11/2020 8:12 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21
8/29/2016	11	8.3	
8/30/2016			46
10/24/2016	11.5	7.66	
10/26/2016			44.3
1/25/2017	13	9.4	50
4/10/2017	11	8.6	52
6/19/2017	12		55
6/20/2017		9.4	
10/24/2017	12	9.9	56
4/9/2018		9.9	
4/10/2018	12		51
10/16/2018	14	9.8	57
3/26/2019	15		
3/27/2019		9.2	58
10/7/2019	14	8.9	
10/8/2019			60

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 2/11/2020 8:12 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)
5/5/2009	11.1		
5/14/2009		6.38	
12/5/2009	9.46	6.28	5.06
6/1/2010	6.32		5.47
6/2/2010		6.1	
11/11/2010	7.16	6.1461	5.26
5/17/2011	6.84	6.17	4.8
11/8/2011	9.13	6.6	5.62
5/16/2012	10.8	6.18	5.1
5/14/2013	16.2	6.32	5.25
11/5/2013	14.8	5.65	5.19
6/9/2014	13.6	6.08	5.55
4/14/2015	10.4	5.43	5.39
10/29/2015		5.62	
11/4/2015	9.19		5.38
6/22/2016	8.4		5.7
6/23/2016		5.9	
8/29/2016	8.4		5.3
8/30/2016		5.5	
10/24/2016	9.6		5.4
10/26/2016		6	
1/25/2017	8.7	5.4	5.1
4/10/2017	8	5.1	4.9
6/19/2017	7.6	5.2	
6/20/2017			5
10/24/2017	7.2	4.9	4.6
4/9/2018			4.7
4/10/2018	7.2	4.8	
10/16/2018	10	5.1	5.3
3/26/2019	12		
3/27/2019		4.4	4.6
10/7/2019	11		5.2
10/8/2019		4.5	

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 2/11/2020 8:12 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21
8/29/2016	<0.2	<0.2	
8/30/2016			0.099 (J)
10/24/2016	0.07 (J)	0.04 (J)	
10/26/2016			0.57
1/25/2017	<0.2	<0.2	0.12 (J)
4/10/2017	<0.2	<0.2	0.11 (J)
6/19/2017	<0.2		0.11 (J)
6/20/2017		<0.2	
10/24/2017	<0.2	<0.2	0.1 (J)
4/9/2018		<0.2	
4/10/2018	<0.2		0.094 (J)
10/16/2018	0.083 (J)	<0.2	0.17 (J)
3/26/2019	0.041 (J)		
3/27/2019		<0.2	0.05 (J)
8/20/2019	0.045 (J)	0.042 (J)	0.098 (J)
10/7/2019	0.049 (J)	0.036 (J)	
10/8/2019			0.065 (J)

Prediction Limit

Constituent: pH (SU) Analysis Run 2/11/2020 8:12 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21
8/29/2016		5.64	
8/30/2016			6.38
10/24/2016	5.81	5.6	
10/26/2016			6.23
1/25/2017	5.91	5.65	6.15
4/10/2017	5.74	5.42	5.99
6/19/2017	5.54		5.95
6/20/2017		5.59	
10/24/2017	5.82	5.58	6.02
4/9/2018		5.78	
4/10/2018	5.92		6.12
10/16/2018	5.94	5.69	6.12
3/26/2019	5.85		
3/27/2019		5.96	6.2
8/20/2019	5.9	5.57	6.08
10/7/2019	5.89	5.65	
10/8/2019			6.11

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 2/11/2020 8:12 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)
5/5/2009	15.9		
5/14/2009		129	
12/5/2009	15.1	136	16.2
6/1/2010	12.7		18.2
6/2/2010		138	
11/11/2010	11.5	131.49	16.5
5/17/2011	11.2	132	16
11/8/2011	11.3	138	21
5/16/2012	9.38	132	17.7
5/14/2013	8.74	129	19.5
11/5/2013	9.12	122	18.3
6/9/2014	8.61	131	18.6
4/14/2015	8.45	128	18.8
10/29/2015		134	
11/4/2015	9.01		17.4
6/22/2016	9.3		18
6/23/2016		150	
8/29/2016	8.7		18
8/30/2016		140	
10/24/2016	9.3		18
10/26/2016		160	
1/25/2017	8.8	150	19
4/10/2017	7.8	140	16
6/19/2017	8.6	160	
6/20/2017			18
10/24/2017	9.1	160	19
4/9/2018			18
4/10/2018	7.9	170	
10/16/2018	8.2	170	18
3/26/2019	6.1		
3/27/2019		170	15
10/7/2019	7.4		17
10/8/2019		170	

Prediction Limit

Constituent: Total Dissolved Solids (mg/L) Analysis Run 2/11/2020 8:12 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21
8/29/2016	130	100	
8/30/2016			350
10/24/2016	108	91	
10/26/2016			357
1/25/2017	120	90	320
4/10/2017	128 (D)	110	380
6/19/2017	86		370
6/20/2017		72	
10/24/2017	120	110	420
4/9/2018		100	
4/10/2018	120		370
10/16/2018	140	110	380
3/26/2019	170		
3/27/2019		100	400
10/7/2019	150	87	
10/8/2019			420

Trend Test

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 2/11/2020, 8:18 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Calcium (mg/L)	**ARGWA-19 ...**	**1**	**28**	**27**	**Yes**	**10**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Calcium (mg/L)	**ARGWC-21**	**4.506**	**37**	**27**	**Yes**	**10**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**ARGWA-19 ...**	**-0.4996**	**-180**	**-89**	**Yes**	**23**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**ARGWC-21**	**4.099**	**151**	**89**	**Yes**	**23**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Total Dissolved Solids (mg/L)	**ARGWC-21**	**21.35**	**28**	**27**	**Yes**	**10**	**0**	**n/a**	**n/a**	**0.02**	**NP**

Trend Test

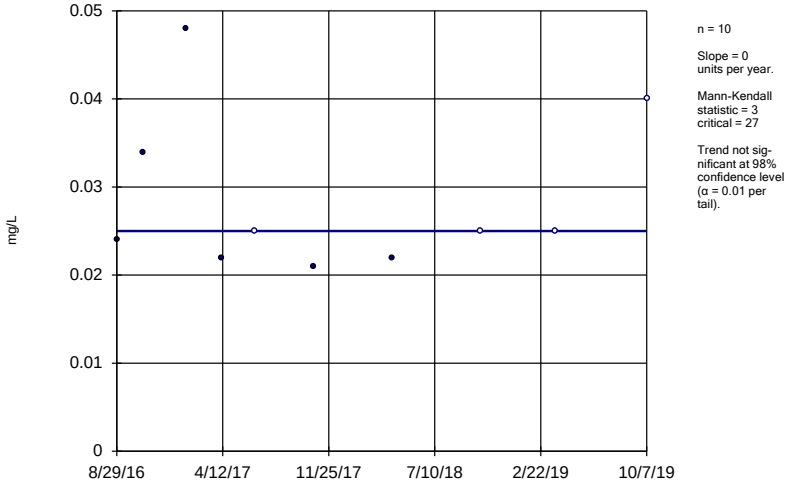
Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 2/11/2020, 8:18 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	ARGWA-19 ...	0	3	27	No	10	40	n/a	n/a	0.02	NP
Boron (mg/L)	ARGWA-20 ...	0.008154	26	27	No	10	30	n/a	n/a	0.02	NP
Boron (mg/L)	ARGWC-21	0.02643	23	27	No	10	0	n/a	n/a	0.02	NP
Calcium (mg/L)	**ARGWA-19 ...**	**1**	**28**	**27**	**Yes**	**10**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Calcium (mg/L)	ARGWA-20 ...	0.3495	13	27	No	10	0	n/a	n/a	0.02	NP
Calcium (mg/L)	**ARGWC-21**	**4.506**	**37**	**27**	**Yes**	**10**	**0**	**n/a**	**n/a**	**0.02**	**NP**
pH (SU)	ARGWA-19 ...	0.03189	13	27	No	10	0	n/a	n/a	0.02	NP
pH (SU)	ARGWA-20 ...	0.02346	8	31	No	11	0	n/a	n/a	0.02	NP
pH (SU)	ARGWC-21	-0.02489	-12	-31	No	11	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	**ARGWA-19 ...**	**-0.4996**	**-180**	**-89**	**Yes**	**23**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	ARGWA-20 ...	0	-16	-84	No	22	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	**ARGWC-21**	**4.099**	**151**	**89**	**Yes**	**23**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Total Dissolved Solids (mg/L)	ARGWA-19 ...	11.61	18	27	No	10	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	ARGWA-20 ...	0	-1	-27	No	10	0	n/a	n/a	0.02	NP
Total Dissolved Solids (mg/L)	**ARGWC-21**	**21.35**	**28**	**27**	**Yes**	**10**	**0**	**n/a**	**n/a**	**0.02**	**NP**

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

ARGWA-19 (bg)



n = 10

Slope = 0 units per year.

Mann-Kendall statistic = 3 critical = 27

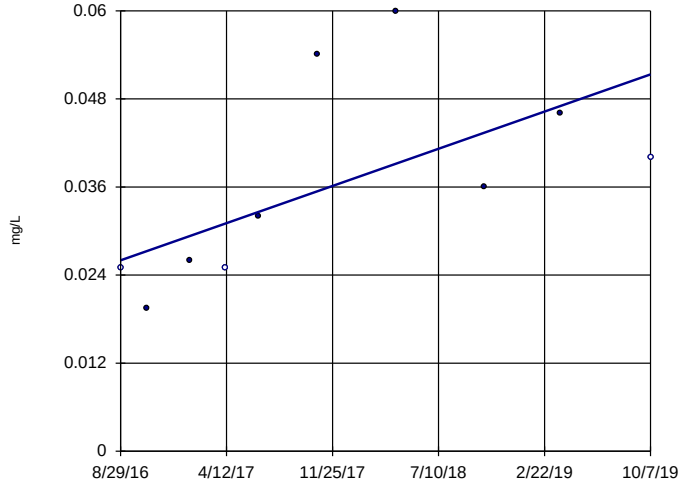
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 2/11/2020 8:17 PM View: Time Series
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

Sen's Slope Estimator

ARGWA-20 (bg)



n = 10

Slope = 0.008154 units per year.

Mann-Kendall statistic = 26 critical = 27

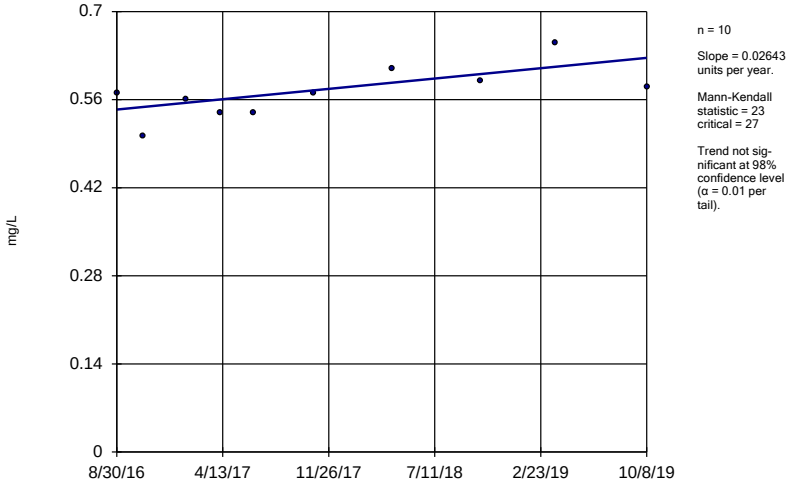
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 2/11/2020 8:17 PM View: Time Series
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Sen's Slope Estimator

ARGWC-21



n = 10

Slope = 0.02643 units per year.

Mann-Kendall statistic = 23 critical = 27

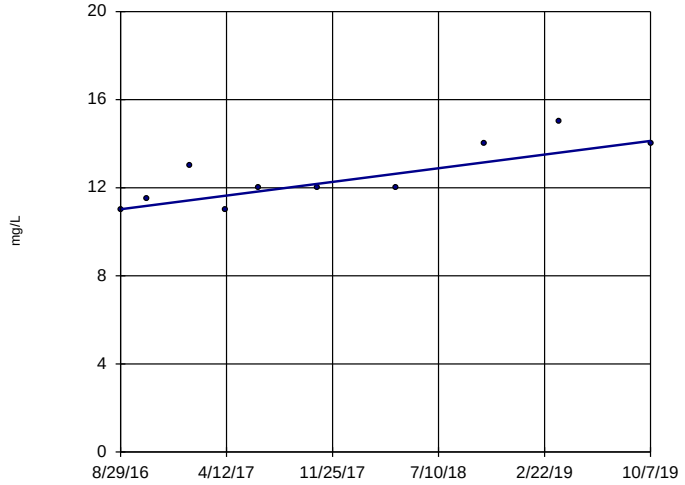
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 2/11/2020 8:17 PM View: Time Series
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Sen's Slope Estimator

ARGWA-19 (bg)



n = 10

Slope = 1 units per year.

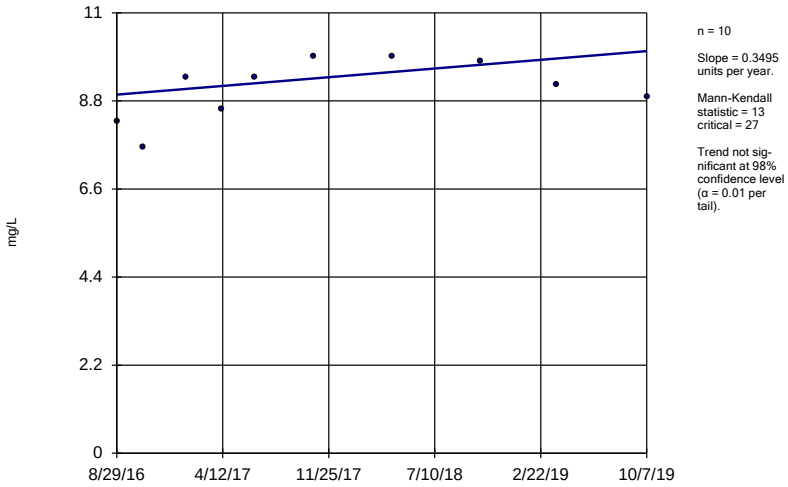
Mann-Kendall statistic = 28 critical = 27

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Calcium Analysis Run 2/11/2020 8:17 PM View: Time Series
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWA-20 (bg)



n = 10

Slope = 0.3495 units per year.

Mann-Kendall statistic = 13
critical = 27

Trend not significant at 98% confidence level (α = 0.01 per tail).

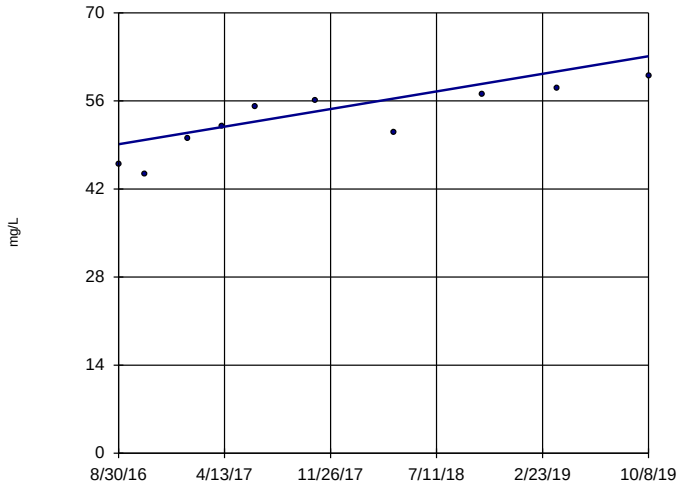
Constituent: Calcium Analysis Run 2/11/2020 8:17 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Sen's Slope Estimator

ARGWC-21



n = 10

Slope = 4.506 units per year.

Mann-Kendall statistic = 37
critical = 27

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

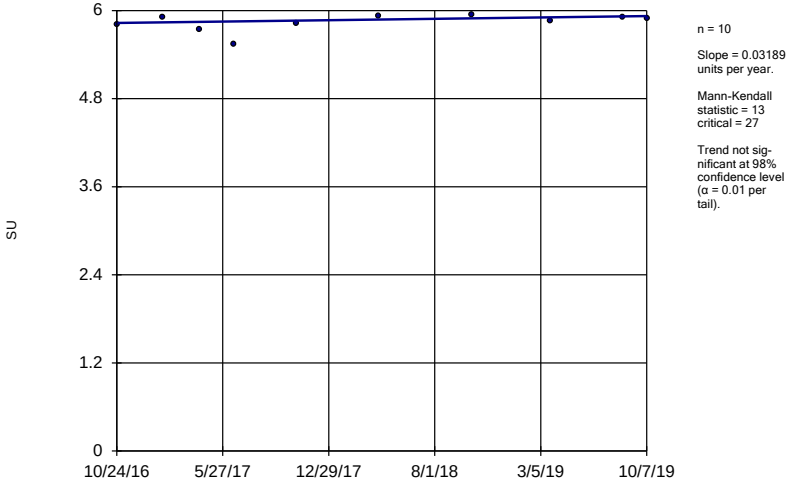
Constituent: Calcium Analysis Run 2/11/2020 8:17 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Sen's Slope Estimator

ARGWA-19 (bg)



n = 10

Slope = 0.03189 units per year.

Mann-Kendall statistic = 13
critical = 27

Trend not significant at 98% confidence level (α = 0.01 per tail).

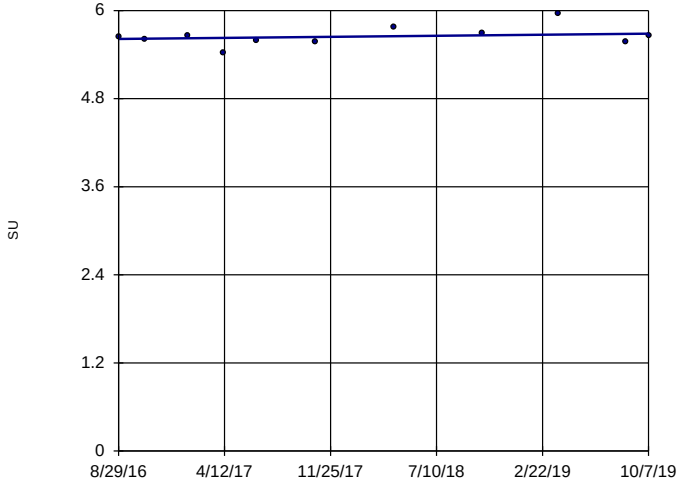
Constituent: pH Analysis Run 2/11/2020 8:17 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Sen's Slope Estimator

ARGWA-20 (bg)



n = 11

Slope = 0.02346 units per year.

Mann-Kendall statistic = 8
critical = 31

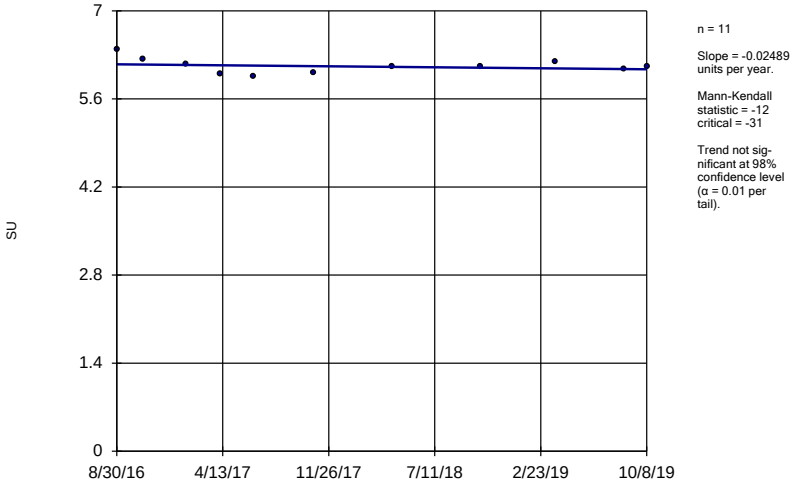
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: pH Analysis Run 2/11/2020 8:17 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWC-21



n = 11

Slope = -0.02489 units per year.

Mann-Kendall statistic = -12
critical = -31

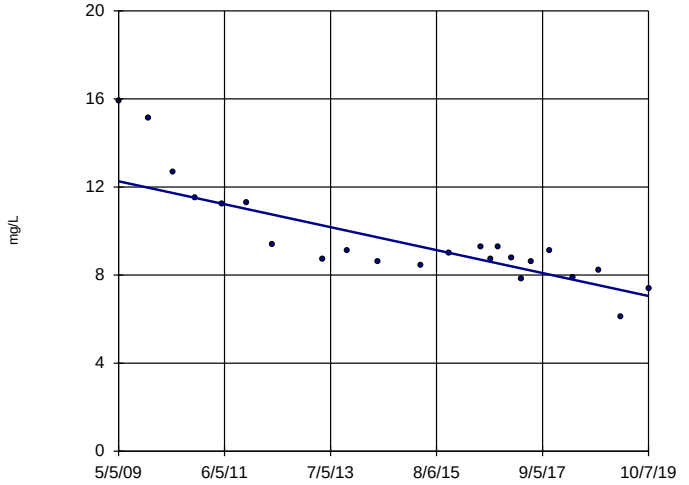
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: pH Analysis Run 2/11/2020 8:17 PM View: Time Series
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Sen's Slope Estimator

ARGWA-19 (bg)



n = 23

Slope = -0.4996 units per year.

Mann-Kendall statistic = -180
critical = -89

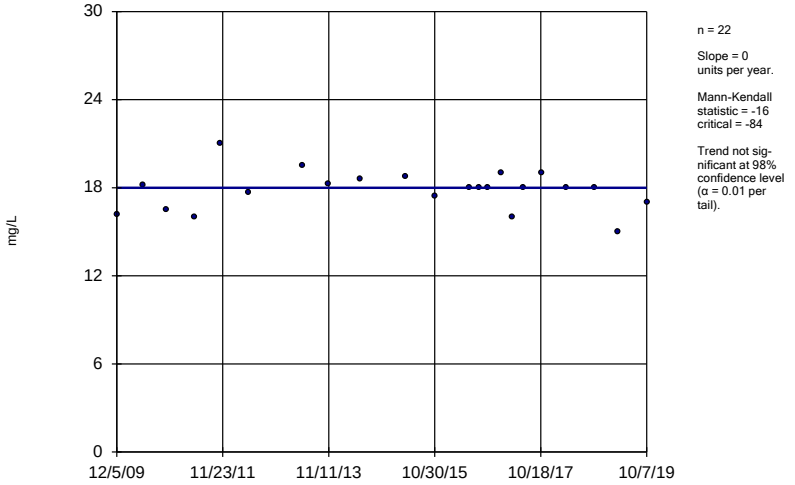
Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 2/11/2020 8:17 PM View: Time Series
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Sen's Slope Estimator

ARGWA-20 (bg)



n = 22

Slope = 0 units per year.

Mann-Kendall statistic = -16
critical = -84

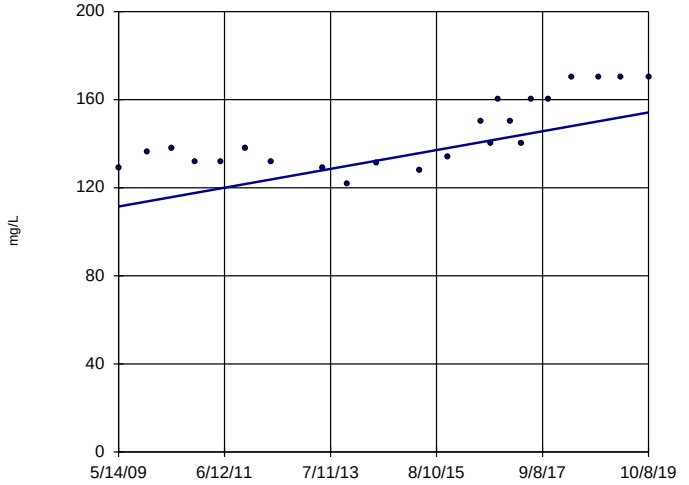
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 2/11/2020 8:17 PM View: Time Series
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Sen's Slope Estimator

ARGWC-21



n = 23

Slope = 4.099 units per year.

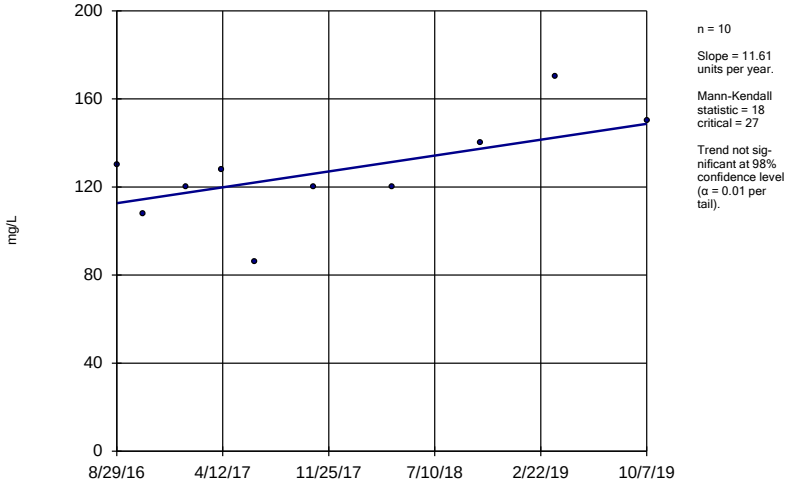
Mann-Kendall statistic = 151
critical = 89

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 2/11/2020 8:17 PM View: Time Series
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWA-19 (bg)



n = 10

Slope = 11.61 units per year.

Mann-Kendall statistic = 18
critical = 27

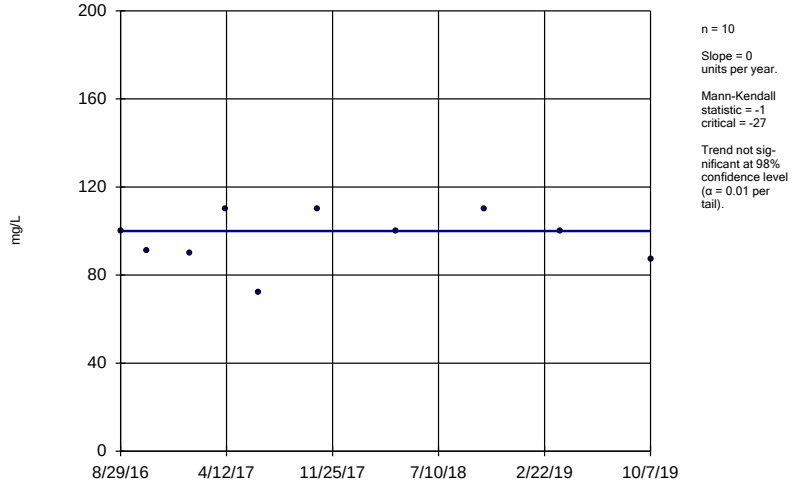
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Total Dissolved Solids Analysis Run 2/11/2020 8:17 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWA-20 (bg)



n = 10

Slope = 0 units per year.

Mann-Kendall statistic = -1
critical = -27

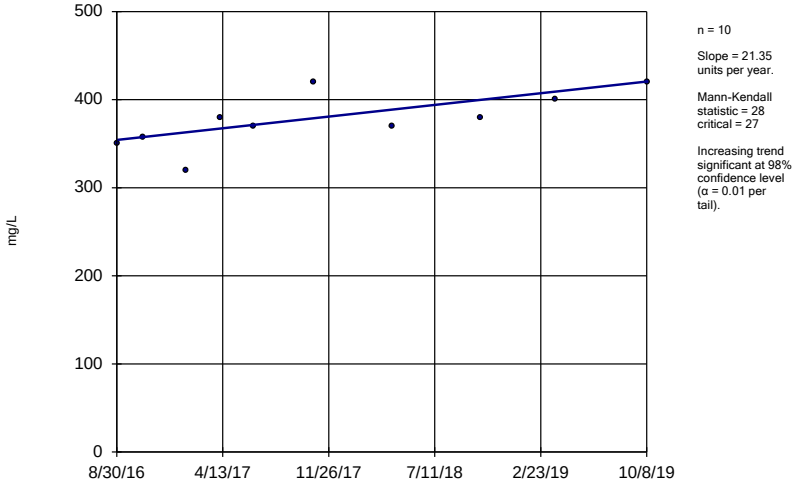
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Total Dissolved Solids Analysis Run 2/11/2020 8:17 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWC-21



n = 10

Slope = 21.35 units per year.

Mann-Kendall statistic = 28
critical = 27

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Total Dissolved Solids Analysis Run 2/11/2020 8:17 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

Constituent: Boron, Calcium Analysis Run 2/11/2020 8:18 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWA-19 (bg)
8/29/2016	0.024 (J)	<0.05		11
8/30/2016			0.57	
10/24/2016	0.0339 (J)	0.0194 (J)		11.5
10/26/2016			0.502	
1/25/2017	0.048 (J)	0.026 (J)	0.56	13
4/10/2017	0.022 (J)	<0.05	0.54	11
6/19/2017	<0.05		0.54	12
6/20/2017		0.032 (J)		
10/24/2017	0.021 (J)	0.054	0.57	12
4/9/2018		0.06		
4/10/2018	0.022 (J)		0.61	12
10/16/2018	<0.05	0.036 (J)	0.59	14
3/26/2019	<0.05			15
3/27/2019		0.046 (J)	0.65	
10/7/2019	<0.08	<0.08		14
10/8/2019			0.58	

Sen's Slope Estimator

Constituent: Calcium, pH Analysis Run 2/11/2020 8:18 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-20 (bg)	ARGWC-21	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	8.3			5.64
8/30/2016		46		
10/24/2016	7.66		5.81	5.6
10/26/2016		44.3		
1/25/2017	9.4	50	5.91	5.65
4/10/2017	8.6	52	5.74	5.42
6/19/2017		55	5.54	
6/20/2017	9.4			5.59
10/24/2017	9.9	56	5.82	5.58
4/9/2018	9.9			5.78
4/10/2018		51	5.92	
10/16/2018	9.8	57	5.94	5.69
3/26/2019			5.85	
3/27/2019	9.2	58		5.96
8/20/2019			5.9	5.57
10/7/2019	8.9		5.89	5.65
10/8/2019		60		

Sen's Slope Estimator

Constituent: pH, Sulfate Analysis Run 2/11/2020 8:18 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21
5/5/2009		15.9		
5/14/2009				129
12/5/2009		15.1	16.2	136
6/1/2010		12.7	18.2	
6/2/2010				138
11/11/2010		11.5	16.5	131.49
5/17/2011		11.2	16	132
11/8/2011		11.3	21	138
5/16/2012		9.38	17.7	132
5/14/2013		8.74	19.5	129
11/5/2013		9.12	18.3	122
6/9/2014		8.61	18.6	131
4/14/2015		8.45	18.8	128
10/29/2015				134
11/4/2015		9.01	17.4	
6/22/2016		9.3	18	
6/23/2016				150
8/29/2016		8.7	18	
8/30/2016	6.38			140
10/24/2016		9.3	18	
10/26/2016	6.23			160
1/25/2017	6.15	8.8	19	150
4/10/2017	5.99	7.8	16	140
6/19/2017	5.95	8.6		160
6/20/2017			18	
10/24/2017	6.02	9.1	19	160
4/9/2018			18	
4/10/2018	6.12	7.9		170
10/16/2018	6.12	8.2	18	170
3/26/2019		6.1		
3/27/2019	6.2		15	170
8/20/2019	6.08			
10/7/2019		7.4	17	
10/8/2019	6.11			170

Sen's Slope Estimator

Constituent: Total Dissolved Solids Analysis Run 2/11/2020 8:18 PM View: Time Series

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21
8/29/2016	130	100	
8/30/2016			350
10/24/2016	108	91	
10/26/2016			357
1/25/2017	120	90	320
4/10/2017	128 (D)	110	380
6/19/2017	86		370
6/20/2017		72	
10/24/2017	120	110	420
4/9/2018		100	
4/10/2018	120		370
10/16/2018	140	110	380
3/26/2019	170		
3/27/2019		100	400
10/7/2019	150	87	
10/8/2019			420

Atlantic Coast Consulting, Inc.

Appendix I, II, and IV Confidence Intervals (October 2019)

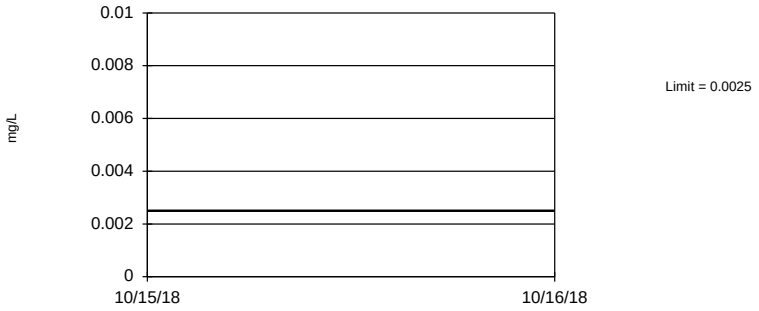
Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 3/9/2020, 10:22 AM

Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	n/a	0.0025	n/a	n/a	n/a	16	100	n/a	0.4401	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.0015	n/a	n/a	n/a	44	88.64	n/a	0.1047	NP Inter(NDs)
Barium (mg/L)	n/a	0.1	n/a	n/a	n/a	44	0	n/a	0.1047	NP Inter(normal...
Beryllium (mg/L)	n/a	0.0025	n/a	n/a	n/a	16	100	n/a	0.4401	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.0025	n/a	n/a	n/a	44	100	n/a	0.1047	NP Inter(NDs)
Chromium (mg/L)	n/a	0.0071	n/a	n/a	n/a	16	6.25	n/a	0.4401	NP Inter(normal...
Cobalt (mg/L)	n/a	0.0025	n/a	n/a	n/a	16	93.75	n/a	0.4401	NP Inter(NDs)
Combined Radium 226 + 228 (pCi/L)	n/a	1.585	n/a	n/a	n/a	16	0	No	0.05	Inter
Fluoride (mg/L)	n/a	0.2	n/a	n/a	n/a	16	81.25	n/a	0.4401	NP Inter(NDs)
Lead (mg/L)	n/a	0.0013	n/a	n/a	n/a	44	97.73	n/a	0.1047	NP Inter(NDs)
Lithium (mg/L)	n/a	0.0057	n/a	n/a	n/a	16	43.75	n/a	0.4401	NP Inter(Cohens...
Mercury (mg/L)	n/a	0.0002	n/a	n/a	n/a	16	87.5	n/a	0.4401	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.015	n/a	n/a	n/a	16	93.75	n/a	0.4401	NP Inter(NDs)
Selenium (mg/L)	n/a	0.007	n/a	n/a	n/a	44	63.64	n/a	0.1047	NP Inter(normal...
Silver (mg/L)	n/a	0.0013	n/a	n/a	n/a	38	94.74	n/a	0.1424	NP Inter(NDs)
Thallium (mg/L)	n/a	0.0005	n/a	n/a	n/a	16	100	n/a	0.4401	NP Inter(NDs)

Tolerance Limit

Interwell Non-parametric



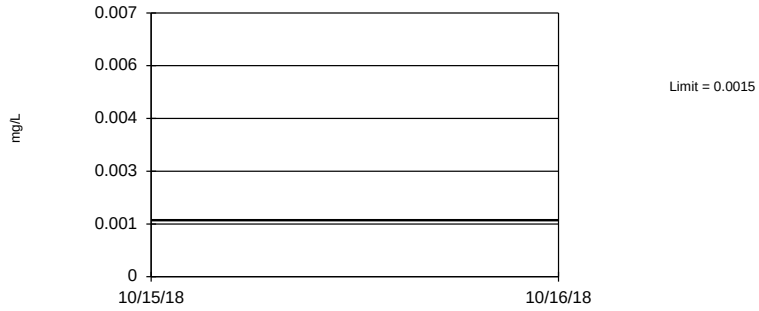
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. All background values were censored; limit is most recent reporting limit. 74.8% coverage at alpha=0.01; 83.01% coverage at alpha=0.05; 95.9% coverage at alpha=0.5. Report alpha = 0.4401.

Constituent: Antimony Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



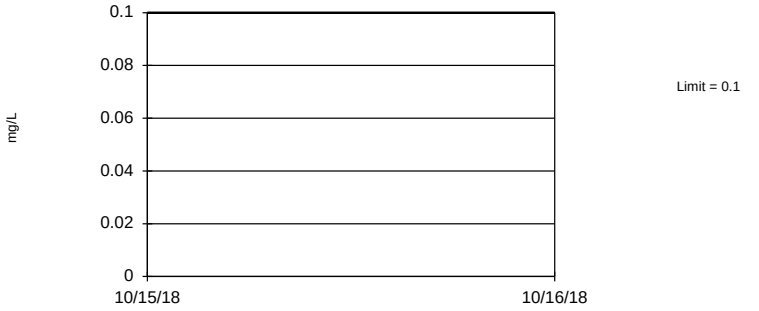
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. Limit is highest of 44 background values. 88.64% NDs. 90.04% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.24% coverage at alpha=0.5. Report alpha = 0.1047.

Constituent: Arsenic Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



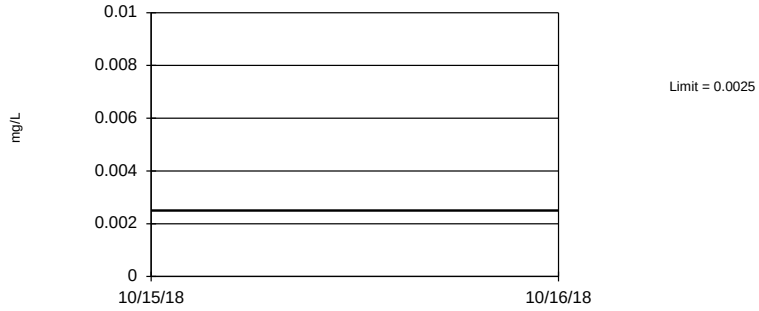
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 44 background values. 90.04% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.24% coverage at alpha=0.5. Report alpha = 0.1047.

Constituent: Barium Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



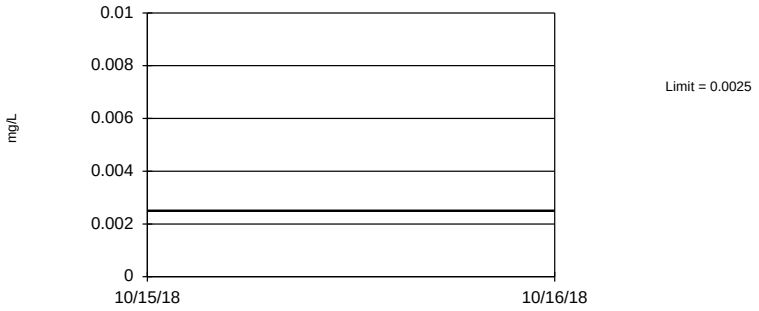
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. All background values were censored; limit is most recent reporting limit. 74.8% coverage at alpha=0.01; 83.01% coverage at alpha=0.05; 95.9% coverage at alpha=0.5. Report alpha = 0.4401.

Constituent: Beryllium Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



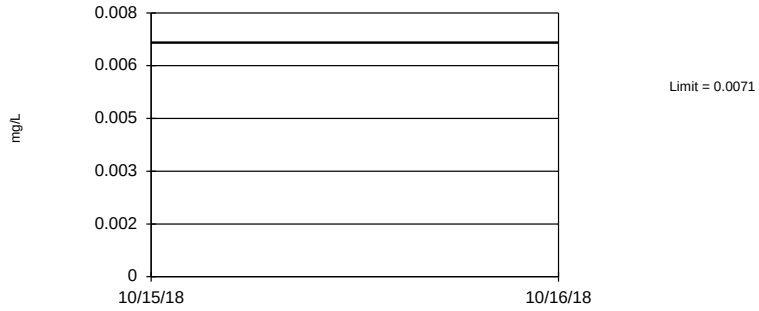
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. All background values were censored; limit is most recent reporting limit. 90.04% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.24% coverage at alpha=0.5. Report alpha = 0.1047.

Constituent: Cadmium Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



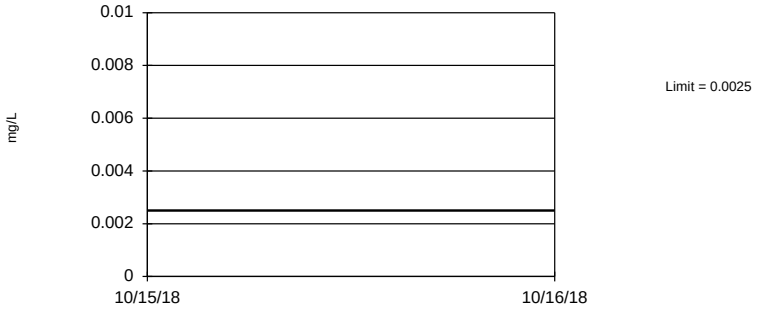
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 16 background values. 6.25% NDs. 74.8% coverage at alpha=0.01; 83.01% coverage at alpha=0.05; 95.9% coverage at alpha=0.5. Report alpha = 0.4401.

Constituent: Chromium Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



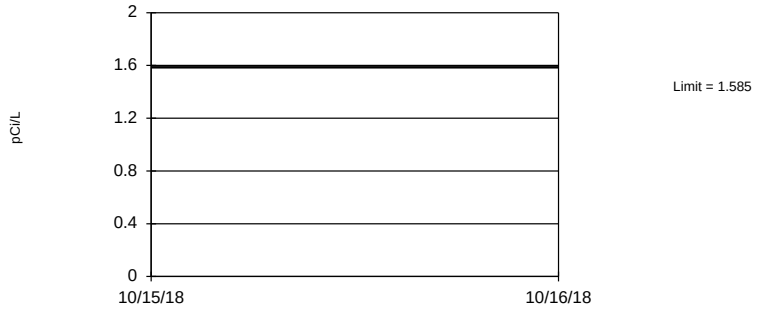
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. Limit is highest of 16 background values. 93.75% NDs. 74.8% coverage at alpha=0.01; 83.01% coverage at alpha=0.05; 95.9% coverage at alpha=0.5. Report alpha = 0.4401.

Constituent: Cobalt Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Parametric



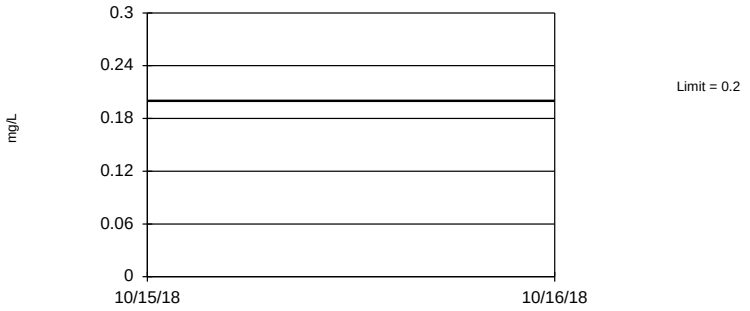
95% coverage. Background Data Summary: Mean=0.6373, Std. Dev.=0.3758, n=16. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8999, critical = 0.844. Report alpha = 0.05.

Constituent: Combined Radium 226 + 228 Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



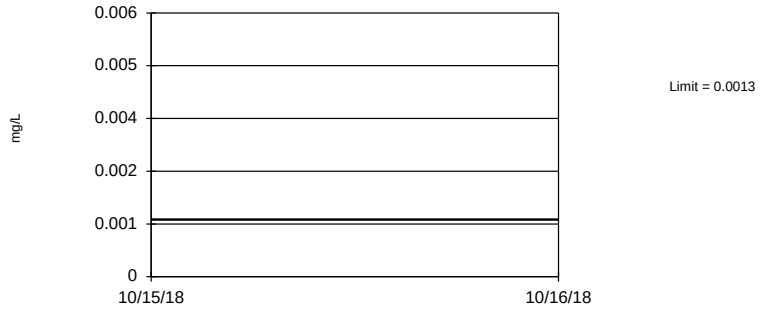
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. Limit is highest of 16 background values. 81.25% NDs. 74.8% coverage at alpha=0.01; 83.01% coverage at alpha=0.05; 95.9% coverage at alpha=0.5. Report alpha = 0.4401.

Constituent: Fluoride Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



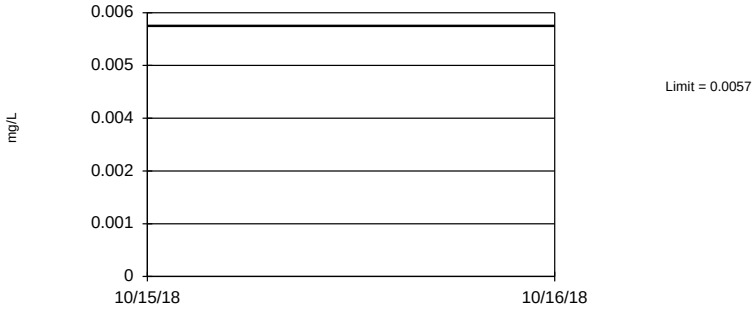
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. Limit is highest of 44 background values. 97.73% NDs. 90.04% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.24% coverage at alpha=0.5. Report alpha = 0.1047.

Constituent: Lead Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



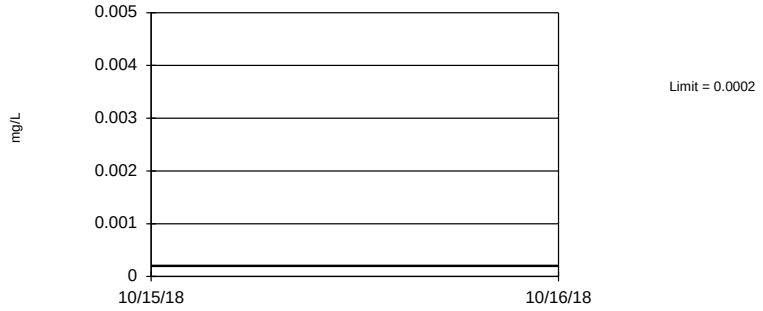
Non-parametric test used in lieu of parametric tolerance limit because the data required both a power transformation and Cohen's adjustment. Limit is highest of 16 background values. 43.75% NDs. 74.8% coverage at alpha=0.01; 83.01% coverage at alpha=0.05; 95.9% coverage at alpha=0.5. Report alpha = 0.4401.

Constituent: Lithium Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



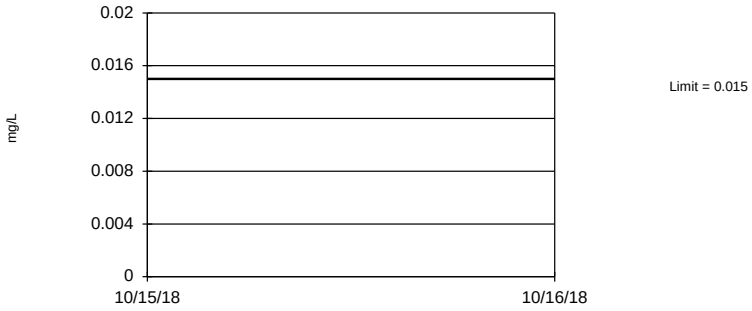
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. Limit is highest of 16 background values. 87.5% NDs. 74.8% coverage at alpha=0.01; 83.01% coverage at alpha=0.05; 95.9% coverage at alpha=0.5. Report alpha = 0.4401.

Constituent: Mercury Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



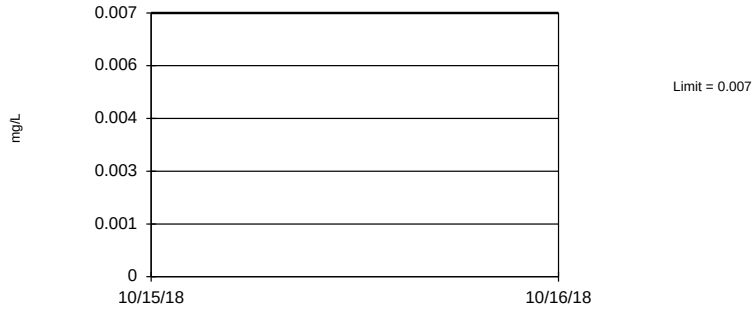
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. Limit is highest of 16 background values. 93.75% NDs. 74.8% coverage at alpha=0.01; 83.01% coverage at alpha=0.05; 95.9% coverage at alpha=0.5. Report alpha = 0.4401.

Constituent: Molybdenum Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



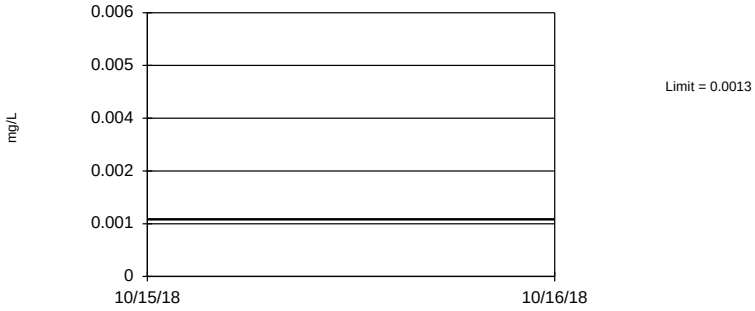
Non-parametric test used in lieu of parametric tolerance limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 44 background values. 63.64% NDs. 90.04% coverage at alpha=0.01; 93.55% coverage at alpha=0.05; 98.24% coverage at alpha=0.5. Report alpha = 0.1047.

Constituent: Selenium Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



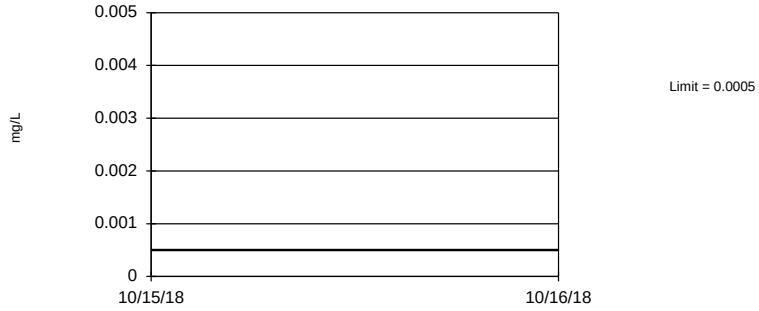
Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. Limit is highest of 38 background values. 94.74% NDs. 88.48% coverage at alpha=0.01; 92.38% coverage at alpha=0.05; 98.24% coverage at alpha=0.5. Report alpha = 0.1424.

Constituent: Silver Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric tolerance limit because censored data exceeded 75%. All background values were censored; limit is most recent reporting limit. 74.8% coverage at alpha=0.01; 83.01% coverage at alpha=0.05; 95.9% coverage at alpha=0.5. Report alpha = 0.4401.

Constituent: Thallium Analysis Run 3/9/2020 10:20 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tolerance Limit

Constituent: Antimony (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	<0.0025	<0.0025
10/24/2016	<0.0025	<0.0025
1/25/2017	<0.0025	<0.0025
4/10/2017	<0.0025	<0.0025
6/19/2017	<0.0025	
6/20/2017		<0.0025
10/24/2017	<0.0025	<0.0025
4/9/2018		<0.0025
4/10/2018	<0.0025	
10/16/2018	<0.0025	<0.0025

Tolerance Limit

Constituent: Arsenic (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
5/5/2009	<0.0013	
5/15/2009		0.0015
12/5/2009	<0.0013	<0.0013
6/1/2010	<0.0013	<0.0013
11/11/2010	<0.0013	<0.0013
5/17/2011	<0.0013	<0.0013
11/8/2011	<0.0013	<0.0013
5/16/2012	<0.0013	<0.0013
5/14/2013	<0.0013	<0.0013
11/5/2013	<0.0013	<0.0013
6/9/2014	<0.0013	<0.0013
11/18/2014		<0.0013
11/19/2014	<0.0013	
4/14/2015	<0.0013	<0.0013
11/4/2015	<0.0013	<0.0013
6/22/2016	<0.0013	0.00084 (J)
8/29/2016	<0.0013	0.00049 (J)
10/24/2016	<0.0013	<0.0013
1/25/2017	<0.0013	<0.0013
4/10/2017	<0.0013	0.00056 (J)
6/19/2017	<0.0013	
6/20/2017		0.00068 (J)
10/24/2017	<0.0013	<0.0013
4/9/2018		<0.0013
4/10/2018	<0.0013	
10/16/2018	<0.0013	<0.0013

Tolerance Limit

Constituent: Barium (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
5/5/2009	0.057	
5/15/2009		0.1
12/5/2009	0.05	0.079
6/1/2010	0.037	0.077
11/11/2010	0.039	0.072
5/17/2011	0.037	0.064
11/8/2011	0.045	0.07
5/16/2012	0.0518	0.0741
5/14/2013	0.067	0.074
11/5/2013	0.066	0.075
6/9/2014	0.062	0.08
11/18/2014		0.078
11/19/2014	0.054	
4/14/2015	0.046	0.073
11/4/2015	0.046	0.077
6/22/2016	0.039	0.078
8/29/2016	0.04	0.07
10/24/2016	0.0444	0.0738
1/25/2017	0.045	0.084
4/10/2017	0.039	0.073
6/19/2017	0.041	
6/20/2017		0.078
10/24/2017	0.041	0.081
4/9/2018		0.081
4/10/2018	0.044	
10/16/2018	0.047	0.08

Tolerance Limit

Constituent: Beryllium (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	<0.0025	<0.0025
10/24/2016	<0.0025	<0.0025
1/25/2017	<0.0025	<0.0025
4/10/2017	<0.0025	<0.0025
6/19/2017	<0.0025	
6/20/2017		<0.0025
10/24/2017	<0.0025	<0.0025
4/9/2018		<0.0025
4/10/2018	<0.0025	
10/16/2018	<0.0025	<0.0025

Tolerance Limit

Constituent: Cadmium (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
5/5/2009	<0.0025	
5/15/2009		<0.0025
12/5/2009	<0.0025	<0.0025
6/1/2010	<0.0025	<0.0025
11/11/2010	<0.0025	<0.0025
5/17/2011	<0.0025	<0.0025
11/8/2011	<0.0025	<0.0025
5/16/2012	<0.0025	<0.0025
5/14/2013	<0.0025	<0.0025
11/5/2013	<0.0025	<0.0025
6/9/2014	<0.0025	<0.0025
11/18/2014		<0.0025
11/19/2014	<0.0025	
4/14/2015	<0.0025	<0.0025
11/4/2015	<0.0025	<0.0025
6/22/2016	<0.0025	<0.0025
8/29/2016	<0.0025	<0.0025
10/24/2016	<0.0025	<0.0025
1/25/2017	<0.0025	<0.0025
4/10/2017	<0.0025	<0.0025
6/19/2017	<0.0025	
6/20/2017		<0.0025
10/24/2017	<0.0025	<0.0025
4/9/2018		<0.0025
4/10/2018	<0.0025	
10/16/2018	<0.0025	<0.0025

Tolerance Limit

Constituent: Chromium (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	0.0011 (J)	0.0052
10/24/2016	0.001 (J)	0.0053 (J)
1/25/2017	0.0013 (J)	0.0056
4/10/2017	<0.0025	0.0047
6/19/2017	0.0013 (J)	
6/20/2017		0.0051
10/24/2017	0.0012 (J)	0.0056
4/9/2018		0.0071
4/10/2018	0.0015 (J)	
10/16/2018	0.0014 (J)	0.0071

Tolerance Limit

Constituent: Cobalt (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	<0.0025	<0.0025
10/24/2016	<0.0025	<0.0025
1/25/2017	<0.0025	0.00076 (J)
4/10/2017	<0.0025	<0.0025
6/19/2017	<0.0025	
6/20/2017		<0.0025
10/24/2017	<0.0025	<0.0025
4/9/2018		<0.0025
4/10/2018	<0.0025	
10/16/2018	<0.0025	<0.0025

Tolerance Limit

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	0.324 (U)	0.508 (U)
10/24/2016	1.17 (U)	1.46
1/25/2017	0.443 (U)	0.377 (U)
4/10/2017	0.483	0.132 (U)
6/19/2017	0.478	
6/20/2017		1.17
10/24/2017	0.764	0.704
4/9/2018		0.539
4/10/2018	0.3 (U)	
10/16/2018	0.991	0.354 (U)

Tolerance Limit

Constituent: Fluoride (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	<0.2	<0.2
10/24/2016	0.07 (J)	0.04 (J)
1/25/2017	<0.2	<0.2
4/10/2017	<0.2	<0.2
6/19/2017	<0.2	
6/20/2017		<0.2
10/24/2017	<0.2	<0.2
4/9/2018		<0.2
4/10/2018	<0.2	
10/16/2018	0.083 (J)	<0.2

Tolerance Limit

Constituent: Lead (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
5/5/2009	<0.0013	
5/15/2009		<0.0013
12/5/2009	<0.0013	<0.0013
6/1/2010	<0.0013	<0.0013
11/11/2010	<0.0013	<0.0013
5/17/2011	<0.0013	<0.0013
11/8/2011	<0.0013	<0.0013
5/16/2012	<0.0013	<0.0013
5/14/2013	<0.0013	<0.0013
11/5/2013	<0.0013	<0.0013
6/9/2014	<0.0013	<0.0013
11/18/2014		<0.0013
11/19/2014	<0.0013	
4/14/2015	<0.0013	<0.0013
11/4/2015	<0.0013	<0.0013
6/22/2016	<0.0013	<0.0013
8/29/2016	<0.0013	<0.0013
10/24/2016	<0.0013	<0.0013
1/25/2017	<0.0013	0.00037 (J)
4/10/2017	<0.0013	<0.0013
6/19/2017	<0.0013	
6/20/2017		<0.0013
10/24/2017	<0.0013	<0.0013
4/9/2018		<0.0013
4/10/2018	<0.0013	
10/16/2018	<0.0013	<0.0013

Tolerance Limit

Constituent: Lithium (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	0.0048 (J)	<0.005
10/24/2016	<0.005	<0.005
1/25/2017	0.0052	<0.005
4/10/2017	0.0034 (J)	<0.005
6/19/2017	0.0036 (J)	
6/20/2017		<0.005
10/24/2017	0.0051	<0.005
4/9/2018		0.0021 (J)
4/10/2018	0.0057	
10/16/2018	0.0048 (J)	0.0018 (J)

Tolerance Limit

Constituent: Mercury (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	<0.0002	<0.0002
10/24/2016	<0.0002	<0.0002
1/25/2017	7.7E-05 (J)	7.2E-05 (J)
4/10/2017	<0.0002	<0.0002
6/19/2017	<0.0002	
6/20/2017		<0.0002
10/24/2017	<0.0002	<0.0002
4/9/2018		<0.0002
4/10/2018	<0.0002	
10/16/2018	<0.0002	<0.0002

Tolerance Limit

Constituent: Molybdenum (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	<0.015	<0.015
10/24/2016	<0.015	<0.015
1/25/2017	<0.015	<0.015
4/10/2017	<0.015	<0.015
6/19/2017	<0.015	
6/20/2017		<0.015
10/24/2017	<0.015	<0.015
4/9/2018		<0.015
4/10/2018	0.00096 (J)	
10/16/2018	<0.015	<0.015

Tolerance Limit

Constituent: Selenium (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
5/5/2009	0.0043	
5/15/2009		0.007
12/5/2009	<0.0013	<0.0013
6/1/2010	<0.0013	<0.0013
11/11/2010	<0.0013	<0.0013
5/17/2011	<0.0013	<0.0013
11/8/2011	<0.0013	<0.0013
5/16/2012	<0.0013	0.0024 (J)
5/14/2013	<0.0013	<0.0013
11/5/2013	<0.0013	<0.0013
6/9/2014	<0.0013	<0.0013
11/18/2014		<0.0013
11/19/2014	<0.0013	
4/14/2015	<0.0013	<0.0013
11/4/2015	<0.0013	<0.0013
6/22/2016	0.00025 (J)	0.0019
8/29/2016	0.0004 (J)	0.0019
10/24/2016	<0.0013	0.0023 (J)
1/25/2017	<0.0013	0.0015
4/10/2017	<0.0013	0.0011 (J)
6/19/2017	0.00025 (J)	
6/20/2017		0.0016
10/24/2017	<0.0013	0.0012 (J)
4/9/2018		0.0012 (J)
4/10/2018	0.00074 (J)	
10/16/2018	<0.0013	0.0015

Tolerance Limit

Constituent: Silver (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
5/5/2009	<0.0013	
5/15/2009		<0.0013
12/5/2009	0.00075	0.00043
6/1/2010	<0.0013	<0.0013
11/11/2010	<0.0013	<0.0013
5/17/2011	<0.0013	<0.0013
11/8/2011	<0.0013	<0.0013
5/16/2012	<0.0013	<0.0013
5/14/2013	<0.0013	<0.0013
11/5/2013	<0.0013	<0.0013
6/9/2014	<0.0013	<0.0013
11/18/2014		<0.0013
11/19/2014	<0.0013	
4/14/2015	<0.0013	<0.0013
11/4/2015	<0.0013	<0.0013
6/22/2016	<0.0013	<0.0013
10/24/2016	<0.0013	<0.0013
4/10/2017	<0.0013	<0.0013
10/24/2017	<0.0013	<0.0013
4/9/2018		<0.0013
4/10/2018	<0.0013	
10/16/2018	<0.0013	<0.0013

Tolerance Limit

Constituent: Thallium (mg/L) Analysis Run 3/9/2020 10:22 AM View: Upper Tolerance Limit

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)
8/29/2016	<0.0005	<0.0005
10/24/2016	<0.0005	<0.0005
1/25/2017	<0.0005	<0.0005
4/10/2017	<0.0005	<0.0005
6/19/2017	<0.0005	
6/20/2017		<0.0005
10/24/2017	<0.0005	<0.0005
4/9/2018		<0.0005
4/10/2018	<0.0005	
10/16/2018	<0.0005	<0.0005

Confidence Interval Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 3/25/2020, 5:18 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Lithium (mg/L)	**ARGWC-21**	**0.01178**	**0.007577**	**0.0057**	**Yes**	**10**	**0**	**No**	**0.01**	**Param.**

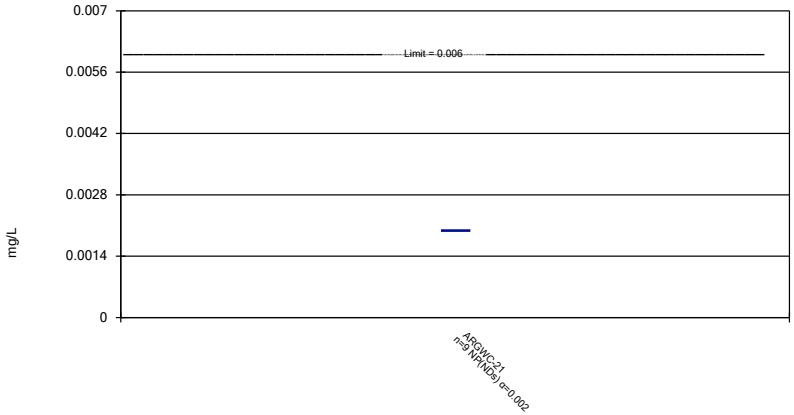
Confidence Interval All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 3/25/2020, 5:18 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	ARGWC-21	0.002	0.002	0.006	No	9	100	No	0.002	NP (NDs)
Arsenic (mg/L)	ARGWC-21	0.002259	0.001541	0.01	No	11	0	No	0.01	Param.
Barium (mg/L)	ARGWC-21	0.1213	0.1003	2	No	11	0	No	0.01	Param.
Beryllium (mg/L)	ARGWC-21	0.001	0.001	0.004	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	ARGWC-21	0.001	0.001	0.005	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	ARGWC-21	0.002	0.002	0.1	No	10	90	No	0.011	NP (NDs)
Cobalt (mg/L)	ARGWC-21	0.002057	0.001703	0.0025	No	10	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-21	0.9897	0.5443	5	No	10	0	No	0.01	Param.
Fluoride (mg/L)	ARGWC-21	0.17	0.065	4	No	11	0	No	0.006	NP (normality)
Lead (mg/L)	ARGWC-21	0.001	0.001	0.0013	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	**ARGWC-21**	**0.01178**	**0.007577**	**0.0057**	**Yes**	**10**	**0**	**No**	**0.01**	**Param.**
Mercury (mg/L)	ARGWC-21	0.0002	0.000073	0.002	No	9	88.89	No	0.002	NP (NDs)
Molybdenum (mg/L)	ARGWC-21	0.005	0.005	0.015	No	9	100	No	0.002	NP (NDs)
Selenium (mg/L)	ARGWC-21	0.005	0.005	0.05	No	11	100	No	0.006	NP (NDs)
Silver (mg/L)	ARGWC-21	0.0013	0.00043	0.0013	No	7	85.71	No	0.008	NP (NDs)
Thallium (mg/L)	ARGWC-21	0.001	0.001	0.002	No	9	100	No	0.002	NP (NDs)

Non-Parametric Confidence Interval

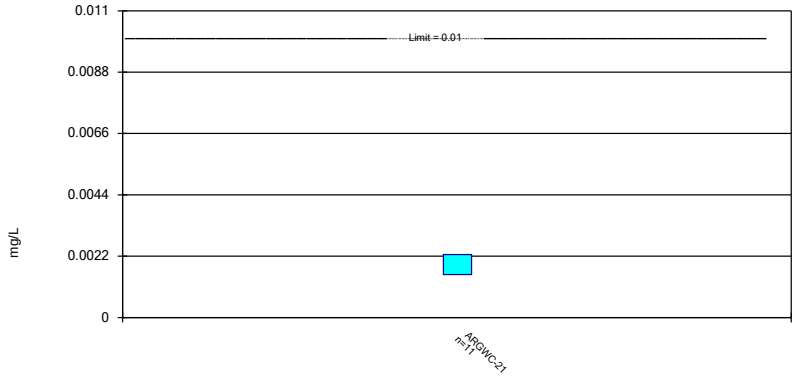
Compliance Limit is not exceeded.



Constituent: Antimony Analysis Run 3/25/2020 1:23 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 3/25/2020 1:23 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

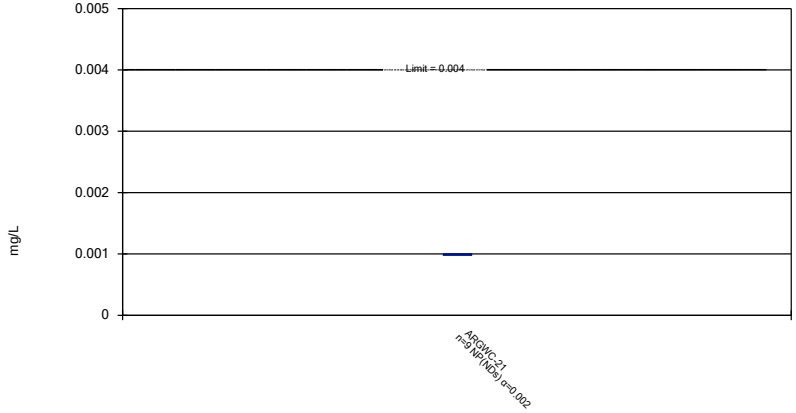
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

Constituent: Barium Analysis Run 3/25/2020 1:23 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

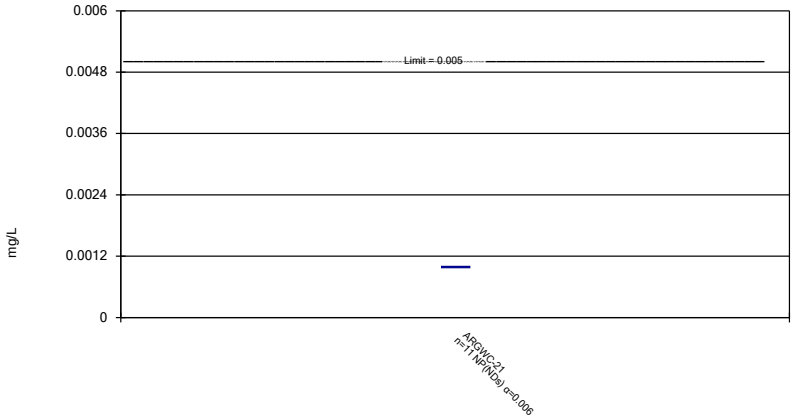
Compliance Limit is not exceeded.



Constituent: Beryllium Analysis Run 3/25/2020 1:24 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

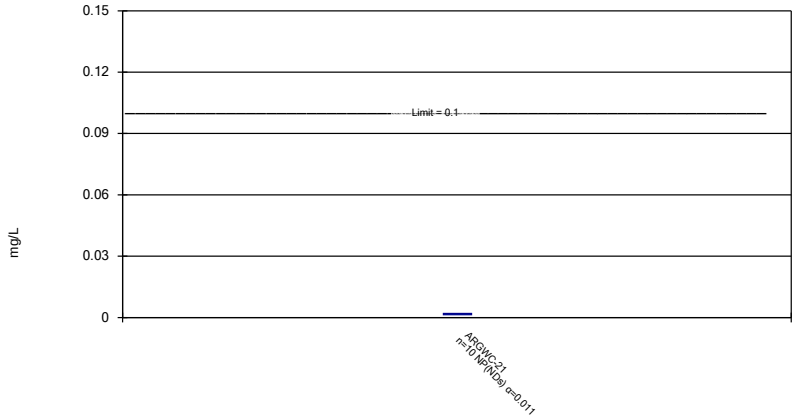
Compliance Limit is not exceeded.



Constituent: Cadmium Analysis Run 3/25/2020 1:24 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

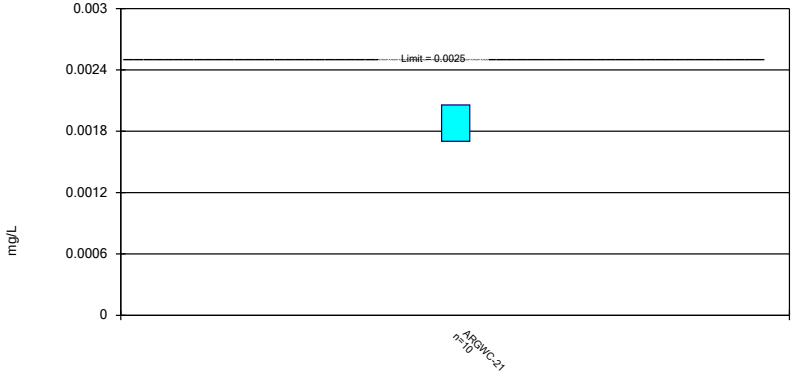
Compliance Limit is not exceeded.



Constituent: Chromium Analysis Run 3/25/2020 1:24 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

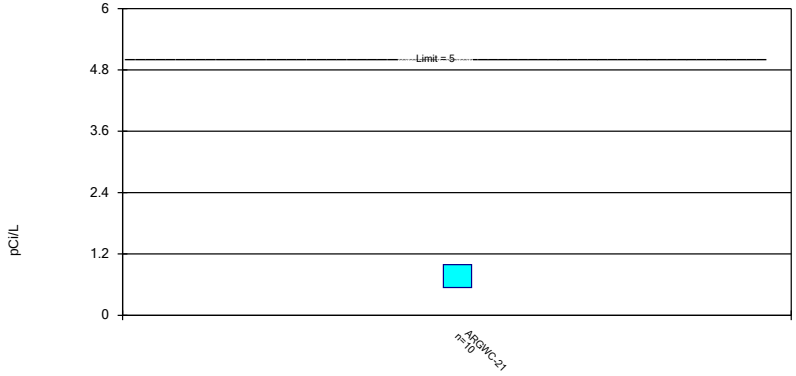
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 3/25/2020 1:24 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

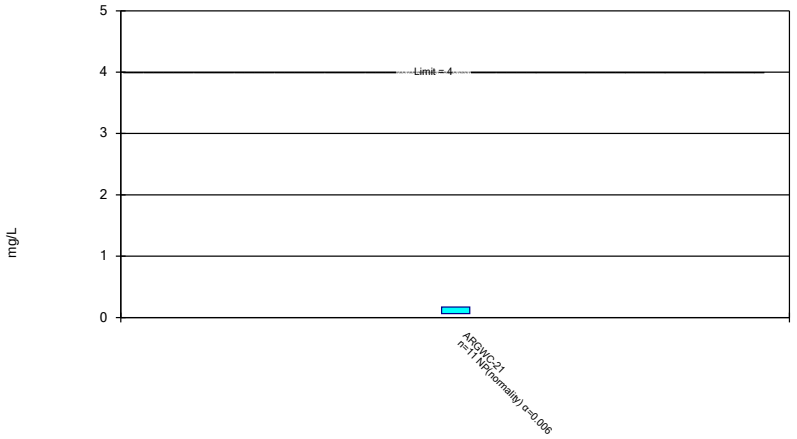
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 3/25/2020 1:24 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

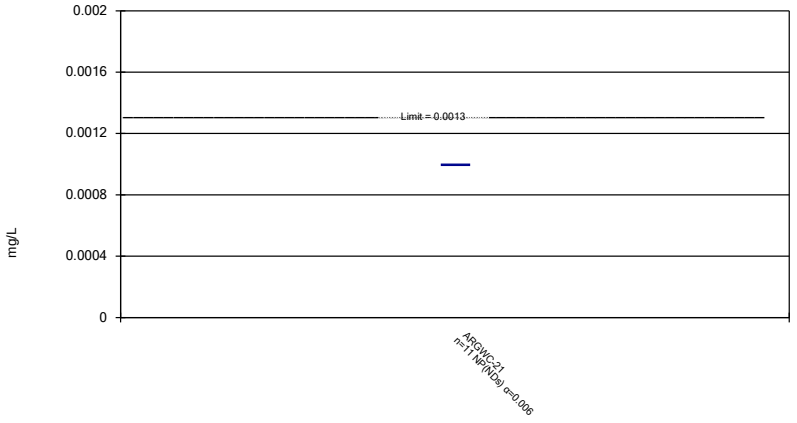
Compliance Limit is not exceeded.



Constituent: Fluoride Analysis Run 3/25/2020 1:24 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

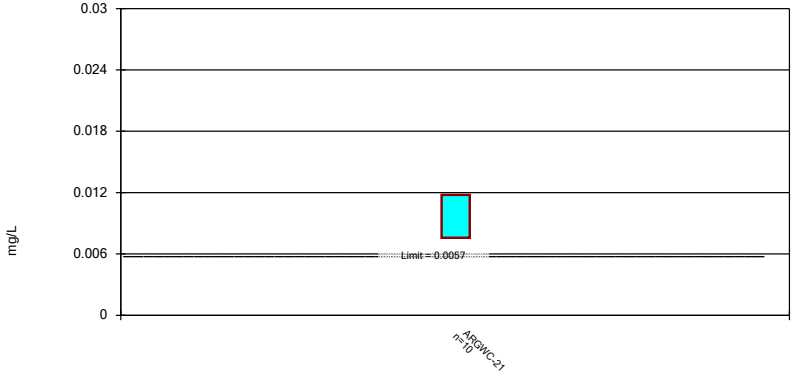
Compliance Limit is not exceeded.



Constituent: Lead Analysis Run 3/25/2020 1:24 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

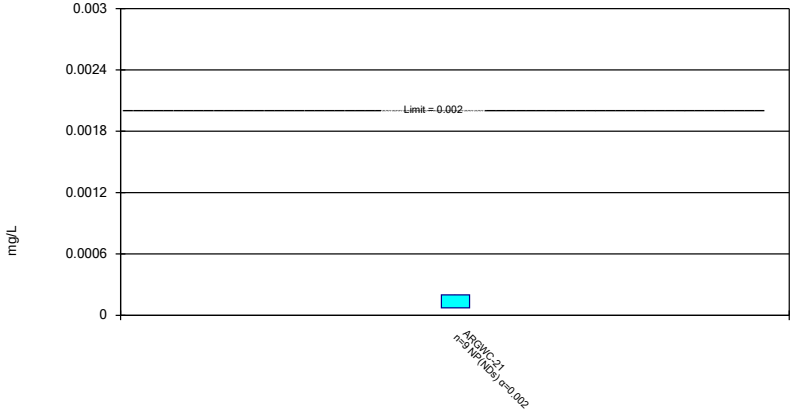
Compliance limit is exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 3/25/2020 1:24 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

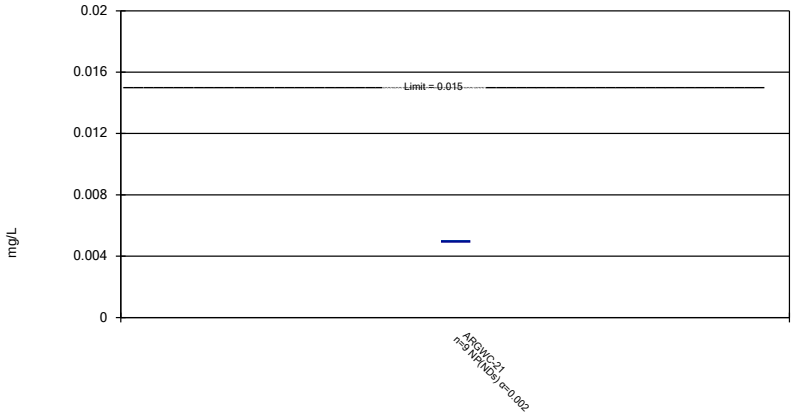
Compliance Limit is not exceeded.



Constituent: Mercury Analysis Run 3/25/2020 1:24 PM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

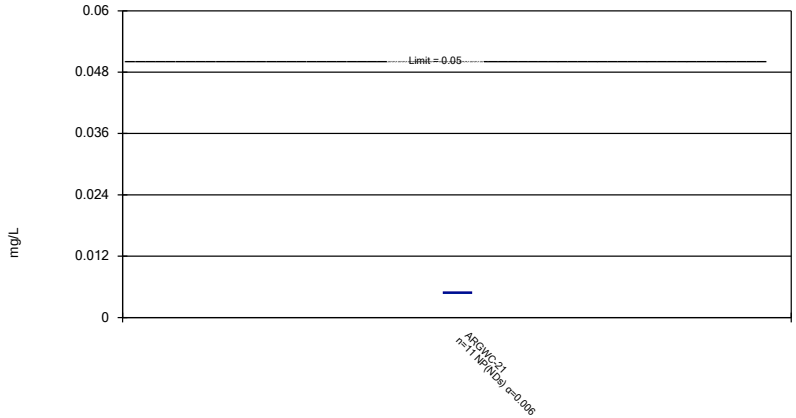


Constituent: Molybdenum Analysis Run 3/25/2020 1:24 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

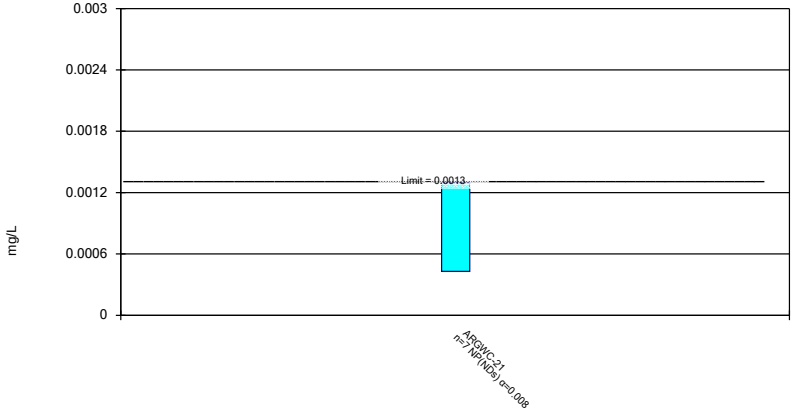


Constituent: Selenium Analysis Run 3/25/2020 1:24 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

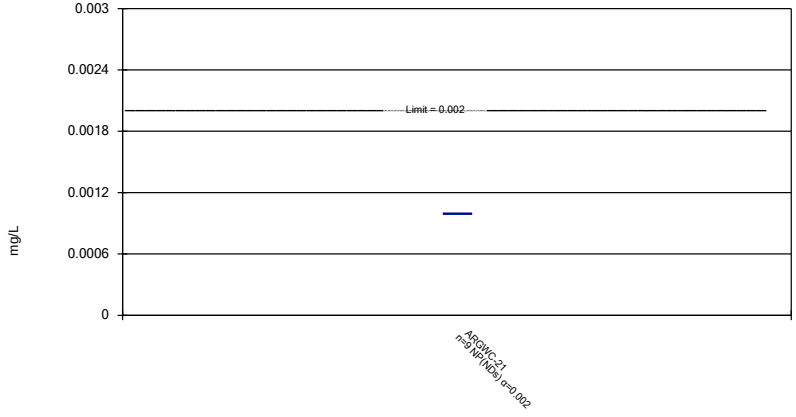


Constituent: Silver Analysis Run 3/25/2020 1:24 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Thallium Analysis Run 3/25/2020 1:24 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Confidence Interval

Constituent: Antimony (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.002
10/26/2016	<0.002
1/25/2017	<0.002
4/10/2017	<0.002
6/19/2017	<0.002
10/24/2017	<0.002
4/10/2018	<0.002
10/16/2018	<0.002
8/20/2019	<0.002
Mean	0.002
Std. Dev.	0
Upper Lim.	0.002
Lower Lim.	0.002

Confidence Interval

Constituent: Arsenic (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.002
10/26/2016	0.0019 (J)
1/25/2017	0.0017
4/10/2017	0.002
6/19/2017	0.0026
10/24/2017	0.0021
4/10/2018	0.0022
10/16/2018	0.0021
3/27/2019	0.0011 (J)
8/20/2019	0.002
10/8/2019	0.0012 (J)
Mean	0.0019
Std. Dev.	0.0004313
Upper Lim.	0.002259
Lower Lim.	0.001541

Confidence Interval

Constituent: Barium (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.11
10/26/2016	0.122
1/25/2017	0.12
4/10/2017	0.11
6/19/2017	0.13
10/24/2017	0.12
4/10/2018	0.12
10/16/2018	0.1
3/27/2019	0.091
8/20/2019	0.1
10/8/2019	0.096
Mean	0.1108
Std. Dev.	0.01262
Upper Lim.	0.1213
Lower Lim.	0.1003

Confidence Interval

Constituent: Beryllium (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.001
10/26/2016	<0.001
1/25/2017	<0.001
4/10/2017	<0.001
6/19/2017	<0.001
10/24/2017	<0.001
4/10/2018	<0.001
10/16/2018	<0.001
8/20/2019	<0.001
Mean	0.001
Std. Dev.	0
Upper Lim.	0.001
Lower Lim.	0.001

Confidence Interval

Constituent: Cadmium (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.001
10/26/2016	<0.001
1/25/2017	<0.001
4/10/2017	<0.001
6/19/2017	<0.001
10/24/2017	<0.001
4/10/2018	<0.001
10/16/2018	<0.001
3/27/2019	<0.001
8/20/2019	<0.001
10/8/2019	<0.001
Mean	0.001
Std. Dev.	0
Upper Lim.	0.001
Lower Lim.	0.001

Confidence Interval

Constituent: Chromium (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.002
10/26/2016	<0.002
1/25/2017	<0.002
4/10/2017	<0.002
6/19/2017	<0.002
10/24/2017	<0.002
4/10/2018	<0.002
10/16/2018	<0.002
8/20/2019	0.0017 (J)
10/8/2019	<0.002
Mean	0.00197
Std. Dev.	9.487E-05
Upper Lim.	0.002
Lower Lim.	0.002

Confidence Interval

Constituent: Cobalt (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.0018 (J)
10/26/2016	0.0018 (J)
1/25/2017	0.0017 (J)
4/10/2017	0.0016 (J)
6/19/2017	0.0021 (J)
10/24/2017	0.0019 (J)
4/10/2018	0.0019 (J)
10/16/2018	0.0019 (J)
8/20/2019	0.0023
10/8/2019	0.0018
Mean	0.00188
Std. Dev.	0.0001989
Upper Lim.	0.002057
Lower Lim.	0.001703

Confidence Interval

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.832
10/26/2016	1.27
1/25/2017	0.549
4/10/2017	0.556
6/19/2017	0.976
10/24/2017	0.504
4/10/2018	0.621
10/16/2018	0.796
8/20/2019	0.978
10/8/2019	0.588
Mean	0.767
Std. Dev.	0.2496
Upper Lim.	0.9897
Lower Lim.	0.5443

Confidence Interval

Constituent: Fluoride (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.099 (J)
10/26/2016	0.57
1/25/2017	0.12 (J)
4/10/2017	0.11 (J)
6/19/2017	0.11 (J)
10/24/2017	0.1 (J)
4/10/2018	0.094 (J)
10/16/2018	0.17 (J)
3/27/2019	0.05 (J)
8/20/2019	0.098 (J)
10/8/2019	0.065 (J)
Mean	0.1442
Std. Dev.	0.1445
Upper Lim.	0.17
Lower Lim.	0.065

Confidence Interval

Constituent: Lead (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.001
10/26/2016	<0.001
1/25/2017	<0.001
4/10/2017	<0.001
6/19/2017	<0.001
10/24/2017	<0.001
4/10/2018	<0.001
10/16/2018	<0.001
3/27/2019	<0.001
8/20/2019	<0.001
10/8/2019	0.00015 (J)
Mean	0.0009227
Std. Dev.	0.0002563
Upper Lim.	0.001
Lower Lim.	0.001

Confidence Interval

Constituent: Lithium (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.0092
10/26/2016	0.0071 (J)
1/25/2017	0.0087
4/10/2017	0.0074
6/19/2017	0.0079
10/24/2017	0.0097
4/10/2018	0.012
10/16/2018	0.01
8/20/2019	0.0098
10/8/2019	0.015
Mean	0.00968
Std. Dev.	0.002357
Upper Lim.	0.01178
Lower Lim.	0.007577

Confidence Interval

Constituent: Mercury (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.0002
10/26/2016	<0.0002
1/25/2017	7.3E-05 (J)
4/10/2017	<0.0002
6/19/2017	<0.0002
10/24/2017	<0.0002
4/10/2018	<0.0002
10/16/2018	<0.0002
8/20/2019	<0.0002
Mean	0.0001859
Std. Dev.	4.233E-05
Upper Lim.	0.0002
Lower Lim.	7.3E-05

Confidence Interval

Constituent: Molybdenum (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.005
10/26/2016	<0.005
1/25/2017	<0.005
4/10/2017	<0.005
6/19/2017	<0.005
10/24/2017	<0.005
4/10/2018	<0.005
10/16/2018	<0.005
8/20/2019	<0.005
Mean	0.005
Std. Dev.	0
Upper Lim.	0.005
Lower Lim.	0.005

Confidence Interval

Constituent: Selenium (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.005
10/26/2016	<0.005
1/25/2017	<0.005
4/10/2017	<0.005
6/19/2017	<0.005
10/24/2017	<0.005
4/10/2018	<0.005
10/16/2018	<0.005
3/27/2019	<0.005
8/20/2019	<0.005
10/8/2019	<0.005
Mean	0.005
Std. Dev.	0
Upper Lim.	0.005
Lower Lim.	0.005

Confidence Interval

Constituent: Silver (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
10/26/2016	<0.0013
4/10/2017	<0.0013
10/24/2017	<0.0013
4/10/2018	<0.0013
10/16/2018	<0.0013
3/27/2019	<0.0013
10/8/2019	0.00043 (J)
Mean	0.001176
Std. Dev.	0.0003288
Upper Lim.	0.0013
Lower Lim.	0.00043

Confidence Interval

Constituent: Thallium (mg/L) Analysis Run 3/25/2020 5:18 PM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.001
10/26/2016	<0.001
1/25/2017	<0.001
4/10/2017	<0.001
6/19/2017	<0.001
10/24/2017	<0.001
4/10/2018	<0.001
10/16/2018	<0.001
8/20/2019	<0.001
Mean	0.001
Std. Dev.	0
Upper Lim.	0.001
Lower Lim.	0.001

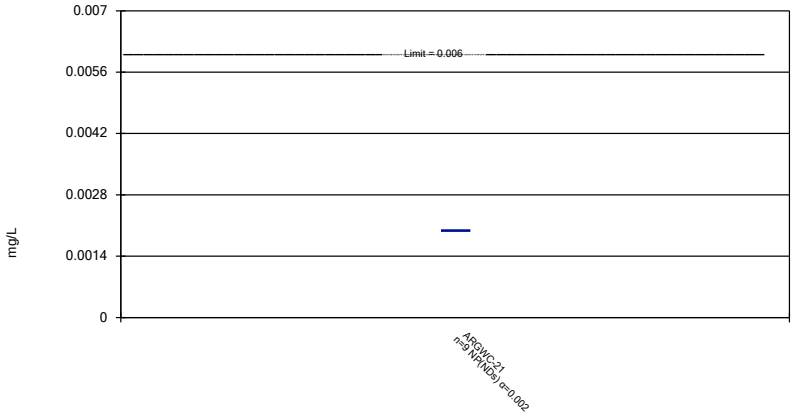
Confidence Interval All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 3/20/2020, 10:28 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	ARGWC-21	0.002	0.002	0.006	No	9	100	No	0.002	NP (NDs)
Arsenic (mg/L)	ARGWC-21	0.002259	0.001541	0.01	No	11	0	No	0.01	Param.
Barium (mg/L)	ARGWC-21	0.1213	0.1003	2	No	11	0	No	0.01	Param.
Beryllium (mg/L)	ARGWC-21	0.001	0.001	0.004	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	ARGWC-21	0.001	0.001	0.005	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	ARGWC-21	0.002	0.002	0.1	No	10	90	No	0.011	NP (NDs)
Cobalt (mg/L)	ARGWC-21	0.002057	0.001703	0.006	No	10	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-21	0.9897	0.5443	5	No	10	0	No	0.01	Param.
Fluoride (mg/L)	ARGWC-21	0.17	0.065	4	No	11	0	No	0.006	NP (normality)
Lead (mg/L)	ARGWC-21	0.001	0.001	0.015	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	ARGWC-21	0.01178	0.007577	0.04	No	10	0	No	0.01	Param.
Mercury (mg/L)	ARGWC-21	0.0002	0.000073	0.002	No	9	88.89	No	0.002	NP (NDs)
Molybdenum (mg/L)	ARGWC-21	0.005	0.005	0.1	No	9	100	No	0.002	NP (NDs)
Selenium (mg/L)	ARGWC-21	0.005	0.005	0.05	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	ARGWC-21	0.001	0.001	0.002	No	9	100	No	0.002	NP (NDs)

Non-Parametric Confidence Interval

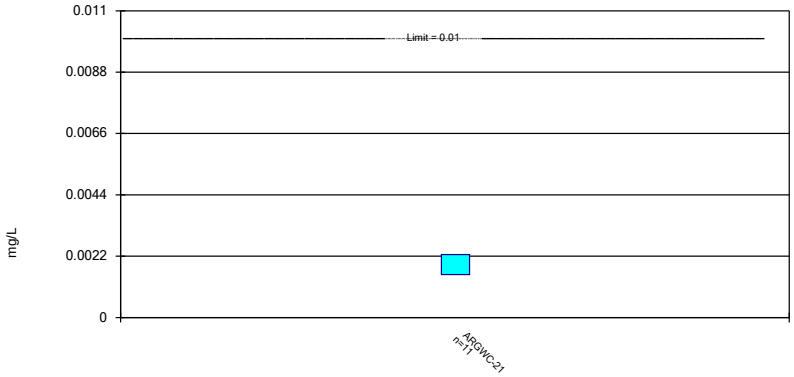
Compliance Limit is not exceeded.



Constituent: Antimony Analysis Run 3/20/2020 10:27 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 3/20/2020 10:27 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

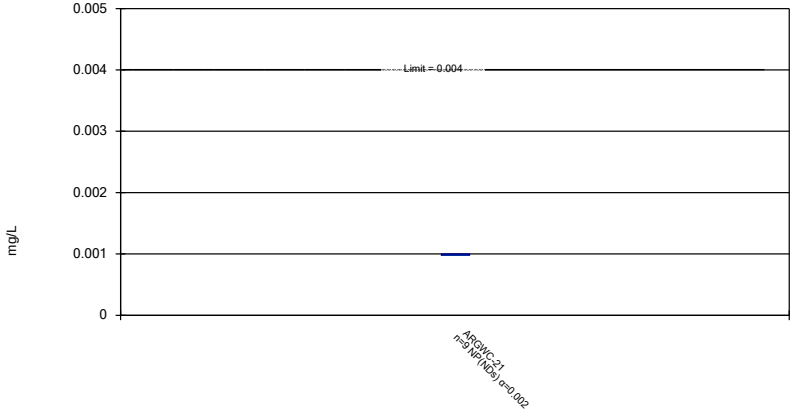
Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

Constituent: Barium Analysis Run 3/20/2020 10:27 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

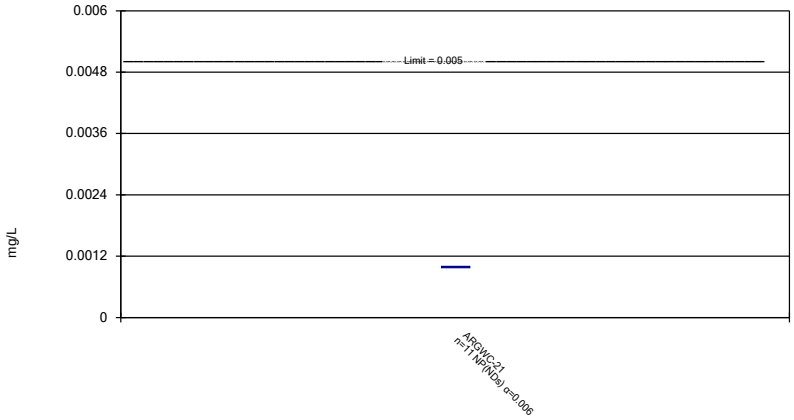
Compliance Limit is not exceeded.



Constituent: Beryllium Analysis Run 3/20/2020 10:27 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

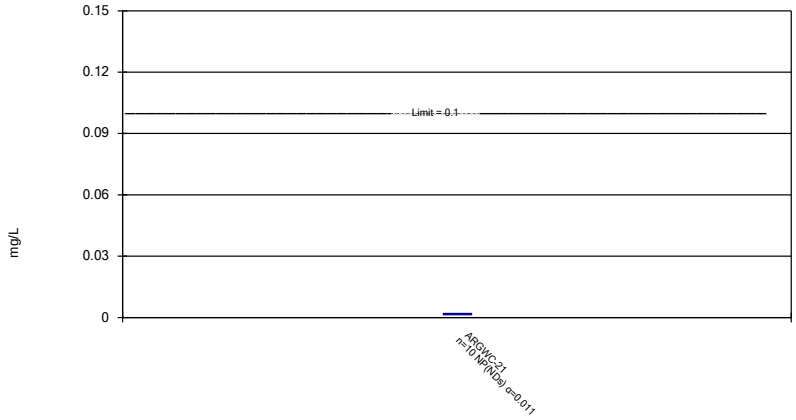
Compliance Limit is not exceeded.



Constituent: Cadmium Analysis Run 3/20/2020 10:27 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

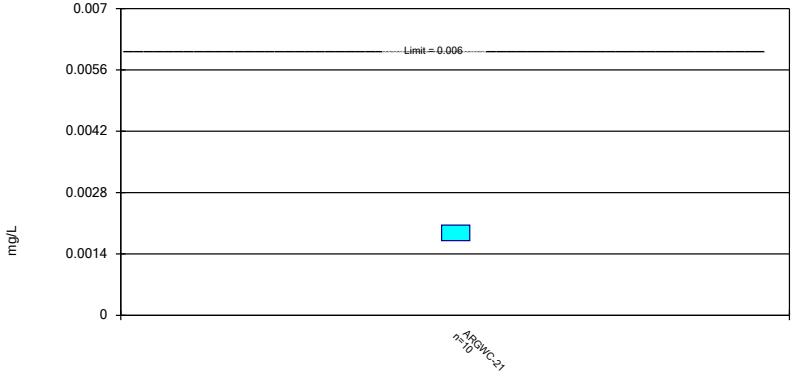
Compliance Limit is not exceeded.



Constituent: Chromium Analysis Run 3/20/2020 10:27 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

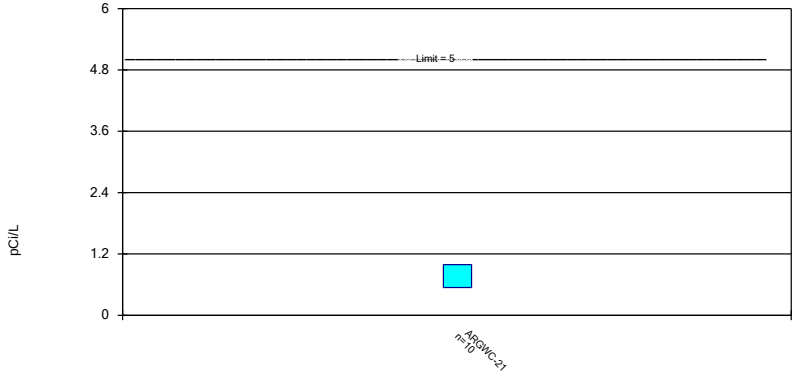
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 3/20/2020 10:27 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

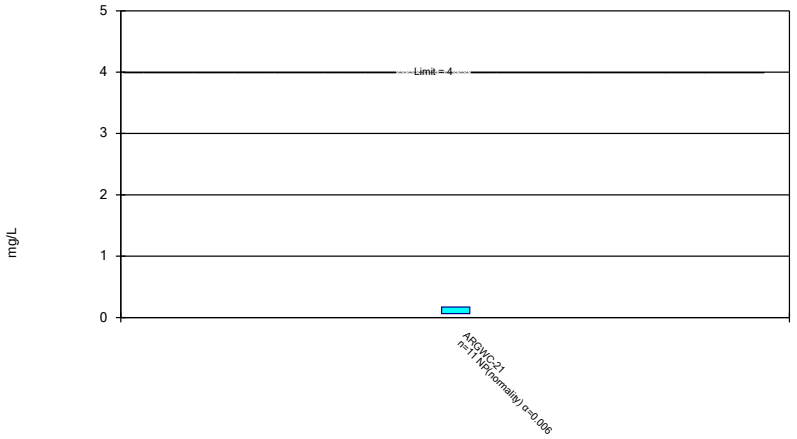
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 3/20/2020 10:27 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

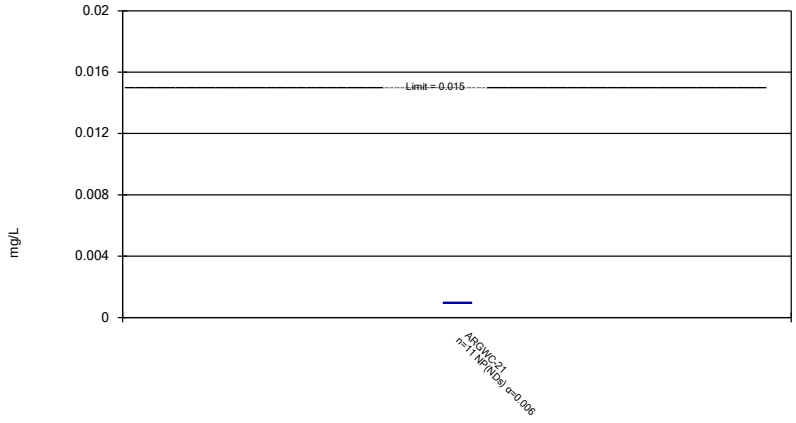


Constituent: Fluoride Analysis Run 3/20/2020 10:27 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

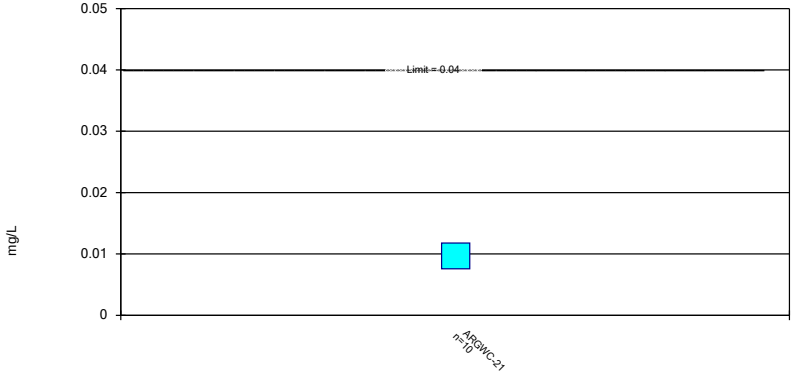


Constituent: Lead Analysis Run 3/20/2020 10:27 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 3/20/2020 10:27 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

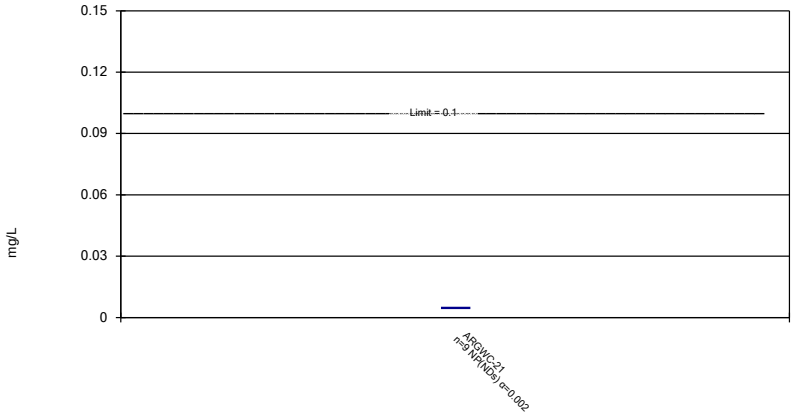
Compliance Limit is not exceeded.

Constituent: Mercury Analysis Run 3/20/2020 10:27 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

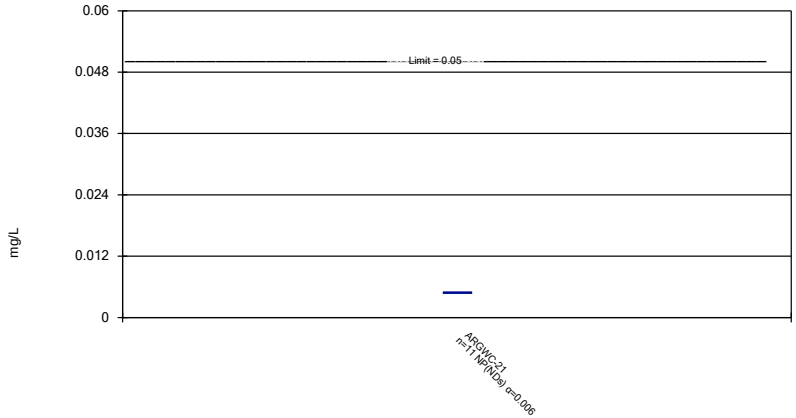


Constituent: Molybdenum Analysis Run 3/20/2020 10:27 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

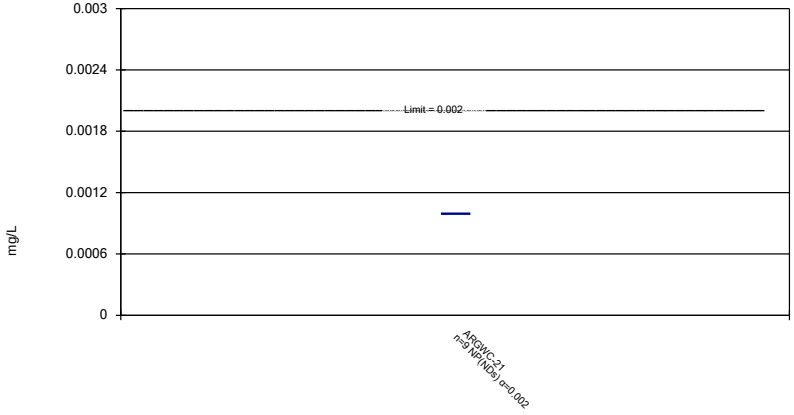


Constituent: Selenium Analysis Run 3/20/2020 10:27 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Thallium Analysis Run 3/20/2020 10:27 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Confidence Interval

Constituent: Antimony (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.002
10/26/2016	<0.002
1/25/2017	<0.002
4/10/2017	<0.002
6/19/2017	<0.002
10/24/2017	<0.002
4/10/2018	<0.002
10/16/2018	<0.002
8/20/2019	<0.002
Mean	0.002
Std. Dev.	0
Upper Lim.	0.002
Lower Lim.	0.002

Confidence Interval

Constituent: Arsenic (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.002
10/26/2016	0.0019 (J)
1/25/2017	0.0017
4/10/2017	0.002
6/19/2017	0.0026
10/24/2017	0.0021
4/10/2018	0.0022
10/16/2018	0.0021
3/27/2019	0.0011 (J)
8/20/2019	0.002
10/8/2019	0.0012 (J)
Mean	0.0019
Std. Dev.	0.0004313
Upper Lim.	0.002259
Lower Lim.	0.001541

Confidence Interval

Constituent: Barium (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.11
10/26/2016	0.122
1/25/2017	0.12
4/10/2017	0.11
6/19/2017	0.13
10/24/2017	0.12
4/10/2018	0.12
10/16/2018	0.1
3/27/2019	0.091
8/20/2019	0.1
10/8/2019	0.096
Mean	0.1108
Std. Dev.	0.01262
Upper Lim.	0.1213
Lower Lim.	0.1003

Confidence Interval

Constituent: Beryllium (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.001
10/26/2016	<0.001
1/25/2017	<0.001
4/10/2017	<0.001
6/19/2017	<0.001
10/24/2017	<0.001
4/10/2018	<0.001
10/16/2018	<0.001
8/20/2019	<0.001
Mean	0.001
Std. Dev.	0
Upper Lim.	0.001
Lower Lim.	0.001

Confidence Interval

Constituent: Cadmium (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.001
10/26/2016	<0.001
1/25/2017	<0.001
4/10/2017	<0.001
6/19/2017	<0.001
10/24/2017	<0.001
4/10/2018	<0.001
10/16/2018	<0.001
3/27/2019	<0.001
8/20/2019	<0.001
10/8/2019	<0.001
Mean	0.001
Std. Dev.	0
Upper Lim.	0.001
Lower Lim.	0.001

Confidence Interval

Constituent: Chromium (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.002
10/26/2016	<0.002
1/25/2017	<0.002
4/10/2017	<0.002
6/19/2017	<0.002
10/24/2017	<0.002
4/10/2018	<0.002
10/16/2018	<0.002
8/20/2019	0.0017 (J)
10/8/2019	<0.002
Mean	0.00197
Std. Dev.	9.487E-05
Upper Lim.	0.002
Lower Lim.	0.002

Confidence Interval

Constituent: Cobalt (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.0018 (J)
10/26/2016	0.0018 (J)
1/25/2017	0.0017 (J)
4/10/2017	0.0016 (J)
6/19/2017	0.0021 (J)
10/24/2017	0.0019 (J)
4/10/2018	0.0019 (J)
10/16/2018	0.0019 (J)
8/20/2019	0.0023
10/8/2019	0.0018
Mean	0.00188
Std. Dev.	0.0001989
Upper Lim.	0.002057
Lower Lim.	0.001703

Confidence Interval

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.832
10/26/2016	1.27
1/25/2017	0.549
4/10/2017	0.556
6/19/2017	0.976
10/24/2017	0.504
4/10/2018	0.621
10/16/2018	0.796
8/20/2019	0.978
10/8/2019	0.588
Mean	0.767
Std. Dev.	0.2496
Upper Lim.	0.9897
Lower Lim.	0.5443

Confidence Interval

Constituent: Fluoride (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.099 (J)
10/26/2016	0.57
1/25/2017	0.12 (J)
4/10/2017	0.11 (J)
6/19/2017	0.11 (J)
10/24/2017	0.1 (J)
4/10/2018	0.094 (J)
10/16/2018	0.17 (J)
3/27/2019	0.05 (J)
8/20/2019	0.098 (J)
10/8/2019	0.065 (J)
Mean	0.1442
Std. Dev.	0.1445
Upper Lim.	0.17
Lower Lim.	0.065

Confidence Interval

Constituent: Lead (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.001
10/26/2016	<0.001
1/25/2017	<0.001
4/10/2017	<0.001
6/19/2017	<0.001
10/24/2017	<0.001
4/10/2018	<0.001
10/16/2018	<0.001
3/27/2019	<0.001
8/20/2019	<0.001
10/8/2019	0.00015 (J)
Mean	0.0009227
Std. Dev.	0.0002563
Upper Lim.	0.001
Lower Lim.	0.001

Confidence Interval

Constituent: Lithium (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	0.0092
10/26/2016	0.0071 (J)
1/25/2017	0.0087
4/10/2017	0.0074
6/19/2017	0.0079
10/24/2017	0.0097
4/10/2018	0.012
10/16/2018	0.01
8/20/2019	0.0098
10/8/2019	0.015
Mean	0.00968
Std. Dev.	0.002357
Upper Lim.	0.01178
Lower Lim.	0.007577

Confidence Interval

Constituent: Mercury (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.0002
10/26/2016	<0.0002
1/25/2017	7.3E-05 (J)
4/10/2017	<0.0002
6/19/2017	<0.0002
10/24/2017	<0.0002
4/10/2018	<0.0002
10/16/2018	<0.0002
8/20/2019	<0.0002
Mean	0.0001859
Std. Dev.	4.233E-05
Upper Lim.	0.0002
Lower Lim.	7.3E-05

Confidence Interval

Constituent: Molybdenum (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.005
10/26/2016	<0.005
1/25/2017	<0.005
4/10/2017	<0.005
6/19/2017	<0.005
10/24/2017	<0.005
4/10/2018	<0.005
10/16/2018	<0.005
8/20/2019	<0.005
Mean	0.005
Std. Dev.	0
Upper Lim.	0.005
Lower Lim.	0.005

Confidence Interval

Constituent: Selenium (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21
8/30/2016	<0.005
10/26/2016	<0.005
1/25/2017	<0.005
4/10/2017	<0.005
6/19/2017	<0.005
10/24/2017	<0.005
4/10/2018	<0.005
10/16/2018	<0.005
3/27/2019	<0.005
8/20/2019	<0.005
10/8/2019	<0.005
Mean	0.005
Std. Dev.	0
Upper Lim.	0.005
Lower Lim.	0.005

Confidence Interval

Constituent: Thallium (mg/L) Analysis Run 3/20/2020 10:28 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

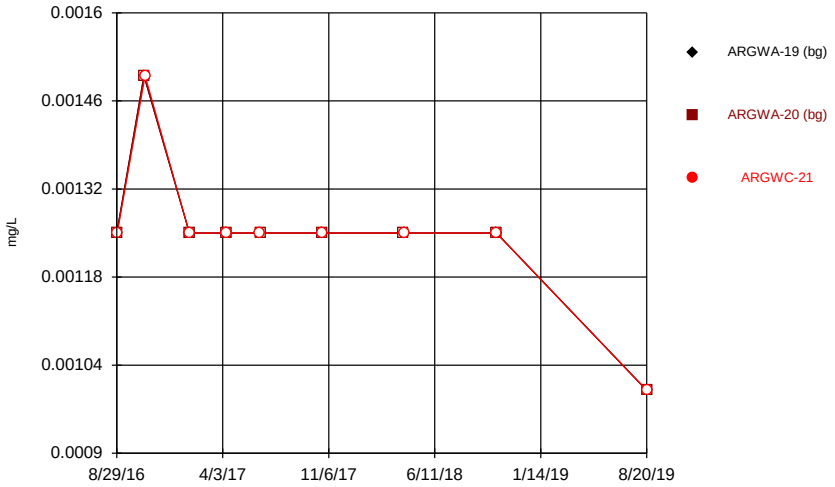
	ARGWC-21
8/30/2016	<0.001
10/26/2016	<0.001
1/25/2017	<0.001
4/10/2017	<0.001
6/19/2017	<0.001
10/24/2017	<0.001
4/10/2018	<0.001
10/16/2018	<0.001
8/20/2019	<0.001
Mean	0.001
Std. Dev.	0
Upper Lim.	0.001
Lower Lim.	0.001

Atlantic Coast Consulting, Inc.

Time Series Plots (through October 2019)

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

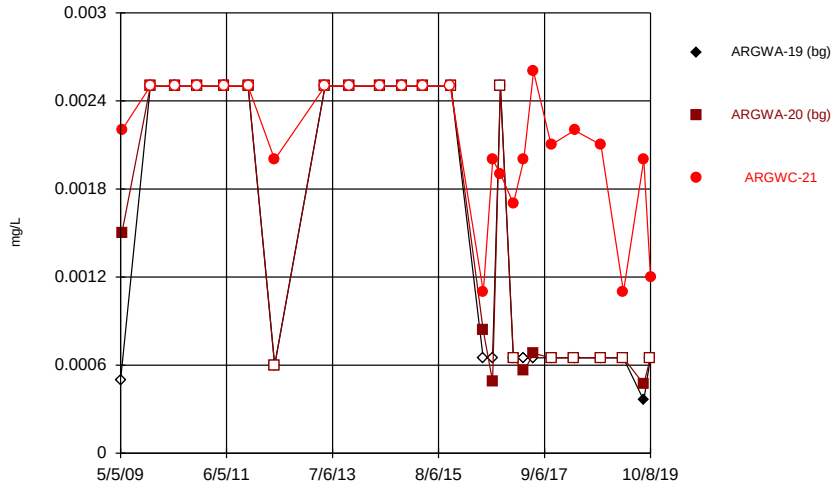
Time Series



Constituent: Antimony Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

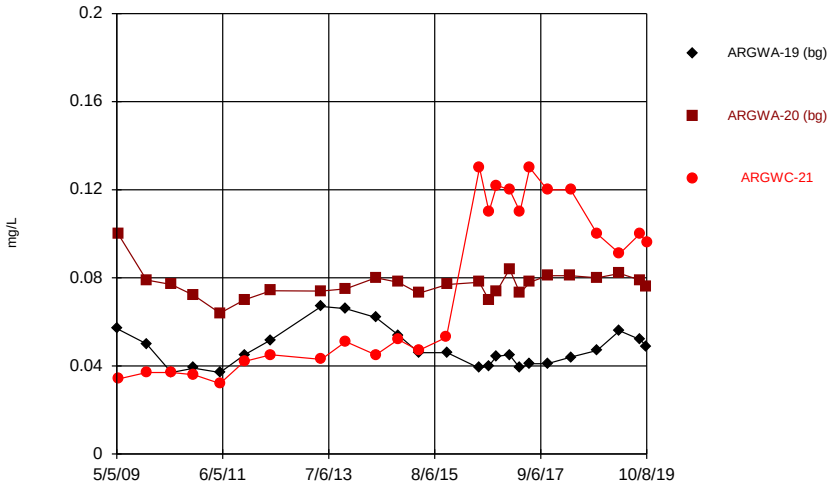
Time Series



Constituent: Arsenic Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

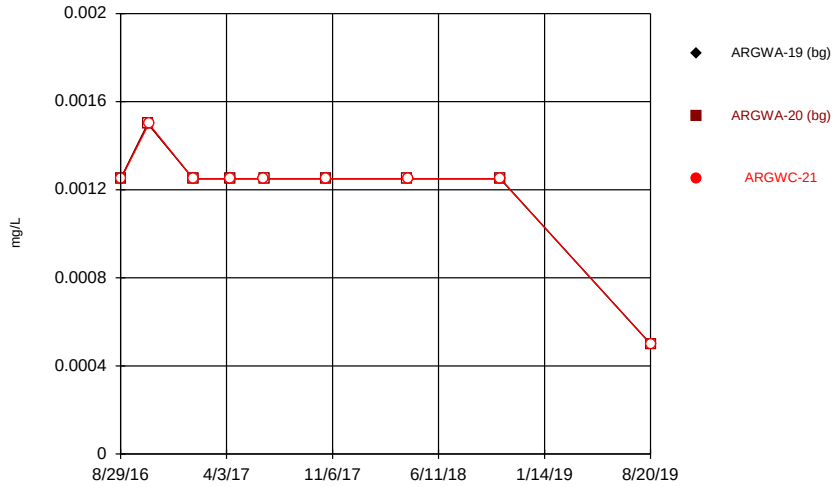
Time Series



Constituent: Barium Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

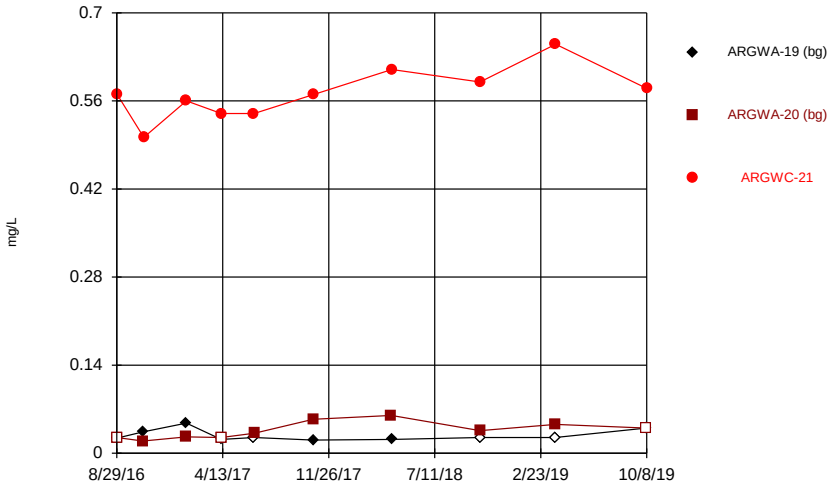
Time Series



Constituent: Beryllium Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

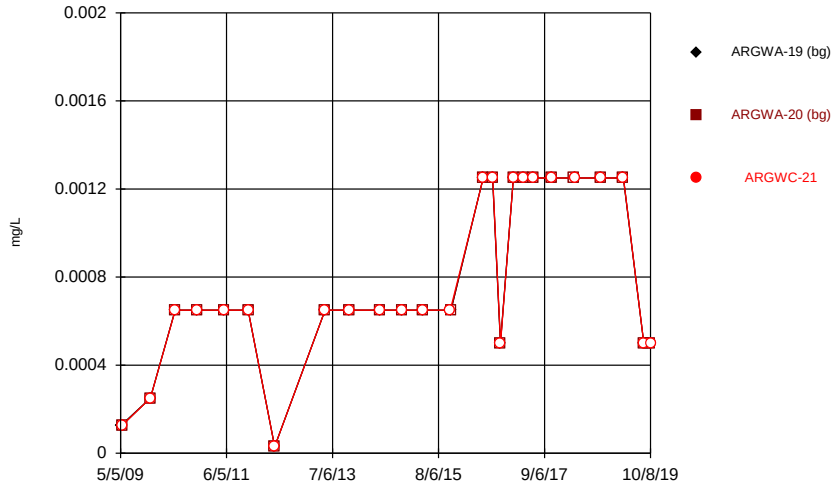
Time Series



Constituent: Boron Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

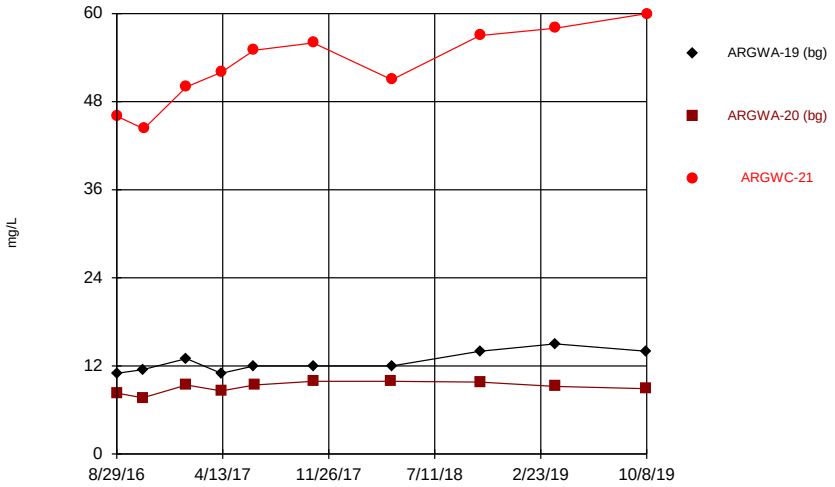
Time Series



Constituent: Cadmium Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

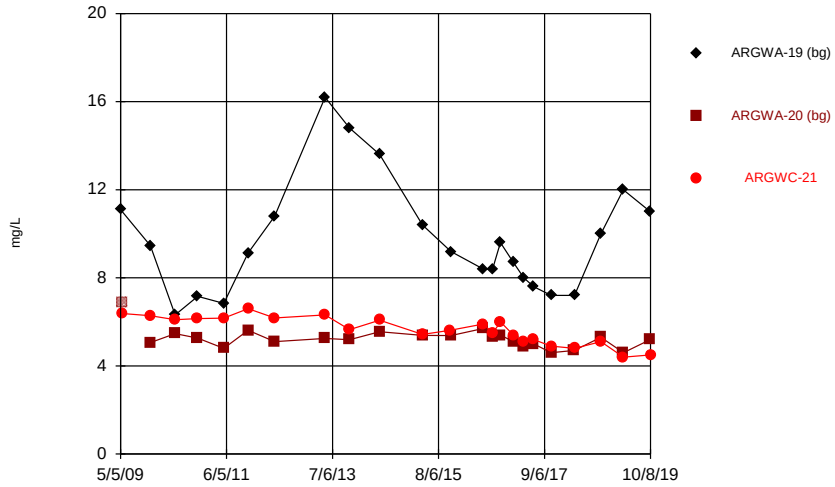
Time Series



Constituent: Calcium Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

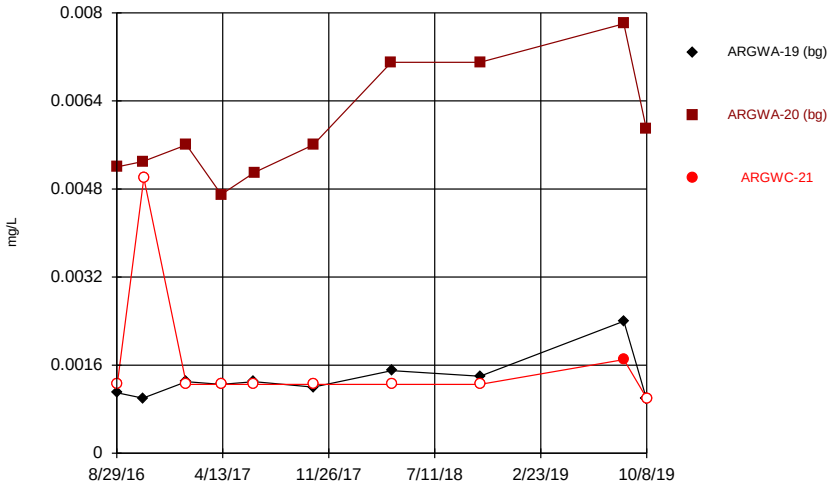
Time Series



Constituent: Chloride Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

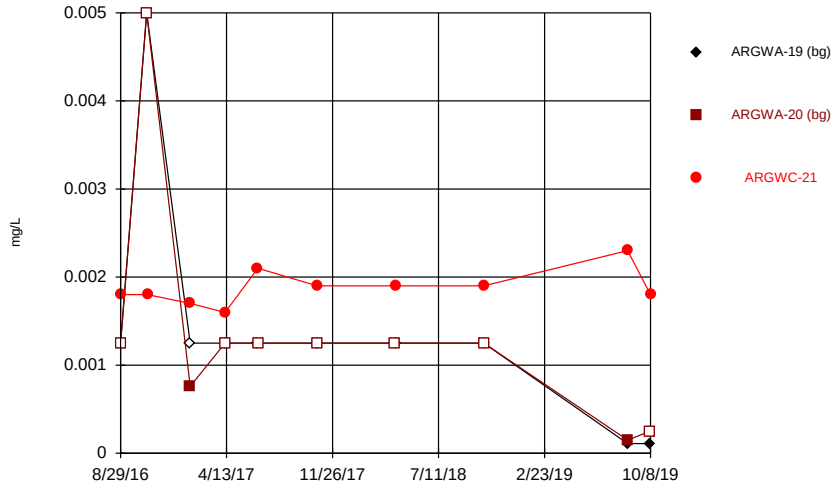
Time Series



Constituent: Chromium Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

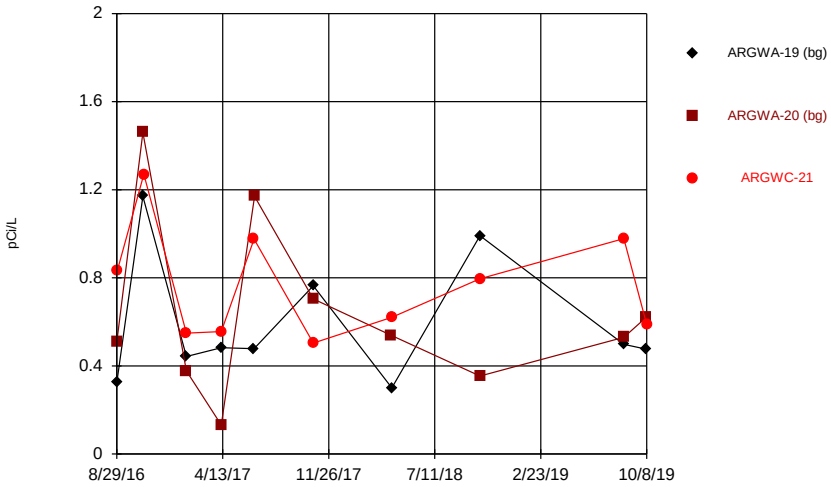
Time Series



Constituent: Cobalt Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

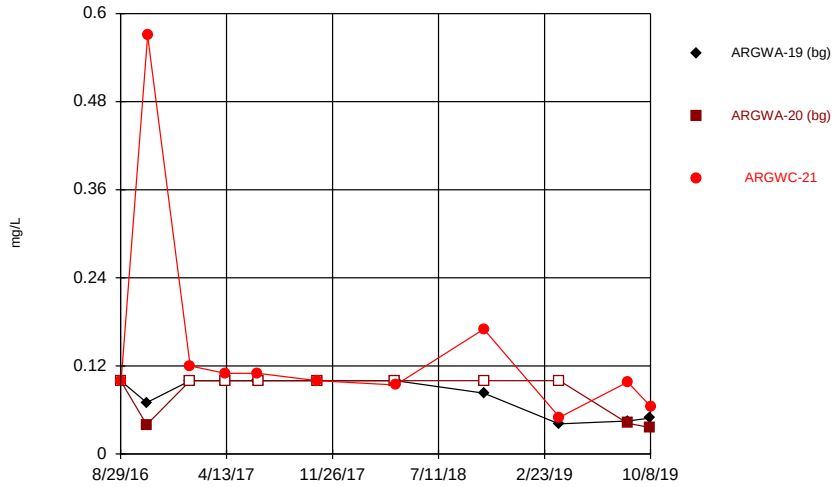
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

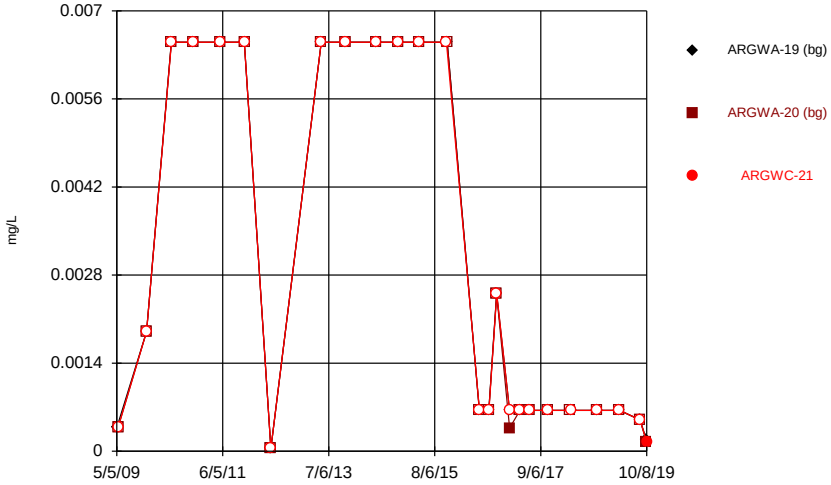
Time Series



Constituent: Fluoride Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

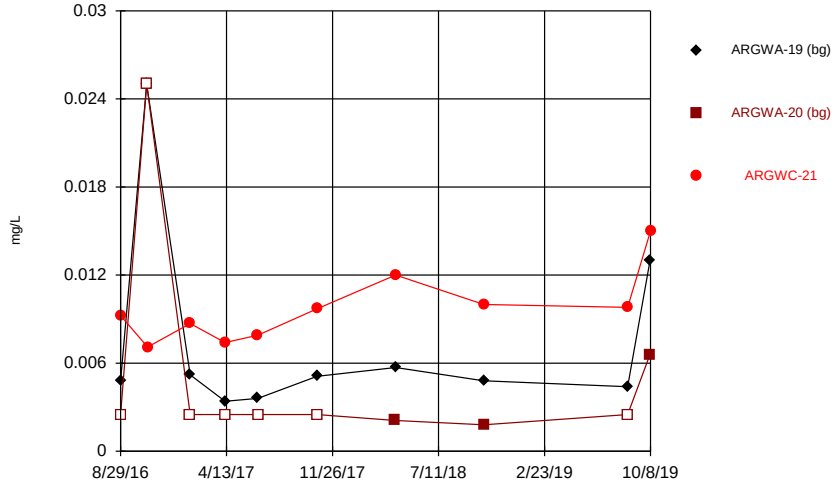
Time Series



Constituent: Lead Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

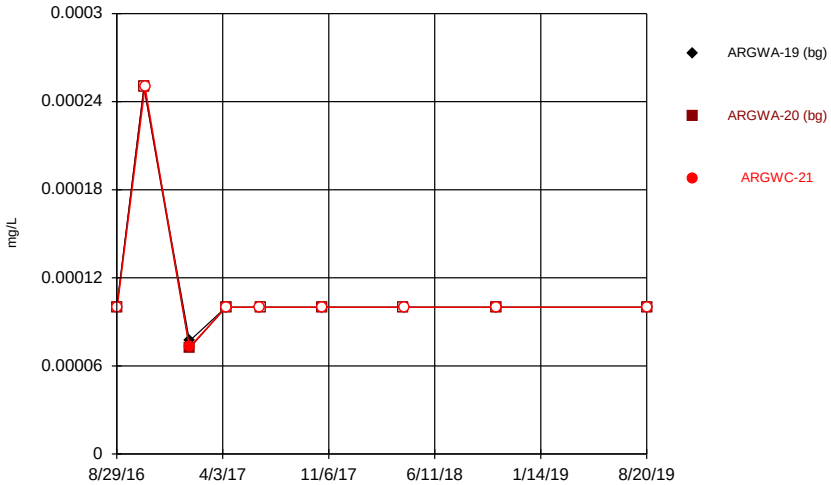
Time Series



Constituent: Lithium Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

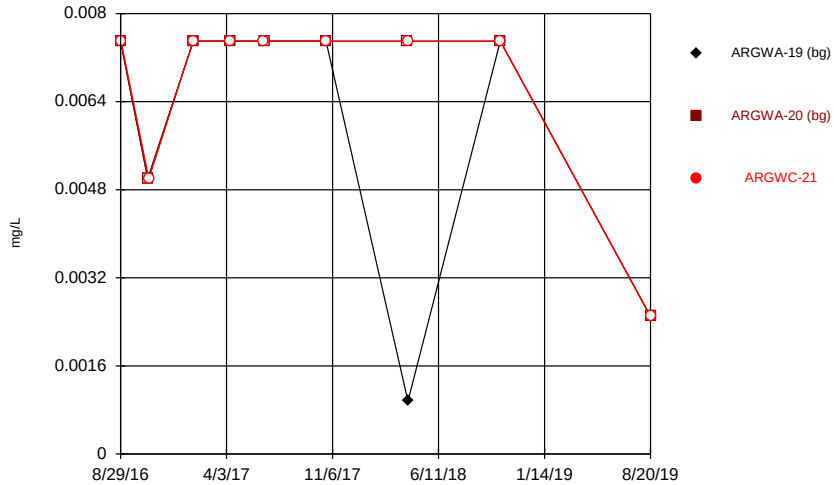
Time Series



Constituent: Mercury Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG
Hollow symbols indicate censored values.

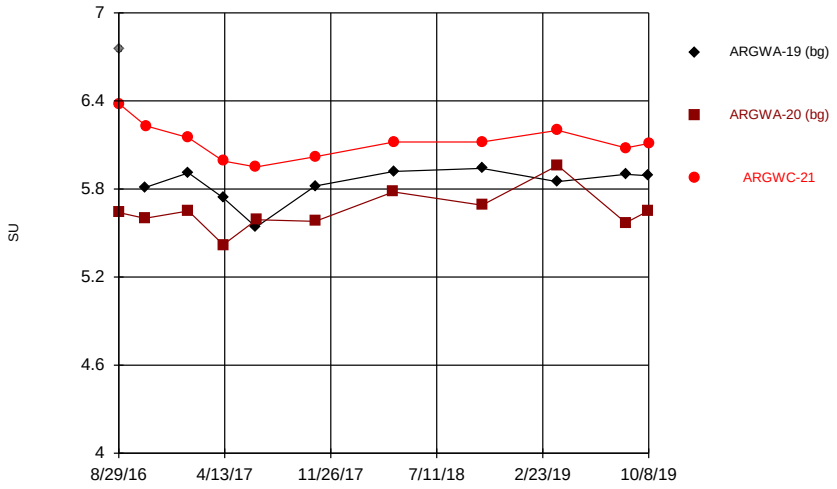
Time Series



Constituent: Molybdenum Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Time Series



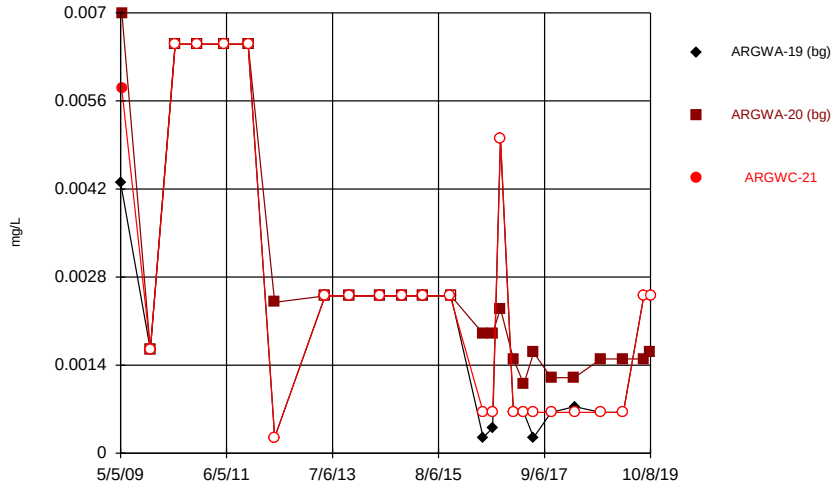
Constituent: pH Analysis Run 3/31/2020 10:38 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Hollow symbols indicate censored values.

Time Series



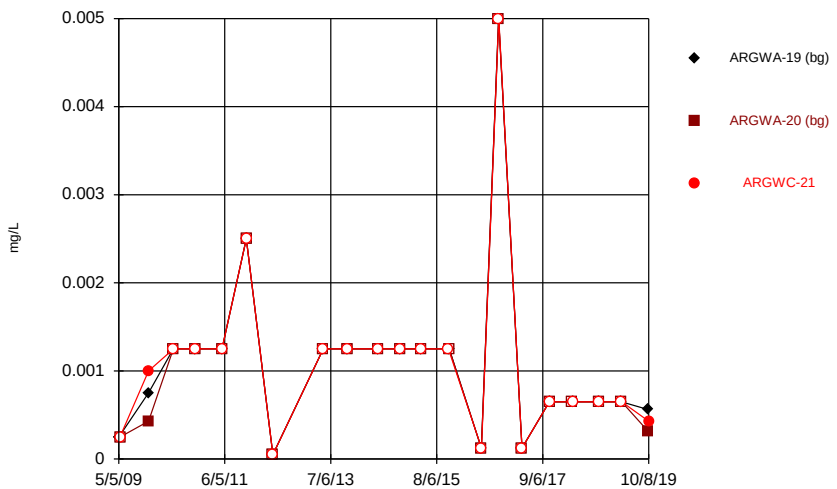
Constituent: Selenium Analysis Run 3/31/2020 10:38 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Hollow symbols indicate censored values.

Time Series

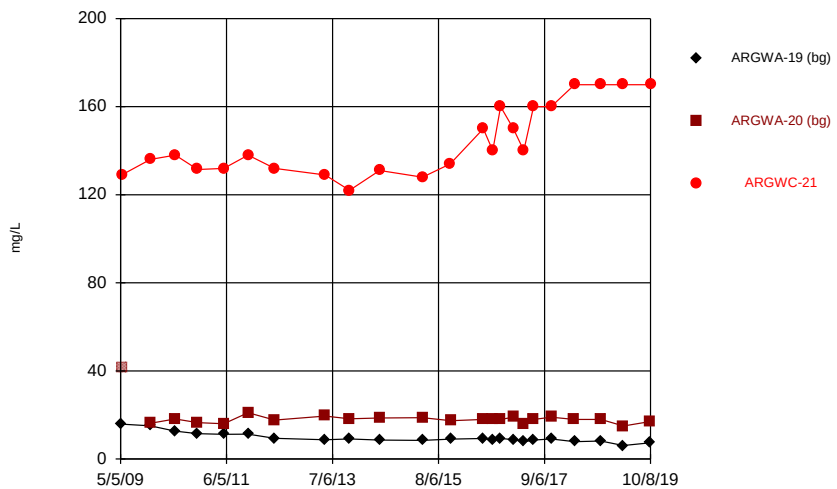


Constituent: Silver Analysis Run 3/31/2020 10:38 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Time Series

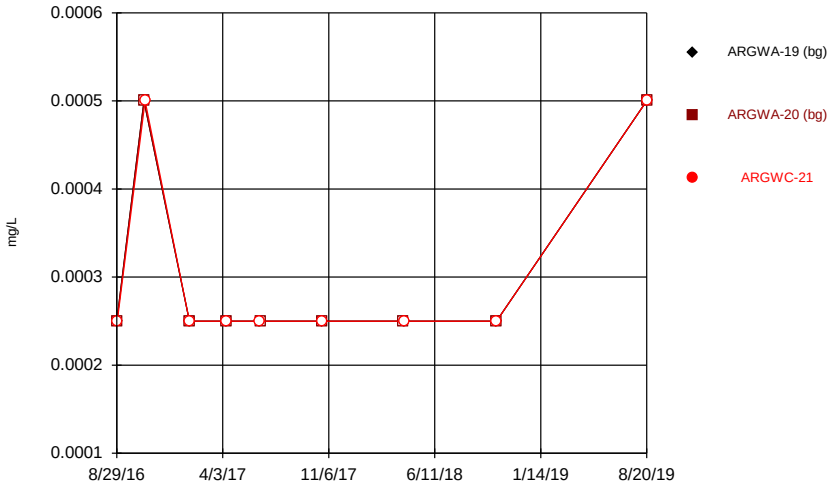


Constituent: Sulfate Analysis Run 3/31/2020 10:38 AM View: Confidence Interval

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Hollow symbols indicate censored values.

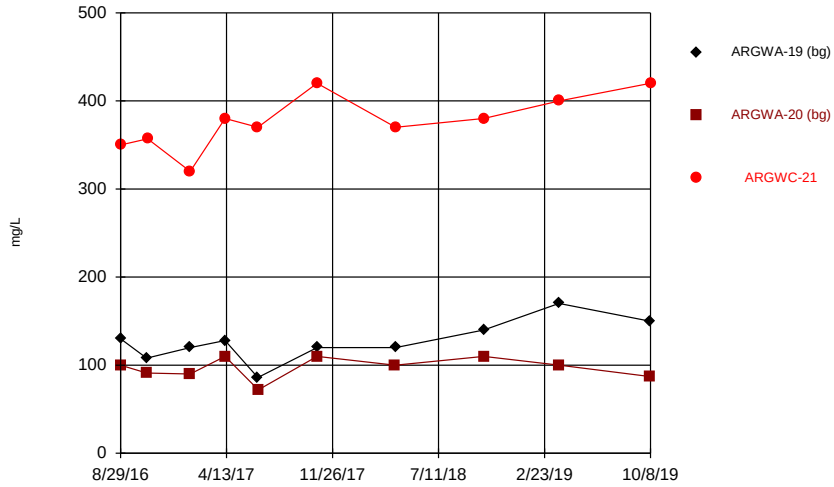
Time Series



Constituent: Thallium Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.25 Sanitas software licensed to ACC. UG

Time Series



Constituent: Total Dissolved Solids Analysis Run 3/31/2020 10:38 AM View: Confidence Interval
Plant Arkwright Client: Southern Company Data: Arkwright No 2

GROUNDWATER STATS CONSULTING

July 27, 2020

Southern Company Services
Attn: Mr. Joju Abraham
241 Ralph McGill Blvd NE, Bin 10160
Atlanta, Georgia 30308-3374

Re: Plant Arkwright Ash Pond 2 / Dry Ash Stockpile
Spring 2020 Statistical Analysis

Dear Mr. Abraham,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the statistical analysis of groundwater data for the Spring 2020 sample event for Georgia Power Company's Plant Arkwright Ash Pond 2 / Dry Ash Stockpile. The analysis complies with the federal rule for the Disposal of Coal Combustion Residuals from Electric Utilities (CCR Rule, 2015), the Georgia Environmental Protection Division Rules for Solid Waste Management Chapter 391-3-4-.10, and follows the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Semi-annual sampling is conducted for USEPA's CCR Appendix III and IV, parameters in addition to 6 parameters in accordance with the Georgia Department of Natural Resources, Environmental Protection Division groundwater monitoring regulations. The monitoring well network, as provided by Southern Company Services, consists of the following:

- **Upgradient wells:** ARGWA-19 and ARGWA-20
- **Downgradient wells:** ARGWC-21, ARGWC-22, and ARGWC-23

Note that wells ARGWC-22 and ARGWC-23 were installed in late 2019. The most recent sampling event for these wells occurred in May 2020 whereas the most recent sampling event at wells ARGWA-19, ARGWA-20, and ARGWC-21 occurred in April 2020.

Data were sent electronically to Groundwater Stats Consulting, and the statistical analysis was reviewed by Kristina Rayner, Groundwater Statistician and Founder of Groundwater Stats Consulting.

The CCR program consists of the following constituents:

- **Georgia Appendix I:** arsenic, barium, cadmium, lead, selenium, and silver
- **CCR Appendix III:** boron, calcium, chloride, fluoride, pH, sulfate, and TDS
- **CCR Appendix IV:** antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lithium, lead, mercury, molybdenum, selenium, and thallium

Note that when there are no detections present in downgradient wells for a given constituent, statistical analyses are not required. A summary of all well/constituent pairs with 100% nondetects since 2016 follows this letter. Additionally, the following constituents, which were not detected during the Scan event in August 2019 at existing wells (ARGWA-19, ARGWA-20, and ARGWC-21) were not sampled during the April 2020 sampling event: antimony, beryllium, mercury, molybdenum, and thallium. These constituents, however, were sampled during the May 2020 sampling event at newer wells (ARGWA-22 and ARGWC-23) and are included in this analysis.

A substitution of the most recent reporting limit is used for nondetect data. However, due to different reporting limits reported for cobalt and molybdenum in individual wells; the following reporting limits were substituted across all respective wells, which is consistent with historical reporting limits: 0.0025 mg/L for cobalt and 0.015 mg/L for molybdenum.

Time series plots for all well/constituent pairs are provided and are particularly useful for screening parameters detected in downgradient wells which require statistical analyses (Figure A). Additionally, a separate section of box plots is included for all constituents at upgradient and downgradient wells (Figure B). The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells. Values in background which have been flagged as outliers may be seen in a lighter font and as a disconnected symbol on the graphs. A summary of flagged outliers follows this report (Figure C).

Based on the previous screenings, data at all wells for constituents detected in downgradient wells were evaluated for the following: 1) outliers; 2) trends; 3) most appropriate statistical method based on site characteristics of groundwater data upgradient of the facility; and 4) eligibility of downgradient wells when intrawell statistical methods are recommended. Power curves are provided to demonstrate that the selected statistical methods for the parameters listed above comply with the USEPA Unified

Guidance and the Georgia Environmental Protection Division Rules for Solid Waste Management Chapter 391-3-4-.10. The EPA suggests the selected statistical method should provide at least 55% power at 3 standard deviations or at least 80% power at 4 standard deviations. Power curves are based on the following:

Georgia EPD Appendix I Constituents:

- Semi-Annual Sampling
- Interwell Prediction Limits with 1-of-2 resample plan (all parameters)
- # Constituents: 6
- # Downgradient wells: 3

CCR Appendix III Constituents:

- Semi-Annual Sampling
- Interwell Prediction Limits with 1-of-2 resample plan (all parameters)
- # Constituents: 7
- # Downgradient wells: 3

Parametric prediction limits are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are nondetects, a nonparametric test is utilized. While the false positive rate associated with the parametric limits is based on an annual 10% (5% per semi-annual event) as recommended by the EPA Unified Guidance (2009), the false positive rate associated with the nonparametric limits is dependent upon the available background sample size, number of future comparisons, and verification resample plan. The distribution of data is tested using the Shapiro-Wilk/Shapiro-Francia test for normality. After testing for normality and performing any adjustments as discussed below (US EPA, 2009) data are analyzed using either parametric or non-parametric prediction limits.

- No statistical analyses are required on wells and analytes containing 100% nondetects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% nondetects in background, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for nondetects is the practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% nondetects, the Kaplan-Meier nondetect adjustment is applied to the background data. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.

- Nonparametric prediction limits are used on data containing greater than 50% nondetects.

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Periodic updating of background statistical limits is necessary to accommodate these types of changes. In the interwell case, prediction limits are updated with upgradient well data during each event after careful screening for any new outliers. In some cases, the earlier portion of data are deselected prior to construction of limits to provide sensitive limits that will rapidly detect changes in groundwater quality. Even though the data are excluded from the calculation, the values will continue to be reported and shown in tables and graphs.

Summary of Background Screening (Conducted in 2019)

Outlier and Trend Testing

Time series plots are used to identify suspected outliers, or extreme values that would result in limits that are not representative of the current background data population. Suspected outliers at wells ARGWA-19, ARGWA-20, and ARGWC-21 for Appendix I, Appendix III, and Appendix IV parameters were formally tested using Tukey's box plot method and, when identified, flagged in the computer database with "o" and deselected prior to construction of statistical limits.

A few outliers were identified by Tukey's outlier screening for Appendix III parameters. A summary of those findings was included with the previous screenings. While this case was not present in any of the data screened in this report, when the most recent value is identified as an outlier, values are not flagged in the database at this time as they may represent a possible trend. If future values do not remain at similar concentrations, these values will be flagged as outliers and deselected. Several low values exist in the data sets and appear on the graphs as possible low outliers relative to the laboratory's Practical Quantitation Limit. However, these values are observed trace values (i.e. measurements reported by the laboratory between the Method Detection Limit and the Practical Quantitation Limit) and, therefore, were not flagged as outliers.

Of the outliers identified by Tukey's method for Appendix III parameters, only one outlier was flagged for sulfate in upgradient well ARGWA-20. All other values are similar to remaining measurements within a given well or neighboring wells, or were reported nondetects. Beyond the values identified by Tukey's method, an outlier for pH in upgradient well ARGWA-19 was flagged to create statistical limits that are conservative

from a regulatory perspective. For Appendix I metals and Appendix IV parameters, while Tukey's test did not identify outliers for selenium at any of the wells, all 3 wells initially had a higher reported measurement than all remaining measurements; therefore, these values were flagged so that prediction limits will be lower and capable of detecting future changes at these wells. A list of flagged values follows this report.

Additionally, when any values are flagged in the database as outliers, they are plotted in a disconnected and lighter symbol on the time series graph. The accompanying data pages display the flagged value in a lighter font as well. A substitution of the most recent reporting limit was applied when varying detection limits existed in data. When the reporting limit was higher than the CCR-Rule Specified levels discussed below, nondetects were substituted with one half the reporting limit.

No obvious seasonal patterns were observed on the time series plots for any of the detected data; therefore, no deseasonalizing adjustments were made to the data. When seasonal patterns are observed, data may be deseasonalized so that the resulting limits will correctly account for the seasonality as a predictable pattern rather than random variation or a release.

While trends may be identified by visual inspection, a quantification of the trend and its significance is needed. The Sen's Slope/Mann Kendall trend test was used to evaluate all data at wells ARGWA-19, ARGWA-20, and ARGWC-21 to identify statistically significant increasing or decreasing trends. In the absence of suspected contamination, significant trending data are typically not included as part of the background data used for construction of prediction limits. This step serves to eliminate the trend and, thus, reduce variation in background. When statistically significant decreasing trends are present, all available data are evaluated to determine whether earlier concentration levels are significantly different than current reported concentrations and will be deselected as necessary. When any records of data are truncated for the reasons above, a summary report will be provided to show the date ranges used in construction of the statistical limits.

The results of the trend analyses were included with the previous screenings and showed two statistically significant decreasing trends and one statistically significant increasing trend for the Appendix III parameters. The only trend identified in the upgradient wells was a statistically significant decreasing trend for sulfate in well ARGWA-19. The trends noted were relatively low in magnitude when compared to average concentrations; therefore, no adjustments were made to the data sets.

One statistically significant increasing trend was noted for barium in well ARGWC-21, as well as a statistically significant decreasing trend in upgradient well ARGWA-20 for selenium. No adjustment was required for the trend identified for selenium because the magnitude of the trend is low relative to the average concentrations at this well. While the same is true for barium in well ARGWC-21, and all measurements are well below the established Maximum Contaminant Level (MCL) of 2.0 mg/L, the concentration levels rose slightly between 2016-2018 and appear to be starting to decrease. If more recent concentration levels continue to decrease, the record will be re-evaluated to determine the most appropriate background for construction of statistical limits.

No suspected outliers or trends were noted during this analysis for newer wells ARGWC-22 and ARGWC-23.

Appendix III – Determination of Spatial Variation

The Analysis of Variance (ANOVA) was used to statistically evaluate differences in average concentrations among upgradient wells, which assists in identifying the most appropriate statistical approach. Interwell tests, which compare downgradient well data to statistical limits constructed from pooled upgradient well data, are appropriate when average concentrations are similar across upgradient wells. Intrawell tests, which compare compliance data from a single well to screened historical data within the same well, are appropriate when upgradient wells exhibit spatial variation; when statistical limits constructed from upgradient wells are not representative of the current background data population; and when downgradient water quality is unimpacted compared to upgradient water quality for the same parameter.

The ANOVA identified significant differences among upgradient well data for several constituents. While data were further tested for intrawell eligibility during the screening, interwell methods will be used for all Appendix I and Appendix III constituents in accordance with Georgia EPD requirements.

Statistical Limits Appendix I Metals & Appendix III Parameters – Spring 2020

Interwell prediction limits, combined with a 1-of-2 resample plan, were constructed using all historical upgradient well data through April 2020 for Appendix I metals and Appendix III constituents (Figures D & E, respectively). Interwell prediction limits pool upgradient well data to establish a background limit for an individual constituent. The most recent sample from each downgradient well, which is April 2020 for well ARGWC-21 and all downgradient wells for silver, and May 2020 for wells ARGWC-22 and ARGWC-23, is

compared to the background limit to determine whether there are statistically significant increases (SSIs).

In the event of an initial exceedance of compliance well data, the 1-of-2 resample plan allows for collection of one additional sample to determine whether the initial exceedance is confirmed. When a resample confirms the initial exceedance, a statistically significant increase is identified and further research would be required to identify the cause of the exceedance (i.e. impact from the site, natural variation, or an off-site source). If the resample falls within the statistical limit, the initial exceedance is considered to be a false positive result and, therefore, no exceedance is noted and no further action is necessary. If no resample is collected, the original result is considered a confirmed exceedance. Summary tables of the interwell prediction limits follow this letter. The following exceedances were noted for Appendix I and Appendix III well/constituent pairs:

Appendix I:

- Barium: ARGWC-23

Appendix III:

- Boron: ARGWC-21, ARGWC-22, and ARGWC-23
- Calcium: ARGWC-21, ARGWC-22, and ARGWC-23
- Fluoride: ARGWC-23
- pH: ARGWC-23
- Sulfate: ARGWC-21, ARGWC-22, and ARGWC-23
- TDS ARGWC-21, ARGWC-22, and ARGWC-23

When prediction limit exceedances are identified in downgradient wells, data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable (Figure F). Upgradient wells are included in the trend analyses for all parameters found to exceed their prediction limit in downgradient wells to identify whether similar patterns exist upgradient of the site which is an indication of natural variability in groundwater unrelated to practices at the site. A summary of the trend test results follows this letter. The following statistically significant trends were noted:

Increasing trends:

- Calcium: ARGWC-21
- Sulfate: ARGWC-21
- TDS: ARGWC-21

Decreasing trends:

- Sulfate: ARGWA-19 (upgradient)

Statistical Analysis of Appendix I Metals & Appendix IV Parameters – Spring 2020

Interwell tolerance limits were used to calculate the site-specific background limits from all available pooled upgradient well data for Appendix I metals Appendix IV constituents (Figure G). Parametric tolerance limits are used when data follow a normal or transformed-normal distribution such as for combined radium 226 + 228. When data contained greater than 50% nondetects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were used. The background limits were then used when determining the groundwater protection standard (GWPS) under 40 CFR §257.95(h) and Georgia EPD Rule 391-3-4-.10(6)(a).

As described in 40 CFR §257.95(h) (1-3), the GWPS is:

- The maximum contaminant level (MCL) established under §141.62 and §141.66 of this title
- Where an MCL has not been established for a constituent, CCR-rule specified level (RSLs) have been specified for cobalt (0.006 mg/L), lead (0.015 mg/L), lithium (0.040 mg/L), and molybdenum (0.100 mg/L)
- The respective background level for a constituent when the background level is higher than the MCL or Federal CCR Rule identified GWPS

On July 30, 2018, USEPA revised the Federal CCR rule updating GWPS for cobalt, lead, lithium, and molybdenum as described above in 40 CFR §257.95(h)(2). Georgia EPD has not incorporated the updated GWPS into the current Georgia EPD Rules for Solid Waste Management 391-3-4-.10(6)(a); therefore, for sites regulated under Georgia EPD Rules, the GWPS is:

- The MCL or
- The background concentration when an MCL is not established or when the background concentration is higher than the MCL.

Following the above Georgia EPD Rule requirements, GWPS were established for statistical comparison of Appendix I metals and Appendix IV constituents for the April 2020 sample event for the federal and state rules (Figure H).

To complete the statistical comparison to GWPS, confidence intervals were constructed using data from 2016 to the present for each of the Appendix IV constituents in accordance with the federal and state requirements in each downgradient well (Figures I and J, respectively). As mentioned above, the period of record lasts until the April 2020 sample event for downgradient well ARGWC-21 and all downgradient wells for silver, and

until the May 2020 sample event for downgradient wells ARGWC-22 and ARGWC-23. The Sanitas software was used to calculate the tolerance limits and the confidence intervals. Those confidence intervals were compared to the GWPS established using the CCR Rules for the federal requirements and the Georgia EPD Rules 391-3-4-.10(6)(a) for the State requirements. Only when the entire confidence interval is above a GWPS is the downgradient well/constituent pair considered to exceed its respective standard. If there is an exceedance of the GWPS, a statistically significant level (SSL) exceedance is identified. Summaries of both the federal and state confidence intervals follow this report. No exceedances were identified for federal confidence intervals but an exceedance was identified for the state confidence intervals among the following well/constituent pair:

State:

- Cobalt: ARGWC-22

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for Plant Arkwright Ash Pond 2 / Dry Ash Stockpile. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,

Andrew Collins
Groundwater Analyst

Kristina Rayner
Groundwater Statistician

100% Non-Detects

Analysis Run 7/23/2020 10:27 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Antimony (mg/L)
ARGWA-19, ARGWA-20, ARGWC-21, ARGWC-22, ARGWC-23

Beryllium (mg/L)
ARGWA-19, ARGWA-20, ARGWC-21

Cadmium (mg/L)
ARGWA-20, ARGWC-21, ARGWC-22, ARGWC-23

Chromium (mg/L)
ARGWC-23

Mercury (mg/L)
ARGWC-22, ARGWC-23

Molybdenum (mg/L)
ARGWA-20, ARGWC-21

Selenium (mg/L)
ARGWC-21, ARGWC-22, ARGWC-23

Silver (mg/L)
ARGWC-22, ARGWC-23

Thallium (mg/L)
ARGWA-19, ARGWA-20, ARGWC-21

Outlier Summary

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 10:01 AM

	ARGWA-19 pH (SU)	ARGWA-19 Selenium (mg/L)	ARGWA-20 Selenium (mg/L)	ARGWC-21 Selenium (mg/L)	ARGWA-20 Sulfate (mg/L)
5/5/2009		0.0043 (o)			
5/14/2009				0.0058 (o)	
5/15/2009			0.007 (o)		41.3 (o)
8/29/2016	6.75 (o)				

Appendix I - Interwell Prediction Limits - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:37 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Barium (mg/L)	**ARGWC-23**	**0.10**	**n/a**	**5/27/2020**	**0.18**	**Yes**	**52**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0007028**	**NP Inter (normality) 1 of 2**

Appendix I - Interwell Prediction Limits - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:37 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Arsenic (mg/L)	ARGWC-21	0.0015	n/a	4/7/2020	0.00054J	No	52	n/a	n/a	82.69	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Arsenic (mg/L)	ARGWC-22	0.0015	n/a	5/27/2020	0.001ND	No	52	n/a	n/a	82.69	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Arsenic (mg/L)	ARGWC-23	0.0015	n/a	5/27/2020	0.001ND	No	52	n/a	n/a	82.69	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Barium (mg/L)	ARGWC-21	0.10	n/a	4/7/2020	0.05	No	52	n/a	n/a	0	n/a	n/a	0.0007028	NP Inter (normality) 1 of 2
Barium (mg/L)	ARGWC-22	0.10	n/a	5/27/2020	0.054	No	52	n/a	n/a	0	n/a	n/a	0.0007028	NP Inter (normality) 1 of 2
Barium (mg/L)	**ARGWC-23**	**0.10**	**n/a**	**5/27/2020**	**0.18**	**Yes**	**52**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0007028**	**NP Inter (normality) 1 of 2**
Cadmium (mg/L)	ARGWC-21	0.0025	n/a	4/7/2020	0.0025ND	No	52	n/a	n/a	98.08	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Cadmium (mg/L)	ARGWC-22	0.0025	n/a	5/27/2020	0.0025ND	No	52	n/a	n/a	98.08	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Cadmium (mg/L)	ARGWC-23	0.0025	n/a	5/27/2020	0.0025ND	No	52	n/a	n/a	98.08	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Lead (mg/L)	ARGWC-21	0.0010	n/a	4/7/2020	0.00026J	No	52	n/a	n/a	90.38	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Lead (mg/L)	ARGWC-22	0.0010	n/a	5/27/2020	0.001ND	No	52	n/a	n/a	90.38	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Lead (mg/L)	ARGWC-23	0.0010	n/a	5/27/2020	0.001ND	No	52	n/a	n/a	90.38	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Selenium (mg/L)	ARGWC-21	0.0050	n/a	4/7/2020	0.005ND	No	50	n/a	n/a	64	n/a	n/a	0.0007472	NP Inter (NDs) 1 of 2
Selenium (mg/L)	ARGWC-22	0.0050	n/a	5/27/2020	0.005ND	No	50	n/a	n/a	64	n/a	n/a	0.0007472	NP Inter (NDs) 1 of 2
Selenium (mg/L)	ARGWC-23	0.0050	n/a	5/27/2020	0.005ND	No	50	n/a	n/a	64	n/a	n/a	0.0007472	NP Inter (NDs) 1 of 2
Silver (mg/L)	ARGWC-21	0.0010	n/a	4/7/2020	0.001ND	No	44	n/a	n/a	88.64	n/a	n/a	0.0009861	NP Inter (NDs) 1 of 2
Silver (mg/L)	ARGWC-22	0.0010	n/a	4/7/2020	0.001ND	No	44	n/a	n/a	88.64	n/a	n/a	0.0009861	NP Inter (NDs) 1 of 2
Silver (mg/L)	ARGWC-23	0.0010	n/a	4/7/2020	0.001ND	No	44	n/a	n/a	88.64	n/a	n/a	0.0009861	NP Inter (NDs) 1 of 2

Appendix III - Interwell Prediction Limits - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:39 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	ARGWC-21	0.080	n/a	4/7/2020	0.74	Yes	22	n/a	n/a	31.82	n/a	n/a	0.003586	NP Inter (normality) 1 of 2
Boron (mg/L)	ARGWC-22	0.080	n/a	5/27/2020	2.5	Yes	22	n/a	n/a	31.82	n/a	n/a	0.003586	NP Inter (normality) 1 of 2
Boron (mg/L)	ARGWC-23	0.080	n/a	5/27/2020	0.45	Yes	22	n/a	n/a	31.82	n/a	n/a	0.003586	NP Inter (normality) 1 of 2
Calcium (mg/L)	ARGWC-21	15	n/a	4/7/2020	69	Yes	22	10.91	2.106	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-22	15	n/a	5/27/2020	200	Yes	22	10.91	2.106	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-23	15	n/a	5/27/2020	69	Yes	22	10.91	2.106	0	None	No	0.002505	Param Inter 1 of 2
Fluoride (mg/L)	ARGWC-23	0.14	n/a	5/27/2020	0.25	Yes	24	n/a	n/a	58.33	n/a	n/a	0.003036	NP Inter (NDs) 1 of 2
pH (SU)	ARGWC-23	6	5.4	5/27/2020	6.3	Yes	23	5.726	0.1553	0	None	No	0.001253	Param Inter 1 of 2
Sulfate (mg/L)	ARGWC-21	21	n/a	4/7/2020	180	Yes	47	n/a	n/a	0	n/a	n/a	0.0008666	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-22	21	n/a	5/27/2020	720	Yes	47	n/a	n/a	0	n/a	n/a	0.0008666	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-23	21	n/a	5/27/2020	65	Yes	47	n/a	n/a	0	n/a	n/a	0.0008666	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-21	150	n/a	4/7/2020	460	Yes	22	111.5	23.09	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-22	150	n/a	5/27/2020	1300	Yes	22	111.5	23.09	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-23	150	n/a	5/27/2020	320	Yes	22	111.5	23.09	0	None	No	0.002505	Param Inter 1 of 2

Appendix III - Interwell Prediction Limits - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:39 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	**ARGWC-21**	**0.080**	**n/a**	**4/7/2020**	**0.74**	**Yes**	**22**	**n/a**	**n/a**	**31.82**	**n/a**	**n/a**	**0.003586**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**ARGWC-22**	**0.080**	**n/a**	**5/27/2020**	**2.5**	**Yes**	**22**	**n/a**	**n/a**	**31.82**	**n/a**	**n/a**	**0.003586**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**ARGWC-23**	**0.080**	**n/a**	**5/27/2020**	**0.45**	**Yes**	**22**	**n/a**	**n/a**	**31.82**	**n/a**	**n/a**	**0.003586**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**ARGWC-21**	**15**	**n/a**	**4/7/2020**	**69**	**Yes**	**22**	**10.91**	**2.106**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**
Calcium (mg/L)	**ARGWC-22**	**15**	**n/a**	**5/27/2020**	**200**	**Yes**	**22**	**10.91**	**2.106**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**
Calcium (mg/L)	**ARGWC-23**	**15**	**n/a**	**5/27/2020**	**69**	**Yes**	**22**	**10.91**	**2.106**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**
Chloride (mg/L)	ARGWC-21	16	n/a	4/7/2020	4.2	No	48	n/a	n/a	0	n/a	n/a	0.0008268	NP Inter (normality) 1 of 2
Chloride (mg/L)	ARGWC-22	16	n/a	5/27/2020	7.3	No	48	n/a	n/a	0	n/a	n/a	0.0008268	NP Inter (normality) 1 of 2
Chloride (mg/L)	ARGWC-23	16	n/a	5/27/2020	4	No	48	n/a	n/a	0	n/a	n/a	0.0008268	NP Inter (normality) 1 of 2
Fluoride (mg/L)	ARGWC-21	0.14	n/a	4/7/2020	0.12	No	24	n/a	n/a	58.33	n/a	n/a	0.003036	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	ARGWC-22	0.14	n/a	5/27/2020	0.06J	No	24	n/a	n/a	58.33	n/a	n/a	0.003036	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	**ARGWC-23**	**0.14**	**n/a**	**5/27/2020**	**0.25**	**Yes**	**24**	**n/a**	**n/a**	**58.33**	**n/a**	**n/a**	**0.003036**	**NP Inter (NDs) 1 of 2**
pH (SU)	ARGWC-21	6	5.4	4/7/2020	5.96	No	23	5.726	0.1553	0	None	No	0.001253	Param Inter 1 of 2
pH (SU)	ARGWC-22	6	5.4	5/27/2020	5.69	No	23	5.726	0.1553	0	None	No	0.001253	Param Inter 1 of 2
pH (SU)	**ARGWC-23**	**6**	**5.4**	**5/27/2020**	**6.3**	**Yes**	**23**	**5.726**	**0.1553**	**0**	**None**	**No**	**0.001253**	**Param Inter 1 of 2**
Sulfate (mg/L)	**ARGWC-21**	**21**	**n/a**	**4/7/2020**	**180**	**Yes**	**47**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0008666**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**ARGWC-22**	**21**	**n/a**	**5/27/2020**	**720**	**Yes**	**47**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0008666**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**ARGWC-23**	**21**	**n/a**	**5/27/2020**	**65**	**Yes**	**47**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0008666**	**NP Inter (normality) 1 of 2**
Total Dissolved Solids (mg/L)	**ARGWC-21**	**150**	**n/a**	**4/7/2020**	**460**	**Yes**	**22**	**111.5**	**23.09**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**ARGWC-22**	**150**	**n/a**	**5/27/2020**	**1300**	**Yes**	**22**	**111.5**	**23.09**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**ARGWC-23**	**150**	**n/a**	**5/27/2020**	**320**	**Yes**	**22**	**111.5**	**23.09**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**

Trend Tests - Prediction Limit Exceedances - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:40 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Calcium (mg/L)	**ARGWC-21**	**5.296**	**47**	**34**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**ARGWA-19 (bg)**	**-0.478**	**-193**	**-105**	**Yes**	**24**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**ARGWC-21**	**4.343**	**174**	**105**	**Yes**	**24**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids (mg/L)	**ARGWC-21**	**26.72**	**38**	**34**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.01**	**NP**

Trend Tests - Prediction Limit Exceedances - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:40 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium (mg/L)	ARGWA-19 (bg)	0	5	118	No	26	0	n/a	n/a	0.01	NP
Barium (mg/L)	ARGWA-20 (bg)	0.0004013	59	118	No	26	0	n/a	n/a	0.01	NP
Barium (mg/L)	ARGWC-23	0.2067	9	14	No	6	0	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWA-19 (bg)	0.0133	16	34	No	11	36.36	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWA-20 (bg)	0.008392	14	34	No	11	27.27	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWC-21	0.04153	33	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWC-22	-0.4479	-8	-14	No	6	0	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWC-23	0.06718	7	14	No	6	0	n/a	n/a	0.01	NP
Calcium (mg/L)	ARGWA-19 (bg)	0.869	34	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	ARGWA-20 (bg)	0.3023	17	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	**ARGWC-21**	**5.296**	**47**	**34**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	ARGWC-22	0	-1	-14	No	6	0	n/a	n/a	0.01	NP
Calcium (mg/L)	ARGWC-23	0	1	14	No	6	0	n/a	n/a	0.01	NP
Fluoride (mg/L)	ARGWA-19 (bg)	-0.01769	-23	-38	No	12	50	n/a	n/a	0.01	NP
Fluoride (mg/L)	ARGWA-20 (bg)	0	-16	-38	No	12	66.67	n/a	n/a	0.01	NP
Fluoride (mg/L)	ARGWC-23	0.109	2	14	No	6	0	n/a	n/a	0.01	NP
pH (SU)	ARGWA-19 (bg)	0.01653	5	34	No	11	0	n/a	n/a	0.01	NP
pH (SU)	ARGWA-20 (bg)	-0.002744	-1	-38	No	12	0	n/a	n/a	0.01	NP
pH (SU)	ARGWC-21	-0.03502	-21	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**ARGWA-19 (bg)**	**-0.478**	**-193**	**-105**	**Yes**	**24**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	ARGWA-20 (bg)	-0.07792	-37	-98	No	23	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**ARGWC-21**	**4.343**	**174**	**105**	**Yes**	**24**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	ARGWC-22	-193.8	-3	-14	No	6	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	ARGWC-23	-2.239	-1	-14	No	6	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	ARGWA-19 (bg)	8.218	15	34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	ARGWA-20 (bg)	0	-6	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	**ARGWC-21**	**26.72**	**38**	**34**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids (mg/L)	ARGWC-22	0	-3	-14	No	6	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	ARGWC-23	0	0	14	No	6	0	n/a	n/a	0.01	NP

Tolerance Limit Summary Table

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 10:14 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	n/a	0.0020	n/a	n/a	n/a	n/a	18	n/a	n/a	100	n/a	n/a	0.3972	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.0015	n/a	n/a	n/a	n/a	52	n/a	n/a	82.69	n/a	n/a	0.06944	NP Inter(NDs)
Barium (mg/L)	n/a	0.10	n/a	n/a	n/a	n/a	52	n/a	n/a	0	n/a	n/a	0.06944	NP Inter(normality)
Beryllium (mg/L)	n/a	0.0010	n/a	n/a	n/a	n/a	18	n/a	n/a	100	n/a	n/a	0.3972	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.0010	n/a	n/a	n/a	n/a	52	n/a	n/a	98.08	n/a	n/a	0.06944	NP Inter(NDs)
Chromium (mg/L)	n/a	0.0078	n/a	n/a	n/a	n/a	22	n/a	n/a	13.64	n/a	n/a	0.3235	NP Inter(normality)
Cobalt (mg/L)	n/a	0.0025	n/a	n/a	n/a	n/a	22	n/a	n/a	72.73	n/a	n/a	0.3235	NP Inter(NDs)
Combined Radium 226 + 228 (pCi/L)	n/a	1.4	n/a	n/a	n/a	n/a	22	0.593	0.3417	0	None	No	0.05	Inter
Fluoride (mg/L)	n/a	0.20	n/a	n/a	n/a	n/a	24	n/a	n/a	58.33	n/a	n/a	0.292	NP Inter(NDs)
Lead (mg/L)	n/a	0.0010	n/a	n/a	n/a	n/a	52	n/a	n/a	90.38	n/a	n/a	0.06944	NP Inter(NDs)
Lithium (mg/L)	n/a	0.013	n/a	n/a	n/a	n/a	22	n/a	n/a	40.91	n/a	n/a	0.3235	NP Inter(normality)
Mercury (mg/L)	n/a	0.00020	n/a	n/a	n/a	n/a	18	n/a	n/a	88.89	n/a	n/a	0.3972	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.015	n/a	n/a	n/a	n/a	18	n/a	n/a	94.44	n/a	n/a	0.3972	NP Inter(NDs)
Selenium (mg/L)	n/a	0.0050	n/a	n/a	n/a	n/a	50	n/a	n/a	64	n/a	n/a	0.07694	NP Inter(NDs)
Silver (mg/L)	n/a	0.0010	n/a	n/a	n/a	n/a	44	n/a	n/a	88.64	n/a	n/a	0.1047	NP Inter(NDs)
Thallium (mg/L)	n/a	0.0010	n/a	n/a	n/a	n/a	18	n/a	n/a	100	n/a	n/a	0.3972	NP Inter(NDs)

PLANT ARKWRIGHT LF #2 GWPS					
Constituent Name	**MCL**	**CCR-Rule Specified**	**Background Limit**	**Federal GWPS**	**State GWPS**
Antimony, Total (mg/L)	0.006		0.002	0.006	0.006
Arsenic, Total (mg/L)	0.01		0.0015	0.01	0.01
Barium, Total (mg/L)	2		0.1	2	2
Beryllium, Total (mg/L)	0.004		0.001	0.004	0.004
Cadmium, Total (mg/L)	0.005		0.001	0.005	0.005
Chromium, Total (mg/L)	0.1		0.0078	0.1	0.1
Cobalt, Total (mg/L)		0.006	0.0025	0.006	0.0025
Combined Radium, Total (pCi/L)	5		1.4	5	5
Fluoride, Total (mg/L)	4		0.2	4	4
Lead, Total (mg/L)		0.015	0.001	0.015	0.001
Lithium, Total (mg/L)		0.04	0.013	0.04	0.013
Mercury, Total (mg/L)	0.002		0.0002	0.002	0.002
Molybdenum, Total (mg/L)		0.1	0.015	0.1	0.015
Selenium, Total (mg/L)	0.05		0.005	0.05	0.05
Silver, Total (mg/L)			0.001		0.001
Thallium, Total (mg/L)	0.002		0.001	0.002	0.002

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residuals*

**GWPS = Groundwater Protection Standard*

Federal Confidence Intervals - All Results (No Significant)

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:50 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Arsenic (mg/L)	ARGWC-21	0.002163	0.001305	0.01	No	13	0.001734	0.0005767	0	None	No	0.01	Param.
Arsenic (mg/L)	ARGWC-22	0.001	0.00038	0.01	No	6	0.00074	0.0003015	50	None	No	0.0155	NP (normality)
Arsenic (mg/L)	ARGWC-23	0.001	0.00042	0.01	No	6	0.0008617	0.0002384	66.67	None	No	0.0155	NP (NDs)
Barium (mg/L)	ARGWC-21	0.1224	0.09498	2	No	13	0.1076	0.02146	0	None	x^2	0.01	Param.
Barium (mg/L)	ARGWC-22	0.07612	0.03255	2	No	6	0.05433	0.01586	0	None	No	0.01	Param.
Barium (mg/L)	ARGWC-23	0.1878	0.04455	2	No	6	0.1162	0.05213	0	None	No	0.01	Param.
Beryllium (mg/L)	ARGWC-22	0.000521	0.00006304	0.004	No	5	0.000292	0.0001366	0	None	No	0.01	Param.
Beryllium (mg/L)	ARGWC-23	0.0025	0.00033	0.004	No	5	0.002066	0.0009705	80	None	No	0.031	NP (NDs)
Chromium (mg/L)	ARGWC-21	0.002	0.002	0.1	No	11	0.001973	0.00009045	90.91	None	No	0.006	NP (NDs)
Chromium (mg/L)	ARGWC-22	0.0048	0.002	0.1	No	6	0.002467	0.001143	83.33	None	No	0.0155	NP (NDs)
Cobalt (mg/L)	ARGWC-21	0.002062	0.001541	0.006	No	11	0.001788	0.0003582	0	None	x^2	0.01	Param.
Cobalt (mg/L)	ARGWC-22	0.01787	0.004828	0.006	No	6	0.01135	0.004748	0	None	No	0.01	Param.
Cobalt (mg/L)	ARGWC-23	0.002991	0.0002991	0.006	No	6	0.001645	0.0009797	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-21	0.9511	0.5222	5	No	11	0.7366	0.2573	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-22	0.722	0.04998	5	No	6	0.386	0.2446	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-23	0.8014	-0.07539	5	No	6	0.363	0.3191	0	None	No	0.01	Param.
Fluoride (mg/L)	ARGWC-21	0.17	0.065	4	No	12	0.1422	0.1379	0	None	No	0.01	NP (normality)
Fluoride (mg/L)	ARGWC-22	0.07533	0.03427	4	No	6	0.054	0.01507	16.67	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	ARGWC-23	0.2516	0.09473	4	No	6	0.1732	0.0571	0	None	No	0.01	Param.
Lead (mg/L)	ARGWC-21	0.001	0.00026	0.015	No	13	0.0008777	0.0002994	84.62	None	No	0.01	NP (NDs)
Lead (mg/L)	ARGWC-22	0.001	0.00014	0.015	No	6	0.0007267	0.0004242	66.67	None	No	0.0155	NP (NDs)
Lead (mg/L)	ARGWC-23	0.001	0.00018	0.015	No	6	0.00074	0.0004036	66.67	None	No	0.0155	NP (NDs)
Lithium (mg/L)	ARGWC-21	0.01169	0.007907	0.04	No	11	0.0098	0.002272	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-22	0.03234	0.003355	0.04	No	6	0.01785	0.01055	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-23	0.03716	0.006773	0.04	No	6	0.02197	0.01106	0	None	No	0.01	Param.
Mercury (mg/L)	ARGWC-21	0.0002	0.000073	0.002	No	9	0.0001859	0.00004233	88.89	None	No	0.002	NP (NDs)
Molybdenum (mg/L)	ARGWC-22	0.001918	0.0005569	0.1	No	5	0.00242	0.002871	20	Kaplan-Meier	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	ARGWC-23	0.04995	0.005652	0.1	No	5	0.0278	0.01322	0	None	No	0.01	Param.
Thallium (mg/L)	ARGWC-22	0.0007727	0.00009725	0.002	No	5	0.000548	0.0003232	20	Kaplan-Meier	No	0.01	Param.
Thallium (mg/L)	ARGWC-23	0.001	0.00026	0.002	No	5	0.00056	0.0004017	40	None	No	0.031	NP (normality)

State Confidence Intervals - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:45 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Cobalt (mg/L)	**ARGWC-22**	**0.01787**	**0.004828**	**0.0025**	**Yes**	**6**	**0.01135**	**0.004748**	**0**	**None**	**No**	**0.01**	**Param.**

State Confidence Intervals - All Results

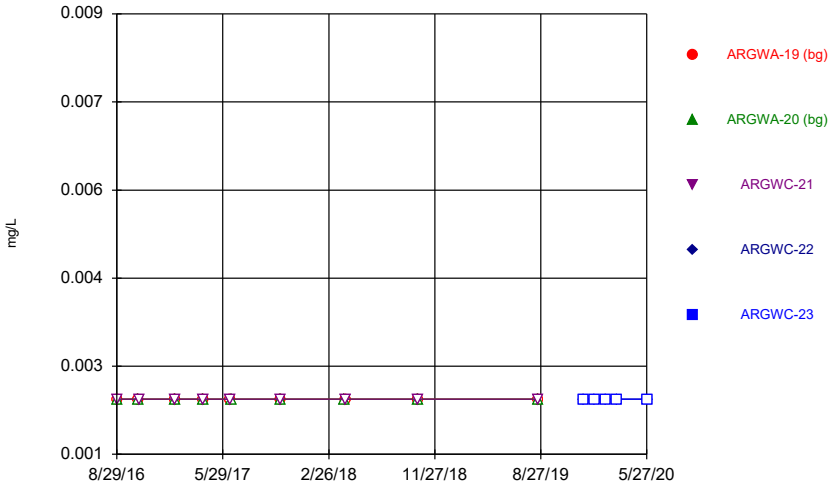
Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:45 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Arsenic (mg/L)	ARGWC-21	0.002163	0.001305	0.01	No	13	0.001734	0.0005767	0	None	No	0.01	Param.
Arsenic (mg/L)	ARGWC-22	0.001	0.00038	0.01	No	6	0.00074	0.0003015	50	None	No	0.0155	NP (normality)
Arsenic (mg/L)	ARGWC-23	0.001	0.00042	0.01	No	6	0.0008617	0.0002384	66.67	None	No	0.0155	NP (NDs)
Barium (mg/L)	ARGWC-21	0.1224	0.09498	2	No	13	0.1076	0.02146	0	None	x^2	0.01	Param.
Barium (mg/L)	ARGWC-22	0.07612	0.03255	2	No	6	0.05433	0.01586	0	None	No	0.01	Param.
Barium (mg/L)	ARGWC-23	0.1878	0.04455	2	No	6	0.1162	0.05213	0	None	No	0.01	Param.
Beryllium (mg/L)	ARGWC-22	0.000521	0.00006304	0.004	No	5	0.000292	0.0001366	0	None	No	0.01	Param.
Beryllium (mg/L)	ARGWC-23	0.0025	0.00033	0.004	No	5	0.002066	0.0009705	80	None	No	0.031	NP (NDs)
Chromium (mg/L)	ARGWC-21	0.002	0.002	0.1	No	11	0.001973	0.00009045	90.91	None	No	0.006	NP (NDs)
Chromium (mg/L)	ARGWC-22	0.0048	0.002	0.1	No	6	0.002467	0.001143	83.33	None	No	0.0155	NP (NDs)
Cobalt (mg/L)	ARGWC-21	0.002062	0.001541	0.0025	No	11	0.001788	0.0003582	0	None	x^2	0.01	Param.
Cobalt (mg/L)	**ARGWC-22**	**0.01787**	**0.004828**	**0.0025**	**Yes**	**6**	**0.01135**	**0.004748**	**0**	**None**	**No**	**0.01**	**Param.**
Cobalt (mg/L)	ARGWC-23	0.002991	0.0002991	0.0025	No	6	0.001645	0.0009797	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-21	0.9511	0.5222	5	No	11	0.7366	0.2573	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-22	0.722	0.04998	5	No	6	0.386	0.2446	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-23	0.8014	-0.07539	5	No	6	0.363	0.3191	0	None	No	0.01	Param.
Fluoride (mg/L)	ARGWC-21	0.17	0.065	4	No	12	0.1422	0.1379	0	None	No	0.01	NP (normality)
Fluoride (mg/L)	ARGWC-22	0.07533	0.03427	4	No	6	0.054	0.01507	16.67	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	ARGWC-23	0.2516	0.09473	4	No	6	0.1732	0.0571	0	None	No	0.01	Param.
Lead (mg/L)	ARGWC-21	0.001	0.00026	0.001	No	13	0.0008777	0.0002994	84.62	None	No	0.01	NP (NDs)
Lead (mg/L)	ARGWC-22	0.001	0.00014	0.001	No	6	0.0007267	0.0004242	66.67	None	No	0.0155	NP (NDs)
Lead (mg/L)	ARGWC-23	0.001	0.00018	0.001	No	6	0.00074	0.0004036	66.67	None	No	0.0155	NP (NDs)
Lithium (mg/L)	ARGWC-21	0.01169	0.007907	0.013	No	11	0.0098	0.002272	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-22	0.03234	0.003355	0.013	No	6	0.01785	0.01055	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-23	0.03716	0.006773	0.013	No	6	0.02197	0.01106	0	None	No	0.01	Param.
Mercury (mg/L)	ARGWC-21	0.0002	0.000073	0.002	No	9	0.0001859	0.00004233	88.89	None	No	0.002	NP (NDs)
Molybdenum (mg/L)	ARGWC-22	0.001918	0.0005569	0.015	No	5	0.00242	0.002871	20	Kaplan-Meier	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	ARGWC-23	0.04995	0.005652	0.015	No	5	0.0278	0.01322	0	None	No	0.01	Param.
Silver (mg/L)	ARGWC-21	0.001	0.00043	0.001	No	9	0.0009367	0.00019	88.89	None	No	0.002	NP (NDs)
Thallium (mg/L)	ARGWC-22	0.0007727	0.00009725	0.002	No	5	0.000548	0.0003232	20	Kaplan-Meier	No	0.01	Param.
Thallium (mg/L)	ARGWC-23	0.001	0.00026	0.002	No	5	0.00056	0.0004017	40	None	No	0.031	NP (normality)

FIGURE A.

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

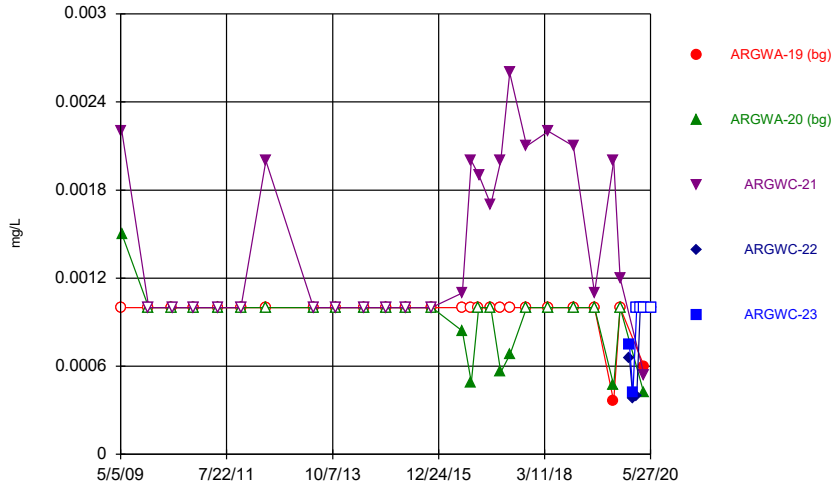
Time Series



Constituent: Antimony Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

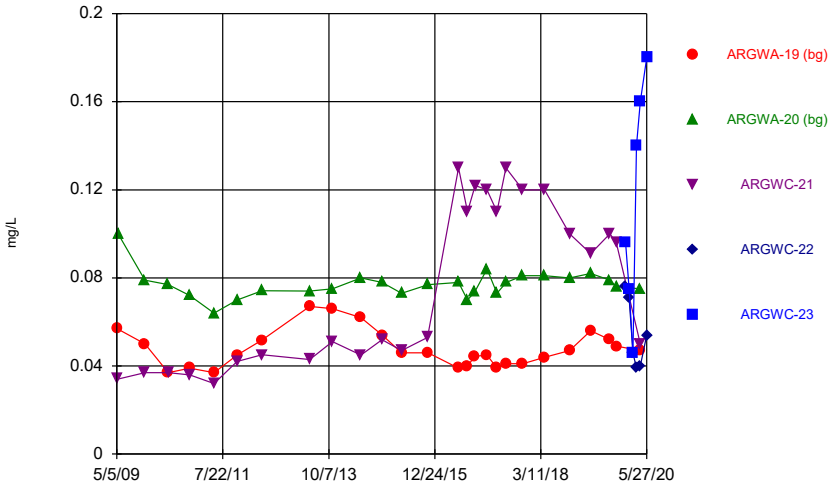
Time Series



Constituent: Arsenic Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

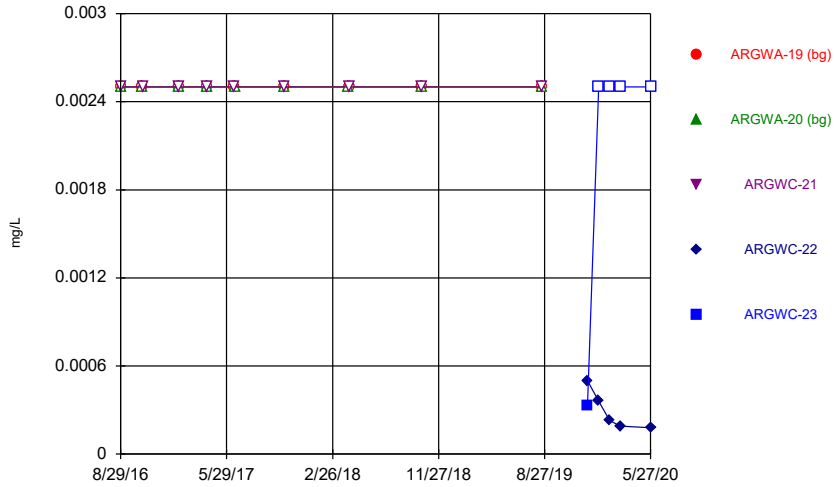
Time Series



Constituent: Barium Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

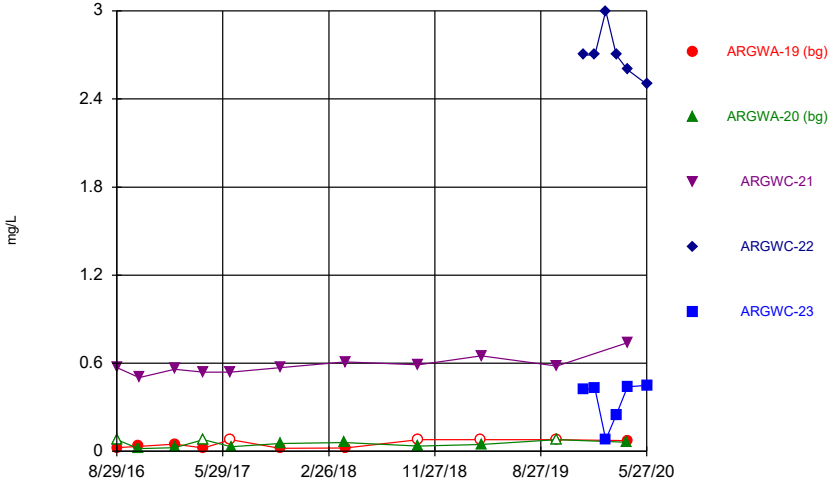
Time Series



Constituent: Beryllium Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

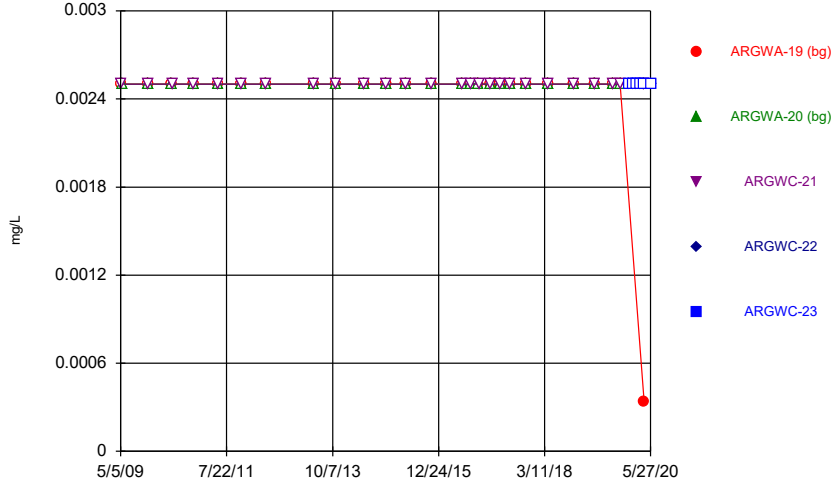
Time Series



Constituent: Boron Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

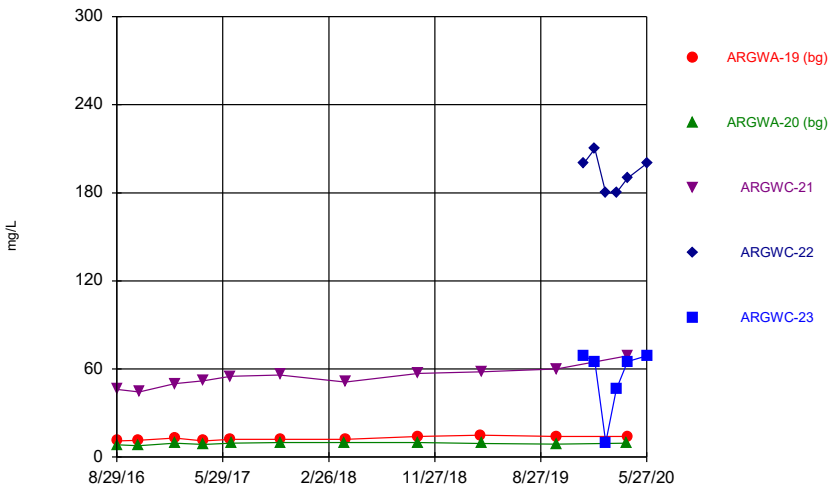
Time Series



Constituent: Cadmium Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

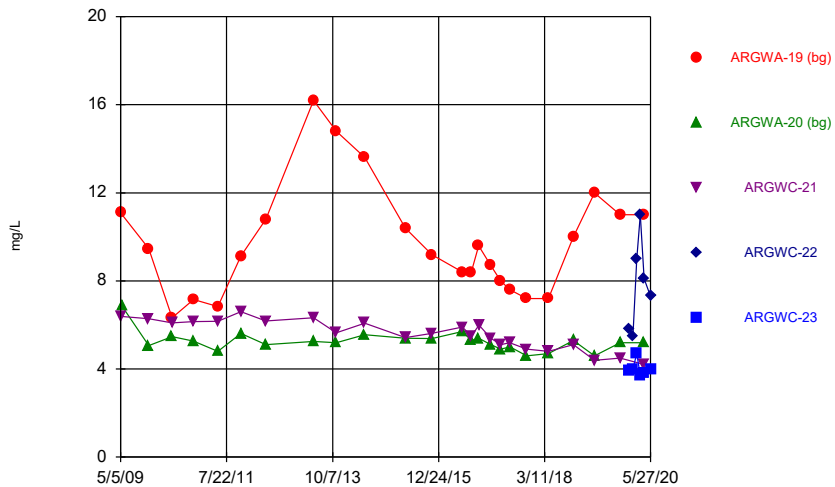
Time Series



Constituent: Calcium Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

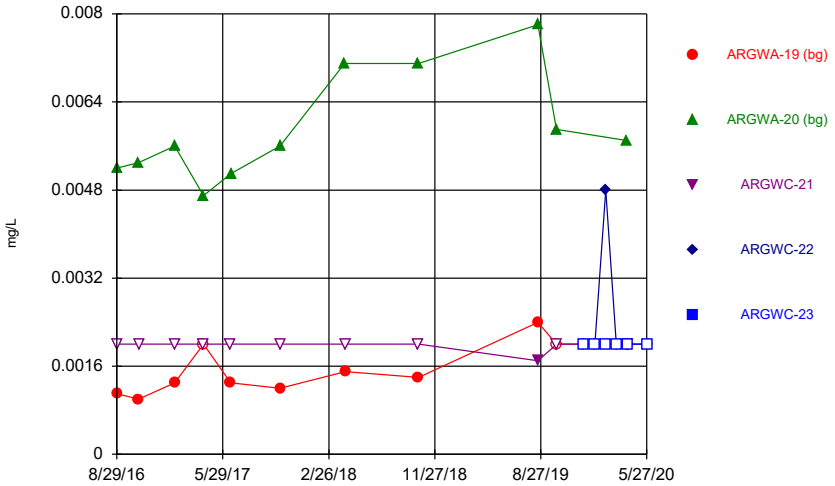
Time Series



Constituent: Chloride Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

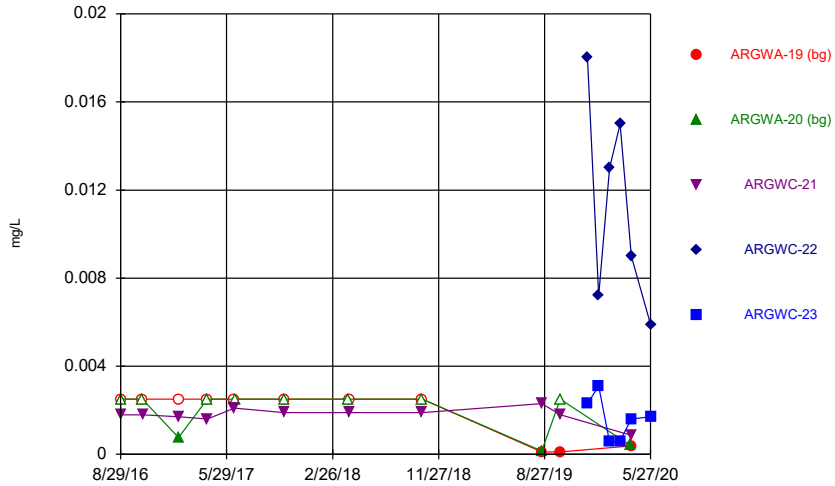
Time Series



Constituent: Chromium Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

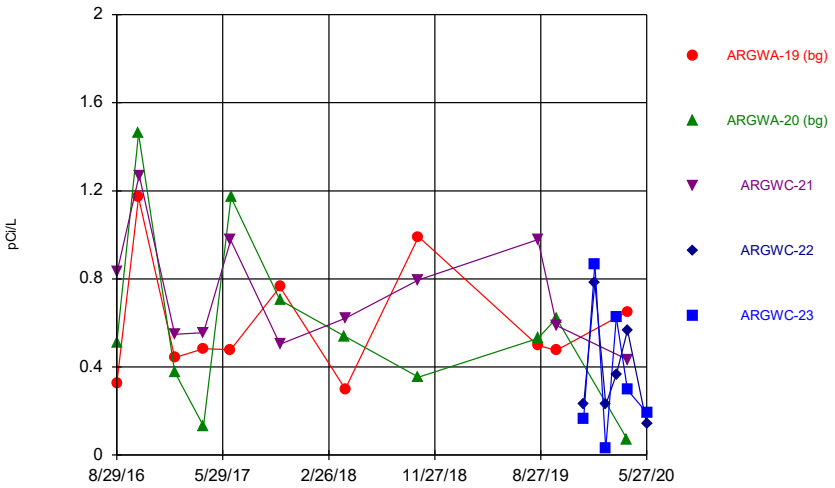
Time Series



Constituent: Cobalt Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

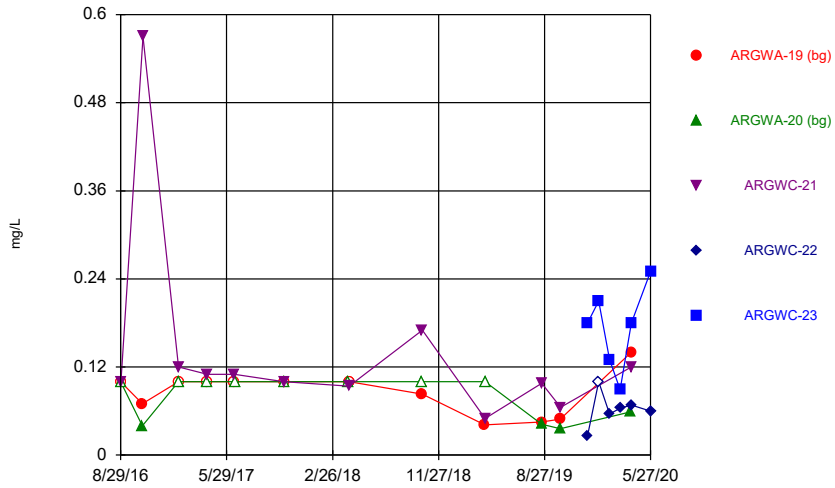
Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

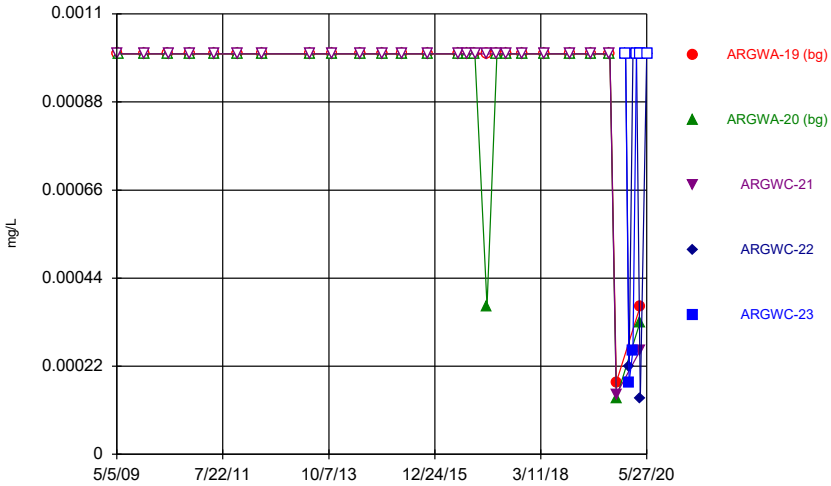
Time Series



Constituent: Fluoride Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

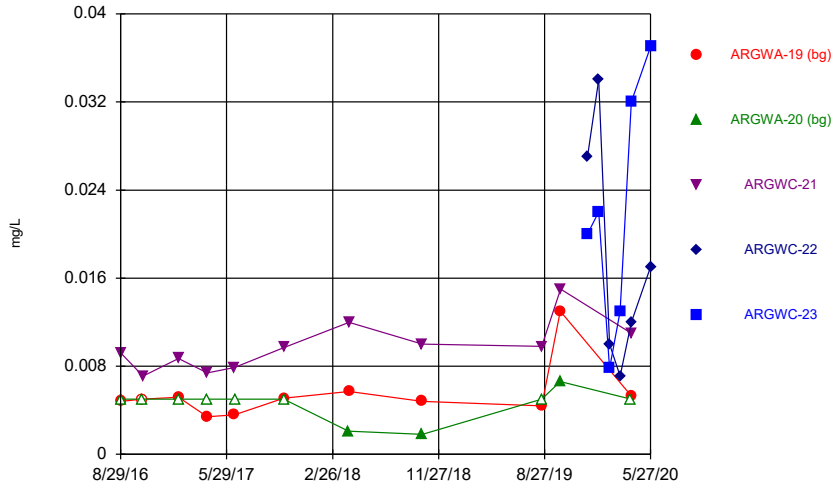
Time Series



Constituent: Lead Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

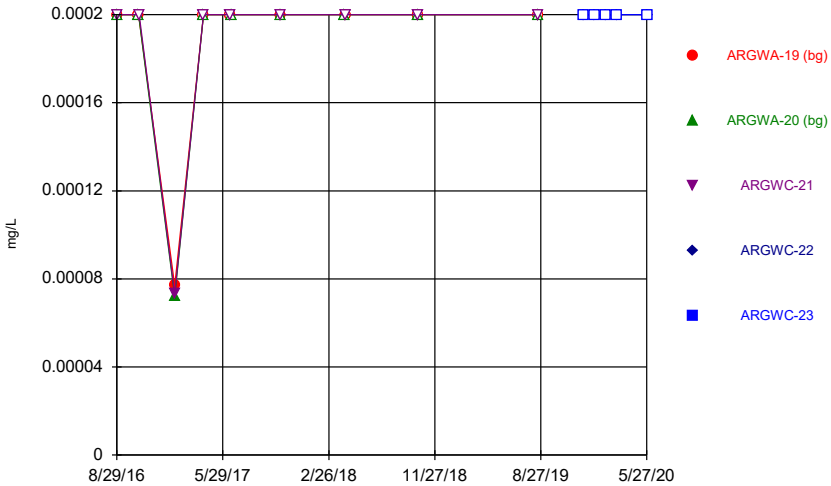
Time Series



Constituent: Lithium Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

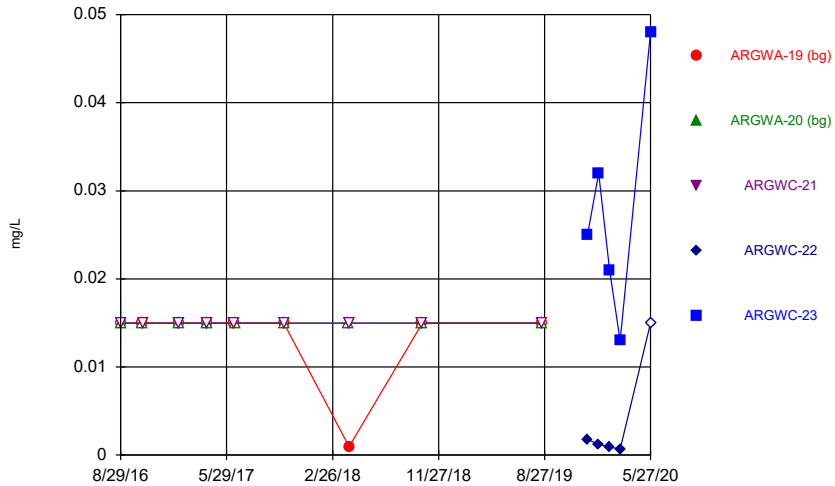
Time Series



Constituent: Mercury Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

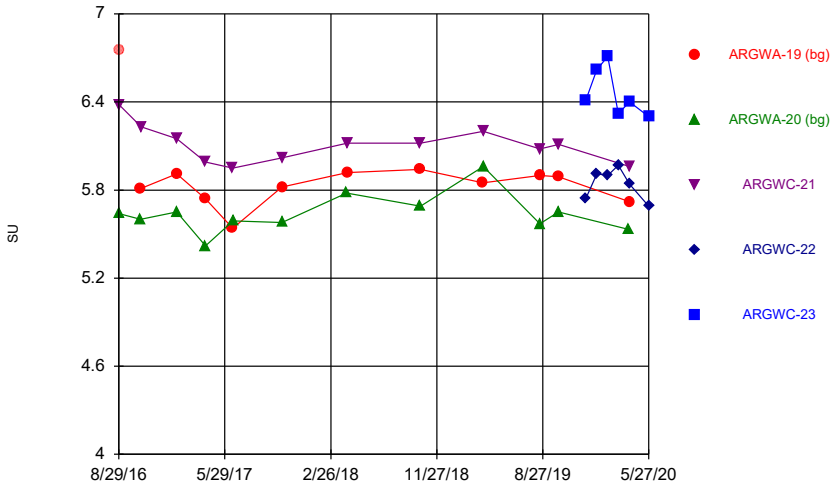
Time Series



Constituent: Molybdenum Analysis Run 7/23/2020 11:32 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Time Series



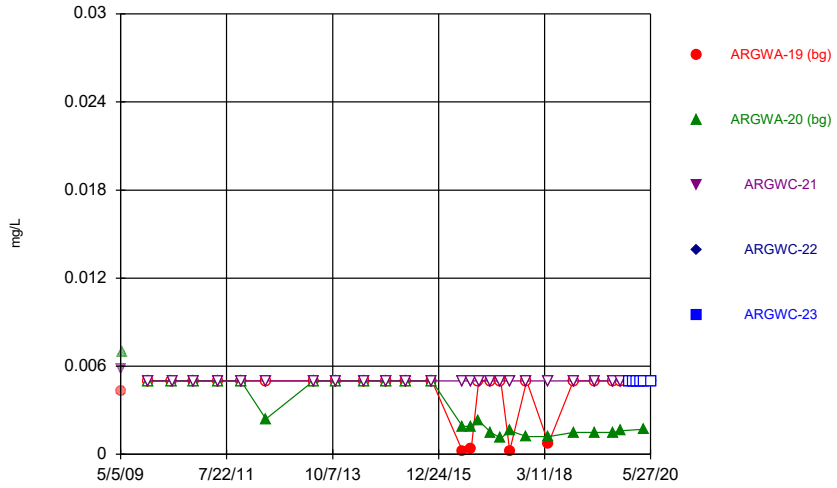
Constituent: pH Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series



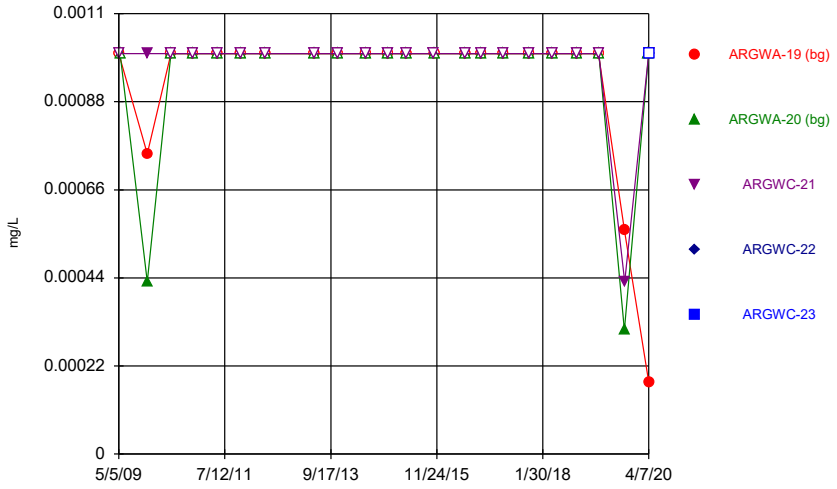
Constituent: Selenium Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Time Series

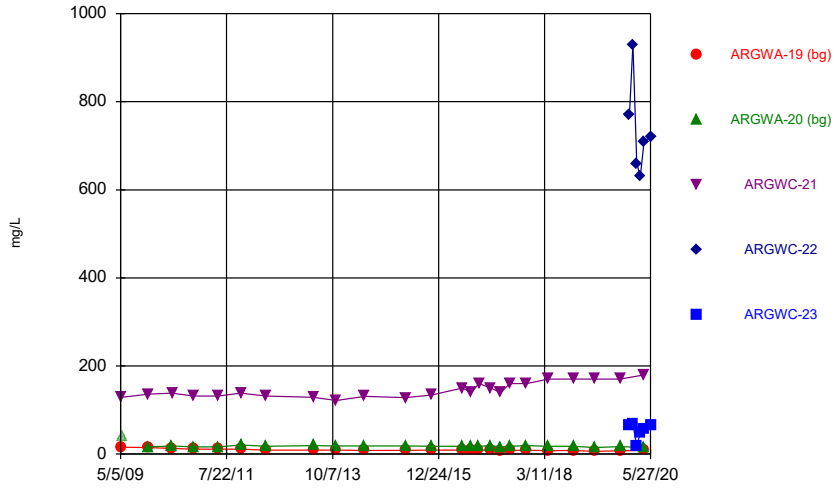


Constituent: Silver Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Time Series

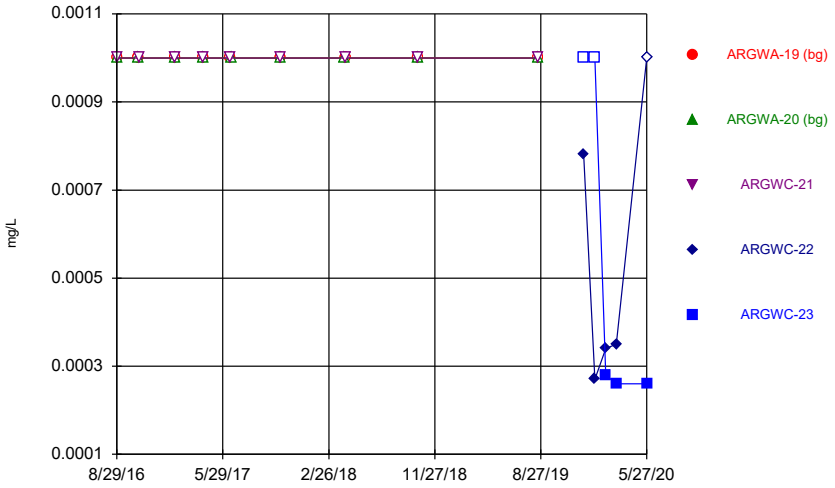


Constituent: Sulfate Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Hollow symbols indicate censored values.

Time Series

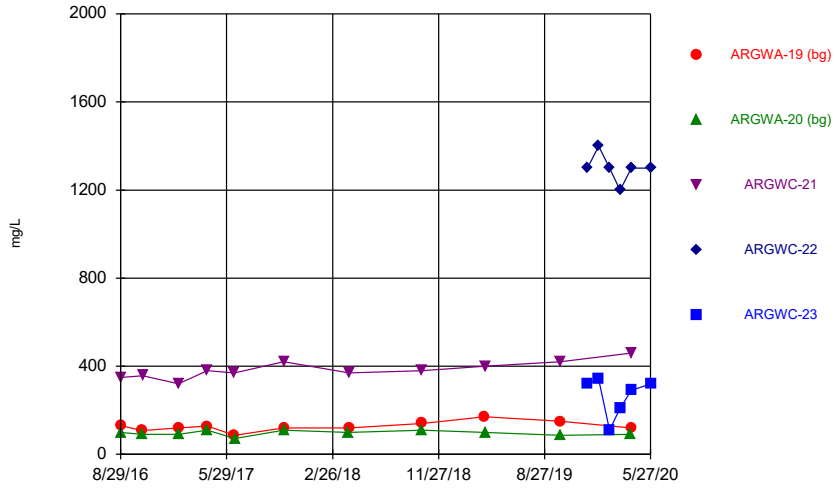


Constituent: Thallium Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Time Series



Constituent: Total Dissolved Solids Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Time Series

Constituent: Antimony (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	<0.002	<0.002			
8/30/2016			<0.002		
10/24/2016	<0.002	<0.002			
10/26/2016			<0.002		
1/25/2017	<0.002	<0.002	<0.002		
4/10/2017	<0.002	<0.002	<0.002		
6/19/2017	<0.002		<0.002		
6/20/2017		<0.002			
10/24/2017	<0.002	<0.002	<0.002		
4/9/2018		<0.002			
4/10/2018	<0.002		<0.002		
10/16/2018	<0.002	<0.002	<0.002		
8/20/2019	<0.002	<0.002	<0.002		
12/16/2019				<0.002	<0.002
1/14/2020				<0.002	<0.002
2/11/2020				<0.002	<0.002
3/9/2020				<0.002	<0.002
5/27/2020				<0.002	<0.002

Time Series

Constituent: Arsenic (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009	<0.001				
5/14/2009			0.0022		
5/15/2009		0.0015			
12/5/2009	<0.001	<0.001	<0.001		
6/1/2010	<0.001	<0.001			
6/2/2010			<0.001		
11/11/2010	<0.001	<0.001	<0.001		
5/17/2011	<0.001	<0.001	<0.001		
11/8/2011	<0.001	<0.001	<0.001		
5/16/2012	<0.001	<0.001	0.002 (J)		
5/14/2013	<0.001	<0.001	<0.001		
11/5/2013	<0.001	<0.001	<0.001		
6/9/2014	<0.001	<0.001	<0.001		
11/18/2014		<0.001	<0.001		
11/19/2014	<0.001				
4/14/2015	<0.001	<0.001	<0.001		
10/29/2015			<0.001		
11/4/2015	<0.001	<0.001			
6/22/2016	<0.001	0.00084 (J)			
6/23/2016			0.0011 (J)		
8/29/2016	<0.001	0.00049 (J)			
8/30/2016			0.002		
10/24/2016	<0.001	<0.001			
10/26/2016			0.0019 (J)		
1/25/2017	<0.001	<0.001	0.0017		
4/10/2017	<0.001	0.00056 (J)	0.002		
6/19/2017	<0.001		0.0026		
6/20/2017		0.00068 (J)			
10/24/2017	<0.001	<0.001	0.0021		
4/9/2018		<0.001			
4/10/2018	<0.001		0.0022		
10/16/2018	<0.001	<0.001	0.0021		
3/26/2019	<0.001				
3/27/2019		<0.001	0.0011 (J)		
8/20/2019	0.00036 (J)	0.00047 (J)	0.002		
10/7/2019	<0.001	<0.001			
10/8/2019			0.0012 (J)		
12/16/2019				0.00066 (J)	0.00075 (J)
1/14/2020				0.00038 (J)	0.00042 (J)
2/11/2020				0.0004 (J)	<0.001
3/9/2020				<0.001	<0.001
4/6/2020		0.00042 (J)			
4/7/2020	0.0006 (J)		0.00054 (J)	<0.001	<0.001
5/27/2020				<0.001	<0.001

Time Series

Constituent: Barium (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009	0.057				
5/14/2009			0.034		
5/15/2009		0.1			
12/5/2009	0.05	0.079	0.037		
6/1/2010	0.037	0.077			
6/2/2010			0.037		
11/11/2010	0.039	0.072	0.036		
5/17/2011	0.037	0.064	0.032		
11/8/2011	0.045	0.07	0.042		
5/16/2012	0.0518	0.0741	0.0451		
5/14/2013	0.067	0.074	0.043		
11/5/2013	0.066	0.075	0.051		
6/9/2014	0.062	0.08	0.045		
11/18/2014		0.078	0.052		
11/19/2014	0.054				
4/14/2015	0.046	0.073	0.047		
10/29/2015			0.053		
11/4/2015	0.046	0.077			
6/22/2016	0.039	0.078			
6/23/2016			0.13		
8/29/2016	0.04	0.07			
8/30/2016			0.11		
10/24/2016	0.0444	0.0738			
10/26/2016			0.122		
1/25/2017	0.045	0.084	0.12		
4/10/2017	0.039	0.073	0.11		
6/19/2017	0.041		0.13		
6/20/2017		0.078			
10/24/2017	0.041	0.081	0.12		
4/9/2018		0.081			
4/10/2018	0.044		0.12		
10/16/2018	0.047	0.08	0.1		
3/26/2019	0.056				
3/27/2019		0.082	0.091		
8/20/2019	0.052	0.079	0.1		
10/7/2019	0.049	0.076			
10/8/2019			0.096		
12/16/2019				0.076	0.096
1/14/2020				0.071	0.075
2/11/2020				0.046	0.046
3/9/2020				0.039	0.14
4/6/2020		0.075			
4/7/2020	0.047		0.05	0.04	0.16
5/27/2020				0.054	0.18

Time Series

Constituent: Beryllium (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	<0.0025	<0.0025			
8/30/2016			<0.0025		
10/24/2016	<0.0025	<0.0025			
10/26/2016			<0.0025		
1/25/2017	<0.0025	<0.0025	<0.0025		
4/10/2017	<0.0025	<0.0025	<0.0025		
6/19/2017	<0.0025		<0.0025		
6/20/2017		<0.0025			
10/24/2017	<0.0025	<0.0025	<0.0025		
4/9/2018		<0.0025			
4/10/2018	<0.0025		<0.0025		
10/16/2018	<0.0025	<0.0025	<0.0025		
8/20/2019	<0.0025	<0.0025	<0.0025		
12/16/2019				0.0005 (J)	0.00033 (J)
1/14/2020				0.00036 (J)	<0.0025
2/11/2020				0.00023	<0.0025
3/9/2020				0.00019	<0.0025
5/27/2020				0.00018 (J)	<0.0025

Time Series

Constituent: Boron (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	0.024 (J)	<0.08			
8/30/2016			0.57		
10/24/2016	0.0339 (J)	0.0194 (J)			
10/26/2016			0.502		
1/25/2017	0.048 (J)	0.026 (J)	0.56		
4/10/2017	0.022 (J)	<0.08	0.54		
6/19/2017	<0.08		0.54		
6/20/2017		0.032 (J)			
10/24/2017	0.021 (J)	0.054	0.57		
4/9/2018		0.06			
4/10/2018	0.022 (J)		0.61		
10/16/2018	<0.08	0.036 (J)	0.59		
3/26/2019	<0.08				
3/27/2019		0.046 (J)	0.65		
10/7/2019	<0.08	<0.08			
10/8/2019			0.58		
12/16/2019				2.7	0.42
1/14/2020				2.7	0.43
2/11/2020				3	0.079 (J)
3/9/2020				2.7	0.25
4/6/2020		0.063 (J)			
4/7/2020	0.072 (J)		0.74	2.6	0.44
5/27/2020				2.5	0.45

Time Series

Constituent: Cadmium (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009	<0.0025				
5/14/2009			<0.0025		
5/15/2009		<0.0025			
12/5/2009	<0.0025	<0.0025	<0.0025		
6/1/2010	<0.0025	<0.0025			
6/2/2010			<0.0025		
11/11/2010	<0.0025	<0.0025	<0.0025		
5/17/2011	<0.0025	<0.0025	<0.0025		
11/8/2011	<0.0025	<0.0025	<0.0025		
5/16/2012	<0.0025	<0.0025	<0.0025		
5/14/2013	<0.0025	<0.0025	<0.0025		
11/5/2013	<0.0025	<0.0025	<0.0025		
6/9/2014	<0.0025	<0.0025	<0.0025		
11/18/2014		<0.0025	<0.0025		
11/19/2014	<0.0025				
4/14/2015	<0.0025	<0.0025	<0.0025		
10/29/2015			<0.0025		
11/4/2015	<0.0025	<0.0025			
6/22/2016	<0.0025	<0.0025			
6/23/2016			<0.0025		
8/29/2016	<0.0025	<0.0025			
8/30/2016			<0.0025		
10/24/2016	<0.0025	<0.0025			
10/26/2016			<0.0025		
1/25/2017	<0.0025	<0.0025	<0.0025		
4/10/2017	<0.0025	<0.0025	<0.0025		
6/19/2017	<0.0025		<0.0025		
6/20/2017		<0.0025			
10/24/2017	<0.0025	<0.0025	<0.0025		
4/9/2018		<0.0025			
4/10/2018	<0.0025		<0.0025		
10/16/2018	<0.0025	<0.0025	<0.0025		
3/26/2019	<0.0025				
3/27/2019		<0.0025	<0.0025		
8/20/2019	<0.0025	<0.0025	<0.0025		
10/7/2019	<0.0025	<0.0025			
10/8/2019			<0.0025		
12/16/2019				<0.0025	<0.0025
1/14/2020				<0.0025	<0.0025
2/11/2020				<0.0025	<0.0025
3/9/2020				<0.0025	<0.0025
4/6/2020		<0.0025			
4/7/2020	0.00034 (J)		<0.0025	<0.0025	<0.0025
5/27/2020				<0.0025	<0.0025

Time Series

Constituent: Calcium (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	11	8.3			
8/30/2016			46		
10/24/2016	11.5	7.66			
10/26/2016			44.3		
1/25/2017	13	9.4	50		
4/10/2017	11	8.6	52		
6/19/2017	12		55		
6/20/2017		9.4			
10/24/2017	12	9.9	56		
4/9/2018		9.9			
4/10/2018	12		51		
10/16/2018	14	9.8	57		
3/26/2019	15				
3/27/2019		9.2	58		
10/7/2019	14	8.9			
10/8/2019			60		
12/16/2019				200	69
1/14/2020				210	65
2/11/2020				180	10
3/9/2020				180	46
4/6/2020		9.5			
4/7/2020	14		69	190	65
5/27/2020				200	69

Time Series

Constituent: Chloride (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009	11.1				
5/14/2009			6.38		
5/15/2009		6.86			
12/5/2009	9.46	5.06	6.28		
6/1/2010	6.32	5.47			
6/2/2010			6.1		
11/11/2010	7.16	5.26	6.1461		
5/17/2011	6.84	4.8	6.17		
11/8/2011	9.13	5.62	6.6		
5/16/2012	10.8	5.1	6.18		
5/14/2013	16.2	5.25	6.32		
11/5/2013	14.8	5.19	5.65		
6/9/2014	13.6	5.55	6.08		
4/14/2015	10.4	5.39	5.43		
10/29/2015			5.62		
11/4/2015	9.19	5.38			
6/22/2016	8.4	5.7			
6/23/2016			5.9		
8/29/2016	8.4	5.3			
8/30/2016			5.5		
10/24/2016	9.6	5.4			
10/26/2016			6		
1/25/2017	8.7	5.1	5.4		
4/10/2017	8	4.9	5.1		
6/19/2017	7.6		5.2		
6/20/2017		5			
10/24/2017	7.2	4.6	4.9		
4/9/2018		4.7			
4/10/2018	7.2		4.8		
10/16/2018	10	5.3	5.1		
3/26/2019	12				
3/27/2019		4.6	4.4		
10/7/2019	11	5.2			
10/8/2019			4.5		
12/16/2019				5.8	3.9
1/14/2020				5.5	4
2/11/2020				9	4.7
3/9/2020				11	3.7
4/6/2020		5.2			
4/7/2020	11		4.2	8.1	3.8
5/27/2020				7.3	4

Time Series

Constituent: Chromium (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	0.0011 (J)	0.0052			
8/30/2016			<0.002		
10/24/2016	0.001 (J)	0.0053 (J)			
10/26/2016			<0.002		
1/25/2017	0.0013 (J)	0.0056	<0.002		
4/10/2017	<0.002	0.0047	<0.002		
6/19/2017	0.0013 (J)		<0.002		
6/20/2017		0.0051			
10/24/2017	0.0012 (J)	0.0056	<0.002		
4/9/2018		0.0071			
4/10/2018	0.0015 (J)		<0.002		
10/16/2018	0.0014 (J)	0.0071	<0.002		
8/20/2019	0.0024	0.0078	0.0017 (J)		
10/7/2019	<0.002	0.0059			
10/8/2019			<0.002		
12/16/2019				<0.002	<0.002
1/14/2020				<0.002	<0.002
2/11/2020				0.0048	<0.002
3/9/2020				<0.002	<0.002
4/6/2020		0.0057			
4/7/2020	<0.002		<0.002	<0.002	<0.002
5/27/2020				<0.002	<0.002

Time Series

Constituent: Cobalt (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	<0.0025	<0.0025			
8/30/2016			0.0018 (J)		
10/24/2016	<0.0025	<0.0025			
10/26/2016			0.0018 (J)		
1/25/2017	<0.0025	0.00076 (J)	0.0017 (J)		
4/10/2017	<0.0025	<0.0025	0.0016 (J)		
6/19/2017	<0.0025		0.0021 (J)		
6/20/2017		<0.0025			
10/24/2017	<0.0025	<0.0025	0.0019 (J)		
4/9/2018		<0.0025			
4/10/2018	<0.0025		0.0019 (J)		
10/16/2018	<0.0025	<0.0025	0.0019 (J)		
8/20/2019	0.00011 (J)	0.00015 (J)	0.0023		
10/7/2019	0.00011 (J)	<0.0025			
10/8/2019			0.0018		
12/16/2019				0.018	0.0023
1/14/2020				0.0072	0.0031
2/11/2020				0.013	0.00056
3/9/2020				0.015	0.00061 (J)
4/6/2020		0.00039 (J)			
4/7/2020	0.00038 (J)		0.00087	0.009	0.0016
5/27/2020				0.0059	0.0017 (J)

Time Series

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	0.324 (U)	0.508 (U)			
8/30/2016			0.832		
10/24/2016	1.17 (U)	1.46			
10/26/2016			1.27		
1/25/2017	0.443 (U)	0.377 (U)	0.549		
4/10/2017	0.483	0.132 (U)	0.556		
6/19/2017	0.478		0.976		
6/20/2017		1.17			
10/24/2017	0.764	0.704	0.504		
4/9/2018		0.539			
4/10/2018	0.3 (U)		0.621		
10/16/2018	0.991	0.354 (U)	0.796		
8/20/2019	0.498	0.53	0.978		
10/7/2019	0.476 (U)	0.621 (U)			
10/8/2019			0.588		
12/16/2019				0.229 (U)	0.166 (U)
1/14/2020				0.783	0.869
2/11/2020				0.229 (U)	0.0291 (U)
3/9/2020				0.365	0.626
4/6/2020		0.072 (U)			
4/7/2020	0.651		0.433 (U)	0.567	0.296 (U)
5/27/2020				0.143 (U)	0.192 (U)

Time Series

Constituent: Fluoride (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	<0.1	<0.1			
8/30/2016			0.099 (J)		
10/24/2016	0.07 (J)	0.04 (J)			
10/26/2016			0.57		
1/25/2017	<0.1	<0.1	0.12 (J)		
4/10/2017	<0.1	<0.1	0.11 (J)		
6/19/2017	<0.1		0.11 (J)		
6/20/2017		<0.1			
10/24/2017	<0.1	<0.1	0.1 (J)		
4/9/2018		<0.1			
4/10/2018	<0.1		0.094 (J)		
10/16/2018	0.083 (J)	<0.1	0.17 (J)		
3/26/2019	0.041 (J)				
3/27/2019		<0.1	0.05 (J)		
8/20/2019	0.045 (J)	0.042 (J)	0.098 (J)		
10/7/2019	0.049 (J)	0.036 (J)			
10/8/2019			0.065 (J)		
12/16/2019				0.026 (J)	0.18 (J)
1/14/2020				<0.1	0.21
2/11/2020				0.056	0.13
3/9/2020				0.064 (J)	0.089 (J)
4/6/2020		0.059 (J)			
4/7/2020	0.14		0.12	0.068 (J)	0.18
5/27/2020				0.06 (J)	0.25

Time Series

Constituent: Lead (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009	<0.001				
5/14/2009			<0.001		
5/15/2009		<0.001			
12/5/2009	<0.001	<0.001	<0.001		
6/1/2010	<0.001	<0.001			
6/2/2010			<0.001		
11/11/2010	<0.001	<0.001	<0.001		
5/17/2011	<0.001	<0.001	<0.001		
11/8/2011	<0.001	<0.001	<0.001		
5/16/2012	<0.001	<0.001	<0.001		
5/14/2013	<0.001	<0.001	<0.001		
11/5/2013	<0.001	<0.001	<0.001		
6/9/2014	<0.001	<0.001	<0.001		
11/18/2014		<0.001	<0.001		
11/19/2014	<0.001				
4/14/2015	<0.001	<0.001	<0.001		
10/29/2015			<0.001		
11/4/2015	<0.001	<0.001			
6/22/2016	<0.001	<0.001			
6/23/2016			<0.001		
8/29/2016	<0.001	<0.001			
8/30/2016			<0.001		
10/24/2016	<0.001	<0.001			
10/26/2016			<0.001		
1/25/2017	<0.001	0.00037 (J)	<0.001		
4/10/2017	<0.001	<0.001	<0.001		
6/19/2017	<0.001		<0.001		
6/20/2017		<0.001			
10/24/2017	<0.001	<0.001	<0.001		
4/9/2018		<0.001			
4/10/2018	<0.001		<0.001		
10/16/2018	<0.001	<0.001	<0.001		
3/26/2019	<0.001				
3/27/2019		<0.001	<0.001		
8/20/2019	<0.001	<0.001	<0.001		
10/7/2019	0.00018 (J)	0.00014 (J)			
10/8/2019			0.00015 (J)		
12/16/2019				<0.001	<0.001
1/14/2020				0.00022 (J)	0.00018 (J)
2/11/2020				<0.001	0.00026 (J)
3/9/2020				<0.001	<0.001
4/6/2020		0.00033 (J)			
4/7/2020	0.00037 (J)		0.00026 (J)	0.00014 (J)	<0.001
5/27/2020				<0.001	<0.001

Time Series

Constituent: Lithium (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	0.0048 (J)	<0.005			
8/30/2016			0.0092		
10/24/2016	<0.005	<0.005			
10/26/2016			0.0071 (J)		
1/25/2017	0.0052	<0.005	0.0087		
4/10/2017	0.0034 (J)	<0.005	0.0074		
6/19/2017	0.0036 (J)		0.0079		
6/20/2017		<0.005			
10/24/2017	0.0051	<0.005	0.0097		
4/9/2018		0.0021 (J)			
4/10/2018	0.0057		0.012		
10/16/2018	0.0048 (J)	0.0018 (J)	0.01		
8/20/2019	0.0044 (J)	<0.005	0.0098		
10/7/2019	0.013	0.0066			
10/8/2019			0.015		
12/16/2019				0.027	0.02
1/14/2020				0.034	0.022
2/11/2020				0.01	0.0078
3/9/2020				0.0071	0.013
4/6/2020		<0.005			
4/7/2020	0.0053		0.011	0.012	0.032
5/27/2020				0.017	0.037

Time Series

Constituent: Mercury (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	<0.0002	<0.0002			
8/30/2016			<0.0002		
10/24/2016	<0.0002	<0.0002			
10/26/2016			<0.0002		
1/25/2017	7.7E-05 (J)	7.2E-05 (J)	7.3E-05 (J)		
4/10/2017	<0.0002	<0.0002	<0.0002		
6/19/2017	<0.0002		<0.0002		
6/20/2017		<0.0002			
10/24/2017	<0.0002	<0.0002	<0.0002		
4/9/2018		<0.0002			
4/10/2018	<0.0002		<0.0002		
10/16/2018	<0.0002	<0.0002	<0.0002		
8/20/2019	<0.0002	<0.0002	<0.0002		
12/16/2019				<0.0002	<0.0002
1/14/2020				<0.0002	<0.0002
2/11/2020				<0.0002	<0.0002
3/9/2020				<0.0002	<0.0002
5/27/2020				<0.0002	<0.0002

Time Series

Constituent: Molybdenum (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	<0.015	<0.015			
8/30/2016			<0.015		
10/24/2016	<0.015	<0.015			
10/26/2016			<0.015		
1/25/2017	<0.015	<0.015	<0.015		
4/10/2017	<0.015	<0.015	<0.015		
6/19/2017	<0.015		<0.015		
6/20/2017		<0.015			
10/24/2017	<0.015	<0.015	<0.015		
4/9/2018		<0.015			
4/10/2018	0.00096 (J)		<0.015		
10/16/2018	<0.015	<0.015	<0.015		
8/20/2019	<0.015	<0.015	<0.015		
12/16/2019				0.0018 (J)	0.025
1/14/2020				0.0012 (J)	0.032
2/11/2020				0.00093	0.021
3/9/2020				0.00067	0.013 (J)
5/27/2020				<0.015	0.048

Time Series

Constituent: pH (SU) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	6.75 (o)	5.64			
8/30/2016			6.38		
10/24/2016	5.81	5.6			
10/26/2016			6.23		
1/25/2017	5.91	5.65	6.15		
4/10/2017	5.74	5.42	5.99		
6/19/2017	5.54		5.95		
6/20/2017		5.59			
10/24/2017	5.82	5.58	6.02		
4/9/2018		5.78			
4/10/2018	5.92		6.12		
10/16/2018	5.94	5.69	6.12		
3/26/2019	5.85				
3/27/2019		5.96	6.2		
8/20/2019	5.9	5.57	6.08		
10/7/2019	5.89	5.65			
10/8/2019			6.11		
12/16/2019				5.74	6.41
1/14/2020				5.91	6.62
2/11/2020				5.9	6.71
3/9/2020				5.97	6.32
4/6/2020		5.53			
4/7/2020	5.72		5.96	5.84	6.4
5/27/2020				5.69	6.3

Time Series

Constituent: Selenium (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009	0.0043 (o)				
5/14/2009			0.0058 (o)		
5/15/2009		0.007 (o)			
12/5/2009	<0.005	<0.005	<0.005		
6/1/2010	<0.005	<0.005			
6/2/2010			<0.005		
11/11/2010	<0.005	<0.005	<0.005		
5/17/2011	<0.005	<0.005	<0.005		
11/8/2011	<0.005	<0.005	<0.005		
5/16/2012	<0.005	0.0024 (J)	<0.005		
5/14/2013	<0.005	<0.005	<0.005		
11/5/2013	<0.005	<0.005	<0.005		
6/9/2014	<0.005	<0.005	<0.005		
11/18/2014		<0.005	<0.005		
11/19/2014	<0.005				
4/14/2015	<0.005	<0.005	<0.005		
10/29/2015			<0.005		
11/4/2015	<0.005	<0.005			
6/22/2016	0.00025 (J)	0.0019			
6/23/2016			<0.005		
8/29/2016	0.0004 (J)	0.0019			
8/30/2016			<0.005		
10/24/2016	<0.005	0.0023 (J)			
10/26/2016			<0.005		
1/25/2017	<0.005	0.0015	<0.005		
4/10/2017	<0.005	0.0011 (J)	<0.005		
6/19/2017	0.00025 (J)		<0.005		
6/20/2017		0.0016			
10/24/2017	<0.005	0.0012 (J)	<0.005		
4/9/2018		0.0012 (J)			
4/10/2018	0.00074 (J)		<0.005		
10/16/2018	<0.005	0.0015	<0.005		
3/26/2019	<0.005				
3/27/2019		0.0015	<0.005		
8/20/2019	<0.005	0.0015 (J)	<0.005		
10/7/2019	<0.005	0.0016 (J)			
10/8/2019			<0.005		
12/16/2019				<0.005	<0.005
1/14/2020				<0.005	<0.005
2/11/2020				<0.005	<0.005
3/9/2020				<0.005	<0.005
4/6/2020		0.0017 (J)			
4/7/2020	<0.005		<0.005	<0.005	<0.005
5/27/2020				<0.005	<0.005

Time Series

Constituent: Silver (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009	<0.001				
5/14/2009			<0.001		
5/15/2009		<0.001			
12/5/2009	0.00075	0.00043	0.001		
6/1/2010	<0.001	<0.001			
6/2/2010			<0.001		
11/11/2010	<0.001	<0.001	<0.001		
5/17/2011	<0.001	<0.001	<0.001		
11/8/2011	<0.001	<0.001	<0.001		
5/16/2012	<0.001	<0.001	<0.001		
5/14/2013	<0.001	<0.001	<0.001		
11/5/2013	<0.001	<0.001	<0.001		
6/9/2014	<0.001	<0.001	<0.001		
11/18/2014		<0.001	<0.001		
11/19/2014	<0.001				
4/14/2015	<0.001	<0.001	<0.001		
10/29/2015			<0.001		
11/4/2015	<0.001	<0.001			
6/22/2016	<0.001	<0.001			
6/23/2016			<0.001		
10/24/2016	<0.001	<0.001			
10/26/2016			<0.001		
4/10/2017	<0.001	<0.001	<0.001		
10/24/2017	<0.001	<0.001	<0.001		
4/9/2018		<0.001			
4/10/2018	<0.001		<0.001		
10/16/2018	<0.001	<0.001	<0.001		
3/26/2019	<0.001				
3/27/2019		<0.001	<0.001		
10/7/2019	0.00056 (J)	0.00031 (J)			
10/8/2019			0.00043 (J)		
4/6/2020		<0.001			
4/7/2020	0.00018 (J)		<0.001	<0.001	<0.001

Time Series

Constituent: Sulfate (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009	15.9				
5/14/2009			129		
5/15/2009		41.3 (o)			
12/5/2009	15.1	16.2	136		
6/1/2010	12.7	18.2			
6/2/2010			138		
11/11/2010	11.5	16.5	131.49		
5/17/2011	11.2	16	132		
11/8/2011	11.3	21	138		
5/16/2012	9.38	17.7	132		
5/14/2013	8.74	19.5	129		
11/5/2013	9.12	18.3	122		
6/9/2014	8.61	18.6	131		
4/14/2015	8.45	18.8	128		
10/29/2015			134		
11/4/2015	9.01	17.4			
6/22/2016	9.3	18			
6/23/2016			150		
8/29/2016	8.7	18			
8/30/2016			140		
10/24/2016	9.3	18			
10/26/2016			160		
1/25/2017	8.8	19	150		
4/10/2017	7.8	16	140		
6/19/2017	8.6		160		
6/20/2017		18			
10/24/2017	9.1	19	160		
4/9/2018		18			
4/10/2018	7.9		170		
10/16/2018	8.2	18	170		
3/26/2019	6.1				
3/27/2019		15	170		
10/7/2019	7.4	17			
10/8/2019			170		
12/16/2019				770	66
1/14/2020				930	68
2/11/2020				660	18
3/9/2020				630	49
4/6/2020		15			
4/7/2020	8.4		180	710	58
5/27/2020				720	65

Time Series

Constituent: Thallium (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	<0.001	<0.001			
8/30/2016			<0.001		
10/24/2016	<0.001	<0.001			
10/26/2016			<0.001		
1/25/2017	<0.001	<0.001	<0.001		
4/10/2017	<0.001	<0.001	<0.001		
6/19/2017	<0.001		<0.001		
6/20/2017		<0.001			
10/24/2017	<0.001	<0.001	<0.001		
4/9/2018		<0.001			
4/10/2018	<0.001		<0.001		
10/16/2018	<0.001	<0.001	<0.001		
8/20/2019	<0.001	<0.001	<0.001		
12/16/2019				0.00078 (J)	<0.001
1/14/2020				0.00027 (J)	<0.001
2/11/2020				0.00034	0.00028 (J)
3/9/2020				0.00035 (J)	0.00026 (J)
5/27/2020				<0.001	0.00026 (J)

Time Series

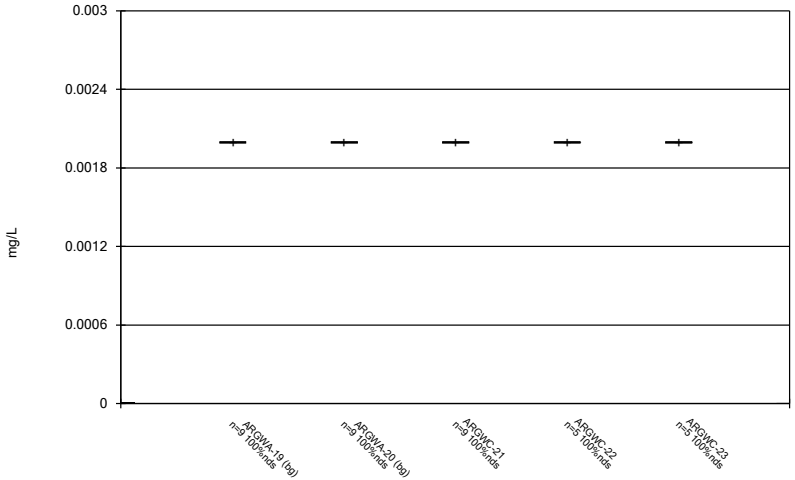
Constituent: Total Dissolved Solids (mg/L) Analysis Run 7/23/2020 11:32 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	130	100			
8/30/2016			350		
10/24/2016	108	91			
10/26/2016			357		
1/25/2017	120	90	320		
4/10/2017	128 (D)	110	380		
6/19/2017	86		370		
6/20/2017		72			
10/24/2017	120	110	420		
4/9/2018		100			
4/10/2018	120		370		
10/16/2018	140	110	380		
3/26/2019	170				
3/27/2019		100	400		
10/7/2019	150	87			
10/8/2019			420		
12/16/2019				1300	320
1/14/2020				1400	340
2/11/2020				1300	110
3/9/2020				1200	210
4/6/2020		90			
4/7/2020	120		460	1300	290
5/27/2020				1300	320

FIGURE B.

Box & Whiskers Plot

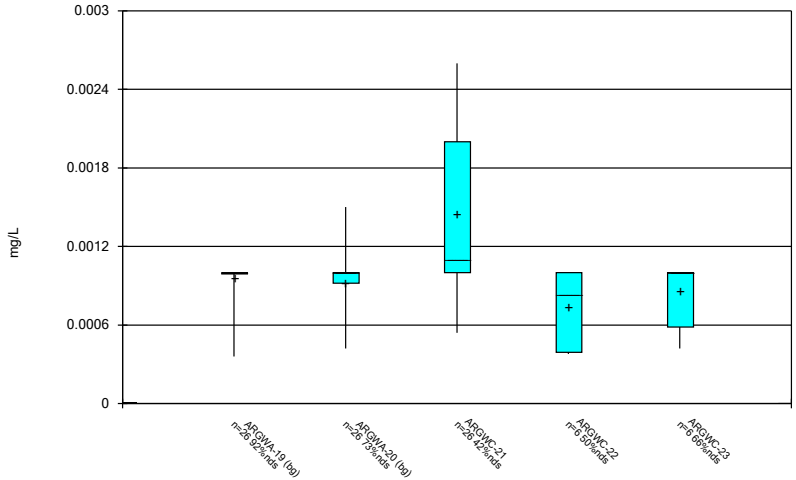


Constituent: Antimony Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot

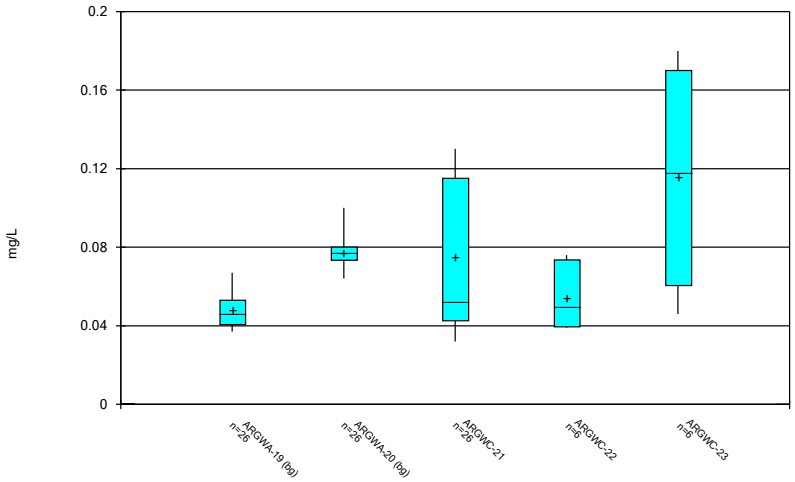


Constituent: Arsenic Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot

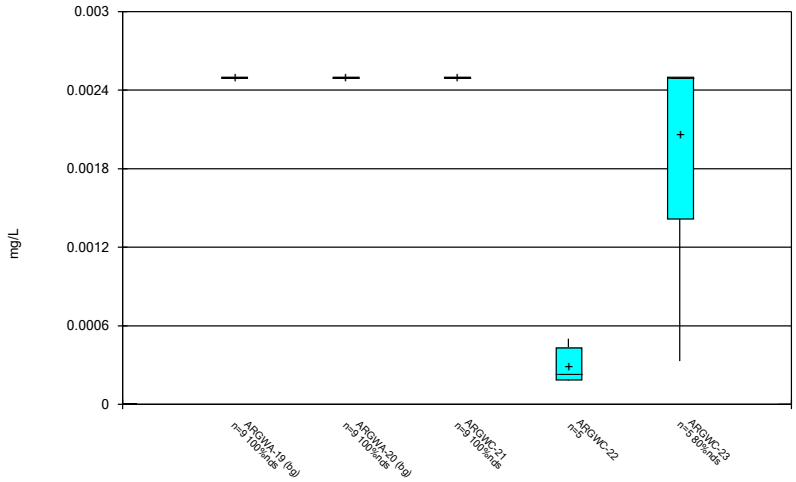


Constituent: Barium Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot

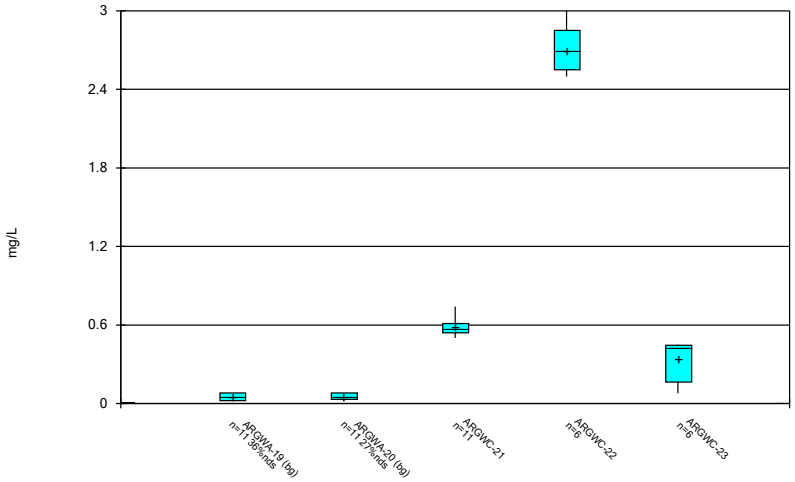


Constituent: Beryllium Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot

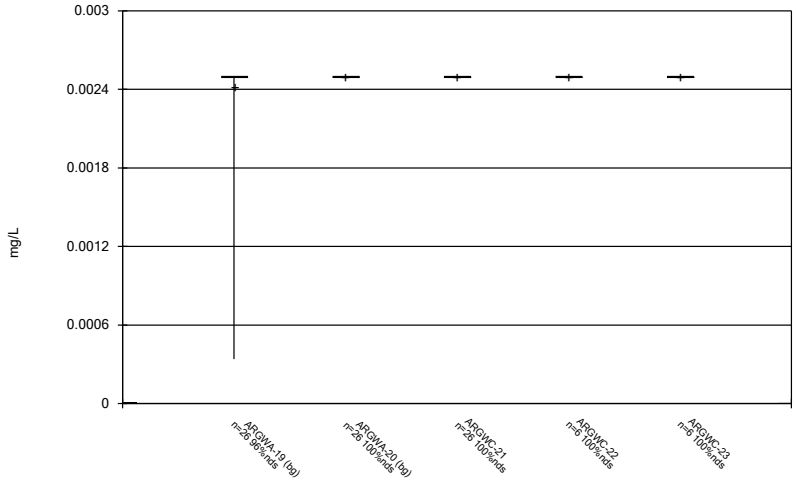


Constituent: Boron Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot

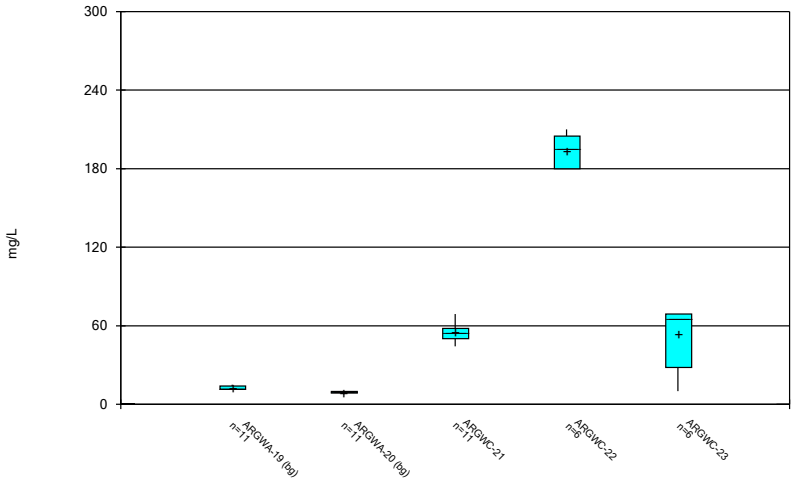


Constituent: Cadmium Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot

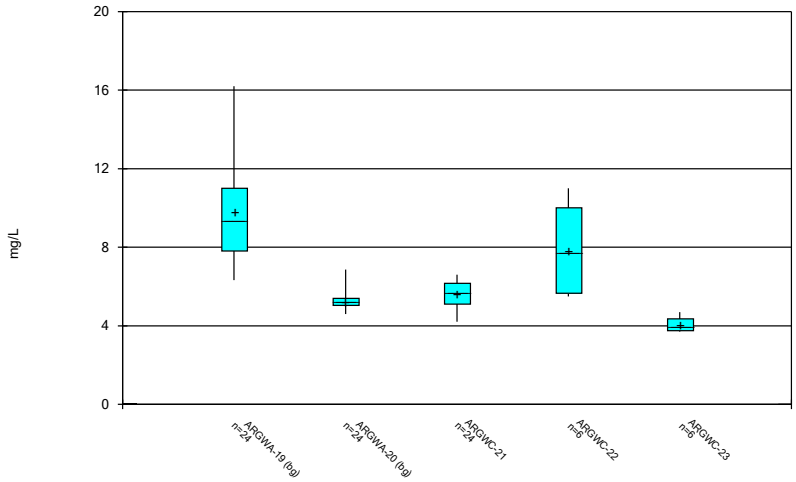


Constituent: Calcium Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

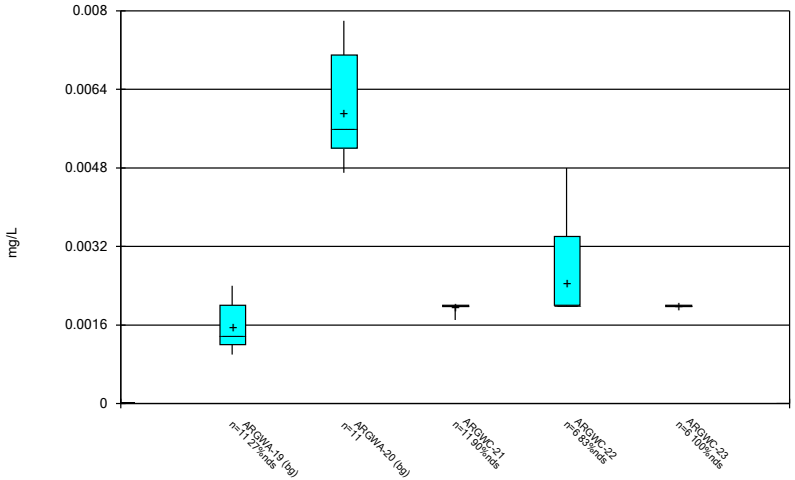
Box & Whiskers Plot



Constituent: Chloride Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Box & Whiskers Plot

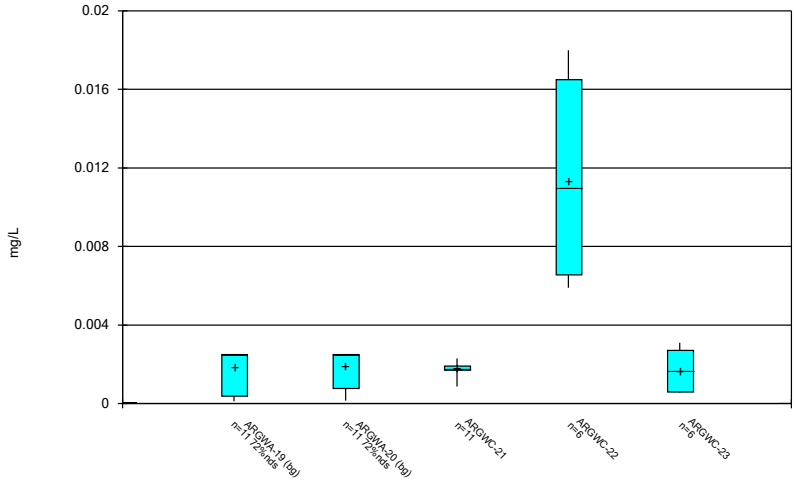


Constituent: Chromium Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot

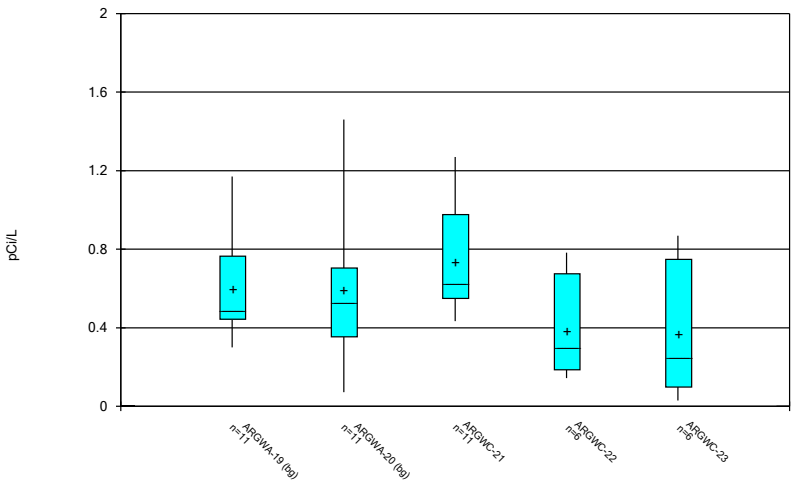


Constituent: Cobalt Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot

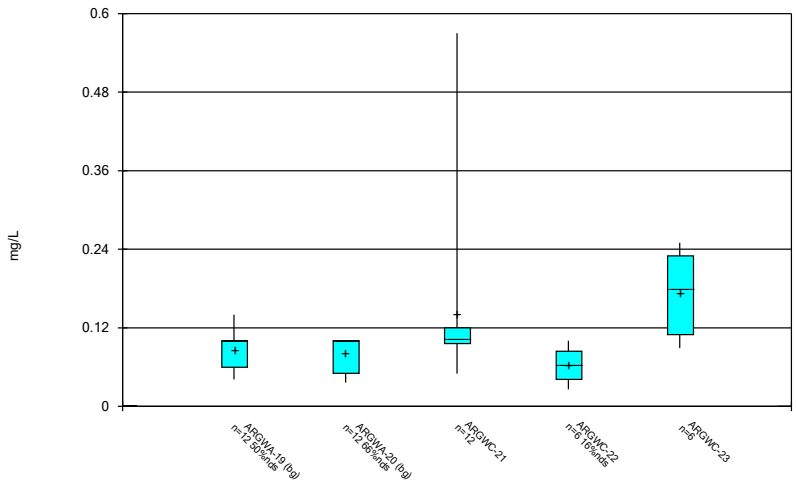


Constituent: Combined Radium 226 + 228 Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

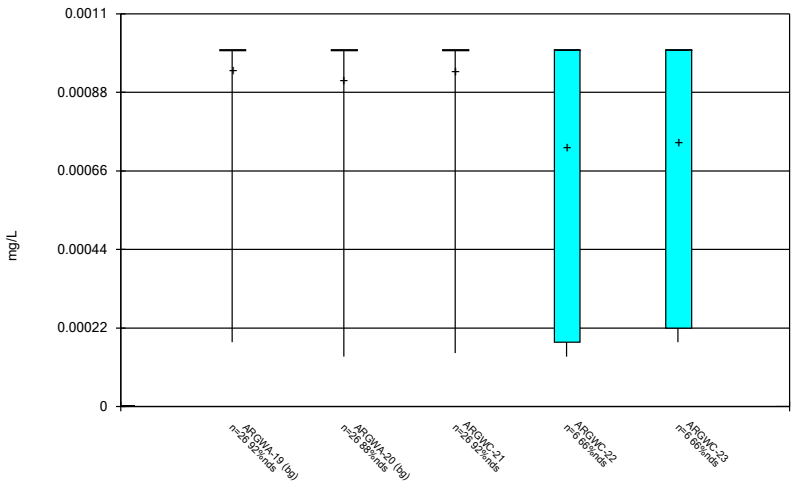
Box & Whiskers Plot



Constituent: Fluoride Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Box & Whiskers Plot

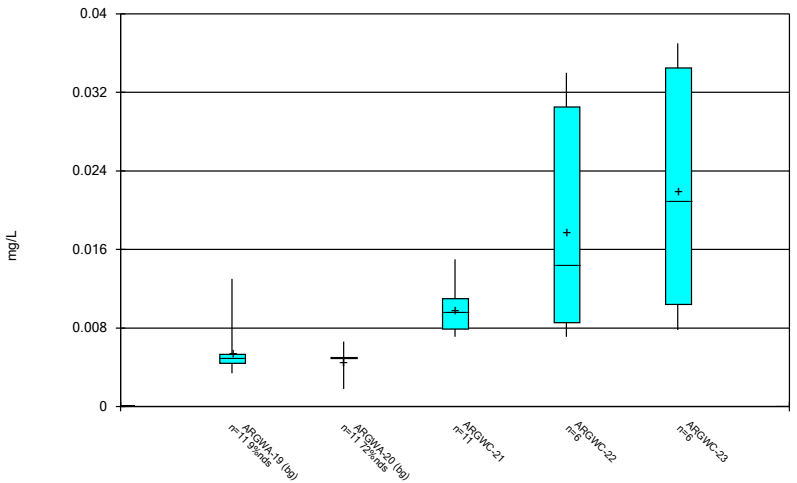


Constituent: Lead Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot

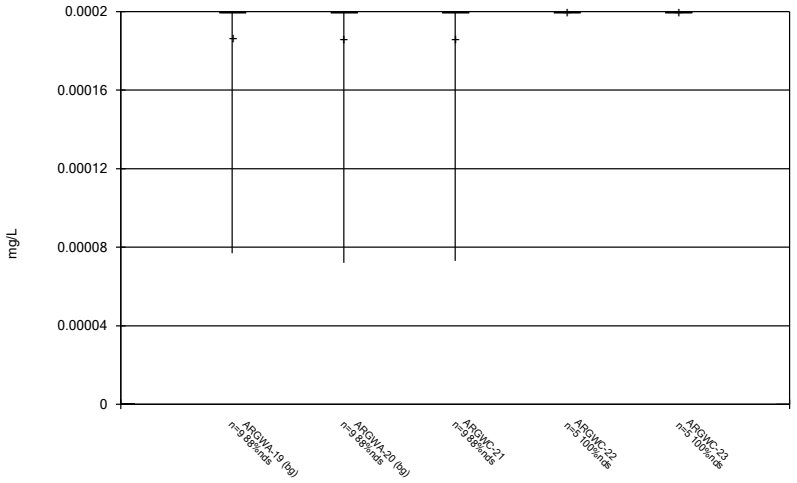


Constituent: Lithium Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot

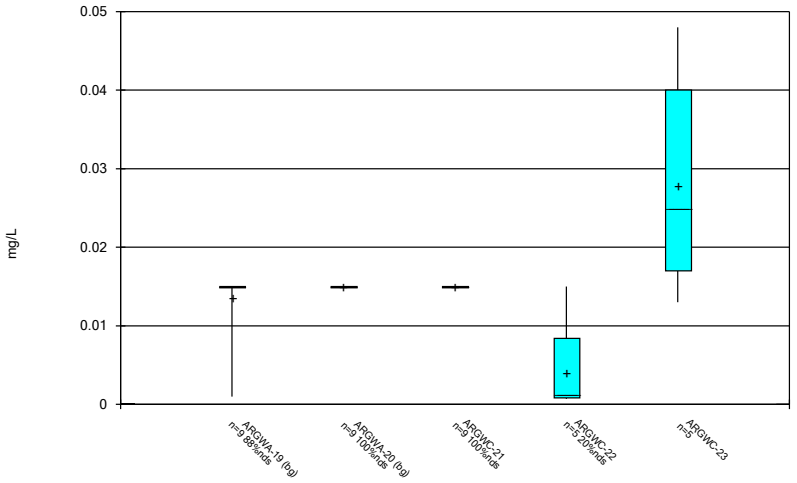


Constituent: Mercury Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

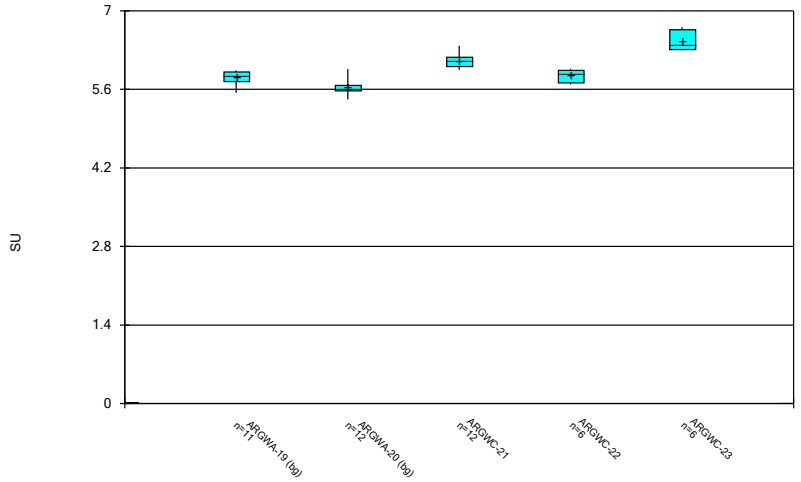
Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 7/23/2020 11:33 AM

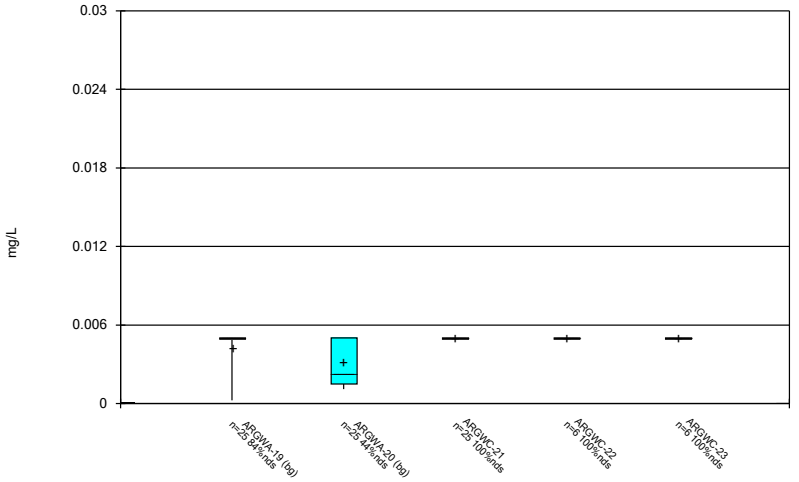
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Box & Whiskers Plot



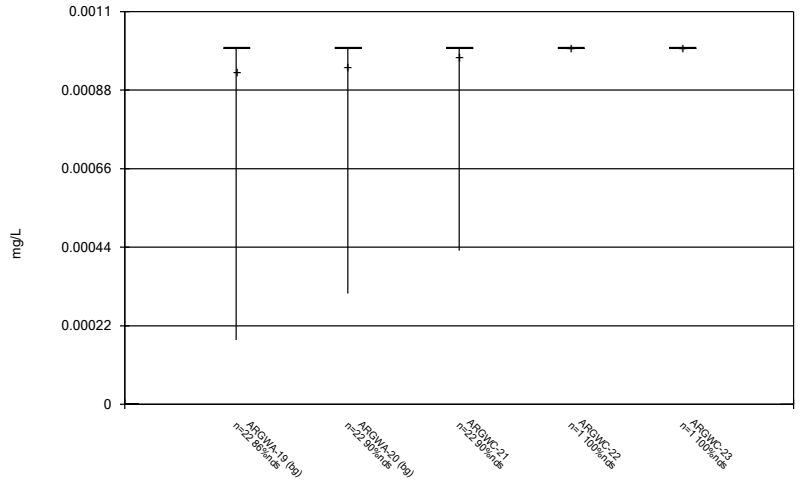
Constituent: pH Analysis Run 7/23/2020 11:33 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Box & Whiskers Plot



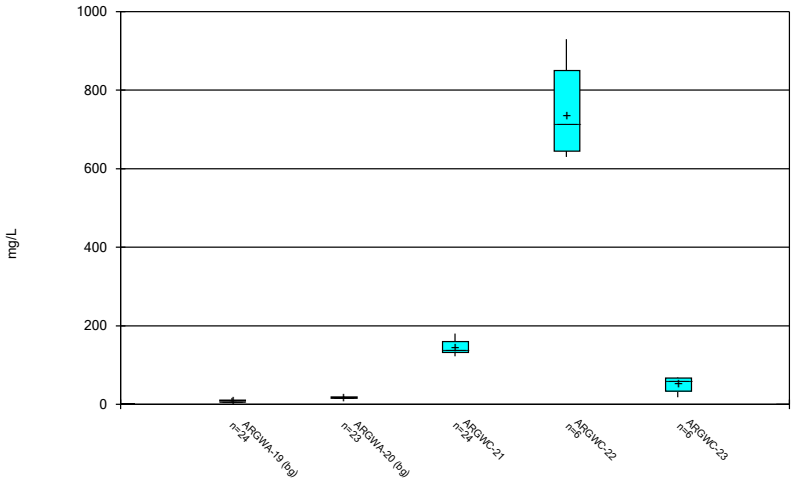
Constituent: Selenium Analysis Run 7/23/2020 11:33 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Box & Whiskers Plot



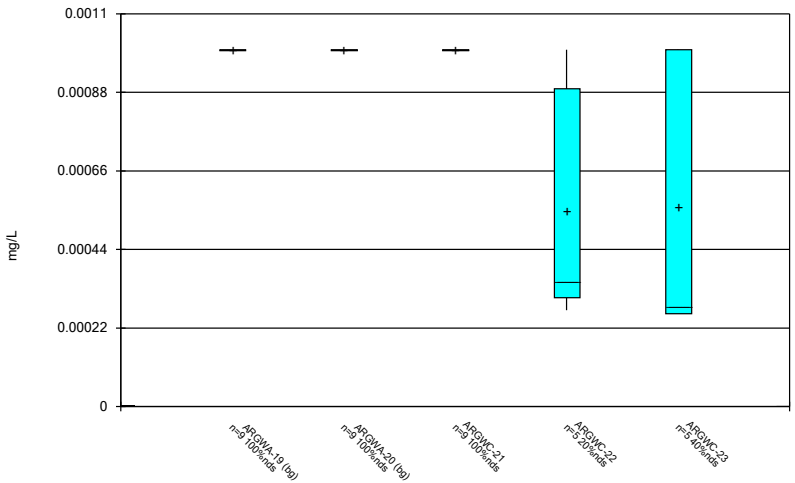
Constituent: Silver Analysis Run 7/23/2020 11:33 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Box & Whiskers Plot



Constituent: Sulfate Analysis Run 7/23/2020 11:33 AM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Box & Whiskers Plot

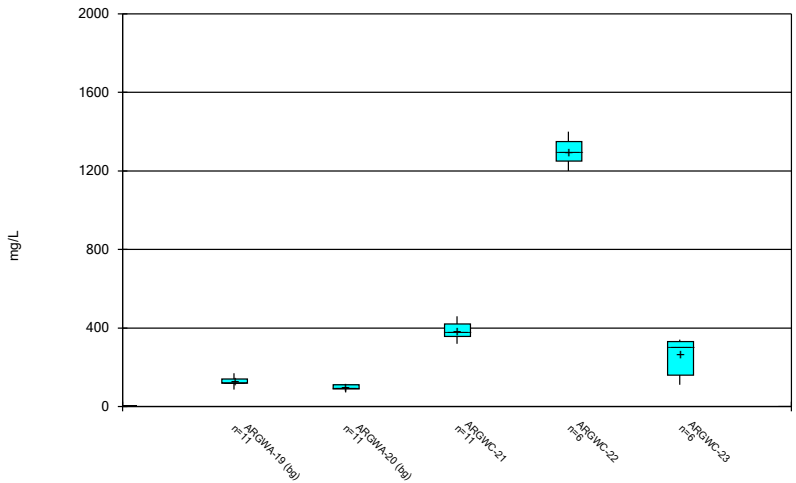


Constituent: Thallium Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 7/23/2020 11:33 AM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

FIGURE C.

Outlier Summary

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 10:01 AM

	ARGWA-19 pH (SU)	ARGWA-19 Selenium (mg/L)	ARGWA-20 Selenium (mg/L)	ARGWC-21 Selenium (mg/L)	ARGWA-20 Sulfate (mg/L)
5/5/2009		0.0043 (o)			
5/14/2009				0.0058 (o)	
5/15/2009			0.007 (o)		41.3 (o)
8/29/2016	6.75 (o)				

FIGURE D.

Appendix I - Interwell Prediction Limits - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:37 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Barium (mg/L)	**ARGWC-23**	**0.10**	**n/a**	**5/27/2020**	**0.18**	**Yes**	**52**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0007028**	**NP Inter (normality) 1 of 2**

Appendix I - Interwell Prediction Limits - All Results

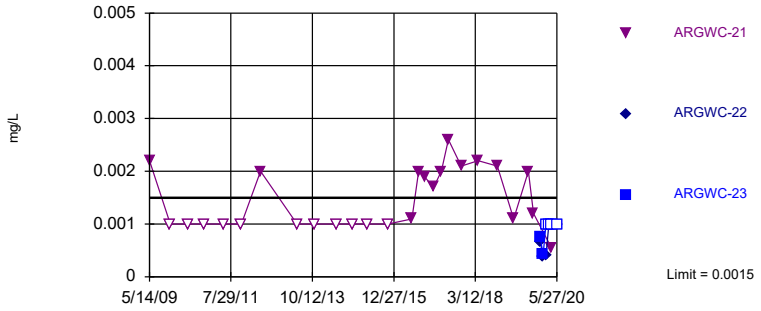
Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:37 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Arsenic (mg/L)	ARGWC-21	0.0015	n/a	4/7/2020	0.00054J	No	52	n/a	n/a	82.69	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Arsenic (mg/L)	ARGWC-22	0.0015	n/a	5/27/2020	0.001ND	No	52	n/a	n/a	82.69	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Arsenic (mg/L)	ARGWC-23	0.0015	n/a	5/27/2020	0.001ND	No	52	n/a	n/a	82.69	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Barium (mg/L)	ARGWC-21	0.10	n/a	4/7/2020	0.05	No	52	n/a	n/a	0	n/a	n/a	0.0007028	NP Inter (normality) 1 of 2
Barium (mg/L)	ARGWC-22	0.10	n/a	5/27/2020	0.054	No	52	n/a	n/a	0	n/a	n/a	0.0007028	NP Inter (normality) 1 of 2
Barium (mg/L)	**ARGWC-23**	**0.10**	**n/a**	**5/27/2020**	**0.18**	**Yes**	**52**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0007028**	**NP Inter (normality) 1 of 2**
Cadmium (mg/L)	ARGWC-21	0.0025	n/a	4/7/2020	0.0025ND	No	52	n/a	n/a	98.08	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Cadmium (mg/L)	ARGWC-22	0.0025	n/a	5/27/2020	0.0025ND	No	52	n/a	n/a	98.08	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Cadmium (mg/L)	ARGWC-23	0.0025	n/a	5/27/2020	0.0025ND	No	52	n/a	n/a	98.08	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Lead (mg/L)	ARGWC-21	0.0010	n/a	4/7/2020	0.00026J	No	52	n/a	n/a	90.38	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Lead (mg/L)	ARGWC-22	0.0010	n/a	5/27/2020	0.001ND	No	52	n/a	n/a	90.38	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Lead (mg/L)	ARGWC-23	0.0010	n/a	5/27/2020	0.001ND	No	52	n/a	n/a	90.38	n/a	n/a	0.0007028	NP Inter (NDs) 1 of 2
Selenium (mg/L)	ARGWC-21	0.0050	n/a	4/7/2020	0.005ND	No	50	n/a	n/a	64	n/a	n/a	0.0007472	NP Inter (NDs) 1 of 2
Selenium (mg/L)	ARGWC-22	0.0050	n/a	5/27/2020	0.005ND	No	50	n/a	n/a	64	n/a	n/a	0.0007472	NP Inter (NDs) 1 of 2
Selenium (mg/L)	ARGWC-23	0.0050	n/a	5/27/2020	0.005ND	No	50	n/a	n/a	64	n/a	n/a	0.0007472	NP Inter (NDs) 1 of 2
Silver (mg/L)	ARGWC-21	0.0010	n/a	4/7/2020	0.001ND	No	44	n/a	n/a	88.64	n/a	n/a	0.0009861	NP Inter (NDs) 1 of 2
Silver (mg/L)	ARGWC-22	0.0010	n/a	4/7/2020	0.001ND	No	44	n/a	n/a	88.64	n/a	n/a	0.0009861	NP Inter (NDs) 1 of 2
Silver (mg/L)	ARGWC-23	0.0010	n/a	4/7/2020	0.001ND	No	44	n/a	n/a	88.64	n/a	n/a	0.0009861	NP Inter (NDs) 1 of 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.
Within Limit

Prediction Limit

Interwell Non-parametric



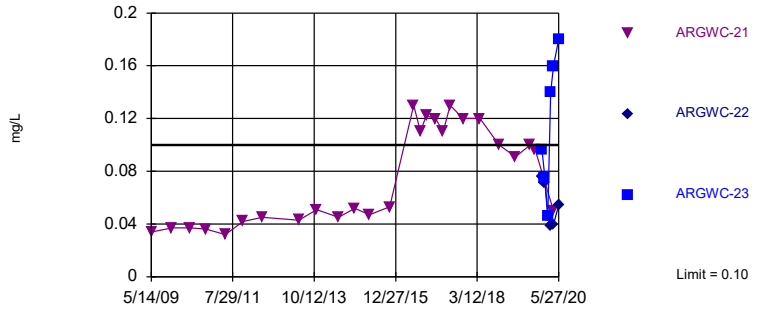
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 52 background values. 82.69% NDs. Annual per-constituent alpha = 0.004209. Individual comparison alpha = 0.0007028 (1 of 2). Comparing 3 points to limit.

Constituent: Arsenic Analysis Run 7/23/2020 11:36 AM View: Appendix I
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Exceeds Limit: ARGWC-23

Prediction Limit

Interwell Non-parametric



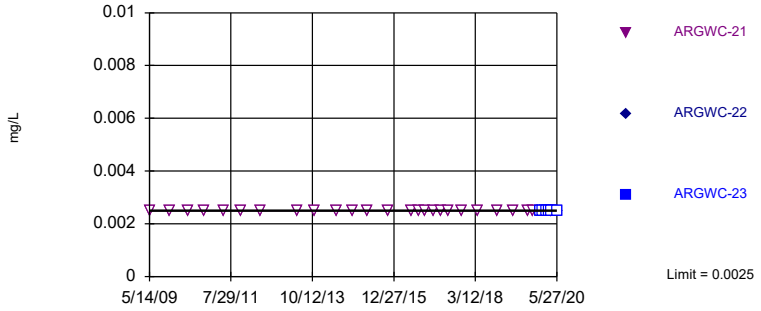
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 52 background values. Annual per-constituent alpha = 0.004209. Individual comparison alpha = 0.0007028 (1 of 2). Comparing 3 points to limit.

Constituent: Barium Analysis Run 7/23/2020 11:36 AM View: Appendix I
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.
Within Limit

Prediction Limit

Interwell Non-parametric



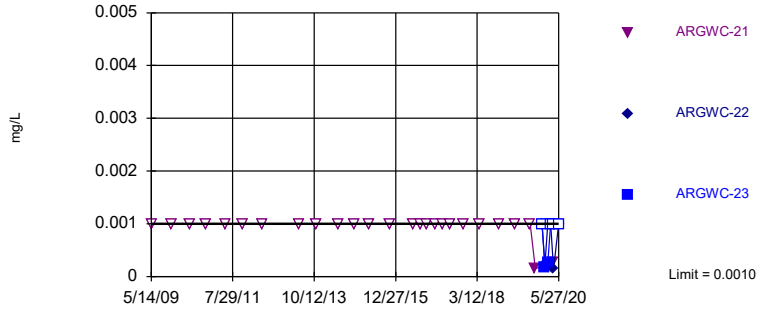
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 52 background values. 98.08% NDs. Annual per-constituent alpha = 0.004209. Individual comparison alpha = 0.0007028 (1 of 2). Comparing 3 points to limit.

Constituent: Cadmium Analysis Run 7/23/2020 11:36 AM View: Appendix I
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.
Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 52 background values. 90.38% NDs. Annual per-constituent alpha = 0.004209. Individual comparison alpha = 0.0007028 (1 of 2). Comparing 3 points to limit.

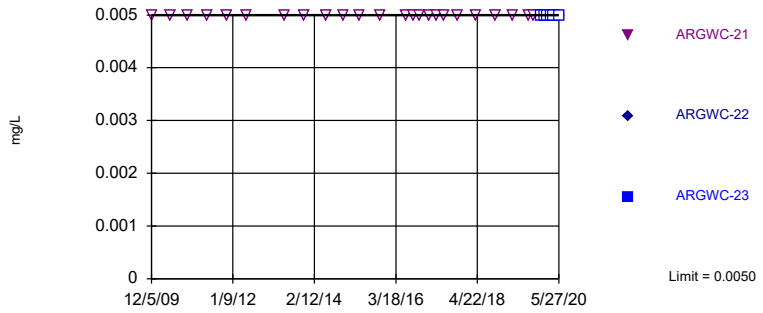
Constituent: Lead Analysis Run 7/23/2020 11:36 AM View: Appendix I
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 50 background values. 64% NDs. Annual per-constituent alpha = 0.004475. Individual comparison alpha = 0.0007472 (1 of 2). Comparing 3 points to limit.

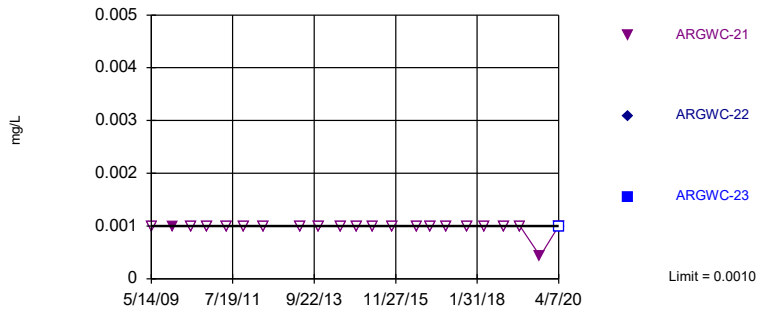
Constituent: Selenium Analysis Run 7/23/2020 11:36 AM View: Appendix I
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG
Hollow symbols indicate censored values.

Within Limit

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 44 background values. 88.64% NDs. Annual per-constituent alpha = 0.005902. Individual comparison alpha = 0.0009861 (1 of 2). Comparing 3 points to limit.

Constituent: Silver Analysis Run 7/23/2020 11:36 AM View: Appendix I
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Prediction Limit

Constituent: Arsenic (mg/L) Analysis Run 7/23/2020 11:37 AM View: Appendix I

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-22	ARGWC-23
5/5/2009	<0.001				
5/14/2009		0.0022			
5/15/2009			0.0015		
12/5/2009	<0.001	<0.001	<0.001		
6/1/2010	<0.001		<0.001		
6/2/2010		<0.001			
11/11/2010	<0.001	<0.001	<0.001		
5/17/2011	<0.001	<0.001	<0.001		
11/8/2011	<0.001	<0.001	<0.001		
5/16/2012	<0.001	0.002 (J)	<0.001		
5/14/2013	<0.001	<0.001	<0.001		
11/5/2013	<0.001	<0.001	<0.001		
6/9/2014	<0.001	<0.001	<0.001		
11/18/2014		<0.001	<0.001		
11/19/2014	<0.001				
4/14/2015	<0.001	<0.001	<0.001		
10/29/2015		<0.001			
11/4/2015	<0.001		<0.001		
6/22/2016	<0.001		0.00084 (J)		
6/23/2016		0.0011 (J)			
8/29/2016	<0.001		0.00049 (J)		
8/30/2016		0.002			
10/24/2016	<0.001		<0.001		
10/26/2016		0.0019 (J)			
1/25/2017	<0.001	0.0017	<0.001		
4/10/2017	<0.001	0.002	0.00056 (J)		
6/19/2017	<0.001	0.0026			
6/20/2017			0.00068 (J)		
10/24/2017	<0.001	0.0021	<0.001		
4/9/2018			<0.001		
4/10/2018	<0.001	0.0022			
10/16/2018	<0.001	0.0021	<0.001		
3/26/2019	<0.001				
3/27/2019		0.0011 (J)	<0.001		
8/20/2019	0.00036 (J)	0.002	0.00047 (J)		
10/7/2019	<0.001		<0.001		
10/8/2019		0.0012 (J)			
12/16/2019				0.00066 (J)	0.00075 (J)
1/14/2020				0.00038 (J)	0.00042 (J)
2/11/2020				0.0004 (J)	<0.001
3/9/2020				<0.001	<0.001
4/6/2020			0.00042 (J)		
4/7/2020	0.0006 (J)	0.00054 (J)		<0.001	<0.001
5/27/2020				<0.001	<0.001

Prediction Limit

Constituent: Barium (mg/L) Analysis Run 7/23/2020 11:37 AM View: Appendix I

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-22	ARGWC-23
5/5/2009	0.057				
5/14/2009		0.034			
5/15/2009			0.1		
12/5/2009	0.05	0.037	0.079		
6/1/2010	0.037		0.077		
6/2/2010		0.037			
11/11/2010	0.039	0.036	0.072		
5/17/2011	0.037	0.032	0.064		
11/8/2011	0.045	0.042	0.07		
5/16/2012	0.0518	0.0451	0.0741		
5/14/2013	0.067	0.043	0.074		
11/5/2013	0.066	0.051	0.075		
6/9/2014	0.062	0.045	0.08		
11/18/2014		0.052	0.078		
11/19/2014	0.054				
4/14/2015	0.046	0.047	0.073		
10/29/2015		0.053			
11/4/2015	0.046		0.077		
6/22/2016	0.039		0.078		
6/23/2016		0.13			
8/29/2016	0.04		0.07		
8/30/2016		0.11			
10/24/2016	0.0444		0.0738		
10/26/2016		0.122			
1/25/2017	0.045	0.12	0.084		
4/10/2017	0.039	0.11	0.073		
6/19/2017	0.041	0.13			
6/20/2017			0.078		
10/24/2017	0.041	0.12	0.081		
4/9/2018			0.081		
4/10/2018	0.044	0.12			
10/16/2018	0.047	0.1	0.08		
3/26/2019	0.056				
3/27/2019		0.091	0.082		
8/20/2019	0.052	0.1	0.079		
10/7/2019	0.049		0.076		
10/8/2019		0.096			
12/16/2019				0.076	0.096
1/14/2020				0.071	0.075
2/11/2020				0.046	0.046
3/9/2020				0.039	0.14
4/6/2020			0.075		
4/7/2020	0.047	0.05		0.04	0.16
5/27/2020				0.054	0.18

Prediction Limit

Constituent: Cadmium (mg/L) Analysis Run 7/23/2020 11:37 AM View: Appendix I

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-22	ARGWC-23
5/5/2009	<0.0025				
5/14/2009		<0.0025			
5/15/2009			<0.0025		
12/5/2009	<0.0025	<0.0025	<0.0025		
6/1/2010	<0.0025		<0.0025		
6/2/2010		<0.0025			
11/11/2010	<0.0025	<0.0025	<0.0025		
5/17/2011	<0.0025	<0.0025	<0.0025		
11/8/2011	<0.0025	<0.0025	<0.0025		
5/16/2012	<0.0025	<0.0025	<0.0025		
5/14/2013	<0.0025	<0.0025	<0.0025		
11/5/2013	<0.0025	<0.0025	<0.0025		
6/9/2014	<0.0025	<0.0025	<0.0025		
11/18/2014		<0.0025	<0.0025		
11/19/2014	<0.0025				
4/14/2015	<0.0025	<0.0025	<0.0025		
10/29/2015		<0.0025			
11/4/2015	<0.0025		<0.0025		
6/22/2016	<0.0025		<0.0025		
6/23/2016		<0.0025			
8/29/2016	<0.0025		<0.0025		
8/30/2016		<0.0025			
10/24/2016	<0.0025		<0.0025		
10/26/2016		<0.0025			
1/25/2017	<0.0025	<0.0025	<0.0025		
4/10/2017	<0.0025	<0.0025	<0.0025		
6/19/2017	<0.0025	<0.0025			
6/20/2017			<0.0025		
10/24/2017	<0.0025	<0.0025	<0.0025		
4/9/2018			<0.0025		
4/10/2018	<0.0025	<0.0025			
10/16/2018	<0.0025	<0.0025	<0.0025		
3/26/2019	<0.0025				
3/27/2019		<0.0025	<0.0025		
8/20/2019	<0.0025	<0.0025	<0.0025		
10/7/2019	<0.0025		<0.0025		
10/8/2019		<0.0025			
12/16/2019				<0.0025	<0.0025
1/14/2020				<0.0025	<0.0025
2/11/2020				<0.0025	<0.0025
3/9/2020				<0.0025	<0.0025
4/6/2020			<0.0025		
4/7/2020	0.00034 (J)	<0.0025		<0.0025	<0.0025
5/27/2020				<0.0025	<0.0025

Prediction Limit

Constituent: Lead (mg/L) Analysis Run 7/23/2020 11:37 AM View: Appendix I

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-22	ARGWC-23
5/5/2009	<0.001				
5/14/2009		<0.001			
5/15/2009			<0.001		
12/5/2009	<0.001	<0.001	<0.001		
6/1/2010	<0.001		<0.001		
6/2/2010		<0.001			
11/11/2010	<0.001	<0.001	<0.001		
5/17/2011	<0.001	<0.001	<0.001		
11/8/2011	<0.001	<0.001	<0.001		
5/16/2012	<0.001	<0.001	<0.001		
5/14/2013	<0.001	<0.001	<0.001		
11/5/2013	<0.001	<0.001	<0.001		
6/9/2014	<0.001	<0.001	<0.001		
11/18/2014		<0.001	<0.001		
11/19/2014	<0.001				
4/14/2015	<0.001	<0.001	<0.001		
10/29/2015		<0.001			
11/4/2015	<0.001		<0.001		
6/22/2016	<0.001		<0.001		
6/23/2016		<0.001			
8/29/2016	<0.001		<0.001		
8/30/2016		<0.001			
10/24/2016	<0.001		<0.001		
10/26/2016		<0.001			
1/25/2017	<0.001	<0.001	0.00037 (J)		
4/10/2017	<0.001	<0.001	<0.001		
6/19/2017	<0.001	<0.001			
6/20/2017			<0.001		
10/24/2017	<0.001	<0.001	<0.001		
4/9/2018			<0.001		
4/10/2018	<0.001	<0.001			
10/16/2018	<0.001	<0.001	<0.001		
3/26/2019	<0.001				
3/27/2019		<0.001	<0.001		
8/20/2019	<0.001	<0.001	<0.001		
10/7/2019	0.00018 (J)		0.00014 (J)		
10/8/2019		0.00015 (J)			
12/16/2019				<0.001	<0.001
1/14/2020				0.00022 (J)	0.00018 (J)
2/11/2020				<0.001	0.00026 (J)
3/9/2020				<0.001	<0.001
4/6/2020			0.00033 (J)		
4/7/2020	0.00037 (J)	0.00026 (J)		0.00014 (J)	<0.001
5/27/2020				<0.001	<0.001

Prediction Limit

Constituent: Selenium (mg/L) Analysis Run 7/23/2020 11:37 AM View: Appendix I

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-22	ARGWC-23
5/5/2009	0.0043 (o)				
5/14/2009		0.0058 (o)			
5/15/2009			0.007 (o)		
12/5/2009	<0.005	<0.005	<0.005		
6/1/2010	<0.005		<0.005		
6/2/2010		<0.005			
11/11/2010	<0.005	<0.005	<0.005		
5/17/2011	<0.005	<0.005	<0.005		
11/8/2011	<0.005	<0.005	<0.005		
5/16/2012	<0.005	<0.005	0.0024 (J)		
5/14/2013	<0.005	<0.005	<0.005		
11/5/2013	<0.005	<0.005	<0.005		
6/9/2014	<0.005	<0.005	<0.005		
11/18/2014		<0.005	<0.005		
11/19/2014	<0.005				
4/14/2015	<0.005	<0.005	<0.005		
10/29/2015		<0.005			
11/4/2015	<0.005		<0.005		
6/22/2016	0.00025 (J)		0.0019		
6/23/2016		<0.005			
8/29/2016	0.0004 (J)		0.0019		
8/30/2016		<0.005			
10/24/2016	<0.005		0.0023 (J)		
10/26/2016		<0.005			
1/25/2017	<0.005	<0.005	0.0015		
4/10/2017	<0.005	<0.005	0.0011 (J)		
6/19/2017	0.00025 (J)	<0.005			
6/20/2017			0.0016		
10/24/2017	<0.005	<0.005	0.0012 (J)		
4/9/2018			0.0012 (J)		
4/10/2018	0.00074 (J)	<0.005			
10/16/2018	<0.005	<0.005	0.0015		
3/26/2019	<0.005				
3/27/2019		<0.005	0.0015		
8/20/2019	<0.005	<0.005	0.0015 (J)		
10/7/2019	<0.005		0.0016 (J)		
10/8/2019		<0.005			
12/16/2019				<0.005	<0.005
1/14/2020				<0.005	<0.005
2/11/2020				<0.005	<0.005
3/9/2020				<0.005	<0.005
4/6/2020			0.0017 (J)		
4/7/2020	<0.005	<0.005		<0.005	<0.005
5/27/2020				<0.005	<0.005

Prediction Limit

Constituent: Silver (mg/L) Analysis Run 7/23/2020 11:37 AM View: Appendix I

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-22	ARGWC-23
5/5/2009	<0.001				
5/14/2009		<0.001			
5/15/2009			<0.001		
12/5/2009	0.00075	0.001	0.00043		
6/1/2010	<0.001		<0.001		
6/2/2010		<0.001			
11/11/2010	<0.001	<0.001	<0.001		
5/17/2011	<0.001	<0.001	<0.001		
11/8/2011	<0.001	<0.001	<0.001		
5/16/2012	<0.001	<0.001	<0.001		
5/14/2013	<0.001	<0.001	<0.001		
11/5/2013	<0.001	<0.001	<0.001		
6/9/2014	<0.001	<0.001	<0.001		
11/18/2014		<0.001	<0.001		
11/19/2014	<0.001				
4/14/2015	<0.001	<0.001	<0.001		
10/29/2015		<0.001			
11/4/2015	<0.001		<0.001		
6/22/2016	<0.001		<0.001		
6/23/2016		<0.001			
10/24/2016	<0.001		<0.001		
10/26/2016		<0.001			
4/10/2017	<0.001	<0.001	<0.001		
10/24/2017	<0.001	<0.001	<0.001		
4/9/2018			<0.001		
4/10/2018	<0.001	<0.001			
10/16/2018	<0.001	<0.001	<0.001		
3/26/2019	<0.001				
3/27/2019		<0.001	<0.001		
10/7/2019	0.00056 (J)		0.00031 (J)		
10/8/2019		0.00043 (J)			
4/6/2020			<0.001		
4/7/2020	0.00018 (J)	<0.001		<0.001	<0.001

FIGURE E.

Appendix III - Interwell Prediction Limits - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:39 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	ARGWC-21	0.080	n/a	4/7/2020	0.74	Yes	22	n/a	n/a	31.82	n/a	n/a	0.003586	NP Inter (normality) 1 of 2
Boron (mg/L)	ARGWC-22	0.080	n/a	5/27/2020	2.5	Yes	22	n/a	n/a	31.82	n/a	n/a	0.003586	NP Inter (normality) 1 of 2
Boron (mg/L)	ARGWC-23	0.080	n/a	5/27/2020	0.45	Yes	22	n/a	n/a	31.82	n/a	n/a	0.003586	NP Inter (normality) 1 of 2
Calcium (mg/L)	ARGWC-21	15	n/a	4/7/2020	69	Yes	22	10.91	2.106	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-22	15	n/a	5/27/2020	200	Yes	22	10.91	2.106	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-23	15	n/a	5/27/2020	69	Yes	22	10.91	2.106	0	None	No	0.002505	Param Inter 1 of 2
Fluoride (mg/L)	ARGWC-23	0.14	n/a	5/27/2020	0.25	Yes	24	n/a	n/a	58.33	n/a	n/a	0.003036	NP Inter (NDs) 1 of 2
pH (SU)	ARGWC-23	6	5.4	5/27/2020	6.3	Yes	23	5.726	0.1553	0	None	No	0.001253	Param Inter 1 of 2
Sulfate (mg/L)	ARGWC-21	21	n/a	4/7/2020	180	Yes	47	n/a	n/a	0	n/a	n/a	0.0008666	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-22	21	n/a	5/27/2020	720	Yes	47	n/a	n/a	0	n/a	n/a	0.0008666	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-23	21	n/a	5/27/2020	65	Yes	47	n/a	n/a	0	n/a	n/a	0.0008666	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-21	150	n/a	4/7/2020	460	Yes	22	111.5	23.09	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-22	150	n/a	5/27/2020	1300	Yes	22	111.5	23.09	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-23	150	n/a	5/27/2020	320	Yes	22	111.5	23.09	0	None	No	0.002505	Param Inter 1 of 2

Appendix III - Interwell Prediction Limits - All Results

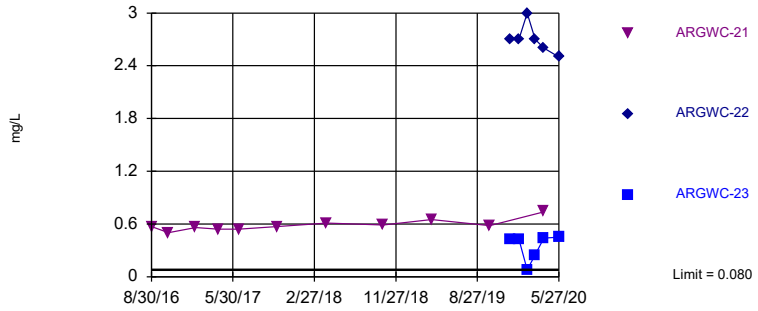
Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:39 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Boron (mg/L)	**ARGWC-21**	**0.080**	**n/a**	**4/7/2020**	**0.74**	**Yes**	**22**	**n/a**	**n/a**	**31.82**	**n/a**	**n/a**	**0.003586**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**ARGWC-22**	**0.080**	**n/a**	**5/27/2020**	**2.5**	**Yes**	**22**	**n/a**	**n/a**	**31.82**	**n/a**	**n/a**	**0.003586**	**NP Inter (normality) 1 of 2**
Boron (mg/L)	**ARGWC-23**	**0.080**	**n/a**	**5/27/2020**	**0.45**	**Yes**	**22**	**n/a**	**n/a**	**31.82**	**n/a**	**n/a**	**0.003586**	**NP Inter (normality) 1 of 2**
Calcium (mg/L)	**ARGWC-21**	**15**	**n/a**	**4/7/2020**	**69**	**Yes**	**22**	**10.91**	**2.106**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**
Calcium (mg/L)	**ARGWC-22**	**15**	**n/a**	**5/27/2020**	**200**	**Yes**	**22**	**10.91**	**2.106**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**
Calcium (mg/L)	**ARGWC-23**	**15**	**n/a**	**5/27/2020**	**69**	**Yes**	**22**	**10.91**	**2.106**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**
Chloride (mg/L)	ARGWC-21	16	n/a	4/7/2020	4.2	No	48	n/a	n/a	0	n/a	n/a	0.0008268	NP Inter (normality) 1 of 2
Chloride (mg/L)	ARGWC-22	16	n/a	5/27/2020	7.3	No	48	n/a	n/a	0	n/a	n/a	0.0008268	NP Inter (normality) 1 of 2
Chloride (mg/L)	ARGWC-23	16	n/a	5/27/2020	4	No	48	n/a	n/a	0	n/a	n/a	0.0008268	NP Inter (normality) 1 of 2
Fluoride (mg/L)	ARGWC-21	0.14	n/a	4/7/2020	0.12	No	24	n/a	n/a	58.33	n/a	n/a	0.003036	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	ARGWC-22	0.14	n/a	5/27/2020	0.06J	No	24	n/a	n/a	58.33	n/a	n/a	0.003036	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	**ARGWC-23**	**0.14**	**n/a**	**5/27/2020**	**0.25**	**Yes**	**24**	**n/a**	**n/a**	**58.33**	**n/a**	**n/a**	**0.003036**	**NP Inter (NDs) 1 of 2**
pH (SU)	ARGWC-21	6	5.4	4/7/2020	5.96	No	23	5.726	0.1553	0	None	No	0.001253	Param Inter 1 of 2
pH (SU)	ARGWC-22	6	5.4	5/27/2020	5.69	No	23	5.726	0.1553	0	None	No	0.001253	Param Inter 1 of 2
pH (SU)	**ARGWC-23**	**6**	**5.4**	**5/27/2020**	**6.3**	**Yes**	**23**	**5.726**	**0.1553**	**0**	**None**	**No**	**0.001253**	**Param Inter 1 of 2**
Sulfate (mg/L)	**ARGWC-21**	**21**	**n/a**	**4/7/2020**	**180**	**Yes**	**47**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0008666**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**ARGWC-22**	**21**	**n/a**	**5/27/2020**	**720**	**Yes**	**47**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0008666**	**NP Inter (normality) 1 of 2**
Sulfate (mg/L)	**ARGWC-23**	**21**	**n/a**	**5/27/2020**	**65**	**Yes**	**47**	**n/a**	**n/a**	**0**	**n/a**	**n/a**	**0.0008666**	**NP Inter (normality) 1 of 2**
Total Dissolved Solids (mg/L)	**ARGWC-21**	**150**	**n/a**	**4/7/2020**	**460**	**Yes**	**22**	**111.5**	**23.09**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**ARGWC-22**	**150**	**n/a**	**5/27/2020**	**1300**	**Yes**	**22**	**111.5**	**23.09**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**
Total Dissolved Solids (mg/L)	**ARGWC-23**	**150**	**n/a**	**5/27/2020**	**320**	**Yes**	**22**	**111.5**	**23.09**	**0**	**None**	**No**	**0.002505**	**Param Inter 1 of 2**

Exceeds Limit: ARGWC-21, ARGWC-22, ARGWC-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 22 background values. 31.82% NDs. Annual per-constituent alpha = 0.02133. Individual comparison alpha = 0.003586 (1 of 2). Comparing 3 points to limit.

Constituent: Boron Analysis Run 7/23/2020 11:38 AM View: Appendix III - Interwell

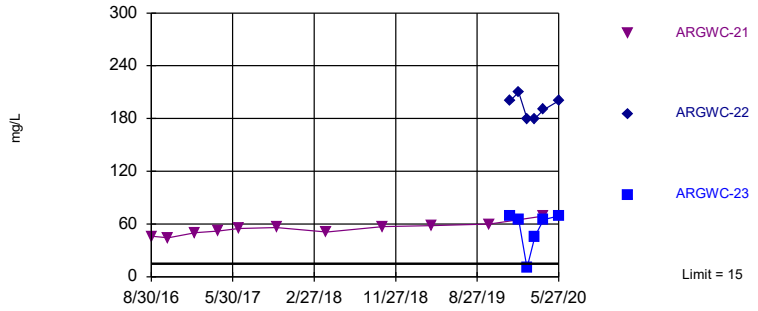
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Exceeds Limit: ARGWC-21, ARGWC-22, ARGWC-23

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=10.91, Std. Dev.=2.106, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9416, critical = 0.878. Kappa = 1.866 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.002505. Comparing 3 points to limit.

Constituent: Calcium Analysis Run 7/23/2020 11:38 AM View: Appendix III - Interwell

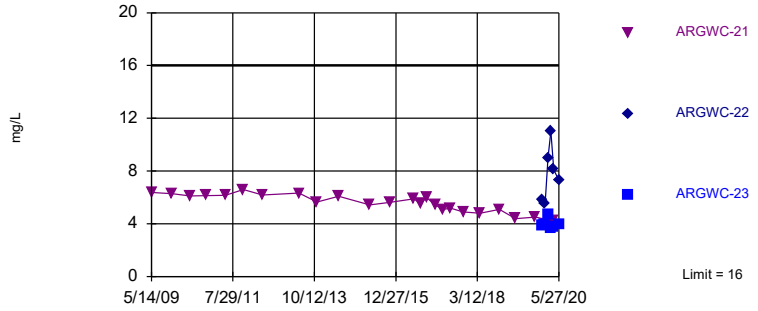
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Within Limit

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 48 background values. Annual per-constituent alpha = 0.00495. Individual comparison alpha = 0.0008268 (1 of 2). Comparing 3 points to limit.

Constituent: Chloride Analysis Run 7/23/2020 11:38 AM View: Appendix III - Interwell

Plant Arkwright Client: Southern Company Data: Arkwright No 2

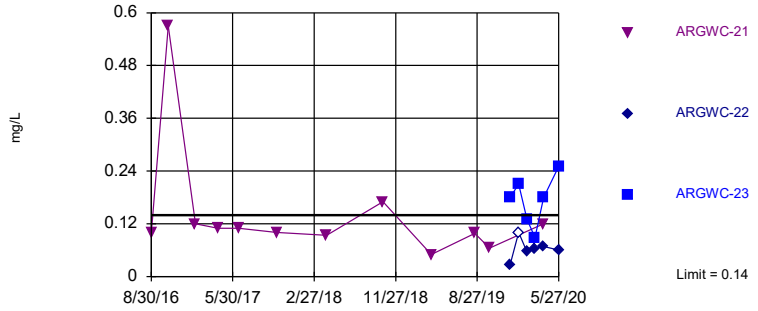
Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Exceeds Limit: ARGWC-23

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 24 background values. 58.33% NDs. Annual per-constituent alpha = 0.01808. Individual comparison alpha = 0.003036 (1 of 2). Comparing 3 points to limit.

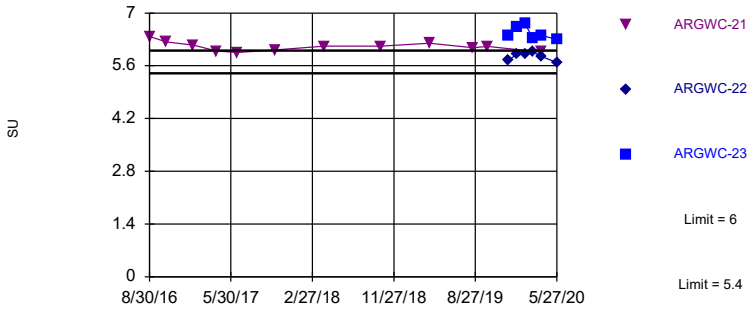
Constituent: Fluoride Analysis Run 7/23/2020 11:38 AM View: Appendix III - Interwell

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limits: ARGWC-23

Prediction Limit

Interwell Parametric



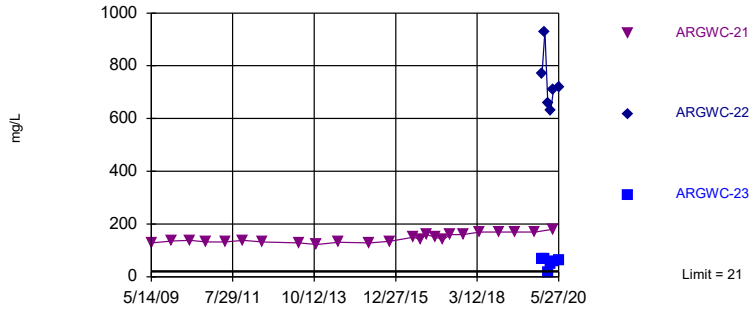
Background Data Summary: Mean=5.726, Std. Dev.=0.1553, n=23. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9511, critical = 0.881. Kappa = 1.856 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001253. Comparing 3 points to limit.

Constituent: pH Analysis Run 7/23/2020 11:38 AM View: Appendix III - Interwell
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limit: ARGWC-21, ARGWC-22, ARGWC-23

Prediction Limit

Interwell Non-parametric



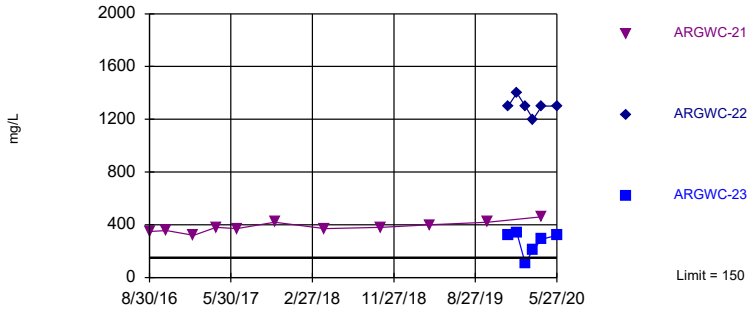
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 47 background values. Annual per-constituent alpha = 0.005188. Individual comparison alpha = 0.0008666 (1 of 2). Comparing 3 points to limit.

Constituent: Sulfate Analysis Run 7/23/2020 11:38 AM View: Appendix III - Interwell
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limit: ARGWC-21, ARGWC-22, ARGWC-23

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=111.5, Std. Dev.=23.09, n=22. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9587, critical = 0.878. Kappa = 1.866 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.002505. Comparing 3 points to limit.

Constituent: Total Dissolved Solids Analysis Run 7/23/2020 11:38 AM View: Appendix III - Interwell
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Prediction Limit

Constituent: Boron (mg/L) Analysis Run 7/23/2020 11:39 AM View: Appendix III - Interwell

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	0.024 (J)	<0.08			
8/30/2016			0.57		
10/24/2016	0.0339 (J)	0.0194 (J)			
10/26/2016			0.502		
1/25/2017	0.048 (J)	0.026 (J)	0.56		
4/10/2017	0.022 (J)	<0.08	0.54		
6/19/2017	<0.08		0.54		
6/20/2017		0.032 (J)			
10/24/2017	0.021 (J)	0.054	0.57		
4/9/2018		0.06			
4/10/2018	0.022 (J)		0.61		
10/16/2018	<0.08	0.036 (J)	0.59		
3/26/2019	<0.08				
3/27/2019		0.046 (J)	0.65		
10/7/2019	<0.08	<0.08			
10/8/2019			0.58		
12/16/2019				2.7	0.42
1/14/2020				2.7	0.43
2/11/2020				3	0.079 (J)
3/9/2020				2.7	0.25
4/6/2020		0.063 (J)			
4/7/2020	0.072 (J)		0.74	2.6	0.44
5/27/2020				2.5	0.45

Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 7/23/2020 11:39 AM View: Appendix III - Interwell

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	11	8.3			
8/30/2016			46		
10/24/2016	11.5	7.66			
10/26/2016			44.3		
1/25/2017	13	9.4	50		
4/10/2017	11	8.6	52		
6/19/2017	12		55		
6/20/2017		9.4			
10/24/2017	12	9.9	56		
4/9/2018		9.9			
4/10/2018	12		51		
10/16/2018	14	9.8	57		
3/26/2019	15				
3/27/2019		9.2	58		
10/7/2019	14	8.9			
10/8/2019			60		
12/16/2019				200	69
1/14/2020				210	65
2/11/2020				180	10
3/9/2020				180	46
4/6/2020		9.5			
4/7/2020	14		69	190	65
5/27/2020				200	69

Prediction Limit

Constituent: Chloride (mg/L) Analysis Run 7/23/2020 11:39 AM View: Appendix III - Interwell

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-22	ARGWC-23
5/5/2009	11.1				
5/14/2009		6.38			
5/15/2009			6.86		
12/5/2009	9.46	6.28	5.06		
6/1/2010	6.32		5.47		
6/2/2010		6.1			
11/11/2010	7.16	6.1461	5.26		
5/17/2011	6.84	6.17	4.8		
11/8/2011	9.13	6.6	5.62		
5/16/2012	10.8	6.18	5.1		
5/14/2013	16.2	6.32	5.25		
11/5/2013	14.8	5.65	5.19		
6/9/2014	13.6	6.08	5.55		
4/14/2015	10.4	5.43	5.39		
10/29/2015		5.62			
11/4/2015	9.19		5.38		
6/22/2016	8.4		5.7		
6/23/2016		5.9			
8/29/2016	8.4		5.3		
8/30/2016		5.5			
10/24/2016	9.6		5.4		
10/26/2016		6			
1/25/2017	8.7	5.4	5.1		
4/10/2017	8	5.1	4.9		
6/19/2017	7.6	5.2			
6/20/2017			5		
10/24/2017	7.2	4.9	4.6		
4/9/2018			4.7		
4/10/2018	7.2	4.8			
10/16/2018	10	5.1	5.3		
3/26/2019	12				
3/27/2019		4.4	4.6		
10/7/2019	11		5.2		
10/8/2019		4.5			
12/16/2019				5.8	3.9
1/14/2020				5.5	4
2/11/2020				9	4.7
3/9/2020				11	3.7
4/6/2020			5.2		
4/7/2020	11	4.2		8.1	3.8
5/27/2020				7.3	4

Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 7/23/2020 11:39 AM View: Appendix III - Interwell

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	<0.1	<0.1			
8/30/2016			0.099 (J)		
10/24/2016	0.07 (J)	0.04 (J)			
10/26/2016			0.57		
1/25/2017	<0.1	<0.1	0.12 (J)		
4/10/2017	<0.1	<0.1	0.11 (J)		
6/19/2017	<0.1		0.11 (J)		
6/20/2017		<0.1			
10/24/2017	<0.1	<0.1	0.1 (J)		
4/9/2018		<0.1			
4/10/2018	<0.1		0.094 (J)		
10/16/2018	0.083 (J)	<0.1	0.17 (J)		
3/26/2019	0.041 (J)				
3/27/2019		<0.1	0.05 (J)		
8/20/2019	0.045 (J)	0.042 (J)	0.098 (J)		
10/7/2019	0.049 (J)	0.036 (J)			
10/8/2019			0.065 (J)		
12/16/2019				0.026 (J)	0.18 (J)
1/14/2020				<0.1	0.21
2/11/2020				0.056	0.13
3/9/2020				0.064 (J)	0.089 (J)
4/6/2020		0.059 (J)			
4/7/2020	0.14		0.12	0.068 (J)	0.18
5/27/2020				0.06 (J)	0.25

Prediction Limit

Constituent: pH (SU) Analysis Run 7/23/2020 11:39 AM View: Appendix III - Interwell

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-20 (bg)	ARGWC-21	ARGWA-19 (bg)	ARGWC-23	ARGWC-22
8/29/2016	5.64		6.75 (o)		
8/30/2016		6.38			
10/24/2016	5.6		5.81		
10/26/2016		6.23			
1/25/2017	5.65	6.15	5.91		
4/10/2017	5.42	5.99	5.74		
6/19/2017		5.95	5.54		
6/20/2017	5.59				
10/24/2017	5.58	6.02	5.82		
4/9/2018	5.78				
4/10/2018		6.12	5.92		
10/16/2018	5.69	6.12	5.94		
3/26/2019			5.85		
3/27/2019	5.96	6.2			
8/20/2019	5.57	6.08	5.9		
10/7/2019	5.65		5.89		
10/8/2019		6.11			
12/16/2019				6.41	5.74
1/14/2020				6.62	5.91
2/11/2020				6.71	5.9
3/9/2020				6.32	5.97
4/6/2020	5.53				
4/7/2020		5.96	5.72	6.4	5.84
5/27/2020				6.3	5.69

Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/23/2020 11:39 AM View: Appendix III - Interwell

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-22	ARGWC-23
5/5/2009	15.9				
5/14/2009		129			
5/15/2009			41.3 (o)		
12/5/2009	15.1	136	16.2		
6/1/2010	12.7		18.2		
6/2/2010		138			
11/11/2010	11.5	131.49	16.5		
5/17/2011	11.2	132	16		
11/8/2011	11.3	138	21		
5/16/2012	9.38	132	17.7		
5/14/2013	8.74	129	19.5		
11/5/2013	9.12	122	18.3		
6/9/2014	8.61	131	18.6		
4/14/2015	8.45	128	18.8		
10/29/2015		134			
11/4/2015	9.01		17.4		
6/22/2016	9.3		18		
6/23/2016		150			
8/29/2016	8.7		18		
8/30/2016		140			
10/24/2016	9.3		18		
10/26/2016		160			
1/25/2017	8.8	150	19		
4/10/2017	7.8	140	16		
6/19/2017	8.6	160			
6/20/2017			18		
10/24/2017	9.1	160	19		
4/9/2018			18		
4/10/2018	7.9	170			
10/16/2018	8.2	170	18		
3/26/2019	6.1				
3/27/2019		170	15		
10/7/2019	7.4		17		
10/8/2019		170			
12/16/2019				770	66
1/14/2020				930	68
2/11/2020				660	18
3/9/2020				630	49
4/6/2020			15		
4/7/2020	8.4	180		710	58
5/27/2020				720	65

Prediction Limit

Constituent: Total Dissolved Solids (mg/L) Analysis Run 7/23/2020 11:39 AM View: Appendix III - Interwell

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	130	100			
8/30/2016			350		
10/24/2016	108	91			
10/26/2016			357		
1/25/2017	120	90	320		
4/10/2017	128 (D)	110	380		
6/19/2017	86		370		
6/20/2017		72			
10/24/2017	120	110	420		
4/9/2018		100			
4/10/2018	120		370		
10/16/2018	140	110	380		
3/26/2019	170				
3/27/2019		100	400		
10/7/2019	150	87			
10/8/2019			420		
12/16/2019				1300	320
1/14/2020				1400	340
2/11/2020				1300	110
3/9/2020				1200	210
4/6/2020		90			
4/7/2020	120		460	1300	290
5/27/2020				1300	320

FIGURE F.

Trend Tests - Prediction Limit Exceedances - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:40 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Calcium (mg/L)	**ARGWC-21**	**5.296**	**47**	**34**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**ARGWA-19 (bg)**	**-0.478**	**-193**	**-105**	**Yes**	**24**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	**ARGWC-21**	**4.343**	**174**	**105**	**Yes**	**24**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids (mg/L)	**ARGWC-21**	**26.72**	**38**	**34**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.01**	**NP**

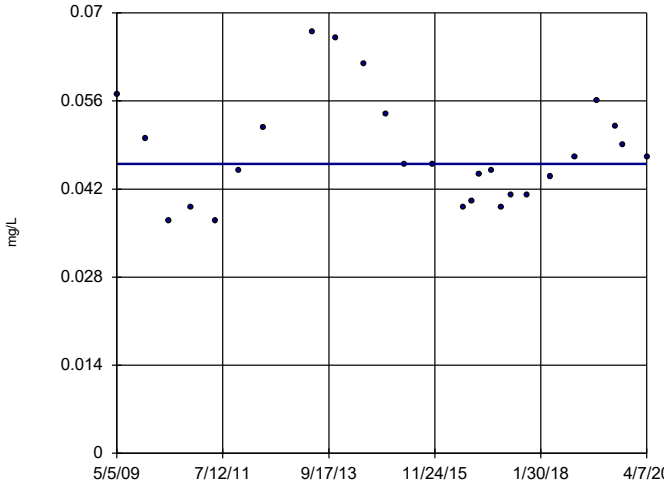
Trend Tests - Prediction Limit Exceedances - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:40 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Barium (mg/L)	ARGWA-19 (bg)	0	5	118	No	26	0	n/a	n/a	0.01	NP
Barium (mg/L)	ARGWA-20 (bg)	0.0004013	59	118	No	26	0	n/a	n/a	0.01	NP
Barium (mg/L)	ARGWC-23	0.2067	9	14	No	6	0	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWA-19 (bg)	0.0133	16	34	No	11	36.36	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWA-20 (bg)	0.008392	14	34	No	11	27.27	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWC-21	0.04153	33	34	No	11	0	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWC-22	-0.4479	-8	-14	No	6	0	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWC-23	0.06718	7	14	No	6	0	n/a	n/a	0.01	NP
Calcium (mg/L)	ARGWA-19 (bg)	0.869	34	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	ARGWA-20 (bg)	0.3023	17	34	No	11	0	n/a	n/a	0.01	NP
Calcium (mg/L)	**ARGWC-21**	**5.296**	**47**	**34**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Calcium (mg/L)	ARGWC-22	0	-1	-14	No	6	0	n/a	n/a	0.01	NP
Calcium (mg/L)	ARGWC-23	0	1	14	No	6	0	n/a	n/a	0.01	NP
Fluoride (mg/L)	ARGWA-19 (bg)	-0.01769	-23	-38	No	12	50	n/a	n/a	0.01	NP
Fluoride (mg/L)	ARGWA-20 (bg)	0	-16	-38	No	12	66.67	n/a	n/a	0.01	NP
Fluoride (mg/L)	ARGWC-23	0.109	2	14	No	6	0	n/a	n/a	0.01	NP
pH (SU)	ARGWA-19 (bg)	0.01653	5	34	No	11	0	n/a	n/a	0.01	NP
pH (SU)	ARGWA-20 (bg)	-0.002744	-1	-38	No	12	0	n/a	n/a	0.01	NP
pH (SU)	ARGWC-21	-0.03502	-21	-38	No	12	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**ARGWA-19 (bg)**	**-0.478**	**-193**	**-105**	**Yes**	**24**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	ARGWA-20 (bg)	-0.07792	-37	-98	No	23	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	**ARGWC-21**	**4.343**	**174**	**105**	**Yes**	**24**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Sulfate (mg/L)	ARGWC-22	-193.8	-3	-14	No	6	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	ARGWC-23	-2.239	-1	-14	No	6	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	ARGWA-19 (bg)	8.218	15	34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	ARGWA-20 (bg)	0	-6	-34	No	11	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	**ARGWC-21**	**26.72**	**38**	**34**	**Yes**	**11**	**0**	**n/a**	**n/a**	**0.01**	**NP**
Total Dissolved Solids (mg/L)	ARGWC-22	0	-3	-14	No	6	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	ARGWC-23	0	0	14	No	6	0	n/a	n/a	0.01	NP

Sen's Slope Estimator

ARGWA-19 (bg)



n = 26

Slope = 0 units per year.

Mann-Kendall statistic = 5 critical = 118

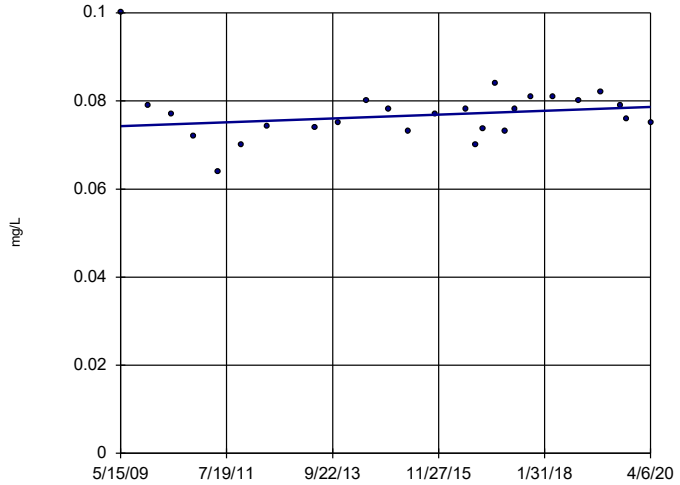
Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWA-20 (bg)



n = 26

Slope = 0.0004013 units per year.

Mann-Kendall statistic = 59 critical = 118

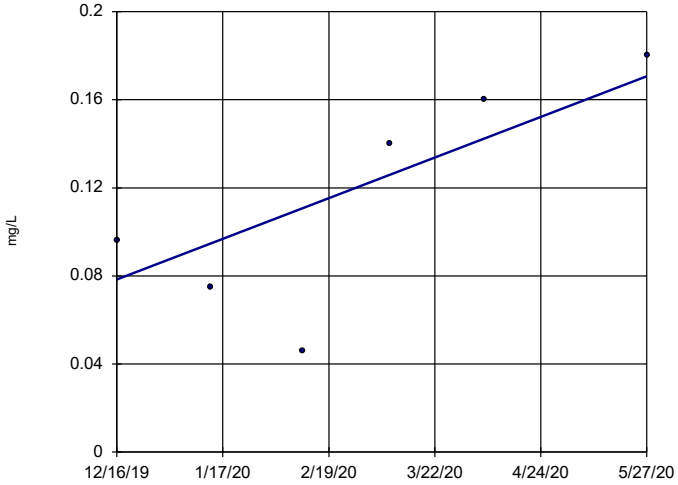
Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

Constituent: Barium Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWC-23



n = 6

Slope = 0.2067 units per year.

Mann-Kendall statistic = 9 critical = 14

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

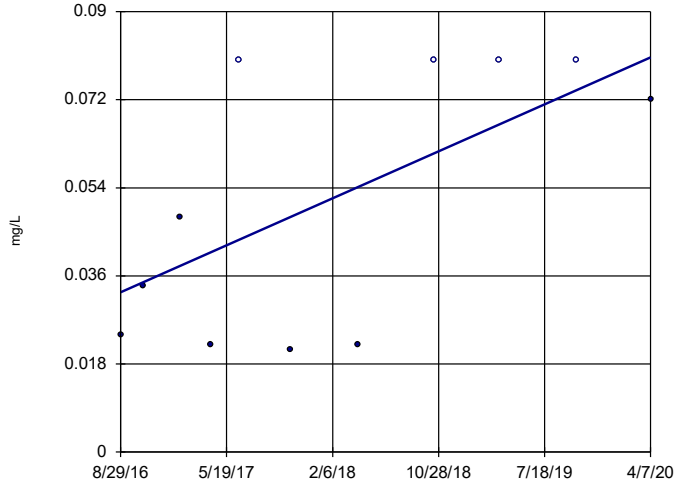
Constituent: Barium Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Hollow symbols indicate censored values.

Sen's Slope Estimator

ARGWA-19 (bg)



n = 11

Slope = 0.0133 units per year.

Mann-Kendall statistic = 16 critical = 34

Trend not sig-nificant at 99% confidence level (α = 0.005 per tail).

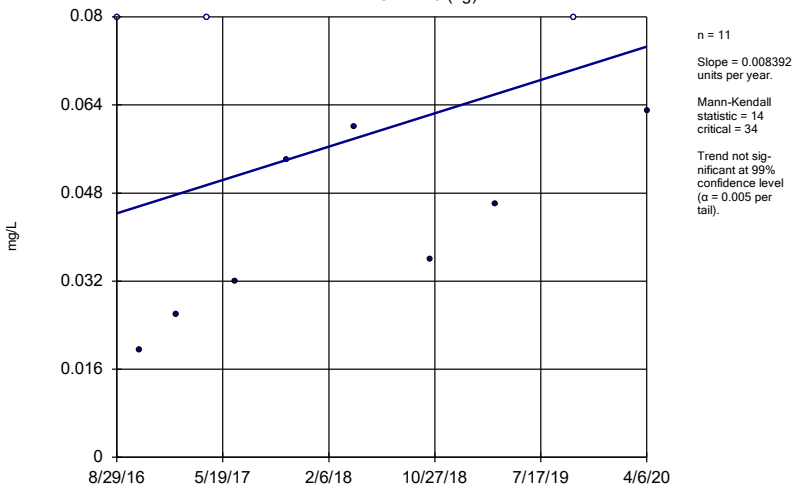
Constituent: Boron Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Hollow symbols indicate censored values.

Sen's Slope Estimator

ARGWA-20 (bg)



n = 11

Slope = 0.008392 units per year.

Mann-Kendall statistic = 14
critical = 34

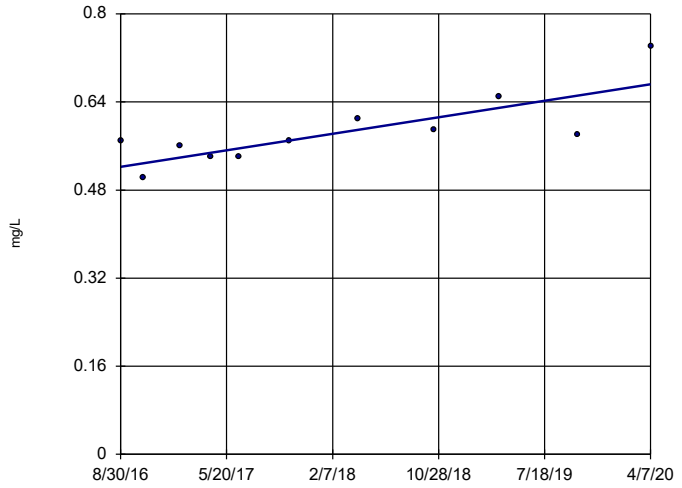
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 7/23/2020 11:40 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-21



n = 11

Slope = 0.04153 units per year.

Mann-Kendall statistic = 33
critical = 34

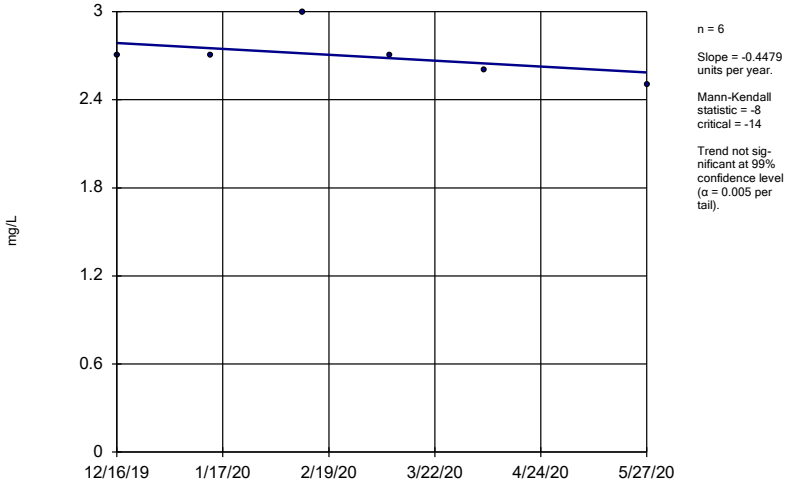
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 7/23/2020 11:40 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-22



n = 6

Slope = -0.4479 units per year.

Mann-Kendall statistic = -8
critical = -14

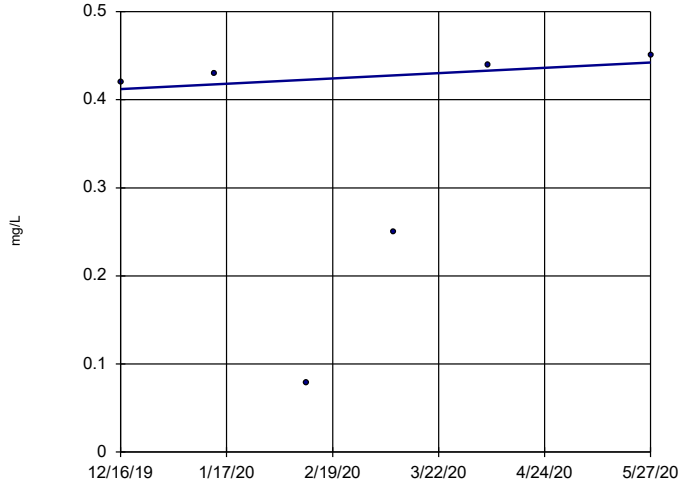
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 7/23/2020 11:40 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-23



n = 6

Slope = 0.06718 units per year.

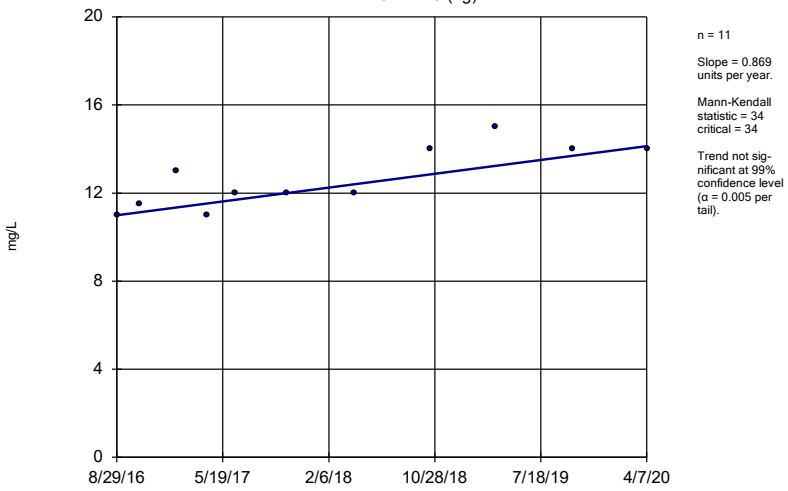
Mann-Kendall statistic = 7
critical = 14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Boron Analysis Run 7/23/2020 11:40 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWA-19 (bg)



n = 11

Slope = 0.869 units per year.

Mann-Kendall statistic = 34 critical = 34

Trend not significant at 99% confidence level (α = 0.005 per tail).

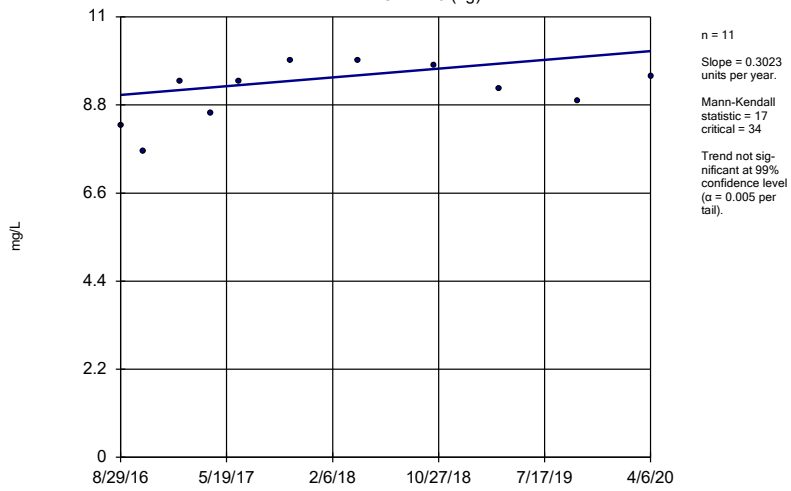
Constituent: Calcium Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWA-20 (bg)



n = 11

Slope = 0.3023 units per year.

Mann-Kendall statistic = 17 critical = 34

Trend not significant at 99% confidence level (α = 0.005 per tail).

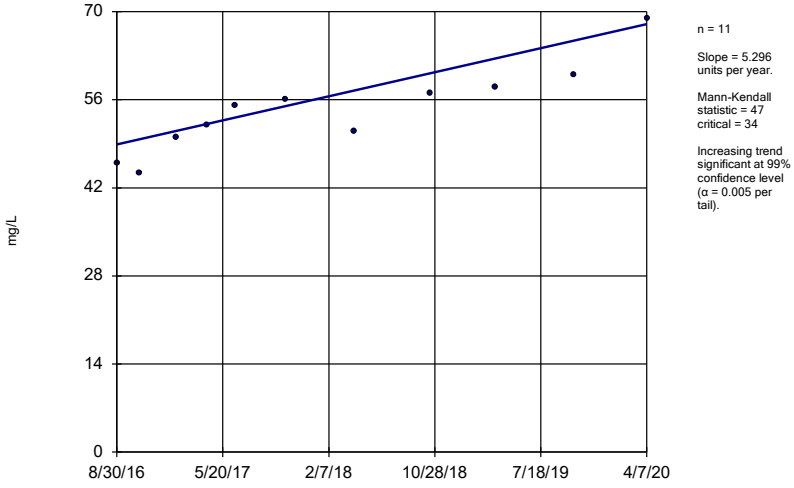
Constituent: Calcium Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-21



n = 11

Slope = 5.296 units per year.

Mann-Kendall statistic = 47 critical = 34

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

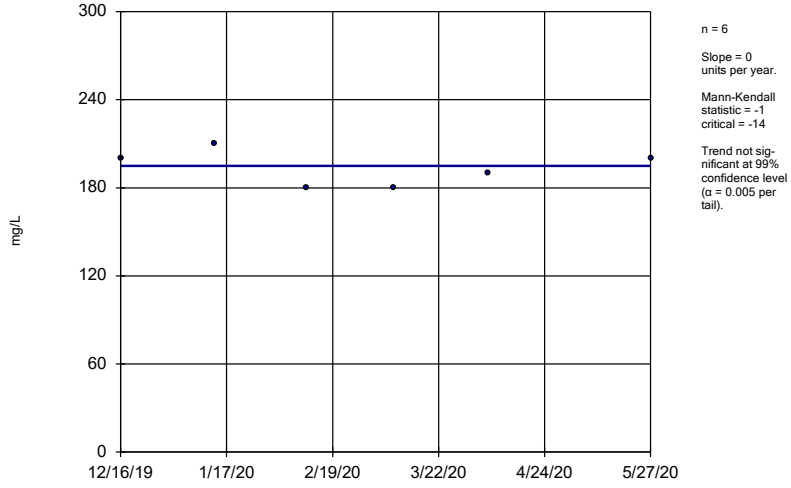
Constituent: Calcium Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-22



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = -1 critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

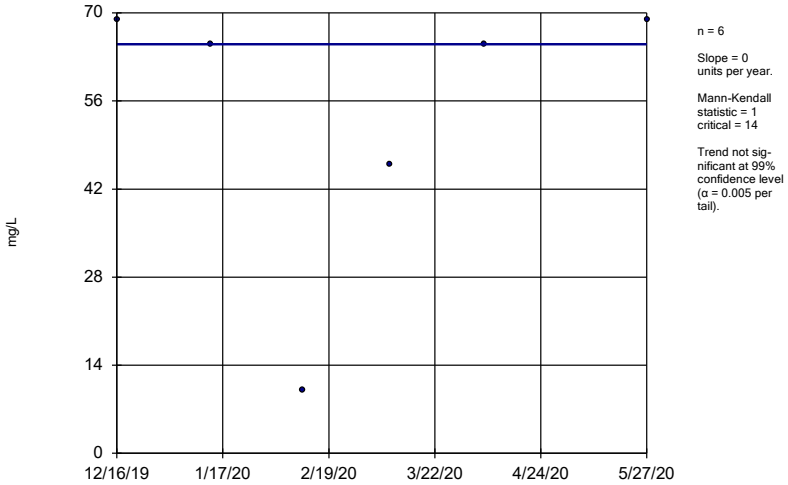
Constituent: Calcium Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-23



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = 1 critical = 14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Calcium Analysis Run 7/23/2020 11:40 AM View: Trend Tests

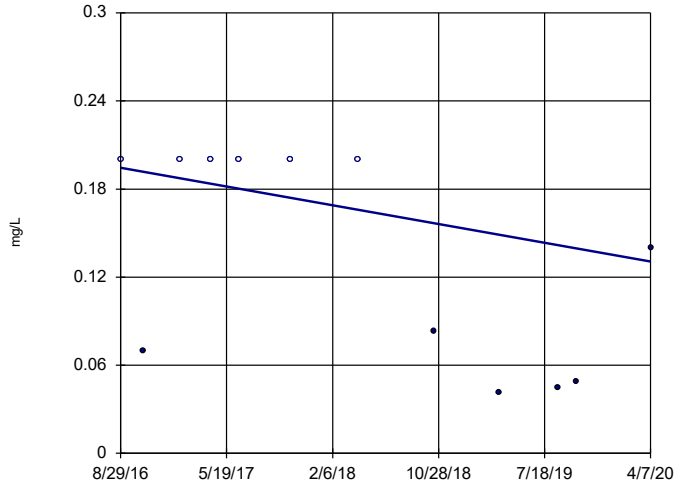
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Sen's Slope Estimator

ARGWA-19 (bg)



n = 12

Slope = -0.01769 units per year.

Mann-Kendall statistic = -23 critical = -38

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Fluoride Analysis Run 7/23/2020 11:40 AM View: Trend Tests

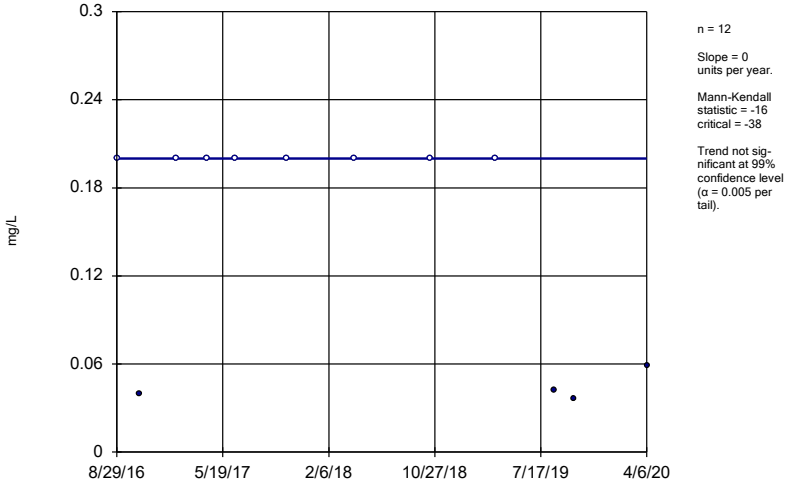
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Hollow symbols indicate censored values.

Sen's Slope Estimator

ARGWA-20 (bg)



n = 12

Slope = 0 units per year.

Mann-Kendall statistic = -16 critical = -38

Trend not significant at 99% confidence level (α = 0.005 per tail).

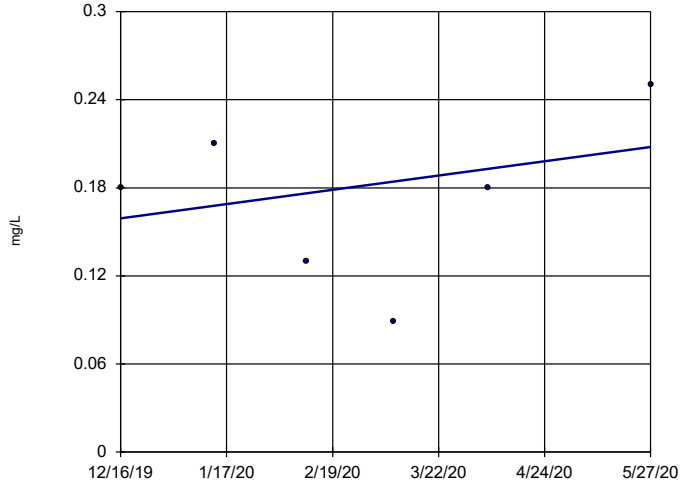
Constituent: Fluoride Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-23



n = 6

Slope = 0.109 units per year.

Mann-Kendall statistic = 2 critical = 14

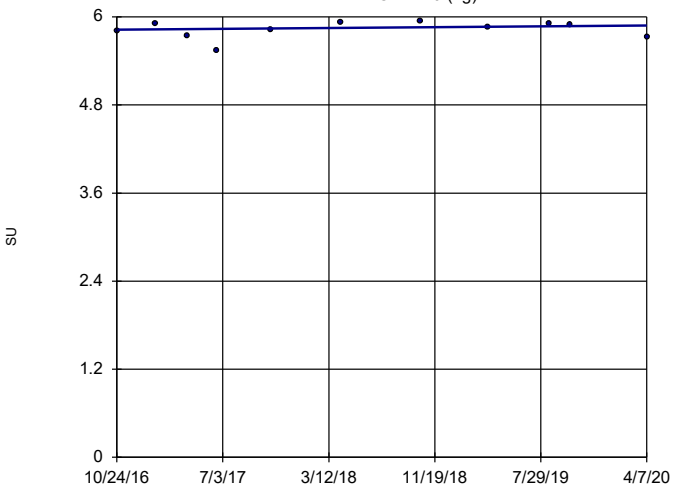
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Fluoride Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWA-19 (bg)



n = 11

Slope = 0.01653 units per year.

Mann-Kendall statistic = 5 critical = 34

Trend not significant at 99% confidence level (α = 0.005 per tail).

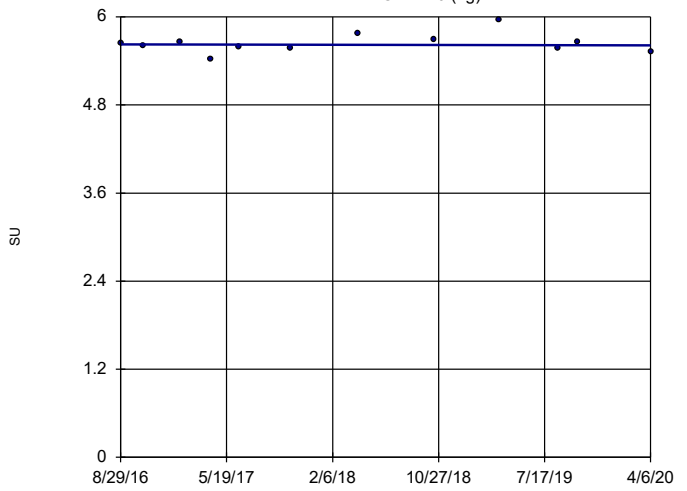
Constituent: pH Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWA-20 (bg)



n = 12

Slope = -0.002744 units per year.

Mann-Kendall statistic = -1 critical = -38

Trend not significant at 99% confidence level (α = 0.005 per tail).

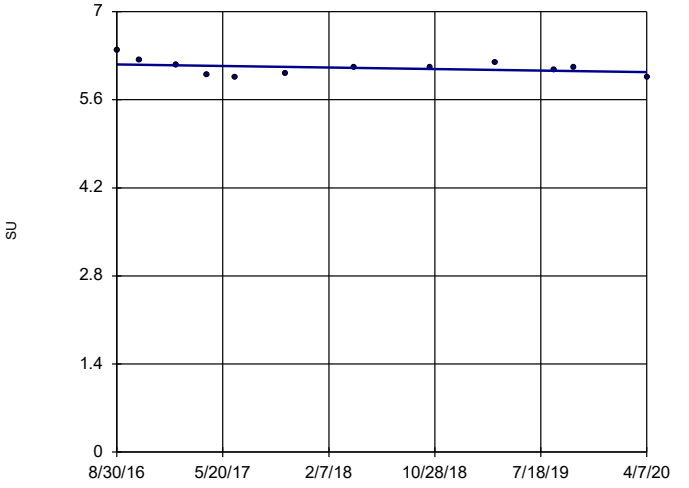
Constituent: pH Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-21



n = 12

Slope = -0.03502 units per year.

Mann-Kendall statistic = -21 critical = -38

Trend not significant at 99% confidence level (α = 0.005 per tail).

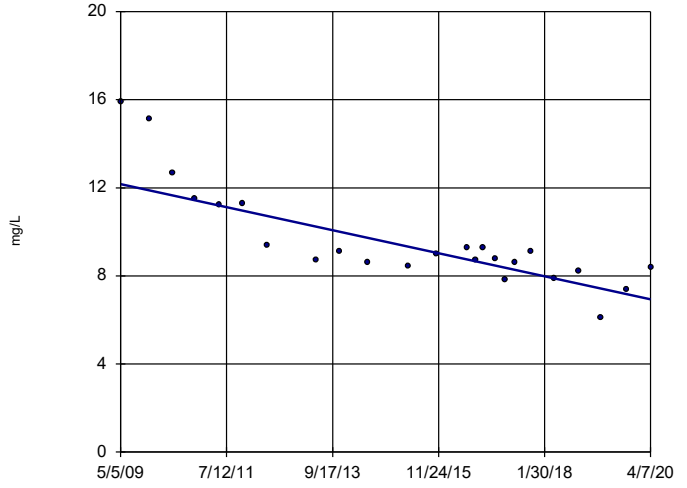
Constituent: pH Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWA-19 (bg)



n = 24

Slope = -0.478 units per year.

Mann-Kendall statistic = -193 critical = -105

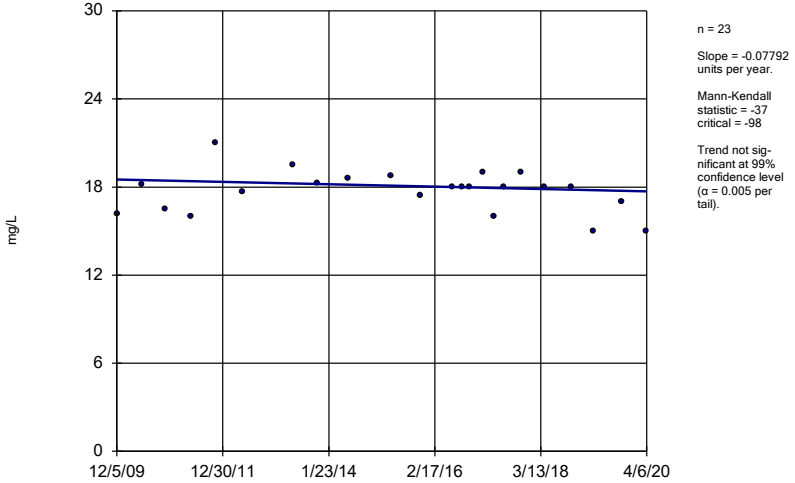
Decreasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWA-20 (bg)



n = 23

Slope = -0.07792 units per year.

Mann-Kendall statistic = -37
critical = -98

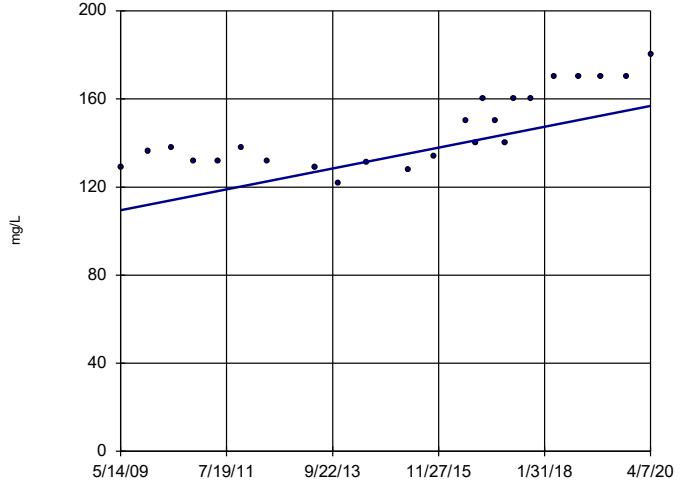
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 7/23/2020 11:40 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-21



n = 24

Slope = 4.343 units per year.

Mann-Kendall statistic = 174
critical = 105

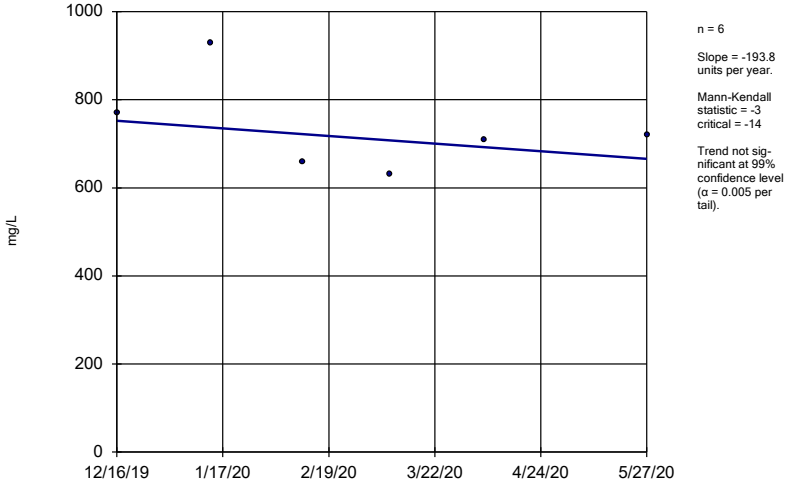
Increasing trend significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 7/23/2020 11:40 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-22



n = 6

Slope = -193.8 units per year.

Mann-Kendall statistic = -3
critical = -14

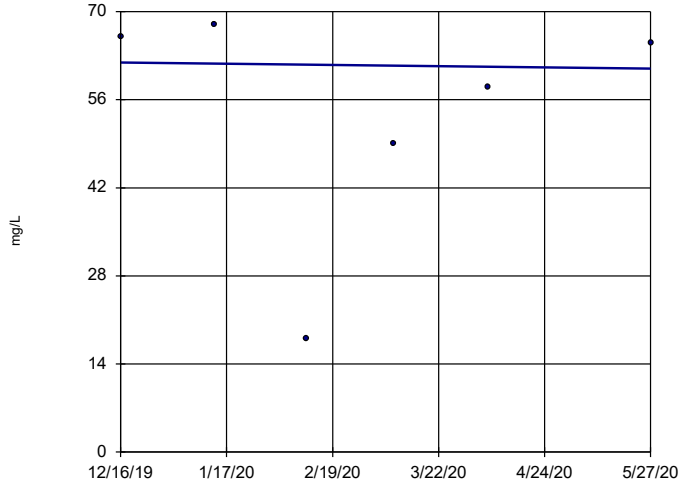
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 7/23/2020 11:40 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-23



n = 6

Slope = -2.239 units per year.

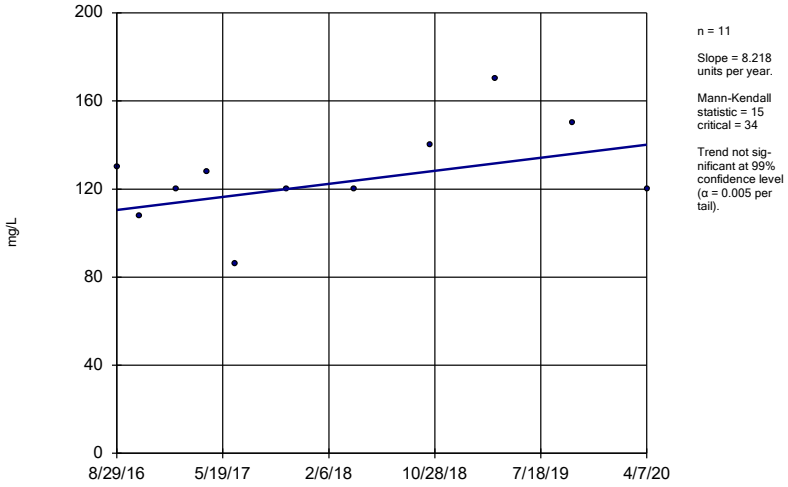
Mann-Kendall statistic = -1
critical = -14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Sulfate Analysis Run 7/23/2020 11:40 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWA-19 (bg)



n = 11

Slope = 8.218 units per year.

Mann-Kendall statistic = 15 critical = 34

Trend not significant at 99% confidence level (α = 0.005 per tail).

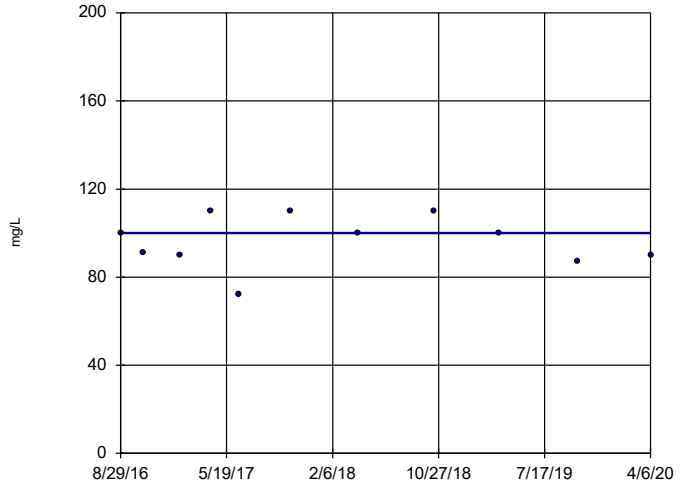
Constituent: Total Dissolved Solids Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWA-20 (bg)



n = 11

Slope = 0 units per year.

Mann-Kendall statistic = -6 critical = -34

Trend not significant at 99% confidence level (α = 0.005 per tail).

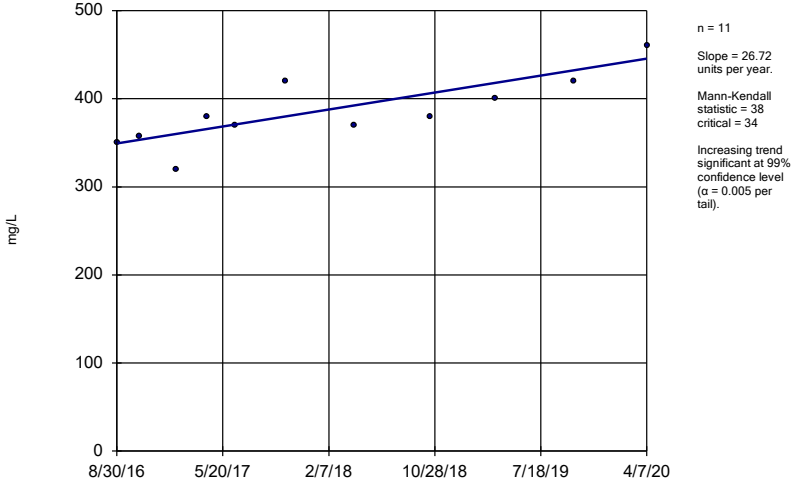
Constituent: Total Dissolved Solids Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-21



n = 11

Slope = 26.72 units per year.

Mann-Kendall statistic = 38 critical = 34

Increasing trend significant at 99% confidence level (α = 0.005 per tail).

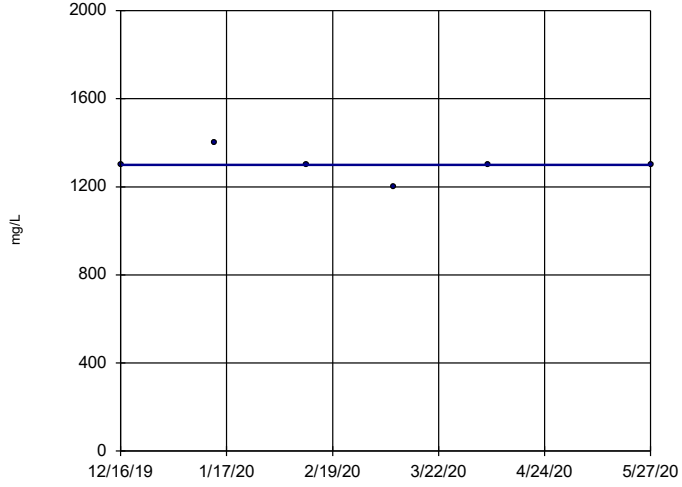
Constituent: Total Dissolved Solids Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.26d Groundwater Stats Consulting. UG

Sen's Slope Estimator

ARGWC-22



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = -3 critical = -14

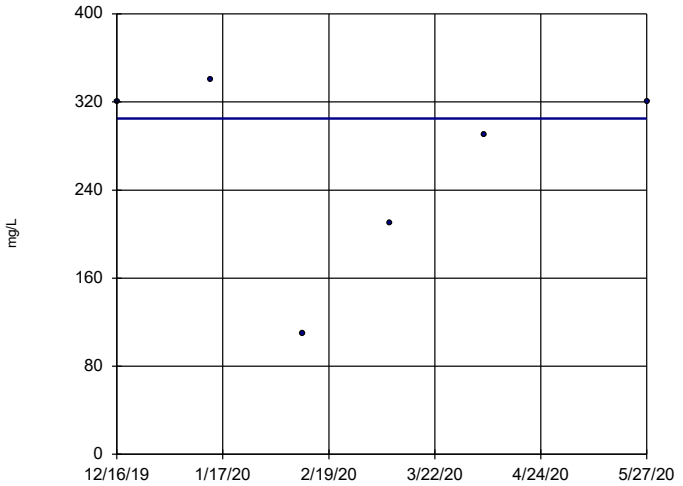
Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator

ARGWC-23



n = 6

Slope = 0 units per year.

Mann-Kendall statistic = 0 critical = 14

Trend not significant at 99% confidence level (α = 0.005 per tail).

Constituent: Total Dissolved Solids Analysis Run 7/23/2020 11:40 AM View: Trend Tests

Plant Arkwright Client: Southern Company Data: Arkwright No 2

FIGURE G.

Tolerance Limit Summary Table

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 10:14 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Antimony (mg/L)	n/a	0.0020	n/a	n/a	n/a	n/a	18	n/a	n/a	100	n/a	n/a	0.3972	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.0015	n/a	n/a	n/a	n/a	52	n/a	n/a	82.69	n/a	n/a	0.06944	NP Inter(NDs)
Barium (mg/L)	n/a	0.10	n/a	n/a	n/a	n/a	52	n/a	n/a	0	n/a	n/a	0.06944	NP Inter(normality)
Beryllium (mg/L)	n/a	0.0010	n/a	n/a	n/a	n/a	18	n/a	n/a	100	n/a	n/a	0.3972	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.0010	n/a	n/a	n/a	n/a	52	n/a	n/a	98.08	n/a	n/a	0.06944	NP Inter(NDs)
Chromium (mg/L)	n/a	0.0078	n/a	n/a	n/a	n/a	22	n/a	n/a	13.64	n/a	n/a	0.3235	NP Inter(normality)
Cobalt (mg/L)	n/a	0.0025	n/a	n/a	n/a	n/a	22	n/a	n/a	72.73	n/a	n/a	0.3235	NP Inter(NDs)
Combined Radium 226 + 228 (pCi/L)	n/a	1.4	n/a	n/a	n/a	n/a	22	0.593	0.3417	0	None	No	0.05	Inter
Fluoride (mg/L)	n/a	0.20	n/a	n/a	n/a	n/a	24	n/a	n/a	58.33	n/a	n/a	0.292	NP Inter(NDs)
Lead (mg/L)	n/a	0.0010	n/a	n/a	n/a	n/a	52	n/a	n/a	90.38	n/a	n/a	0.06944	NP Inter(NDs)
Lithium (mg/L)	n/a	0.013	n/a	n/a	n/a	n/a	22	n/a	n/a	40.91	n/a	n/a	0.3235	NP Inter(normality)
Mercury (mg/L)	n/a	0.00020	n/a	n/a	n/a	n/a	18	n/a	n/a	88.89	n/a	n/a	0.3972	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.015	n/a	n/a	n/a	n/a	18	n/a	n/a	94.44	n/a	n/a	0.3972	NP Inter(NDs)
Selenium (mg/L)	n/a	0.0050	n/a	n/a	n/a	n/a	50	n/a	n/a	64	n/a	n/a	0.07694	NP Inter(NDs)
Silver (mg/L)	n/a	0.0010	n/a	n/a	n/a	n/a	44	n/a	n/a	88.64	n/a	n/a	0.1047	NP Inter(NDs)
Thallium (mg/L)	n/a	0.0010	n/a	n/a	n/a	n/a	18	n/a	n/a	100	n/a	n/a	0.3972	NP Inter(NDs)

FIGURE H.

PLANT ARKWRIGHT LF #2 GWPS					
Constituent Name	**MCL**	**CCR-Rule Specified**	**Background Limit**	**Federal GWPS**	**State GWPS**
Antimony, Total (mg/L)	0.006		0.002	0.006	0.006
Arsenic, Total (mg/L)	0.01		0.0015	0.01	0.01
Barium, Total (mg/L)	2		0.1	2	2
Beryllium, Total (mg/L)	0.004		0.001	0.004	0.004
Cadmium, Total (mg/L)	0.005		0.001	0.005	0.005
Chromium, Total (mg/L)	0.1		0.0078	0.1	0.1
Cobalt, Total (mg/L)		0.006	0.0025	0.006	0.0025
Combined Radium, Total (pCi/L)	5		1.4	5	5
Fluoride, Total (mg/L)	4		0.2	4	4
Lead, Total (mg/L)		0.015	0.001	0.015	0.001
Lithium, Total (mg/L)		0.04	0.013	0.04	0.013
Mercury, Total (mg/L)	0.002		0.0002	0.002	0.002
Molybdenum, Total (mg/L)		0.1	0.015	0.1	0.015
Selenium, Total (mg/L)	0.05		0.005	0.05	0.05
Silver, Total (mg/L)			0.001		0.001
Thallium, Total (mg/L)	0.002		0.001	0.002	0.002

**MCL = Maximum Contaminant Level*

**CCR = Coal Combustion Residuals*

**GWPS = Groundwater Protection Standard*

FIGURE I.

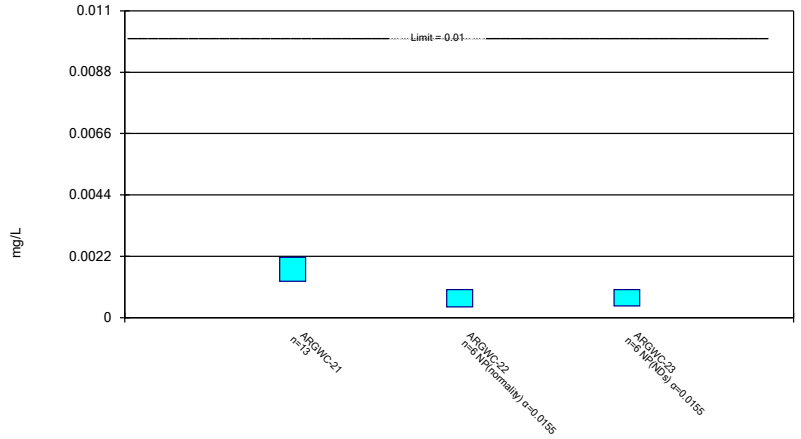
Federal Confidence Intervals - All Results (No Significant)

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:50 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Arsenic (mg/L)	ARGWC-21	0.002163	0.001305	0.01	No	13	0.001734	0.0005767	0	None	No	0.01	Param.
Arsenic (mg/L)	ARGWC-22	0.001	0.00038	0.01	No	6	0.00074	0.0003015	50	None	No	0.0155	NP (normality)
Arsenic (mg/L)	ARGWC-23	0.001	0.00042	0.01	No	6	0.0008617	0.0002384	66.67	None	No	0.0155	NP (NDs)
Barium (mg/L)	ARGWC-21	0.1224	0.09498	2	No	13	0.1076	0.02146	0	None	x^2	0.01	Param.
Barium (mg/L)	ARGWC-22	0.07612	0.03255	2	No	6	0.05433	0.01586	0	None	No	0.01	Param.
Barium (mg/L)	ARGWC-23	0.1878	0.04455	2	No	6	0.1162	0.05213	0	None	No	0.01	Param.
Beryllium (mg/L)	ARGWC-22	0.000521	0.00006304	0.004	No	5	0.000292	0.0001366	0	None	No	0.01	Param.
Beryllium (mg/L)	ARGWC-23	0.0025	0.00033	0.004	No	5	0.002066	0.0009705	80	None	No	0.031	NP (NDs)
Chromium (mg/L)	ARGWC-21	0.002	0.002	0.1	No	11	0.001973	0.00009045	90.91	None	No	0.006	NP (NDs)
Chromium (mg/L)	ARGWC-22	0.0048	0.002	0.1	No	6	0.002467	0.001143	83.33	None	No	0.0155	NP (NDs)
Cobalt (mg/L)	ARGWC-21	0.002062	0.001541	0.006	No	11	0.001788	0.0003582	0	None	x^2	0.01	Param.
Cobalt (mg/L)	ARGWC-22	0.01787	0.004828	0.006	No	6	0.01135	0.004748	0	None	No	0.01	Param.
Cobalt (mg/L)	ARGWC-23	0.002991	0.0002991	0.006	No	6	0.001645	0.0009797	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-21	0.9511	0.5222	5	No	11	0.7366	0.2573	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-22	0.722	0.04998	5	No	6	0.386	0.2446	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-23	0.8014	-0.07539	5	No	6	0.363	0.3191	0	None	No	0.01	Param.
Fluoride (mg/L)	ARGWC-21	0.17	0.065	4	No	12	0.1422	0.1379	0	None	No	0.01	NP (normality)
Fluoride (mg/L)	ARGWC-22	0.07533	0.03427	4	No	6	0.054	0.01507	16.67	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	ARGWC-23	0.2516	0.09473	4	No	6	0.1732	0.0571	0	None	No	0.01	Param.
Lead (mg/L)	ARGWC-21	0.001	0.00026	0.015	No	13	0.0008777	0.0002994	84.62	None	No	0.01	NP (NDs)
Lead (mg/L)	ARGWC-22	0.001	0.00014	0.015	No	6	0.0007267	0.0004242	66.67	None	No	0.0155	NP (NDs)
Lead (mg/L)	ARGWC-23	0.001	0.00018	0.015	No	6	0.00074	0.0004036	66.67	None	No	0.0155	NP (NDs)
Lithium (mg/L)	ARGWC-21	0.01169	0.007907	0.04	No	11	0.0098	0.002272	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-22	0.03234	0.003355	0.04	No	6	0.01785	0.01055	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-23	0.03716	0.006773	0.04	No	6	0.02197	0.01106	0	None	No	0.01	Param.
Mercury (mg/L)	ARGWC-21	0.0002	0.000073	0.002	No	9	0.0001859	0.00004233	88.89	None	No	0.002	NP (NDs)
Molybdenum (mg/L)	ARGWC-22	0.001918	0.0005569	0.1	No	5	0.00242	0.002871	20	Kaplan-Meier	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	ARGWC-23	0.04995	0.005652	0.1	No	5	0.0278	0.01322	0	None	No	0.01	Param.
Thallium (mg/L)	ARGWC-22	0.0007727	0.00009725	0.002	No	5	0.000548	0.0003232	20	Kaplan-Meier	No	0.01	Param.
Thallium (mg/L)	ARGWC-23	0.001	0.00026	0.002	No	5	0.00056	0.0004017	40	None	No	0.031	NP (normality)

Parametric and Non-Parametric (NP) Confidence Interval

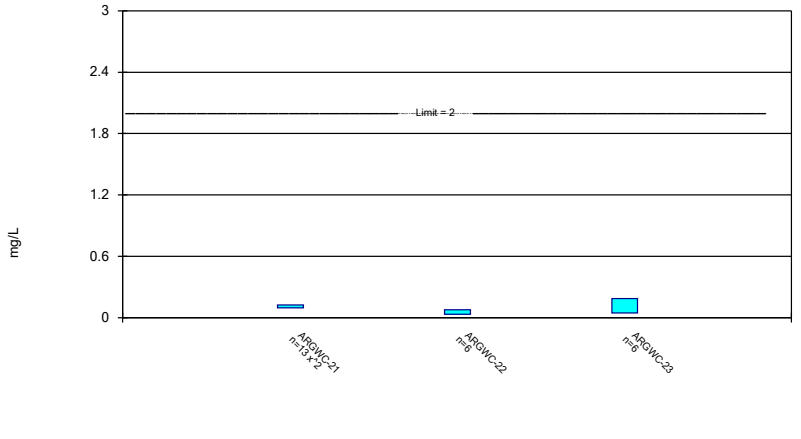
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

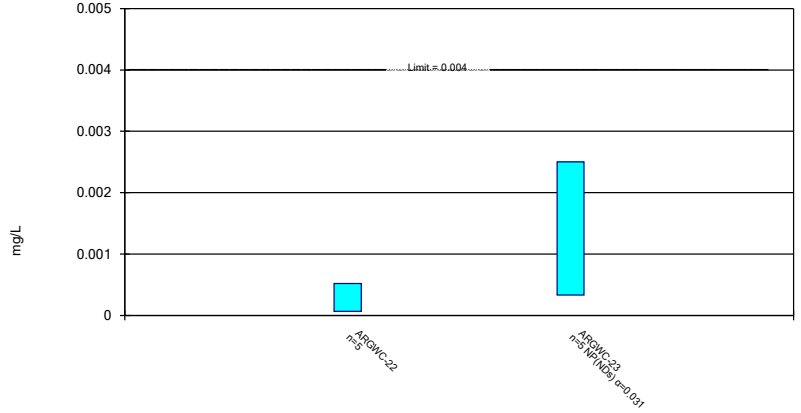
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric and Non-Parametric (NP) Confidence Interval

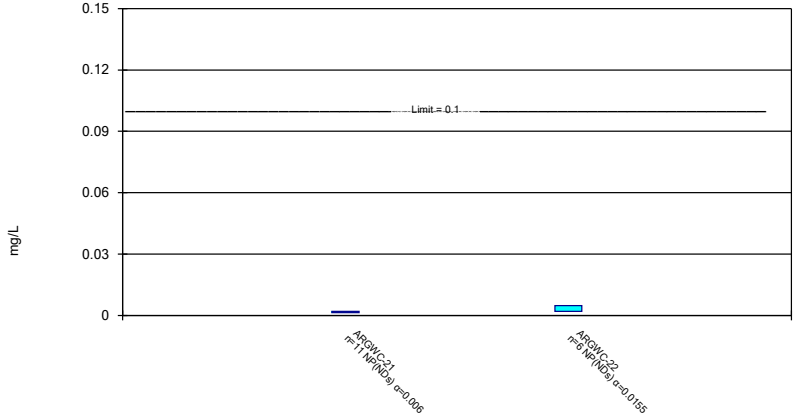
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Beryllium Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

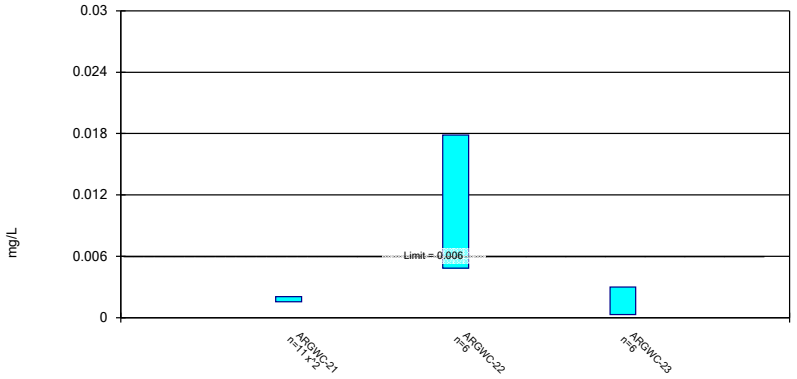
Compliance Limit is not exceeded.



Constituent: Chromium Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

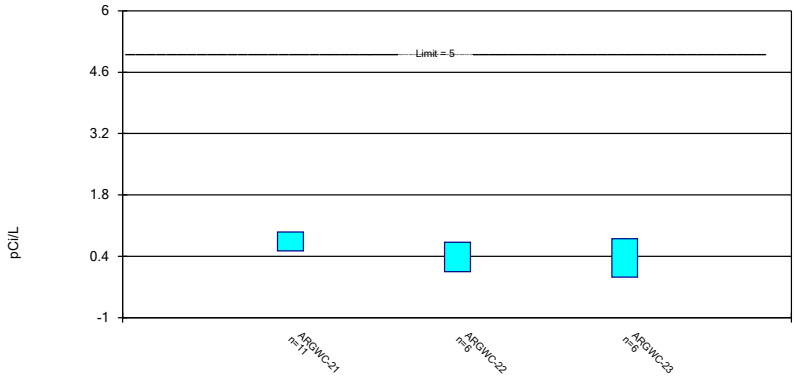
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

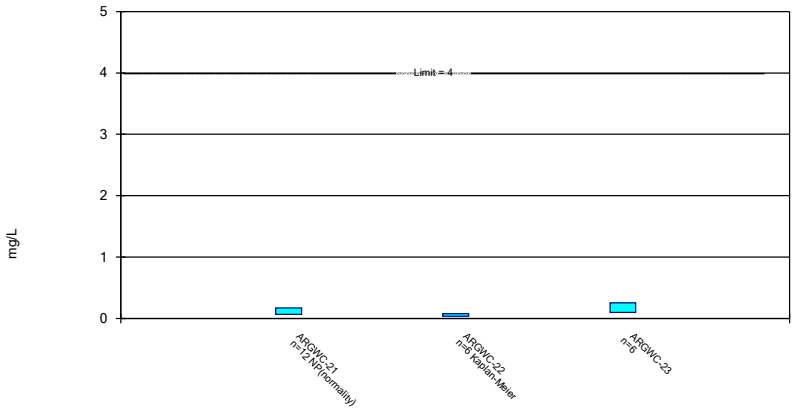
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric and Non-Parametric (NP) Confidence Interval

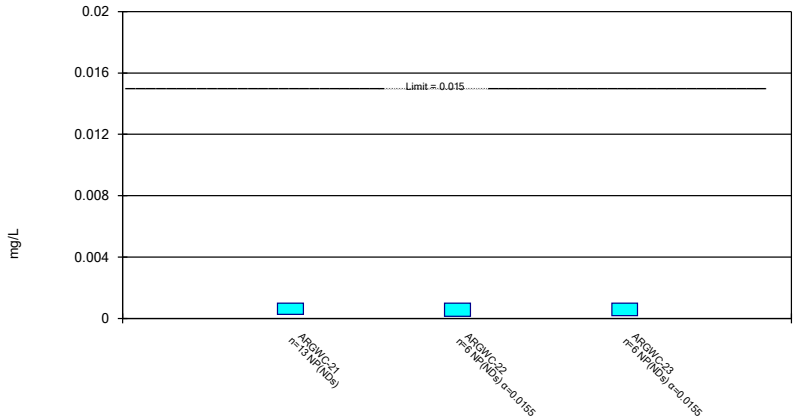
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

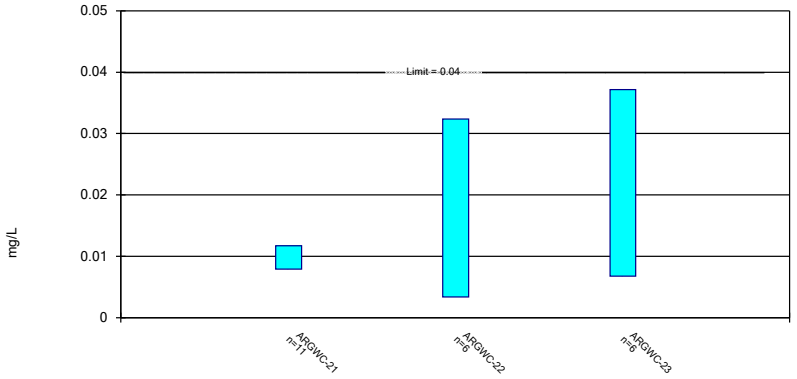
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Lead Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

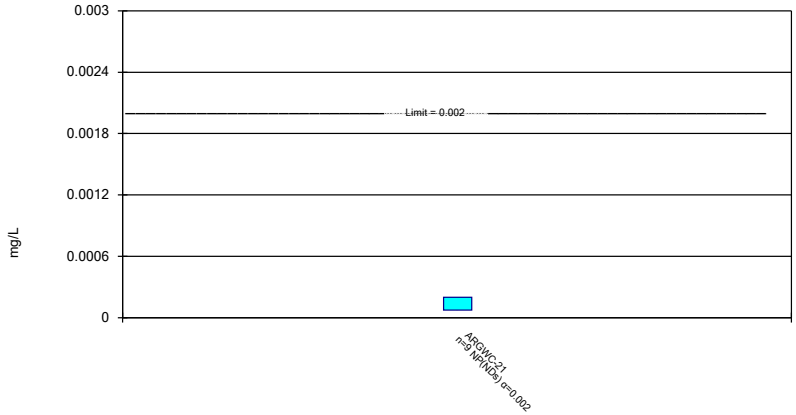
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

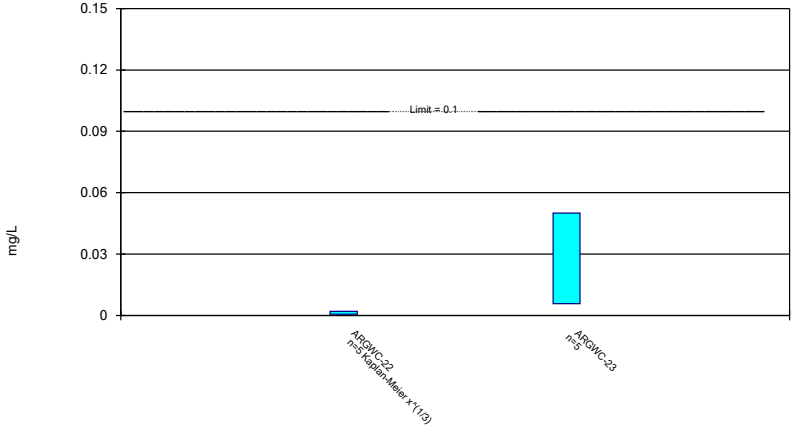
Compliance Limit is not exceeded.



Constituent: Mercury Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

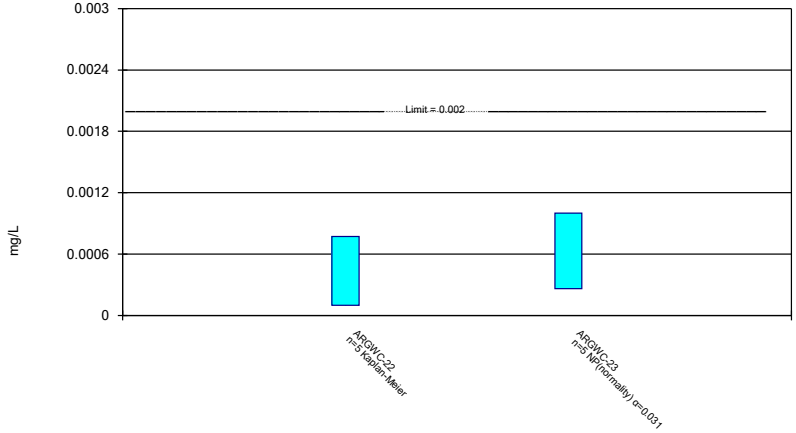
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Molybdenum Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Thallium Analysis Run 7/23/2020 11:49 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

FIGURE J.

State Confidence Intervals - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:45 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Cobalt (mg/L)	**ARGWC-22**	**0.01787**	**0.004828**	**0.0025**	**Yes**	**6**	**0.01135**	**0.004748**	**0**	**None**	**No**	**0.01**	**Param.**

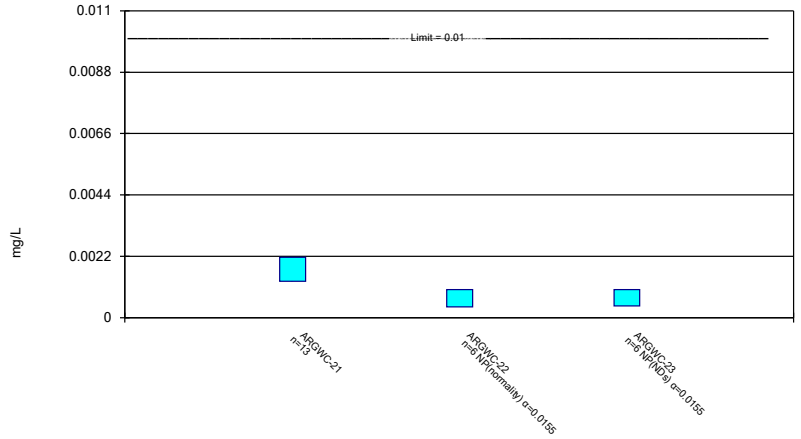
State Confidence Intervals - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/23/2020, 11:45 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	Mean	Std. Dev.	%NDs	ND Adj.	Transform	Alpha	Method
Arsenic (mg/L)	ARGWC-21	0.002163	0.001305	0.01	No	13	0.001734	0.0005767	0	None	No	0.01	Param.
Arsenic (mg/L)	ARGWC-22	0.001	0.00038	0.01	No	6	0.00074	0.0003015	50	None	No	0.0155	NP (normality)
Arsenic (mg/L)	ARGWC-23	0.001	0.00042	0.01	No	6	0.0008617	0.0002384	66.67	None	No	0.0155	NP (NDs)
Barium (mg/L)	ARGWC-21	0.1224	0.09498	2	No	13	0.1076	0.02146	0	None	x^2	0.01	Param.
Barium (mg/L)	ARGWC-22	0.07612	0.03255	2	No	6	0.05433	0.01586	0	None	No	0.01	Param.
Barium (mg/L)	ARGWC-23	0.1878	0.04455	2	No	6	0.1162	0.05213	0	None	No	0.01	Param.
Beryllium (mg/L)	ARGWC-22	0.000521	0.00006304	0.004	No	5	0.000292	0.0001366	0	None	No	0.01	Param.
Beryllium (mg/L)	ARGWC-23	0.0025	0.00033	0.004	No	5	0.002066	0.0009705	80	None	No	0.031	NP (NDs)
Chromium (mg/L)	ARGWC-21	0.002	0.002	0.1	No	11	0.001973	0.00009045	90.91	None	No	0.006	NP (NDs)
Chromium (mg/L)	ARGWC-22	0.0048	0.002	0.1	No	6	0.002467	0.001143	83.33	None	No	0.0155	NP (NDs)
Cobalt (mg/L)	ARGWC-21	0.002062	0.001541	0.0025	No	11	0.001788	0.0003582	0	None	x^2	0.01	Param.
Cobalt (mg/L)	**ARGWC-22**	**0.01787**	**0.004828**	**0.0025**	**Yes**	**6**	**0.01135**	**0.004748**	**0**	**None**	**No**	**0.01**	**Param.**
Cobalt (mg/L)	ARGWC-23	0.002991	0.0002991	0.0025	No	6	0.001645	0.0009797	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-21	0.9511	0.5222	5	No	11	0.7366	0.2573	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-22	0.722	0.04998	5	No	6	0.386	0.2446	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-23	0.8014	-0.07539	5	No	6	0.363	0.3191	0	None	No	0.01	Param.
Fluoride (mg/L)	ARGWC-21	0.17	0.065	4	No	12	0.1422	0.1379	0	None	No	0.01	NP (normality)
Fluoride (mg/L)	ARGWC-22	0.07533	0.03427	4	No	6	0.054	0.01507	16.67	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	ARGWC-23	0.2516	0.09473	4	No	6	0.1732	0.0571	0	None	No	0.01	Param.
Lead (mg/L)	ARGWC-21	0.001	0.00026	0.001	No	13	0.0008777	0.0002994	84.62	None	No	0.01	NP (NDs)
Lead (mg/L)	ARGWC-22	0.001	0.00014	0.001	No	6	0.0007267	0.0004242	66.67	None	No	0.0155	NP (NDs)
Lead (mg/L)	ARGWC-23	0.001	0.00018	0.001	No	6	0.00074	0.0004036	66.67	None	No	0.0155	NP (NDs)
Lithium (mg/L)	ARGWC-21	0.01169	0.007907	0.013	No	11	0.0098	0.002272	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-22	0.03234	0.003355	0.013	No	6	0.01785	0.01055	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-23	0.03716	0.006773	0.013	No	6	0.02197	0.01106	0	None	No	0.01	Param.
Mercury (mg/L)	ARGWC-21	0.0002	0.000073	0.002	No	9	0.0001859	0.00004233	88.89	None	No	0.002	NP (NDs)
Molybdenum (mg/L)	ARGWC-22	0.001918	0.0005569	0.015	No	5	0.00242	0.002871	20	Kaplan-Meier	x^(1/3)	0.01	Param.
Molybdenum (mg/L)	ARGWC-23	0.04995	0.005652	0.015	No	5	0.0278	0.01322	0	None	No	0.01	Param.
Silver (mg/L)	ARGWC-21	0.001	0.00043	0.001	No	9	0.0009367	0.00019	88.89	None	No	0.002	NP (NDs)
Thallium (mg/L)	ARGWC-22	0.0007727	0.00009725	0.002	No	5	0.000548	0.0003232	20	Kaplan-Meier	No	0.01	Param.
Thallium (mg/L)	ARGWC-23	0.001	0.00026	0.002	No	5	0.00056	0.0004017	40	None	No	0.031	NP (normality)

Parametric and Non-Parametric (NP) Confidence Interval

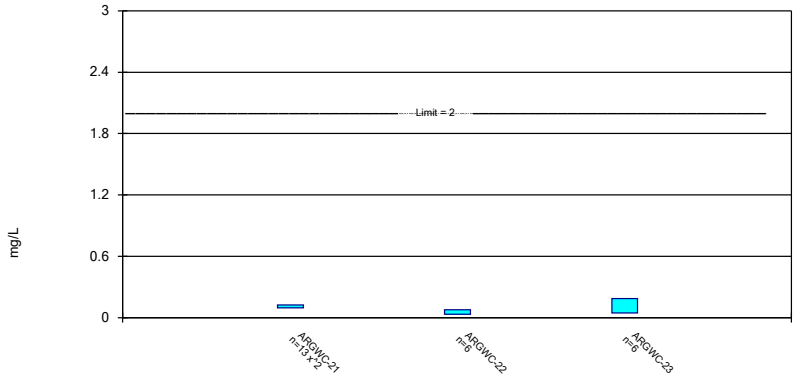
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

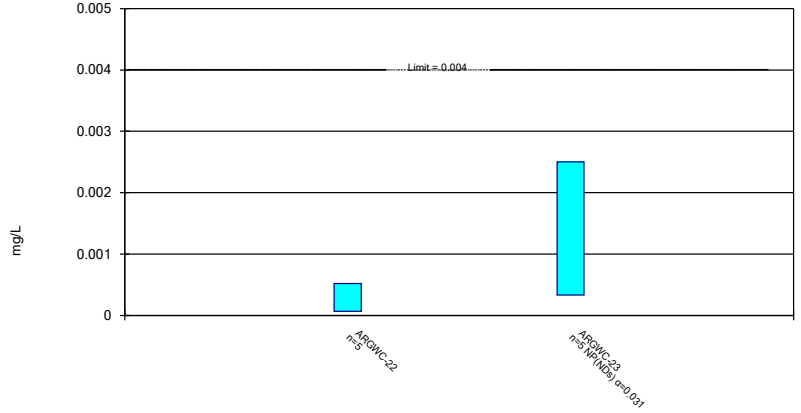
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric and Non-Parametric (NP) Confidence Interval

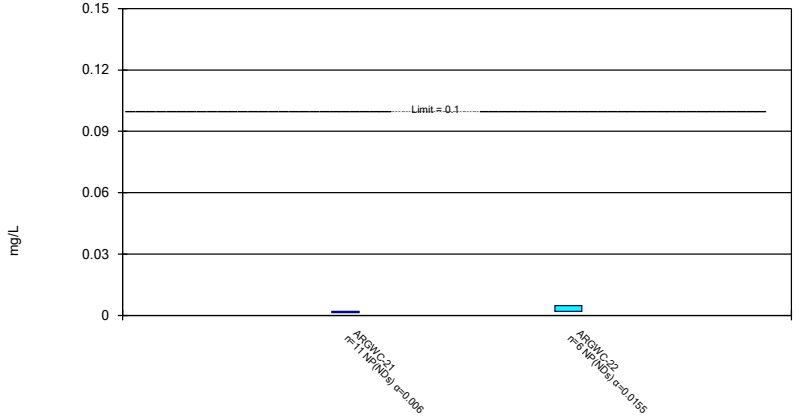
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Beryllium Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

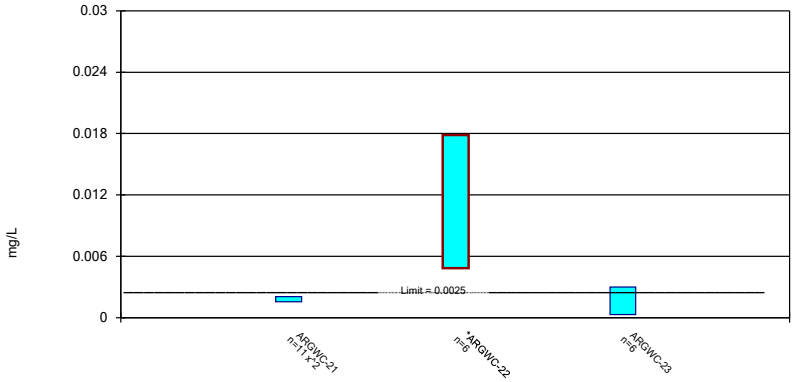
Compliance Limit is not exceeded.



Constituent: Chromium Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

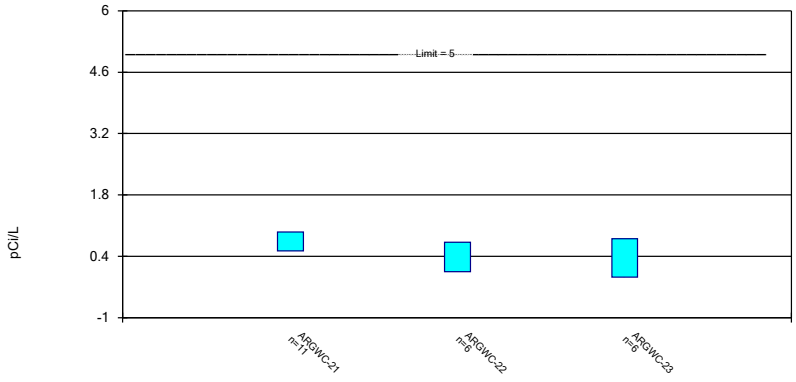
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

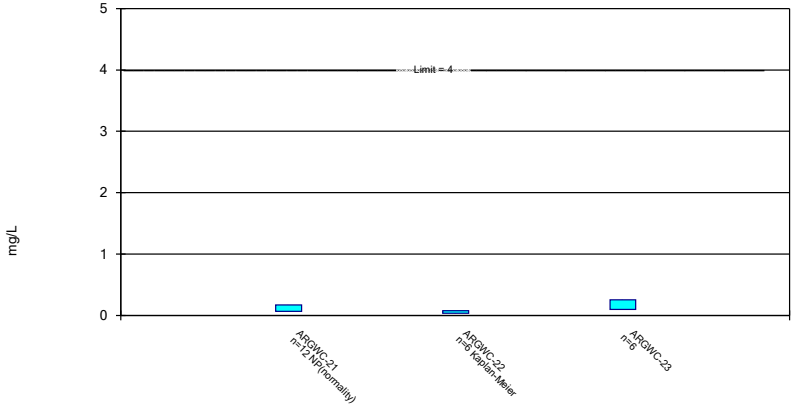
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric and Non-Parametric (NP) Confidence Interval

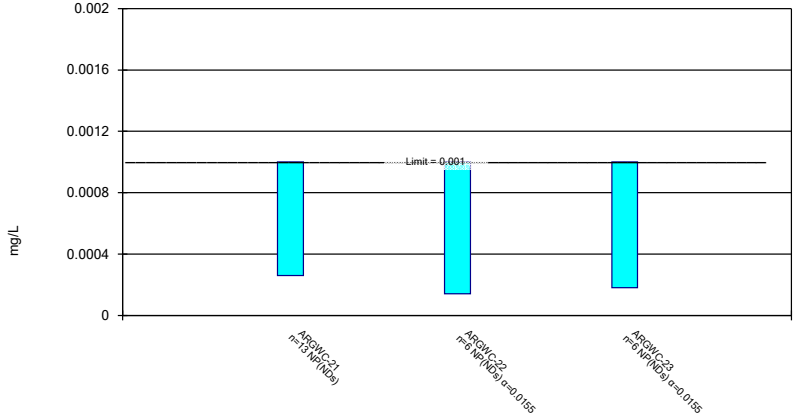
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

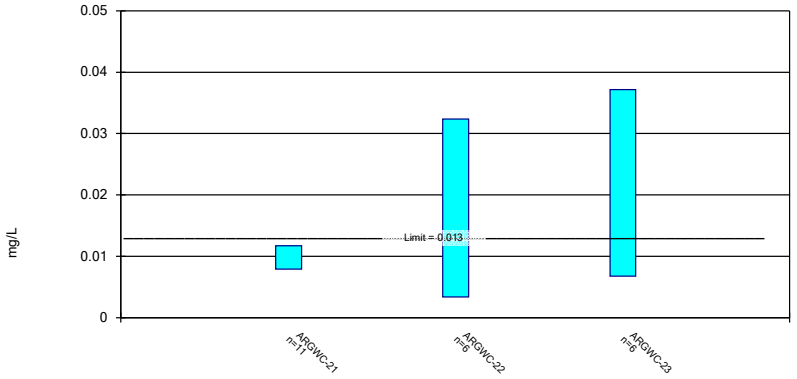
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



Constituent: Lead Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

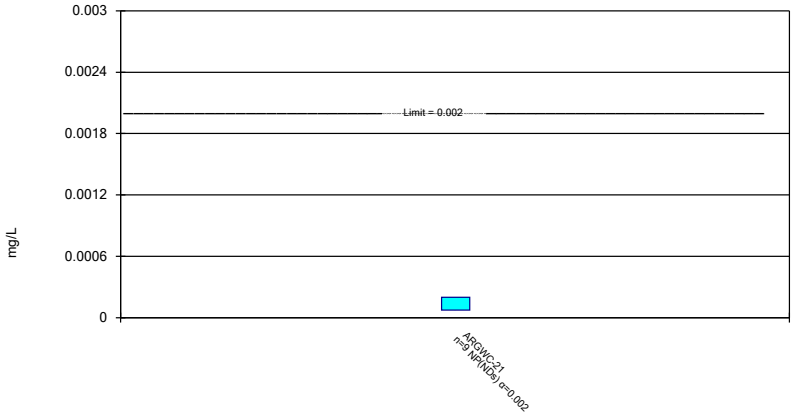
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

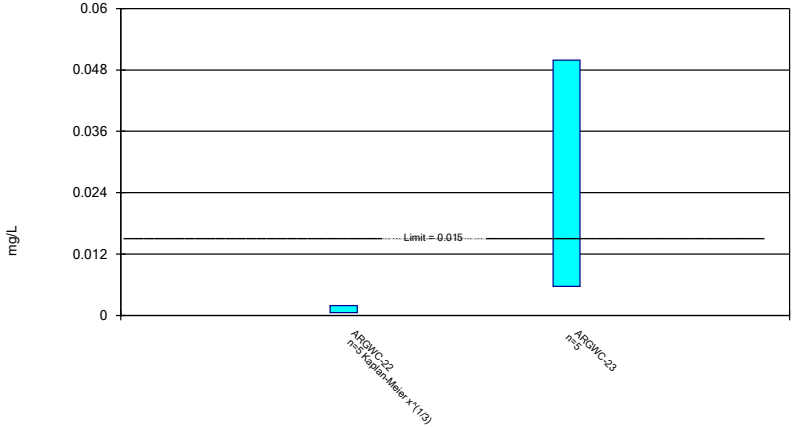
Compliance Limit is not exceeded.



Constituent: Mercury Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric Confidence Interval

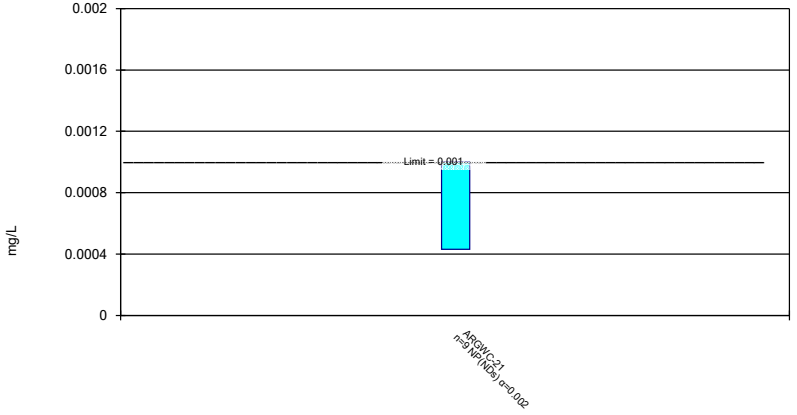
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Molybdenum Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Non-Parametric Confidence Interval

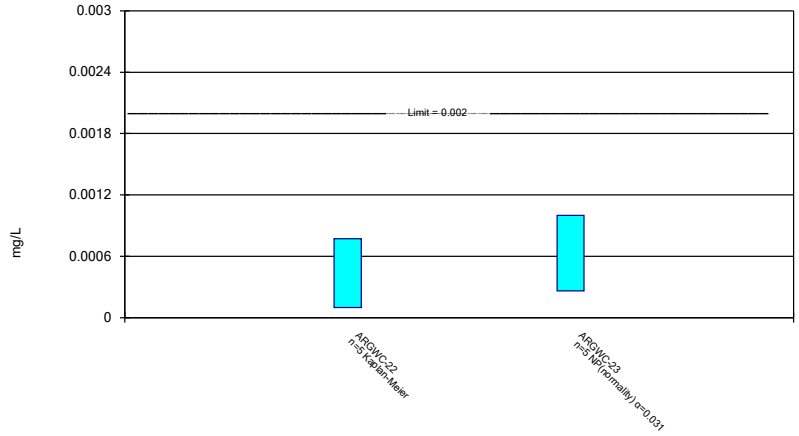
Compliance Limit is not exceeded.



Constituent: Silver Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Thallium Analysis Run 7/23/2020 11:44 AM View: Appendix I & IV

Plant Arkwright Client: Southern Company Data: Arkwright No 2