

Georgia Power Company  
FORMER PLANT ARKWRIGHT  
CLOSED ASH POND No. 2 DRY ASH STOCKPILE  
PERMIT #: 011-031D(LI)  
Bibb County

2019 FIRST SEMIANNUAL GROUNDWATER  
MONITORING REPORT



## PROFESSIONAL CERTIFICATION

This *2019 First Semiannual Groundwater Monitoring Report*, Georgia Power Company – Former Plant Arkwright – Ash Pond 2 Dry Ash Stockpile (AP-2DAS) has been prepared in compliance with the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10 and 391-3-4-.14 by a qualified groundwater scientist or engineer with Atlantic Coast Consulting, Inc. (ACC).

ACC certifies that all site constituents were below applicable Georgia Maximum Contaminant Levels.

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## 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), Atlantic Coast Consulting, Inc. (ACC) has prepared this First 2019 Semiannual Groundwater Monitoring Report to document groundwater monitoring activities conducted at Georgia Power Company's (GPC's) former Plant Arkwright –Ash Pond No. 2 Dry Ash Stockpile (AP-2DAS) (Site). 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.

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 - Standards 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).

Semiannual 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 includes 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 by EPD. This report includes the background data for Appendix III and IV collected during 2016 – 2018 and the initial detection monitoring data collected in March 2019 following completion of background monitoring.

### 1.1 Site Description and Background

The Site is located in Bibb County, Georgia, approximately 6 miles northwest of the city of Macon and 2 miles east of the city of Arkwright. 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 permit following closure. Figure 1, Site Location Map, depicts the site location relative to the surrounding area.

### 1.2 Regional Geology and Hydrogeologic Setting

The Site is located in northern Bibb County in the Appalachian Highland District of the Piedmont Physiographic Province. The Piedmont Plateau occupies the northern half of Bibb County. The topography is rolling to hilly and the highest parts rise to about 800 feet above sea level. The main streams, having adjusted their courses to the structure of the underlying crystalline rocks, flow eastward to join the through-flowing Ocmulgee River, which receives the entire drainage of the county. Owing to the variety of rocks underlying the Piedmont, the soils differ from place to place, but in general they are deep red and reasonably fertile. Regionally, igneous and

metamorphic rocks are exposed in the extreme northern part of Bibb County, where the Site is located. Many of them are granitic, being true granite, biotite- granite gneiss, or a granite component in a diorite injection complex. All these rocks are highly weathered and where exposed are generally soft and friable (LeGrand, 1962). The site area is generally composed of fine to medium sandy silt to silty sand underlain by silty sand saprolite. Borings performed in the earlier site investigations indicate extremely weathered quartz-feldspathic gneiss, hornblende gneiss and schist.

Based on previously completed site studies, the range of hydraulic conductivities is from  $10^{-3}$  to  $10^{-4}$  centimeters per second.

### **1.3 Groundwater Monitoring Well Network and CCR Unit Description**

As noted above, AP-2DAS closed in 2010. A groundwater monitoring plan was approved in 2010. The GA EPD-approved detection groundwater monitoring network includes 3 monitoring wells: upgradient wells GWA-19 and GWA-20, and downgradient well GWC-21. Wells were located to serve as upgradient and downgradient monitoring points based on groundwater flow direction (Table 1, Monitoring Network Well Summary). Figure 2, Well Location Map, shows the monitoring well locations.

## **2.0 GROUNDWATER MONITORING ACTIVITIES**

The following describes monitoring-related activities performed in March 2019. Because this is the first Semiannual Groundwater Monitoring Report submitted for the Site, following completion of background monitoring, it also describes activities performed prior to 2019 to establish the groundwater monitoring program. Samples were collected from each well in the monitoring system shown on Figure 2.

Table 2, Groundwater Sampling Event Summary, presents a summary of groundwater sampling events completed at the Site.

### **2.1 Monitoring Well Installation/Maintenance**

The number, spacing, and depths of the groundwater monitoring wells were selected by a qualified groundwater scientist based on the characterization of site-specific hydrogeologic conditions. Groundwater monitoring wells were designed to monitor the uppermost water-bearing zone. The existing groundwater monitoring network was included in the 2008 Design and Operation Plans approved by GA EPD in 2010.

### **2.2 Detection Monitoring Program**

The March 2019 monitoring event is the ninth round of Appendix III data and is the initial detection monitoring event following the inclusion of Appendix III and IV constituents in accordance with a 2017 minor modification to the permit. A summary the analytes required by Appendix III, Appendix IV, and the existing permit is provided in Table 3, Summary of Groundwater Monitoring Parameters.

#### **2.2.1 Background Monitoring for CCR Analytes**

A minimum of eight (8) independent samples were collected from the network and analyzed for the constituents listed in Appendix III and IV. A table summarizing the results for the well is

included in Table 4A, Summary of Background Groundwater Analytical Data – 2016-2018. Data reports for each sampling event are included in Appendix A, Laboratory Analytical and Field Sampling Reports.

### 2.2.2 Initial Detection Monitoring for CCR Analytes

Following completion of the eight independent sampling events for constituents listed in Appendix III or IV, groundwater samples were collected March 26-27, 2019 and analyzed for Appendix III constituents as part of the first semiannual detection monitoring event. A table summarizing the results is included in Table 4B, Summary of Groundwater Analytical Data – March 2019. Data reports for the March 2019 sampling event are included in Appendix A.

### 2.2.3 Monitoring for Existing Approved Analytes

Semiannual groundwater monitoring has continued in accordance with the requirements of the 2010 EPD-approved Groundwater Monitoring Plan during implementation of Appendix III and IV monitoring. The eight inorganic analytes were again collected as part of the March 2019 monitoring event. A table summarizing the results for the wells is included in Table 4B. Data reports for the March 2019 sampling event are included in Appendix A.

## 3.0 SAMPLE METHODOLOGY AND ANALYSIS

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

### 3.1 Groundwater Flow Direction, Gradient, and Velocity

Prior to each sampling event, groundwater elevations are recorded from the ground water monitoring well network at AP-2DAS. Groundwater elevations recorded during the monitoring events are summarized in Table 5, Summary of Groundwater Elevations. Groundwater elevation data was used to develop Figure 3, March 2019 Water Table Contour Map. The general direction of groundwater flow across the site is towards the south. The groundwater flow pattern observed during the March 2019 monitoring event is consistent with historical patterns.

The groundwater flow velocity at Plant Arkwright was calculated using a derivation of Darcy's Law. Specifically:

#### Equation

$$v = \frac{K (dh/dl)}{P_e} \quad \text{where:} \quad \begin{array}{l} v = \text{ground water velocity} \\ K = \text{hydraulic conductivity} \\ dh/dl = \text{hydraulic gradient} \\ P_e = \text{effective porosity} \end{array}$$

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 6, Groundwater Flow Velocity Calculations. The general groundwater flow velocity was calculated to be 0.31 feet per day or 114 feet per year.

### 3.2 Groundwater Sampling

Groundwater samples were collected using low-flow sampling procedures. Purging and sampling was performed using a dedicated bladder pump in each well. All non-disposable equipment was decontaminated before use and between well locations.

Monitoring wells were purged and sampled using low-flow sampling procedures. A SmarTroll (In-Situ field instrument) was used to monitor and record field water quality parameters (pH, conductivity, oxidation-reduction potential, dissolved oxygen, and temperature) during well purging prior to sampling. Turbidity was measured using a Hach 2100Q portable turbidimeter. Groundwater samples were collected when the following stabilization criteria were met:

- $\pm 0.1$  standard units for pH
- $\pm 5\%$  for specific conductance
- $\pm 10\%$  for Dissolved Oxygen (DO) where DO > 0.5 mg/L. No criterion applies if DO < 0.5 mg/L.
- Turbidity measurements less than 10 nephelometric turbidity units (NTU)

Once stabilization was achieved, samples were collected directly into appropriately preserved laboratory-supplied sample containers. Sample bottles were placed in ice-packed coolers and submitted to TestAmerica Laboratories, Inc, of Pittsburgh, Pennsylvania following chain-of-custody protocol. Stabilization logs for each well during each monitoring event are included in Appendix A.

### 3.3 Laboratory Analyses

Groundwater samples collected in March 2019 for detection monitoring event were analyzed for Appendix III monitoring parameters and the inorganic parameters required by the currently approved permit. Analytical methods used for groundwater monitoring parameters are provided in laboratory reports in Appendix A.

Laboratory analyses were performed by TestAmerica Laboratories, Inc. (TestAmerica). TestAmerica is accredited by the National Environmental Laboratory Accreditation Program (NELAP) and maintains a NELAP certification for all parameters analyzed for this project. In addition, TestAmerica is certified to perform analysis by the State of Georgia. Laboratory reports and chain-of-custody records for the monitoring events are presented in Appendix A.

### 3.4 Quality Assurance and Quality Control

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

Groundwater quality data in this report was validated in accordance with US EPA guidance (US EPA, 2011) and the analytical methods. Data validation generally consisted of reviewing sample integrity, holding times, laboratory method blanks, laboratory control samples, matrix spikes/matrix spike duplicate recoveries and relative percent differences, post digestions spikes, laboratory and field duplicate RPDs, field and equipment blanks, and reporting

limits. Where appropriate, validation qualifiers and flags are applied to the data using US EPA procedures as guidance (US EPA, 2017).

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

## **4.0 STATISTICAL ANALYSIS**

Statistical analysis of Appendix III groundwater monitoring data was performed on samples collected from the groundwater monitoring network approved by GA EPD in 2010 and following the appropriate method.

### **4.1 Statistical Methods**

The statistical method used at the site was developed by Groundwater Stats Consulting, LLC (GSC), using methodology presented in *Statistical Analysis of Groundwater Data at RCRA Facilities, Unified Guidance*, March 2009, US 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 parameter. 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 US EPA regulations.

#### **4.1.1 Appendix III Constituents**

Statistical tests used to evaluate the groundwater monitoring data consist of interwell prediction limits combined with a 1-of-2 verification resample plan for Appendix III parameters boron, calcium, fluoride, sulfate, and total dissolved solids (TDS). Monitoring results for chloride and pH were evaluated using intrawell prediction limits combined with a 1-of-2 verification resample plan. 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. Intrawell prediction limits are constructed from historical data within a given well, and the most recent sample is compared to background. If the most recent sample exceeds its respective background statistical limit, an initial statistically significant increase (SSI) is identified. A summary of the statistical methodology used at the Site for routine groundwater monitoring is provided in Table 7, Summary of Statistical Methods.

#### **4.1.2 EPD Permit-Required Metals**

Statistical tests used to evaluate the groundwater monitoring data consist of intrawell prediction limits combined with a 1-of-2 verification resample plan for all required metals. The current permit also requires monitoring of chloride and sulfate, however these two analytes are also included in Appendix III and are therefore analyzed as described in Section 4.1.1. Intrawell prediction limits are constructed from historical data within a given well, and the most recent sample is compared to background. If the most recent sample exceeds its respective background statistical limit, an initial statistically significant increase (SSI) is identified. Table 7 includes a summary of the metals included in the EPD permit and the statistical method.

## 4.2 Statistical Analyses Results for CCR Parameters

Analytical data from the initial CCR detection monitoring event at AP-2DAS was statistically analyzed in accordance with the statistical methods.

Resampling to confirm SSIs was not performed; therefore, initial SSIs are treated as verified. Wells and analytes with all data below the reporting limit do not require statistical analysis. A summary of wells exhibiting 100% non-detects is included in Appendix B, Statistical Analyses. The statistical analysis and comparison to prediction limits are included as Appendix B.

### 4.2.1 First Semiannual Detection Monitoring Event

Based on the statistical results presented in Appendix B, the following summarizes parameters exhibiting SSIs as follows:

- Boron: GWC-21
- Calcium: GWC-21
- Sulfate: GWC-21
- TDS: GWC-21

Within 90 days from determining an SSI, GPC will either (1) prepare a demonstration that a source other than AP-2DAS was the cause, or (2) implement assessment monitoring.

### 4.2.2 Appendix IV Background Data

Appendix IV groundwater data from the downgradient well will be compared to groundwater protection standards if assessment monitoring is implemented. Plant Arkwright is currently performing detection monitoring for the Site and has not implemented assessment monitoring. Therefore, statistical analysis of the Appendix IV data has not been performed.

## 4.3 Statistical Analyses Results for Parameters Required by Existing Permit

Analytes required by the existing state permit were analyzed during this event. Wells and analytes with all data below the reporting limit do not require statistical analysis. A summary of wells exhibiting 100% non-detects is included in Appendix B.

Concentrations of target metals were within their respective intrawell prediction limits during this sampling event. Sulfate and chloride are required by the existing permit and are included in Appendix III. As noted in section 4.2.1 the concentration of sulfate is an SSI, but chloride is not. Sulfate is evaluated by inter-well methods and the SSI consistent with historical results (i.e., the concentration is statistically higher than the two upgradient wells), however the concentration is within the background range reported for upgradient wells at the adjacently located AP-3.

## 5.0 MONITORING PROGRAM STATUS

AP-2DAS is in detection monitoring. SSIs of Appendix III parameters have been identified. In accordance with rule 391-3-4-.10(6)(a) Plant Arkwright has 90 days from the date of SSI determination to either (1) prepare a demonstration that a source other than the Site was the cause, or (2) implement assessment monitoring.



## 6.0 CONCLUSIONS AND FUTURE ACTIONS

Background monitoring has been completed in accordance with rule 391-3-4-.10(6)(a). Statistical evaluations of the groundwater monitoring data for AP-2DAS identified SSIs of Appendix III groundwater monitoring parameters. Plant Arkwright will prepare an alternate source demonstration or initiate assessment monitoring program within 90 days.

The next monitoring event is planned for the second half of 2019.

## 7.0 REFERENCES

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## TABLES

**Table 1**  
**Monitoring Network Well Summary**

Well	Installation Date (mm/dd/yyyy)	Bottom Depth (ft BTOC)	Bottom Elevation (ft MSL)	Depth to Top of Screen (ft BTOC)	Top of Screen Elevation (ft MSL)	Purpose
GWA-19	12/18/2008	52.75	290.73	42.75	300.73	Upgradient
GWA-20	12/18/2008	37.65	293.83	27.65	303.83	Upgradient
GWC-21	12/18/2008	27.26	282.14	17.26	292.14	Downgradient

Notes:

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

**Table 2**  
**Groundwater Sampling Event Summary**

Well	Hydraulic Location	Aug. 30, 2016	Oct. 24-26, 2016	Jan. 25, 2017	Apr. 10, 2017	Jun. 19-20, 2017	Oct. 24, 2017	Apr. 9-10, 2018	Oct. 16, 2018	Mar. 26-27, 2019
	<b>Purpose of Sampling Event</b>	Background	Background	Background	Background	Background	Background	Background	Background	Detection
GWA-19	Upgradient	BG-01	BG-02	BG-03	BG-04	BG-05	BG-06	BG-07	BG-08	D-01
GWA-20	Upgradient	BG-01	BG-02	BG-03	BG-04	BG-05	BG-06	BG-07	BG-08	D-01
GWC-21	Downgradient	BG-01	BG-02	BG-03	BG-04	BG-05	BG-06	BG-07	BG-08	D-01

Notes:

1. Events shown represent CCR monitoring only. Ongoing monitoring for previously permitted analytes has occurred semi-annually.
2. BG-XX = Background Event (Appendix III and Appendix IV).
3. D-XX = Detection Event (Appendix III).

**Table 3**  
**Summary of Groundwater Monitoring Parameters**

<b>Appendix III (40 CFR 257)</b>	<b>Appendix IV (40 CFR 257)</b>	<b>Existing State Permit</b>
Boron	Antimony	Arsenic
Calcium	Arsenic	Barium
Chloride	Barium	Cadmium
Fluoride	Beryllium	Chloride
pH	Cadmium	Lead
Sulfate	Chromium	Selenium
Total Dissolved Solids	Cobalt	Silver
	Fluoride	Sulfate
	Lead	
	Lithium	
	Mercury	
	Molybdenum	
	Radium 226 and 228 combined	
	Selenium	
	Thallium	

**Table 4A**  
**Summary of Background Groundwater Analytical Data - 2016-2018**

Substance	MCL/ (SMCL)	Well ID								
		ARGWA-19	ARGWA-19	ARGWA-19	ARGWA-19	ARGWA-19	ARGWA-19	ARGWA-19	ARGWA-19	ARGWA-19
		8/29/2016	10/24/2016	1/25/2017	4/10/2017	6/19/2017	10/24/2017	4/10/2018	10/16/2018	
APPENDIX III	Boron	N/R	ND (0.024 J)	ND (0.0339 J)	ND (0.048 J)	ND (0.022 J)	ND	ND (0.021 J)	ND (0.022 J)	ND
	Calcium	N/R	11	11.5	13	11	12	12	12	14
	Chloride	(250)	8.4	9.6	8.7	8.0	7.6	7.2	7.2	10
	Fluoride	4	ND	ND (0.07 J)	ND	ND	ND	ND	ND	ND (0.083 J)
	Sulfate	(250)	8.7	9.3	8.8	7.8	8.6	9.1	7.9	8.2
	TDS	(500)	130	108	120	130	86	120	120	140
APPENDIX IV	Antimony	0.006	ND	ND	ND	ND	ND	ND	ND	ND
	Arsenic	0.01	ND	ND	ND	ND	ND	ND	ND	ND
	Barium	2	0.040	0.0444	0.045	0.039	0.041	0.041	0.044	0.047
	Beryllium	0.004	ND	ND	ND	ND	ND	ND	ND	ND
	Cadmium	0.005	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	0.1	ND (0.0011 J)	ND (0.0010 J)	ND (0.0013 J)	ND	ND (0.0013 J)	ND (0.0012 J)	ND (0.0015 J)	ND (0.0014 J)
	Cobalt	N/R	ND	ND	ND	ND	ND	ND	ND	ND
	Lead	0.015	ND	ND	ND	ND	ND	ND	ND	ND
	Lithium	N/R	ND (0.0048 J)	ND	0.0052	ND (0.0034 J)	ND (0.0036 J)	0.0051	0.0057	ND (0.0048 J)
	Mercury	0.002	ND	ND	ND (0.000077 J)	ND	ND	ND	ND	ND
	Molybdenum	N/R	ND	ND	ND	ND	ND	ND	ND (0.00096 J)	ND
	Radium	5	0.324 U	1.17 U	0.443 U	0.483	0.478	0.764	0.300 U	0.991
	Selenium	0.05	ND (0.00040 J)	ND	ND	ND	ND (0.00025 J)	ND	ND (0.00074 J)	ND
Thallium	0.002	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:

1. MCL indicates Environmental Protection Agency (EPA) and Georgia Environmental Protection Division (EPD) maximum contaminant level.
2. (SMCL) indicates a secondary MCL that is established by EPA as a general guideline only (not enforced).
3. Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
4. ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL).
5. ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.
6. N/R indicates a substance does not have an MCL or SMCL, but will be further evaluated statistically at the conclusion of all the background sampling events, as required by EPA's CCR rule.
7. TDS indicates total dissolved solids.
8. 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.
9. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring.

**Table 4A**  
**Summary of Background Groundwater Analytical Data - 2016-2018**

Substance	MCL/ (SMCL)	Well ID								
		ARGWA-20	ARGWA-20	ARGWA-20	ARGWA-20	ARGWA-20	ARGWA-20	ARGWA-20	ARGWA-20	ARGWA-20
		8/29/2016	10/26/2016	1/25/2017	4/10/2017	6/20/2017	10/24/2017	4/9/2018	10/16/2018	
APPENDIX III	Boron	N/R	ND	ND (0.0194 J)	ND (0.026 J)	ND	ND (0.032 J)	0.054	0.060	ND (0.036 J)
	Calcium	N/R	8.3	7.66	9.4	8.6	9.4	9.9	9.9	9.8
	Chloride	(250)	5.3	5.4	5.1	4.9	5.0	4.6	4.7	5.3
	Fluoride	4	ND	ND (0.04 J)	ND	ND	ND	ND	ND	ND
	Sulfate	(250)	18	18	19	16	18	19	18	18
	TDS	(500)	100	91	90	110	72	110	100	110
APPENDIX IV	Antimony	0.006	ND	ND	ND	ND	ND	ND	ND	ND
	Arsenic	0.01	ND (0.00049 J)	ND	ND	ND (0.00056 J)	ND (0.00068 J)	ND	ND	ND
	Barium	2	0.070	0.0738	0.084	0.073	0.078	0.081	0.081	0.080
	Beryllium	0.004	ND	ND	ND	ND	ND	ND	ND	ND
	Cadmium	0.005	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	0.1	0.0052	ND (0.0053 J)	0.0056	0.0047	0.0051	0.0056	0.0071	0.0071
	Cobalt	N/R	ND	ND	ND (0.00076 J)	ND	ND	ND	ND	ND
	Lead	0.015	ND	ND	ND (0.00037 J)	ND	ND	ND	ND	ND
	Lithium	N/R	ND	ND	ND	ND	ND	ND	ND (0.0021 J)	ND (0.0018 J)
	Mercury	0.002	ND	ND	ND (0.000072 J)	ND	ND	ND	ND	ND
	Molybdenum	N/R	ND	ND	ND	ND	ND	ND	ND	ND
	Radium	5	0.508 U	1.46	0.377 U	0.132 U	1.17	0.704	0.539	0.354 U
	Selenium	0.05	0.0019	ND (0.0023 J)	0.0015	ND (0.0011 J)	0.0016	ND (0.0012 J)	ND (0.0012 J)	0.0015
Thallium	0.002	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:

1. MCL indicates Environmental Protection Agency (EPA) and Georgia Environmental Protection Division (EPD) maximum contaminant level.
2. (SMCL) indicates a secondary MCL that is established by EPA as a general guideline only (not enforced).
3. Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
4. ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL).
5. ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.
6. N/R indicates a substance does not have an MCL or SMCL, but will be further evaluated statistically at the conclusion of all the background sampling events, as required by EPA's CCR rule.
7. TDS indicates total dissolved solids.
8. 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.
9. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring.

**Table 4A**  
**Summary of Background Groundwater Analytical Data - 2016-2018**

Substance	MCL/ (SMCL)	Well ID								
		ARGWC-21	ARGWC-21	ARGWC-21	ARGWC-21	ARGWC-21	ARGWC-21	ARGWC-21	ARGWC-21	ARGWC-21
		8/30/2016	10/26/2016	1/25/2017	4/10/2017	6/19/2017	10/24/2017	4/10/2018	10/16/2018	
APPENDIX III	Boron	N/R	0.57	0.502	0.56	0.54	0.54	0.57	0.61	0.59
	Calcium	N/R	46	44.3	50	52	55	56	51	57
	Chloride	(250)	5.5	6.0	5.4	5.1	5.2	4.9	4.8	5.1
	Fluoride	4	ND (0.099 J)	0.57	ND (0.12 J)	ND (0.11 J)	ND (0.11 J)	ND (0.10 J)	ND (0.094 J)	ND (0.17 J)
	Sulfate	(250)	140	160	150	140	160	160	170	170
	TDS	(500)	350	357	320	380	370	420	370	380
APPENDIX IV	Antimony	0.006	ND	ND	ND	ND	ND	ND	ND	ND
	Arsenic	0.01	0.0020	ND (0.0019 J)	0.0017	0.0020	0.0026	0.0021	0.0022	0.0021
	Barium	2	0.11	0.122	0.12	0.11	0.13	0.12	0.12	0.10
	Beryllium	0.004	ND	ND	ND	ND	ND	ND	ND	ND
	Cadmium	0.005	ND	ND	ND	ND	ND	ND	ND	ND
	Chromium	0.1	ND	ND	ND	ND	ND	ND	ND	ND
	Cobalt	N/R	ND (0.0018 J)	ND (0.0018 J)	ND (0.0017 J)	ND (0.0016 J)	ND (0.0021 J)	ND (0.0019 J)	ND (0.0019 J)	ND (0.0019 J)
	Lead	0.015	ND	ND	ND	ND	ND	ND	ND	ND
	Lithium	N/R	0.0092	ND (0.0071 J)	0.0087	0.0074	0.0079	0.0097	0.012	0.010
	Mercury	0.002	ND	ND	ND (0.000073 J)	ND	ND	ND	ND	ND
	Molybdenum	N/R	ND	ND	ND	ND	ND	ND	ND	ND
	Radium	5	0.832	1.27	0.549	0.556	0.976	0.504	0.621	0.796
	Selenium	0.05	ND	ND	ND	ND	ND	ND	ND	ND
Thallium	0.002	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:

1. MCL indicates Environmental Protection Agency (EPA) and Georgia Environmental Protection Division (EPD) maximum contaminant level.
2. (SMCL) indicates a secondary MCL that is established by EPA as a general guideline only (not enforced).
3. Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
4. ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL).
5. ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.
6. N/R indicates a substance does not have an MCL or SMCL, but will be further evaluated statistically at the conclusion of all the background sampling events, as required by EPA's CCR rule.
7. TDS indicates total dissolved solids.
8. 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.
9. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring.

**Table 4B  
Summary of Groundwater Analytical Data - March 2019**

Substance	MCL/ (SMCL)	Well ID								
		ARGWA-19	ARGWA-20	ARGWC-21						
		3/26/2019	3/27/2019	3/27/2019						
APPENDIX III	Boron	N/R	ND	ND (0.046 J)	0.65					
	Calcium	N/R	15	9.2	58					
	Chloride	(250)	12	4.6	4.4					
	Fluoride	4	ND (0.041 J)	ND	ND (0.050 J)					
	Sulfate	(250)	6.1	15	170					
	TDS	(500)	170	100	400					
Required by GWMP	Arsenic	0.01	ND	ND	ND (0.0011 J)					
	Barium	2	0.056	0.082	0.091					
	Cadmium	0.005	ND	ND	ND					
	Lead	(0.015)	ND	ND	ND					
	Selenium	0.05	ND	0.0015	ND					
	Silver	N/A	ND	ND	ND					
	Chloride	(250)	12	4.6	4.4					
	Sulfate	(250)	6.1	15	170					

Notes:

1. MCL indicates Environmental Protection Agency (EPA) and Georgia Environmental Protection Division (EPD) maximum contaminant level.
2. (SMCL) indicates a secondary MCL that is established by EPA as a general guideline only (not enforced).
3. Results for substances are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
4. ND (Not Detected) indicates the substance was not detected above the analytical method detection limit (MDL).
5. ND (value J) indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.
6. N/R indicates a substance does not have an MCL or SMCL, but will be further evaluated statistically at the conclusion of all the background sampling events, as required by EPA's CCR rule.
7. TDS indicates total dissolved solids.
8. 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.
9. Appendix III = indicator parameters evaluated during Detection Monitoring; Appendix IV = parameters evaluated during Assessment Monitoring.
10. N/A indicates substance does not have an MCL or SMCL and is not included in Appendix IV.

**Table 5**  
**Summary of Groundwater Elevations**

Well	Hydraulic Location	Aug. 30, 2016	Oct. 24-26, 2016	Jan. 25, 2017	Apr. 10, 2017	Jun. 19-20, 2017	Oct. 24, 2017	Apr. 9-10, 2018	Oct. 16, 2018	Mar. 26-27, 2019
Purpose of Sampling Event		Background	Background	Background	Background	Background	Background	Background	Background	Detection
GWA-19	Upgradient	313.98	312.60	313.03	313.80	313.02	312.28	312.48	313.98	316.10
GWA-20	Upgradient	314.48	312.99	313.77	314.60	313.78	312.73	313.43	314.46	317.18
GWC-21	Downgradient	295.20	295.17	298.81	295.77	295.43	295.48	295.60	295.07	294.58

Notes:

1. Groundwater elevations are recorded in feet above mean sea level (ft MSL).



**Table 6**  
**CALCULATED GROUNDWATER FLOW RATE**  
**March 2019**

Equation

$$v = \frac{k ( dh/dl )}{P_e}$$

where: v = ground water velocity  
k = hydraulic conductivity  
dh/dl = hydraulic gradient  
P<sub>e</sub> = effective porosity

Values Used in Calculation

	Value		Source
k =	7.7E-04 2.18	cm/sec ft/day	See note 1.
dh/dl =	22.6/792 0.029	ft/ft unitless	Hydraulic gradient from GWA-20 to GWC-21
P <sub>e</sub> =	0.20	unitless	See note 1.

Calculation

$$v = 0.31 \text{ ft/day}$$

$$v = 113.7 \text{ ft/yr}$$

Notes

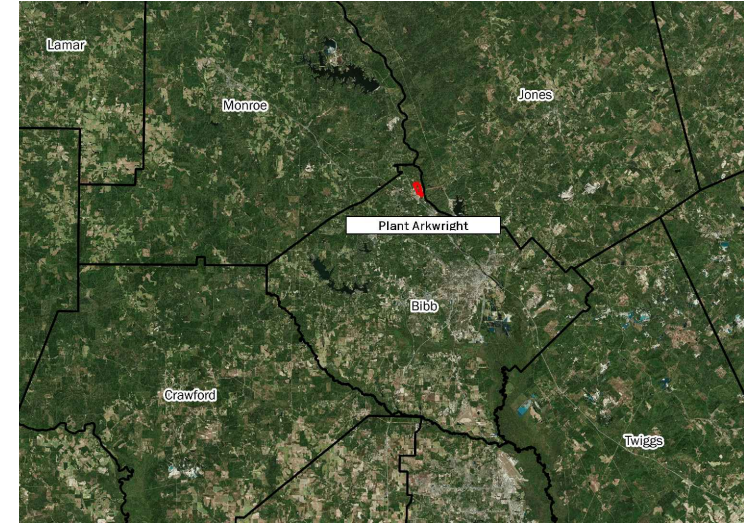
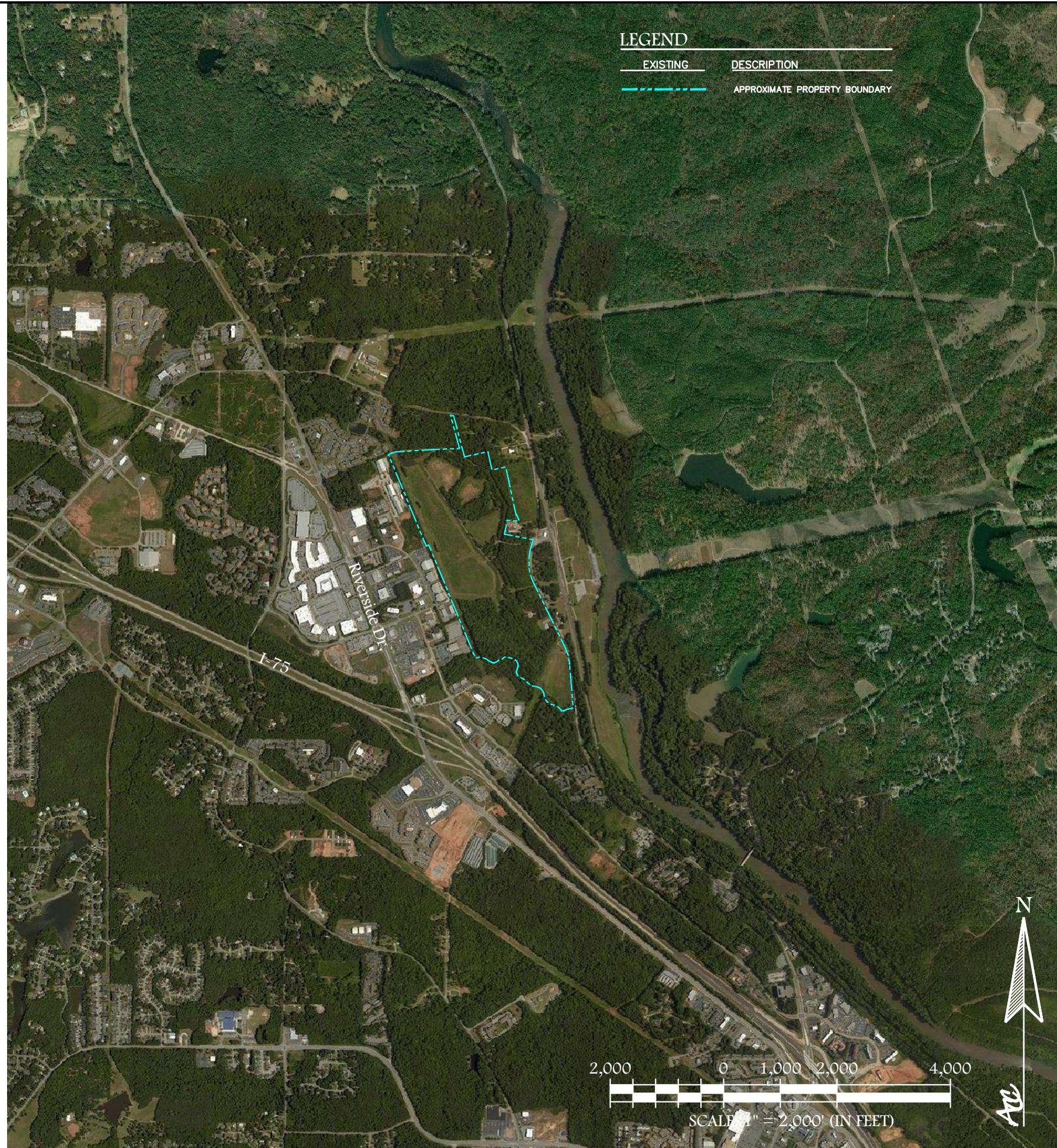
(1) Plant Arkwright Ash Ponds 2 and 3 Ash Monofill Site Acceptability Report (SCS, 2005).

**Table 7  
Statistical Method Summary**

<b>Statistical Method Summary</b>		
Monitoring Well Network	Upgradient Wells	GWA-19 and GWA-20
	Downgradient Wells	GWC-21
CCR Monitoring Parameters	Appendix III (Detection Monitoring)	Boron, Calcium, Chloride, Fluoride, pH, Sulfate, and TDS
	Appendix IV (Assessment Monitoring)	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, combined Radium 226 + 228, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, and Thallium
EPD Permit Metals	Detection Monitoring	Arsenic, Barium, Cadmium, Lead, Selenium, and Silver
Statistical Methodology	Data Screening Proposed Background	Evaluate outliers, trends, and seasonality when sufficient data are available
	Statistical Limits	Interwell (boron, calcium, fluoride, sulfate, and TDS) or intrawell (chloride and pH) statistical limits are on constituent-specific basis, depending on the appropriateness of the method as determined by the Analysis of Variance

## FIGURES





LOCATION IN THE STATE OF GEORGIA - NOT TO SCALE



**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

NO.	DESCRIPTION

Drawn by: RW	Checked by: MM
--------------	----------------

PROJECT NUMBER:  
 IO54-110  
 July 2019

SITE LOCATION  
 MAP

FIGURE 1





LEGEND

EXISTING	DESCRIPTION
	APPROXIMATE PROPERTY BOUNDARY
	APPROXIMATE LIMITS OF WASTE
	MONITORING WELL



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

NO.	DESCRIPTION

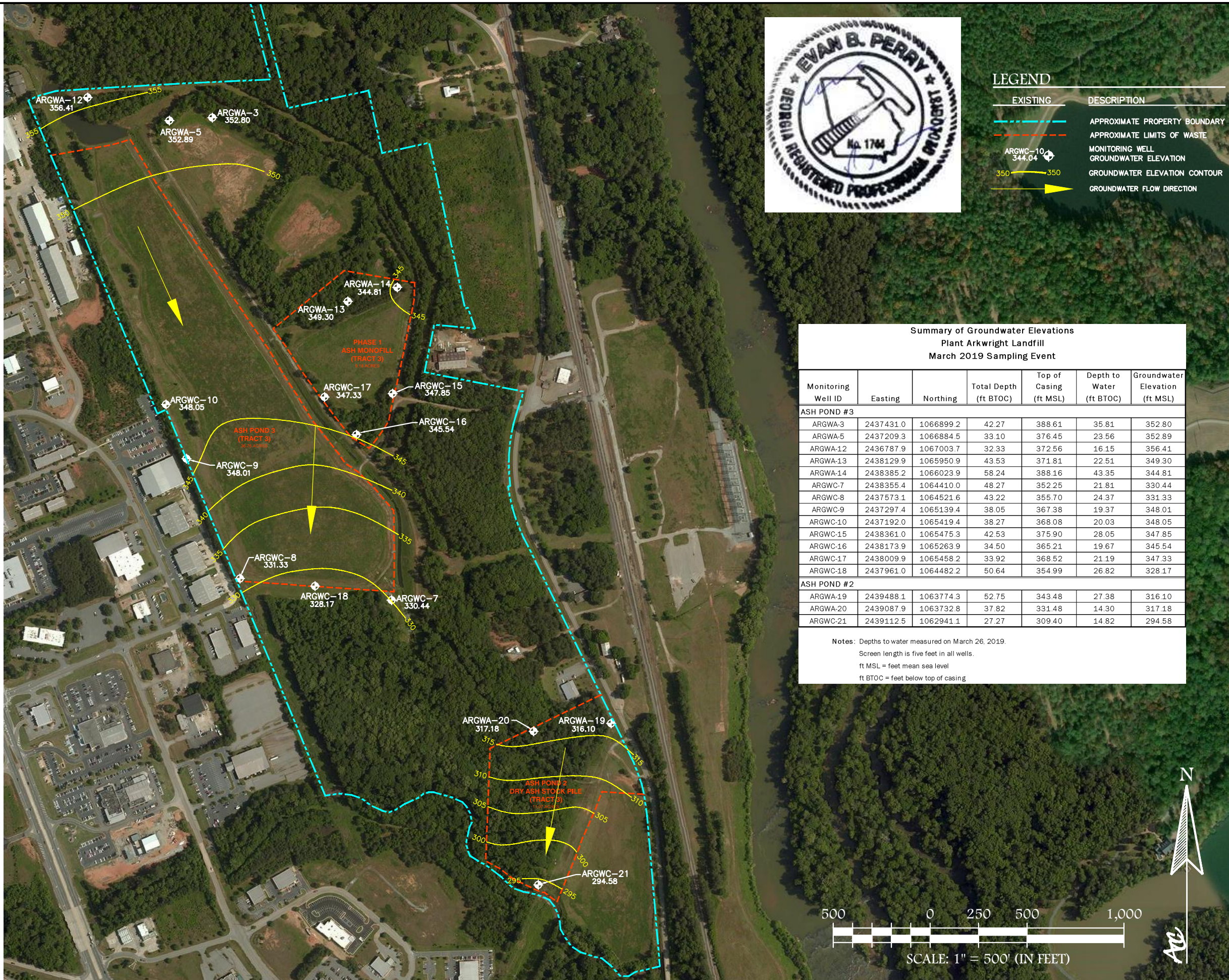
Drawn by: **RW** Checked by: **MM**

PROJECT NUMBER:  
**I054-110**  
July 2019

WELL LOCATION  
MAP

FIGURE **2**





**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**  
July 2019

**MARCH 2019  
WATER TABLE  
CONTOUR MAP**

FIGURE **3**



# APPENDICES

## APPENDIX A

# Laboratory Analytical and Field Sampling Reports



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-126551-1

TestAmerica Sample Delivery Group: Disposal Unit 2 Phase 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:

9/16/2016 10:41:00 AM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

Review your project  
results through

Total Access

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*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.*

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# Case Narrative

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

---

**Job ID: 400-126551-1**

---

**Laboratory: TestAmerica Pensacola**

## Narrative

---

**Job Narrative**  
**400-126551-1**

## HPLC/IC

Method(s) 300.0: The following sample was diluted to bring the concentration of target analytes within the calibration range: ARGWC-21 (400-126551-6). Elevated reporting limits (RLs) are provided.

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# Detection Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

## Client Sample ID: ARGWA-19

## Lab Sample ID: 400-126551-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.4		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	8.7		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.040		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.024	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	11		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0011	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0048	J	0.0050	0.0032	mg/L	5		6020	Total Recoverable
Selenium	0.00040	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	130		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: ARGWA-20

## Lab Sample ID: 400-126551-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.3		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	18		1.0	0.70	mg/L	1		300.0	Total/NA
Arsenic	0.00049	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.070		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	8.3		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0052		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0019		0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	100		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: DUP-1

## Lab Sample ID: 400-126551-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.3		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	18		1.0	0.70	mg/L	1		300.0	Total/NA
Arsenic	0.00047	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.071		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	8.3		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0050		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0017		0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	100		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: FB-1

## Lab Sample ID: 400-126551-4

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
 SDG: Disposal Unit 2 Phase 2

**Client Sample ID: FERB-1**

**Lab Sample ID: 400-126551-5**

No Detections.

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-126551-6**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	5.5		1.0	0.89	mg/L	1			300.0	Total/NA
Fluoride	0.099	J	0.20	0.082	mg/L	1			300.0	Total/NA
Sulfate	140		5.0	3.5	mg/L	5			300.0	Total/NA
Arsenic	0.0020		0.0013	0.00046	mg/L	5			6020	Total
Barium	0.11		0.0025	0.00049	mg/L	5			6020	Total
Boron	0.57		0.050	0.021	mg/L	5			6020	Total
Calcium	46		0.25	0.13	mg/L	5			6020	Total
Cobalt	0.0018	J	0.0025	0.00040	mg/L	5			6020	Total
Lithium	0.0092		0.0050	0.0032	mg/L	5			6020	Total
Total Dissolved Solids	350		5.0	3.4	mg/L	1			SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

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

#### 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 PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-126551-1	ARGWA-19	Water	08/29/16 13:47	08/31/16 09:28
400-126551-2	ARGWA-20	Water	08/29/16 13:55	08/31/16 09:28
400-126551-3	DUP-1	Water	08/29/16 00:00	08/31/16 09:28
400-126551-4	FB-1	Water	08/30/16 08:20	09/01/16 09:04
400-126551-5	FERB-1	Water	08/30/16 10:00	09/01/16 09:04
400-126551-6	ARGWC-21	Water	08/30/16 11:56	09/01/16 09:04

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# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: ARGWA-19**

**Date Collected: 08/29/16 13:47**

**Date Received: 08/31/16 09:28**

**Lab Sample ID: 400-126551-1**

**Matrix: Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>8.4</b>		1.0	0.89	mg/L			09/10/16 03:46	1
Fluoride	<0.082		0.20	0.082	mg/L			09/10/16 03:46	1
<b>Sulfate</b>	<b>8.7</b>		1.0	0.70	mg/L			09/10/16 03:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		09/03/16 11:19	09/06/16 16:05	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		09/03/16 11:19	09/06/16 16:05	5
<b>Barium</b>	<b>0.040</b>		0.0025	0.00049	mg/L		09/03/16 11:19	09/06/16 16:05	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		09/03/16 11:19	09/06/16 16:05	5
<b>Boron</b>	<b>0.024</b>	<b>J</b>	0.050	0.021	mg/L		09/03/16 11:19	09/06/16 16:05	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		09/03/16 11:19	09/06/16 16:05	5
<b>Calcium</b>	<b>11</b>		0.25	0.13	mg/L		09/03/16 11:19	09/06/16 16:05	5
<b>Chromium</b>	<b>0.0011</b>	<b>J</b>	0.0025	0.0011	mg/L		09/03/16 11:19	09/06/16 16:05	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		09/03/16 11:19	09/06/16 16:05	5
Lead	<0.00035		0.0013	0.00035	mg/L		09/03/16 11:19	09/06/16 16:05	5
<b>Lithium</b>	<b>0.0048</b>	<b>J</b>	0.0050	0.0032	mg/L		09/03/16 11:19	09/06/16 16:05	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		09/03/16 11:19	09/06/16 16:05	5
<b>Selenium</b>	<b>0.00040</b>	<b>J</b>	0.0013	0.00024	mg/L		09/03/16 11:19	09/06/16 16:05	5
Thallium	<0.000085		0.00050	0.000085	mg/L		09/03/16 11:19	09/06/16 16:05	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		09/01/16 11:42	09/02/16 14:13	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>130</b>		5.0	3.4	mg/L			09/01/16 16:06	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-126551-2**

Date Collected: 08/29/16 13:55

Matrix: Water

Date Received: 08/31/16 09:28

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>5.3</b>		1.0	0.89	mg/L			09/10/16 04:09	1
Fluoride	<0.082		0.20	0.082	mg/L			09/10/16 04:09	1
<b>Sulfate</b>	<b>18</b>		1.0	0.70	mg/L			09/10/16 04:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		09/03/16 11:19	09/06/16 16:09	5
<b>Arsenic</b>	<b>0.00049</b>	<b>J</b>	0.0013	0.00046	mg/L		09/03/16 11:19	09/06/16 16:09	5
<b>Barium</b>	<b>0.070</b>		0.0025	0.00049	mg/L		09/03/16 11:19	09/06/16 16:09	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		09/03/16 11:19	09/06/16 16:09	5
Boron	<0.021		0.050	0.021	mg/L		09/03/16 11:19	09/06/16 16:09	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		09/03/16 11:19	09/06/16 16:09	5
<b>Calcium</b>	<b>8.3</b>		0.25	0.13	mg/L		09/03/16 11:19	09/06/16 16:09	5
<b>Chromium</b>	<b>0.0052</b>		0.0025	0.0011	mg/L		09/03/16 11:19	09/06/16 16:09	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		09/03/16 11:19	09/06/16 16:09	5
Lead	<0.00035		0.0013	0.00035	mg/L		09/03/16 11:19	09/06/16 16:09	5
Lithium	<0.0032		0.0050	0.0032	mg/L		09/03/16 11:19	09/06/16 16:09	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		09/03/16 11:19	09/06/16 16:09	5
<b>Selenium</b>	<b>0.0019</b>		0.0013	0.00024	mg/L		09/03/16 11:19	09/06/16 16:09	5
Thallium	<0.000085		0.00050	0.000085	mg/L		09/03/16 11:19	09/06/16 16:09	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		09/01/16 11:42	09/02/16 14:14	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>100</b>		5.0	3.4	mg/L			09/01/16 16:06	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: DUP-1**  
**Date Collected: 08/29/16 00:00**  
**Date Received: 08/31/16 09:28**

**Lab Sample ID: 400-126551-3**  
**Matrix: Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>5.3</b>		1.0	0.89	mg/L			09/10/16 04:32	1
Fluoride	<0.082		0.20	0.082	mg/L			09/10/16 04:32	1
<b>Sulfate</b>	<b>18</b>		1.0	0.70	mg/L			09/10/16 04:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		09/03/16 11:19	09/06/16 16:14	5
<b>Arsenic</b>	<b>0.00047</b>	<b>J</b>	0.0013	0.00046	mg/L		09/03/16 11:19	09/06/16 16:14	5
<b>Barium</b>	<b>0.071</b>		0.0025	0.00049	mg/L		09/03/16 11:19	09/06/16 16:14	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		09/03/16 11:19	09/06/16 16:14	5
Boron	<0.021		0.050	0.021	mg/L		09/03/16 11:19	09/06/16 16:14	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		09/03/16 11:19	09/06/16 16:14	5
<b>Calcium</b>	<b>8.3</b>		0.25	0.13	mg/L		09/03/16 11:19	09/06/16 16:14	5
<b>Chromium</b>	<b>0.0050</b>		0.0025	0.0011	mg/L		09/03/16 11:19	09/06/16 16:14	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		09/03/16 11:19	09/06/16 16:14	5
Lead	<0.00035		0.0013	0.00035	mg/L		09/03/16 11:19	09/06/16 16:14	5
Lithium	<0.0032		0.0050	0.0032	mg/L		09/03/16 11:19	09/06/16 16:14	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		09/03/16 11:19	09/06/16 16:14	5
<b>Selenium</b>	<b>0.0017</b>		0.0013	0.00024	mg/L		09/03/16 11:19	09/06/16 16:14	5
Thallium	<0.000085		0.00050	0.000085	mg/L		09/03/16 11:19	09/06/16 16:14	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		09/01/16 11:42	09/02/16 14:15	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>100</b>		5.0	3.4	mg/L			09/01/16 12:50	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: FB-1**  
**Date Collected: 08/30/16 08:20**  
**Date Received: 09/01/16 09:04**

**Lab Sample ID: 400-126551-4**  
**Matrix: Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			09/10/16 04:55	1
Fluoride	<0.082		0.20	0.082	mg/L			09/10/16 04:55	1
Sulfate	<0.70		1.0	0.70	mg/L			09/10/16 04:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		09/04/16 11:49	09/06/16 21:18	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		09/04/16 11:49	09/06/16 21:18	5
Barium	<0.00049		0.0025	0.00049	mg/L		09/04/16 11:49	09/06/16 21:18	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		09/04/16 11:49	09/06/16 21:18	5
Boron	<0.021		0.050	0.021	mg/L		09/04/16 11:49	09/06/16 21:18	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		09/04/16 11:49	09/06/16 21:18	5
Calcium	<0.13		0.25	0.13	mg/L		09/04/16 11:49	09/06/16 21:18	5
Chromium	<0.0011		0.0025	0.0011	mg/L		09/04/16 11:49	09/06/16 21:18	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		09/04/16 11:49	09/06/16 21:18	5
Lead	<0.00035		0.0013	0.00035	mg/L		09/04/16 11:49	09/06/16 21:18	5
Lithium	<0.0032		0.0050	0.0032	mg/L		09/04/16 11:49	09/06/16 21:18	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		09/04/16 11:49	09/06/16 21:18	5
Selenium	<0.00024		0.0013	0.00024	mg/L		09/04/16 11:49	09/06/16 21:18	5
Thallium	<0.000085		0.00050	0.000085	mg/L		09/04/16 11:49	09/06/16 21:18	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		09/03/16 13:38	09/06/16 10:46	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			09/03/16 13:40	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: FERB-1**  
**Date Collected: 08/30/16 10:00**  
**Date Received: 09/01/16 09:04**

**Lab Sample ID: 400-126551-5**  
**Matrix: Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			09/10/16 05:17	1
Fluoride	<0.082		0.20	0.082	mg/L			09/10/16 05:17	1
Sulfate	<0.70		1.0	0.70	mg/L			09/10/16 05:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		09/04/16 11:49	09/06/16 21:36	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		09/04/16 11:49	09/06/16 21:36	5
Barium	<0.00049		0.0025	0.00049	mg/L		09/04/16 11:49	09/06/16 21:36	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		09/04/16 11:49	09/06/16 21:36	5
Boron	<0.021		0.050	0.021	mg/L		09/04/16 11:49	09/06/16 21:36	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		09/04/16 11:49	09/06/16 21:36	5
Calcium	<0.13		0.25	0.13	mg/L		09/04/16 11:49	09/06/16 21:36	5
Chromium	<0.0011		0.0025	0.0011	mg/L		09/04/16 11:49	09/06/16 21:36	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		09/04/16 11:49	09/06/16 21:36	5
Lead	<0.00035		0.0013	0.00035	mg/L		09/04/16 11:49	09/06/16 21:36	5
Lithium	<0.0032		0.0050	0.0032	mg/L		09/04/16 11:49	09/06/16 21:36	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		09/04/16 11:49	09/06/16 21:36	5
Selenium	<0.00024		0.0013	0.00024	mg/L		09/04/16 11:49	09/06/16 21:36	5
Thallium	<0.000085		0.00050	0.000085	mg/L		09/04/16 11:49	09/06/16 21:36	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		09/03/16 13:38	09/06/16 10:47	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			09/03/16 13:40	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-126551-6**

Date Collected: 08/30/16 11:56

Matrix: Water

Date Received: 09/01/16 09:04

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.5		1.0	0.89	mg/L			09/09/16 07:12	1
Fluoride	0.099	J	0.20	0.082	mg/L			09/09/16 07:12	1
Sulfate	140		5.0	3.5	mg/L			09/10/16 05:40	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		09/04/16 11:49	09/06/16 21:40	5
Arsenic	0.0020		0.0013	0.00046	mg/L		09/04/16 11:49	09/06/16 21:40	5
Barium	0.11		0.0025	0.00049	mg/L		09/04/16 11:49	09/06/16 21:40	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		09/04/16 11:49	09/06/16 21:40	5
Boron	0.57		0.050	0.021	mg/L		09/04/16 11:49	09/06/16 21:40	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		09/04/16 11:49	09/06/16 21:40	5
Calcium	46		0.25	0.13	mg/L		09/04/16 11:49	09/06/16 21:40	5
Chromium	<0.0011		0.0025	0.0011	mg/L		09/04/16 11:49	09/06/16 21:40	5
Cobalt	0.0018	J	0.0025	0.00040	mg/L		09/04/16 11:49	09/06/16 21:40	5
Lead	<0.00035		0.0013	0.00035	mg/L		09/04/16 11:49	09/06/16 21:40	5
Lithium	0.0092		0.0050	0.0032	mg/L		09/04/16 11:49	09/06/16 21:40	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		09/04/16 11:49	09/06/16 21:40	5
Selenium	<0.00024		0.0013	0.00024	mg/L		09/04/16 11:49	09/06/16 21:40	5
Thallium	<0.000085		0.00050	0.000085	mg/L		09/04/16 11:49	09/06/16 21:40	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		09/03/16 13:38	09/06/16 10:49	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	350		5.0	3.4	mg/L			09/03/16 13:40	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 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.
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.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: ARGWA-19**

**Date Collected: 08/29/16 13:47**

**Date Received: 08/31/16 09:28**

**Lab Sample ID: 400-126551-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	322098	09/10/16 03:46	TAJ	TAL PEN
Total Recoverable	Prep	3005A			321318	09/03/16 11:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	321510	09/06/16 16:05	RJB	TAL PEN
Total/NA	Prep	7470A			320959	09/01/16 11:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	321261	09/02/16 14:13	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	321099	09/01/16 16:06	JLB	TAL PEN

**Client Sample ID: ARGWA-20**

**Date Collected: 08/29/16 13:55**

**Date Received: 08/31/16 09:28**

**Lab Sample ID: 400-126551-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	322098	09/10/16 04:09	TAJ	TAL PEN
Total Recoverable	Prep	3005A			321318	09/03/16 11:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	321510	09/06/16 16:09	RJB	TAL PEN
Total/NA	Prep	7470A			320959	09/01/16 11:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	321261	09/02/16 14:14	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	321099	09/01/16 16:06	JLB	TAL PEN

**Client Sample ID: DUP-1**

**Date Collected: 08/29/16 00:00**

**Date Received: 08/31/16 09:28**

**Lab Sample ID: 400-126551-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	322098	09/10/16 04:32	TAJ	TAL PEN
Total Recoverable	Prep	3005A			321318	09/03/16 11:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	321510	09/06/16 16:14	RJB	TAL PEN
Total/NA	Prep	7470A			320959	09/01/16 11:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	321261	09/02/16 14:15	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	321064	09/01/16 12:50	TET	TAL PEN

**Client Sample ID: FB-1**

**Date Collected: 08/30/16 08:20**

**Date Received: 09/01/16 09:04**

**Lab Sample ID: 400-126551-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	322098	09/10/16 04:55	TAJ	TAL PEN
Total Recoverable	Prep	3005A			321355	09/04/16 11:49	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	321510	09/06/16 21:18	RJB	TAL PEN
Total/NA	Prep	7470A			321179	09/03/16 13:38	DN1	TAL PEN
Total/NA	Analysis	7470A		1	321424	09/06/16 10:46	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	321321	09/03/16 13:40	TET	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: FERB-1**

**Date Collected: 08/30/16 10:00**

**Date Received: 09/01/16 09:04**

**Lab Sample ID: 400-126551-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	322098	09/10/16 05:17	TAJ	TAL PEN
Total Recoverable	Prep	3005A			321355	09/04/16 11:49	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	321510	09/06/16 21:36	RJB	TAL PEN
Total/NA	Prep	7470A			321179	09/03/16 13:38	DN1	TAL PEN
Total/NA	Analysis	7470A		1	321424	09/06/16 10:47	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	321321	09/03/16 13:40	TET	TAL PEN

**Client Sample ID: ARGWC-21**

**Date Collected: 08/30/16 11:56**

**Date Received: 09/01/16 09:04**

**Lab Sample ID: 400-126551-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	321948	09/09/16 07:12	TAJ	TAL PEN
Total/NA	Analysis	300.0		5	322098	09/10/16 05:40	TAJ	TAL PEN
Total Recoverable	Prep	3005A			321355	09/04/16 11:49	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	321510	09/06/16 21:40	RJB	TAL PEN
Total/NA	Prep	7470A			321179	09/03/16 13:38	DN1	TAL PEN
Total/NA	Analysis	7470A		1	321424	09/06/16 10:49	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	321321	09/03/16 13:40	TET	TAL PEN

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001



# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

## HPLC/IC

### Analysis Batch: 321948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-6	ARGWC-21	Total/NA	Water	300.0	
MB 400-321948/26	Method Blank	Total/NA	Water	300.0	
LCS 400-321948/27	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-321948/28	Lab Control Sample Dup	Total/NA	Water	300.0	
400-126587-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 322098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-1	ARGWA-19	Total/NA	Water	300.0	
400-126551-2	ARGWA-20	Total/NA	Water	300.0	
400-126551-3	DUP-1	Total/NA	Water	300.0	
400-126551-4	FB-1	Total/NA	Water	300.0	
400-126551-5	FERB-1	Total/NA	Water	300.0	
400-126551-6	ARGWC-21	Total/NA	Water	300.0	
MB 400-322098/3	Method Blank	Total/NA	Water	300.0	
LCS 400-322098/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-322098/5	Lab Control Sample Dup	Total/NA	Water	300.0	
400-126525-D-4 MS	Matrix Spike	Total/NA	Water	300.0	
400-126587-D-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 320959

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-1	ARGWA-19	Total/NA	Water	7470A	
400-126551-2	ARGWA-20	Total/NA	Water	7470A	
400-126551-3	DUP-1	Total/NA	Water	7470A	
MB 400-320959/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-320959/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-126525-L-2-B MS	Matrix Spike	Total/NA	Water	7470A	
400-126525-L-2-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Prep Batch: 321179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-4	FB-1	Total/NA	Water	7470A	
400-126551-5	FERB-1	Total/NA	Water	7470A	
400-126551-6	ARGWC-21	Total/NA	Water	7470A	
MB 400-321179/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-321179/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-126631-H-1-B MS	Matrix Spike	Total/NA	Water	7470A	
400-126631-H-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Analysis Batch: 321261

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-1	ARGWA-19	Total/NA	Water	7470A	320959
400-126551-2	ARGWA-20	Total/NA	Water	7470A	320959
400-126551-3	DUP-1	Total/NA	Water	7470A	320959
MB 400-320959/14-A	Method Blank	Total/NA	Water	7470A	320959
LCS 400-320959/15-A	Lab Control Sample	Total/NA	Water	7470A	320959
400-126525-L-2-B MS	Matrix Spike	Total/NA	Water	7470A	320959

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

## Metals (Continued)

### Analysis Batch: 321261 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126525-L-2-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	320959

### Prep Batch: 321318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-1	ARGWA-19	Total Recoverable	Water	3005A	
400-126551-2	ARGWA-20	Total Recoverable	Water	3005A	
400-126551-3	DUP-1	Total Recoverable	Water	3005A	
MB 400-321318/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-321318/2-A ^1	Lab Control Sample	Total Recoverable	Water	3005A	
400-126518-C-1-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-126518-C-1-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Prep Batch: 321355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-4	FB-1	Total Recoverable	Water	3005A	
400-126551-5	FERB-1	Total Recoverable	Water	3005A	
400-126551-6	ARGWC-21	Total Recoverable	Water	3005A	
MB 400-321355/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-321355/2-A ^1	Lab Control Sample	Total Recoverable	Water	3005A	
400-126631-I-9-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-126631-I-9-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 321424

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-4	FB-1	Total/NA	Water	7470A	321179
400-126551-5	FERB-1	Total/NA	Water	7470A	321179
400-126551-6	ARGWC-21	Total/NA	Water	7470A	321179
MB 400-321179/14-A	Method Blank	Total/NA	Water	7470A	321179
LCS 400-321179/15-A	Lab Control Sample	Total/NA	Water	7470A	321179
400-126631-H-1-B MS	Matrix Spike	Total/NA	Water	7470A	321179
400-126631-H-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	321179

### Analysis Batch: 321510

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-1	ARGWA-19	Total Recoverable	Water	6020	321318
400-126551-2	ARGWA-20	Total Recoverable	Water	6020	321318
400-126551-3	DUP-1	Total Recoverable	Water	6020	321318
400-126551-4	FB-1	Total Recoverable	Water	6020	321355
400-126551-5	FERB-1	Total Recoverable	Water	6020	321355
400-126551-6	ARGWC-21	Total Recoverable	Water	6020	321355
MB 400-321318/1-A ^5	Method Blank	Total Recoverable	Water	6020	321318
MB 400-321355/1-A ^5	Method Blank	Total Recoverable	Water	6020	321355
LCS 400-321318/2-A ^1	Lab Control Sample	Total Recoverable	Water	6020	321318
LCS 400-321355/2-A ^1	Lab Control Sample	Total Recoverable	Water	6020	321355
400-126518-C-1-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	321318
400-126518-C-1-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	321318
400-126631-I-9-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	321355
400-126631-I-9-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	321355

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

## General Chemistry

### Analysis Batch: 321064

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-3	DUP-1	Total/NA	Water	SM 2540C	
MB 400-321064/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-321064/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-126426-G-24 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 321099

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-1	ARGWA-19	Total/NA	Water	SM 2540C	
400-126551-2	ARGWA-20	Total/NA	Water	SM 2540C	
MB 400-321099/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-321099/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-126551-1 DU	ARGWA-19	Total/NA	Water	SM 2540C	

### Analysis Batch: 321321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-4	FB-1	Total/NA	Water	SM 2540C	
400-126551-5	FERB-1	Total/NA	Water	SM 2540C	
400-126551-6	ARGWC-21	Total/NA	Water	SM 2540C	
MB 400-321321/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-321321/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-126525-D-3 DU	Duplicate	Total/NA	Water	SM 2540C	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 400-321948/26**  
**Matrix: Water**  
**Analysis Batch: 321948**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			09/08/16 20:33	1
Fluoride	<0.082		0.20	0.082	mg/L			09/08/16 20:33	1

**Lab Sample ID: LCS 400-321948/27**  
**Matrix: Water**  
**Analysis Batch: 321948**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.23		mg/L		92	90 - 110
Fluoride	10.0	9.95		mg/L		100	90 - 110

**Lab Sample ID: LCSD 400-321948/28**  
**Matrix: Water**  
**Analysis Batch: 321948**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.20		mg/L		92	90 - 110	0	15
Fluoride	10.0	9.99		mg/L		100	90 - 110	0	15

**Lab Sample ID: 400-126587-D-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 321948**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	<0.89		10.0	38.7		mg/L				1	20
Fluoride	0.20		10.0	12.0		mg/L				1	20
Sulfate	<0.70		10.0	13.3		mg/L				7	20

**Lab Sample ID: MB 400-322098/3**  
**Matrix: Water**  
**Analysis Batch: 322098**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			09/09/16 19:01	1
Fluoride	<0.082		0.20	0.082	mg/L			09/09/16 19:01	1
Sulfate	<0.70		1.0	0.70	mg/L			09/09/16 19:01	1

**Lab Sample ID: LCS 400-322098/4**  
**Matrix: Water**  
**Analysis Batch: 322098**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.35		mg/L		93	90 - 110
Fluoride	10.0	9.90		mg/L		99	90 - 110
Sulfate	10.0	9.56		mg/L		96	90 - 110

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCSD 400-322098/5**  
**Matrix: Water**  
**Analysis Batch: 322098**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.37		mg/L		94	90 - 110	0	15
Fluoride	10.0	9.81		mg/L		98	90 - 110	1	15
Sulfate	10.0	9.67		mg/L		97	90 - 110	1	15

**Lab Sample ID: 400-126525-D-4 MS**  
**Matrix: Water**  
**Analysis Batch: 322098**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	14		10.0	24.1		mg/L		98	80 - 120		
Fluoride	0.14	J	10.0	11.0		mg/L		109	80 - 120		
Sulfate	28		10.0	38.4		mg/L		101	80 - 120		

**Lab Sample ID: 400-126587-D-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 322098**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	29	F1	10.0	38.6		mg/L		99	80 - 120	0	20
Fluoride	0.23		10.0	11.3		mg/L		110	80 - 120	1	20
Sulfate	2.1		10.0	12.5		mg/L		105	80 - 120	1	20

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 400-321318/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 321510**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 321318**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		09/03/16 11:19	09/06/16 13:51	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		09/03/16 11:19	09/06/16 13:51	5
Barium	<0.00049		0.0025	0.00049	mg/L		09/03/16 11:19	09/06/16 13:51	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		09/03/16 11:19	09/06/16 13:51	5
Boron	<0.021		0.050	0.021	mg/L		09/03/16 11:19	09/06/16 13:51	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		09/03/16 11:19	09/06/16 13:51	5
Calcium	<0.13		0.25	0.13	mg/L		09/03/16 11:19	09/06/16 13:51	5
Chromium	<0.0011		0.0025	0.0011	mg/L		09/03/16 11:19	09/06/16 13:51	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		09/03/16 11:19	09/06/16 13:51	5
Lead	<0.00035		0.0013	0.00035	mg/L		09/03/16 11:19	09/06/16 13:51	5
Lithium	<0.0032		0.0050	0.0032	mg/L		09/03/16 11:19	09/06/16 13:51	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		09/03/16 11:19	09/06/16 13:51	5
Selenium	<0.00024		0.0013	0.00024	mg/L		09/03/16 11:19	09/06/16 13:51	5
Thallium	<0.000085		0.00050	0.000085	mg/L		09/03/16 11:19	09/06/16 13:51	5

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# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

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

**Lab Sample ID: LCS 400-321318/2-A ^1**  
**Matrix: Water**  
**Analysis Batch: 321510**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 321318**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	0.0500	0.0529		mg/L		106	80 - 120
Arsenic	0.0500	0.0553		mg/L		111	80 - 120
Barium	0.0500	0.0464		mg/L		93	80 - 120
Beryllium	0.0500	0.0511		mg/L		102	80 - 120
Boron	0.100	0.0986		mg/L		99	80 - 120
Cadmium	0.0500	0.0507		mg/L		101	80 - 120
Calcium	5.00	4.79		mg/L		96	80 - 120
Chromium	0.0500	0.0502		mg/L		100	80 - 120
Cobalt	0.0500	0.0467		mg/L		93	80 - 120
Lead	0.0500	0.0517		mg/L		103	80 - 120
Lithium	0.0500	0.0511		mg/L		102	80 - 120
Molybdenum	0.0500	0.0503		mg/L		101	80 - 120
Selenium	0.0500	0.0507		mg/L		101	80 - 120
Thallium	0.0100	0.00995		mg/L		100	80 - 120

**Lab Sample ID: 400-126518-C-1-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 321510**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 321318**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	<0.0010		0.0500	0.0552		mg/L		110	75 - 125
Arsenic	0.00060	J	0.0500	0.0564		mg/L		112	75 - 125
Barium	0.096		0.0500	0.140		mg/L		90	75 - 125
Beryllium	<0.00034		0.0500	0.0502		mg/L		100	75 - 125
Boron	0.086		0.100	0.186		mg/L		100	75 - 125
Cadmium	<0.00034		0.0500	0.0497		mg/L		99	75 - 125
Calcium	5.4		5.00	10.1		mg/L		93	75 - 125
Chromium	<0.0011		0.0500	0.0494		mg/L		99	75 - 125
Cobalt	0.014		0.0500	0.0622		mg/L		95	75 - 125
Lead	<0.00035		0.0500	0.0555		mg/L		111	75 - 125
Lithium	<0.0032		0.0500	0.0508		mg/L		102	75 - 125
Molybdenum	<0.00085		0.0500	0.0500		mg/L		100	75 - 125
Selenium	0.00073	J	0.0500	0.0516		mg/L		102	75 - 125
Thallium	0.00019	J	0.0100	0.0100		mg/L		99	75 - 125

**Lab Sample ID: 400-126518-C-1-C MSD ^5**  
**Matrix: Water**  
**Analysis Batch: 321510**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 321318**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.0010		0.0500	0.0545		mg/L		109	75 - 125	1	20
Arsenic	0.00060	J	0.0500	0.0561		mg/L		111	75 - 125	1	20
Barium	0.096		0.0500	0.142		mg/L		93	75 - 125	1	20
Beryllium	<0.00034		0.0500	0.0519		mg/L		104	75 - 125	3	20
Boron	0.086		0.100	0.191		mg/L		105	75 - 125	3	20
Cadmium	<0.00034		0.0500	0.0508		mg/L		102	75 - 125	2	20
Calcium	5.4		5.00	10.1		mg/L		94	75 - 125	1	20
Chromium	<0.0011		0.0500	0.0500		mg/L		100	75 - 125	1	20

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

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

**Lab Sample ID: 400-126518-C-1-C MSD ^5**  
**Matrix: Water**  
**Analysis Batch: 321510**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 321318**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Cobalt	0.014		0.0500	0.0619		mg/L		95	75 - 125	0	20
Lead	<0.00035		0.0500	0.0577		mg/L		115	75 - 125	4	20
Lithium	<0.0032		0.0500	0.0545		mg/L		109	75 - 125	7	20
Molybdenum	<0.00085		0.0500	0.0512		mg/L		102	75 - 125	2	20
Selenium	0.00073	J	0.0500	0.0513		mg/L		101	75 - 125	1	20
Thallium	0.00019	J	0.0100	0.0105		mg/L		103	75 - 125	5	20

**Lab Sample ID: MB 400-321355/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 321510**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 321355**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Antimony	<0.0010		0.0025	0.0010	mg/L		09/04/16 11:49	09/06/16 19:21	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		09/04/16 11:49	09/06/16 19:21	5
Barium	<0.00049		0.0025	0.00049	mg/L		09/04/16 11:49	09/06/16 19:21	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		09/04/16 11:49	09/06/16 19:21	5
Boron	<0.021		0.050	0.021	mg/L		09/04/16 11:49	09/06/16 19:21	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		09/04/16 11:49	09/06/16 19:21	5
Calcium	<0.13		0.25	0.13	mg/L		09/04/16 11:49	09/06/16 19:21	5
Chromium	<0.0011		0.0025	0.0011	mg/L		09/04/16 11:49	09/06/16 19:21	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		09/04/16 11:49	09/06/16 19:21	5
Lead	<0.00035		0.0013	0.00035	mg/L		09/04/16 11:49	09/06/16 19:21	5
Lithium	<0.0032		0.0050	0.0032	mg/L		09/04/16 11:49	09/06/16 19:21	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		09/04/16 11:49	09/06/16 19:21	5
Selenium	<0.00024		0.0013	0.00024	mg/L		09/04/16 11:49	09/06/16 19:21	5
Thallium	<0.000085		0.00050	0.000085	mg/L		09/04/16 11:49	09/06/16 19:21	5

**Lab Sample ID: LCS 400-321355/2-A ^1**  
**Matrix: Water**  
**Analysis Batch: 321510**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 321355**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
Antimony	0.0500	0.0520		mg/L		104	80 - 120
Arsenic	0.0500	0.0562		mg/L		112	80 - 120
Barium	0.0500	0.0453		mg/L		91	80 - 120
Beryllium	0.0500	0.0519		mg/L		104	80 - 120
Boron	0.100	0.102		mg/L		102	80 - 120
Cadmium	0.0500	0.0497		mg/L		99	80 - 120
Calcium	5.00	4.92		mg/L		98	80 - 120
Chromium	0.0500	0.0515		mg/L		103	80 - 120
Cobalt	0.0500	0.0479		mg/L		96	80 - 120
Lead	0.0500	0.0523		mg/L		105	80 - 120
Lithium	0.0500	0.0516		mg/L		103	80 - 120
Molybdenum	0.0500	0.0515		mg/L		103	80 - 120
Selenium	0.0500	0.0529		mg/L		106	80 - 120
Thallium	0.0100	0.00988		mg/L		99	80 - 120

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

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

**Lab Sample ID: 400-126631-I-9-B MS ^5**

**Matrix: Water**

**Analysis Batch: 321510**

**Client Sample ID: Matrix Spike**

**Prep Type: Total Recoverable**

**Prep Batch: 321355**

Analyte	Sample	Sample Qualifier	Spike Added	MS	MS Qualifier	Unit	D	%Rec	%Rec.	
	Result			Result					Limits	Limits
Antimony	<0.0010		0.0500	0.0535		mg/L		107	75 - 125	
Arsenic	0.0059		0.0500	0.0636		mg/L		116	75 - 125	
Barium	0.082		0.0500	0.124		mg/L		83	75 - 125	
Beryllium	<0.00034		0.0500	0.0531		mg/L		106	75 - 125	
Boron	0.39		0.100	0.508		mg/L		123	75 - 125	
Cadmium	<0.00034		0.0500	0.0489		mg/L		98	75 - 125	
Calcium	170		5.00	172	4	mg/L		89	75 - 125	
Chromium	<0.0011		0.0500	0.0514		mg/L		103	75 - 125	
Cobalt	0.00073	J	0.0500	0.0483		mg/L		95	75 - 125	
Lead	<0.00035		0.0500	0.0560		mg/L		112	75 - 125	
Lithium	<0.0032		0.0500	0.0536		mg/L		107	75 - 125	
Molybdenum	0.0059	J	0.0500	0.0580		mg/L		104	75 - 125	
Selenium	<0.00024		0.0500	0.0523		mg/L		105	75 - 125	
Thallium	<0.000085		0.0100	0.0102		mg/L		102	75 - 125	

**Lab Sample ID: 400-126631-I-9-C MSD ^5**

**Matrix: Water**

**Analysis Batch: 321510**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total Recoverable**

**Prep Batch: 321355**

Analyte	Sample	Sample Qualifier	Spike Added	MSD	MSD Qualifier	Unit	D	%Rec	%Rec.		RPD	
	Result			Result					Limits	RPD	Limit	Limit
Antimony	<0.0010		0.0500	0.0531		mg/L		106	75 - 125	1	20	
Arsenic	0.0059		0.0500	0.0631		mg/L		115	75 - 125	1	20	
Barium	0.082		0.0500	0.127		mg/L		90	75 - 125	3	20	
Beryllium	<0.00034		0.0500	0.0542		mg/L		108	75 - 125	2	20	
Boron	0.39		0.100	0.502		mg/L		117	75 - 125	1	20	
Cadmium	<0.00034		0.0500	0.0502		mg/L		100	75 - 125	3	20	
Calcium	170		5.00	174	4	mg/L		116	75 - 125	1	20	
Chromium	<0.0011		0.0500	0.0523		mg/L		105	75 - 125	2	20	
Cobalt	0.00073	J	0.0500	0.0492		mg/L		97	75 - 125	2	20	
Lead	<0.00035		0.0500	0.0560		mg/L		112	75 - 125	0	20	
Lithium	<0.0032		0.0500	0.0538		mg/L		108	75 - 125	0	20	
Molybdenum	0.0059	J	0.0500	0.0584		mg/L		105	75 - 125	1	20	
Selenium	<0.00024		0.0500	0.0518		mg/L		104	75 - 125	1	20	
Thallium	<0.000085		0.0100	0.0100		mg/L		100	75 - 125	1	20	

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 400-320959/14-A**

**Matrix: Water**

**Analysis Batch: 321261**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 320959**

Analyte	MB	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
	Result									
Mercury	<0.000070		0.00020	0.000070	mg/L		08/31/16 14:00	09/02/16 13:05		1

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

## Method: 7470A - Mercury (CVAA) (Continued)

**Lab Sample ID: LCS 400-320959/15-A**  
**Matrix: Water**  
**Analysis Batch: 321261**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 320959**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00101	0.000902		mg/L		90	80 - 120

**Lab Sample ID: 400-126525-L-2-B MS**  
**Matrix: Water**  
**Analysis Batch: 321261**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 320959**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	<0.000070		0.00201	0.00186		mg/L		92	80 - 120

**Lab Sample ID: 400-126525-L-2-C MSD**  
**Matrix: Water**  
**Analysis Batch: 321261**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 320959**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	<0.000070		0.00201	0.00180		mg/L		90	80 - 120	3	20

**Lab Sample ID: MB 400-321179/14-A**  
**Matrix: Water**  
**Analysis Batch: 321424**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 321179**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		09/03/16 13:38	09/06/16 10:20	1

**Lab Sample ID: LCS 400-321179/15-A**  
**Matrix: Water**  
**Analysis Batch: 321424**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 321179**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00101	0.00100		mg/L		100	80 - 120

**Lab Sample ID: 400-126631-H-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 321424**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 321179**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	0.0015		0.00201	0.00323		mg/L		85	80 - 120

**Lab Sample ID: 400-126631-H-1-C MSD**  
**Matrix: Water**  
**Analysis Batch: 321424**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 321179**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	0.0015		0.00201	0.00360		mg/L		103	80 - 120	11	20

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

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

**Lab Sample ID: MB 400-321064/1**  
**Matrix: Water**  
**Analysis Batch: 321064**

**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	<3.4		5.0	3.4	mg/L			09/01/16 12:50	1

**Lab Sample ID: LCS 400-321064/2**  
**Matrix: Water**  
**Analysis Batch: 321064**

**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	293	258		mg/L		88	78 - 122

**Lab Sample ID: 400-126426-G-24 DU**  
**Matrix: Water**  
**Analysis Batch: 321064**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	38		40.0		mg/L		5	5

**Lab Sample ID: MB 400-321099/1**  
**Matrix: Water**  
**Analysis Batch: 321099**

**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	<3.4		5.0	3.4	mg/L			09/01/16 16:06	1

**Lab Sample ID: LCS 400-321099/2**  
**Matrix: Water**  
**Analysis Batch: 321099**

**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	293	258		mg/L		88	78 - 122

**Lab Sample ID: 400-126551-1 DU**  
**Matrix: Water**  
**Analysis Batch: 321099**

**Client Sample ID: ARGWA-19**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	130		128		mg/L		0	5

**Lab Sample ID: MB 400-321321/1**  
**Matrix: Water**  
**Analysis Batch: 321321**

**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	<3.4		5.0	3.4	mg/L			09/03/16 13:40	1

**Lab Sample ID: LCS 400-321321/2**  
**Matrix: Water**  
**Analysis Batch: 321321**

**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	293	240		mg/L		82	78 - 122

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# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
SDG: Disposal Unit 2 Phase 2

Lab Sample ID: 400-126525-D-3 DU  
Matrix: Water  
Analysis Batch: 321321

Client Sample ID: Duplicate  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	180		188		mg/L		2	5

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- 14

**Chain of Custody Record**


<b>Client Information</b>		Lab PM: Whitmire, Cheyenne R	Carrier/Tracking No(s):
Client Contact: Joju Abraham		E-Mail: cheyenne.whitmire@testamericainc.com	
Company: Southern Company		Due Date Requested:	
Address: 241 Ralph McGill Blvd SE B10185		TAT Requested (days):	
City: Atlanta		PO #:	
State, Zip: GA, 30308		WO #:	
Phone: 404-506-7239		Project #:	
Email: JAbraham@southernco.com		SSOW#:	
Project Name: CCR - PLANT AIRWASH - PHASE 2			
Site: DISPOSE UNIT 2			

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=wasteoil)	Field Filtered Sample (Yes or No)	Retention MS/SD (Yes or No)	TDS - SM 2640C: Cl, F, SO4 - EPA 300	Metals Appendix III & IV - EPA 6020 & EPA 7470	Radium 226 & 228 - SW-846 9315 & 9320	Total Number of Containers	Special Instructions/Note:
ARGA-19	8/29/16	1347	G	W	X	X				3	
ARGA-20	8/29/16	1355	G	W	X	X				3	
DUP-1	8/29/16	-	G	W	X	X				3	
				W							
				W							
				W							
				W							
				W							
				W							
				W							
				W							
				W							


  

400-126551 COC

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  
 Other:

M - Hexane  
 N - None  
 O - AsNaO2  
 P - Na2O4S  
 Q - Na2SO3  
 R - Na2SO3  
 S - H2SO4  
 T - TSP Dodecahydrate  
 U - Acetone  
 V - MCAA  
 W - ph 4-5  
 X - EDTA  
 Z - other (specify)

<b>Client Information</b> Client Contact: Jolju Abraham Company: Southern Company Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State, Zip: GA, 30308 Phone: 404-506-7239 Email: JAbraham@southernco.com Project Name: CCR - PLANT AIRWRIGHT PHASE 2 Site: DISPOSAL UNIT 2		Lab PM: Whitire, Cheyenne R E-Mail: cheyenne.whitire@testamericainc.com Camer Tracking No(s): 400-57303-24790.1 Page: 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): PO #: WO #: Project #: SSO#:#		Analysis Requested Metals Appendix III & IV - EPA 6020 & EPA 7470 Radium 226 & 228 - SW-846 9315 & 9320 TSP - SM 2540C ; Cl,F,SO4 - EPA 300 400-126551 COC 	
<b>Sample Identification</b> Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=wastewater, A=Air) Preservation Code		Special Instructions/Note: Total Number of Containers	
FB-1 FERB-1 ARGWC-21		9/30/16 0920 W 9/30/16 1000 W 9/30/16 1156 W W W W W W W W	
Possible Hazard Identification <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)			
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/QC Requirements: DRAB CC: MARIA PADILLA & HEATH MCCORRLE WITH RESULTS			
Relinquished by: [Signature] Date: 8/31/16 1555 Company:		Received by: [Signature] Date: 8/31/16 1555 Company:	
Relinquished by: [Signature] Date: 8/31/16 1715 Company:		Received by: [Signature] Date: 9/1/16 0904 Company:	
Relinquished by: [Signature] Date: 9/1/16 Company:		Received by: [Signature] Date: 9/1/16 Company:	
Custody Seals Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>		Cooler Temperature(s) °C and Other Remarks: 21.0 C JLC6	



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-126551-1  
SDG Number: Disposal Unit 2 Phase 2

**Login Number: 126551**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: 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	0.0°C - IR6, 2.2°C IR-6
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	

# Certification Summary

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-1  
 SDG: Disposal Unit 2 Phase 2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-17
Arizona	State Program	9	AZ0710	01-11-17
Arkansas DEQ	State Program	6	88-0689	09-01-16 *
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-17
Georgia	State Program	4	N/A	06-30-17
Illinois	NELAP	5	200041	10-09-16
Iowa	State Program	7	367	07-31-16 *
Kansas	NELAP	7	E-10253	10-31-16
Kentucky (UST)	State Program	4	53	06-30-17
Kentucky (WW)	State Program	4	98030	12-31-16
Louisiana	NELAP	6	30976	06-30-17
Maryland	State Program	3	233	09-30-17
Massachusetts	State Program	1	M-FL094	06-30-17
Michigan	State Program	5	9912	05-06-17
New Jersey	NELAP	2	FL006	06-30-17
North Carolina (WW/SW)	State Program	4	314	12-31-16
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-17
Rhode Island	State Program	1	LAO00307	12-30-16
South Carolina	State Program	4	96026	06-30-16 *
Tennessee	State Program	4	TN02907	06-30-17
Texas	NELAP	6	T104704286-15-9	09-30-16
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-17
Washington	State Program	10	C915	05-15-17
West Virginia DEP	State Program	3	136	08-31-16 *

\* Certification renewal pending - certification considered valid.





# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-126551-2

TestAmerica Sample Delivery Group: Disposal Unit 2 Phase 2

Client Project/Site: CCR Plant Arkwright

For:

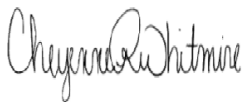
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

10/4/2016 1:39:51 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

Review your project  
results through

Total Access

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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.

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# Case Narrative

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

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**Job ID: 400-126551-2**

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**Laboratory: TestAmerica Pensacola**

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**Narrative**

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**Job Narrative  
400-126551-2**

**RAD**

Method(s) PrecSep\_0: Radium-228 Prep Batch: 160-269083: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: ARGWC-21 (400-126551-6). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision. The samples were also prepared at a reduced aliquot due to limited volume.

Method(s) PrecSep-21: Radium-226 Prep Batch: 160-269082: The following sample was run at reduced aliquot due to limited volume: ARGWC-21 (400-126551-6).

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# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 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

**Protocol References:**

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



# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-126551-1	ARGWA-19	Water	08/29/16 13:47	08/31/16 09:28
400-126551-2	ARGWA-20	Water	08/29/16 13:55	08/31/16 09:28
400-126551-3	DUP-1	Water	08/29/16 00:00	08/31/16 09:28
400-126551-4	FB-1	Water	08/30/16 08:20	09/01/16 09:04
400-126551-5	FERB-1	Water	08/30/16 10:00	09/01/16 09:04
400-126551-6	ARGWC-21	Water	08/30/16 11:56	09/01/16 09:04

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# Client Sample Results

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
 SDG: Disposal Unit 2 Phase 2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-126551-1**

**Date Collected: 08/29/16 13:47**

**Matrix: Water**

**Date Received: 08/31/16 09:28**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.189		0.0719	0.0738	1.00	0.0800	pCi/L	09/09/16 20:09	10/01/16 22:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.1		40 - 110					09/09/16 20:09	10/01/16 22:12	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.135	U	0.301	0.301	1.00	0.516	pCi/L	09/09/16 20:32	09/21/16 17:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.1		40 - 110					09/09/16 20:32	09/21/16 17:38	1
Y Carrier	83.4		40 - 110					09/09/16 20:32	09/21/16 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	0.324	U	0.310	0.310	5.00	0.516	pCi/L		10/03/16 02:36	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-126551-2**

Date Collected: 08/29/16 13:55

Matrix: Water

Date Received: 08/31/16 09:28

**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		0.0736	0.0759	1.00	0.0795	pCi/L	09/09/16 20:09	10/01/16 22:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.1		40 - 110					09/09/16 20:09	10/01/16 22:12	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.304	U	0.334	0.336	1.00	0.548	pCi/L	09/09/16 20:32	09/21/16 17:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	76.1		40 - 110					09/09/16 20:32	09/21/16 17:38	1
Y Carrier	76.3		40 - 110					09/09/16 20:32	09/21/16 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	0.508	U	0.342	0.344	5.00	0.548	pCi/L		10/03/16 02:36	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: DUP-1**

**Date Collected: 08/29/16 00:00**

**Date Received: 08/31/16 09:28**

**Lab Sample ID: 400-126551-3**

**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	0.106		0.0639	0.0646	1.00	0.0863	pCi/L	09/09/16 20:09	10/01/16 22:12	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	65.0		40 - 110					09/09/16 20:09	10/01/16 22:12	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.277	U	0.364	0.365	1.00	0.605	pCi/L	09/09/16 20:32	09/21/16 17:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	65.0		40 - 110					09/09/16 20:32	09/21/16 17:38	1
Y Carrier	81.5		40 - 110					09/09/16 20:32	09/21/16 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	0.383	U	0.369	0.370	5.00	0.605	pCi/L		10/03/16 02:36	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: FB-1**  
**Date Collected: 08/30/16 08:20**  
**Date Received: 09/01/16 09:04**

**Lab Sample ID: 400-126551-4**  
**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	0.0519	U	0.0529	0.0531	1.00	0.0842	pCi/L	09/09/16 20:09	10/01/16 22:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.7		40 - 110					09/09/16 20:09	10/01/16 22:14	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0391	U	0.332	0.332	1.00	0.596	pCi/L	09/09/16 20:32	09/21/16 17:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	70.7		40 - 110					09/09/16 20:32	09/21/16 17:39	1
Y Carrier	86.0		40 - 110					09/09/16 20:32	09/21/16 17:39	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	0.0128	U	0.336	0.336	5.00	0.596	pCi/L		10/03/16 02:36	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: FERB-1**

**Lab Sample ID: 400-126551-5**

**Date Collected: 08/30/16 10:00**

**Matrix: Water**

**Date Received: 09/01/16 09:04**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0347	U	0.0346	0.0347	1.00	0.0862	pCi/L	09/09/16 20:09	10/01/16 22:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	67.5		40 - 110					09/09/16 20:09	10/01/16 22:14	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.298	U	0.331	0.332	1.00	0.542	pCi/L	09/09/16 20:32	09/21/16 17:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	67.5		40 - 110					09/09/16 20:32	09/21/16 17:39	1
Y Carrier	84.5		40 - 110					09/09/16 20:32	09/21/16 17:39	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	0.263	U	0.332	0.334	5.00	0.542	pCi/L		10/03/16 02:36	1

# Client Sample Results

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
 SDG: Disposal Unit 2 Phase 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-126551-6**

**Date Collected: 08/30/16 11:56**

**Matrix: Water**

**Date Received: 09/01/16 09:04**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.273		0.123	0.126	1.00	0.164	pCi/L	09/11/16 19:46	10/03/16 11:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.2		40 - 110					09/11/16 19:46	10/03/16 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	0.559	U	0.455	0.458	1.00	0.724	pCi/L	09/11/16 20:40	09/23/16 17:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.2		40 - 110					09/11/16 20:40	09/23/16 17:13	1
Y Carrier	73.3		40 - 110					09/11/16 20:40	09/23/16 17:13	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	0.832		0.472	0.475	5.00	0.724	pCi/L		10/04/16 02:29	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: ARGWA-19**

**Date Collected: 08/29/16 13:47**

**Date Received: 08/31/16 09:28**

**Lab Sample ID: 400-126551-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			268962	09/09/16 20:09	MCJ	TAL SL
Total/NA	Analysis	9315		1	272616	10/01/16 22:12	ALS	TAL SL
Total/NA	Prep	PrecSep_0			268965	09/09/16 20:32	MCJ	TAL SL
Total/NA	Analysis	9320		1	270871	09/21/16 17:38	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	272642	10/03/16 02:36	ALS	TAL SL

**Client Sample ID: ARGWA-20**

**Date Collected: 08/29/16 13:55**

**Date Received: 08/31/16 09:28**

**Lab Sample ID: 400-126551-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			268962	09/09/16 20:09	MCJ	TAL SL
Total/NA	Analysis	9315		1	272616	10/01/16 22:12	ALS	TAL SL
Total/NA	Prep	PrecSep_0			268965	09/09/16 20:32	MCJ	TAL SL
Total/NA	Analysis	9320		1	270871	09/21/16 17:38	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	272642	10/03/16 02:36	ALS	TAL SL

**Client Sample ID: DUP-1**

**Date Collected: 08/29/16 00:00**

**Date Received: 08/31/16 09:28**

**Lab Sample ID: 400-126551-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			268962	09/09/16 20:09	MCJ	TAL SL
Total/NA	Analysis	9315		1	272616	10/01/16 22:12	ALS	TAL SL
Total/NA	Prep	PrecSep_0			268965	09/09/16 20:32	MCJ	TAL SL
Total/NA	Analysis	9320		1	270871	09/21/16 17:38	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	272642	10/03/16 02:36	ALS	TAL SL

**Client Sample ID: FB-1**

**Date Collected: 08/30/16 08:20**

**Date Received: 09/01/16 09:04**

**Lab Sample ID: 400-126551-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			268962	09/09/16 20:09	MCJ	TAL SL
Total/NA	Analysis	9315		1	272615	10/01/16 22:14	ALS	TAL SL
Total/NA	Prep	PrecSep_0			268965	09/09/16 20:32	MCJ	TAL SL
Total/NA	Analysis	9320		1	270875	09/21/16 17:39	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	272642	10/03/16 02:36	ALS	TAL SL

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

**Client Sample ID: FERB-1**

**Date Collected: 08/30/16 10:00**

**Date Received: 09/01/16 09:04**

**Lab Sample ID: 400-126551-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			268962	09/09/16 20:09	MCJ	TAL SL
Total/NA	Analysis	9315		1	272615	10/01/16 22:14	ALS	TAL SL
Total/NA	Prep	PrecSep_0			268965	09/09/16 20:32	MCJ	TAL SL
Total/NA	Analysis	9320		1	270875	09/21/16 17:39	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	272642	10/03/16 02:36	ALS	TAL SL

**Client Sample ID: ARGWC-21**

**Date Collected: 08/30/16 11:56**

**Date Received: 09/01/16 09:04**

**Lab Sample ID: 400-126551-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			269082	09/11/16 19:46	TJT	TAL SL
Total/NA	Analysis	9315		1	272746	10/03/16 11:01	RTM	TAL SL
Total/NA	Prep	PrecSep_0			269083	09/11/16 20:40	TJT	TAL SL
Total/NA	Analysis	9320		1	271445	09/23/16 17:13	ALS	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	272836	10/04/16 02:29	ALS	TAL SL

**Laboratory References:**

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

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

## Rad

### Prep Batch: 268962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-1	ARGWA-19	Total/NA	Water	PrecSep-21	
400-126551-2	ARGWA-20	Total/NA	Water	PrecSep-21	
400-126551-3	DUP-1	Total/NA	Water	PrecSep-21	
400-126551-4	FB-1	Total/NA	Water	PrecSep-21	
400-126551-5	FERB-1	Total/NA	Water	PrecSep-21	
MB 160-268962/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-268962/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-126446-A-8-B DU	Duplicate	Total/NA	Water	PrecSep-21	

### Prep Batch: 268965

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-1	ARGWA-19	Total/NA	Water	PrecSep_0	
400-126551-2	ARGWA-20	Total/NA	Water	PrecSep_0	
400-126551-3	DUP-1	Total/NA	Water	PrecSep_0	
400-126551-4	FB-1	Total/NA	Water	PrecSep_0	
400-126551-5	FERB-1	Total/NA	Water	PrecSep_0	
MB 160-268965/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-268965/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-126446-A-8-D DU	Duplicate	Total/NA	Water	PrecSep_0	

### Prep Batch: 269082

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-6	ARGWC-21	Total/NA	Water	PrecSep-21	
MB 160-269082/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-269082/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-269082/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 269083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-126551-6	ARGWC-21	Total/NA	Water	PrecSep_0	
MB 160-269083/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-269083/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-269083/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-268962/1-A**  
**Matrix: Water**  
**Analysis Batch: 272616**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268962**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.05234	U	0.0952	0.0953	1.00	0.165	pCi/L	09/09/16 20:09	10/01/16 19:05	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	67.5		40 - 110					09/09/16 20:09	10/01/16 19:05	1

**Lab Sample ID: LCS 160-268962/2-A**  
**Matrix: Water**  
**Analysis Batch: 272616**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268962**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	14.8	19.30		1.89	1.00	0.110	pCi/L	130	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	65.0		40 - 110						

**Lab Sample ID: 400-126446-A-8-B DU**  
**Matrix: Water**  
**Analysis Batch: 272615**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 268962**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.0854	U	0.09280	U	0.0709	1.00	0.105	pCi/L	0.05	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	81.5		40 - 110							

**Lab Sample ID: MB 160-269082/1-A**  
**Matrix: Water**  
**Analysis Batch: 272742**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 269082**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02135	U	0.0652	0.0653	1.00	0.121	pCi/L	09/11/16 19:46	10/03/16 10:59	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.0		40 - 110					09/11/16 19:46	10/03/16 10:59	1

**Lab Sample ID: LCS 160-269082/2-A**  
**Matrix: Water**  
**Analysis Batch: 272742**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269082**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	14.8	17.91		1.75	1.00	0.112	pCi/L	121	68 - 137

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

## Method: 9315 - Radium-226 (GFPC) (Continued)

**Lab Sample ID: LCS 160-269082/2-A**  
**Matrix: Water**  
**Analysis Batch: 272742**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269082**

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	86.9		40 - 110

**Lab Sample ID: LCSD 160-269082/3-A**  
**Matrix: Water**  
**Analysis Batch: 272742**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 269082**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	14.8	19.19		1.87	1.00	0.104	pCi/L	130	68 - 137	0.35	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	84.6		40 - 110

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-268965/1-A**  
**Matrix: Water**  
**Analysis Batch: 270871**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 268965**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.8263		0.533	0.539	1.00	0.821	pCi/L	09/09/16 20:32	09/21/16 17:35	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	67.5		40 - 110	09/09/16 20:32	09/21/16 17:35	1
Y Carrier	77.8		40 - 110	09/09/16 20:32	09/21/16 17:35	1

**Lab Sample ID: LCS 160-268965/2-A**  
**Matrix: Water**  
**Analysis Batch: 270871**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 268965**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	19.4	22.31		2.52	1.00	0.727	pCi/L	115	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	65.0		40 - 110
Y Carrier	84.5		40 - 110

**Lab Sample ID: 400-126446-A-8-D DU**  
**Matrix: Water**  
**Analysis Batch: 270871**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 268965**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.481	U	0.06944	U	0.397	1.00	0.697	pCi/L	0.50	1

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: 400-126446-A-8-D DU**  
**Matrix: Water**  
**Analysis Batch: 270871**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 268965**

	DU	DU	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	81.5		40 - 110
Y Carrier	81.1		40 - 110

**Lab Sample ID: MB 160-269083/1-A**  
**Matrix: Water**  
**Analysis Batch: 271445**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 269083**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3915	U	0.353	0.355	1.00	0.568	pCi/L	09/11/16 20:40	09/23/16 17:12	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	84.0		40 - 110	09/11/16 20:40	09/23/16 17:12	1
Y Carrier	91.2		40 - 110	09/11/16 20:40	09/23/16 17:12	1

**Lab Sample ID: LCS 160-269083/2-A**  
**Matrix: Water**  
**Analysis Batch: 271445**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 269083**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	19.4	19.42		2.11	1.00	0.577	pCi/L	100	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	86.9		40 - 110
Y Carrier	91.2		40 - 110

**Lab Sample ID: LCSD 160-269083/3-A**  
**Matrix: Water**  
**Analysis Batch: 271445**


**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 269083**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	19.4	20.74		2.24	1.00	0.571	pCi/L	107	56 - 140	0.30	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	84.6		40 - 110
Y Carrier	88.2		40 - 110

## Chain of Custody Record

<b>Client Information</b>		Lab PM: Whitmire, Cheyenne R		Carrier/Tracking No(s):							
Client Contact: Joju Abraham		E-Mail: cheyenne.whitmire@testamericainc.com		COC No: 400-57303-24790.1							
Company: Southern Company		Due Date Requested:		Page: 1 of 1							
Address: 241 Ralph McGill Blvd SE B10185		TAT Requested (days):		Job #:							
City: Atlanta		PO #:		Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:							
Phone: 404-506-7239		WO #:		Total Number of Containers							
Email: JAbraham@southernco.com		Project #:		Special Instructions/Note:							
Project Name: CCR - PLANT AIRWASH - PHASE 2		SSOW#:		 400-126551 COC							
Site: DISPOSE UNIT 2											
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=soil, O=wastewater, etc.)	Field Filtered Sample (Yes or No)	Retention MS/MS (Yes or No)	TDS - SM 2640C: Cl,F,S,O4 - EPA 300	Metals Appendix III & IV - EPA 6020 & EPA 7470	Radium 226 & 228 - SW-846 9315 & 9320	Total Number of Containers	Special Instructions/Note
ARGA-19	8/29/16	1347	G	W	X	X	1	1	1	3	
ARGA-20	8/29/16	1355	G	W	X	X	1	1	1	3	
DUP-1	8/29/16	-	G	W	X	X	1	1	1	3	
<b>Possible Hazard Identification</b>			<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological								
Deliverable Requested: I, II, III, IV, Other (specify)			<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months								
Empty Kit Relinquished by:			Time:								
Relinquished by: <i>[Signature]</i>			Date: 8/30/16 14:47								
Relinquished by: <i>[Signature]</i>			Date: 8/30/16 14:52								
Relinquished by: <i>[Signature]</i>			Date: 8/30/16 14:52								
Custody Seal No.:			Cooler Temperature(s) °C and Other Remarks: 0.0 °C 12-6								
A Yes Δ No			Special Instructions/QC Requirements: SUBJECTS - DISPOSE CC: MSRA PADILLA & HEATH MCCORKLE Method of Shipment:								





## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-126551-2  
SDG Number: Disposal Unit 2 Phase 2

**Login Number: 126551**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	0.0°C - IR6, 2.2°C IR-6
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 <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-17
Arizona	State Program	9	AZ0710	01-11-17
Arkansas DEQ	State Program	6	88-0689	09-01-17
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-17
Georgia	State Program	4	N/A	06-30-17
Illinois	NELAP	5	200041	10-09-17
Iowa	State Program	7	367	07-31-16 *
Kansas	NELAP	7	E-10253	10-31-16
Kentucky (UST)	State Program	4	53	06-30-17
Kentucky (WW)	State Program	4	98030	12-31-16
Louisiana	NELAP	6	30976	06-30-17
Maryland	State Program	3	233	09-30-17
Massachusetts	State Program	1	M-FL094	06-30-17
Michigan	State Program	5	9912	05-06-17
New Jersey	NELAP	2	FL006	06-30-17
North Carolina (WW/SW)	State Program	4	314	12-31-16
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-17
Rhode Island	State Program	1	LAO00307	12-30-16
South Carolina	State Program	4	96026	06-30-16 *
Tennessee	State Program	4	TN02907	06-30-17
Texas	NELAP	6	T104704286-16-10	09-30-17
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-17
Washington	State Program	10	C915	05-15-17
West Virginia DEP	State Program	3	136	06-30-17

## Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-17
California	State Program	9	2886	03-31-18
Connecticut	State Program	1	PH-0241	03-31-17
Florida	NELAP	4	E87689	06-30-17
Illinois	NELAP	5	003757	11-30-16 *
Iowa	State Program	7	373	12-01-16 *
Kansas	NELAP	7	E-10236	10-31-16 *
Kentucky (DW)	State Program	4	90125	12-31-16
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-17
Louisiana (DW)	NELAP	6	LA160008	12-31-16
Maryland	State Program	3	310	09-30-17
Missouri	State Program	7	780	06-30-17
Nevada	State Program	9	MO000542016-1	07-31-17
New Jersey	NELAP	2	MO002	06-30-17
New York	NELAP	2	11616	03-31-17
North Dakota	State Program	8	R207	06-30-17
NRC	NRC		24-24817-01	12-31-22

\* Certification renewal pending - certification considered valid.

# Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-126551-2  
SDG: Disposal Unit 2 Phase 2

## Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Oklahoma	State Program	6	9997	08-31-17
Pennsylvania	NELAP	3	68-00540	02-28-17 *
South Carolina	State Program	4	85002001	06-30-16 *
Texas	NELAP	6	T104704193-16-10	07-31-17
USDA	Federal		P330-14-0016	01-09-17
Utah	NELAP	8	MO000542016-8	07-31-17
Virginia	NELAP	3	460230	06-14-17
Washington	State Program	10	C592	08-30-17
West Virginia DEP	State Program	3	381	08-31-16 *

\* Certification renewal pending - certification considered valid.

Product Name: Low-Flow System

Date: 2016-08-29 13:45:51

Project Information:

Operator Name C. Hurdle  
Company Name ERM  
Project Name Disposal Facility 2  
Site Name Plant Arkwright  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type Alexis Peristaltic  
Tubing Type LDPE  
Tubing Diameter 0.17 in  
Tubing Length 77.74 ft

Pump placement from TOC 47.74 ft

Well Information:

Well ID ARGWA-19  
Well diameter 2 in  
Well Total Depth 52.74 ft  
Screen Length 10 ft  
Depth to Water 29.50 ft

Pumping Information:

Final Pumping Rate 100 mL/min  
Total System Volume 0.4369865 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 0.24 in  
Total Volume Pumped 3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 20
Last 5	13:22:33	600.02	27.06	6.73	168.30	0.24	29.52	3.65	90.53
Last 5	13:27:33	900.02	26.31	6.73	168.06	0.69	29.52	3.60	89.68
Last 5	13:32:33	1200.02	25.78	6.73	168.09	0.64	29.52	3.58	89.60
Last 5	13:37:33	1500.02	25.73	6.73	168.01	0.52	29.52	3.64	89.74
Last 5	13:42:33	1800.02	25.74	6.75	169.49	0.42	29.52	3.68	89.83
Variance 0			-0.53	0.01	0.03			-0.02	-0.08
Variance 1			-0.06	-0.01	-0.08			0.06	0.14
Variance 2			0.01	0.03	1.47			0.05	0.09

Notes

Sample time 1347

Grab Samples

Product Name: Low-Flow System

Date: 2016-08-29 13:56:38

Project Information:

Operator Name Jim Morrison  
Company Name ERM  
Project Name Disposal Facility 2  
Site Name Plant Arkwright  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 457516  
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type Alexis peristaltic  
Tubing Type LDPE  
Tubing Diameter 0.17 in  
Tubing Length 39 ft

Pump placement from TOC 32 ft

Well Information:

Well ID ARGWA-20  
Well diameter 2 in  
Well Total Depth 37.7 ft  
Screen Length 10 ft  
Depth to Water 17 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2640735 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.72 in  
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 20
Last 5	13:35:23	300.02	20.22	5.63	128.67	5.39	17.25	5.28	110.67
Last 5	13:40:23	600.02	19.72	5.63	129.30	4.78	17.27	5.31	108.75
Last 5	13:45:23	900.01	19.64	5.63	129.94	4.46	17.28	5.28	107.02
Last 5	13:50:23	1200.01	19.68	5.64	129.39	--	--	5.28	106.00
Last 5									
Variance 0			-0.50	-0.00	0.64			0.03	-1.93
Variance 1			-0.08	0.01	0.64			-0.03	-1.73
Variance 2			0.04	0.00	-0.55			-0.00	-1.01

Notes

Continuous purge rate of 200 ml/minute

Grab Samples

ARGWA-20  
Collect at 1355



Product Name: Low-Flow System

Date: 2016-08-30 11:58:39

Project Information:

Operator Name John Worthen  
Company Name ERM  
Project Name Disposal Facility 2  
Site Name Plant Arkwright  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 440275  
Turbidity Make/Model LaMotte 2020

Pump Information:

Pump Model/Type Alexis Peristaltic  
Tubing Type LDPE  
Tubing Diameter 0.17 in  
Tubing Length 29 ft

Pump placement from TOC 22 ft

Well Information:

Well ID ARGWC-21  
Well diameter 2 in  
Well Total Depth 27.2 ft  
Screen Length 10 ft  
Depth to Water 14.2 ft

Pumping Information:

Final Pumping Rate 250 mL/min  
Total System Volume 0.2194393 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 59.4 in  
Total Volume Pumped 26 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 1	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 20
Last 5	11:34:50	4799.92	23.70	6.37	512.83	4.41	19.11	0.31	2.02
Last 5	11:39:50	5099.92	23.97	6.37	515.12	3.32	19.11	0.30	3.00
Last 5	11:44:50	5399.93	23.31	6.37	512.59	3.05	19.15	0.31	4.96
Last 5	11:49:50	5699.93	23.32	6.37	517.30	3.32	19.15	0.23	5.22
Last 5	11:54:50	5999.93	23.72	6.38	516.85	2.85	19.15	0.23	5.49
Variance 0			-0.65	0.00	-2.53			0.01	1.95
Variance 1			0.01	-0.01	4.71			-0.08	0.26
Variance 2			0.40	0.01	-0.45			-0.00	0.27

Notes

Continuous purge at 200 ml/min

Grab Samples



**PACE ANALYTICAL SERVICES, INC.**

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Peachtree Corners, GA 30092  
(770) 734-4200 FAX (770) 734-4201

**Laboratory Report**

**Prepared For:**

**Georgia Power  
2480 Maner Road  
Atlanta, GA 30339**

**Attention: Mr. Joju Abraham**

**Report Number: AZJ0701**

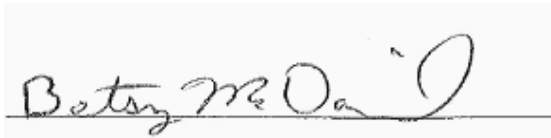
**November 04, 2016**

**Project: CCR Event**

**Project #: Plant Arkwright**

We appreciate the opportunity to provide the analytical support for your project. The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Approved:



Project Manager

This report may not be reproduced, except in full, without written approval from Pace Analytical Services, Inc.  
All test results relate only to the samples analyzed.



**PACE ANALYTICAL SERVICES, INC.**

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Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Peachtree Corners, GA 30092  
(770) 734-4200 FAX (770) 734-4201

Georgia Power  
2480 Maner Road  
Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 04, 2016

**ANALYTICAL REPORT FOR SAMPLES**

<b>Sample ID</b>	<b>Laboratory ID</b>	<b>Matrix</b>	<b>Date Sampled</b>	<b>Date Received</b>
ARGWA-19	AZJ0701-01	Ground Water	10/24/16 16:30	10/25/16 15:35
ARGWA-20	AZJ0701-02	Ground Water	10/24/16 16:00	10/25/16 15:35
EB-1-10-24-16	AZJ0701-03	Water	10/24/16 17:20	10/25/16 15:35



**PACE ANALYTICAL SERVICES, INC.**

Environmental Monitoring & Laboratory Analysis  
 110 Technology Parkway, Peachtree Corners, GA 30092  
 (770) 734-4200 FAX (770) 734-4201

Georgia Power  
 2480 Maner Road  
 Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 04, 2016

Report No.: AZJ0701

Project: CCR Event

Client ID: ARGWA-19

Lab Number ID: AZJ0701-01

Date/Time Sampled: 10/24/2016 4:30:00PM

Date/Time Received: 10/25/2016 3:35:00PM

Matrix: Ground Water

Analyte	Result	RL	MDL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>											
Total Dissolved Solids	108	25	10	mg/L	SM 2540 C		1	10/31/16 19:05	10/31/16 19:05	6100829	JPT
<b>Inorganic Anions</b>											
Chloride	9.6	0.25	0.01	mg/L	EPA 300.0		1	10/26/16 15:29	10/27/16 08:08	6100701	RNB
Fluoride	0.07	0.30	0.02	mg/L	EPA 300.0	J	1	10/26/16 15:29	10/27/16 08:08	6100701	RNB
Sulfate	9.3	1.0	0.05	mg/L	EPA 300.0		1	10/26/16 15:29	10/27/16 08:08	6100701	RNB
<b>Metals, Total</b>											
Antimony	ND	0.0030	0.0008	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Arsenic	ND	0.0050	0.0016	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Barium	0.0444	0.0100	0.0004	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Beryllium	ND	0.0030	0.0004	mg/L	EPA 6020B		5	10/27/16 14:30	11/01/16 15:30	6100710	CSW
Boron	0.0339	0.100	0.0064	mg/L	EPA 6020B	J	1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Cadmium	ND	0.0010	0.00007	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Calcium	11.5	2.50	0.155	mg/L	EPA 6020B		5	10/27/16 14:30	11/01/16 15:30	6100710	CSW
Chromium	0.0010	0.0100	0.0009	mg/L	EPA 6020B	J	1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Cobalt	ND	0.0100	0.0005	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Lead	ND	0.0050	0.0001	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Molybdenum	ND	0.0100	0.0017	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Selenium	ND	0.0100	0.0010	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Silver	ND	0.0100	0.0005	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Thallium	ND	0.0010	0.0002	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 01:57	6100710	CSW
Lithium	ND	0.0500	0.0103	mg/L	EPA 6020B		5	10/27/16 14:30	11/01/16 15:30	6100710	CSW
Mercury	ND	0.00050	0.000041	mg/L	EPA 7470A		1	10/28/16 08:45	10/28/16 13:13	6100740	MTC



**PACE ANALYTICAL SERVICES, INC.**

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Georgia Power  
 2480 Maner Road  
 Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 04, 2016

Report No.: AZJ0701

Project: CCR Event

Client ID: ARGWA-20

Lab Number ID: AZJ0701-02

Date/Time Sampled: 10/24/2016 4:00:00PM

Date/Time Received: 10/25/2016 3:35:00PM

Matrix: Ground Water

Analyte	Result	RL	MDL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>											
Total Dissolved Solids	91	25	10	mg/L	SM 2540 C		1	10/31/16 19:05	10/31/16 19:05	6100829	JPT
<b>Inorganic Anions</b>											
Chloride	5.4	0.25	0.01	mg/L	EPA 300.0		1	10/26/16 15:29	10/27/16 08:29	6100701	RNB
Fluoride	0.04	0.30	0.02	mg/L	EPA 300.0	J	1	10/26/16 15:29	10/27/16 08:29	6100701	RNB
Sulfate	18	1.0	0.05	mg/L	EPA 300.0		1	10/26/16 15:29	10/27/16 08:29	6100701	RNB
<b>Metals, Total</b>											
Antimony	ND	0.0030	0.0008	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Arsenic	ND	0.0050	0.0016	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Barium	0.0738	0.0100	0.0004	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Beryllium	ND	0.0030	0.0004	mg/L	EPA 6020B		5	10/27/16 14:30	11/01/16 15:35	6100710	CSW
Boron	0.0194	0.100	0.0064	mg/L	EPA 6020B	J	1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Cadmium	ND	0.0010	0.00007	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Calcium	7.66	2.50	0.155	mg/L	EPA 6020B		5	10/27/16 14:30	11/01/16 15:35	6100710	CSW
Chromium	0.0053	0.0100	0.0009	mg/L	EPA 6020B	J	1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Cobalt	ND	0.0100	0.0005	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Lead	ND	0.0050	0.0001	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Molybdenum	ND	0.0100	0.0017	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Selenium	0.0023	0.0100	0.0010	mg/L	EPA 6020B	J	1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Silver	ND	0.0100	0.0005	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Thallium	ND	0.0010	0.0002	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:03	6100710	CSW
Lithium	ND	0.0500	0.0103	mg/L	EPA 6020B		5	10/27/16 14:30	11/01/16 15:35	6100710	CSW
Mercury	ND	0.00050	0.000041	mg/L	EPA 7470A		1	10/28/16 08:45	10/28/16 13:15	6100740	MTC



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 2480 Maner Road  
 Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 04, 2016

Report No.: AZJ0701

Project: CCR Event

Client ID: EB-1-10-24-16

Lab Number ID: AZJ0701-03

Date/Time Sampled: 10/24/2016 5:20:00PM

Date/Time Received: 10/25/2016 3:35:00PM

Matrix: Water

Analyte	Result	RL	MDL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>											
Total Dissolved Solids	19	25	10	mg/L	SM 2540 C	J	1	10/31/16 19:05	10/31/16 19:05	6100829	JPT
<b>Inorganic Anions</b>											
Chloride	ND	0.25	0.01	mg/L	EPA 300.0		1	10/26/16 15:29	11/02/16 20:01	6100701	RLC
Fluoride	ND	0.30	0.02	mg/L	EPA 300.0		1	10/26/16 15:29	11/02/16 20:01	6100701	RLC
Sulfate	ND	1.0	0.05	mg/L	EPA 300.0		1	10/26/16 15:29	11/02/16 20:01	6100701	RLC
<b>Metals, Total</b>											
Antimony	ND	0.0030	0.0008	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Arsenic	ND	0.0050	0.0016	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Barium	ND	0.0100	0.0004	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Beryllium	ND	0.0030	0.0004	mg/L	EPA 6020B		5	10/27/16 14:30	11/01/16 15:41	6100710	CSW
Boron	0.0108	0.100	0.0064	mg/L	EPA 6020B	J	1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Cadmium	ND	0.0010	0.00007	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Calcium	ND	0.500	0.0311	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Chromium	ND	0.0100	0.0009	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Cobalt	ND	0.0100	0.0005	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Lead	ND	0.0050	0.0001	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Molybdenum	ND	0.0100	0.0017	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Selenium	ND	0.0100	0.0010	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Silver	ND	0.0100	0.0005	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Thallium	ND	0.0010	0.0002	mg/L	EPA 6020B		1	10/27/16 14:30	10/29/16 02:08	6100710	CSW
Lithium	ND	0.0500	0.0103	mg/L	EPA 6020B		5	10/27/16 14:30	11/01/16 15:41	6100710	CSW
Mercury	ND	0.00050	0.000041	mg/L	EPA 7470A		1	10/28/16 08:45	10/28/16 13:18	6100740	MTC



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Attention: Mr. Joju Abraham

November 04, 2016

**Report No.: AZJ0701**

**General Chemistry - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100829 - SM 2540 C</b>											
<b>Blank (6100829-BLK1)</b>						Prepared & Analyzed: 10/31/16					
Total Dissolved Solids	ND	25	10	mg/L							
<b>LCS (6100829-BS1)</b>						Prepared & Analyzed: 10/31/16					
Total Dissolved Solids	377	25	10	mg/L	400.00		94	84-108			
<b>Duplicate (6100829-DUP1)</b>						Source: AZJ0696-02RE1 Prepared & Analyzed: 10/31/16					
Total Dissolved Solids	674	25	10	mg/L		647			4	10	
<b>Duplicate (6100829-DUP2)</b>						Source: AZJ0700-01RE1 Prepared & Analyzed: 10/31/16					
Total Dissolved Solids	141	25	10	mg/L		136			4	10	



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**Report No.: AZJ0701**

**Inorganic Anions - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100701 - EPA 300.0</b>											
<b>Blank (6100701-BLK1)</b>						Prepared: 10/26/16 Analyzed: 10/27/16					
Chloride	ND	0.25	0.01	mg/L							
Fluoride	ND	0.30	0.02	mg/L							
Sulfate	ND	1.0	0.05	mg/L							
<b>LCS (6100701-BS1)</b>						Prepared: 10/26/16 Analyzed: 10/27/16					
Chloride	10.9	0.25	0.01	mg/L	10.010		108	90-110			
Fluoride	10.9	0.30	0.02	mg/L	10.020		108	90-110			
Sulfate	10.8	1.0	0.05	mg/L	10.020		108	90-110			
<b>Duplicate (6100701-DUP1)</b>						<b>Source: AZJ0701-03RE1</b>			Prepared: 10/26/16 Analyzed: 11/02/16		
Chloride	ND	1.0	1.0	mg/L		ND				15	
Fluoride	ND	0.10	0.10	mg/L		ND				15	
Sulfate	ND	5.0	5.0	mg/L		ND				15	
<b>Duplicate (6100701-DUP2)</b>						<b>Source: AZJ0696-04RE1</b>			Prepared: 10/26/16 Analyzed: 11/02/16		
Chloride	ND	1.0	1.0	mg/L		ND				15	
Fluoride	ND	0.10	0.10	mg/L		ND				15	
Sulfate	ND	5.0	5.0	mg/L		ND				15	
<b>Matrix Spike (6100701-MS1)</b>						<b>Source: AZJ0696-01</b>			Prepared: 10/26/16 Analyzed: 10/27/16		
Chloride	84.1	0.25	0.01	mg/L	10.010	83.3	7	90-110			QM-02
Fluoride	8.55	0.30	0.02	mg/L	10.020	0.06	85	90-110			QM-05
Sulfate	147	1.0	0.05	mg/L	10.020	151	NR	90-110			QM-02
<b>Matrix Spike (6100701-MS2)</b>						<b>Source: AZJ0697-03</b>			Prepared: 10/26/16 Analyzed: 10/27/16		
Chloride	14.6	0.25	0.01	mg/L	10.010	5.18	94	90-110			
Fluoride	10.0	0.30	0.02	mg/L	10.020	0.13	99	90-110			
Sulfate	196	1.0	0.05	mg/L	10.020	194	18	90-110			QM-02





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Attention: Mr. Joju Abraham

November 04, 2016

**Report No.: AZJ0701**

**Inorganic Anions - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100701 - EPA 300.0</b>											
<b>Matrix Spike Dup (6100701-MSD1)</b>		<b>Source: AZJ0696-01</b>				<b>Prepared: 10/26/16 Analyzed: 10/27/16</b>					
Chloride	84.2	0.25	0.01	mg/L	10.010	83.3	9	90-110	0.2	15	QM-02
Fluoride	9.63	0.30	0.02	mg/L	10.020	0.06	96	90-110	12	15	
Sulfate	146	1.0	0.05	mg/L	10.020	151	NR	90-110	0.3	15	QM-02



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November 04, 2016

**Report No.: AZJ0701**

**Metals, Total - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100710 - EPA 3005A</b>											
<b>Blank (6100710-BLK1)</b>						Prepared: 10/27/16 Analyzed: 10/29/16					
Antimony	ND	0.0030	0.0008	mg/L							
Arsenic	ND	0.0050	0.0016	mg/L							
Barium	ND	0.0100	0.0004	mg/L							
Beryllium	ND	0.0030	0.00008	mg/L							
Boron	ND	0.100	0.0064	mg/L							
Cadmium	ND	0.0010	0.00007	mg/L							
Calcium	ND	0.500	0.0311	mg/L							
Chromium	ND	0.0100	0.0009	mg/L							
Cobalt	ND	0.0100	0.0005	mg/L							
Copper	ND	0.0050	0.0005	mg/L							
Lead	ND	0.0050	0.0001	mg/L							
Molybdenum	ND	0.0100	0.0017	mg/L							
Nickel	ND	0.0050	0.0006	mg/L							
Selenium	ND	0.0100	0.0010	mg/L							
Silver	ND	0.0100	0.0005	mg/L							
Thallium	ND	0.0010	0.0002	mg/L							
Vanadium	ND	0.0100	0.0071	mg/L							
Zinc	ND	0.0100	0.0021	mg/L							
Lithium	ND	0.0500	0.0021	mg/L							
<b>LCS (6100710-BS1)</b>						Prepared: 10/27/16 Analyzed: 10/29/16					
Antimony	0.110	0.0030	0.0008	mg/L	0.10000		110	80-120			
Arsenic	0.104	0.0050	0.0016	mg/L	0.10000		104	80-120			
Barium	0.102	0.0100	0.0004	mg/L	0.10000		102	80-120			
Beryllium	0.101	0.0030	0.00008	mg/L	0.10000		101	80-120			
Boron	1.08	0.100	0.0064	mg/L	1.0000		108	80-120			
Cadmium	0.105	0.0010	0.00007	mg/L	0.10000		105	80-120			
Calcium	1.08	0.500	0.0311	mg/L	1.0000		108	80-120			
Chromium	0.108	0.0100	0.0009	mg/L	0.10000		108	80-120			
Cobalt	0.105	0.0100	0.0005	mg/L	0.10000		105	80-120			
Copper	0.100	0.0050	0.0005	mg/L	0.10000		100	80-120			
Lead	0.101	0.0050	0.0001	mg/L	0.10000		101	80-120			
Molybdenum	0.109	0.0100	0.0017	mg/L	0.10000		109	80-120			
Nickel	0.101	0.0050	0.0006	mg/L	0.10000		101	80-120			
Selenium	0.113	0.0100	0.0010	mg/L	0.10000		113	80-120			
Silver	0.104	0.0100	0.0005	mg/L	0.10000		104	80-120			
Thallium	0.101	0.0010	0.0002	mg/L	0.10000		101	80-120			
Vanadium	0.108	0.0100	0.0071	mg/L	0.10000		108	80-120			
Zinc	0.106	0.0100	0.0021	mg/L	0.10000		106	80-120			
Lithium	0.108	0.0500	0.0021	mg/L	0.10000		108	80-120			



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Attention: Mr. Joju Abraham

November 04, 2016

**Report No.: AZJ0701**

**Metals, Total - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100710 - EPA 3005A</b>											
<b>Matrix Spike (6100710-MS1)</b>			<b>Source: AZJ0696-05</b>			<b>Prepared: 10/27/16 Analyzed: 10/29/16</b>					
Antimony	0.113	0.0030	0.0008	mg/L	0.10000	ND	113	75-125			
Arsenic	0.118	0.0050	0.0016	mg/L	0.10000	0.0058	112	75-125			
Barium	0.126	0.0100	0.0004	mg/L	0.10000	0.0208	105	75-125			
Beryllium	0.0942	0.0150	0.0004	mg/L	0.10000	0.0005	94	75-125			
Boron	15.6	0.500	0.0321	mg/L	1.0000	13.7	199	75-125			QM-02
Cadmium	0.101	0.0010	0.00007	mg/L	0.10000	0.0002	101	75-125			
Calcium	574	50.0	3.11	mg/L	1.0000	564	953	75-125			QM-02
Chromium	0.109	0.0100	0.0009	mg/L	0.10000	ND	109	75-125			
Cobalt	0.129	0.0100	0.0005	mg/L	0.10000	0.0253	103	75-125			
Copper	0.0950	0.0050	0.0005	mg/L	0.10000	ND	95	75-125			
Lead	0.0922	0.0050	0.0001	mg/L	0.10000	0.0016	91	75-125			
Molybdenum	0.112	0.0100	0.0017	mg/L	0.10000	ND	112	75-125			
Nickel	0.105	0.0050	0.0006	mg/L	0.10000	0.0063	98	75-125			
Selenium	0.130	0.0100	0.0010	mg/L	0.10000	0.0135	116	75-125			
Silver	0.0937	0.0100	0.0005	mg/L	0.10000	ND	94	75-125			
Thallium	0.0937	0.0010	0.0002	mg/L	0.10000	0.0004	93	75-125			
Vanadium	0.113	0.0100	0.0071	mg/L	0.10000	ND	113	75-125			
Zinc	0.108	0.0100	0.0021	mg/L	0.10000	0.0054	103	75-125			
Lithium	0.105	0.250	0.0103	mg/L	0.10000	ND	105	75-125			J
<b>Matrix Spike Dup (6100710-MSD1)</b>			<b>Source: AZJ0696-05</b>			<b>Prepared: 10/27/16 Analyzed: 10/29/16</b>					
Antimony	0.110	0.0030	0.0008	mg/L	0.10000	ND	110	75-125	2	20	
Arsenic	0.114	0.0050	0.0016	mg/L	0.10000	0.0058	108	75-125	3	20	
Barium	0.126	0.0100	0.0004	mg/L	0.10000	0.0208	105	75-125	0.01	20	
Beryllium	0.0949	0.0150	0.0004	mg/L	0.10000	0.0005	94	75-125	0.7	20	
Boron	15.6	0.500	0.0321	mg/L	1.0000	13.7	192	75-125	0.4	20	QM-02
Cadmium	0.100	0.0010	0.00007	mg/L	0.10000	0.0002	100	75-125	1	20	
Calcium	566	50.0	3.11	mg/L	1.0000	564	146	75-125	1	20	QM-02
Chromium	0.107	0.0100	0.0009	mg/L	0.10000	ND	107	75-125	2	20	
Cobalt	0.127	0.0100	0.0005	mg/L	0.10000	0.0253	102	75-125	1	20	
Copper	0.0927	0.0050	0.0005	mg/L	0.10000	ND	93	75-125	2	20	
Lead	0.0898	0.0050	0.0001	mg/L	0.10000	0.0016	88	75-125	3	20	
Molybdenum	0.110	0.0100	0.0017	mg/L	0.10000	ND	110	75-125	2	20	
Nickel	0.104	0.0050	0.0006	mg/L	0.10000	0.0063	98	75-125	0.8	20	
Selenium	0.124	0.0100	0.0010	mg/L	0.10000	0.0135	110	75-125	5	20	
Silver	0.0921	0.0100	0.0005	mg/L	0.10000	ND	92	75-125	2	20	
Thallium	0.0914	0.0010	0.0002	mg/L	0.10000	0.0004	91	75-125	2	20	
Vanadium	0.111	0.0100	0.0071	mg/L	0.10000	ND	111	75-125	1	20	
Zinc	0.105	0.0100	0.0021	mg/L	0.10000	0.0054	99	75-125	4	20	
Lithium	0.102	0.250	0.0103	mg/L	0.10000	ND	102	75-125	2	20	J



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Attention: Mr. Joju Abraham

November 04, 2016

**Report No.: AZJ0701**

**Metals, Total - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100710 - EPA 3005A</b>											
<b>Post Spike (6100710-PS1)</b>				<b>Source: AZJ0696-05</b>			<b>Prepared: 10/27/16 Analyzed: 10/29/16</b>				
Antimony	109			ug/L	100.00	0.588	108	80-120			
Arsenic	113			ug/L	100.00	5.81	107	80-120			
Barium	124			ug/L	100.00	20.8	103	80-120			
Beryllium	96.2			ug/L	100.00	0.500	96	80-120			
Boron	16000			ug/L	1000.0	13700	233	80-120			QM-02
Cadmium	95.0			ug/L	100.00	0.172	95	80-120			
Calcium	585000			ug/L	1000.0	564000	NR	80-120			QM-02
Chromium	108			ug/L	100.00	0.110	108	80-120			
Cobalt	126			ug/L	100.00	25.3	101	80-120			
Copper	91.0			ug/L	100.00	0.183	91	80-120			
Lead	88.5			ug/L	100.00	1.57	87	80-120			
Molybdenum	109			ug/L	100.00	0.199	109	80-120			
Nickel	104			ug/L	100.00	6.33	98	80-120			
Selenium	128			ug/L	100.00	13.5	115	80-120			
Silver	91.0			ug/L	100.00	0.0447	91	80-120			
Thallium	90.1			ug/L	100.00	0.369	90	80-120			
Vanadium	109			ug/L	100.00	-0.296	110	80-120			
Zinc	103			ug/L	100.00	5.40	97	80-120			
Lithium	106			ug/L	100.00	0.650	105	80-120			

**Batch 6100740 - EPA 7470A**

<b>Blank (6100740-BLK1)</b>				<b>Prepared &amp; Analyzed: 10/28/16</b>							
Mercury	ND	0.00050	0.000041	mg/L							
<b>LCS (6100740-BS1)</b>				<b>Prepared &amp; Analyzed: 10/28/16</b>							
Mercury	0.00240	0.00050	0.000041	mg/L	2.5000E-3		96	80-120			



**PACE ANALYTICAL SERVICES, INC.**

Environmental Monitoring & Laboratory Analysis  
 110 Technology Parkway, Peachtree Corners, GA 30092  
 (770) 734-4200 FAX (770) 734-4201

Georgia Power  
 2480 Maner Road  
 Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 04, 2016

**Report No.: AZJ0701**

**Metals, Total - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100740 - EPA 7470A</b>											
<b>Matrix Spike (6100740-MS1)</b>		<b>Source: AZJ0702-01</b>				<b>Prepared &amp; Analyzed: 10/28/16</b>					
Mercury	0.00238	0.00050	0.000041	mg/L	2.5000E-3	ND	95	75-125			
<b>Matrix Spike Dup (6100740-MSD1)</b>		<b>Source: AZJ0702-01</b>				<b>Prepared &amp; Analyzed: 10/28/16</b>					
Mercury	0.00242	0.00050	0.000041	mg/L	2.5000E-3	ND	97	75-125	2	20	
<b>Post Spike (6100740-PS1)</b>		<b>Source: AZJ0702-01</b>				<b>Prepared &amp; Analyzed: 10/28/16</b>					
Mercury	1.70			ug/L	1.6667	0.00850	101	80-120			



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Georgia Power  
2480 Maner Road  
Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 04, 2016

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## Legend

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### Definition of Laboratory Terms

- ND** - Not Detected at levels equal to or greater than the MDL  
**BRL** - Not Detected at levels equal to or greater than the RL  
**RL** - Reporting Limit                      **MDL** - Method Detection Limit  
**SOP** - Method run per Pace Standard Operating Procedure  
**CFU** - Colony Forming Units  
**DF** - Dilution Factor                      **TIC** - Tentatively Identified Compound

### Sample Information

N-Nitrosodiphenylamine breaks down to diphenylamine in the GCMS; both analytes are reported as N-Nitrosodiphenylamine. Pace is not NELAC certified for N-Nitrosodiphenylamine.

Phthalic acid and phthalic anhydride are reported as dimethyl phthalate

Maleic acid and maleic anhydride are reported as dimethyl malate

1,2-Diphenylhydrazine breaks down to azobenzene in the GCMS; both analytes are reported as azobenzene

### Definition of Qualifiers

- QM-05** The spike recovery was outside acceptance limits for the MS and/or MSD and/or PDS due to suspected matrix interference. Sample results for the QC batch were accepted based on acceptable LCS recoveries.
- QM-02** The spike recovery is outside acceptance limits due to insignificant spike amount as compared to sample concentration.
- J** Estimated value less than Reporting Limit (RL) but greater than Method Detection Limit(MDL) (CLP J-Flag).

**Note: Unless otherwise noted, all results are reported on an as received basis.**





Pace Analytical Services, Inc.  
 110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
 (770) 734-4200 : FAX (770) 734-4201 : www.asi-lab.com

**CHAIN OF CUSTODY RECORD**

<b>CLIENT NAME:</b> Georgia Power <b>CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:</b> 241 Ralph McGill Blvd SE B10185 Atlanta, GA 30308 404-508-7239		<b>REPORT TO:</b> Joju Abraham Heath McCorkle <b>PO #:</b> laburch@southernco.com		<b>PROJECT NAME/STATE:</b> Plant Arkwright Pond 2 <b>PROJECT #:</b> Phase II CCR & State D&O										
Collection DATE	Collection TIME	MATRIX CODE*	CGRAMP	SAMPLE IDENTIFICATION	ANALYSIS REQUESTED	CONTAINER TYPE PRESERVATION	# of CONTAINERS	RELINQUISHED BY	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME		
10/24/16	16:30	GW	✓	ARGWA-19	Metals App. III & IV (EPA 6020/7470) Silver (EPA 6020) Cl, F, SO <sub>4</sub> & TDS (EPA 300.0 & SM 2540C) Radium 226 & 228 (SM-846 9315/9320)	A P P P 3 3 7 3	3	Phalok	10/25/16	0930	1338	1338		
10/24/16	16:00	GW	✓	ARGWA-20			3							
10/24/16	17:20	W	✓	EB-1-10-24-16			3							
<b>CONTAINER TYPE PRESERVATION:</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen														
<b>MATRIX CODES:</b> DW - DRINKING WATER WW - WASTEWATER GW - GROUNDWATER SW - SURFACE WATER ST - STORM WATER W - WATER S - SOIL SL - SLUDGE SD - SOLID A - AIR L - LIQUID P - PRODUCT														
<b>REMARKS/ADDITIONAL INFORMATION</b>														
<b>SAMPLED BY AND TITLE:</b> J. Phalok <b>RECEIVED BY:</b> J. Phalok <b>RECEIVED BY LAB:</b> J. Phalok pH, Temp, etc.										<b>RELINQUISHED BY:</b> Phalok <b>DATE/TIME:</b> 10/25/16 0930			<b>RELINQUISHED BY:</b> Phalok <b>DATE/TIME:</b> 10/25/16 1338	
<b>LAB #:</b> 4250701 <b>Entered into LIMS:</b> 184										<b>Tracking #:</b> 1338			<b>CLIENT:</b> Arkwright <b>OTHER:</b> FS	

Plant Arkwright - Ash Pond 2 COC.xlsx



November 28, 2016

Maria Padilla  
GA Power  
2480 Maner Rd  
Atlanta, GA 30339

RE: Project: Plant Arkwright  
Pace Project No.: 30200501

Dear Maria Padilla:

Enclosed are the analytical results for sample(s) received by the laboratory on October 26, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Jacquelyn Collins  
jacquelyn.collins@pacelabs.com  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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

Project: Plant Arkwright  
Pace Project No.: 30200501

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
L-A-B DOD-ELAP Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification  
Connecticut Certification #: PH-0694  
Delaware Certification  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: 90133  
Louisiana DHH/TNI Certification #: LA140008  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: PA00091  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification  
Missouri Certification #: 235

Montana Certification #: Cert 0082  
Nebraska Certification #: NE-05-29-14  
Nevada Certification #: PA014572015-1  
New Hampshire/TNI Certification #: 2976  
New Jersey/TNI Certification #: PA 051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Oregon/TNI Certification #: PA200002  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: TN2867  
Texas/TNI Certification #: T104704188-14-8  
Utah/TNI Certification #: PA014572015-5  
USDA Soil Permit #: P330-14-00213  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 460198  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Certification  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Arkwright  
Pace Project No.: 30200501

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30200501001	ARGWA-19	Water	10/24/16 16:30	10/26/16 10:30
30200501002	ARGWA-20	Water	10/24/16 16:00	10/26/16 10:30
30200501003	EB-1-10-24-16	Water	10/24/16 17:20	10/26/16 10:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Arkwright

Pace Project No.: 30200501

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30200501001	ARGWA-19	EPA 9315	JC2	1
		EPA 9320	JLW	1
		Total Radium Calculation	RMK	1
30200501002	ARGWA-20	EPA 9315	JC2	1
		EPA 9320	JLW	1
		Total Radium Calculation	RMK	1
30200501003	EB-1-10-24-16	EPA 9315	JC2	1
		EPA 9320	JLW	1
		Total Radium Calculation	RMK	1

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Arkwright

Pace Project No.: 30200501

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: ARGWA-19</b>		<b>Lab ID: 30200501001</b>	Collected: 10/24/16 16:30	Received: 10/26/16 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226	EPA 9315	<b>0.378 ± 0.265 (0.438)</b>	pCi/L	11/09/16 07:00	13982-63-3		
Radium-228	EPA 9320	<b>0.796 ± 0.441 (0.780)</b>	pCi/L	11/19/16 19:46	15262-20-1		
Total Radium	Total Radium Calculation	<b>1.17 ± 0.706 (1.22)</b>	pCi/L	11/28/16 17:31	7440-14-4		

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: ARGWA-20</b>		<b>Lab ID: 30200501002</b>	Collected: 10/24/16 16:00	Received: 10/26/16 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226	EPA 9315	<b>0.164 ± 0.201 (0.414)</b>	pCi/L	11/09/16 07:00	13982-63-3		
Radium-228	EPA 9320	<b>1.30 ± 0.537 (0.853)</b>	pCi/L	11/19/16 19:46	15262-20-1		
Total Radium	Total Radium Calculation	<b>1.46 ± 0.738 (1.27)</b>	pCi/L	11/28/16 17:31	7440-14-4		

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: EB-1-10-24-16</b>		<b>Lab ID: 30200501003</b>	Collected: 10/24/16 17:20	Received: 10/26/16 10:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226	EPA 9315	<b>0.154 ± 0.197 (0.408)</b>	pCi/L	11/09/16 07:00	13982-63-3		
Radium-228	EPA 9320	<b>1.18 ± 0.486 (0.762)</b>	pCi/L	11/19/16 19:46	15262-20-1		
Total Radium	Total Radium Calculation	<b>1.33 ± 0.683 (1.17)</b>	pCi/L	11/28/16 17:31	7440-14-4		

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Arkwright  
Pace Project No.: 30200501

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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WO#: 30200501



Chain of Custody

Workorder: AZI0701      Workorder Name: Plant: Arkwright      Owner Received Date:      Results Requested By: 11/28/2016

Report To:	Subcontract To:	Requested Analysis					
Betsy McDaniel Pace Analytical Atlanta 110 Technology Parkway Peachtree Corners, GA 30092 Phone (770)-734-4200	Pace - Pittsburgh 1638 Roseytown Road Stes. 2,3,4 Greensburg, PA 15601 Phone (724) 850-5600	Radium 226, 228, Total					
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Preserved Containers	LAB USE ONLY
1	ARGWA-19	G	10/24/2016 16:30	AZJ0701-01	GW	3 ONH 1	001
2	ARGWA-20	G	10/24/2016 16:00	AZJ0701-02	GW	1	002
3	EB-1-10-24-16	G	10/24/2016 17:20	AZJ0701-03	W	1	003
4							
5							
6							
7							
8							
9							
10							
Transfers	Released By	Date/Time	Received By	Date/Time	Comments		
1			<i>Handwritten Signature</i>	10-26-16 1030			
2							
3							

Cooler Temperature on Receipt NA °C      Custody Seal Y or N      Received on Ice Y or N      Sample Intact Y or N

\*\*\*In order to maintain client confidentiality, location/name of the sampling site, sampler's name and signature may not be provided on this COC  
This chain of custody is considered complete as is since this information is available in the owner laboratory.





Sample Condition Upon Receipt Pittsburgh

30200501



Client Name: PACE GA

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

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

Tracking #: MSTR 6082 5100 0382

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

Thermometer Used NA Type of Ice: Wet Blue None

Cooler Temperature Observed Temp NA °C Correction Factor: NA °C Final Temp: NA °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 10-26-16 TAW

Comments:	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. <u>see 10/27/16</u>
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. <u>see 10/27/16</u>
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID/Analysis Matrix: <u>WT</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
All containers needing preservation have been checked.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13. <u>PA &lt; 2</u>
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed: <u>TAW</u> Date/time of preservation: _____
				Lot # of added preservative: _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Trip Blank Present:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	15.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Aqueous Samples Screened > 0.5 mrem/hr	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>TAW</u> Date: <u>10-26-16</u>

Client Notification/ Resolution:

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

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

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

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

# Quality Control Sample Performance Assessment

**Analyst Must Manually Enter All Fields Highlighted in Yellow.**



Test: Ra-226  
Analyst: JC2  
Date: 11/8/2016  
Worksheet: 32293  
Matrix: DW

**Method Blank Assessment**

MB Sample ID: 1175535  
MB concentration: -0.055  
MB Counting Uncertainty: 0.118  
MB MDC: 0.398  
MB Numerical Performance Indicator: -0.91  
MB Status vs Numerical Indicator: N/A  
MB Status vs. MDC: Pass

**Laboratory Control Sample Assessment**

LCSD (Y or N)?	N
LCSD32293	LCSD32293
Count Date:	11/9/2016
Spike I.D.:	16-026
Spike Concentration (pCi/mL):	44.675
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.501
Target Conc. (pCi/L, g, F):	8.926
Uncertainty (Calculated):	0.420
Result (pCi/L, g, F):	7.610
LCSD/LCSD Counting Uncertainty (pCi/L, g, F):	0.866
Numerical Performance Indicator:	-2.68
Percent Recovery:	85.26%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass

**Duplicate Sample Assessment**

Sample I.D.:	30200502001
Duplicate Sample I.D.:	30200502001DUP
Sample Result (pCi/L, g, F):	0.981
Sample Result Counting Uncertainty (pCi/L, g, F):	0.372
Sample Duplicate Result (pCi/L, g, F):	1.175
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.397
Are sample and/or duplicate results below MDC?	See Below #
Duplicate Numerical Performance Indicator:	-0.700
Duplicate RPD:	18.00%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass

## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

*2/11/28/16*

**Sample Matrix Spike Control Assessment**

Sample Collection Date:  
Sample I.D.:  
Sample MS I.D.:  
Sample MSD I.D.:  
Spike I.D.:

MS/MSD Decay Corrected Spike Concentration (pCi/mL):  
Spike Volume Used in MS (mL):  
Spike Volume Used in MSD (mL):  
MS Aliquot (L, g, F):  
MS Target Conc. (pCi/L, g, F):  
MSD Aliquot (L, g, F):  
MSD Target Conc. (pCi/L, g, F):  
Spike uncertainty (calculated):  
Sample Result:

Sample Result Counting Uncertainty (pCi/L, g, F):  
Sample Matrix Spike Result:  
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):  
Sample Matrix Spike Duplicate Result:  
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):  
MS Numerical Performance Indicator:  
MSD Numerical Performance Indicator:  
MS Percent Recovery:  
MSD Percent Recovery:  
MS Status vs Numerical Indicator:  
MSD Status vs Numerical Indicator:  
MS Status vs Recovery:  
MSD Status vs Recovery:

**Matrix Spike/Matrix Spike Duplicate Sample Assessment**

Sample I.D.:  
Sample MS I.D.:  
Sample MSD I.D.:

Sample Matrix Spike Result:  
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):  
Sample Matrix Spike Duplicate Result:  
Sample Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):  
Duplicate Numerical Performance Indicator:  
MS/MSD Duplicate RPD:  
MS/MSD Duplicate Status vs Numerical Indicator:  
MS/MSD Duplicate Status vs RPD:

# Quality Control Sample Performance Assessment



**Analyst Must Manually Enter All Fields Highlighted in Yellow.**

Test: Ra-228  
Analyst: JLW  
Date: 11/16/2016  
Worklist: 32405  
Matrix: DW

**Method Blank Assessment**

MB Sample ID: 1178547  
MB concentration: 0.935  
MB Counting Uncertainty: 0.452  
MB MDC: 0.855  
MB Numerical Performance Indicator: 4.05  
MB Status vs Numerical Indicator: N/A  
MB Status vs MDC: See Comment\*

**Laboratory Control Sample Assessment**

LCS (Y or N)? N  
LCS32405

Count Date: 11/19/2016  
Spike I.D.: 16-027  
Spike Concentration (pCi/ml): 26.037  
Volume Used (mL): 0.20  
Aliquot Volume (L, g, F): 0.807  
Target Conc. (pCi/L, g, F): 6.450  
Uncertainty (Calculated): 0.464  
Result (pCi/L, g, F): 7.929  
LCS/LCSD Counting Uncertainty (pCi/L, g, F): 0.807  
Numerical Performance Indicator: 3.11  
Percent Recovery: 122.93%  
Status vs Numerical Indicator: N/A  
Status vs Recovery: Pass

**Duplicate Sample Assessment**

Sample I.D.: 30200226001  
Duplicate Sample I.D.: 30200226001DUP  
Sample Result (pCi/L, g, F): 1.008  
Sample Result Counting Uncertainty (pCi/L, g, F): 0.544  
Sample Duplicate Result (pCi/L, g, F): 0.294  
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F): 0.439  
Are sample and/or duplicate results below MDC? See Below ##  
Duplicate Numerical Performance Indicator: 1.996  
Duplicate RPD: 109.60%  
Duplicate Status vs Numerical Indicator: N/A  
Duplicate Status vs RPD: Fail\*\*\*

**Sample Matrix Spike Control Assessment**

Sample Collection Date:  
Sample I.D.:  
Sample MS I.D.:  
Sample MSD I.D.:  
Spike I.D.:  
MS/MSD Decay Corrected Spike Concentration (pCi/ml):  
Spike Volume Used in MS (mL):  
Spike Volume Used in MSD (mL):  
MS Aliquot (L, g, F):  
MS Target Conc. (pCi/L, g, F):  
MSD Aliquot (L, g, F):  
MSD Target Conc. (pCi/L, g, F):  
Spike uncertainty (calculated):  
Sample Result:  
Sample Result Counting Uncertainty (pCi/L, g, F):  
Sample Matrix Spike Result:  
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):  
Sample Matrix Spike Duplicate Result:  
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):  
MS Numerical Performance Indicator:  
MSD Numerical Performance Indicator:  
MS Percent Recovery:  
MSD Percent Recovery:  
MS Status vs Numerical Indicator:  
MSD Status vs Numerical Indicator:  
MS Status vs Recovery:  
MSD Status vs Recovery:

**Matrix Spike/Matrix Spike Duplicate Sample Assessment**

Sample I.D.:  
Sample MS I.D.:  
Sample MSD I.D.:  
Sample Matrix Spike Result:  
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):  
Sample Matrix Spike Duplicate Result:  
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):  
Duplicate Numerical Performance Indicator:  
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):  
(Based on the Percent Recoveries) MS/MSD Duplicate RPD:  
MS/MSD Duplicate Status vs Numerical Indicator:  
MS/MSD Duplicate Status vs RPD:

## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.  
\*Numerical Indicator is acceptable.  
Sub 8/16

Comments:  
\*The method blank result is below the reporting limit for this analysis and is acceptable.  
\*\*\*Batch must be re-prepped due to unacceptable precision.



**PACE ANALYTICAL SERVICES, INC.**

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Peachtree Corners, GA 30092  
(770) 734-4200 FAX (770) 734-4201

**Laboratory Report**

**Prepared For:**

**Georgia Power  
2480 Maner Road  
Atlanta, GA 30339**

**Attention: Mr. Joju Abraham**

**Report Number: AZJ0761**

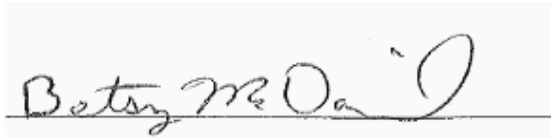
**November 08, 2016**

**Project: CCR Event**

**Project #: Plant Arkwright**

We appreciate the opportunity to provide the analytical support for your project. The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Approved:



Project Manager

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All test results relate only to the samples analyzed.



**PACE ANALYTICAL SERVICES, INC.**

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Georgia Power  
2480 Maner Road  
Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 08, 2016

**ANALYTICAL REPORT FOR SAMPLES**

<b>Sample ID</b>	<b>Laboratory ID</b>	<b>Matrix</b>	<b>Date Sampled</b>	<b>Date Received</b>
ARGWC-21	AZJ0761-01	Ground Water	10/26/16 11:10	10/27/16 09:10
FB-2-10-26-16	AZJ0761-02	Water	10/26/16 12:40	10/27/16 09:10
Dup-2	AZJ0761-03	Ground Water	10/26/16 00:00	10/27/16 09:10



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Attention: Mr. Joju Abraham

November 08, 2016

Report No.: AZJ0761

Project: CCR Event

Client ID: ARGWC-21

Lab Number ID: AZJ0761-01

Date/Time Sampled: 10/26/2016 11:10:00AM

Date/Time Received: 10/27/2016 9:10:00AM

Matrix: Ground Water

Analyte	Result	RL	MDL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>											
Total Dissolved Solids	357	25	10	mg/L	SM 2540 C		1	11/01/16 09:35	11/01/16 09:35	6100803	JPT
<b>Inorganic Anions</b>											
Chloride	6.0	0.25	0.01	mg/L	EPA 300.0		1	10/27/16 14:24	10/29/16 05:42	6100735	RLC
Fluoride	0.57	0.30	0.02	mg/L	EPA 300.0		1	10/27/16 14:24	10/29/16 05:42	6100735	RLC
Sulfate	160	10	0.51	mg/L	EPA 300.0		10	10/27/16 14:24	11/03/16 02:13	6100735	RLC
<b>Metals, Total</b>											
Antimony	ND	0.0030	0.0008	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Arsenic	0.0019	0.0050	0.0016	mg/L	EPA 6020B	J	1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Barium	0.122	0.0100	0.0004	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Beryllium	ND	0.0030	0.00008	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Boron	0.502	0.100	0.0064	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Cadmium	ND	0.0010	0.00007	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Calcium	44.3	2.50	0.155	mg/L	EPA 6020B		5	10/31/16 08:45	11/03/16 14:46	6100776	CSW
Chromium	ND	0.0100	0.0009	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Cobalt	0.0018	0.0100	0.0005	mg/L	EPA 6020B	J	1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Lead	ND	0.0050	0.0001	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Molybdenum	ND	0.0100	0.0017	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Selenium	ND	0.0100	0.0010	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Silver	ND	0.0100	0.0005	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Thallium	ND	0.0010	0.0002	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Lithium	0.0071	0.0500	0.0021	mg/L	EPA 6020B	J	1	10/31/16 08:45	11/01/16 02:24	6100776	CSW
Mercury	ND	0.00050	0.000041	mg/L	EPA 7470A		1	11/01/16 09:50	11/01/16 13:31	6100823	MTC





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 2480 Maner Road  
 Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 08, 2016

Report No.: AZJ0761

Project: CCR Event

Client ID: FB-2-10-26-16

Lab Number ID: AZJ0761-02

Date/Time Sampled: 10/26/2016 12:40:00PM

Date/Time Received: 10/27/2016 9:10:00AM

Matrix: Water

Analyte	Result	RL	MDL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>											
Total Dissolved Solids	ND	25	10	mg/L	SM 2540 C		1	11/01/16 09:35	11/01/16 09:35	6100803	JPT
<b>Inorganic Anions</b>											
Chloride	0.45	0.25	0.01	mg/L	EPA 300.0		1	10/27/16 14:24	10/29/16 06:03	6100735	RLC
Fluoride	0.03	0.30	0.02	mg/L	EPA 300.0	J	1	10/27/16 14:24	10/29/16 06:03	6100735	RLC
Sulfate	11	1.0	0.05	mg/L	EPA 300.0		1	10/27/16 14:24	10/29/16 06:03	6100735	RLC
<b>Metals, Total</b>											
Antimony	ND	0.0030	0.0008	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Arsenic	ND	0.0050	0.0016	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Barium	ND	0.0100	0.0004	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Beryllium	ND	0.0030	0.00008	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Boron	0.0065	0.100	0.0064	mg/L	EPA 6020B	J	1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Cadmium	ND	0.0010	0.00007	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Calcium	ND	0.500	0.0311	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Chromium	ND	0.0100	0.0009	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Cobalt	ND	0.0100	0.0005	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Lead	ND	0.0050	0.0001	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Molybdenum	ND	0.0100	0.0017	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Selenium	ND	0.0100	0.0010	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Silver	ND	0.0100	0.0005	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Thallium	ND	0.0010	0.0002	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Lithium	ND	0.0500	0.0021	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:29	6100776	CSW
Mercury	ND	0.00050	0.000041	mg/L	EPA 7470A		1	11/01/16 09:50	11/01/16 13:34	6100823	MTC



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 2480 Maner Road  
 Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 08, 2016

Report No.: AZJ0761

Project: CCR Event

Client ID: Dup-2

Lab Number ID: AZJ0761-03

Date/Time Sampled: 10/26/2016 12:00:00AM

Date/Time Received: 10/27/2016 9:10:00AM

Matrix: Ground Water

Analyte	Result	RL	MDL	Units	Method	Qual.	DF	Preparation Date	Analytical Date	Batch	Init.
<b>General Chemistry</b>											
Total Dissolved Solids	377	25	10	mg/L	SM 2540 C		1	11/01/16 09:35	11/01/16 09:35	6100803	JPT
<b>Inorganic Anions</b>											
Chloride	5.6	0.25	0.01	mg/L	EPA 300.0		1	10/27/16 14:24	10/29/16 06:24	6100735	RLC
Fluoride	0.54	0.30	0.02	mg/L	EPA 300.0		1	10/27/16 14:24	10/29/16 06:24	6100735	RLC
Sulfate	150	10	0.51	mg/L	EPA 300.0		10	10/27/16 14:24	11/04/16 16:09	6100735	RLC
<b>Metals, Total</b>											
Antimony	ND	0.0030	0.0008	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Arsenic	0.0019	0.0050	0.0016	mg/L	EPA 6020B	J	1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Barium	0.117	0.0100	0.0004	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Beryllium	ND	0.0030	0.00008	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Boron	0.469	0.100	0.0064	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Cadmium	ND	0.0010	0.00007	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Calcium	41.5	2.50	0.155	mg/L	EPA 6020B		5	10/31/16 08:45	11/03/16 14:52	6100776	CSW
Chromium	ND	0.0100	0.0009	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Cobalt	0.0017	0.0100	0.0005	mg/L	EPA 6020B	J	1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Lead	ND	0.0050	0.0001	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Molybdenum	ND	0.0100	0.0017	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Selenium	ND	0.0100	0.0010	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Silver	ND	0.0100	0.0005	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Thallium	ND	0.0010	0.0002	mg/L	EPA 6020B		1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Lithium	0.0071	0.0500	0.0021	mg/L	EPA 6020B	J	1	10/31/16 08:45	11/01/16 02:35	6100776	CSW
Mercury	ND	0.00050	0.000041	mg/L	EPA 7470A		1	11/01/16 09:50	11/01/16 13:41	6100823	MTC



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Attention: Mr. Joju Abraham

November 08, 2016

**Report No.: AZJ0761**

**General Chemistry - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100803 - SM 2540 C</b>											
<b>Blank (6100803-BLK1)</b>						Prepared & Analyzed: 11/01/16					
Total Dissolved Solids	ND	10	10	mg/L							
<b>LCS (6100803-BS1)</b>						Prepared & Analyzed: 11/01/16					
Total Dissolved Solids	397	10	10	mg/L	400.00		99	84-108			
<b>Duplicate (6100803-DUP1)</b>						Source: AZJ0763-08 Prepared & Analyzed: 11/01/16					
Total Dissolved Solids	307	10	10	mg/L		304			1	10	
<b>Duplicate (6100803-DUP2)</b>						Source: AZJ0785-02 Prepared & Analyzed: 11/01/16					
Total Dissolved Solids	1520	10	10	mg/L		1520			0.2	10	



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**Report No.: AZJ0761**

**Inorganic Anions - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100735 - EPA 300.0</b>											
<b>Blank (6100735-BLK1)</b>						Prepared: 10/27/16 Analyzed: 10/28/16					
Chloride	ND	0.25	0.01	mg/L							
Fluoride	ND	0.30	0.02	mg/L							
Sulfate	ND	1.0	0.05	mg/L							
<b>LCS (6100735-BS1)</b>						Prepared: 10/27/16 Analyzed: 10/28/16					
Chloride	10.1	0.25	0.01	mg/L	10.010		101	90-110			
Fluoride	10.1	0.30	0.02	mg/L	10.020		101	90-110			
Sulfate	10.1	1.0	0.05	mg/L	10.020		101	90-110			
<b>Matrix Spike (6100735-MS1)</b>						<b>Source: AZJ0710-05</b> Prepared: 10/27/16 Analyzed: 10/28/16					
Chloride	10.8	0.25	0.01	mg/L	10.010	1.17	96	90-110			
Fluoride	9.73	0.30	0.02	mg/L	10.020	0.04	97	90-110			
Sulfate	10.4	1.0	0.05	mg/L	10.020	0.74	97	90-110			
<b>Matrix Spike (6100735-MS2)</b>						<b>Source: AZJ0726-03</b> Prepared: 10/27/16 Analyzed: 10/29/16					
Chloride	14.1	0.25	0.01	mg/L	10.010	4.81	93	90-110			
Fluoride	9.53	0.30	0.02	mg/L	10.020	0.17	93	90-110			
Sulfate	40.1	1.0	0.05	mg/L	10.020	40.7	NR	90-110			QM-02
<b>Matrix Spike Dup (6100735-MSD1)</b>						<b>Source: AZJ0710-05</b> Prepared: 10/27/16 Analyzed: 10/28/16					
Chloride	11.5	0.25	0.01	mg/L	10.010	1.17	103	90-110	6	15	
Fluoride	10.6	0.30	0.02	mg/L	10.020	0.04	105	90-110	9	15	
Sulfate	11.2	1.0	0.05	mg/L	10.020	0.74	104	90-110	7	15	



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Attention: Mr. Joju Abraham

November 08, 2016

**Report No.: AZJ0761**

**Metals, Total - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100776 - EPA 3005A</b>											
<b>Blank (6100776-BLK1)</b>						Prepared: 10/31/16 Analyzed: 11/01/16					
Antimony	ND	0.0030	0.0008	mg/L							
Arsenic	ND	0.0050	0.0016	mg/L							
Barium	ND	0.0100	0.0004	mg/L							
Beryllium	ND	0.0030	0.00008	mg/L							
Boron	ND	0.100	0.0064	mg/L							
Cadmium	ND	0.0010	0.00007	mg/L							
Calcium	ND	0.500	0.0311	mg/L							
Chromium	ND	0.0100	0.0009	mg/L							
Cobalt	ND	0.0100	0.0005	mg/L							
Copper	ND	0.0050	0.0005	mg/L							
Lead	ND	0.0050	0.0001	mg/L							
Molybdenum	ND	0.0100	0.0017	mg/L							
Nickel	ND	0.0050	0.0006	mg/L							
Selenium	ND	0.0100	0.0010	mg/L							
Silver	ND	0.0100	0.0005	mg/L							
Thallium	ND	0.0010	0.0002	mg/L							
Vanadium	ND	0.0100	0.0071	mg/L							
Zinc	ND	0.0100	0.0021	mg/L							
Lithium	ND	0.0500	0.0021	mg/L							
<b>LCS (6100776-BS1)</b>						Prepared: 10/31/16 Analyzed: 11/01/16					
Antimony	0.101	0.0030	0.0008	mg/L	0.10000		101	80-120			
Arsenic	0.0980	0.0050	0.0016	mg/L	0.10000		98	80-120			
Barium	0.0996	0.0100	0.0004	mg/L	0.10000		100	80-120			
Beryllium	0.100	0.0030	0.00008	mg/L	0.10000		100	80-120			
Boron	1.04	0.100	0.0064	mg/L	1.0000		104	80-120			
Cadmium	0.0984	0.0010	0.00007	mg/L	0.10000		98	80-120			
Calcium	0.996	0.500	0.0311	mg/L	1.0000		100	80-120			
Chromium	0.106	0.0100	0.0009	mg/L	0.10000		106	80-120			
Cobalt	0.100	0.0100	0.0005	mg/L	0.10000		100	80-120			
Copper	0.0976	0.0050	0.0005	mg/L	0.10000		98	80-120			
Lead	0.0959	0.0050	0.0001	mg/L	0.10000		96	80-120			
Molybdenum	0.103	0.0100	0.0017	mg/L	0.10000		103	80-120			
Nickel	0.0980	0.0050	0.0006	mg/L	0.10000		98	80-120			
Selenium	0.0999	0.0100	0.0010	mg/L	0.10000		100	80-120			
Silver	0.101	0.0100	0.0005	mg/L	0.10000		101	80-120			
Thallium	0.0975	0.0010	0.0002	mg/L	0.10000		98	80-120			
Vanadium	0.103	0.0100	0.0071	mg/L	0.10000		103	80-120			
Zinc	0.109	0.0100	0.0021	mg/L	0.10000		109	80-120			
Lithium	0.104	0.0500	0.0021	mg/L	0.10000		104	80-120			



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November 08, 2016

**Report No.: AZJ0761**

**Metals, Total - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100776 - EPA 3005A</b>											
<b>Matrix Spike (6100776-MS1)</b>			<b>Source: AZJ0754-04</b>			<b>Prepared: 10/31/16 Analyzed: 11/01/16</b>					
Antimony	0.105	0.0030	0.0008	mg/L	0.10000	ND	105	75-125			
Arsenic	0.103	0.0050	0.0016	mg/L	0.10000	ND	103	75-125			
Barium	0.185	0.0100	0.0004	mg/L	0.10000	0.0876	98	75-125			
Beryllium	0.0987	0.0030	0.00008	mg/L	0.10000	0.0001	99	75-125			
Boron	3.89	0.500	0.0321	mg/L	1.0000	3.39	51	75-125			QM-02
Cadmium	0.101	0.0010	0.00007	mg/L	0.10000	ND	101	75-125			
Calcium	26.1	2.50	0.155	mg/L	1.0000	24.7	138	75-125			QM-02
Chromium	0.108	0.0100	0.0009	mg/L	0.10000	ND	108	75-125			
Cobalt	0.103	0.0100	0.0005	mg/L	0.10000	ND	103	75-125			
Copper	0.100	0.0050	0.0005	mg/L	0.10000	ND	100	75-125			
Lead	0.0966	0.0050	0.0001	mg/L	0.10000	ND	97	75-125			
Molybdenum	0.105	0.0100	0.0017	mg/L	0.10000	ND	105	75-125			
Nickel	0.102	0.0050	0.0006	mg/L	0.10000	ND	102	75-125			
Selenium	0.0961	0.0100	0.0010	mg/L	0.10000	ND	96	75-125			
Silver	0.105	0.0100	0.0005	mg/L	0.10000	ND	105	75-125			
Thallium	0.102	0.0010	0.0002	mg/L	0.10000	ND	102	75-125			
Vanadium	0.109	0.0100	0.0071	mg/L	0.10000	ND	109	75-125			
Zinc	0.110	0.0100	0.0021	mg/L	0.10000	0.0029	108	75-125			
Lithium	0.101	0.0500	0.0021	mg/L	0.10000	ND	101	75-125			
<b>Matrix Spike Dup (6100776-MSD1)</b>			<b>Source: AZJ0754-04</b>			<b>Prepared: 10/31/16 Analyzed: 11/01/16</b>					
Antimony	0.105	0.0030	0.0008	mg/L	0.10000	ND	105	75-125	0.5	20	
Arsenic	0.103	0.0050	0.0016	mg/L	0.10000	ND	103	75-125	0.4	20	
Barium	0.183	0.0100	0.0004	mg/L	0.10000	0.0876	95	75-125	1	20	
Beryllium	0.0971	0.0030	0.00008	mg/L	0.10000	0.0001	97	75-125	2	20	
Boron	4.08	0.500	0.0321	mg/L	1.0000	3.39	70	75-125	5	20	QM-02
Cadmium	0.101	0.0010	0.00007	mg/L	0.10000	ND	101	75-125	0.9	20	
Calcium	25.6	2.50	0.155	mg/L	1.0000	24.7	81	75-125	2	20	
Chromium	0.105	0.0100	0.0009	mg/L	0.10000	ND	105	75-125	3	20	
Cobalt	0.102	0.0100	0.0005	mg/L	0.10000	ND	102	75-125	1	20	
Copper	0.0958	0.0050	0.0005	mg/L	0.10000	ND	96	75-125	4	20	
Lead	0.0988	0.0050	0.0001	mg/L	0.10000	ND	99	75-125	2	20	
Molybdenum	0.105	0.0100	0.0017	mg/L	0.10000	ND	105	75-125	0.7	20	
Nickel	0.0981	0.0050	0.0006	mg/L	0.10000	ND	98	75-125	4	20	
Selenium	0.0917	0.0100	0.0010	mg/L	0.10000	ND	92	75-125	5	20	
Silver	0.0998	0.0100	0.0005	mg/L	0.10000	ND	100	75-125	5	20	
Thallium	0.103	0.0010	0.0002	mg/L	0.10000	ND	103	75-125	0.8	20	
Vanadium	0.105	0.0100	0.0071	mg/L	0.10000	ND	105	75-125	4	20	
Zinc	0.106	0.0100	0.0021	mg/L	0.10000	0.0029	103	75-125	4	20	
Lithium	0.101	0.0500	0.0021	mg/L	0.10000	ND	101	75-125	0.2	20	





**PACE ANALYTICAL SERVICES, INC.**

Environmental Monitoring & Laboratory Analysis  
 110 Technology Parkway, Peachtree Corners, GA 30092  
 (770) 734-4200 FAX (770) 734-4201

Georgia Power  
 2480 Maner Road  
 Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 08, 2016

**Report No.: AZJ0761**

**Metals, Total - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100776 - EPA 3005A</b>											
<b>Post Spike (6100776-PS1)</b>			<b>Source: AZJ0754-04</b>			<b>Prepared: 10/31/16 Analyzed: 11/01/16</b>					
Antimony	95.4			ug/L	100.00	0.285	95	80-120			
Arsenic	100			ug/L	100.00	1.52	99	80-120			
Barium	183			ug/L	100.00	87.6	95	80-120			
Beryllium	100			ug/L	100.00	0.122	100	80-120			
Boron	4170			ug/L	1000.0	3390	78	80-120			QM-02
Cadmium	102			ug/L	100.00	0.0002	102	80-120			
Calcium	24400			ug/L	1000.0	24700	NR	80-120			QM-02
Chromium	108			ug/L	100.00	0.787	107	80-120			
Cobalt	106			ug/L	100.00	0.276	105	80-120			
Copper	98.4			ug/L	100.00	0.269	98	80-120			
Lead	96.1			ug/L	100.00	0.0637	96	80-120			
Molybdenum	107			ug/L	100.00	0.493	107	80-120			
Nickel	102			ug/L	100.00	0.157	102	80-120			
Selenium	104			ug/L	100.00	0.280	104	80-120			
Silver	100			ug/L	100.00	0.0089	100	80-120			
Thallium	100			ug/L	100.00	0.0644	100	80-120			
Vanadium	110			ug/L	100.00	2.12	108	80-120			
Zinc	110			ug/L	100.00	2.89	107	80-120			
Lithium	102			ug/L	100.00	0.684	101	80-120			

**Batch 6100823 - EPA 7470A**

<b>Blank (6100823-BLK1)</b>					<b>Prepared &amp; Analyzed: 11/01/16</b>						
Mercury	ND	0.00050	0.000041	mg/L							
<b>LCS (6100823-BS1)</b>					<b>Prepared &amp; Analyzed: 11/01/16</b>						
Mercury	0.00233	0.00050	0.000041	mg/L	2.5000E-3		93	80-120			



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Georgia Power  
 2480 Maner Road  
 Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 08, 2016

**Report No.: AZJ0761**

**Metals, Total - Quality Control**

Analyte	Result	RL	MDL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 6100823 - EPA 7470A</b>											
<b>Matrix Spike (6100823-MS1)</b>			<b>Source: AZJ0760-05</b>			<b>Prepared &amp; Analyzed: 11/01/16</b>					
Mercury	0.00230	0.00050	0.000041	mg/L	2.5000E-3	ND	92	75-125			
<b>Matrix Spike Dup (6100823-MSD1)</b>			<b>Source: AZJ0760-05</b>			<b>Prepared &amp; Analyzed: 11/01/16</b>					
Mercury	0.00228	0.00050	0.000041	mg/L	2.5000E-3	ND	91	75-125	0.7	20	
<b>Post Spike (6100823-PS1)</b>			<b>Source: AZJ0760-05</b>			<b>Prepared &amp; Analyzed: 11/01/16</b>					
Mercury	1.63			ug/L	1.6667	-0.0558	101	80-120			



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Georgia Power  
2480 Maner Road  
Atlanta GA, 30339

Attention: Mr. Joju Abraham

November 08, 2016

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## Legend

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### Definition of Laboratory Terms

- ND** - Not Detected at levels equal to or greater than the MDL  
**BRL** - Not Detected at levels equal to or greater than the RL  
**RL** - Reporting Limit                      **MDL** - Method Detection Limit  
**SOP** - Method run per Pace Standard Operating Procedure  
**CFU** - Colony Forming Units  
**DF** - Dilution Factor                      **TIC** - Tentatively Identified Compound

### Sample Information

N-Nitrosodiphenylamine breaks down to diphenylamine in the GCMS; both analytes are reported as N-Nitrosodiphenylamine. Pace is not NELAC certified for N-Nitrosodiphenylamine.

Phthalic acid and phthalic anhydride are reported as dimethyl phthalate

Maleic acid and maleic anhydride are reported as dimethyl malate

1,2-Diphenylhydrazine breaks down to azobenzene in the GCMS; both analytes are reported as azobenzene

### Definition of Qualifiers

- QM-02** The spike recovery is outside acceptance limits due to insignificant spike amount as compared to sample concentration.  
**J** Estimated value less than Reporting Limit (RL) but greater than Method Detection Limit(MDL) (CLP J-Flag).

**Note: Unless otherwise noted, all results are reported on an as received basis.**



Pace Analytical Services, Inc.  
 110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
 (770) 734-4200 : FAX (770) 734-4201 : www.asi-lab.com

**CHAIN OF CUSTODY RECORD**

PAGE: 1 OF 1

<b>CLIENT NAME:</b> Georgia Power <b>CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:</b> 241 Ralph McGill Blvd SE B10185 Atlanta, GA 30308 404-506-7239 <b>REPORT TO:</b> Jolu Abraham <b>REQUESTED COMPLETION DATE:</b> laburch@southernco.com <b>PROJECT NAME/STATE:</b> Plant Arkwright Pond 2 <b>PROJECT #:</b> Phase II CCR & State D&O		<b>ANALYSIS REQUESTED</b> CONTAINER TYPE: P P P P PRESERVATION: 3 3 7 3 # of CONTAINERS: 3 3 3		<b>CONTAINER TYPE</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER *MATRIX CODES: DW - DRINKING WATER S - SOIL WW - WASTEWATER SL - SLUDGE GW - GROUNDWATER SD - SOLID SW - SURFACE WATER A - AIR ST - STORM WATER L - LIQUID W - WATER P - PRODUCT		<b>REMARKS/ADDITIONAL INFORMATION</b> 1 2 3 Date = 10/26/16	
<b>Collection DATE</b> 10/26/16 10/26/16 10/26/16	<b>Collection TIME</b> 1110 1240 —	<b>MATRIX CODE*</b> GW W GW	<b>COMPARISON</b> <input checked="" type="checkbox"/> GR <input checked="" type="checkbox"/> OR <input checked="" type="checkbox"/> AB	<b>SAMPLE IDENTIFICATION</b> ARGW-21 FB-2-10-26-16 Dup-2	<b>RELINQUISHED BY:</b> [Signature] <b>RELINQUISHED BY:</b> [Signature]	<b>DATE/TIME</b> 10/26/16 1645 10/27/16 0910	<b>DATE/TIME</b> 10/27/16 0910
<b>SAMPLED BY AND TITLE:</b> [Signature] <b>RECEIVED BY:</b> [Signature]		<b>SAMPLE SHIPPED VIA:</b> UPS FED-EX USPS COURIER (Quality Seal: Intact) (Broken: Not Present)		<b>LAB #:</b> A270761 <b>Entered Into LIMS Tracking #:</b> [Blank]		<b>FOR LAB USE ONLY</b>	

Plant Arkwright - Ash Pond 2 COC.xlsx



# PACE ANALYTICAL SERVICES, INC.

Environmental Monitoring & Laboratory Analysis  
110 Technology Parkway, Peachtree Corners, GA 30092  
(770) 734-4200 FAX (770) 734-4201

## LOG-IN CHECKLIST

Printed: 11/8/2016 7:24:00AM

Attn: Mr. Joju Abraham

Client: Georgia Power

Project: CCR Event

Date Received: 10/27/16 09:10

Work Order: AZJ0761

Logged In By: Mohammad M. Rahman

### OBSERVATIONS

#Samples: 3

#Containers: 9

Minimum Temp(C): 1.0

Maximum Temp(C): 1.0

Custody Seal(s) Used: Yes

### CHECKLIST ITEMS

COC included with Samples	YES
Sample Container(s) Intact	YES
Chain of Custody Complete	YES
Sample Container(s) Match COC	YES
Custody seal Intact	YES
Temperature in Compliance	YES
Sufficient Sample Volume for Analysis	YES
Zero Headspace Maintained for VOA Analyses	YES
Samples labeled preserved (If Applicable)	YES
Samples received within Allowable Hold Times	YES
Samples Received on Ice	YES
Preservation Confirmed	YES

Comments:

December 05, 2016

Maria Padilla  
GA Power  
2480 Maner Rd  
Atlanta, GA 30339

RE: Project: Plant Arkwright  
Pace Project No.: 30200852

Dear Maria Padilla:

Enclosed are the analytical results for sample(s) received by the laboratory on October 28, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Jacquelyn Collins  
jacquelyn.collins@pacelabs.com  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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

Project: Plant Arkwright  
Pace Project No.: 30200852

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
L-A-B DOD-ELAP Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification  
Connecticut Certification #: PH-0694  
Delaware Certification  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: 90133  
Louisiana DHH/TNI Certification #: LA140008  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: PA00091  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification  
Missouri Certification #: 235

Montana Certification #: Cert 0082  
Nebraska Certification #: NE-05-29-14  
Nevada Certification #: PA014572015-1  
New Hampshire/TNI Certification #: 2976  
New Jersey/TNI Certification #: PA 051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Oregon/TNI Certification #: PA200002  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: TN2867  
Texas/TNI Certification #: T104704188-14-8  
Utah/TNI Certification #: PA014572015-5  
USDA Soil Permit #: P330-14-00213  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 460198  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Certification  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Arkwright

Pace Project No.: 30200852

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30200852001	ARGWC-21	Water	10/26/16 11:10	10/28/16 10:50
30200852002	FB-2-10-26-16	Water	10/26/16 12:40	10/28/16 10:50
30200852003	Dup-2	Water	10/26/16 00:00	10/28/16 10:50

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Arkwright

Pace Project No.: 30200852

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30200852001	ARGWC-21	EPA 9315	LAL	1
		EPA 9320	JLW	1
		Total Radium Calculation	CMC	1
30200852002	FB-2-10-26-16	EPA 9315	LAL	1
		EPA 9320	JLW	1
		Total Radium Calculation	CMC	1
30200852003	Dup-2	EPA 9315	LAL	1
		EPA 9320	JLW	1
		Total Radium Calculation	CMC	1

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Arkwright

Pace Project No.: 30200852

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: ARGWC-21</b>		<b>Lab ID: 30200852001</b>	Collected: 10/26/16 11:10	Received: 10/28/16 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226		EPA 9315	<b>0.227 ± 0.127 (0.196)</b> C:95% T:NA	pCi/L	11/23/16 10:33	13982-63-3	
Radium-228		EPA 9320	<b>1.04 ± 0.429 (0.666)</b> C:77% T:80%	pCi/L	12/01/16 11:18	15262-20-1	
Total Radium		Total Radium Calculation	<b>1.27 ± 0.556 (0.862)</b>	pCi/L	12/02/16 11:34	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: FB-2-10-26-16</b>		<b>Lab ID: 30200852002</b>	Collected: 10/26/16 12:40	Received: 10/28/16 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226		EPA 9315	<b>0.0558 ± 0.0800 (0.173)</b> C:94% T:NA	pCi/L	11/23/16 09:54	13982-63-3	
Radium-228		EPA 9320	<b>0.475 ± 0.572 (1.21)</b> C:59% T:67%	pCi/L	12/01/16 11:40	15262-20-1	
Total Radium		Total Radium Calculation	<b>0.531 ± 0.652 (1.38)</b>	pCi/L	12/02/16 11:34	7440-14-4	

Parameters		Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
<b>Sample: Dup-2</b>		<b>Lab ID: 30200852003</b>	Collected: 10/26/16 00:00	Received: 10/28/16 10:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Radium-226		EPA 9315	<b>0.206 ± 0.124 (0.196)</b> C:90% T:NA	pCi/L	11/23/16 09:54	13982-63-3	
Radium-228		EPA 9320	<b>1.07 ± 0.506 (0.839)</b> C:63% T:78%	pCi/L	12/01/16 15:32	15262-20-1	
Total Radium		Total Radium Calculation	<b>1.28 ± 0.630 (1.04)</b>	pCi/L	12/02/16 15:51	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Arkwright

Pace Project No.: 30200852

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QC Batch:	239635	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	30200852001, 30200852002, 30200852003		

---

METHOD BLANK: 1177542 Matrix: Water

Associated Lab Samples: 30200852001, 30200852002, 30200852003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0142 ± 0.0608 (0.157) C:97% T:NA	pCi/L	11/23/16 10:00	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Arkwright

Pace Project No.: 30200852

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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CHAIN OF CUSTODY RECORD

Pace Analytical Services, Inc.
110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092
(770) 734-4200 : FAX (770) 734-4201 : www.asi-lab.com

30200852

PAGE: OF

Form containing client information, project details, analysis requested, container tracking, and laboratory information. Includes fields for collection date, matrix code, sample identification, and analysis results.

Plant Arkwright - Ash Pond 2 COC.xlsx

Sample Condition Upon Receipt Pittsburgh

30200852



Client Name: Pace Georgia Project # \_\_\_\_\_

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

Tracking #: 6812 51001025

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

Thermometer Used N/A Type of Ice: Wet Blue None

Cooler Temperature Observed Temp N/A °C Correction Factor: N/A °C Final Temp: N/A °C

Temp should be above freezing to 6°C

Date and Initials of person examining contents: ML 10-28-16

Comments:	Yes	No	N/A	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.
-Includes date/time/ID/Analysis Matrix: <u>W+</u>				
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.
Sufficient Volume:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.
-Pace Containers Used:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Containers Intact:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.
All containers needing preservation have been checked.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
exceptions: VOA, coliform, TOC, O&G, Phenolics				Initial when completed <u>ML</u> Date/time of preservation _____
				Lot # of added preservative _____
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Rad Aqueous Samples Screened > 0.5 mrem/hr	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>ML</u> Date: <u>10-28-16</u>

Client Notification/ Resolution:  
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_  
 Comments/ Resolution: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)  
 \*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.

# Quality Control Sample Performance Assessment



Analyst Must Manually Enter All Fields Highlighted in Yellow.

Test: Ra-228  
Analyst: JLW  
Date: 11/28/2016  
Worklist: 32409  
Matrix: DW

Method Blank Assessment	
MB Sample ID	1178566
MB concentration:	0.141
MB Counting Uncertainty:	0.413
M/B MDC:	0.929
MB Numerical Performance Indicator:	0.67
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment		LCSD (Y or N)?	N
Count Date:		LCSD32409	LCSD32409
Spike I.D.:	12/1/2016		
Spike Concentration (pCi/mL):	16-027		
Volume Used (mL):	25.937		
Aliquot Volume (L, g, F):	0.20		
Target Conc. (pCi/L, g, F):	0.808		
Uncertainty (Calculated):	6.419		
Result (pCi/L, g, F):	0.462		
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	8.549		
Numerical Performance Indicator:	4.52		
Percent Recovery:	133.18%		
Status vs Numerical Indicator:	N/A		
Status vs Recovery:	Pass		

Duplicate Sample Assessment	
Sample I.D.:	30200854012
Duplicate Sample I.D.:	30200854012DUP
Sample Result (pCi/L, g, F):	0.547
Sample Duplicate Result (pCi/L, g, F):	0.500
Sample Duplicate Counting Uncertainty (pCi/L, g, F):	1.173
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.423
Are sample and/or duplicate results below MDC?	See Below ##
Duplicate Numerical Performance Indicator:	-1.873
Duplicate RPD:	72.78%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Fail***

## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

\*\*\*Batch must be re-prepped due to unacceptable precision.

Sample Matrix Spike Control Assessment	
Sample Collection Date:	Sample I.D.
Sample MS I.D.	Sample MSD I.D.
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	Spike I.D.:
Spike Volume Used in MS (mL):	Spike Volume Used in MS (mL):
MS Aliquot (L, g, F):	MS Target Conc.(pCi/L, g, F):
MSD Aliquot (L, g, F):	MSD Target Conc. (pCi/L, g, F):
Spike uncertainty (calculated):	Sample Result:
Sample Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Result:
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	Sample Matrix Spike Duplicate Result:
Matrix Spike Duplicate Result Counting Uncertainty (pCi/L, g, F):	MS Numerical Performance Indicator:
MS Percent Recovery:	MSD Percent Recovery:
MS Status vs Numerical Indicator:	MS Status vs Numerical Indicator:
MS Status vs Recovery:	MSD Status vs Recovery:

Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.	Sample MS I.D.
Sample MSD I.D.	Sample Matrix Spike Result:
Sample Matrix Spike Duplicate Result:	Sample Matrix Spike Duplicate Result:
Duplicate Numerical Performance Indicator:	Duplicate Numerical Performance Indicator:
(Based on the Percent Recoveries) MS/ MSD Duplicate RPD:	MS/ MSD Duplicate Status vs Numerical Indicator:
MS/ MSD Duplicate Status vs RPD:	MS/ MSD Duplicate Status vs RPD:

# Quality Control Sample Performance Assessment



**Analyst Must Manually Enter All Fields Highlighted in Yellow.**

Test: Ra-226  
Analyst: LAL  
Date: 11/15/2016  
Worklist: 32364  
Matrix: DW

Method Blank Assessment	
MB Sample ID	1177542
MB concentration:	0.014
M/B Counting Uncertainty:	0.061
MB MDC:	0.157
MB Numerical Performance Indicator:	0.46
MB Status vs Numerical Indicator:	N/A
MB Status vs. MDC:	Pass

Laboratory Control Sample Assessment	
LCS32364	N
Count Date:	11/23/2016
Spike I.D.:	16-026
Spike Concentration (pCi/mL):	44.674
Volume Used (mL):	0.10
Aliquot Volume (L, g, F):	0.504
Target Conc. (pCi/L, g, F):	8.872
Uncertainty (Calculated):	0.417
Result (pCi/L, g, F):	8.377
LCS/LCSD Counting Uncertainty (pCi/L, g, F):	0.659
Numerical Performance Indicator:	-1.24
Percent Recovery:	94.42%
Status vs Numerical Indicator:	N/A
Status vs Recovery:	Pass

Duplicate Sample Assessment	
Sample I.D.:	30200847011
Duplicate Sample I.D.:	30200847011DUP
Sample Result (pCi/L, g, F):	1.070
Sample Result Counting Uncertainty (pCi/L, g, F):	0.224
Sample Duplicate Result (pCi/L, g, F):	0.868
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	0.217
Are sample and/or duplicate results below MDC?	See Below ##
Duplicate Numerical Performance Indicator:	1.270
Duplicate RPD:	20.84%
Duplicate Status vs Numerical Indicator:	N/A
Duplicate Status vs RPD:	Pass

Sample Matrix Spike Control Assessment	
Sample Collection Date:	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Spike I.D.:	
MS/MSD Decay Corrected Spike Concentration (pCi/mL):	
Spike Volume Used in MS (mL):	
Spike Volume Used in MSD (mL):	
MS Aliquot (L, g, F):	
MS Target Conc.(pCi/L, g, F):	
MSD Aliquot (L, g, F):	
MSD Target Conc. (pCi/L, g, F):	
Spike uncertainty (calculated):	
Sample Result:	
Sample Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Result:	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	
MS Numerical Performance Indicator:	
MSD Numerical Performance Indicator:	
MS Percent Recovery:	
MSD Percent Recovery:	
MS Status vs Numerical Indicator:	
MSD Status vs Numerical Indicator:	
MS Status vs Recovery:	
MSD Status vs Recovery:	

Matrix Spike/Matrix Spike Duplicate Sample Assessment	
Sample I.D.:	
Sample MS I.D.:	
Sample MSD I.D.:	
Sample Matrix Spike Result:	
Matrix Spike Result Counting Uncertainty (pCi/L, g, F):	
Sample Matrix Spike Duplicate Result:	
Sample Duplicate Result Counting Uncertainty (pCi/L, g, F):	
Duplicate Numerical Performance Indicator:	
MS/MSD Duplicate RPD:	
MS/MSD Duplicate Status vs Numerical Indicator:	
MS/MSD Duplicate Status vs RPD:	

## Evaluation of duplicate precision is not applicable if either the sample or duplicate results are below the MDC.

Comments:

*Handwritten signature and date: 12/16/16*

Product Name: Low-Flow System

Date: 2016-10-24 16:27:53

Project Information:

Operator Name Chris Parker  
Company Name Atlantic Coast Consulting Inc  
Project Name Plant Arkwright  
Site Name Plant Arkwright  
Latitude 32° 55' 25.45"  
Longitude -83° -42' -3.46"  
Sonde SN 466086  
Turbidity Make/Model Hach2100Q

Pump Information:

Pump Model/Type QED Bladder Pump  
Tubing Type poly  
Tubing Diameter .17 in  
Tubing Length 52 ft

Pump placement from TOC 47.0 ft

Well Information:

Well ID ARGWA-19  
Well diameter 2 in  
Well Total Depth 52.74 ft  
Screen Length 10 ft  
Depth to Water 30.88 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.622098 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 0.1 in  
Total Volume Pumped 7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0%		+/- 0.2	+/- 0
Last 5	16:03:36	300.07	22.09	5.79	183.07	2.52	31.00	4.04	113.44
Last 5	16:08:36	600.01	22.49	5.79	182.69	2.15	31.00	4.08	112.35
Last 5	16:13:36	900.02	22.32	5.80	182.68	1.95	31.00	4.07	111.23
Last 5	16:18:36	1200.00	22.12	5.81	181.82	1.83	31.00	4.06	109.38
Last 5	16:23:37	1501.00	22.00	5.81	182.00	1.97	31.00	4.10	108.00
Variance 0			-0.17	0.01	-0.02			-0.01	-1.12
Variance 1			-0.20	0.01	-0.86			-0.01	-1.85
Variance 2			-0.12	0.00	0.18			0.04	-1.38

Notes

Collected @ 16:30. Sunny , 80s

Grab Samples

Product Name: Low-Flow System

Date: 2016-10-24 16:02:10

Project Information:

Operator Name Brandon Reynolds  
Company Name Atlantic Coast Consulting, Inc.  
Project Name Background GW Monitoring Event #2  
Site Name Plant Arkwright  
Latitude 34° 1' 59.31"  
Longitude -84° -20' -32.37"  
Sonde SN 408206  
Turbidity Make/Model Hach 2100Q

Pump Information:

Pump Model/Type Peristaltic  
Tubing Type LDPE  
Tubing Diameter 0.17 in  
Tubing Length 42 ft

Pump placement from TOC 20 ft

Well Information:

Well ID ARGWA-20  
Well diameter 2 in  
Well Total Depth 37.7 ft  
Screen Length 10 ft  
Depth to Water 18.49 ft

Pumping Information:

Final Pumping Rate 125 mL/min  
Total System Volume 0.2774638 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3 in  
Total Volume Pumped 4000 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C +/- 1000	pH +/- 0.1	SpCond µS/cm +/- 5%	Turb NTU +/- 1000	DTW ft	RDO mg/L +/- 10%	ORP mV +/- 1000
Stabilization									
Last 5	15:39:45	600.17	20.64	5.61	125.88	6.02	18.72	4.84	235.87
Last 5	15:44:45	900.17	20.48	5.61	126.12	5.81	18.72	4.98	232.88
Last 5	15:49:45	1200.17	20.41	5.60	125.75	4.44	18.72	5.14	230.68
Last 5	15:54:45	1500.17	20.39	5.60	125.47	4.02	18.72	5.22	229.35
Last 5	15:59:45	1800.17	20.08	5.60	125.57	2.90	18.72	5.26	227.79
Variance 0			-0.07	-0.01	-0.36			0.16	-2.21
Variance 1			-0.02	-0.00	-0.29			0.07	-1.32
Variance 2			-0.31	0.01	0.11			0.04	-1.57

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2016-10-26 11:13:41

Project Information:

Operator Name Brandon Reynolds  
Company Name Atlantic Coast Consulting, Inc.  
Project Name Background GW Monitoring Event #2  
Site Name Plant Arkwright  
Latitude 32° 55' 28.54"  
Longitude -83° -42' -5.39"  
Sonde SN 408206  
Turbidity Make/Model Hach 2100Q

Pump Information:

Pump Model/Type Peristaltic  
Tubing Type LDPE  
Tubing Diameter 0.17 in  
Tubing Length 32 ft

Pump placement from TOC 21 ft

Well Information:

Well ID ARGWC-21  
Well diameter 2 in  
Well Total Depth 27.27 ft  
Screen Length 10 ft  
Depth to Water 14.23 ft

Pumping Information:

Final Pumping Rate 100 mL/min  
Total System Volume 0.2328295 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 30 in  
Total Volume Pumped 15 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
			+/- 1000	+/- 0.1	+/- 5%	+/- 1000		+/- 10%	+/- 1000
Stabilization									
Last 5	10:46:52	6299.86	22.09	6.24	543.42	7.00	16.80	0.16	3.33
Last 5	10:51:56	6603.86	22.23	6.23	544.38	6.00	16.80	0.17	4.14
Last 5	10:56:56	6903.86	22.80	6.23	541.95	6.00	16.80	0.17	4.27
Last 5	11:01:56	7203.86	22.79	6.23	545.07	6.00	16.80	0.18	5.15
Last 5	11:06:56	7503.86	22.94	6.23	542.47	4.94	16.80	0.16	6.12
Variance 0			0.58	0.00	-2.42			-0.00	0.13
Variance 1			-0.02	-0.00	3.12			0.01	0.88
Variance 2			0.15	0.00	-2.60			-0.01	0.97

Notes

Sampled at 11:10. Sunny 60's. Duplicate taken. Field blank taken

Grab Samples



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-133233-3

TestAmerica Sample Delivery Group: Pond 2 Phase 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:

2/27/2017 4:03:49 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*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.*

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# Case Narrative

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

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**Job ID: 400-133233-3**

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**Laboratory: TestAmerica Pensacola**

---

**Narrative**

---

**Job Narrative  
400-133233-3**

**HPLC/IC**

Method(s) 300.0: The following sample was diluted to bring the concentration of target analytes within the calibration range: ARGWC-21 (400-133233-14). Elevated reporting limits (RLs) are provided.

**Metals**

Method(s) 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 340456 and analytical batch 340674 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 7470A: The method blank for prep batch 340467 contained Mercury above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-analysis of samples was not performed.



# Detection Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

## Client Sample ID: ARGWA-19

## Lab Sample ID: 400-133233-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.7		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	8.8		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.045		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.048	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	13		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0013	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0052		0.0050	0.0032	mg/L	5		6020	Total Recoverable
Mercury	0.000077	J B	0.00020	0.000070	mg/L	1		7470A	Total/NA
Total Dissolved Solids	120		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: ARGWA-20

## Lab Sample ID: 400-133233-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.1		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	19		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.084		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.026	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	9.4		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0056		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Cobalt	0.00076	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lead	0.00037	J	0.0013	0.00035	mg/L	5		6020	Total Recoverable
Selenium	0.0015		0.0013	0.00024	mg/L	5		6020	Total Recoverable
Boron, Dissolved	0.057		0.050	0.021	mg/L	5		6020	Dissolved
Barium, Dissolved	0.078		0.0025	0.00049	mg/L	5		6020	Dissolved
Calcium, Dissolved	9.0		0.25	0.13	mg/L	5		6020	Dissolved
Chromium, Dissolved	0.0052		0.0025	0.0011	mg/L	5		6020	Dissolved
Selenium, Dissolved	0.00095	J	0.0013	0.00024	mg/L	5		6020	Dissolved
Mercury	0.000072	J B	0.00020	0.000070	mg/L	1		7470A	Total/NA
Total Dissolved Solids	90		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: EB-2-1-25-17

## Lab Sample ID: 400-133233-13

No Detections.

## Client Sample ID: ARGWC-21

## Lab Sample ID: 400-133233-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.4		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.12	J	0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate	150		5.0	3.5	mg/L	5		300.0	Total/NA
Arsenic	0.0017		0.0013	0.00046	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

## Client Sample ID: ARGWC-21 (Continued)

## Lab Sample ID: 400-133233-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.12		0.0025	0.00049	mg/L	5		6020	Total
Boron	0.56		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	50		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.0017	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0087		0.0050	0.0032	mg/L	5		6020	Total Recoverable
Mercury	0.000073	J B	0.00020	0.000070	mg/L	1		7470A	Total/NA
Total Dissolved Solids	320		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: FB-2-1-25-17

## Lab Sample ID: 400-133233-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	0.000098	J B	0.00020	0.000070	mg/L	1		7470A	Total/NA

## Client Sample ID: DUP-2

## Lab Sample ID: 400-133233-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.8		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	8.7		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.045		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	13		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0014	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0049	J	0.0050	0.0032	mg/L	5		6020	Total Recoverable
Mercury	0.000074	J B	0.00020	0.000070	mg/L	1		7470A	Total/NA
Total Dissolved Solids	100		5.0	3.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

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

#### 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 PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-133233-11	ARGWA-19	Water	01/25/17 09:25	01/28/17 08:49
400-133233-12	ARGWA-20	Water	01/25/17 15:20	01/28/17 08:49
400-133233-13	EB-2-1-25-17	Water	01/25/17 15:00	01/28/17 08:49
400-133233-14	ARGWC-21	Water	01/25/17 17:25	01/28/17 08:49
400-133233-15	FB-2-1-25-17	Water	01/25/17 18:00	01/28/17 08:49
400-133233-16	DUP-2	Water	01/25/17 00:00	01/28/17 08:49

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# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-133233-11**

**Date Collected: 01/25/17 09:25**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>8.7</b>		1.0	0.89	mg/L			02/03/17 14:13	1
Fluoride	<0.082		0.20	0.082	mg/L			02/03/17 14:13	1
<b>Sulfate</b>	<b>8.8</b>		1.0	0.70	mg/L			02/03/17 14:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		02/01/17 08:30	02/02/17 14:29	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		02/01/17 08:30	02/02/17 14:29	5
<b>Barium</b>	<b>0.045</b>		0.0025	0.00049	mg/L		02/01/17 08:30	02/02/17 14:29	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 14:29	5
<b>Boron</b>	<b>0.048</b>	<b>J</b>	0.050	0.021	mg/L		02/01/17 08:30	02/02/17 14:29	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 14:29	5
<b>Calcium</b>	<b>13</b>		0.25	0.13	mg/L		02/01/17 08:30	02/02/17 14:29	5
<b>Chromium</b>	<b>0.0013</b>	<b>J</b>	0.0025	0.0011	mg/L		02/01/17 08:30	02/02/17 14:29	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		02/01/17 08:30	02/02/17 14:29	5
Lead	<0.00035		0.0013	0.00035	mg/L		02/01/17 08:30	02/02/17 14:29	5
<b>Lithium</b>	<b>0.0052</b>		0.0050	0.0032	mg/L		02/01/17 08:30	02/02/17 14:29	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		02/01/17 08:30	02/02/17 14:29	5
Selenium	<0.00024		0.0013	0.00024	mg/L		02/01/17 08:30	02/02/17 14:29	5
Thallium	<0.000085		0.00050	0.000085	mg/L		02/01/17 08:30	02/02/17 14:29	5

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Mercury</b>	<b>0.000077</b>	<b>J B</b>	0.00020	0.000070	mg/L		01/31/17 12:31	02/02/17 13:42	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>120</b>		5.0	3.4	mg/L			01/31/17 14:32	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-133233-12**

Date Collected: 01/25/17 15:20

Matrix: Water

Date Received: 01/28/17 08:49

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>5.1</b>		1.0	0.89	mg/L			02/03/17 14:35	1
Fluoride	<0.082		0.20	0.082	mg/L			02/03/17 14:35	1
<b>Sulfate</b>	<b>19</b>		1.0	0.70	mg/L			02/03/17 14:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		02/01/17 08:30	02/02/17 14:52	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		02/01/17 08:30	02/02/17 14:52	5
<b>Barium</b>	<b>0.084</b>		0.0025	0.00049	mg/L		02/01/17 08:30	02/02/17 14:52	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 14:52	5
<b>Boron</b>	<b>0.026</b>	J	0.050	0.021	mg/L		02/01/17 08:30	02/02/17 14:52	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 14:52	5
<b>Calcium</b>	<b>9.4</b>		0.25	0.13	mg/L		02/01/17 08:30	02/02/17 14:52	5
<b>Chromium</b>	<b>0.0056</b>		0.0025	0.0011	mg/L		02/01/17 08:30	02/02/17 14:52	5
<b>Cobalt</b>	<b>0.00076</b>	J	0.0025	0.00040	mg/L		02/01/17 08:30	02/02/17 14:52	5
<b>Lead</b>	<b>0.00037</b>	J	0.0013	0.00035	mg/L		02/01/17 08:30	02/02/17 14:52	5
Lithium	<0.0032		0.0050	0.0032	mg/L		02/01/17 08:30	02/02/17 14:52	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		02/01/17 08:30	02/02/17 14:52	5
<b>Selenium</b>	<b>0.0015</b>		0.0013	0.00024	mg/L		02/01/17 08:30	02/02/17 14:52	5
Thallium	<0.000085		0.00050	0.000085	mg/L		02/01/17 08:30	02/02/17 14:52	5

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		01/31/17 11:45	02/01/17 15:36	5
<b>Boron, Dissolved</b>	<b>0.057</b>		0.050	0.021	mg/L		01/31/17 11:45	02/01/17 15:36	5
<b>Barium, Dissolved</b>	<b>0.078</b>		0.0025	0.00049	mg/L		01/31/17 11:45	02/01/17 15:36	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		01/31/17 11:45	02/01/17 15:36	5
<b>Calcium, Dissolved</b>	<b>9.0</b>		0.25	0.13	mg/L		01/31/17 11:45	02/01/17 15:36	5
Cadmium, Dissolved	<0.00034		0.0025	0.00034	mg/L		01/31/17 11:45	02/01/17 15:36	5
<b>Chromium, Dissolved</b>	<b>0.0052</b>		0.0025	0.0011	mg/L		01/31/17 11:45	02/01/17 15:36	5
Cobalt, Dissolved	<0.00040		0.0025	0.00040	mg/L		01/31/17 11:45	02/01/17 15:36	5
Molybdenum, Dissolved	<0.00085		0.015	0.00085	mg/L		01/31/17 11:45	02/01/17 15:36	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		01/31/17 11:45	02/01/17 15:36	5
Antimony, Dissolved	<0.0010		0.0025	0.0010	mg/L		01/31/17 11:45	02/01/17 15:36	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		01/31/17 11:45	02/01/17 15:36	5
<b>Selenium, Dissolved</b>	<b>0.00095</b>	J	0.0013	0.00024	mg/L		01/31/17 11:45	02/01/17 15:36	5
Lithium, Dissolved	<0.0032		0.0050	0.0032	mg/L		01/31/17 11:45	02/01/17 15:36	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Mercury</b>	<b>0.000072</b>	J B	0.00020	0.000070	mg/L		01/31/17 12:31	02/02/17 13:43	1

### Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		01/31/17 12:29	02/01/17 13:57	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>90</b>		5.0	3.4	mg/L			01/31/17 14:32	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

**Client Sample ID: EB-2-1-25-17**

**Lab Sample ID: 400-133233-13**

**Date Collected: 01/25/17 15:00**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			02/03/17 15:44	1
Fluoride	<0.082		0.20	0.082	mg/L			02/03/17 15:44	1
Sulfate	<0.70		1.0	0.70	mg/L			02/03/17 15:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		02/01/17 08:30	02/02/17 14:56	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		02/01/17 08:30	02/02/17 14:56	5
Barium	<0.00049		0.0025	0.00049	mg/L		02/01/17 08:30	02/02/17 14:56	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 14:56	5
Boron	<0.021		0.050	0.021	mg/L		02/01/17 08:30	02/02/17 14:56	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 14:56	5
Calcium	<0.13		0.25	0.13	mg/L		02/01/17 08:30	02/02/17 14:56	5
Chromium	<0.0011		0.0025	0.0011	mg/L		02/01/17 08:30	02/02/17 14:56	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		02/01/17 08:30	02/02/17 14:56	5
Lead	<0.00035		0.0013	0.00035	mg/L		02/01/17 08:30	02/02/17 14:56	5
Lithium	<0.0032		0.0050	0.0032	mg/L		02/01/17 08:30	02/02/17 14:56	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		02/01/17 08:30	02/02/17 14:56	5
Selenium	<0.00024		0.0013	0.00024	mg/L		02/01/17 08:30	02/02/17 14:56	5
Thallium	<0.000085		0.00050	0.000085	mg/L		02/01/17 08:30	02/02/17 14:56	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		01/31/17 12:31	02/02/17 13:45	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			01/31/17 14:32	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-133233-14**

Date Collected: 01/25/17 17:25

Matrix: Water

Date Received: 01/28/17 08:49

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.4		1.0	0.89	mg/L			02/03/17 16:07	1
Fluoride	0.12	J	0.20	0.082	mg/L			02/03/17 16:07	1
Sulfate	150		5.0	3.5	mg/L			02/06/17 11:57	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		02/01/17 08:30	02/02/17 15:01	5
Arsenic	0.0017		0.0013	0.00046	mg/L		02/01/17 08:30	02/02/17 15:01	5
Barium	0.12		0.0025	0.00049	mg/L		02/01/17 08:30	02/02/17 15:01	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 15:01	5
Boron	0.56		0.050	0.021	mg/L		02/01/17 08:30	02/02/17 15:01	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 15:01	5
Calcium	50		0.25	0.13	mg/L		02/01/17 08:30	02/02/17 15:01	5
Chromium	<0.0011		0.0025	0.0011	mg/L		02/01/17 08:30	02/02/17 15:01	5
Cobalt	0.0017	J	0.0025	0.00040	mg/L		02/01/17 08:30	02/02/17 15:01	5
Lead	<0.00035		0.0013	0.00035	mg/L		02/01/17 08:30	02/02/17 15:01	5
Lithium	0.0087		0.0050	0.0032	mg/L		02/01/17 08:30	02/02/17 15:01	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		02/01/17 08:30	02/02/17 15:01	5
Selenium	<0.00024		0.0013	0.00024	mg/L		02/01/17 08:30	02/02/17 15:01	5
Thallium	<0.000085		0.00050	0.000085	mg/L		02/01/17 08:30	02/02/17 15:01	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000073	J B	0.00020	0.000070	mg/L		01/31/17 12:31	02/02/17 13:46	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	320		5.0	3.4	mg/L			01/31/17 14:32	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

**Client Sample ID: FB-2-1-25-17**

**Lab Sample ID: 400-133233-15**

**Date Collected: 01/25/17 18:00**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			02/03/17 16:29	1
Fluoride	<0.082		0.20	0.082	mg/L			02/03/17 16:29	1
Sulfate	<0.70		1.0	0.70	mg/L			02/03/17 16:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		02/01/17 08:30	02/02/17 15:05	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		02/01/17 08:30	02/02/17 15:05	5
Barium	<0.00049		0.0025	0.00049	mg/L		02/01/17 08:30	02/02/17 15:05	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 15:05	5
Boron	<0.021		0.050	0.021	mg/L		02/01/17 08:30	02/02/17 15:05	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 15:05	5
Calcium	<0.13		0.25	0.13	mg/L		02/01/17 08:30	02/02/17 15:05	5
Chromium	<0.0011		0.0025	0.0011	mg/L		02/01/17 08:30	02/02/17 15:05	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		02/01/17 08:30	02/02/17 15:05	5
Lead	<0.00035		0.0013	0.00035	mg/L		02/01/17 08:30	02/02/17 15:05	5
Lithium	<0.0032		0.0050	0.0032	mg/L		02/01/17 08:30	02/02/17 15:05	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		02/01/17 08:30	02/02/17 15:05	5
Selenium	<0.00024		0.0013	0.00024	mg/L		02/01/17 08:30	02/02/17 15:05	5
Thallium	<0.000085		0.00050	0.000085	mg/L		02/01/17 08:30	02/02/17 15:05	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000098	J B	0.00020	0.000070	mg/L		01/31/17 12:31	02/02/17 13:53	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			01/31/17 14:32	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

**Client Sample ID: DUP-2**

**Date Collected: 01/25/17 00:00**

**Date Received: 01/28/17 08:49**

**Lab Sample ID: 400-133233-16**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>8.8</b>		1.0	0.89	mg/L			02/03/17 16:52	1
Fluoride	<0.082		0.20	0.082	mg/L			02/03/17 16:52	1
<b>Sulfate</b>	<b>8.7</b>		1.0	0.70	mg/L			02/03/17 16:52	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		02/01/17 08:30	02/02/17 15:10	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		02/01/17 08:30	02/02/17 15:10	5
<b>Barium</b>	<b>0.045</b>		0.0025	0.00049	mg/L		02/01/17 08:30	02/02/17 15:10	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 15:10	5
Boron	<0.021		0.050	0.021	mg/L		02/01/17 08:30	02/02/17 15:10	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 15:10	5
<b>Calcium</b>	<b>13</b>		0.25	0.13	mg/L		02/01/17 08:30	02/02/17 15:10	5
<b>Chromium</b>	<b>0.0014</b>	<b>J</b>	0.0025	0.0011	mg/L		02/01/17 08:30	02/02/17 15:10	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		02/01/17 08:30	02/02/17 15:10	5
Lead	<0.00035		0.0013	0.00035	mg/L		02/01/17 08:30	02/02/17 15:10	5
<b>Lithium</b>	<b>0.0049</b>	<b>J</b>	0.0050	0.0032	mg/L		02/01/17 08:30	02/02/17 15:10	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		02/01/17 08:30	02/02/17 15:10	5
Selenium	<0.00024		0.0013	0.00024	mg/L		02/01/17 08:30	02/02/17 15:10	5
Thallium	<0.000085		0.00050	0.000085	mg/L		02/01/17 08:30	02/02/17 15:10	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Mercury</b>	<b>0.000074</b>	<b>J B</b>	0.00020	0.000070	mg/L		01/31/17 12:31	02/02/17 13:55	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>100</b>		5.0	3.4	mg/L			01/31/17 14:32	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 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
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.
α	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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-133233-11**

**Date Collected: 01/25/17 09:25**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	340885	02/03/17 14:13	KH1	TAL PEN
Total Recoverable	Prep	3005A			340541	02/01/17 08:30	RJB	TAL PEN
Total Recoverable	Analysis	6020		5	340833	02/02/17 14:29	DRE	TAL PEN
Total/NA	Prep	7470A			340467	01/31/17 12:31	JAP	TAL PEN
Total/NA	Analysis	7470A		1	340770	02/02/17 13:42	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	340469	01/31/17 14:32	TET	TAL PEN

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-133233-12**

**Date Collected: 01/25/17 15:20**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	340885	02/03/17 14:35	KH1	TAL PEN
Dissolved	Prep	3005A			340456	01/31/17 11:45	RJB	TAL PEN
Dissolved	Analysis	6020		5	340674	02/01/17 15:36	DRE	TAL PEN
Total Recoverable	Prep	3005A			340541	02/01/17 08:30	RJB	TAL PEN
Total Recoverable	Analysis	6020		5	340833	02/02/17 14:52	DRE	TAL PEN
Dissolved	Prep	7470A			340020	01/31/17 12:29	JAP	TAL PEN
Dissolved	Analysis	7470A		1	340686	02/01/17 13:57	JAP	TAL PEN
Total/NA	Prep	7470A			340467	01/31/17 12:31	JAP	TAL PEN
Total/NA	Analysis	7470A		1	340770	02/02/17 13:43	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	340469	01/31/17 14:32	TET	TAL PEN

**Client Sample ID: EB-2-1-25-17**

**Lab Sample ID: 400-133233-13**

**Date Collected: 01/25/17 15:00**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	340885	02/03/17 15:44	KH1	TAL PEN
Total Recoverable	Prep	3005A			340541	02/01/17 08:30	RJB	TAL PEN
Total Recoverable	Analysis	6020		5	340833	02/02/17 14:56	DRE	TAL PEN
Total/NA	Prep	7470A			340467	01/31/17 12:31	JAP	TAL PEN
Total/NA	Analysis	7470A		1	340770	02/02/17 13:45	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	340469	01/31/17 14:32	TET	TAL PEN

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-133233-14**

**Date Collected: 01/25/17 17:25**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	340885	02/03/17 16:07	KH1	TAL PEN
Total/NA	Analysis	300.0		5	341083	02/06/17 11:57	KH1	TAL PEN

TestAmerica Pensacola



# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-133233-14**

**Date Collected: 01/25/17 17:25**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			340541	02/01/17 08:30	RJB	TAL PEN
Total Recoverable	Analysis	6020		5	340833	02/02/17 15:01	DRE	TAL PEN
Total/NA	Prep	7470A			340467	01/31/17 12:31	JAP	TAL PEN
Total/NA	Analysis	7470A		1	340770	02/02/17 13:46	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	340469	01/31/17 14:32	TET	TAL PEN

**Client Sample ID: FB-2-1-25-17**

**Lab Sample ID: 400-133233-15**

**Date Collected: 01/25/17 18:00**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	340885	02/03/17 16:29	KH1	TAL PEN
Total Recoverable	Prep	3005A			340541	02/01/17 08:30	RJB	TAL PEN
Total Recoverable	Analysis	6020		5	340833	02/02/17 15:05	DRE	TAL PEN
Total/NA	Prep	7470A			340467	01/31/17 12:31	JAP	TAL PEN
Total/NA	Analysis	7470A		1	340770	02/02/17 13:53	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	340469	01/31/17 14:32	TET	TAL PEN

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-133233-16**

**Date Collected: 01/25/17 00:00**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	340885	02/03/17 16:52	KH1	TAL PEN
Total Recoverable	Prep	3005A			340541	02/01/17 08:30	RJB	TAL PEN
Total Recoverable	Analysis	6020		5	340833	02/02/17 15:10	DRE	TAL PEN
Total/NA	Prep	7470A			340467	01/31/17 12:31	JAP	TAL PEN
Total/NA	Analysis	7470A		1	340770	02/02/17 13:55	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	340469	01/31/17 14:32	TET	TAL PEN

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

## HPLC/IC

### Analysis Batch: 340885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-11	ARGWA-19	Total/NA	Water	300.0	
400-133233-12	ARGWA-20	Total/NA	Water	300.0	
400-133233-13	EB-2-1-25-17	Total/NA	Water	300.0	
400-133233-14	ARGWC-21	Total/NA	Water	300.0	
400-133233-15	FB-2-1-25-17	Total/NA	Water	300.0	
400-133233-16	DUP-2	Total/NA	Water	300.0	

### Analysis Batch: 341083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-14	ARGWC-21	Total/NA	Water	300.0	
MB 400-341083/4	Method Blank	Total/NA	Water	300.0	
LCS 400-341083/5	Lab Control Sample	Total/NA	Water	300.0	
LCS 400-341083/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-133233-14 MS	ARGWC-21	Total/NA	Water	300.0	
400-133233-14 MSD	ARGWC-21	Total/NA	Water	300.0	

## Metals

### Prep Batch: 340020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-12	ARGWA-20	Dissolved	Water	7470A	

### Prep Batch: 340456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-12	ARGWA-20	Dissolved	Water	3005A	
MB 400-340456/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-340456/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-133190-K-9-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-133190-K-9-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Prep Batch: 340467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-11	ARGWA-19	Total/NA	Water	7470A	
400-133233-12	ARGWA-20	Total/NA	Water	7470A	
400-133233-13	EB-2-1-25-17	Total/NA	Water	7470A	
400-133233-14	ARGWC-21	Total/NA	Water	7470A	
400-133233-15	FB-2-1-25-17	Total/NA	Water	7470A	
400-133233-16	DUP-2	Total/NA	Water	7470A	

### Prep Batch: 340541

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-11	ARGWA-19	Total Recoverable	Water	3005A	
400-133233-12	ARGWA-20	Total Recoverable	Water	3005A	
400-133233-13	EB-2-1-25-17	Total Recoverable	Water	3005A	
400-133233-14	ARGWC-21	Total Recoverable	Water	3005A	
400-133233-15	FB-2-1-25-17	Total Recoverable	Water	3005A	
400-133233-16	DUP-2	Total Recoverable	Water	3005A	
MB 400-340541/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-340541/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-133276-D-1-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

## Metals (Continued)

### Prep Batch: 340541 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133276-D-1-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 340674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-12	ARGWA-20	Dissolved	Water	6020	340456
MB 400-340456/1-A ^5	Method Blank	Total Recoverable	Water	6020	340456
LCS 400-340456/2-A	Lab Control Sample	Total Recoverable	Water	6020	340456
400-133190-K-9-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	340456
400-133190-K-9-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	340456

### Analysis Batch: 340686

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-12	ARGWA-20	Dissolved	Water	7470A	340020

### Analysis Batch: 340770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-11	ARGWA-19	Total/NA	Water	7470A	340467
400-133233-12	ARGWA-20	Total/NA	Water	7470A	340467
400-133233-13	EB-2-1-25-17	Total/NA	Water	7470A	340467
400-133233-14	ARGWC-21	Total/NA	Water	7470A	340467
400-133233-15	FB-2-1-25-17	Total/NA	Water	7470A	340467
400-133233-16	DUP-2	Total/NA	Water	7470A	340467

### Analysis Batch: 340833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-11	ARGWA-19	Total Recoverable	Water	6020	340541
400-133233-12	ARGWA-20	Total Recoverable	Water	6020	340541
400-133233-13	EB-2-1-25-17	Total Recoverable	Water	6020	340541
400-133233-14	ARGWC-21	Total Recoverable	Water	6020	340541
400-133233-15	FB-2-1-25-17	Total Recoverable	Water	6020	340541
400-133233-16	DUP-2	Total Recoverable	Water	6020	340541
MB 400-340541/1-A ^5	Method Blank	Total Recoverable	Water	6020	340541
LCS 400-340541/2-A	Lab Control Sample	Total Recoverable	Water	6020	340541
400-133276-D-1-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	340541
400-133276-D-1-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	340541

## General Chemistry

### Analysis Batch: 340469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-11	ARGWA-19	Total/NA	Water	SM 2540C	
400-133233-12	ARGWA-20	Total/NA	Water	SM 2540C	
400-133233-13	EB-2-1-25-17	Total/NA	Water	SM 2540C	
400-133233-14	ARGWC-21	Total/NA	Water	SM 2540C	
400-133233-15	FB-2-1-25-17	Total/NA	Water	SM 2540C	
400-133233-16	DUP-2	Total/NA	Water	SM 2540C	
400-133233-14 DU	ARGWC-21	Total/NA	Water	SM 2540C	

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 400-341083/4**  
**Matrix: Water**  
**Analysis Batch: 341083**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			02/06/17 10:49	1
Fluoride	<0.082		0.20	0.082	mg/L			02/06/17 10:49	1
Sulfate	<0.70		1.0	0.70	mg/L			02/06/17 10:49	1

**Lab Sample ID: LCS 400-341083/5**  
**Matrix: Water**  
**Analysis Batch: 341083**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.85		mg/L		98	90 - 110
Fluoride	10.0	10.6		mg/L		106	90 - 110
Sulfate	10.0	10.6		mg/L		106	90 - 110

**Lab Sample ID: LCSD 400-341083/6**  
**Matrix: Water**  
**Analysis Batch: 341083**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.85		mg/L		99	90 - 110	0	15
Fluoride	10.0	10.6		mg/L		106	90 - 110	0	15
Sulfate	10.0	10.6		mg/L		106	90 - 110	0	15

**Lab Sample ID: 400-133233-14 MS**  
**Matrix: Water**  
**Analysis Batch: 341083**

**Client Sample ID: ARGWC-21**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.6		50.0	54.7		mg/L		98	80 - 120
Fluoride	<0.41		50.0	53.7		mg/L		107	80 - 120
Sulfate	150		50.0	202		mg/L		95	80 - 120

**Lab Sample ID: 400-133233-14 MSD**  
**Matrix: Water**  
**Analysis Batch: 341083**

**Client Sample ID: ARGWC-21**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	5.6		50.0	55.0		mg/L		99	80 - 120	0	20
Fluoride	<0.41		50.0	53.9		mg/L		108	80 - 120	0	20
Sulfate	150		50.0	202		mg/L		95	80 - 120	0	20

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 400-340456/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 340674**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340456**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		01/31/17 11:45	02/01/17 14:03	5
Barium, Dissolved	<0.00049		0.0025	0.00049	mg/L		01/31/17 11:45	02/01/17 14:03	5

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

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

**Lab Sample ID: MB 400-340456/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 340674**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340456**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		01/31/17 11:45	02/01/17 14:03	5
Boron, Dissolved	<0.021		0.050	0.021	mg/L		01/31/17 11:45	02/01/17 14:03	5
Cadmium, Dissolved	<0.00034		0.0025	0.00034	mg/L		01/31/17 11:45	02/01/17 14:03	5
Calcium, Dissolved	<0.13		0.25	0.13	mg/L		01/31/17 11:45	02/01/17 14:03	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		01/31/17 11:45	02/01/17 14:03	5
Cobalt, Dissolved	<0.00040		0.0025	0.00040	mg/L		01/31/17 11:45	02/01/17 14:03	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		01/31/17 11:45	02/01/17 14:03	5
Antimony, Dissolved	<0.0010		0.0025	0.0010	mg/L		01/31/17 11:45	02/01/17 14:03	5
Molybdenum, Dissolved	<0.00085		0.015	0.00085	mg/L		01/31/17 11:45	02/01/17 14:03	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		01/31/17 11:45	02/01/17 14:03	5
Lithium, Dissolved	<0.0032		0.0050	0.0032	mg/L		01/31/17 11:45	02/01/17 14:03	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		01/31/17 11:45	02/01/17 14:03	5

**Lab Sample ID: LCS 400-340456/2-A**  
**Matrix: Water**  
**Analysis Batch: 340674**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340456**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				
Arsenic, Dissolved	0.0500	0.0514		mg/L		103	80 - 120
Barium, Dissolved	0.0500	0.0507		mg/L		101	80 - 120
Beryllium, Dissolved	0.0500	0.0517		mg/L		103	80 - 120
Boron, Dissolved	0.100	0.104		mg/L		104	80 - 120
Cadmium, Dissolved	0.0500	0.0517		mg/L		103	80 - 120
Calcium, Dissolved	5.00	4.98		mg/L		100	80 - 120
Chromium, Dissolved	0.0500	0.0510		mg/L		102	80 - 120
Cobalt, Dissolved	0.0500	0.0473		mg/L		95	80 - 120
Lead, Dissolved	0.0500	0.0535		mg/L		107	80 - 120
Antimony, Dissolved	0.0500	0.0512		mg/L		102	80 - 120
Molybdenum, Dissolved	0.100	0.103		mg/L		103	80 - 120
Selenium, Dissolved	0.0500	0.0513		mg/L		103	80 - 120
Lithium, Dissolved	0.0500	0.0521		mg/L		104	80 - 120
Thallium, Dissolved	0.0100	0.0103		mg/L		103	80 - 120

**Lab Sample ID: 400-133190-K-9-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 340674**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340456**

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier		Result	Qualifier				
Arsenic, Dissolved	0.084		0.0500	0.140		mg/L		110	75 - 125
Barium, Dissolved	0.78		0.0500	0.833	4	mg/L		107	75 - 125
Beryllium, Dissolved	<0.00034		0.0500	0.0547		mg/L		109	75 - 125
Boron, Dissolved	0.074		0.100	0.185		mg/L		111	75 - 125
Cadmium, Dissolved	<0.00034		0.0500	0.0523		mg/L		105	75 - 125
Chromium, Dissolved	<0.0011		0.0500	0.0515		mg/L		103	75 - 125
Cobalt, Dissolved	0.00093	J	0.0500	0.0512		mg/L		101	75 - 125
Lead, Dissolved	<0.00035		0.0500	0.0541		mg/L		108	75 - 125
Antimony, Dissolved	<0.0010		0.0500	0.0526		mg/L		105	75 - 125
Molybdenum, Dissolved	0.0044	J	0.100	0.110		mg/L		105	75 - 125
Selenium, Dissolved	0.00040	J	0.0500	0.0528		mg/L		105	75 - 125

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

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

**Lab Sample ID: 400-133190-K-9-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 340674**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340456**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium, Dissolved	0.017		0.0500	0.0676		mg/L		101	75 - 125
Thallium, Dissolved	<0.000085		0.0100	0.0105		mg/L		105	75 - 125

**Lab Sample ID: 400-133190-K-9-C MSD ^5**  
**Matrix: Water**  
**Analysis Batch: 340674**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340456**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic, Dissolved	0.084		0.0500	0.137		mg/L		105	75 - 125	2	20
Barium, Dissolved	0.78		0.0500	0.824	4	mg/L		90	75 - 125	1	20
Beryllium, Dissolved	<0.00034		0.0500	0.0538		mg/L		108	75 - 125	2	20
Boron, Dissolved	0.074		0.100	0.192		mg/L		118	75 - 125	4	20
Cadmium, Dissolved	<0.00034		0.0500	0.0509		mg/L		102	75 - 125	3	20
Chromium, Dissolved	<0.0011		0.0500	0.0521		mg/L		104	75 - 125	1	20
Cobalt, Dissolved	0.00093	J	0.0500	0.0525		mg/L		103	75 - 125	3	20
Lead, Dissolved	<0.00035		0.0500	0.0548		mg/L		110	75 - 125	1	20
Antimony, Dissolved	<0.0010		0.0500	0.0510		mg/L		102	75 - 125	3	20
Molybdenum, Dissolved	0.0044	J	0.100	0.109		mg/L		104	75 - 125	1	20
Selenium, Dissolved	0.00040	J	0.0500	0.0536		mg/L		106	75 - 125	2	20
Lithium, Dissolved	0.017		0.0500	0.0681		mg/L		103	75 - 125	1	20
Thallium, Dissolved	<0.000085		0.0100	0.0106		mg/L		106	75 - 125	1	20

**Lab Sample ID: MB 400-340541/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 340833**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340541**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		02/01/17 08:30	02/02/17 13:17	5
Barium	<0.00049		0.0025	0.00049	mg/L		02/01/17 08:30	02/02/17 13:17	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 13:17	5
Boron	<0.021		0.050	0.021	mg/L		02/01/17 08:30	02/02/17 13:17	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		02/01/17 08:30	02/02/17 13:17	5
Calcium	<0.13		0.25	0.13	mg/L		02/01/17 08:30	02/02/17 13:17	5
Chromium	<0.0011		0.0025	0.0011	mg/L		02/01/17 08:30	02/02/17 13:17	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		02/01/17 08:30	02/02/17 13:17	5
Lead	<0.00035		0.0013	0.00035	mg/L		02/01/17 08:30	02/02/17 13:17	5
Antimony	<0.0010		0.0025	0.0010	mg/L		02/01/17 08:30	02/02/17 13:17	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		02/01/17 08:30	02/02/17 13:17	5
Selenium	<0.00024		0.0013	0.00024	mg/L		02/01/17 08:30	02/02/17 13:17	5
Lithium	<0.0032		0.0050	0.0032	mg/L		02/01/17 08:30	02/02/17 13:17	5
Thallium	<0.000085		0.00050	0.000085	mg/L		02/01/17 08:30	02/02/17 13:17	5

**Lab Sample ID: LCS 400-340541/2-A**  
**Matrix: Water**  
**Analysis Batch: 340833**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340541**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0500	0.0523		mg/L		105	80 - 120
Barium	0.0500	0.0522		mg/L		104	80 - 120

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# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
SDG: Pond 2 Phase 2

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

**Lab Sample ID: LCS 400-340541/2-A**  
**Matrix: Water**  
**Analysis Batch: 340833**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340541**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Beryllium	0.0500	0.0530		mg/L		106	80 - 120	
Boron	0.100	0.105		mg/L		105	80 - 120	
Cadmium	0.0500	0.0522		mg/L		104	80 - 120	
Calcium	5.00	5.10		mg/L		102	80 - 120	
Chromium	0.0500	0.0519		mg/L		104	80 - 120	
Cobalt	0.0500	0.0512		mg/L		102	80 - 120	
Lead	0.0500	0.0535		mg/L		107	80 - 120	
Antimony	0.0500	0.0525		mg/L		105	80 - 120	
Molybdenum	0.100	0.104		mg/L		104	80 - 120	
Selenium	0.0500	0.0519		mg/L		104	80 - 120	
Lithium	0.0500	0.0565		mg/L		113	80 - 120	
Thallium	0.0100	0.0105		mg/L		105	80 - 120	

**Lab Sample ID: 400-133276-D-1-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 340833**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340541**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	
Arsenic	<0.00046		0.0500	0.0536		mg/L		107	75 - 125	
Barium	0.023		0.0500	0.0780		mg/L		110	75 - 125	
Beryllium	<0.00034		0.0500	0.0525		mg/L		105	75 - 125	
Boron	0.060		0.100	0.174		mg/L		113	75 - 125	
Cadmium	<0.00034		0.0500	0.0526		mg/L		105	75 - 125	
Calcium	2.2		5.00	7.30		mg/L		103	75 - 125	
Chromium	0.0011	J	0.0500	0.0541		mg/L		108	75 - 125	
Cobalt	<0.00040		0.0500	0.0526		mg/L		105	75 - 125	
Lead	<0.00035		0.0500	0.0528		mg/L		106	75 - 125	
Antimony	<0.0010		0.0500	0.0550		mg/L		110	75 - 125	
Molybdenum	<0.00085		0.100	0.105		mg/L		105	75 - 125	
Selenium	0.00044	J	0.0500	0.0526		mg/L		104	75 - 125	
Lithium	0.0088		0.0500	0.0574		mg/L		97	75 - 125	
Thallium	<0.00085		0.0100	0.0103		mg/L		103	75 - 125	

**Lab Sample ID: 400-133276-D-1-C MSD ^5**  
**Matrix: Water**  
**Analysis Batch: 340833**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 340541**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD	Limit
Arsenic	<0.00046		0.0500	0.0535		mg/L		107	75 - 125	0	20	
Barium	0.023		0.0500	0.0778		mg/L		109	75 - 125	0	20	
Beryllium	<0.00034		0.0500	0.0533		mg/L		107	75 - 125	2	20	
Boron	0.060		0.100	0.167		mg/L		107	75 - 125	4	20	
Cadmium	<0.00034		0.0500	0.0530		mg/L		106	75 - 125	1	20	
Calcium	2.2		5.00	7.39		mg/L		105	75 - 125	1	20	
Chromium	0.0011	J	0.0500	0.0541		mg/L		108	75 - 125	0	20	
Cobalt	<0.00040		0.0500	0.0531		mg/L		106	75 - 125	1	20	
Lead	<0.00035		0.0500	0.0533		mg/L		107	75 - 125	1	20	
Antimony	<0.0010		0.0500	0.0536		mg/L		107	75 - 125	3	20	
Molybdenum	<0.00085		0.100	0.105		mg/L		105	75 - 125	0	20	

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# QC Sample Results

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
 SDG: Pond 2 Phase 2

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

Lab Sample ID: 400-133276-D-1-C MSD ^5  
 Matrix: Water  
 Analysis Batch: 340833

Client Sample ID: Matrix Spike Duplicate  
 Prep Type: Total Recoverable  
 Prep Batch: 340541

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	0.00044	J	0.0500	0.0536		mg/L		106	75 - 125	2	20
Lithium	0.0088		0.0500	0.0593		mg/L		101	75 - 125	3	20
Thallium	<0.000085		0.0100	0.0104		mg/L		104	75 - 125	1	20

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

Lab Sample ID: 400-133233-14 DU  
 Matrix: Water  
 Analysis Batch: 340469

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	320		322		mg/L		0	5





Pace Analytical Services, Inc.  
 110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
 (770) 734-4200 : FAX (770) 734-4201 : www.ash-lab.com

**CHAIN OF CUSTODY RECORD**

PAGE: 1 OF 1

<b>CLIENT NAME:</b> Georgia Power <b>CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:</b> 241 Ralph McGill Blvd SE B10185 Atlanta, GA 30308 404-506-7239		<b>REPORT TO:</b> Joju Abraham CC: Matria Pedilla Heath McCordle <b>REQUESTED COMPLETION DATE:</b> PO # laburch@southernco.com		<b>PROJECT NAME/STATE:</b> Plant Arkwright Pond 2 <b>PROJECT #:</b> Phase II CCR & State Dept	
<b>CONTAINER TYPE</b> PRESERVATION: # of	<b>ANALYSIS REQUESTED</b> P P P P 3 3 7 3 Metals App. III & IV (EPA 6020/7470) Metals (see attached) (EPA 6020) Cl, F, SO <sub>4</sub> & TDS (EPA 300.0 & SM 2540C) Radium 226 & 228 (SW-846 9315/9320)	<b>CONTAINERS</b> ↓	<b>CONTAINER TYPE</b> PRESERVATION P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER	<b>PREPARATION</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/TrAC, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> , ≤6°C 7 - ≤6°C not frozen	<b>MATRIX CODES:</b> DW - DRINKING WATER S - SOIL WW - WASTEWATER SL - SLUDGE GW - GROUNDWATER SD - SOLID SW - SURFACE WATER A - AIR ST - STORM WATER L - LIQUID W - WATER P - PRODUCT
<b>REQUISITION</b> DATE/TIME: 1-25-17 / 18:00 RECEIVED BY: Chris Pickett RECEIVED BY LAB: [Signature]	<b>DATE/TIME:</b> 1-25-17 / 18:00	<b>RELINQUISHED BY:</b> [Signature]	<b>DATE/TIME:</b> 1/27/17	<b>LAB #:</b> L60-155235 <b>Entered into LIMS:</b>	<b>REMARKS/ADDITIONAL INFORMATION</b>
<b>RECEIVED BY:</b> [Signature] pH checked: Yes <input type="checkbox"/> No <input type="checkbox"/>	<b>DATE/TIME:</b> 1-25-17 / 18:00 <b>TEMPERATURE:</b> 18.06	<b>REQUISITION</b> DATE/TIME: 1-25-17 / 18:00 RECEIVED BY: Chris Pickett RECEIVED BY LAB: [Signature]	<b>DATE/TIME:</b> 1/27/17	<b>LAB #:</b> L60-155235 <b>Entered into LIMS:</b>	<b>REMARKS/ADDITIONAL INFORMATION</b>

0.013996 E-02

Plant Arkwright - Ash Pond 2 COC.xlsx





## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-133233-3  
SDG Number: Pond 2 Phase 2

**Login Number: 133233**

**List Number: 1**

**Creator: Siddoway, Benjamin**

**List Source: 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	0.0°C, 3.9°C IR-2
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	

# Certification Summary

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-3  
 SDG: Pond 2 Phase 2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-17
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-17
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-17
Georgia	State Program	4	N/A	06-30-17
Illinois	NELAP	5	200041	10-09-17
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-17
Kentucky (UST)	State Program	4	53	06-30-17
Kentucky (WW)	State Program	4	98030	12-31-17
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-17
Louisiana (DW)	NELAP Secondary AB	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-17
Massachusetts	State Program	1	M-FL094	06-30-17
Michigan	State Program	5	9912	05-06-17
New Jersey	NELAP	2	FL006	06-30-17
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-18
Rhode Island	State Program	1	LAO00307	12-30-17
South Carolina	State Program	4	96026	06-30-17
Tennessee	State Program	4	TN02907	06-30-17
Texas	NELAP	6	T104704286-16-10	09-30-17
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-17
Washington	State Program	10	C915	05-15-17
West Virginia DEP	State Program	3	136	06-30-17



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-133233-4

TestAmerica Sample Delivery Group: Pond 2 Phase 2

Client Project/Site: CCR Plant Arkwright

For:

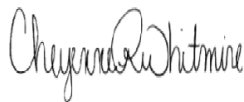
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

3/6/2017 11:17:41 AM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

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*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.*

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# Case Narrative

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

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**Job ID: 400-133233-4**

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**Laboratory: TestAmerica Pensacola**

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**Narrative**

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**Job Narrative  
400-133233-4**

**RAD**

Method(s) PrecSep\_0: Radium-228 Prep Batch 160-291390: The LCS was inadvertently spiked with 0.5mL instead of the usual 1.0mL. The prep batch reflects the actual amount added to the LCS. ARGWA-19 (400-133233-11), ARGWA-20 (400-133233-12), EB-2-1-25-17 (400-133233-13), ARGWC-21 (400-133233-14), FB-2-1-25-17 (400-133233-15) and DUP-2 (400-133233-16)

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# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 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

**Protocol References:**

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





# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-133233-11	ARGWA-19	Water	01/25/17 09:25	01/28/17 08:49
400-133233-12	ARGWA-20	Water	01/25/17 15:20	01/28/17 08:49
400-133233-13	EB-2-1-25-17	Water	01/25/17 15:00	01/28/17 08:49
400-133233-14	ARGWC-21	Water	01/25/17 17:25	01/28/17 08:49
400-133233-15	FB-2-1-25-17	Water	01/25/17 18:00	01/28/17 08:49
400-133233-16	DUP-2	Water	01/25/17 00:00	01/28/17 08:49

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# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-133233-11**

**Date Collected: 01/25/17 09:25**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.181	U	0.137	0.138	1.00	0.193	pCi/L	02/07/17 12:07	03/01/17 06:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.8		40 - 110					02/07/17 12:07	03/01/17 06:43	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.262	U	0.394	0.395	1.00	0.660	pCi/L	02/07/17 14:42	02/27/17 13:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.8		40 - 110					02/07/17 14:42	02/27/17 13:22	1
Y Carrier	81.9		40 - 110					02/07/17 14:42	02/27/17 13:22	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	0.443	U	0.417	0.418	5.00	0.660	pCi/L		03/03/17 08:59	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-133233-12**

**Date Collected: 01/25/17 15:20**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.192	U	0.158	0.159	1.00	0.236	pCi/L	02/07/17 12:07	03/01/17 06:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.4		40 - 110					02/07/17 12:07	03/01/17 06:43	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.185	U	0.287	0.288	1.00	0.483	pCi/L	02/07/17 14:42	02/27/17 10:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.4		40 - 110					02/07/17 14:42	02/27/17 10:29	1
Y Carrier	80.7		40 - 110					02/07/17 14:42	02/27/17 10:29	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	0.377	U	0.328	0.329	5.00	0.483	pCi/L		03/03/17 08:59	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

**Client Sample ID: EB-2-1-25-17**

**Lab Sample ID: 400-133233-13**

**Date Collected: 01/25/17 15:00**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0229	U	0.101	0.101	1.00	0.197	pCi/L	02/07/17 12:07	03/01/17 06:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		40 - 110					02/07/17 12:07	03/01/17 06:43	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0919	U	0.230	0.230	1.00	0.397	pCi/L	02/07/17 14:42	02/27/17 10:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		40 - 110					02/07/17 14:42	02/27/17 10:29	1
Y Carrier	78.1		40 - 110					02/07/17 14:42	02/27/17 10:29	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	0.115	U	0.251	0.251	5.00	0.397	pCi/L		03/03/17 08:59	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-133233-14**

**Date Collected: 01/25/17 17:25**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

### 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	U	0.156	0.157	1.00	0.226	pCi/L	02/07/17 12:07	03/01/17 06:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.8		40 - 110					02/07/17 12:07	03/01/17 06:43	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.340	U	0.256	0.258	1.00	0.402	pCi/L	02/07/17 14:42	02/27/17 10:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.8		40 - 110					02/07/17 14:42	02/27/17 10:29	1
Y Carrier	79.3		40 - 110					02/07/17 14:42	02/27/17 10:29	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	0.549		0.300	0.302	5.00	0.402	pCi/L		03/03/17 08:59	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

**Client Sample ID: FB-2-1-25-17**

**Lab Sample ID: 400-133233-15**

**Date Collected: 01/25/17 18:00**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0879	U	0.106	0.106	1.00	0.173	pCi/L	02/07/17 12:07	03/01/17 06:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		40 - 110					02/07/17 12:07	03/01/17 06:43	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.259	U	0.221	0.222	1.00	0.353	pCi/L	02/07/17 14:42	02/27/17 10:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		40 - 110					02/07/17 14:42	02/27/17 10:29	1
Y Carrier	83.0		40 - 110					02/07/17 14:42	02/27/17 10:29	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	0.347	U	0.245	0.246	5.00	0.353	pCi/L		03/03/17 08:59	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

**Client Sample ID: DUP-2**

**Date Collected: 01/25/17 00:00**

**Date Received: 01/28/17 08:49**

**Lab Sample ID: 400-133233-16**

**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	0.234		0.143	0.144	1.00	0.188	pCi/L	02/07/17 12:07	03/01/17 06:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.0		40 - 110					02/07/17 12:07	03/01/17 06:43	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.305	U	0.211	0.213	1.00	0.326	pCi/L	02/07/17 14:42	02/27/17 10:29	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.0		40 - 110					02/07/17 14:42	02/27/17 10:29	1
Y Carrier	81.1		40 - 110					02/07/17 14:42	02/27/17 10:29	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	0.539		0.255	0.257	5.00	0.326	pCi/L		03/03/17 08:59	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)



# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

**Client Sample ID: ARGWA-19**

**Date Collected: 01/25/17 09:25**

**Date Received: 01/28/17 08:49**

**Lab Sample ID: 400-133233-11**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			291360	02/07/17 12:07	BME	TAL SL
Total/NA	Analysis	9315		1	295282	03/01/17 06:43	ALD	TAL SL
Total/NA	Prep	PrecSep_0			291390	02/07/17 14:42	BME	TAL SL
Total/NA	Analysis	9320		1	294479	02/27/17 13:22	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	295903	03/03/17 08:59	EAW	TAL SL

**Client Sample ID: ARGWA-20**

**Date Collected: 01/25/17 15:20**

**Date Received: 01/28/17 08:49**

**Lab Sample ID: 400-133233-12**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			291360	02/07/17 12:07	BME	TAL SL
Total/NA	Analysis	9315		1	295282	03/01/17 06:43	ALD	TAL SL
Total/NA	Prep	PrecSep_0			291390	02/07/17 14:42	BME	TAL SL
Total/NA	Analysis	9320		1	294473	02/27/17 10:29	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	295903	03/03/17 08:59	EAW	TAL SL

**Client Sample ID: EB-2-1-25-17**

**Date Collected: 01/25/17 15:00**

**Date Received: 01/28/17 08:49**

**Lab Sample ID: 400-133233-13**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			291360	02/07/17 12:07	BME	TAL SL
Total/NA	Analysis	9315		1	295282	03/01/17 06:43	ALD	TAL SL
Total/NA	Prep	PrecSep_0			291390	02/07/17 14:42	BME	TAL SL
Total/NA	Analysis	9320		1	294473	02/27/17 10:29	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	295903	03/03/17 08:59	EAW	TAL SL

**Client Sample ID: ARGWC-21**

**Date Collected: 01/25/17 17:25**

**Date Received: 01/28/17 08:49**

**Lab Sample ID: 400-133233-14**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			291360	02/07/17 12:07	BME	TAL SL
Total/NA	Analysis	9315		1	295282	03/01/17 06:43	ALD	TAL SL
Total/NA	Prep	PrecSep_0			291390	02/07/17 14:42	BME	TAL SL
Total/NA	Analysis	9320		1	294473	02/27/17 10:29	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	295903	03/03/17 08:59	EAW	TAL SL

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

**Client Sample ID: FB-2-1-25-17**

**Lab Sample ID: 400-133233-15**

**Date Collected: 01/25/17 18:00**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			291360	02/07/17 12:07	BME	TAL SL
Total/NA	Analysis	9315		1	295282	03/01/17 06:43	ALD	TAL SL
Total/NA	Prep	PrecSep_0			291390	02/07/17 14:42	BME	TAL SL
Total/NA	Analysis	9320		1	294473	02/27/17 10:29	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	295903	03/03/17 08:59	EAW	TAL SL

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-133233-16**

**Date Collected: 01/25/17 00:00**

**Matrix: Water**

**Date Received: 01/28/17 08:49**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			291360	02/07/17 12:07	BME	TAL SL
Total/NA	Analysis	9315		1	295282	03/01/17 06:43	ALD	TAL SL
Total/NA	Prep	PrecSep_0			291390	02/07/17 14:42	BME	TAL SL
Total/NA	Analysis	9320		1	294473	02/27/17 10:29	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	295903	03/03/17 08:59	EAW	TAL SL

**Laboratory References:**

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

# QC Association Summary

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
 SDG: Pond 2 Phase 2

## Rad

### Prep Batch: 291360

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-11	ARGWA-19	Total/NA	Water	PrecSep-21	
400-133233-12	ARGWA-20	Total/NA	Water	PrecSep-21	
400-133233-13	EB-2-1-25-17	Total/NA	Water	PrecSep-21	
400-133233-14	ARGWC-21	Total/NA	Water	PrecSep-21	
400-133233-15	FB-2-1-25-17	Total/NA	Water	PrecSep-21	
400-133233-16	DUP-2	Total/NA	Water	PrecSep-21	
MB 160-291360/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-291360/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-133233-A-5-A DU	Duplicate	Total/NA	Water	PrecSep-21	

### Prep Batch: 291390

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-133233-11	ARGWA-19	Total/NA	Water	PrecSep_0	
400-133233-12	ARGWA-20	Total/NA	Water	PrecSep_0	
400-133233-13	EB-2-1-25-17	Total/NA	Water	PrecSep_0	
400-133233-14	ARGWC-21	Total/NA	Water	PrecSep_0	
400-133233-15	FB-2-1-25-17	Total/NA	Water	PrecSep_0	
400-133233-16	DUP-2	Total/NA	Water	PrecSep_0	
MB 160-291390/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-291390/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-133233-A-5-B DU	Duplicate	Total/NA	Water	PrecSep_0	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-291360/1-A**  
**Matrix: Water**  
**Analysis Batch: 295282**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 291360**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.003970	U	0.111	0.111	1.00	0.224	pCi/L	02/07/17 12:07	03/01/17 06:40	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		40 - 110					02/07/17 12:07	03/01/17 06:40	1

**Lab Sample ID: LCS 160-291360/2-A**  
**Matrix: Water**  
**Analysis Batch: 295282**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 291360**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	6.01	7.313		0.933	1.00	0.260	pCi/L	122	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	85.8		40 - 110						

**Lab Sample ID: 400-133233-A-5-A DU**  
**Matrix: Water**  
**Analysis Batch: 295282**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 291360**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.205	U	0.1781	U	0.153	1.00	0.225	pCi/L	0.09	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	87.0		40 - 110							

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-291390/1-A**  
**Matrix: Water**  
**Analysis Batch: 294479**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 291390**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1714	U	0.253	0.254	1.00	0.424	pCi/L	02/07/17 14:42	02/27/17 10:25	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		40 - 110					02/07/17 14:42	02/27/17 10:25	1
Y Carrier	80.7		40 - 110					02/07/17 14:42	02/27/17 10:25	1

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-291390/2-A**  
**Matrix: Water**  
**Analysis Batch: 294479**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 291390**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	6.90	6.883		0.864	1.00	0.373	pCi/L	100	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	85.8		40 - 110
Y Carrier	82.2		40 - 110

**Lab Sample ID: 400-133233-A-5-B DU**  
**Matrix: Water**  
**Analysis Batch: 294479**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 291390**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.165	U	0.1328	U	0.224	1.00	0.379	pCi/L	0.07	1

Carrier	DU %Yield	DU Qualifier	Limits
Ba Carrier	87.0		40 - 110
Y Carrier	81.9		40 - 110

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

**Lab Sample ID: 400-133233-A-5 DU**  
**Matrix: Water**  
**Analysis Batch: 295903**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.370		0.3109	U	0.271	5.00	0.379	pCi/L	0.11	



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**CHAIN OF CUSTODY RECORD**

PAGE: 1 OF 1

CLIENT NAME		ANALYSIS REQUESTED		CONTAINER TYPE		PRESERVATION	
Georgia Power		P P P P P P P P		# of		1 - HCl, ≤6°C	
CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:		C O N T A I N E R S		P P P P P P P P		2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C	
241 Ralph McGill Blvd SE B10185		M D D - Y Y		3 3 3 7 3		3 - HNO <sub>3</sub>	
Atlanta, GA 30308		C O N T A I N E R S		3 3 3 3 3 3		4 - NaOH, ≤6°C	
404-506-7239		C O N T A I N E R S		3 3 3 3 3 3		5 - NaOH/ZnAc, ≤6°C	
REPORT TO:		C O N T A I N E R S		3 3 3 3 3 3		6 - Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> , ≤6°C	
Joiu Abraham		C O N T A I N E R S		3 3 3 3 3 3		7 - ≤6°C not frozen	
Heath McCorkle		C O N T A I N E R S		3 3 3 3 3 3			
PO #:		C O N T A I N E R S		3 3 3 3 3 3			
laburch@southernco.com		C O N T A I N E R S		3 3 3 3 3 3			
PROJECT NAME/STATE:		C O N T A I N E R S		3 3 3 3 3 3			
Plant Arkwright Pond 2		C O N T A I N E R S		3 3 3 3 3 3			
PROJECT #:		C O N T A I N E R S		3 3 3 3 3 3			
Phase II CCR & State Dept		C O N T A I N E R S		3 3 3 3 3 3			
Collection DATE	Collection TIME	MATRIX CODE	SAMPLE IDENTIFICATION	REQUISITIONED BY	DATE/TIME	RELINQUISHED BY	DATE/TIME
1-25-17	0925	GW	ARGWA-19		1/25/17 18:06		
1-25-17	1520	GW	ARGWA-20		1/25/17 18:06		
1-25-17	1500	W	EB-2-1-25-17		1/25/17 18:06		
1-25-17	1725	GW	ARGWC-21		1/25/17 18:06		
1-25-17	1800	W	FB-2-1-25-17		1/25/17 18:06		
1-25-17	-	GW	DUP-2		1/25/17 18:06		

SAMPLED BY AND TITLE:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
Chris Pickett ACC	1-25-17 / 18:00		1/27/17
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
Joiu Abraham	1/25/17 18:06		
RECEIVED BY LAB:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
Joiu Abraham	1-25-17 08:11		
PH checked:	Yes/No	Temp. checked:	Yes/No
Yes		Yes	

LAB #	FOR LAB USE ONLY
LAB-155235	
Entered into LIMS	
Tracking #	

010 3996 5020

Plant Arkwright - Ash Pond 2 COC.xlsx





Pace Analytical Services, Inc.  
 110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
 (770) 734-4200 : FAX (770) 734-4201 : www.asi-lab.com

PAGE: 1 OF 1

CHAIN OF CUSTODY RECORD

CONTAINER TYPE	ANALYSIS REQUESTED	CONTAINER TYPE	PRESERVATION
P - PLASTIC		A	1 - HCl, ≤6°C
A - AMBER GLASS		B	2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C
G - CLEAR GLASS			3 - HNO <sub>3</sub>
V - VOA VIAL			4 - NaOH, ≤6°C
S - STERILE			5 - NaOH/ZnAc, ≤6°C
O - OTHER			6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C
			7 - ≤6°C not frozen
			<b>MATRIX CODES:</b>
			DW - DRINKING WATER S - SOIL
			WW - WASTEWATER SL - SLUDGE
			GW - GROUNDWATER SD - SOLID
			SW - SURFACE WATER A - AIR
			ST - STORM WATER L - LIQUID
			W - WATER P - PRODUCT
			REMARKS/ADDITIONAL INFORMATION
			Field Filtered
			Field Filtered

CONTAINER TYPE	ANALYSIS REQUESTED	CONTAINER TYPE	PRESERVATION
P	Metals (see attached)	P	3
P	Metals App. III & IV (EPA 6020/7470)	P	3
P	Cl, F, SO <sub>4</sub> & TDS (EPA 300.0 & SM 2540C)	P	7
P	Radium 226 & 228 (SW-846 9315/9320)	P	3

CLIENT NAME:	CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:	REPORT TO:	CC:	PO #:
Georgia Power	241 Ralph McGill Blvd SE B10185 Atlanta, GA 30308 404-506-7239	Joju Abraham	Maria Padilla Heath McCorle	laburch@southernco.com

PROJECT NAME/STATE:	PROJECT #:
Plant Arkwright Pond 3	Phase II CCR <del>8-22-09</del> 50

Collection DATE	Collection TIME	MATRIX CODE*	C O M P	G O R A B	SAMPLE IDENTIFICATION
1-25-17	1520	GW			ARGWA-20
1-27-17	1530	GW			ARGWC-18

SAMPLED BY AND TITLE:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
Lorris Parker	1-27-17 / 1600	[Signature]	1-27-17 / 1728
[Signature]	1-27-17 / 1806	[Signature]	1-27-17 / 1828

RECEIVED BY:	DATE/TIME:	TEMPERATURE:	INITIALS:
[Signature]	1-27-17 / 0829		

RECEIVED BY:	DATE/TIME:	TEMPERATURE:	INITIALS:
[Signature]	1-27-17 / 0829		

LAB #	FOR LAB USE ONLY
ENTR0010101MS	Tracking #

0.0/3.90 JAW

Plant Arkwright - Ash Pond 3 COC.xlsx





# Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-133233-4  
SDG Number: Pond 2 Phase 2

**Login Number: 133233**

**List Number: 1**

**Creator: Siddoway, Benjamin**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	0.0°C, 3.9°C IR-2
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 <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40150	06-30-17
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-17
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-17
Georgia	State Program	4	N/A	06-30-17
Illinois	NELAP	5	200041	10-09-17
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-17
Kentucky (UST)	State Program	4	53	06-30-17
Kentucky (WW)	State Program	4	98030	12-31-17
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-17
Louisiana (DW)	NELAP Secondary AB	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-17
Massachusetts	State Program	1	M-FL094	06-30-17
Michigan	State Program	5	9912	05-06-17
New Jersey	NELAP	2	FL006	06-30-17
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-18
Rhode Island	State Program	1	LAO00307	12-30-17
South Carolina	State Program	4	96026	06-30-17
Tennessee	State Program	4	TN02907	06-30-17
Texas	NELAP	6	T104704286-16-10	09-30-17
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-17
Washington	State Program	10	C915	05-15-17
West Virginia DEP	State Program	3	136	06-30-17

## Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska	State Program	10	MO00054	06-30-17
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-17 *
Florida	NELAP	4	E87689	06-30-17
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-17
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-17
Missouri	State Program	7	780	06-30-17
Nevada	State Program	9	MO000542017-1	07-31-17
New Jersey	NELAP	2	MO002	06-30-17
New York	NELAP	2	11616	03-31-17 *

\* Certification renewal pending - certification considered valid.

# Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-133233-4  
SDG: Pond 2 Phase 2

## Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Certification ID	Expiration Date
North Dakota	State Program	8	R207	06-30-17
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17
Pennsylvania	NELAP	3	68-00540	02-28-17 *
South Carolina	State Program	4	85002001	06-30-17
Texas	NELAP	6	T104704193-16-10	07-31-17
US Fish & Wildlife	Federal		LE058448-0	10-31-17
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-17
Virginia	NELAP	3	460230	06-14-17
Washington	State Program	10	C592	08-30-17
West Virginia DEP	State Program	3	381	08-31-17 *

\* Certification renewal pending - certification considered valid.

TestAmerica Pensacola

Product Name: Low-Flow System

Date: 2017-01-25 09:23:51

Project Information:

Operator Name Chris Parker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 32° 55' 25.37"  
Longitude -83° -42' -3.1"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .375 in  
Tubing Length 55 ft

Pump placement from TOC 47.7 ft

Well Information:

Well ID ARGWA-19  
Well diameter 2 in  
Well Total Depth 52.74 ft  
Screen Length 10 ft  
Depth to Water 30.28 ft

Pumping Information:

Final Pumping Rate 210 mL/min  
Total System Volume 1.584525 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 2 in  
Total Volume Pumped 6.6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	09:01:40	600.01	17.21	5.89	187.61	1.14	30.40	4.25	106.34
Last 5	09:06:40	900.00	17.37	5.88	186.37	0.99	30.40	4.29	104.60
Last 5	09:11:40	1200.06	17.81	5.91	185.49	0.91	30.40	4.25	102.50
Last 5	09:16:40	1499.99	18.09	5.92	184.80	0.88	30.40	4.28	103.25
Last 5	09:21:40	1800.00	17.99	5.91	184.78	0.82	30.40	4.31	102.33
Variance 0			0.44	0.03	-0.89			-0.04	-2.10
Variance 1			0.29	0.01	-0.69			0.03	0.76
Variance 2			-0.10	-0.01	-0.02			0.03	-0.92

Notes

Collected at 09:25. Sunny 50s. DUP-2 here

Grab Samples

Product Name: Low-Flow System

Date: 2017-01-25 15:24:59

Project Information:

Operator Name Chris Parker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 32° 55' 25.37"  
Longitude -83° -42' -3.1"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .375 in  
Tubing Length 40 ft

Pump placement from TOC 32.7 ft

Well Information:

Well ID ARGWA-20  
Well diameter 2 in  
Well Total Depth 37.70 ft  
Screen Length 10 ft  
Depth to Water 17.53 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 1.258746 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 4 in  
Total Volume Pumped 46 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV	
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0	
Last 5	14:59:54	162	13.78	19.15	5.65	139.76	20.00	17.80	5.81	111.79
Last 5	15:04:54	165	13.77	18.94	5.64	138.87	19.00	17.80	5.76	111.87
Last 5	15:09:54	168	13.77	18.74	5.65	139.07	18.00	17.80	5.75	111.05
Last 5	15:14:54	171	13.76	18.93	5.65	139.37	19.00	17.80	5.76	111.05
Last 5	15:19:54	174	13.76	18.99	5.65	139.28	18.00	17.80	5.75	111.84
Variance 0			-0.19	0.01	0.20				-0.01	-0.82
Variance 1			0.18	0.00	0.30				0.02	0.00
Variance 2			0.06	0.00	-0.09				-0.01	0.79

Notes

Collected at 15:20. Sunny 60. EB-2-1-25-17 here

Grab Samples

Product Name: Low-Flow System

Date: 2017-01-25 17:24:57

Project Information:

Operator Name Chris Parker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 32° 55' 25.37"  
Longitude -83° -42' -3.1"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .375 in  
Tubing Length 30 ft

Pump placement from TOC 22.2 ft

Well Information:

Well ID ARGWC-21  
Well diameter 2 in  
Well Total Depth 27.28 ft  
Screen Length 10 ft  
Depth to Water 13.15 ft

Pumping Information:

Final Pumping Rate 120 mL/min  
Total System Volume 1.041559 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 30 in  
Total Volume Pumped 7.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	17:02:12	2403.99	19.53	6.15	538.65	8.61	15.80	0.65	29.67
Last 5	17:07:13	2704.99	19.37	6.15	539.40	7.16	15.80	0.60	29.65
Last 5	17:12:13	3004.98	19.23	6.15	539.59	5.20	15.70	0.57	29.34
Last 5	17:17:14	3305.98	19.15	6.15	539.94	4.78	15.70	0.54	29.64
Last 5	17:22:14	3605.97	19.13	6.15	540.72	4.36	15.70	0.55	29.73
Variance 0			-0.13	-0.00	0.19			-0.03	-0.30
Variance 1			-0.09	0.00	0.35			-0.02	0.30
Variance 2			-0.02	-0.00	0.78			0.00	0.09

Notes

Collected at 17:25. Sunny 60s. FB-2-1-25-17 here.

Grab Samples

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-136554-1

TestAmerica Sample Delivery Group: Pond 2

Client Project/Site: CCR Plant Arkwright

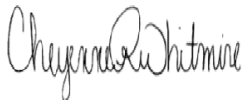
For:

Southern Company

PO BOX 2641 GSC8

Birmingham, Alabama 35291

Attn: Joju Abraham



Authorized for release by:

4/30/2017 1:18:15 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*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.*

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# Case Narrative

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

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**Job ID: 400-136554-1**

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**Laboratory: TestAmerica Pensacola**

---

**Narrative**

---

**Job Narrative  
400-136554-1**

**HPLC/IC**

Method(s) 300.0: The following sample was diluted to bring the concentration of target analytes within the calibration range: ARGWC-21 (400-136554-3). Elevated reporting limits (RLs) are provided.

**Metals**

Method(s) 6020: The reporting limit check (CRI) for analytical batch 351778 contained Lead above the recovery limit. All reported samples were either ND for this analyte; therefore, re-analysis of samples was not performed.

Method(s) 6020: The continuing calibration blank (CCB) for analytical batch 351778 contained Lead above the reporting limit (RL). All reported samples associated with this CCB were ND for this analyte; therefore, re-analysis of samples was not performed.





# Detection Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

## Client Sample ID: ARGWA-19

## Lab Sample ID: 400-136554-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.0		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	7.8		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.039		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.022	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	11		0.25	0.13	mg/L	5		6020	Total Recoverable
Lithium	0.0034	J	0.0050	0.0032	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	130		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: ARGWA-20

## Lab Sample ID: 400-136554-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.9		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	16		1.0	0.70	mg/L	1		300.0	Total/NA
Arsenic	0.00056	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.073		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	8.6		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0047		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0011	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	110		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: ARGWC-21

## Lab Sample ID: 400-136554-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.1		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.11	J	0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate	140		5.0	3.5	mg/L	5		300.0	Total/NA
Arsenic	0.0020		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.11		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.54		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	52		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.0016	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0074		0.0050	0.0032	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	380		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: EB-2-4-10-17

## Lab Sample ID: 400-136554-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00059	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
 SDG: Pond 2

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-136554-5**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.0		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	7.9		1.0	0.70	mg/L	1		300.0	Total/NA
Arsenic	0.00081	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.039		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	11		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0013	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0034	J	0.0050	0.0032	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	130		5.0	3.4	mg/L	1		SM 2540C	Total/NA

**Client Sample ID: FB-2-4-10-17**

**Lab Sample ID: 400-136554-6**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00070	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

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# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

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

#### 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 PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-136554-1	ARGWA-19	Water	04/10/17 16:15	04/13/17 09:01
400-136554-2	ARGWA-20	Water	04/10/17 14:35	04/13/17 09:01
400-136554-3	ARGWC-21	Water	04/10/17 17:25	04/13/17 09:01
400-136554-4	EB-2-4-10-17	Water	04/10/17 14:20	04/13/17 09:01
400-136554-5	DUP-2	Water	04/10/17 00:00	04/13/17 09:01
400-136554-6	FB-2-4-10-17	Water	04/10/17 18:00	04/13/17 09:01

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# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-136554-1**

Date Collected: 04/10/17 16:15

Matrix: Water

Date Received: 04/13/17 09:01

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>8.0</b>		1.0	0.89	mg/L			04/20/17 09:13	1
Fluoride	<0.082		0.20	0.082	mg/L			04/20/17 09:13	1
<b>Sulfate</b>	<b>7.8</b>		1.0	0.70	mg/L			04/20/17 09:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/17 15:16	04/28/17 14:08	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/18/17 15:16	04/28/17 14:08	5
<b>Barium</b>	<b>0.039</b>		0.0025	0.00049	mg/L		04/18/17 15:16	04/28/17 14:08	5
Silver	<0.00011		0.00025	0.00011	mg/L		04/18/17 15:16	04/28/17 14:08	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:08	5
<b>Boron</b>	<b>0.022</b>	<b>J</b>	0.050	0.021	mg/L		04/18/17 15:16	04/28/17 14:08	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:08	5
<b>Calcium</b>	<b>11</b>		0.25	0.13	mg/L		04/18/17 15:16	04/28/17 14:08	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/18/17 15:16	04/28/17 14:08	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/17 15:16	04/28/17 14:08	5
Lead	<0.00035	<sup>^</sup>	0.0013	0.00035	mg/L		04/18/17 15:16	04/28/17 14:08	5
<b>Lithium</b>	<b>0.0034</b>	<b>J</b>	0.0050	0.0032	mg/L		04/18/17 15:16	04/28/17 14:08	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/17 15:16	04/28/17 14:08	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/17 15:16	04/28/17 14:08	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/17 15:16	04/28/17 14:08	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/25/17 12:08	04/26/17 10:22	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>130</b>		5.0	3.4	mg/L			04/15/17 16:01	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-136554-2**

**Date Collected: 04/10/17 14:35**

**Matrix: Water**

**Date Received: 04/13/17 09:01**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>4.9</b>		1.0	0.89	mg/L			04/20/17 09:36	1
Fluoride	<0.082		0.20	0.082	mg/L			04/20/17 09:36	1
<b>Sulfate</b>	<b>16</b>		1.0	0.70	mg/L			04/20/17 09:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/17 15:16	04/28/17 14:13	5
<b>Arsenic</b>	<b>0.00056</b>	<b>J</b>	0.0013	0.00046	mg/L		04/18/17 15:16	04/28/17 14:13	5
<b>Barium</b>	<b>0.073</b>		0.0025	0.00049	mg/L		04/18/17 15:16	04/28/17 14:13	5
Silver	<0.00011		0.00025	0.00011	mg/L		04/18/17 15:16	04/28/17 14:13	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:13	5
Boron	<0.021		0.050	0.021	mg/L		04/18/17 15:16	04/28/17 14:13	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:13	5
<b>Calcium</b>	<b>8.6</b>		0.25	0.13	mg/L		04/18/17 15:16	04/28/17 14:13	5
<b>Chromium</b>	<b>0.0047</b>		0.0025	0.0011	mg/L		04/18/17 15:16	04/28/17 14:13	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/17 15:16	04/28/17 14:13	5
Lead	<0.00035	<sup>^</sup>	0.0013	0.00035	mg/L		04/18/17 15:16	04/28/17 14:13	5
Lithium	<0.0032		0.0050	0.0032	mg/L		04/18/17 15:16	04/28/17 14:13	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/17 15:16	04/28/17 14:13	5
<b>Selenium</b>	<b>0.0011</b>	<b>J</b>	0.0013	0.00024	mg/L		04/18/17 15:16	04/28/17 14:13	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/17 15:16	04/28/17 14:13	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/25/17 12:11	04/26/17 10:24	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>110</b>		5.0	3.4	mg/L			04/15/17 16:01	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-136554-3**

Date Collected: 04/10/17 17:25

Matrix: Water

Date Received: 04/13/17 09:01

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.1		1.0	0.89	mg/L			04/20/17 10:44	1
Fluoride	0.11	J	0.20	0.082	mg/L			04/20/17 10:44	1
Sulfate	140		5.0	3.5	mg/L			04/20/17 22:49	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/17 15:16	04/28/17 14:17	5
Arsenic	0.0020		0.0013	0.00046	mg/L		04/18/17 15:16	04/28/17 14:17	5
Barium	0.11		0.0025	0.00049	mg/L		04/18/17 15:16	04/28/17 14:17	5
Silver	<0.00011		0.00025	0.00011	mg/L		04/18/17 15:16	04/28/17 14:17	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:17	5
Boron	0.54		0.050	0.021	mg/L		04/18/17 15:16	04/28/17 14:17	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:17	5
Calcium	52		0.25	0.13	mg/L		04/18/17 15:16	04/28/17 14:17	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/18/17 15:16	04/28/17 14:17	5
Cobalt	0.0016	J	0.0025	0.00040	mg/L		04/18/17 15:16	04/28/17 14:17	5
Lead	<0.00035	^	0.0013	0.00035	mg/L		04/18/17 15:16	04/28/17 14:17	5
Lithium	0.0074		0.0050	0.0032	mg/L		04/18/17 15:16	04/28/17 14:17	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/17 15:16	04/28/17 14:17	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/17 15:16	04/28/17 14:17	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/17 15:16	04/28/17 14:17	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/25/17 12:11	04/26/17 10:25	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	380		5.0	3.4	mg/L			04/15/17 16:01	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

**Client Sample ID: EB-2-4-10-17**

**Lab Sample ID: 400-136554-4**

**Date Collected: 04/10/17 14:20**

**Matrix: Water**

**Date Received: 04/13/17 09:01**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			04/20/17 11:07	1
Fluoride	<0.082		0.20	0.082	mg/L			04/20/17 11:07	1
Sulfate	<0.70		1.0	0.70	mg/L			04/20/17 11:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/17 15:16	04/28/17 14:22	5
<b>Arsenic</b>	<b>0.00059</b>	<b>J</b>	0.0013	0.00046	mg/L		04/18/17 15:16	04/28/17 14:22	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/18/17 15:16	04/28/17 14:22	5
Silver	<0.00011		0.00025	0.00011	mg/L		04/18/17 15:16	04/28/17 14:22	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:22	5
Boron	<0.021		0.050	0.021	mg/L		04/18/17 15:16	04/28/17 14:22	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:22	5
Calcium	<0.13		0.25	0.13	mg/L		04/18/17 15:16	04/28/17 14:22	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/18/17 15:16	04/28/17 14:22	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/17 15:16	04/28/17 14:22	5
Lead	<0.00035	^	0.0013	0.00035	mg/L		04/18/17 15:16	04/28/17 14:22	5
Lithium	<0.0032		0.0050	0.0032	mg/L		04/18/17 15:16	04/28/17 14:22	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/17 15:16	04/28/17 14:22	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/17 15:16	04/28/17 14:22	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/17 15:16	04/28/17 14:22	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/25/17 12:11	04/26/17 10:36	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			04/15/17 16:01	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

**Client Sample ID: DUP-2**

**Date Collected: 04/10/17 00:00**

**Date Received: 04/13/17 09:01**

**Lab Sample ID: 400-136554-5**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>8.0</b>		1.0	0.89	mg/L			04/20/17 23:57	1
Fluoride	<0.082		0.20	0.082	mg/L			04/20/17 23:57	1
<b>Sulfate</b>	<b>7.9</b>		1.0	0.70	mg/L			04/20/17 23:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/17 15:16	04/28/17 14:26	5
<b>Arsenic</b>	<b>0.00081</b>	<b>J</b>	0.0013	0.00046	mg/L		04/18/17 15:16	04/28/17 14:26	5
<b>Barium</b>	<b>0.039</b>		0.0025	0.00049	mg/L		04/18/17 15:16	04/28/17 14:26	5
Silver	<0.00011		0.00025	0.00011	mg/L		04/18/17 15:16	04/28/17 14:26	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:26	5
Boron	<0.021		0.050	0.021	mg/L		04/18/17 15:16	04/28/17 14:26	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:26	5
<b>Calcium</b>	<b>11</b>		0.25	0.13	mg/L		04/18/17 15:16	04/28/17 14:26	5
<b>Chromium</b>	<b>0.0013</b>	<b>J</b>	0.0025	0.0011	mg/L		04/18/17 15:16	04/28/17 14:26	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/17 15:16	04/28/17 14:26	5
Lead	<0.00035	<b>^</b>	0.0013	0.00035	mg/L		04/18/17 15:16	04/28/17 14:26	5
<b>Lithium</b>	<b>0.0034</b>	<b>J</b>	0.0050	0.0032	mg/L		04/18/17 15:16	04/28/17 14:26	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/17 15:16	04/28/17 14:26	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/17 15:16	04/28/17 14:26	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/17 15:16	04/28/17 14:26	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/25/17 12:11	04/26/17 10:38	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>130</b>		5.0	3.4	mg/L			04/15/17 16:01	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

**Client Sample ID: FB-2-4-10-17**

**Lab Sample ID: 400-136554-6**

**Date Collected: 04/10/17 18:00**

**Matrix: Water**

**Date Received: 04/13/17 09:01**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			04/21/17 00:20	1
Fluoride	<0.082		0.20	0.082	mg/L			04/21/17 00:20	1
Sulfate	<0.70		1.0	0.70	mg/L			04/21/17 00:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/17 15:16	04/28/17 14:30	5
<b>Arsenic</b>	<b>0.00070</b>	<b>J</b>	0.0013	0.00046	mg/L		04/18/17 15:16	04/28/17 14:30	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/18/17 15:16	04/28/17 14:30	5
Silver	<0.00011		0.00025	0.00011	mg/L		04/18/17 15:16	04/28/17 14:30	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:30	5
Boron	<0.021		0.050	0.021	mg/L		04/18/17 15:16	04/28/17 14:30	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 14:30	5
Calcium	<0.13		0.25	0.13	mg/L		04/18/17 15:16	04/28/17 14:30	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/18/17 15:16	04/28/17 14:30	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/17 15:16	04/28/17 14:30	5
Lead	<0.00035	^	0.0013	0.00035	mg/L		04/18/17 15:16	04/28/17 14:30	5
Lithium	<0.0032		0.0050	0.0032	mg/L		04/18/17 15:16	04/28/17 14:30	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/17 15:16	04/28/17 14:30	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/17 15:16	04/28/17 14:30	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/17 15:16	04/28/17 14:30	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/25/17 12:11	04/26/17 10:40	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			04/15/17 16:01	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

## Qualifiers

### HPLC/IC

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.
E	Result exceeded calibration range.
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
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC 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.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

**Client Sample ID: ARGWA-19**

**Date Collected: 04/10/17 16:15**

**Date Received: 04/13/17 09:01**

**Lab Sample ID: 400-136554-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	350529	04/20/17 09:13	KH1	TAL PEN
Total Recoverable	Prep	3005A			350289	04/18/17 15:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	351778	04/28/17 14:08	DRE	TAL PEN
Total/NA	Prep	7470A			351171	04/25/17 12:08	JAP	TAL PEN
Total/NA	Analysis	7470A		1	351428	04/26/17 10:22	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	349918	04/15/17 16:01	TET	TAL PEN

**Client Sample ID: ARGWA-20**

**Date Collected: 04/10/17 14:35**

**Date Received: 04/13/17 09:01**

**Lab Sample ID: 400-136554-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	350529	04/20/17 09:36	KH1	TAL PEN
Total Recoverable	Prep	3005A			350289	04/18/17 15:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	351778	04/28/17 14:13	DRE	TAL PEN
Total/NA	Prep	7470A			351171	04/25/17 12:11	JAP	TAL PEN
Total/NA	Analysis	7470A		1	351428	04/26/17 10:24	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	349918	04/15/17 16:01	TET	TAL PEN

**Client Sample ID: ARGWC-21**

**Date Collected: 04/10/17 17:25**

**Date Received: 04/13/17 09:01**

**Lab Sample ID: 400-136554-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	350529	04/20/17 10:44	KH1	TAL PEN
Total/NA	Analysis	300.0		5	350605	04/20/17 22:49	KH1	TAL PEN
Total Recoverable	Prep	3005A			350289	04/18/17 15:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	351778	04/28/17 14:17	DRE	TAL PEN
Total/NA	Prep	7470A			351171	04/25/17 12:11	JAP	TAL PEN
Total/NA	Analysis	7470A		1	351428	04/26/17 10:25	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	349918	04/15/17 16:01	TET	TAL PEN

**Client Sample ID: EB-2-4-10-17**

**Date Collected: 04/10/17 14:20**

**Date Received: 04/13/17 09:01**

**Lab Sample ID: 400-136554-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	350529	04/20/17 11:07	KH1	TAL PEN
Total Recoverable	Prep	3005A			350289	04/18/17 15:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	351778	04/28/17 14:22	DRE	TAL PEN
Total/NA	Prep	7470A			351171	04/25/17 12:11	JAP	TAL PEN
Total/NA	Analysis	7470A		1	351428	04/26/17 10:36	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

**Client Sample ID: EB-2-4-10-17**

**Lab Sample ID: 400-136554-4**

**Date Collected: 04/10/17 14:20**

**Matrix: Water**

**Date Received: 04/13/17 09:01**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	349918	04/15/17 16:01	TET	TAL PEN

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-136554-5**

**Date Collected: 04/10/17 00:00**

**Matrix: Water**

**Date Received: 04/13/17 09:01**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	350605	04/20/17 23:57	KH1	TAL PEN
Total Recoverable	Prep	3005A			350289	04/18/17 15:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	351778	04/28/17 14:26	DRE	TAL PEN
Total/NA	Prep	7470A			351171	04/25/17 12:11	JAP	TAL PEN
Total/NA	Analysis	7470A		1	351428	04/26/17 10:38	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	349918	04/15/17 16:01	TET	TAL PEN

**Client Sample ID: FB-2-4-10-17**

**Lab Sample ID: 400-136554-6**

**Date Collected: 04/10/17 18:00**

**Matrix: Water**

**Date Received: 04/13/17 09:01**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	350605	04/21/17 00:20	KH1	TAL PEN
Total Recoverable	Prep	3005A			350289	04/18/17 15:16	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	351778	04/28/17 14:30	DRE	TAL PEN
Total/NA	Prep	7470A			351171	04/25/17 12:11	JAP	TAL PEN
Total/NA	Analysis	7470A		1	351428	04/26/17 10:40	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	349918	04/15/17 16:01	TET	TAL PEN

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

## HPLC/IC

### Analysis Batch: 350529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136554-1	ARGWA-19	Total/NA	Water	300.0	
400-136554-2	ARGWA-20	Total/NA	Water	300.0	
400-136554-3	ARGWC-21	Total/NA	Water	300.0	
400-136554-4	EB-2-4-10-17	Total/NA	Water	300.0	
MB 400-350529/34	Method Blank	Total/NA	Water	300.0	
LCS 400-350529/35	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-350529/36	Lab Control Sample Dup	Total/NA	Water	300.0	
400-136455-A-29 MS	Matrix Spike	Total/NA	Water	300.0	
400-136455-A-29 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 350605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136554-3	ARGWC-21	Total/NA	Water	300.0	
400-136554-5	DUP-2	Total/NA	Water	300.0	
400-136554-6	FB-2-4-10-17	Total/NA	Water	300.0	
MB 400-350605/4	Method Blank	Total/NA	Water	300.0	
LCS 400-350605/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-350605/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-136455-A-10 MS	Matrix Spike	Total/NA	Water	300.0	
400-136455-A-10 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 350289

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136554-1	ARGWA-19	Total Recoverable	Water	3005A	
400-136554-2	ARGWA-20	Total Recoverable	Water	3005A	
400-136554-3	ARGWC-21	Total Recoverable	Water	3005A	
400-136554-4	EB-2-4-10-17	Total Recoverable	Water	3005A	
400-136554-5	DUP-2	Total Recoverable	Water	3005A	
400-136554-6	FB-2-4-10-17	Total Recoverable	Water	3005A	
MB 400-350289/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-350289/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-136546-B-5-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-136546-B-5-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Prep Batch: 351171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136554-1	ARGWA-19	Total/NA	Water	7470A	
400-136554-2	ARGWA-20	Total/NA	Water	7470A	
400-136554-3	ARGWC-21	Total/NA	Water	7470A	
400-136554-4	EB-2-4-10-17	Total/NA	Water	7470A	
400-136554-5	DUP-2	Total/NA	Water	7470A	
400-136554-6	FB-2-4-10-17	Total/NA	Water	7470A	
MB 400-351171/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-351171/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-136743-I-1-C MS	Matrix Spike	Total/NA	Water	7470A	
400-136743-I-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

## Metals (Continued)

### Analysis Batch: 351428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136554-1	ARGWA-19	Total/NA	Water	7470A	351171
400-136554-2	ARGWA-20	Total/NA	Water	7470A	351171
400-136554-3	ARGWC-21	Total/NA	Water	7470A	351171
400-136554-4	EB-2-4-10-17	Total/NA	Water	7470A	351171
400-136554-5	DUP-2	Total/NA	Water	7470A	351171
400-136554-6	FB-2-4-10-17	Total/NA	Water	7470A	351171
MB 400-351171/14-A	Method Blank	Total/NA	Water	7470A	351171
LCS 400-351171/15-A	Lab Control Sample	Total/NA	Water	7470A	351171
400-136743-I-1-C MS	Matrix Spike	Total/NA	Water	7470A	351171
400-136743-I-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	351171

### Analysis Batch: 351778

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136554-1	ARGWA-19	Total Recoverable	Water	6020	350289
400-136554-2	ARGWA-20	Total Recoverable	Water	6020	350289
400-136554-3	ARGWC-21	Total Recoverable	Water	6020	350289
400-136554-4	EB-2-4-10-17	Total Recoverable	Water	6020	350289
400-136554-5	DUP-2	Total Recoverable	Water	6020	350289
400-136554-6	FB-2-4-10-17	Total Recoverable	Water	6020	350289
MB 400-350289/1-A ^5	Method Blank	Total Recoverable	Water	6020	350289
LCS 400-350289/2-A	Lab Control Sample	Total Recoverable	Water	6020	350289
400-136546-B-5-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	350289
400-136546-B-5-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	350289

## General Chemistry

### Analysis Batch: 349918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136554-1	ARGWA-19	Total/NA	Water	SM 2540C	
400-136554-2	ARGWA-20	Total/NA	Water	SM 2540C	
400-136554-3	ARGWC-21	Total/NA	Water	SM 2540C	
400-136554-4	EB-2-4-10-17	Total/NA	Water	SM 2540C	
400-136554-5	DUP-2	Total/NA	Water	SM 2540C	
400-136554-6	FB-2-4-10-17	Total/NA	Water	SM 2540C	
MB 400-349918/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-349918/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-136554-1 DU	ARGWA-19	Total/NA	Water	SM 2540C	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 400-350529/34**  
**Matrix: Water**  
**Analysis Batch: 350529**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			04/19/17 23:19	1
Fluoride	<0.082		0.20	0.082	mg/L			04/19/17 23:19	1
Sulfate	<0.70		1.0	0.70	mg/L			04/19/17 23:19	1

**Lab Sample ID: LCS 400-350529/35**  
**Matrix: Water**  
**Analysis Batch: 350529**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.88		mg/L		99	90 - 110
Fluoride	10.0	10.2		mg/L		102	90 - 110
Sulfate	10.0	9.38		mg/L		94	90 - 110

**Lab Sample ID: LCSD 400-350529/36**  
**Matrix: Water**  
**Analysis Batch: 350529**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.87		mg/L		99	90 - 110	0	15
Fluoride	10.0	10.2		mg/L		102	90 - 110	0	15
Sulfate	10.0	9.33		mg/L		93	90 - 110	1	15

**Lab Sample ID: 400-136455-A-29 MS**  
**Matrix: Water**  
**Analysis Batch: 350529**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10		10.0	19.3		mg/L		91	80 - 120
Fluoride	0.20		10.0	10.3		mg/L		101	80 - 120
Sulfate	200	E	10.0	213	E 4	mg/L		98	80 - 120

**Lab Sample ID: 400-136455-A-29 MSD**  
**Matrix: Water**  
**Analysis Batch: 350529**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10		10.0	19.4		mg/L		92	80 - 120	0	20
Fluoride	0.20		10.0	10.4		mg/L		102	80 - 120	0	20
Sulfate	200	E	10.0	216	E 4	mg/L		127	80 - 120	1	20

**Lab Sample ID: MB 400-350605/4**  
**Matrix: Water**  
**Analysis Batch: 350605**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			04/20/17 12:15	1
Fluoride	<0.082		0.20	0.082	mg/L			04/20/17 12:15	1
Sulfate	<0.70		1.0	0.70	mg/L			04/20/17 12:15	1

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# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 400-350605/5**  
**Matrix: Water**  
**Analysis Batch: 350605**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.87		mg/L		99	90 - 110
Fluoride	10.0	10.1		mg/L		101	90 - 110
Sulfate	10.0	9.34		mg/L		93	90 - 110

**Lab Sample ID: LCSD 400-350605/6**  
**Matrix: Water**  
**Analysis Batch: 350605**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.88		mg/L		99	90 - 110	0	15
Fluoride	10.0	10.1		mg/L		101	90 - 110	0	15
Sulfate	10.0	9.34		mg/L		93	90 - 110	0	15

**Lab Sample ID: 400-136455-A-10 MS**  
**Matrix: Water**  
**Analysis Batch: 350605**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.5		50.0	51.4		mg/L		92	80 - 120
Fluoride	<0.41		50.0	49.6		mg/L		99	80 - 120
Sulfate	70		50.0	117		mg/L		94	80 - 120

**Lab Sample ID: 400-136455-A-10 MSD**  
**Matrix: Water**  
**Analysis Batch: 350605**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	5.5		50.0	51.7		mg/L		92	80 - 120	1	20
Fluoride	<0.41		50.0	49.9		mg/L		100	80 - 120	1	20
Sulfate	70		50.0	118		mg/L		96	80 - 120	1	20

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 400-350289/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 351778**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 350289**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/17 15:16	04/28/17 13:14	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/18/17 15:16	04/28/17 13:14	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/18/17 15:16	04/28/17 13:14	5
Silver	<0.00011		0.00025	0.00011	mg/L		04/18/17 15:16	04/28/17 13:14	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 13:14	5
Boron	<0.021		0.050	0.021	mg/L		04/18/17 15:16	04/28/17 13:14	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/17 15:16	04/28/17 13:14	5
Calcium	<0.13		0.25	0.13	mg/L		04/18/17 15:16	04/28/17 13:14	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/18/17 15:16	04/28/17 13:14	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/17 15:16	04/28/17 13:14	5
Lead	<0.00035	^	0.0013	0.00035	mg/L		04/18/17 15:16	04/28/17 13:14	5

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

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

**Lab Sample ID: MB 400-350289/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 351778**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 350289**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0032		0.0050	0.0032	mg/L		04/18/17 15:16	04/28/17 13:14	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/17 15:16	04/28/17 13:14	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/17 15:16	04/28/17 13:14	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/17 15:16	04/28/17 13:14	5

**Lab Sample ID: LCS 400-350289/2-A**  
**Matrix: Water**  
**Analysis Batch: 351778**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 350289**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0511		mg/L		102	80 - 120
Arsenic	0.0500	0.0491		mg/L		98	80 - 120
Barium	0.0500	0.0482		mg/L		96	80 - 120
Silver	0.0500	0.0484		mg/L		97	80 - 120
Beryllium	0.0500	0.0494		mg/L		99	80 - 120
Boron	0.100	0.100		mg/L		100	80 - 120
Cadmium	0.0500	0.0485		mg/L		97	80 - 120
Calcium	5.00	4.60		mg/L		92	80 - 120
Chromium	0.0500	0.0482		mg/L		96	80 - 120
Cobalt	0.0500	0.0501		mg/L		100	80 - 120
Lead	0.0500	0.0488	^	mg/L		98	80 - 120
Lithium	0.0500	0.0508		mg/L		102	80 - 120
Molybdenum	0.100	0.0975		mg/L		97	80 - 120
Selenium	0.0500	0.0478		mg/L		96	80 - 120
Thallium	0.0100	0.00952		mg/L		95	80 - 120

**Lab Sample ID: 400-136546-B-5-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 351778**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 350289**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0010		0.0500	0.0528		mg/L		106	75 - 125
Arsenic	<0.00046		0.0500	0.0501		mg/L		100	75 - 125
Barium	<0.00049		0.0500	0.0486		mg/L		97	75 - 125
Silver	<0.00011		0.0500	0.0490		mg/L		98	75 - 125
Beryllium	<0.00034		0.0500	0.0493		mg/L		99	75 - 125
Boron	<0.021		0.100	0.0966		mg/L		97	75 - 125
Cadmium	<0.00034		0.0500	0.0481		mg/L		96	75 - 125
Calcium	<0.13		5.00	4.80		mg/L		96	75 - 125
Chromium	<0.0011		0.0500	0.0495		mg/L		99	75 - 125
Cobalt	<0.00040		0.0500	0.0508		mg/L		102	75 - 125
Lead	<0.00035	^	0.0500	0.0472	^	mg/L		94	75 - 125
Lithium	<0.0032		0.0500	0.0433		mg/L		87	75 - 125
Molybdenum	0.0035	J	0.100	0.101		mg/L		98	75 - 125
Selenium	0.0018		0.0500	0.0505		mg/L		97	75 - 125
Thallium	<0.000085		0.0100	0.00938		mg/L		94	75 - 125

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

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

**Lab Sample ID: 400-136546-B-5-C MSD ^5**  
**Matrix: Water**  
**Analysis Batch: 351778**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 350289**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.0010		0.0500	0.0528		mg/L		106	75 - 125	0	20
Arsenic	<0.00046		0.0500	0.0500		mg/L		100	75 - 125	0	20
Barium	<0.00049		0.0500	0.0509		mg/L		102	75 - 125	5	20
Silver	<0.00011		0.0500	0.0501		mg/L		100	75 - 125	2	20
Beryllium	<0.00034		0.0500	0.0493		mg/L		99	75 - 125	0	20
Boron	<0.021		0.100	0.0969		mg/L		97	75 - 125	0	20
Cadmium	<0.00034		0.0500	0.0487		mg/L		97	75 - 125	1	20
Calcium	<0.13		5.00	4.81		mg/L		96	75 - 125	0	20
Chromium	<0.0011		0.0500	0.0500		mg/L		100	75 - 125	1	20
Cobalt	<0.00040		0.0500	0.0504		mg/L		101	75 - 125	1	20
Lead	<0.00035	^	0.0500	0.0483	^	mg/L		97	75 - 125	2	20
Lithium	<0.0032		0.0500	0.0429		mg/L		86	75 - 125	1	20
Molybdenum	0.0035	J	0.100	0.101		mg/L		98	75 - 125	0	20
Selenium	0.0018		0.0500	0.0495		mg/L		95	75 - 125	2	20
Thallium	<0.000085		0.0100	0.00957		mg/L		96	75 - 125	2	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 400-351171/14-A**  
**Matrix: Water**  
**Analysis Batch: 351428**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 351171**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/25/17 10:30	04/26/17 09:35	1

**Lab Sample ID: LCS 400-351171/15-A**  
**Matrix: Water**  
**Analysis Batch: 351428**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 351171**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00101	0.000952		mg/L		94	80 - 120

**Lab Sample ID: 400-136743-I-1-C MS**  
**Matrix: Water**  
**Analysis Batch: 351428**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 351171**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	<0.000070		0.00201	0.00186		mg/L		92	80 - 120

**Lab Sample ID: 400-136743-I-1-D MSD**  
**Matrix: Water**  
**Analysis Batch: 351428**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 351171**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	<0.000070		0.00201	0.00189		mg/L		94	80 - 120	2	20

# QC Sample Results

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
 SDG: Pond 2

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

**Lab Sample ID: MB 400-349918/1**  
**Matrix: Water**  
**Analysis Batch: 349918**

**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	<3.4		5.0	3.4	mg/L			04/15/17 16:01	1

**Lab Sample ID: LCS 400-349918/2**  
**Matrix: Water**  
**Analysis Batch: 349918**

**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	293	274		mg/L		94	78 - 122

**Lab Sample ID: 400-136554-1 DU**  
**Matrix: Water**  
**Analysis Batch: 349918**

**Client Sample ID: ARGWA-19**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	130		126		mg/L		0	5

TestAmerica Pensacola  
3355 McLemore Drive  
Pensacola, FL 32514  
Phone (850) 474-1001 Fax (850) 478-2671

Chain of Custody Record

TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING

<b>Client Information</b>		Lab P.M.: Whitmire, Cheyenne R	Carrier Tracking No(s): TA - ATC	COC No: 400-64280-24993.1
Client Contact: Joju Abraham		E-Mail: cheyenne.whitmire@testamericainc.com	pick-up	Page: 4 of 9
Company: Southern Company		Phone: (770) 594-5998		Job #: 400-136554
Address: 241 Ralph McGill Blvd SE B10185		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 Other:	
City: Atlanta		TAT Requested (days):	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: GA, 30308		PO #: SCS10347656	Total Number of Containers: 3	
Phone:		WO #:	Special Instructions/Note:	
Email: JAbraham@southernco.com		Project #: 40007041		
CCR- Plant: Arkwright + State D+O		SSOW#:		
Site: Pond Z				
<b>Sample Identification</b>		<b>Field Filtered Sample (Yes or No)</b>	<b>D</b>	<b>N</b>
Sample ID:	Sample Date:	Sample Time:	Matrix (W=water, S=solid, O=waste/oil, BT=tissue, AS=air)	
ARGWA-19	4/10/17	1615	Water	
ARGWA-20	4/10/17	1435	Water	
ARGWC-21	4/10/17	1725	Water	
EB-2-4-10-17	4/10/17	1420	Water	
DUP-2	4/10/17		Water	
FB-2-4-10-17	4/10/17	1800	Water	
			Water	
			Water	
			Water	
			Water	
			Water	

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

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

Empty Kit Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_

Relinquished by: [Signature] Date: 4-12-17 0815  
Relinquished by: [Signature] Date: 4/10/17 1615  
Relinquished by: [Signature] Date: 4/10/17 0911

Company: ACC  
Company: JJA  
Company: JJA

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

Special Instructions/QC Requirements:

Method of Shipment: \_\_\_\_\_

Received by: [Signature] Date: 4/12/17 0815  
Received by: [Signature] Date: 4-11-17 0911  
Received by: [Signature] Date: 4-11-17 0911

Company: JJA  
Company: JJA  
Company: JJA

Cooler Temperature(s) and Other Remarks: 2.8 2.0°C 30.0

Custody Seal No.:  
△ Yes △ No

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-136554-1

SDG Number: Pond 2

**Login Number: 136554**

**List Number: 1**

**Creator: Siddoway, Benjamin**

**List Source: 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	2.8°C, 2.0°C IR-2
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	

# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-1  
SDG: Pond 2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-17
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-17
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-17
Georgia	State Program	4	N/A	06-30-17
Illinois	NELAP	5	200041	10-09-17
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-17
Kentucky (UST)	State Program	4	53	06-30-17
Kentucky (WW)	State Program	4	98030	12-31-17
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-17
Louisiana (DW)	NELAP Secondary AB	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-17
Massachusetts	State Program	1	M-FL094	06-30-17
Michigan	State Program	5	9912	05-06-17
New Jersey	NELAP	2	FL006	06-30-17
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-18
Rhode Island	State Program	1	LAO00307	12-30-17
South Carolina	State Program	4	96026	06-30-17
Tennessee	State Program	4	TN02907	06-30-17
Texas	NELAP	6	T104704286-16-10	09-30-17
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-17
Washington	State Program	10	C915	05-15-17
West Virginia DEP	State Program	3	136	06-30-17



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-136554-2

TestAmerica Sample Delivery Group: Pond 2

Client Project/Site: CCR Plant Arkwright


For:

Southern Company

PO BOX 2641 GSC8

Birmingham, Alabama 35291

Attn: Joju Abraham



Authorized for release by:

5/15/2017 4:47:36 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*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.*

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# Case Narrative

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

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**Job ID: 400-136554-2**

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**Laboratory: TestAmerica Pensacola**

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**Narrative**

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**Job Narrative  
400-136554-2**

**RAD**

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-304385. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 160-304385. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-304378. Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 160-304378. A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: 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

**Protocol References:**

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



# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-136554-1	ARGWA-19	Water	04/10/17 16:15	04/13/17 09:01
400-136554-2	ARGWA-20	Water	04/10/17 14:35	04/13/17 09:01
400-136554-3	ARGWC-21	Water	04/10/17 17:25	04/13/17 09:01
400-136554-4	EB-2-4-10-17	Water	04/10/17 14:20	04/13/17 09:01
400-136554-5	DUP-2	Water	04/10/17 00:00	04/13/17 09:01
400-136554-6	FB-2-4-10-17	Water	04/10/17 18:00	04/13/17 09:01

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# Client Sample Results

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
 SDG: Pond 2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-136554-1**

Date Collected: 04/10/17 16:15

Matrix: Water

Date Received: 04/13/17 09:01

**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		0.124	0.126	1.00	0.162	pCi/L	04/20/17 08:19	05/12/17 08:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.5		40 - 110					04/20/17 08:19	05/12/17 08:13	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.279	U	0.254	0.255	1.00	0.409	pCi/L	04/20/17 08:45	05/08/17 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.5		40 - 110					04/20/17 08:45	05/08/17 10:51	1
Y Carrier	86.0		40 - 110					04/20/17 08:45	05/08/17 10:51	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	0.483		0.283	0.285	5.00	0.409	pCi/L		05/12/17 15:24	1

# Client Sample Results

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
 SDG: Pond 2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-136554-2**

Date Collected: 04/10/17 14:35

Matrix: Water

Date Received: 04/13/17 09:01

**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		0.123	0.125	1.00	0.161	pCi/L	04/20/17 08:19	05/12/17 08:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					04/20/17 08:19	05/12/17 08:13	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0803	U	0.222	0.223	1.00	0.409	pCi/L	04/20/17 08:45	05/08/17 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					04/20/17 08:45	05/08/17 10:51	1
Y Carrier	85.2		40 - 110					04/20/17 08:45	05/08/17 10:51	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	0.132	U	0.254	0.255	5.00	0.409	pCi/L		05/12/17 15:24	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-136554-3**

Date Collected: 04/10/17 17:25

Matrix: Water

Date Received: 04/13/17 09:01

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.162		0.0991	0.100	1.00	0.125	pCi/L	04/20/17 08:19	05/12/17 08:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					04/20/17 08:19	05/12/17 08:13	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.394		0.220	0.223	1.00	0.330	pCi/L	04/20/17 08:45	05/08/17 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					04/20/17 08:45	05/08/17 10:51	1
Y Carrier	86.7		40 - 110					04/20/17 08:45	05/08/17 10:51	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	0.556		0.242	0.245	5.00	0.330	pCi/L		05/12/17 15:24	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

**Client Sample ID: EB-2-4-10-17**

**Lab Sample ID: 400-136554-4**

Date Collected: 04/10/17 14:20

Matrix: Water

Date Received: 04/13/17 09:01

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0196	U	0.0851	0.0851	1.00	0.164	pCi/L	04/20/17 08:19	05/12/17 08:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					04/20/17 08:19	05/12/17 08:13	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.370	U	0.250	0.253	1.00	0.387	pCi/L	04/20/17 08:45	05/08/17 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					04/20/17 08:45	05/08/17 10:51	1
Y Carrier	77.8		40 - 110					04/20/17 08:45	05/08/17 10:51	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	0.390		0.265	0.267	5.00	0.387	pCi/L		05/12/17 15:24	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-136554-5**

Date Collected: 04/10/17 00:00

Matrix: Water

Date Received: 04/13/17 09:01

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.304		0.132	0.135	1.00	0.138	pCi/L	04/20/17 08:19	05/12/17 08:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.7		40 - 110					04/20/17 08:19	05/12/17 08:13	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.228	U	0.230	0.231	1.00	0.374	pCi/L	04/20/17 08:45	05/08/17 10:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.7		40 - 110					04/20/17 08:45	05/08/17 10:51	1
Y Carrier	85.2		40 - 110					04/20/17 08:45	05/08/17 10:51	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	0.532		0.265	0.267	5.00	0.374	pCi/L		05/12/17 15:24	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

**Client Sample ID: FB-2-4-10-17**

**Lab Sample ID: 400-136554-6**

Date Collected: 04/10/17 18:00

Matrix: Water

Date Received: 04/13/17 09:01

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0521	U	0.0758	0.0759	1.00	0.130	pCi/L	04/20/17 08:19	05/12/17 08:13	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	96.5		40 - 110					04/20/17 08:19	05/12/17 08:13	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.220	U	0.201	0.202	1.00	0.323	pCi/L	04/20/17 08:45	05/08/17 10:51	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	96.5		40 - 110					04/20/17 08:45	05/08/17 10:51	1
Y Carrier	88.2		40 - 110					04/20/17 08:45	05/08/17 10:51	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	0.272	U	0.215	0.216	5.00	0.323	pCi/L		05/12/17 15:24	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: 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)
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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

## Client Sample ID: ARGWA-19

Lab Sample ID: 400-136554-1

Date Collected: 04/10/17 16:15

Matrix: Water

Date Received: 04/13/17 09:01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			304378	04/20/17 08:19	LDE	TAL SL
Total/NA	Analysis	9315		1	308406	05/12/17 08:13	ALD	TAL SL
Total/NA	Prep	PrecSep_0			304385	04/20/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1	307547	05/08/17 10:51	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	308452	05/12/17 15:24	RTM	TAL SL

## Client Sample ID: ARGWA-20

Lab Sample ID: 400-136554-2

Date Collected: 04/10/17 14:35

Matrix: Water

Date Received: 04/13/17 09:01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			304378	04/20/17 08:19	LDE	TAL SL
Total/NA	Analysis	9315		1	308406	05/12/17 08:13	ALD	TAL SL
Total/NA	Prep	PrecSep_0			304385	04/20/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1	307547	05/08/17 10:51	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	308452	05/12/17 15:24	RTM	TAL SL

## Client Sample ID: ARGWC-21

Lab Sample ID: 400-136554-3

Date Collected: 04/10/17 17:25

Matrix: Water

Date Received: 04/13/17 09:01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			304378	04/20/17 08:19	LDE	TAL SL
Total/NA	Analysis	9315		1	308406	05/12/17 08:13	ALD	TAL SL
Total/NA	Prep	PrecSep_0			304385	04/20/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1	307547	05/08/17 10:51	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	308452	05/12/17 15:24	RTM	TAL SL

## Client Sample ID: EB-2-4-10-17

Lab Sample ID: 400-136554-4

Date Collected: 04/10/17 14:20

Matrix: Water

Date Received: 04/13/17 09:01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			304378	04/20/17 08:19	LDE	TAL SL
Total/NA	Analysis	9315		1	308406	05/12/17 08:13	ALD	TAL SL
Total/NA	Prep	PrecSep_0			304385	04/20/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1	307547	05/08/17 10:51	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	308452	05/12/17 15:24	RTM	TAL SL

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-136554-5**

Date Collected: 04/10/17 00:00

Matrix: Water

Date Received: 04/13/17 09:01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			304378	04/20/17 08:19	LDE	TAL SL
Total/NA	Analysis	9315		1	308406	05/12/17 08:13	ALD	TAL SL
Total/NA	Prep	PrecSep_0			304385	04/20/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1	307547	05/08/17 10:51	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	308452	05/12/17 15:24	RTM	TAL SL

**Client Sample ID: FB-2-4-10-17**

**Lab Sample ID: 400-136554-6**

Date Collected: 04/10/17 18:00

Matrix: Water

Date Received: 04/13/17 09:01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			304378	04/20/17 08:19	LDE	TAL SL
Total/NA	Analysis	9315		1	308406	05/12/17 08:13	ALD	TAL SL
Total/NA	Prep	PrecSep_0			304385	04/20/17 08:45	LDE	TAL SL
Total/NA	Analysis	9320		1	307547	05/08/17 10:51	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	308452	05/12/17 15:24	RTM	TAL SL

**Laboratory References:**

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

# QC Association Summary

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
 SDG: Pond 2

## Rad

### Prep Batch: 304378

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136554-1	ARGWA-19	Total/NA	Water	PrecSep-21	
400-136554-2	ARGWA-20	Total/NA	Water	PrecSep-21	
400-136554-3	ARGWC-21	Total/NA	Water	PrecSep-21	
400-136554-4	EB-2-4-10-17	Total/NA	Water	PrecSep-21	
400-136554-5	DUP-2	Total/NA	Water	PrecSep-21	
400-136554-6	FB-2-4-10-17	Total/NA	Water	PrecSep-21	
MB 160-304378/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-304378/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-304378/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 304385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-136554-1	ARGWA-19	Total/NA	Water	PrecSep_0	
400-136554-2	ARGWA-20	Total/NA	Water	PrecSep_0	
400-136554-3	ARGWC-21	Total/NA	Water	PrecSep_0	
400-136554-4	EB-2-4-10-17	Total/NA	Water	PrecSep_0	
400-136554-5	DUP-2	Total/NA	Water	PrecSep_0	
400-136554-6	FB-2-4-10-17	Total/NA	Water	PrecSep_0	
MB 160-304385/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-304385/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-304385/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-304378/1-A**  
**Matrix: Water**  
**Analysis Batch: 308406**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 304378**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.07622	U	0.0966	0.0969	1.00	0.160	pCi/L	04/20/17 08:19	05/12/17 06:10	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
%Yield	Qualifier									
Ba Carrier	86.1		40 - 110		04/20/17 08:19	05/12/17 06:10	1			

**Lab Sample ID: LCS 160-304378/2-A**  
**Matrix: Water**  
**Analysis Batch: 308406**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 304378**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.4	11.04		1.20	1.00	0.155	pCi/L	97	68 - 137
Carrier	LCS LCS		Limits		Prepared	Analyzed	Dil Fac		
%Yield	Qualifier								
Ba Carrier	98.2		40 - 110						

**Lab Sample ID: LCSD 160-304378/3-A**  
**Matrix: Water**  
**Analysis Batch: 308406**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 304378**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.4	10.69		1.18	1.00	0.134	pCi/L	94	68 - 137	0.15	1
Carrier	LCSD LCSD		Limits		Prepared	Analyzed	Dil Fac				
%Yield	Qualifier										
Ba Carrier	92.3		40 - 110								

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-304385/1-A**  
**Matrix: Water**  
**Analysis Batch: 307547**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 304385**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.4713		0.258	0.262	1.00	0.388	pCi/L	04/20/17 08:45	05/08/17 10:49	1
Carrier	MB MB		Limits		Prepared	Analyzed	Dil Fac			
%Yield	Qualifier									
Ba Carrier	86.1		40 - 110		04/20/17 08:45	05/08/17 10:49	1			
Y Carrier	87.9		40 - 110		04/20/17 08:45	05/08/17 10:49	1			

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-304385/2-A**  
**Matrix: Water**  
**Analysis Batch: 307547**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 304385**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	13.5	13.83		1.47	1.00	0.313	pCi/L	103	56 - 140
<b>Carrier</b>		<b>LCS %Yield</b>	<b>LCS Qualifier</b>	<b>Limits</b>					
Ba Carrier		98.2		40 - 110					
Y Carrier		89.0		40 - 110					

**Lab Sample ID: LCSD 160-304385/3-A**  
**Matrix: Water**  
**Analysis Batch: 307547**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 304385**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	13.5	14.77		1.57	1.00	0.333	pCi/L	110	56 - 140	0.31	1
<b>Carrier</b>		<b>LCSD %Yield</b>	<b>LCSD Qualifier</b>	<b>Limits</b>							
Ba Carrier		92.3		40 - 110							
Y Carrier		89.7		40 - 110							

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228


**Lab Sample ID: 400-136568-A-3 DU**  
**Matrix: Water**  
**Analysis Batch: 308452**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.334	U	0.3612	U	0.332	5.00	0.531	pCi/L	0.04	



**Chain of Custody Record**

<b>Client Information</b>	Sampler: <i>C. Parker, R. Walker</i> Lab PM: Whitmore, Cheyenne R Client Contact: Joju Abraham Phone: 770) 594-5998 E-Mail: cheyenne.whitmore@testamericainc.com	Carrier Tracking No(s): TA - ATC Pick-up Job #: 400-136554	COC No: 400-64280-24993.1 Page: 4 of 9 Job #: 400-136554		
Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State, Zip: GA, 30308 PO #: SCS10347656 Project #: 40007041 SSOW#:		<b>Analysis Requested</b> M-tals (State: As, Ag, Ba, Cd, Pb, Se) 620, 7470A (EPA 6020) 25400, 300, ORGFM, 28D 9316, Ra226, 9320, Ra228 400-136554 COC 			
<b>Sample Identification</b> Sample Date: m/po/yy Sample Time Matrix (W=water, S=solid, O=waste/oil, B=soil, T=tissue, A=air) Preservation Code:		Total Number of Containers: 3 Special Instructions/Note:			
Sample ID: ARGWA-19 Sample Date: 4/10/17 Sample Time: 1615 Matrix: Water Preservation Code:		Field Filtered Sample (Yes or No): N D N N			
Sample ID: ARGWA-20 Sample Date: 4/10/17 Sample Time: 1435 Matrix: Water Preservation Code:		Field Filtered Sample (Yes or No): N D N N			
Sample ID: ARGWC-21 Sample Date: 4/10/17 Sample Time: 1725 Matrix: Water Preservation Code:		Field Filtered Sample (Yes or No): N D N N			
Sample ID: EB-2-4-10-17 Sample Date: 4/10/17 Sample Time: 1420 Matrix: Water Preservation Code:		Field Filtered Sample (Yes or No): N D N N			
Sample ID: DUP-2 Sample Date: 4/10/17 Sample Time: 1800 Matrix: Water Preservation Code:		Field Filtered Sample (Yes or No): N D N N			
Sample ID: FB-2-4-10-17 Sample Date: 4/10/17 Sample Time: 1800 Matrix: Water Preservation Code:		Field Filtered Sample (Yes or No): N D N N			
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
<b>Deliverable Requested:</b> I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:			
<b>Empty Kit Relinquished by:</b>		Method of Shipment:			
Relinquished by: <i>Cl Park</i> Date/Time: 4-12-17 0815 Company: ACC		Received by: <i>[Signature]</i> Date/Time: 4/12/17 0815 Company: TA			
Relinquished by: <i>Ray Jay</i> Date/Time: 4/12/17 1605 Company: TA		Received by: <i>[Signature]</i> Date/Time: 4-17-17 0941 Company:			
Relinquished by:		Received by:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks: 2.8 2.0°C 30.0			



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-136554-2

SDG Number: Pond 2

**Login Number: 136554**

**List Source: TestAmerica Pensacola**

**List Number: 1**

**Creator: Siddoway, Benjamin**

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	2.8°C, 2.0°C IR-2
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	

## Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
SDG: Pond 2

### Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-17
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-17
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-17
Georgia	State Program	4	N/A	06-30-17
Illinois	NELAP	5	200041	10-09-17
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-17
Kentucky (UST)	State Program	4	53	06-30-17
Kentucky (WW)	State Program	4	98030	12-31-17
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-17
Louisiana (DW)	NELAP Secondary AB	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-17
Massachusetts	State Program	1	M-FL094	06-30-17
Michigan	State Program	5	9912	06-30-17
New Jersey	NELAP	2	FL006	06-30-17
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-18
Rhode Island	State Program	1	LAO00307	12-30-17
South Carolina	State Program	4	96026	06-30-17
Tennessee	State Program	4	TN02907	06-30-17
Texas	NELAP	6	T104704286-16-10	09-30-17
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-17
Washington	State Program	10	C915	05-15-17
West Virginia DEP	State Program	3	136	06-30-17

### Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-17 *
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-17 *
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-17 *
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-17
Missouri	State Program	7	780	06-30-17 *
Nevada	State Program	9	MO000542017-1	07-31-17
New Jersey	NELAP	2	MO002	06-30-17 *
New York	NELAP	2	11616	03-31-18

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

TestAmerica Pensacola

## Accreditation/Certification Summary

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-136554-2  
 SDG: Pond 2

### Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
North Dakota	State Program	8	R207	06-30-17
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17
Pennsylvania	NELAP	3	68-00540	02-21-18
South Carolina	State Program	4	85002001	06-30-17 *
Texas	NELAP	6	T104704193-16-10	07-31-17
US Fish & Wildlife	Federal		LE058448-0	10-31-17
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-17
Virginia	NELAP	3	460230	06-14-17 *
Washington	State Program	10	C592	08-30-17
West Virginia DEP	State Program	3	381	08-31-17 *

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



Product Name: Low-Flow System

Date: 2017-04-10 16:14:28

Project Information:

Operator Name Chris Parker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 32° 55' 25.37"  
Longitude -83° -42' -3.1"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .375 in  
Tubing Length 53 ft

Pump placement from TOC 47.7 ft

Well Information:

Well ID ARGWA-19  
Well diameter 2 in  
Well Total Depth 52.74 ft  
Screen Length 10 ft  
Depth to Water 29.68 ft

Pumping Information:

Final Pumping Rate 210 mL/min  
Total System Volume 1.636088 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1 in  
Total Volume Pumped 9.5 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	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	15:48:40	1200.01	19.98	5.71	165.50	0.43	29.70	4.38	113.49
Last 5	15:53:40	1500.00	19.97	5.71	165.64	0.60	29.70	4.41	112.50
Last 5	15:58:40	1800.00	20.04	5.73	165.71	0.42	29.70	4.43	111.56
Last 5	16:03:40	2100.00	19.90	5.74	166.07	0.35	29.70	4.44	110.88
Last 5	16:08:40	2400.00	19.87	5.74	166.24	0.41	29.70	4.43	112.42
Variance 0			0.07	0.02	0.06			0.02	-0.93
Variance 1			-0.14	0.01	0.36			0.01	-0.68
Variance 2			-0.04	0.01	0.17			-0.01	1.53

Notes

Collected at 16:15. Sunny 70s. DUP-2 here

Grab Samples

Product Name: Low-Flow System

Date: 2017-04-10 14:34:55

Project Information:

Operator Name Chris Parker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 32° 55' 25.37"  
Longitude -83° -42' -3.1"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .375 in  
Tubing Length 38 ft

Pump placement from TOC 32 ft

Well Information:

Well ID ARGWA-20  
Well diameter 2 in  
Well Total Depth 37.7 ft  
Screen Length 10 ft  
Depth to Water 16.88 ft

Pumping Information:

Final Pumping Rate 210 mL/min  
Total System Volume 1.310309 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3 in  
Total Volume Pumped 7.4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	14:10:50	600.02	19.23	5.45	128.22	4.74	17.10	5.23	125.96
Last 5	14:15:50	900.02	19.08	5.45	127.95	3.49	17.10	5.23	127.17
Last 5	14:20:50	1200.01	18.98	5.43	128.50	4.85	17.10	5.21	131.28
Last 5	14:25:50	1500.01	18.88	5.45	129.23	4.12	17.10	5.29	129.62
Last 5	14:30:50	1800.01	18.91	5.42	129.65	4.25	17.10	5.28	128.68
Variance 0			-0.10	-0.01	0.54			-0.01	4.11
Variance 1			-0.10	0.01	0.73			0.08	-1.66
Variance 2			0.02	-0.03	0.42			-0.01	-0.94

Notes

Collected at 14:35. Sunny 70s. EB -2 here

Grab Samples

Product Name: Low-Flow System

Date: 2017-04-10 17:27:32

Project Information:

Operator Name Ryan Walker  
Company Name Atlantic Coast Consulting, Inc.  
Project Name Plant Arkwright - Ash Pond 3  
Site Name Plant Arkwright- Ash Pond 3  
Latitude 32° 55' 17.45"  
Longitude -83° -42' -7.97"  
Sonde SN 466058  
Turbidity Make/Model Hach 2100Q

Pump Information:

Pump Model/Type Bladder  
Tubing Type Poly  
Tubing Diameter .375 in  
Tubing Length 32 ft

Pump placement from TOC 22 ft

Well Information:

Well ID GWC-21  
Well diameter 2 in  
Well Total Depth 27.28 ft  
Screen Length 10 ft  
Depth to Water 13.63 ft

Pumping Information:

Final Pumping Rate 120 mL/min  
Total System Volume 1.179997 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 34.7 in  
Total Volume Pumped 7.1 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	17:04:48	1500.00	19.86	5.97	537.93	6.23	16.40	0.76	41.15
Last 5	17:09:48	1800.00	20.02	5.97	539.55	3.95	16.50	0.65	38.57
Last 5	17:14:48	2100.00	20.13	5.99	540.07	3.51	16.50	0.55	36.05
Last 5	17:19:48	2400.00	20.04	5.99	540.66	2.85	16.50	0.49	34.95
Last 5	17:24:48	2700.00	19.90	5.99	541.58	2.78	16.50	0.46	33.22
Variance 0			0.11	0.02	0.52			-0.10	-2.52
Variance 1			-0.09	-0.00	0.59			-0.06	-1.10
Variance 2			-0.13	-0.00	0.92			-0.03	-1.73

Notes

Sunny 70's. Sampled at 17:25.

Grab Samples

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-139638-3

TestAmerica Sample Delivery Group: Pond #2

Client Project/Site: CCR Plant Arkwright - Ash Ponds

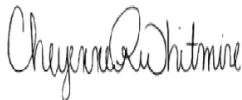
For:

Southern Company

PO BOX 2641 GSC8

Birmingham, Alabama 35291

Attn: Joju Abraham



Authorized for release by:

7/20/2017 1:34:23 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*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.*

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# Case Narrative

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

TestAmerica Job ID: 400-139638-3  
SDG: Pond #2

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**Job ID: 400-139638-3**

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**Laboratory: TestAmerica Pensacola**

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**Narrative**

**Job Narrative  
400-139638-3**

**HPLC/IC**

Method(s) 300.0: The following sample was diluted to bring the concentration of target analytes within the calibration range: ARGWC-21 (400-139638-6). Elevated reporting limits (RLs) are provided.

**Metals**

Method(s) 6020: The matrix spike (MS) recoveries for preparation batch 358784 and analytical batch 359310 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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# Detection Summary

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

TestAmerica Job ID: 400-139638-3  
SDG: Pond #2

## Client Sample ID: ARGWA-19

## Lab Sample ID: 400-139638-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.6		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	8.6		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.041		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	12		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0013	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0036	J	0.0050	0.0032	mg/L	5		6020	Total Recoverable
Selenium	0.00025	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	86		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: EB-2-6-19-17

## Lab Sample ID: 400-139638-5

No Detections.

## Client Sample ID: ARGWC-21

## Lab Sample ID: 400-139638-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.2		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.11	J	0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate	160		5.0	3.5	mg/L	5		300.0	Total/NA
Arsenic	0.0026		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.13		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.54		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	55		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.0021	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0079		0.0050	0.0032	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	370		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: FB-2-6-19-17

## Lab Sample ID: 400-139638-7

No Detections.

## Client Sample ID: ARGWA-20

## Lab Sample ID: 400-139638-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.0		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	18		1.0	0.70	mg/L	1		300.0	Total/NA
Arsenic	0.00068	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.078		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.032	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	9.4		0.25	0.13	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

## Client Sample ID: ARGWA-20 (Continued)

## Lab Sample ID: 400-139638-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0051		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0016		0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	72		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: DUP-2

## Lab Sample ID: 400-139638-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.0		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	18		1.0	0.70	mg/L	1		300.0	Total/NA
Arsenic	0.00051	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.081		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.034	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	9.4		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0053		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0017		0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	82		5.0	3.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Method Summary

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

TestAmerica Job ID: 400-139638-3  
SDG: Pond #2

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

### 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 PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Sample Summary

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

TestAmerica Job ID: 400-139638-3  
SDG: Pond #2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-139638-4	ARGWA-19	Water	06/19/17 16:05	06/22/17 09:22
400-139638-5	EB-2-6-19-17	Water	06/19/17 16:20	06/22/17 09:22
400-139638-6	ARGWC-21	Water	06/19/17 18:10	06/22/17 09:22
400-139638-7	FB-2-6-19-17	Water	06/19/17 17:05	06/22/17 09:22
400-139638-8	ARGWA-20	Water	06/20/17 14:20	06/22/17 09:22
400-139638-9	DUP-2	Water	06/20/17 00:00	06/22/17 09:22

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# Client Sample Results

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-139638-4**

**Date Collected: 06/19/17 16:05**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>7.6</b>		1.0	0.89	mg/L			06/28/17 06:42	1
Fluoride	<0.082		0.20	0.082	mg/L			06/28/17 06:42	1
<b>Sulfate</b>	<b>8.6</b>		1.0	0.70	mg/L			06/28/17 06:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		06/29/17 08:56	07/03/17 14:53	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/29/17 08:56	07/03/17 14:53	5
<b>Barium</b>	<b>0.041</b>		0.0025	0.00049	mg/L		06/29/17 08:56	07/03/17 14:53	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 14:53	5
Boron	<0.021		0.050	0.021	mg/L		06/29/17 08:56	07/03/17 14:53	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 14:53	5
<b>Calcium</b>	<b>12</b>		0.25	0.13	mg/L		06/29/17 08:56	07/03/17 14:53	5
<b>Chromium</b>	<b>0.0013</b>	<b>J</b>	0.0025	0.0011	mg/L		06/29/17 08:56	07/03/17 14:53	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/29/17 08:56	07/03/17 14:53	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/29/17 08:56	07/03/17 14:53	5
<b>Lithium</b>	<b>0.0036</b>	<b>J</b>	0.0050	0.0032	mg/L		06/29/17 08:56	07/03/17 14:53	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		06/29/17 08:56	07/03/17 14:53	5
<b>Selenium</b>	<b>0.00025</b>	<b>J</b>	0.0013	0.00024	mg/L		06/29/17 08:56	07/03/17 14:53	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/29/17 08:56	07/03/17 14:53	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/28/17 09:36	06/29/17 14:43	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>86</b>		5.0	3.4	mg/L			06/24/17 12:50	1

# Client Sample Results

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

**Client Sample ID: EB-2-6-19-17**

**Lab Sample ID: 400-139638-5**

**Date Collected: 06/19/17 16:20**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/28/17 07:05	1
Fluoride	<0.082		0.20	0.082	mg/L			06/28/17 07:05	1
Sulfate	<0.70		1.0	0.70	mg/L			06/28/17 07:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		06/29/17 08:56	07/03/17 14:58	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/29/17 08:56	07/03/17 14:58	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/29/17 08:56	07/03/17 14:58	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 14:58	5
Boron	<0.021		0.050	0.021	mg/L		06/29/17 08:56	07/03/17 14:58	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 14:58	5
Calcium	<0.13		0.25	0.13	mg/L		06/29/17 08:56	07/03/17 14:58	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/29/17 08:56	07/03/17 14:58	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/29/17 08:56	07/03/17 14:58	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/29/17 08:56	07/03/17 14:58	5
Lithium	<0.0032		0.0050	0.0032	mg/L		06/29/17 08:56	07/03/17 14:58	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		06/29/17 08:56	07/03/17 14:58	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/29/17 08:56	07/03/17 14:58	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/29/17 08:56	07/03/17 14:58	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/28/17 09:36	06/29/17 14:45	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/24/17 12:50	1



# Client Sample Results

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-139638-6**

**Date Collected: 06/19/17 18:10**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.2		1.0	0.89	mg/L			06/28/17 07:27	1
Fluoride	0.11	J	0.20	0.082	mg/L			06/28/17 07:27	1
Sulfate	160		5.0	3.5	mg/L			06/28/17 21:10	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		06/29/17 08:56	07/03/17 15:02	5
Arsenic	0.0026		0.0013	0.00046	mg/L		06/29/17 08:56	07/03/17 15:02	5
Barium	0.13		0.0025	0.00049	mg/L		06/29/17 08:56	07/03/17 15:02	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 15:02	5
Boron	0.54		0.050	0.021	mg/L		06/29/17 08:56	07/03/17 15:02	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 15:02	5
Calcium	55		0.25	0.13	mg/L		06/29/17 08:56	07/03/17 15:02	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/29/17 08:56	07/03/17 15:02	5
Cobalt	0.0021	J	0.0025	0.00040	mg/L		06/29/17 08:56	07/03/17 15:02	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/29/17 08:56	07/03/17 15:02	5
Lithium	0.0079		0.0050	0.0032	mg/L		06/29/17 08:56	07/03/17 15:02	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		06/29/17 08:56	07/03/17 15:02	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/29/17 08:56	07/03/17 15:02	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/29/17 08:56	07/03/17 15:02	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/28/17 09:36	06/29/17 14:46	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	370		5.0	3.4	mg/L			06/24/17 12:50	1

# Client Sample Results

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

**Client Sample ID: FB-2-6-19-17**

**Lab Sample ID: 400-139638-7**

**Date Collected: 06/19/17 17:05**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/28/17 08:36	1
Fluoride	<0.082		0.20	0.082	mg/L			06/28/17 08:36	1
Sulfate	<0.70		1.0	0.70	mg/L			06/28/17 08:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		06/29/17 08:56	07/03/17 15:24	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/29/17 08:56	07/03/17 15:24	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/29/17 08:56	07/03/17 15:24	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 15:24	5
Boron	<0.021		0.050	0.021	mg/L		06/29/17 08:56	07/03/17 15:24	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 15:24	5
Calcium	<0.13		0.25	0.13	mg/L		06/29/17 08:56	07/03/17 15:24	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/29/17 08:56	07/03/17 15:24	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/29/17 08:56	07/03/17 15:24	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/29/17 08:56	07/03/17 15:24	5
Lithium	<0.0032		0.0050	0.0032	mg/L		06/29/17 08:56	07/03/17 15:24	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		06/29/17 08:56	07/03/17 15:24	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/29/17 08:56	07/03/17 15:24	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/29/17 08:56	07/03/17 15:24	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/28/17 09:36	06/29/17 14:48	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/24/17 12:50	1

# Client Sample Results

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-139638-8**

**Date Collected: 06/20/17 14:20**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>5.0</b>		1.0	0.89	mg/L			06/28/17 08:59	1
Fluoride	<0.082		0.20	0.082	mg/L			06/28/17 08:59	1
<b>Sulfate</b>	<b>18</b>		1.0	0.70	mg/L			06/28/17 08:59	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		06/29/17 08:56	07/03/17 15:29	5
<b>Arsenic</b>	<b>0.00068</b>	<b>J</b>	0.0013	0.00046	mg/L		06/29/17 08:56	07/03/17 15:29	5
<b>Barium</b>	<b>0.078</b>		0.0025	0.00049	mg/L		06/29/17 08:56	07/03/17 15:29	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 15:29	5
<b>Boron</b>	<b>0.032</b>	<b>J</b>	0.050	0.021	mg/L		06/29/17 08:56	07/03/17 15:29	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 15:29	5
<b>Calcium</b>	<b>9.4</b>		0.25	0.13	mg/L		06/29/17 08:56	07/03/17 15:29	5
<b>Chromium</b>	<b>0.0051</b>		0.0025	0.0011	mg/L		06/29/17 08:56	07/03/17 15:29	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/29/17 08:56	07/03/17 15:29	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/29/17 08:56	07/03/17 15:29	5
Lithium	<0.0032		0.0050	0.0032	mg/L		06/29/17 08:56	07/03/17 15:29	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		06/29/17 08:56	07/03/17 15:29	5
<b>Selenium</b>	<b>0.0016</b>		0.0013	0.00024	mg/L		06/29/17 08:56	07/03/17 15:29	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/29/17 08:56	07/03/17 15:29	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/28/17 09:36	06/29/17 14:50	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>72</b>		5.0	3.4	mg/L			06/25/17 13:21	1

# Client Sample Results

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

**Client Sample ID: DUP-2**  
**Date Collected: 06/20/17 00:00**  
**Date Received: 06/22/17 09:22**

**Lab Sample ID: 400-139638-9**  
**Matrix: Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>5.0</b>		1.0	0.89	mg/L			06/28/17 09:22	1
Fluoride	<0.082		0.20	0.082	mg/L			06/28/17 09:22	1
<b>Sulfate</b>	<b>18</b>		1.0	0.70	mg/L			06/28/17 09:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		06/29/17 08:56	07/03/17 15:33	5
<b>Arsenic</b>	<b>0.00051</b>	<b>J</b>	0.0013	0.00046	mg/L		06/29/17 08:56	07/03/17 15:33	5
<b>Barium</b>	<b>0.081</b>		0.0025	0.00049	mg/L		06/29/17 08:56	07/03/17 15:33	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 15:33	5
<b>Boron</b>	<b>0.034</b>	<b>J</b>	0.050	0.021	mg/L		06/29/17 08:56	07/03/17 15:33	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 15:33	5
<b>Calcium</b>	<b>9.4</b>		0.25	0.13	mg/L		06/29/17 08:56	07/03/17 15:33	5
<b>Chromium</b>	<b>0.0053</b>		0.0025	0.0011	mg/L		06/29/17 08:56	07/03/17 15:33	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/29/17 08:56	07/03/17 15:33	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/29/17 08:56	07/03/17 15:33	5
Lithium	<0.0032		0.0050	0.0032	mg/L		06/29/17 08:56	07/03/17 15:33	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		06/29/17 08:56	07/03/17 15:33	5
<b>Selenium</b>	<b>0.0017</b>		0.0013	0.00024	mg/L		06/29/17 08:56	07/03/17 15:33	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/29/17 08:56	07/03/17 15:33	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/28/17 09:36	06/29/17 14:51	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>82</b>		5.0	3.4	mg/L			06/24/17 12:50	1

# Definitions/Glossary

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

TestAmerica Job ID: 400-139638-3  
SDG: 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
F1	MS and/or MSD Recovery is outside acceptance limits.
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.
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.
α	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)

# Lab Chronicle

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

**Client Sample ID: ARGWA-19**

**Date Collected: 06/19/17 16:05**

**Date Received: 06/22/17 09:22**

**Lab Sample ID: 400-139638-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	358693	06/28/17 06:42	TAJ	TAL PEN
Total Recoverable	Prep	3005A			358784	06/29/17 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	359310	07/03/17 14:53	DRE	TAL PEN
Total/NA	Prep	7470A			358641	06/28/17 09:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	358907	06/29/17 14:43	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	358221	06/24/17 12:50	TET	TAL PEN

**Client Sample ID: EB-2-6-19-17**

**Date Collected: 06/19/17 16:20**

**Date Received: 06/22/17 09:22**

**Lab Sample ID: 400-139638-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	358693	06/28/17 07:05	TAJ	TAL PEN
Total Recoverable	Prep	3005A			358784	06/29/17 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	359310	07/03/17 14:58	DRE	TAL PEN
Total/NA	Prep	7470A			358641	06/28/17 09:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	358907	06/29/17 14:45	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	358221	06/24/17 12:50	TET	TAL PEN

**Client Sample ID: ARGWC-21**

**Date Collected: 06/19/17 18:10**

**Date Received: 06/22/17 09:22**

**Lab Sample ID: 400-139638-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	358693	06/28/17 07:27	TAJ	TAL PEN
Total/NA	Analysis	300.0		5	358786	06/28/17 21:10	TAJ	TAL PEN
Total Recoverable	Prep	3005A			358784	06/29/17 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	359310	07/03/17 15:02	DRE	TAL PEN
Total/NA	Prep	7470A			358641	06/28/17 09:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	358907	06/29/17 14:46	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	358221	06/24/17 12:50	TET	TAL PEN

**Client Sample ID: FB-2-6-19-17**

**Date Collected: 06/19/17 17:05**

**Date Received: 06/22/17 09:22**

**Lab Sample ID: 400-139638-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	358693	06/28/17 08:36	TAJ	TAL PEN
Total Recoverable	Prep	3005A			358784	06/29/17 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	359310	07/03/17 15:24	DRE	TAL PEN
Total/NA	Prep	7470A			358641	06/28/17 09:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	358907	06/29/17 14:48	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

**Client Sample ID: FB-2-6-19-17**

**Lab Sample ID: 400-139638-7**

**Date Collected: 06/19/17 17:05**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	358221	06/24/17 12:50	TET	TAL PEN

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-139638-8**

**Date Collected: 06/20/17 14:20**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	358693	06/28/17 08:59	TAJ	TAL PEN
Total Recoverable	Prep	3005A			358784	06/29/17 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	359310	07/03/17 15:29	DRE	TAL PEN
Total/NA	Prep	7470A			358641	06/28/17 09:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	358907	06/29/17 14:50	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	358279	06/25/17 13:21	RRC	TAL PEN

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-139638-9**

**Date Collected: 06/20/17 00:00**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	358693	06/28/17 09:22	TAJ	TAL PEN
Total Recoverable	Prep	3005A			358784	06/29/17 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	359310	07/03/17 15:33	DRE	TAL PEN
Total/NA	Prep	7470A			358641	06/28/17 09:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	358907	06/29/17 14:51	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	358221	06/24/17 12:50	TET	TAL PEN

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# QC Association Summary

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

TestAmerica Job ID: 400-139638-3  
SDG: Pond #2

## HPLC/IC

### Analysis Batch: 358693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139638-4	ARGWA-19	Total/NA	Water	300.0	
400-139638-5	EB-2-6-19-17	Total/NA	Water	300.0	
400-139638-6	ARGWC-21	Total/NA	Water	300.0	
400-139638-7	FB-2-6-19-17	Total/NA	Water	300.0	
400-139638-8	ARGWA-20	Total/NA	Water	300.0	
400-139638-9	DUP-2	Total/NA	Water	300.0	
MB 400-358693/36	Method Blank	Total/NA	Water	300.0	
LCS 400-358693/37	Lab Control Sample	Total/NA	Water	300.0	
LCS 400-358693/38	Lab Control Sample Dup	Total/NA	Water	300.0	
400-139638-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-139638-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 358786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139638-6	ARGWC-21	Total/NA	Water	300.0	
MB 400-358786/4	Method Blank	Total/NA	Water	300.0	
LCS 400-358786/5	Lab Control Sample	Total/NA	Water	300.0	
LCS 400-358786/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-139693-A-11 MS	Matrix Spike	Total/NA	Water	300.0	
400-139693-A-11 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 358641

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139638-4	ARGWA-19	Total/NA	Water	7470A	
400-139638-5	EB-2-6-19-17	Total/NA	Water	7470A	
400-139638-6	ARGWC-21	Total/NA	Water	7470A	
400-139638-7	FB-2-6-19-17	Total/NA	Water	7470A	
400-139638-8	ARGWA-20	Total/NA	Water	7470A	
400-139638-9	DUP-2	Total/NA	Water	7470A	
MB 400-358641/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-358641/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-139638-B-1-B MS	Matrix Spike	Total/NA	Water	7470A	
400-139638-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Prep Batch: 358784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139638-4	ARGWA-19	Total Recoverable	Water	3005A	
400-139638-5	EB-2-6-19-17	Total Recoverable	Water	3005A	
400-139638-6	ARGWC-21	Total Recoverable	Water	3005A	
400-139638-7	FB-2-6-19-17	Total Recoverable	Water	3005A	
400-139638-8	ARGWA-20	Total Recoverable	Water	3005A	
400-139638-9	DUP-2	Total Recoverable	Water	3005A	
MB 400-358784/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-358784/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-139600-G-5-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-139600-G-5-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

TestAmerica Pensacola



# QC Association Summary

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

## Metals (Continued)

### Analysis Batch: 358907

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139638-4	ARGWA-19	Total/NA	Water	7470A	358641
400-139638-5	EB-2-6-19-17	Total/NA	Water	7470A	358641
400-139638-6	ARGWC-21	Total/NA	Water	7470A	358641
400-139638-7	FB-2-6-19-17	Total/NA	Water	7470A	358641
400-139638-8	ARGWA-20	Total/NA	Water	7470A	358641
400-139638-9	DUP-2	Total/NA	Water	7470A	358641
MB 400-358641/14-A	Method Blank	Total/NA	Water	7470A	358641
LCS 400-358641/15-A	Lab Control Sample	Total/NA	Water	7470A	358641
400-139638-B-1-B MS	Matrix Spike	Total/NA	Water	7470A	358641
400-139638-B-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	358641

### Analysis Batch: 359310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139638-4	ARGWA-19	Total Recoverable	Water	6020	358784
400-139638-5	EB-2-6-19-17	Total Recoverable	Water	6020	358784
400-139638-6	ARGWC-21	Total Recoverable	Water	6020	358784
400-139638-7	FB-2-6-19-17	Total Recoverable	Water	6020	358784
400-139638-8	ARGWA-20	Total Recoverable	Water	6020	358784
400-139638-9	DUP-2	Total Recoverable	Water	6020	358784
MB 400-358784/1-A ^5	Method Blank	Total Recoverable	Water	6020	358784
LCS 400-358784/2-A	Lab Control Sample	Total Recoverable	Water	6020	358784
400-139600-G-5-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	358784
400-139600-G-5-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	358784

## General Chemistry

### Analysis Batch: 358221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139638-4	ARGWA-19	Total/NA	Water	SM 2540C	
400-139638-5	EB-2-6-19-17	Total/NA	Water	SM 2540C	
400-139638-6	ARGWC-21	Total/NA	Water	SM 2540C	
400-139638-7	FB-2-6-19-17	Total/NA	Water	SM 2540C	
400-139638-9	DUP-2	Total/NA	Water	SM 2540C	
MB 400-358221/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-358221/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-139638-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 358279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139638-8	ARGWA-20	Total/NA	Water	SM 2540C	
MB 400-358279/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-358279/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-139648-A-10 DU	Duplicate	Total/NA	Water	SM 2540C	

# QC Sample Results

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 400-358693/36**  
**Matrix: Water**  
**Analysis Batch: 358693**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/28/17 01:47	1
Fluoride	<0.082		0.20	0.082	mg/L			06/28/17 01:47	1
Sulfate	<0.70		1.0	0.70	mg/L			06/28/17 01:47	1

**Lab Sample ID: LCS 400-358693/37**  
**Matrix: Water**  
**Analysis Batch: 358693**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.0		mg/L		100	90 - 110
Fluoride	10.0	10.4		mg/L		104	90 - 110
Sulfate	10.0	10.7		mg/L		107	90 - 110

**Lab Sample ID: LCSD 400-358693/38**  
**Matrix: Water**  
**Analysis Batch: 358693**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.0		mg/L		100	90 - 110	0	15
Fluoride	10.0	10.4		mg/L		104	90 - 110	0	15
Sulfate	10.0	10.8		mg/L		108	90 - 110	0	15

**Lab Sample ID: 400-139638-A-1 MS**  
**Matrix: Water**  
**Analysis Batch: 358693**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.5		10.0	12.0		mg/L		95	80 - 120
Fluoride	<0.082		10.0	10.1		mg/L		101	80 - 120
Sulfate	<0.70		10.0	10.4		mg/L		104	80 - 120

**Lab Sample ID: 400-139638-A-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 358693**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.5		10.0	12.0		mg/L		95	80 - 120	0	20
Fluoride	<0.082		10.0	10.1		mg/L		101	80 - 120	0	20
Sulfate	<0.70		10.0	10.5		mg/L		105	80 - 120	0	20

**Lab Sample ID: MB 400-358786/4**  
**Matrix: Water**  
**Analysis Batch: 358786**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/28/17 14:18	1
Fluoride	<0.082		0.20	0.082	mg/L			06/28/17 14:18	1
Sulfate	<0.70		1.0	0.70	mg/L			06/28/17 14:18	1

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 400-358786/5**  
**Matrix: Water**  
**Analysis Batch: 358786**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.0		mg/L		100	90 - 110
Fluoride	10.0	10.4		mg/L		104	90 - 110
Sulfate	10.0	10.7		mg/L		107	90 - 110

**Lab Sample ID: LCSD 400-358786/6**  
**Matrix: Water**  
**Analysis Batch: 358786**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.0		mg/L		100	90 - 110	0	15
Fluoride	10.0	10.5		mg/L		105	90 - 110	1	15
Sulfate	10.0	10.7		mg/L		107	90 - 110	0	15

**Lab Sample ID: 400-139693-A-11 MS**  
**Matrix: Water**  
**Analysis Batch: 358786**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	18		100	117		mg/L		99	80 - 120
Fluoride	<0.82		100	105		mg/L		105	80 - 120
Sulfate	83		100	190		mg/L		106	80 - 120

**Lab Sample ID: 400-139693-A-11 MSD**  
**Matrix: Water**  
**Analysis Batch: 358786**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	18		100	117		mg/L		99	80 - 120	0	20
Fluoride	<0.82		100	105		mg/L		105	80 - 120	0	20
Sulfate	83		100	190		mg/L		107	80 - 120	0	20

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 400-358784/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 359310**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 358784**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		06/29/17 08:56	07/03/17 13:14	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/29/17 08:56	07/03/17 13:14	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/29/17 08:56	07/03/17 13:14	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 13:14	5
Boron	<0.021		0.050	0.021	mg/L		06/29/17 08:56	07/03/17 13:14	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		06/29/17 08:56	07/03/17 13:14	5
Calcium	<0.13		0.25	0.13	mg/L		06/29/17 08:56	07/03/17 13:14	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/29/17 08:56	07/03/17 13:14	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/29/17 08:56	07/03/17 13:14	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/29/17 08:56	07/03/17 13:14	5
Lithium	<0.0032		0.0050	0.0032	mg/L		06/29/17 08:56	07/03/17 13:14	5

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

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

**Lab Sample ID: MB 400-358784/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 359310**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 358784**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	<0.00085		0.015	0.00085	mg/L		06/29/17 08:56	07/03/17 13:14	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/29/17 08:56	07/03/17 13:14	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/29/17 08:56	07/03/17 13:14	5

**Lab Sample ID: LCS 400-358784/2-A**  
**Matrix: Water**  
**Analysis Batch: 359310**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 358784**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	0.0500	0.0533		mg/L		107	80 - 120
Arsenic	0.0500	0.0540		mg/L		108	80 - 120
Barium	0.0500	0.0513		mg/L		103	80 - 120
Beryllium	0.0500	0.0504		mg/L		101	80 - 120
Boron	0.100	0.0983		mg/L		98	80 - 120
Cadmium	0.0500	0.0542		mg/L		108	80 - 120
Calcium	5.00	4.94		mg/L		99	80 - 120
Chromium	0.0500	0.0523		mg/L		105	80 - 120
Cobalt	0.0500	0.0533		mg/L		107	80 - 120
Lead	0.0500	0.0537		mg/L		107	80 - 120
Lithium	0.0500	0.0536		mg/L		107	80 - 120
Molybdenum	0.100	0.103		mg/L		103	80 - 120
Selenium	0.0500	0.0533		mg/L		107	80 - 120
Thallium	0.0100	0.0109		mg/L		109	80 - 120

**Lab Sample ID: 400-139600-G-5-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 359310**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 358784**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	<0.0010		0.0500	0.0560		mg/L		112	75 - 125
Arsenic	0.00055	J	0.0500	0.0560		mg/L		111	75 - 125
Barium	0.077		0.0500	0.130		mg/L		107	75 - 125
Beryllium	<0.00034		0.0500	0.0519		mg/L		104	75 - 125
Boron	<0.021	F1	0.100	0.126	F1	mg/L		126	75 - 125
Cadmium	<0.00034		0.0500	0.0547		mg/L		109	75 - 125
Calcium	21		5.00	25.9	4	mg/L		102	75 - 125
Chromium	<0.0011		0.0500	0.0538		mg/L		108	75 - 125
Cobalt	<0.00040		0.0500	0.0549		mg/L		110	75 - 125
Lead	<0.00035		0.0500	0.0545		mg/L		109	75 - 125
Lithium	0.0076		0.0500	0.0565		mg/L		98	75 - 125
Molybdenum	0.0010	J	0.100	0.106		mg/L		105	75 - 125
Selenium	0.00070	J	0.0500	0.0550		mg/L		109	75 - 125
Thallium	<0.000085		0.0100	0.0110		mg/L		110	75 - 125

# QC Sample Results

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

TestAmerica Job ID: 400-139638-3  
SDG: Pond #2

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

**Lab Sample ID: 400-139600-G-5-C MSD ^5**  
**Matrix: Water**  
**Analysis Batch: 359310**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total Recoverable**  
**Prep Batch: 358784**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.0010		0.0500	0.0560		mg/L		112	75 - 125	0	20
Arsenic	0.00055	J	0.0500	0.0566		mg/L		112	75 - 125	1	20
Barium	0.077		0.0500	0.133		mg/L		112	75 - 125	2	20
Beryllium	<0.00034		0.0500	0.0525		mg/L		105	75 - 125	1	20
Boron	<0.021	F1	0.100	0.120		mg/L		120	75 - 125	5	20
Cadmium	<0.00034		0.0500	0.0562		mg/L		112	75 - 125	3	20
Calcium	21		5.00	26.3	4	mg/L		111	75 - 125	2	20
Chromium	<0.0011		0.0500	0.0541		mg/L		108	75 - 125	1	20
Cobalt	<0.00040		0.0500	0.0556		mg/L		111	75 - 125	1	20
Lead	<0.00035		0.0500	0.0546		mg/L		109	75 - 125	0	20
Lithium	0.0076		0.0500	0.0562		mg/L		97	75 - 125	0	20
Molybdenum	0.0010	J	0.100	0.107		mg/L		106	75 - 125	1	20
Selenium	0.00070	J	0.0500	0.0559		mg/L		110	75 - 125	1	20
Thallium	<0.000085		0.0100	0.0112		mg/L		112	75 - 125	1	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 400-358641/14-A**  
**Matrix: Water**  
**Analysis Batch: 358907**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 358641**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/28/17 09:13	06/29/17 14:21	1

**Lab Sample ID: LCS 400-358641/15-A**  
**Matrix: Water**  
**Analysis Batch: 358907**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 358641**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00101	0.00101		mg/L		100	80 - 120

**Lab Sample ID: 400-139638-B-1-B MS**  
**Matrix: Water**  
**Analysis Batch: 358907**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 358641**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	<0.000070		0.00201	0.00206		mg/L		102	80 - 120

**Lab Sample ID: 400-139638-B-1-C MSD**  
**Matrix: Water**  
**Analysis Batch: 358907**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 358641**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	<0.000070		0.00201	0.00209		mg/L		104	80 - 120	1	20

# QC Sample Results

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

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

**Lab Sample ID: MB 400-358221/1**  
**Matrix: Water**  
**Analysis Batch: 358221**

**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	<3.4		5.0	3.4	mg/L			06/24/17 12:50	1

**Lab Sample ID: LCS 400-358221/2**  
**Matrix: Water**  
**Analysis Batch: 358221**

**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	293	286		mg/L		98	78 - 122

**Lab Sample ID: 400-139638-A-1 DU**  
**Matrix: Water**  
**Analysis Batch: 358221**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	52		52.0		mg/L		0	5

**Lab Sample ID: MB 400-358279/1**  
**Matrix: Water**  
**Analysis Batch: 358279**

**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	<3.4		5.0	3.4	mg/L			06/25/17 13:21	1

**Lab Sample ID: LCS 400-358279/2**  
**Matrix: Water**  
**Analysis Batch: 358279**

**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	293	270		mg/L		92	78 - 122

**Lab Sample ID: 400-139648-A-10 DU**  
**Matrix: Water**  
**Analysis Batch: 358279**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	120		118		mg/L		0	5



### Chain of Custody Record

<b>Client Information</b> Client Contact: Joju Abraham Southern Company Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State, Zip: GA, 30308 Phone: SCS10347656 Email: JAbraham@southernco.com Project Name: CCR- Plant Arkwright Site: POND #2		Lab PM: Whitmire, Chyenne R E-Mail: chyenne.whitmire@testamericainc.com Carrier Tracking No(s): TA - ATL Pick up		COC No: 400-66089-24993.1 Page: 4 of 4 Job #:	
Due Date Requested: TAT Requested (days): PO #: WO #: Project #: SOW#:		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 Other:	
Sample Identification Sample Date Sample Time Sample Type Matrix Preservation Code		Field Filtered Sample (Yes or No) 9315_Ra226, 9320_Ra228 6020, 7470A 2540C, 300_ORGFM, 28D		Special Instructions/Note: Total Number of containers	
AR6WA-19 EB-2-6-19-17 AR6WC-21 FB-2-6-19-17 ARGWA-20 Dup-2		N N N N N N N N N N N N		3 3 3 3 3 3	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological					
Deliverable Requested: I, II, III, IV, Other (specify)					
Empty Kit Relinquished by:					
Relinquished by: [Signature] Date/Time: 6/21/2017 11:00 Company: ACC		Relinquished by: [Signature] Date/Time: 6/21/17 Company: TA		Relinquished by: [Signature] Date/Time: 6/21/17 Company:	
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-139638-3

SDG Number: Pond #2

**Login Number: 139638**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	3.4°C IR-2
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# Accreditation/Certification Summary

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

TestAmerica Job ID: 400-139638-3  
 SDG: Pond #2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-18
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-17
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-17
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-17
Kentucky (UST)	State Program	4	53	06-30-17 *
Kentucky (WW)	State Program	4	98030	12-31-17
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-17 *
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-18
Rhode Island	State Program	1	LAO00307	12-30-17
South Carolina	State Program	4	96026	06-30-17 *
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-16-10	09-30-17
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18

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



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-139638-4

TestAmerica Sample Delivery Group: Pond #2

Client Project/Site: CCR Plant Arkwright - Ash Ponds

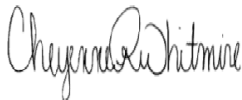
For:

Southern Company

PO BOX 2641 GSC8

Birmingham, Alabama 35291

Attn: Joju Abraham



Authorized for release by:

7/20/2017 1:39:40 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

Review your project  
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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*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.*

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# Case Narrative

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

TestAmerica Job ID: 400-139638-4  
SDG: Pond #2

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**Job ID: 400-139638-4**

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**Laboratory: TestAmerica Pensacola**

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**Narrative**

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**Job Narrative  
400-139638-4**

**RAD**

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-315310. Insufficient sample volume was available to perform a sample duplicate (DU). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision. ARGWA-19 (400-139638-4), EB-2-6-19-17 (400-139638-5), ARGWC-21 (400-139638-6), FB-2-6-19-17 (400-139638-7), ARGWA-20 (400-139638-8) and DUP-2 (400-139638-9)

Method(s) PrecSep-21: Radium 226 Prep Batch 160-315196. Insufficient sample volume was available to perform a sample duplicate (DU). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision. ARGWA-19 (400-139638-4), EB-2-6-19-17 (400-139638-5), ARGWC-21 (400-139638-6), FB-2-6-19-17 (400-139638-7), ARGWA-20 (400-139638-8) and DUP-2 (400-139638-9)

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# Method Summary

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

TestAmerica Job ID: 400-139638-4  
SDG: 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

**Protocol References:**

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



# Sample Summary

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

TestAmerica Job ID: 400-139638-4  
SDG: Pond #2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-139638-4	ARGWA-19	Water	06/19/17 16:05	06/22/17 09:22
400-139638-5	EB-2-6-19-17	Water	06/19/17 16:20	06/22/17 09:22
400-139638-6	ARGWC-21	Water	06/19/17 18:10	06/22/17 09:22
400-139638-7	FB-2-6-19-17	Water	06/19/17 17:05	06/22/17 09:22
400-139638-8	ARGWA-20	Water	06/20/17 14:20	06/22/17 09:22
400-139638-9	DUP-2	Water	06/20/17 00:00	06/22/17 09:22

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# Client Sample Results

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-139638-4**

Date Collected: 06/19/17 16:05

Matrix: Water

Date Received: 06/22/17 09:22

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.173		0.0776	0.0791	1.00	0.0715	pCi/L	06/26/17 08:54	07/18/17 06:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					06/26/17 08:54	07/18/17 06:34	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.305	U	0.222	0.224	1.00	0.347	pCi/L	06/26/17 09:17	07/07/17 14:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					06/26/17 09:17	07/07/17 14:31	1
Y Carrier	90.5		40 - 110					06/26/17 09:17	07/07/17 14:31	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	0.478		0.235	0.237	5.00	0.347	pCi/L		07/19/17 09:48	1

# Client Sample Results

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

**Client Sample ID: EB-2-6-19-17**

**Lab Sample ID: 400-139638-5**

**Date Collected: 06/19/17 16:20**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0134	U	0.0424	0.0424	1.00	0.0979	pCi/L	06/26/17 08:54	07/18/17 06:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110					06/26/17 08:54	07/18/17 06:36	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.117	U	0.176	0.176	1.00	0.338	pCi/L	06/26/17 09:17	07/07/17 14:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110					06/26/17 09:17	07/07/17 14:31	1
Y Carrier	91.6		40 - 110					06/26/17 09:17	07/07/17 14:31	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	-0.131	U	0.181	0.181	5.00	0.338	pCi/L		07/19/17 09:48	1



# Client Sample Results

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-139638-6**

Date Collected: 06/19/17 18:10

Matrix: Water

Date Received: 06/22/17 09:22

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.308		0.109	0.113	1.00	0.108	pCi/L	06/26/17 08:54	07/18/17 06:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110					06/26/17 08:54	07/18/17 06:36	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.668		0.243	0.251	1.00	0.323	pCi/L	06/26/17 09:17	07/07/17 14:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.5		40 - 110					06/26/17 09:17	07/07/17 14:31	1
Y Carrier	90.5		40 - 110					06/26/17 09:17	07/07/17 14:31	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	0.976		0.266	0.275	5.00	0.323	pCi/L		07/19/17 09:48	1

# Client Sample Results

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

**Client Sample ID: FB-2-6-19-17**

**Lab Sample ID: 400-139638-7**

**Date Collected: 06/19/17 17:05**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

**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	0.0635	0.0637	1.00	0.0984	pCi/L	06/26/17 08:54	07/18/17 06:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.9		40 - 110					06/26/17 08:54	07/18/17 06:36	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.376		0.210	0.213	1.00	0.311	pCi/L	06/26/17 09:17	07/07/17 14:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.9		40 - 110					06/26/17 09:17	07/07/17 14:31	1
Y Carrier	88.6		40 - 110					06/26/17 09:17	07/07/17 14:31	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	0.441		0.219	0.222	5.00	0.311	pCi/L		07/19/17 09:48	1

# Client Sample Results

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-139638-8**

**Date Collected: 06/20/17 14:20**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0819	U	0.0700	0.0704	1.00	0.105	pCi/L	06/26/17 08:54	07/18/17 06:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					06/26/17 08:54	07/18/17 06:36	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.09		0.356	0.370	1.00	0.507	pCi/L	06/26/17 09:17	07/07/17 14:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					06/26/17 09:17	07/07/17 14:31	1
Y Carrier	89.7		40 - 110					06/26/17 09:17	07/07/17 14:31	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	1.17		0.363	0.376	5.00	0.507	pCi/L		07/19/17 09:52	1

# Client Sample Results

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

**Client Sample ID: DUP-2**

**Date Collected: 06/20/17 00:00**

**Date Received: 06/22/17 09:22**

**Lab Sample ID: 400-139638-9**

**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	0.0932	U	0.0702	0.0707	1.00	0.0978	pCi/L	06/26/17 08:54	07/18/17 06:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.8		40 - 110					06/26/17 08:54	07/18/17 06:36	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.226	U	0.216	0.217	1.00	0.349	pCi/L	06/26/17 09:17	07/07/17 14:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.8		40 - 110					06/26/17 09:17	07/07/17 14:32	1
Y Carrier	90.1		40 - 110					06/26/17 09:17	07/07/17 14:32	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	0.319	U	0.227	0.228	5.00	0.349	pCi/L		07/19/17 09:52	1

# Definitions/Glossary

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

TestAmerica Job ID: 400-139638-4  
SDG: 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)
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)

# Lab Chronicle

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-139638-4**

**Date Collected: 06/19/17 16:05**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315196	06/26/17 08:54	LDE	TAL SL
Total/NA	Analysis	9315		1	317955	07/18/17 06:34	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315310	06/26/17 09:17	LDE	TAL SL
Total/NA	Analysis	9320		1	316539	07/07/17 14:31	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	318131	07/19/17 09:48	RTM	TAL SL

**Client Sample ID: EB-2-6-19-17**

**Lab Sample ID: 400-139638-5**

**Date Collected: 06/19/17 16:20**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315196	06/26/17 08:54	LDE	TAL SL
Total/NA	Analysis	9315		1	317952	07/18/17 06:36	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315310	06/26/17 09:17	LDE	TAL SL
Total/NA	Analysis	9320		1	316539	07/07/17 14:31	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	318131	07/19/17 09:48	RTM	TAL SL

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-139638-6**

**Date Collected: 06/19/17 18:10**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315196	06/26/17 08:54	LDE	TAL SL
Total/NA	Analysis	9315		1	317952	07/18/17 06:36	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315310	06/26/17 09:17	LDE	TAL SL
Total/NA	Analysis	9320		1	316539	07/07/17 14:31	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	318131	07/19/17 09:48	RTM	TAL SL

**Client Sample ID: FB-2-6-19-17**

**Lab Sample ID: 400-139638-7**

**Date Collected: 06/19/17 17:05**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315196	06/26/17 08:54	LDE	TAL SL
Total/NA	Analysis	9315		1	317952	07/18/17 06:36	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315310	06/26/17 09:17	LDE	TAL SL
Total/NA	Analysis	9320		1	316539	07/07/17 14:31	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	318131	07/19/17 09:48	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-139638-4  
SDG: Pond #2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-139638-8**

**Date Collected: 06/20/17 14:20**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315196	06/26/17 08:54	LDE	TAL SL
Total/NA	Analysis	9315		1	317952	07/18/17 06:36	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315310	06/26/17 09:17	LDE	TAL SL
Total/NA	Analysis	9320		1	316539	07/07/17 14:31	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	318131	07/19/17 09:52	RTM	TAL SL

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-139638-9**

**Date Collected: 06/20/17 00:00**

**Matrix: Water**

**Date Received: 06/22/17 09:22**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			315196	06/26/17 08:54	LDE	TAL SL
Total/NA	Analysis	9315		1	317952	07/18/17 06:36	RTM	TAL SL
Total/NA	Prep	PrecSep_0			315310	06/26/17 09:17	LDE	TAL SL
Total/NA	Analysis	9320		1	316537	07/07/17 14:32	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	318131	07/19/17 09:52	RTM	TAL SL

**Laboratory References:**

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

# QC Association Summary

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

## Rad

### Prep Batch: 315196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139638-4	ARGWA-19	Total/NA	Water	PrecSep-21	
400-139638-5	EB-2-6-19-17	Total/NA	Water	PrecSep-21	
400-139638-6	ARGWC-21	Total/NA	Water	PrecSep-21	
400-139638-7	FB-2-6-19-17	Total/NA	Water	PrecSep-21	
400-139638-8	ARGWA-20	Total/NA	Water	PrecSep-21	
400-139638-9	DUP-2	Total/NA	Water	PrecSep-21	
MB 160-315196/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-315196/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-315196/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 315310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-139638-4	ARGWA-19	Total/NA	Water	PrecSep_0	
400-139638-5	EB-2-6-19-17	Total/NA	Water	PrecSep_0	
400-139638-6	ARGWC-21	Total/NA	Water	PrecSep_0	
400-139638-7	FB-2-6-19-17	Total/NA	Water	PrecSep_0	
400-139638-8	ARGWA-20	Total/NA	Water	PrecSep_0	
400-139638-9	DUP-2	Total/NA	Water	PrecSep_0	
MB 160-315310/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-315310/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-315310/3-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	



# QC Sample Results

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-315196/1-A**  
**Matrix: Water**  
**Analysis Batch: 317955**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 315196**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-226	0.01625	U	0.0355	0.0355	1.00	0.0671	pCi/L	06/26/17 08:54	07/18/17 06:32	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier		40 - 110						
	98.8					06/26/17 08:54	07/18/17 06:32	1		

**Lab Sample ID: LCS 160-315196/2-A**  
**Matrix: Water**  
**Analysis Batch: 317955**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 315196**

Analyte	Spike Added	LCS Result	LCS Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits
				Uncert. (2σ+/-)					
Radium-226	11.4	10.62		1.09	1.00	0.0692	pCi/L	93	68 - 137
Carrier	LCS LCS		Limits			Prepared	Analyzed	Dil Fac	
Ba Carrier	%Yield	Qualifier		40 - 110					
	100								

**Lab Sample ID: LCSD 160-315196/3-A**  
**Matrix: Water**  
**Analysis Batch: 317955**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 315196**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
				Uncert. (2σ+/-)							
Radium-226	11.4	8.897		0.936	1.00	0.0663	pCi/L	78	68 - 137	0.85	1
Carrier	LCSD LCSD		Limits			Prepared	Analyzed	Dil Fac			
Ba Carrier	%Yield	Qualifier		40 - 110							
	98.5										

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-315310/1-A**  
**Matrix: Water**  
**Analysis Batch: 316539**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 315310**

Analyte	MB MB		Count	Total	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
	Result	Qualifier	Uncert. (2σ+/-)	Uncert. (2σ+/-)						
Radium-228	0.2225	U	0.202	0.203	1.00	0.325	pCi/L	06/26/17 09:17	07/07/17 14:29	1
Carrier	MB MB		Limits			Prepared	Analyzed	Dil Fac		
Ba Carrier	%Yield	Qualifier		40 - 110						
	98.8					06/26/17 09:17	07/07/17 14:29	1		
Y Carrier	%Yield	Qualifier	Limits							
	88.2		40 - 110							
						06/26/17 09:17	07/07/17 14:29	1		

# QC Sample Results

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-315310/2-A**  
**Matrix: Water**  
**Analysis Batch: 316539**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 315310**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	13.2	13.58		1.45	1.00	0.309	pCi/L	103	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	100		40 - 110
Y Carrier	90.8		40 - 110

**Lab Sample ID: LCSD 160-315310/3-A**  
**Matrix: Water**  
**Analysis Batch: 316539**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 315310**

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	13.2	14.06		1.49	1.00	0.326	pCi/L	106	56 - 140	0.16	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	98.5		40 - 110
Y Carrier	92.7		40 - 110

Chain of Custody Record

<b>Client Information</b>		Lab PM: Whitmire, Chyenne R		Carrier Tracking No(s): TA - ATL		COC No: 400-66089-24993.1					
Client Contact: Joju Abraham		E-Mail: chyenne.whitmire@testamericainc.com		Pick up		Page: 4 of 5					
Company: Southern Company		Address: 241 Ralph McGill Blvd SE B10185		Job #:		Preservation Codes:					
City: Atlanta		State, Zip: GA, 30308		Due Date Requested:		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 Other:					
Phone:		PO #: SCS10347656		TAT Requested (days):		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)					
Email: JAbraham@southernco.com		WO #:		Field Filtered Sample (Yes or No)		Special Instructions/Note:					
Project Name: CCR- Plant Arkwright		Project #: 40007041		9315_Ra226, 9320_Ra228		Total Number of containers					
Site: POND #2		SSOW#:		6020, 7470A							
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, BT=tissue, A=air)	Field Filtered Sample (Yes or No)	9315_Ra226, 9320_Ra228	6020, 7470A	2540C, 300_ORGFM_28D	Analysis Requested	Carrier Tracking No(s)	COC No
ARBWA-19	6/19/17	1605	G	Water	N	1	1				
EB-2-6-19-17	6/19/17	1620	G	Water	N	1	1				
ARGWC-21	6/19/17	1810	G	Water	N	1	1				
FB-2-6-19-17	6/19/17	1705	G	Water	N	1	1				
ARGWA-20	6/20/17	1420	G	Water	N	1	1				
DUP-2	6/20/17	-	G	Water	N	1	1				
				Water							
				Water							
				Water							
				Water							
				Water							
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological											
Deliverable Requested: I, II, III, IV, Other (specify)											
Empty Kit Relinquished by: _____ Date: _____ Time: _____											
Relinquished by: <i>Al Parc</i> Date/Time: 6/21/2017 1100 Company: ACC											
Relinquished by: <i>Ray J</i> Date/Time: 6/21/17 11:00 Company: JTA											
Relinquished by: <i>Ray J</i> Date/Time: 6/21/17 11:00 Company: JTA											
Custody Seals Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Custody Seal No.:											
Cooler Temperature(s) °C and Other Remarks:											



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-139638-4

SDG Number: Pond #2

**Login Number: 139638**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	3.4°C IR-2
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Accreditation/Certification Summary

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

TestAmerica Job ID: 400-139638-4  
 SDG: Pond #2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-18
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-17
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-17
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-17
Kentucky (UST)	State Program	4	53	06-30-17 *
Kentucky (WW)	State Program	4	98030	12-31-17
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-17 *
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-17
Pennsylvania	NELAP	3	68-00467	01-31-18
Rhode Island	State Program	1	LAO00307	12-30-17
South Carolina	State Program	4	96026	06-30-17 *
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-16-10	09-30-17
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18

## Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Illinois	NELAP	5	200023	11-30-17
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	10-31-17
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-17 *
Nevada	State Program	9	MO000542017-1	07-31-17 *
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18

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

# Accreditation/Certification Summary

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

TestAmerica Job ID: 400-139638-4  
SDG: Pond #2

## Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
North Dakota	State Program	8	R207	06-30-17 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-17 *
Pennsylvania	NELAP	3	68-00540	02-21-18
South Carolina	State Program	4	85002001	06-30-17 *
Texas	NELAP	6	T104704193-16-10	07-31-17 *
US Fish & Wildlife	Federal		LE058448-0	10-31-17
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-17 *
Virginia	NELAP	3	460230	06-14-18
Washington	State Program	10	C592	08-30-17 *
West Virginia DEP	State Program	3	381	08-31-17 *

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

TestAmerica Pensacola

Product Name: Low-Flow System

Date: 2017-06-19 16:08:53

Project Information:

Operator Name Chris Parker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 32° 55' 25.37"  
Longitude -83° -42' -3.1"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .375 in  
Tubing Length 55 ft

Pump placement from TOC 47.7 ft

Well Information:

Well ID ARGWA-19  
Well diameter 2 in  
Well Total Depth 52.74 ft  
Screen Length 10 ft  
Depth to Water 30.46 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 1.584525 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1 in  
Total Volume Pumped 7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	15:40:36	600.01	21.59	5.79	156.19	1.87	30.50	4.35	154.62
Last 5	15:45:36	900.01	21.59	5.65	156.10	1.49	30.50	4.37	149.26
Last 5	15:50:36	1200.01	21.55	5.60	155.90	1.35	30.50	4.40	142.12
Last 5	15:55:36	1500.01	21.51	5.58	155.92	1.13	30.50	4.42	140.55
Last 5	16:00:36	1800.01	21.55	5.54	156.08	1.28	30.50	4.43	146.69
Variance 0			-0.04	-0.05	-0.19			0.04	-7.15
Variance 1			-0.04	-0.01	0.02			0.02	-1.57
Variance 2			0.04	-0.04	0.16			0.01	6.14

Notes

Collected at 16:05. Sunny 80s. Equipment Blank here

Grab Samples



Product Name: Low-Flow System

Date: 2017-06-20 14:19:11

Project Information:

Operator Name Ryan Walker  
Company Name Atlantic Coast Consulting, Inc.  
Project Name Plant Arkwright - Ash Pond 3  
Site Name Plant Arkwright- Ash Pond 3  
Latitude 32° 55' 25.34"  
Longitude -83° -42' -7.93"  
Sonde SN 466058  
Turbidity Make/Model Hach 2100Q

Pump Information:

Pump Model/Type Bladder  
Tubing Type Poly  
Tubing Diameter .375 in  
Tubing Length 42 ft

Pump placement from TOC 32 ft

Well Information:

Well ID ARGWA-20  
Well diameter 2 in  
Well Total Depth 37.7 ft  
Screen Length 10 ft  
Depth to Water 29.1 ft

Pumping Information:

Final Pumping Rate 300 mL/min  
Total System Volume 1.397183 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 24 in  
Total Volume Pumped 15 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	13:53:45	1801.00	18.74	5.60	135.78	6.82	30.20	7.28	107.00
Last 5	13:58:45	2100.99	18.84	5.60	136.03	6.97	30.20	7.25	107.54
Last 5	14:03:45	2400.99	18.81	5.59	135.80	5.08	30.20	7.23	107.93
Last 5	14:08:46	2701.98	18.84	5.59	135.76	5.48	30.20	7.19	107.92
Last 5	14:13:46	3001.98	18.80	5.59	135.86	4.65	30.20	7.22	108.19
Variance 0			-0.04	-0.01	-0.23			-0.02	0.39
Variance 1			0.03	0.00	-0.05			-0.05	-0.01
Variance 2			-0.03	-0.00	0.11			0.04	0.27

Notes

Sampled after well redevelopment. Rain 70's. Sampled at 1420.

Grab Samples



Product Name: Low-Flow System

Date: 2017-06-19 18:10:08

Project Information:

Operator Name Chris Parker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 32° 55' 25.37"  
Longitude -83° -42' -3.1"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .375 in  
Tubing Length 30 ft

Pump placement from TOC 22.2 ft

Well Information:

Well ID ARGWC-21  
Well diameter 2 in  
Well Total Depth 27.28 ft  
Screen Length 10 ft  
Depth to Water 13.97 ft

Pumping Information:

Final Pumping Rate 120 mL/min  
Total System Volume 1.041559 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 18 in  
Total Volume Pumped 10.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	17:46:32	3303.97	21.42	5.94	524.94	7.03	16.50	0.25	8.65
Last 5	17:51:32	3603.97	21.49	5.94	525.65	6.21	16.50	0.25	8.49
Last 5	17:56:32	3903.96	21.48	5.94	529.32	5.12	16.50	0.26	8.51
Last 5	18:01:32	4203.96	21.37	5.94	528.75	4.89	16.50	0.25	8.99
Last 5	18:06:32	4503.96	21.34	5.95	531.05	4.25	16.50	0.26	8.62
Variance 0			-0.02	0.00	3.67			0.01	0.02
Variance 1			-0.10	-0.00	-0.57			-0.01	0.48
Variance 2			-0.03	0.01	2.29			0.00	-0.37

Notes

Collected at 18:10. Cloudy 80s. FB-2 here.

Grab Samples

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-145095-1

TestAmerica SDG: Plant Arkwright Ash Pond 2

Client Project/Site: CCR Plant Arkwright

Sampling Event: AP-2

For:

Southern Company

PO BOX 2641 GSC8

Birmingham, Alabama 35291

Attn: Joju Abraham



Authorized for release by:

11/10/2017 5:45:08 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

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results through

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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.

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# Case Narrative

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Job ID: 400-145095-1**

**Laboratory: TestAmerica Pensacola**

## Narrative

### Job Narrative 400-145095-1

#### HPLC/IC

Method(s) 300.0: The continuing calibration verification (CCV) associated with batch 373599 recovered above the upper control limit for Sulfate. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: (CCV 400-373599/14) and (CCV 400-373599/26).

Method(s) 300.0: The following sample was diluted to bring the concentration of target analytes within the calibration range: ARGWA-21 (400-145095-4). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The CCB for analytical batch 373874 contained Sulfate above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.



# Detection Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: EB-2-10-24-17**

**Lab Sample ID: 400-145095-1**

No Detections.

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-145095-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.2		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	9.1		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.041		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.021	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	12		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0012	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0051		0.0050	0.0032	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	120		5.0	3.4	mg/L	1		SM 2540C	Total/NA

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-145095-3**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.6		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	19		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.081		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.054		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	9.9		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0056		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0012	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	110		5.0	3.4	mg/L	1		SM 2540C	Total/NA

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-145095-4**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.9		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.10	J	0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate	160		5.0	3.5	mg/L	5		300.0	Total/NA
Arsenic	0.0021		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.12		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.57		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	56		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.0019	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0097		0.0050	0.0032	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	420		5.0	3.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: FB-2-10-24-17**

**Lab Sample ID: 400-145095-5**

No Detections.

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-145095-6**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.6		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	19		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.082		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.051		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	9.8		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0059		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0011	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	84		5.0	3.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

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

### 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 PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-145095-1	EB-2-10-24-17	Water	10/24/17 09:50	10/26/17 08:26
400-145095-2	ARGWA-19	Water	10/24/17 10:15	10/26/17 08:26
400-145095-3	ARGWA-20	Ground Water	10/24/17 15:15	10/26/17 08:26
400-145095-4	ARGWC-21	Water	10/24/17 12:25	10/26/17 08:26
400-145095-5	FB-2-10-24-17	Water	10/24/17 18:05	10/26/17 08:26
400-145095-6	DUP-2	Water	10/24/17 00:00	10/26/17 08:26

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14



# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: EB-2-10-24-17**

**Lab Sample ID: 400-145095-1**

**Date Collected: 10/24/17 09:50**

**Matrix: Water**

**Date Received: 10/26/17 08:26**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			10/28/17 00:01	1
Fluoride	<0.082		0.20	0.082	mg/L			10/28/17 00:01	1
Sulfate	<0.70		1.0	0.70	mg/L			10/28/17 00:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/27/17 10:02	10/27/17 16:39	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/27/17 10:02	10/27/17 16:39	5
Barium	<0.00049		0.0025	0.00049	mg/L		10/27/17 10:02	10/27/17 16:39	5
Silver	<0.00011		0.0013	0.00011	mg/L		10/27/17 10:02	10/27/17 16:39	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 16:39	5
Boron	<0.021		0.050	0.021	mg/L		10/27/17 10:02	10/27/17 16:39	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 16:39	5
Calcium	<0.13		0.25	0.13	mg/L		10/27/17 10:02	10/27/17 16:39	5
Chromium	<0.0011		0.0025	0.0011	mg/L		10/27/17 10:02	10/27/17 16:39	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/27/17 10:02	10/27/17 16:39	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/27/17 10:02	10/27/17 16:39	5
Lithium	<0.0032		0.0050	0.0032	mg/L		10/27/17 10:02	10/27/17 16:39	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		10/27/17 10:02	10/27/17 16:39	5
Selenium	<0.00024		0.0013	0.00024	mg/L		10/27/17 10:02	10/27/17 16:39	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/27/17 10:02	10/27/17 16:39	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/26/17 15:03	11/09/17 13:14	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/28/17 15:35	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: ARGWA-19**

**Date Collected: 10/24/17 10:15**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-2**

**Matrix: Water**

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>7.2</b>		1.0	0.89	mg/L			10/27/17 21:21	1
Fluoride	<0.082		0.20	0.082	mg/L			10/27/17 21:21	1
<b>Sulfate</b>	<b>9.1</b>		1.0	0.70	mg/L			10/29/17 04:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/27/17 10:02	10/27/17 16:44	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/27/17 10:02	10/27/17 16:44	5
<b>Barium</b>	<b>0.041</b>		0.0025	0.00049	mg/L		10/27/17 10:02	10/27/17 16:44	5
Silver	<0.00011		0.0013	0.00011	mg/L		10/27/17 10:02	10/27/17 16:44	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 16:44	5
<b>Boron</b>	<b>0.021</b>	<b>J</b>	0.050	0.021	mg/L		10/27/17 10:02	10/27/17 16:44	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 16:44	5
<b>Calcium</b>	<b>12</b>		0.25	0.13	mg/L		10/27/17 10:02	10/27/17 16:44	5
<b>Chromium</b>	<b>0.0012</b>	<b>J</b>	0.0025	0.0011	mg/L		10/27/17 10:02	10/27/17 16:44	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/27/17 10:02	10/27/17 16:44	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/27/17 10:02	10/27/17 16:44	5
<b>Lithium</b>	<b>0.0051</b>		0.0050	0.0032	mg/L		10/27/17 10:02	10/27/17 16:44	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		10/27/17 10:02	10/27/17 16:44	5
Selenium	<0.00024		0.0013	0.00024	mg/L		10/27/17 10:02	10/27/17 16:44	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/27/17 10:02	10/27/17 16:44	5

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/26/17 15:03	11/09/17 13:16	1

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>120</b>		5.0	3.4	mg/L			10/28/17 15:35	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: ARGWA-20**

**Date Collected: 10/24/17 15:15**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-3**

**Matrix: Ground Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>4.6</b>		1.0	0.89	mg/L			10/27/17 22:30	1
Fluoride	<0.082		0.20	0.082	mg/L			10/27/17 22:30	1
<b>Sulfate</b>	<b>19</b>		1.0	0.70	mg/L			10/29/17 04:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/27/17 10:02	10/27/17 16:48	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/27/17 10:02	10/27/17 16:48	5
<b>Barium</b>	<b>0.081</b>		0.0025	0.00049	mg/L		10/27/17 10:02	10/27/17 16:48	5
Silver	<0.00011		0.0013	0.00011	mg/L		10/27/17 10:02	10/27/17 16:48	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 16:48	5
<b>Boron</b>	<b>0.054</b>		0.050	0.021	mg/L		10/27/17 10:02	10/27/17 16:48	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 16:48	5
<b>Calcium</b>	<b>9.9</b>		0.25	0.13	mg/L		10/27/17 10:02	10/27/17 16:48	5
<b>Chromium</b>	<b>0.0056</b>		0.0025	0.0011	mg/L		10/27/17 10:02	10/27/17 16:48	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/27/17 10:02	10/27/17 16:48	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/27/17 10:02	10/27/17 16:48	5
Lithium	<0.0032		0.0050	0.0032	mg/L		10/27/17 10:02	10/27/17 16:48	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		10/27/17 10:02	10/27/17 16:48	5
<b>Selenium</b>	<b>0.0012 J</b>		0.0013	0.00024	mg/L		10/27/17 10:02	10/27/17 16:48	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/27/17 10:02	10/27/17 16:48	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/26/17 15:03	11/09/17 13:18	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>110</b>		5.0	3.4	mg/L			10/28/17 15:35	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-145095-4**

Date Collected: 10/24/17 12:25

Matrix: Water

Date Received: 10/26/17 08:26

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.9		1.0	0.89	mg/L			10/27/17 22:52	1
Fluoride	0.10	J	0.20	0.082	mg/L			10/27/17 22:52	1
Sulfate	160		5.0	3.5	mg/L			10/29/17 05:03	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/27/17 10:02	10/27/17 16:53	5
Arsenic	0.0021		0.0013	0.00046	mg/L		10/27/17 10:02	10/27/17 16:53	5
Barium	0.12		0.0025	0.00049	mg/L		10/27/17 10:02	10/27/17 16:53	5
Silver	<0.00011		0.0013	0.00011	mg/L		10/27/17 10:02	10/27/17 16:53	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 16:53	5
Boron	0.57		0.050	0.021	mg/L		10/27/17 10:02	10/27/17 16:53	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 16:53	5
Calcium	56		0.25	0.13	mg/L		10/27/17 10:02	10/27/17 16:53	5
Chromium	<0.0011		0.0025	0.0011	mg/L		10/27/17 10:02	10/27/17 16:53	5
Cobalt	0.0019	J	0.0025	0.00040	mg/L		10/27/17 10:02	10/27/17 16:53	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/27/17 10:02	10/27/17 16:53	5
Lithium	0.0097		0.0050	0.0032	mg/L		10/27/17 10:02	10/27/17 16:53	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		10/27/17 10:02	10/27/17 16:53	5
Selenium	<0.00024		0.0013	0.00024	mg/L		10/27/17 10:02	10/27/17 16:53	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/27/17 10:02	10/27/17 16:53	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/26/17 15:03	11/09/17 13:19	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	420		5.0	3.4	mg/L			10/28/17 15:35	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: FB-2-10-24-17**

**Lab Sample ID: 400-145095-5**

**Date Collected: 10/24/17 18:05**

**Matrix: Water**

**Date Received: 10/26/17 08:26**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			10/27/17 23:15	1
Fluoride	<0.082		0.20	0.082	mg/L			10/27/17 23:15	1
Sulfate	<0.70		1.0	0.70	mg/L			10/27/17 23:15	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/27/17 10:02	10/27/17 16:57	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/27/17 10:02	10/27/17 16:57	5
Barium	<0.00049		0.0025	0.00049	mg/L		10/27/17 10:02	10/27/17 16:57	5
Silver	<0.00011		0.0013	0.00011	mg/L		10/27/17 10:02	10/27/17 16:57	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 16:57	5
Boron	<0.021		0.050	0.021	mg/L		10/27/17 10:02	10/27/17 16:57	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 16:57	5
Calcium	<0.13		0.25	0.13	mg/L		10/27/17 10:02	10/27/17 16:57	5
Chromium	<0.0011		0.0025	0.0011	mg/L		10/27/17 10:02	10/27/17 16:57	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/27/17 10:02	10/27/17 16:57	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/27/17 10:02	10/27/17 16:57	5
Lithium	<0.0032		0.0050	0.0032	mg/L		10/27/17 10:02	10/27/17 16:57	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		10/27/17 10:02	10/27/17 16:57	5
Selenium	<0.00024		0.0013	0.00024	mg/L		10/27/17 10:02	10/27/17 16:57	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/27/17 10:02	10/27/17 16:57	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/26/17 15:03	11/09/17 13:21	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/28/17 15:35	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: DUP-2**

**Date Collected: 10/24/17 00:00**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-6**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>4.6</b>		1.0	0.89	mg/L			10/27/17 23:38	1
Fluoride	<0.082		0.20	0.082	mg/L			10/27/17 23:38	1
<b>Sulfate</b>	<b>19</b>		1.0	0.70	mg/L			10/29/17 05:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/27/17 10:02	10/27/17 17:02	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/27/17 10:02	10/27/17 17:02	5
<b>Barium</b>	<b>0.082</b>		0.0025	0.00049	mg/L		10/27/17 10:02	10/27/17 17:02	5
Silver	<0.00011		0.0013	0.00011	mg/L		10/27/17 10:02	10/27/17 17:02	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 17:02	5
<b>Boron</b>	<b>0.051</b>		0.050	0.021	mg/L		10/27/17 10:02	10/27/17 17:02	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 17:02	5
<b>Calcium</b>	<b>9.8</b>		0.25	0.13	mg/L		10/27/17 10:02	10/27/17 17:02	5
<b>Chromium</b>	<b>0.0059</b>		0.0025	0.0011	mg/L		10/27/17 10:02	10/27/17 17:02	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/27/17 10:02	10/27/17 17:02	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/27/17 10:02	10/27/17 17:02	5
Lithium	<0.0032		0.0050	0.0032	mg/L		10/27/17 10:02	10/27/17 17:02	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		10/27/17 10:02	10/27/17 17:02	5
<b>Selenium</b>	<b>0.0011 J</b>		0.0013	0.00024	mg/L		10/27/17 10:02	10/27/17 17:02	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/27/17 10:02	10/27/17 17:02	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/26/17 15:03	11/09/17 13:23	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>84</b>		5.0	3.4	mg/L			10/28/17 14:42	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

## Qualifiers

### HPLC/IC

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.
E	Result exceeded calibration range.
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.
α	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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: EB-2-10-24-17**

**Date Collected: 10/24/17 09:50**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	373599	10/28/17 00:01	JAW	TAL PEN
Total Recoverable	Prep	3005A			373546	10/27/17 10:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	373714	10/27/17 16:39	DRE	TAL PEN
Total/NA	Prep	7470A			373397	10/26/17 15:03	JAP	TAL PEN
Total/NA	Analysis	7470A		1	375335	11/09/17 13:14	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	373729	10/28/17 15:35	TET	TAL PEN

**Client Sample ID: ARGWA-19**

**Date Collected: 10/24/17 10:15**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	373599	10/27/17 21:21	JAW	TAL PEN
Total/NA	Analysis	300.0		1	373874	10/29/17 04:00	JAW	TAL PEN
Total Recoverable	Prep	3005A			373546	10/27/17 10:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	373714	10/27/17 16:44	DRE	TAL PEN
Total/NA	Prep	7470A			373397	10/26/17 15:03	JAP	TAL PEN
Total/NA	Analysis	7470A		1	375335	11/09/17 13:16	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	373729	10/28/17 15:35	TET	TAL PEN

**Client Sample ID: ARGWA-20**

**Date Collected: 10/24/17 15:15**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-3**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	373599	10/27/17 22:30	JAW	TAL PEN
Total/NA	Analysis	300.0		1	373874	10/29/17 04:32	JAW	TAL PEN
Total Recoverable	Prep	3005A			373546	10/27/17 10:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	373714	10/27/17 16:48	DRE	TAL PEN
Total/NA	Prep	7470A			373397	10/26/17 15:03	JAP	TAL PEN
Total/NA	Analysis	7470A		1	375335	11/09/17 13:18	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	373729	10/28/17 15:35	TET	TAL PEN

**Client Sample ID: ARGWC-21**

**Date Collected: 10/24/17 12:25**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	373599	10/27/17 22:52	JAW	TAL PEN
Total/NA	Analysis	300.0		5	373874	10/29/17 05:03	JAW	TAL PEN
Total Recoverable	Prep	3005A			373546	10/27/17 10:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	373714	10/27/17 16:53	DRE	TAL PEN

TestAmerica Pensacola



# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-145095-4**

**Date Collected: 10/24/17 12:25**

**Matrix: Water**

**Date Received: 10/26/17 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			373397	10/26/17 15:03	JAP	TAL PEN
Total/NA	Analysis	7470A		1	375335	11/09/17 13:19	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	373729	10/28/17 15:35	TET	TAL PEN

**Client Sample ID: FB-2-10-24-17**

**Lab Sample ID: 400-145095-5**

**Date Collected: 10/24/17 18:05**

**Matrix: Water**

**Date Received: 10/26/17 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	373599	10/27/17 23:15	JAW	TAL PEN
Total Recoverable	Prep	3005A			373546	10/27/17 10:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	373714	10/27/17 16:57	DRE	TAL PEN
Total/NA	Prep	7470A			373397	10/26/17 15:03	JAP	TAL PEN
Total/NA	Analysis	7470A		1	375335	11/09/17 13:21	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	373729	10/28/17 15:35	TET	TAL PEN

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-145095-6**

**Date Collected: 10/24/17 00:00**

**Matrix: Water**

**Date Received: 10/26/17 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	373599	10/27/17 23:38	JAW	TAL PEN
Total/NA	Analysis	300.0		1	373874	10/29/17 05:35	JAW	TAL PEN
Total Recoverable	Prep	3005A			373546	10/27/17 10:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	373714	10/27/17 17:02	DRE	TAL PEN
Total/NA	Prep	7470A			373397	10/26/17 15:03	JAP	TAL PEN
Total/NA	Analysis	7470A		1	375335	11/09/17 13:23	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	373728	10/28/17 14:42	TET	TAL PEN

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

## HPLC/IC

### Analysis Batch: 373599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145095-1	EB-2-10-24-17	Total/NA	Water	300.0	
400-145095-2	ARGWA-19	Total/NA	Water	300.0	
400-145095-3	ARGWA-20	Total/NA	Ground Water	300.0	
400-145095-4	ARGWC-21	Total/NA	Water	300.0	
400-145095-5	FB-2-10-24-17	Total/NA	Water	300.0	
400-145095-6	DUP-2	Total/NA	Water	300.0	
MB 400-373599/4	Method Blank	Total/NA	Water	300.0	
LCS 400-373599/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-373599/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-144933-B-2 MS	Matrix Spike	Total/NA	Water	300.0	
400-144933-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 373874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145095-2	ARGWA-19	Total/NA	Water	300.0	
400-145095-3	ARGWA-20	Total/NA	Ground Water	300.0	
400-145095-4	ARGWC-21	Total/NA	Water	300.0	
400-145095-6	DUP-2	Total/NA	Water	300.0	
MB 400-373874/4	Method Blank	Total/NA	Water	300.0	
LCS 400-373874/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-373874/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-144909-I-7 MS	Matrix Spike	Total/NA	Water	300.0	
400-144909-I-7 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 373397

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145095-1	EB-2-10-24-17	Total/NA	Water	7470A	
400-145095-2	ARGWA-19	Total/NA	Water	7470A	
400-145095-3	ARGWA-20	Total/NA	Ground Water	7470A	
400-145095-4	ARGWC-21	Total/NA	Water	7470A	
400-145095-5	FB-2-10-24-17	Total/NA	Water	7470A	
400-145095-6	DUP-2	Total/NA	Water	7470A	
MB 400-373397/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-373397/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-145047-C-2-C MS	Matrix Spike	Total/NA	Water	7470A	
400-145047-C-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Prep Batch: 373546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145095-1	EB-2-10-24-17	Total Recoverable	Water	3005A	
400-145095-2	ARGWA-19	Total Recoverable	Water	3005A	
400-145095-3	ARGWA-20	Total Recoverable	Ground Water	3005A	
400-145095-4	ARGWC-21	Total Recoverable	Water	3005A	
400-145095-5	FB-2-10-24-17	Total Recoverable	Water	3005A	
400-145095-6	DUP-2	Total Recoverable	Water	3005A	
MB 400-373546/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-373546/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-145066-G-6-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

## Metals (Continued)

### Prep Batch: 373546 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145066-G-6-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 373714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145095-1	EB-2-10-24-17	Total Recoverable	Water	6020	373546
400-145095-2	ARGWA-19	Total Recoverable	Water	6020	373546
400-145095-3	ARGWA-20	Total Recoverable	Ground Water	6020	373546
400-145095-4	ARGWC-21	Total Recoverable	Water	6020	373546
400-145095-5	FB-2-10-24-17	Total Recoverable	Water	6020	373546
400-145095-6	DUP-2	Total Recoverable	Water	6020	373546
MB 400-373546/1-A ^5	Method Blank	Total Recoverable	Water	6020	373546
LCS 400-373546/2-A	Lab Control Sample	Total Recoverable	Water	6020	373546
400-145066-G-6-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	373546
400-145066-G-6-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	373546

### Analysis Batch: 375335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145095-1	EB-2-10-24-17	Total/NA	Water	7470A	373397
400-145095-2	ARGWA-19	Total/NA	Water	7470A	373397
400-145095-3	ARGWA-20	Total/NA	Ground Water	7470A	373397
400-145095-4	ARGWC-21	Total/NA	Water	7470A	373397
400-145095-5	FB-2-10-24-17	Total/NA	Water	7470A	373397
400-145095-6	DUP-2	Total/NA	Water	7470A	373397
MB 400-373397/14-A	Method Blank	Total/NA	Water	7470A	373397
LCS 400-373397/15-A	Lab Control Sample	Total/NA	Water	7470A	373397
400-145047-C-2-C MS	Matrix Spike	Total/NA	Water	7470A	373397
400-145047-C-2-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	373397

## General Chemistry

### Analysis Batch: 373728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145095-6	DUP-2	Total/NA	Water	SM 2540C	
MB 400-373728/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-373728/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-145047-E-4 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 373729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145095-1	EB-2-10-24-17	Total/NA	Water	SM 2540C	
400-145095-2	ARGWA-19	Total/NA	Water	SM 2540C	
400-145095-3	ARGWA-20	Total/NA	Ground Water	SM 2540C	
400-145095-4	ARGWC-21	Total/NA	Water	SM 2540C	
400-145095-5	FB-2-10-24-17	Total/NA	Water	SM 2540C	
MB 400-373729/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-373729/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-145069-A-5 DU	Duplicate	Total/NA	Water	SM 2540C	
400-145111-A-2 DU	Duplicate	Total/NA	Water	SM 2540C	

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 400-373599/4**  
**Matrix: Water**  
**Analysis Batch: 373599**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			10/27/17 13:21	1
Fluoride	<0.082		0.20	0.082	mg/L			10/27/17 13:21	1
Sulfate	<0.70		1.0	0.70	mg/L			10/27/17 13:21	1

**Lab Sample ID: LCS 400-373599/5**  
**Matrix: Water**  
**Analysis Batch: 373599**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.2		mg/L		102	90 - 110
Fluoride	10.0	10.6		mg/L		106	90 - 110
Sulfate	10.0	10.9		mg/L		109	90 - 110

**Lab Sample ID: LCSD 400-373599/6**  
**Matrix: Water**  
**Analysis Batch: 373599**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.1		mg/L		101	90 - 110	1	15
Fluoride	10.0	10.7		mg/L		107	90 - 110	1	15
Sulfate	10.0	10.8		mg/L		108	90 - 110	1	15

**Lab Sample ID: 400-144933-B-2 MS**  
**Matrix: Water**  
**Analysis Batch: 373599**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	63	E	10.0	71.7	E 4	mg/L		85	80 - 120
Fluoride	<0.082		10.0	10.7		mg/L		107	80 - 120
Sulfate	1.2		10.0	12.5		mg/L		113	80 - 120

**Lab Sample ID: 400-144933-B-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 373599**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	63	E	10.0	71.4	E 4	mg/L		83	80 - 120	0	20
Fluoride	<0.082		10.0	10.8		mg/L		108	80 - 120	1	20
Sulfate	1.2		10.0	12.4		mg/L		112	80 - 120	1	20

**Lab Sample ID: MB 400-373874/4**  
**Matrix: Water**  
**Analysis Batch: 373874**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			10/28/17 21:42	1
Fluoride	<0.082		0.20	0.082	mg/L			10/28/17 21:42	1
Sulfate	<0.70		1.0	0.70	mg/L			10/28/17 21:42	1

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 400-373874/5**  
**Matrix: Water**  
**Analysis Batch: 373874**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.77		mg/L		98	90 - 110
Fluoride	10.0	10.1		mg/L		101	90 - 110
Sulfate	10.0	10.0		mg/L		100	90 - 110

**Lab Sample ID: LCSD 400-373874/6**  
**Matrix: Water**  
**Analysis Batch: 373874**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.77		mg/L		98	90 - 110	0	15
Fluoride	10.0	10.1		mg/L		101	90 - 110	0	15
Sulfate	10.0	10.0		mg/L		100	90 - 110	0	15

**Lab Sample ID: 400-144909-I-7 MS**  
**Matrix: Water**  
**Analysis Batch: 373874**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	140		50.0	190		mg/L		96	80 - 120
Fluoride	<0.41		50.0	50.6		mg/L		101	80 - 120
Sulfate	7.2		50.0	58.3		mg/L		102	80 - 120

**Lab Sample ID: 400-144909-I-7 MSD**  
**Matrix: Water**  
**Analysis Batch: 373874**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	140		50.0	190		mg/L		97	80 - 120	0	20
Fluoride	<0.41		50.0	50.6		mg/L		101	80 - 120	0	20
Sulfate	7.2		50.0	58.5		mg/L		103	80 - 120	0	20

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 400-373546/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 373714**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 373546**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/27/17 10:02	10/27/17 15:14	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/27/17 10:02	10/27/17 15:14	5
Barium	<0.00049		0.0025	0.00049	mg/L		10/27/17 10:02	10/27/17 15:14	5
Silver	<0.00011		0.0013	0.00011	mg/L		10/27/17 10:02	10/27/17 15:14	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 15:14	5
Boron	<0.021		0.050	0.021	mg/L		10/27/17 10:02	10/27/17 15:14	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/27/17 10:02	10/27/17 15:14	5
Calcium	<0.13		0.25	0.13	mg/L		10/27/17 10:02	10/27/17 15:14	5
Chromium	<0.0011		0.0025	0.0011	mg/L		10/27/17 10:02	10/27/17 15:14	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/27/17 10:02	10/27/17 15:14	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/27/17 10:02	10/27/17 15:14	5

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

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

**Lab Sample ID: MB 400-373546/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 373714**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 373546**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0032		0.0050	0.0032	mg/L		10/27/17 10:02	10/27/17 15:14	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		10/27/17 10:02	10/27/17 15:14	5
Selenium	<0.00024		0.0013	0.00024	mg/L		10/27/17 10:02	10/27/17 15:14	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/27/17 10:02	10/27/17 15:14	5

**Lab Sample ID: LCS 400-373546/2-A**  
**Matrix: Water**  
**Analysis Batch: 373714**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 373546**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0534		mg/L		107	80 - 120
Arsenic	0.0500	0.0526		mg/L		105	80 - 120
Barium	0.0500	0.0529		mg/L		106	80 - 120
Silver	0.0500	0.0470		mg/L		94	80 - 120
Beryllium	0.0500	0.0501		mg/L		100	80 - 120
Boron	0.100	0.0973		mg/L		97	80 - 120
Cadmium	0.0500	0.0512		mg/L		102	80 - 120
Calcium	5.00	4.96		mg/L		99	80 - 120
Chromium	0.0500	0.0478		mg/L		96	80 - 120
Cobalt	0.0500	0.0477		mg/L		95	80 - 120
Lead	0.0500	0.0484		mg/L		97	80 - 120
Lithium	0.0500	0.0517		mg/L		103	80 - 120
Molybdenum	0.100	0.100		mg/L		100	80 - 120
Selenium	0.0500	0.0516		mg/L		103	80 - 120
Thallium	0.0100	0.0105		mg/L		105	80 - 120

**Lab Sample ID: 400-145066-G-6-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 373714**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 373546**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0010		0.0500	0.0529		mg/L		106	75 - 125
Arsenic	<0.00046		0.0500	0.0529		mg/L		106	75 - 125
Barium	0.056		0.0500	0.110		mg/L		108	75 - 125
Silver	<0.00011		0.0500	0.0483		mg/L		97	75 - 125
Beryllium	<0.00034		0.0500	0.0519		mg/L		104	75 - 125
Boron	<0.021		0.100	0.113		mg/L		113	75 - 125
Cadmium	<0.00034		0.0500	0.0525		mg/L		105	75 - 125
Calcium	1.3		5.00	6.42		mg/L		102	75 - 125
Chromium	<0.0011		0.0500	0.0506		mg/L		101	75 - 125
Cobalt	0.0019	J	0.0500	0.0514		mg/L		99	75 - 125
Lead	0.00053	J	0.0500	0.0492		mg/L		97	75 - 125
Lithium	<0.0032		0.0500	0.0549		mg/L		110	75 - 125
Molybdenum	<0.00085		0.100	0.0988		mg/L		99	75 - 125
Selenium	0.00025	J	0.0500	0.0512		mg/L		102	75 - 125
Thallium	<0.000085		0.0100	0.0107		mg/L		107	75 - 125

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

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

**Lab Sample ID: 400-145066-G-6-C MSD ^5**

**Matrix: Water**

**Analysis Batch: 373714**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total Recoverable**

**Prep Batch: 373546**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.0010		0.0500	0.0524		mg/L		105	75 - 125	1	20
Arsenic	<0.00046		0.0500	0.0533		mg/L		107	75 - 125	1	20
Barium	0.056		0.0500	0.110		mg/L		107	75 - 125	0	20
Silver	<0.00011		0.0500	0.0484		mg/L		97	75 - 125	0	20
Beryllium	<0.00034		0.0500	0.0524		mg/L		105	75 - 125	1	20
Boron	<0.021		0.100	0.113		mg/L		113	75 - 125	0	20
Cadmium	<0.00034		0.0500	0.0517		mg/L		103	75 - 125	1	20
Calcium	1.3		5.00	6.34		mg/L		100	75 - 125	1	20
Chromium	<0.0011		0.0500	0.0503		mg/L		101	75 - 125	1	20
Cobalt	0.0019	J	0.0500	0.0514		mg/L		99	75 - 125	0	20
Lead	0.00053	J	0.0500	0.0505		mg/L		100	75 - 125	3	20
Lithium	<0.0032		0.0500	0.0575		mg/L		115	75 - 125	5	20
Molybdenum	<0.00085		0.100	0.0974		mg/L		97	75 - 125	1	20
Selenium	0.00025	J	0.0500	0.0508		mg/L		101	75 - 125	1	20
Thallium	<0.000085		0.0100	0.0109		mg/L		109	75 - 125	2	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 400-373397/14-A**

**Matrix: Water**

**Analysis Batch: 375335**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 373397**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/26/17 12:32	11/09/17 12:30	1

**Lab Sample ID: LCS 400-373397/15-A**

**Matrix: Water**

**Analysis Batch: 375335**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 373397**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00101	0.00104		mg/L		103	80 - 120

**Lab Sample ID: 400-145047-C-2-C MS**

**Matrix: Water**

**Analysis Batch: 375335**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

**Prep Batch: 373397**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	<0.000070		0.00201	0.00201		mg/L		100	80 - 120

**Lab Sample ID: 400-145047-C-2-D MSD**

**Matrix: Water**

**Analysis Batch: 375335**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**

**Prep Batch: 373397**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	<0.000070		0.00201	0.00195		mg/L		97	80 - 120	3	20

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
SDG: Plant Arkwright Ash Pond 2

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

**Lab Sample ID: MB 400-373728/1**  
**Matrix: Water**  
**Analysis Batch: 373728**

**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	<3.4		5.0	3.4	mg/L			10/28/17 14:42	1

**Lab Sample ID: LCS 400-373728/2**  
**Matrix: Water**  
**Analysis Batch: 373728**

**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	293	270		mg/L		92	78 - 122

**Lab Sample ID: 400-145047-E-4 DU**  
**Matrix: Water**  
**Analysis Batch: 373728**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	110		114		mg/L		0	5

**Lab Sample ID: MB 400-373729/1**  
**Matrix: Water**  
**Analysis Batch: 373729**

**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	<3.4		5.0	3.4	mg/L			10/28/17 15:35	1

**Lab Sample ID: LCS 400-373729/2**  
**Matrix: Water**  
**Analysis Batch: 373729**

**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	293	260		mg/L		89	78 - 122

**Lab Sample ID: 400-145069-A-5 DU**  
**Matrix: Water**  
**Analysis Batch: 373729**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	130		130		mg/L		0	5

**Lab Sample ID: 400-145111-A-2 DU**  
**Matrix: Water**  
**Analysis Batch: 373729**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**


Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	350		352		mg/L		0	5



CHAIN OF CUSTODY RECORD



Pace Analytical Services, Inc.  
110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
(770) 734-4200 : FAX (770) 734-4201 : www.asi-lab.com

<b>CLIENT NAME:</b> Georgia Power <b>CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:</b> 241 Ralph McGill Blvd SE B10185 Atlanta, GA 30308 404-506-7239 <b>REPORT TO:</b> Joju Abraham <b>REQUESTED COMPLETION DATE:</b> laburch@southernco.com <b>PROJECT NAME/STATE:</b> Plant Arkwright Pond 2 <b>PROJECT #:</b> Phase II CCR & State D&O		<b>CONTAINER TYPE:</b> P <b>PRESERVATION:</b> # of 3 <b>ANALYSIS REQUESTED:</b> P P P P 3 3 7 3 Metals App. III & IV (EPA 6020/7470) Metals (see additional list below) (EPA 6020) Cl, F, SO <sub>4</sub> & TDS (EPA 300.0 & SM 2540C) Radium 226 & 228 (SW-846 9315/9320)		<b>CONTAINER TYPE:</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER <b>PRESERVATION:</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen	
<b>CONTAINERS</b> → 400-145095 COC 		<b>LAB NUMBER</b> → 1805 : collected from Hume		<b>REMARKS/ADDITIONAL INFORMATION</b> 1805 : collected from Hume	
Collection DATE	Collection TIME	MATRIX CODE*	C O M P	G R A B	SAMPLE IDENTIFICATION
10-24-17	0950	W	✓	✓	FB-2-10-24-17
10-24-17	1015	GW	✓	✓	AR6WA-19
10-24-17	1515	GW	✓	✓	AR6WA-20
10-24-17	1725	GW	✓	✓	AR6WC-21
10-24-17	1805	W	✓	✓	FB-2-10-24-17
10-24-17	—	GW	✓	✓	DUP-2
<b>SAMPLED BY AND TITLE:</b> C. Parker <b>RECEIVED BY:</b> [Signature]		<b>DATE/TIME:</b> 10-25-17 1015 <b>DATE/TIME:</b> 10-25-17 1040		<b>RELINQUISHED BY:</b> [Signature]	
<b>RECEIVED BY LAB:</b> [Signature]		<b>DATE/TIME:</b> 10-28-17 0826 <b>DATE/TIME:</b> 10-28-17 0826		<b>RELINQUISHED BY:</b> [Signature]	
<b>LAB #:</b> 1040 <b>ENTERED INTO LIMS:</b> 1215 <b>TRACKING #:</b>		<b>DATE/TIME:</b> 10-25-17 <b>DATE/TIME:</b> 10-25-17		<b>FOR LAB USE ONLY</b>	
(Yes) No NA (Yes) No NA (Yes) No NA Intact Broken Not Present		Intact Broken Not Present		CLIENT OTHER FS Cooler ID:	

Plant Arkwright State constituents: As, Ag, Ba, Cd, Pb, Se

Plant Arkwright - Ash Pond 2 COC



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-145095-1  
SDG Number: Plant Arkwright Ash Pond 2

**Login Number: 145095**

**List Number: 1**

**Creator: Johnson, Jeremy N**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	2.9°C IR8
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 <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Accreditation/Certification Summary

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-1  
 SDG: Plant Arkwright Ash Pond 2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-18
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	12-31-17
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-17
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-18
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-18
Rhode Island	State Program	1	LAO00307	12-30-17
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-17-12	09-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-145095-2

TestAmerica SDG: Plant Arkwright Ash Pond 2

Client Project/Site: CCR Plant Arkwright

Sampling Event: AP-2

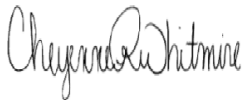
For:

Southern Company

PO BOX 2641 GSC8

Birmingham, Alabama 35291

Attn: Joju Abraham



Authorized for release by:

11/29/2017 2:32:25 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

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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.

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# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: 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

**Protocol References:**

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



# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-145095-1	EB-2-10-24-17	Water	10/24/17 09:50	10/26/17 08:26
400-145095-2	ARGWA-19	Water	10/24/17 10:15	10/26/17 08:26
400-145095-3	ARGWA-20	Water	10/24/17 15:15	10/26/17 08:26
400-145095-4	ARGWC-21	Water	10/24/17 12:25	10/26/17 08:26
400-145095-5	FB-2-10-24-17	Water	10/24/17 18:05	10/26/17 08:26
400-145095-6	DUP-2	Water	10/24/17 00:00	10/26/17 08:26

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# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: EB-2-10-24-17**

**Lab Sample ID: 400-145095-1**

**Date Collected: 10/24/17 09:50**

**Matrix: Water**

**Date Received: 10/26/17 08:26**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0158	U	0.0362	0.0362	1.00	0.0697	pCi/L	10/30/17 08:27	11/22/17 05:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/30/17 08:27	11/22/17 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	0.531		0.253	0.257	1.00	0.367	pCi/L	10/30/17 08:49	11/08/17 17:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/30/17 08:49	11/08/17 17:58	1
Y Carrier	85.6		40 - 110					10/30/17 08:49	11/08/17 17:58	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	0.547		0.256	0.260	5.00	0.367	pCi/L		11/29/17 12:50	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-145095-2**

Date Collected: 10/24/17 10:15

Matrix: Water

Date Received: 10/26/17 08:26

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.226		0.0818	0.0843	1.00	0.0679	pCi/L	10/30/17 08:27	11/22/17 05:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					10/30/17 08:27	11/22/17 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	0.538		0.250	0.255	1.00	0.354	pCi/L	10/30/17 08:49	11/08/17 17:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					10/30/17 08:49	11/08/17 17:59	1
Y Carrier	85.2		40 - 110					10/30/17 08:49	11/08/17 17:59	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	0.764		0.263	0.269	5.00	0.354	pCi/L		11/29/17 12:50	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-145095-3**

Date Collected: 10/24/17 15:15

Matrix: Water

Date Received: 10/26/17 08:26

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.111		0.0646	0.0654	1.00	0.0775	pCi/L	10/30/17 08:27	11/22/17 05:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.7		40 - 110					10/30/17 08:27	11/22/17 05:48	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.593		0.266	0.272	1.00	0.380	pCi/L	10/30/17 08:49	11/08/17 17:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.7		40 - 110					10/30/17 08:49	11/08/17 17:59	1
Y Carrier	83.4		40 - 110					10/30/17 08:49	11/08/17 17:59	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	0.704		0.274	0.280	5.00	0.380	pCi/L		11/29/17 12:50	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-145095-4**

**Date Collected: 10/24/17 12:25**

**Matrix: Water**

**Date Received: 10/26/17 08:26**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.228		0.0853	0.0877	1.00	0.0762	pCi/L	10/30/17 08:27	11/22/17 05:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110					10/30/17 08:27	11/22/17 05:48	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.276	U	0.286	0.287	1.00	0.467	pCi/L	10/30/17 08:49	11/08/17 17:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110					10/30/17 08:49	11/08/17 17:51	1
Y Carrier	81.9		40 - 110					10/30/17 08:49	11/08/17 17:51	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	0.504		0.298	0.300	5.00	0.467	pCi/L		11/29/17 12:50	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: FB-2-10-24-17**

**Lab Sample ID: 400-145095-5**

**Date Collected: 10/24/17 18:05**

**Matrix: Water**

**Date Received: 10/26/17 08:26**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00183	U	0.0254	0.0254	1.00	0.0587	pCi/L	10/30/17 08:27	11/22/17 05:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					10/30/17 08:27	11/22/17 05:48	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.417		0.233	0.237	1.00	0.350	pCi/L	10/30/17 08:49	11/08/17 17:51	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					10/30/17 08:49	11/08/17 17:51	1
Y Carrier	84.1		40 - 110					10/30/17 08:49	11/08/17 17:51	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	0.418		0.234	0.238	5.00	0.350	pCi/L		11/29/17 12:50	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: DUP-2**

**Date Collected: 10/24/17 00:00**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-6**

**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	0.106		0.0645	0.0652	1.00	0.0822	pCi/L	10/30/17 08:27	11/22/17 05:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					10/30/17 08:27	11/22/17 05:48	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.702		0.251	0.259	1.00	0.335	pCi/L	10/30/17 08:49	11/08/17 17:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					10/30/17 08:49	11/08/17 17:53	1
Y Carrier	86.7		40 - 110					10/30/17 08:49	11/08/17 17:53	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	0.808		0.259	0.267	5.00	0.335	pCi/L		11/29/17 12:50	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: 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)
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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: EB-2-10-24-17**

**Date Collected: 10/24/17 09:50**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			334713	10/30/17 08:27	LDE	TAL SL
Total/NA	Analysis	9315		1	338580	11/22/17 05:45	RTM	TAL SL
Total/NA	Prep	PrecSep_0			334714	10/30/17 08:49	LDE	TAL SL
Total/NA	Analysis	9320		1	336179	11/08/17 17:58	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	339689	11/29/17 12:50	EAW	TAL SL

**Client Sample ID: ARGWA-19**

**Date Collected: 10/24/17 10:15**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			334713	10/30/17 08:27	LDE	TAL SL
Total/NA	Analysis	9315		1	338580	11/22/17 05:45	RTM	TAL SL
Total/NA	Prep	PrecSep_0			334714	10/30/17 08:49	LDE	TAL SL
Total/NA	Analysis	9320		1	336179	11/08/17 17:59	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	339689	11/29/17 12:50	EAW	TAL SL

**Client Sample ID: ARGWA-20**

**Date Collected: 10/24/17 15:15**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			334713	10/30/17 08:27	LDE	TAL SL
Total/NA	Analysis	9315		1	338578	11/22/17 05:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			334714	10/30/17 08:49	LDE	TAL SL
Total/NA	Analysis	9320		1	336179	11/08/17 17:59	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	339689	11/29/17 12:50	EAW	TAL SL

**Client Sample ID: ARGWC-21**

**Date Collected: 10/24/17 12:25**

**Date Received: 10/26/17 08:26**

**Lab Sample ID: 400-145095-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			334713	10/30/17 08:27	LDE	TAL SL
Total/NA	Analysis	9315		1	338578	11/22/17 05:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			334714	10/30/17 08:49	LDE	TAL SL
Total/NA	Analysis	9320		1	336177	11/08/17 17:51	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	339689	11/29/17 12:50	EAW	TAL SL

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

**Client Sample ID: FB-2-10-24-17**

**Lab Sample ID: 400-145095-5**

**Date Collected: 10/24/17 18:05**

**Matrix: Water**

**Date Received: 10/26/17 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			334713	10/30/17 08:27	LDE	TAL SL
Total/NA	Analysis	9315		1	338578	11/22/17 05:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			334714	10/30/17 08:49	LDE	TAL SL
Total/NA	Analysis	9320		1	336177	11/08/17 17:51	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	339689	11/29/17 12:50	EAW	TAL SL

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-145095-6**

**Date Collected: 10/24/17 00:00**

**Matrix: Water**

**Date Received: 10/26/17 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			334713	10/30/17 08:27	LDE	TAL SL
Total/NA	Analysis	9315		1	338578	11/22/17 05:48	RTM	TAL SL
Total/NA	Prep	PrecSep_0			334714	10/30/17 08:49	LDE	TAL SL
Total/NA	Analysis	9320		1	336177	11/08/17 17:53	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	339689	11/29/17 12:50	EAW	TAL SL

**Laboratory References:**

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



# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

## Rad

### Prep Batch: 334713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145095-1	EB-2-10-24-17	Total/NA	Water	PrecSep-21	
400-145095-2	ARGWA-19	Total/NA	Water	PrecSep-21	
400-145095-3	ARGWA-20	Total/NA	Water	PrecSep-21	
400-145095-4	ARGWC-21	Total/NA	Water	PrecSep-21	
400-145095-5	FB-2-10-24-17	Total/NA	Water	PrecSep-21	
400-145095-6	DUP-2	Total/NA	Water	PrecSep-21	
MB 160-334713/1-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-334713/2-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
490-139345-F-22-A MS	Matrix Spike	Total/NA	Water	PrecSep-21	
490-139345-G-22-B MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	

### Prep Batch: 334714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-145095-1	EB-2-10-24-17	Total/NA	Water	PrecSep_0	
400-145095-2	ARGWA-19	Total/NA	Water	PrecSep_0	
400-145095-3	ARGWA-20	Total/NA	Water	PrecSep_0	
400-145095-4	ARGWC-21	Total/NA	Water	PrecSep_0	
400-145095-5	FB-2-10-24-17	Total/NA	Water	PrecSep_0	
400-145095-6	DUP-2	Total/NA	Water	PrecSep_0	
MB 160-334714/1-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-334714/2-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
490-139345-F-22-B MS	Matrix Spike	Total/NA	Water	PrecSep_0	
490-139345-G-22-D MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-334713/1-A**  
**Matrix: Water**  
**Analysis Batch: 338579**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 334713**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02786	U	0.0448	0.0449	1.00	0.0782	pCi/L	10/30/17 08:27	11/22/17 05:39	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					10/30/17 08:27	11/22/17 05:39	1

**Lab Sample ID: LCS 160-334713/2-A**  
**Matrix: Water**  
**Analysis Batch: 338579**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 334713**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.8	10.48		1.07	1.00	0.0709	pCi/L	89	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	102		40 - 110						

**Lab Sample ID: 490-139345-F-22-A MS**  
**Matrix: Water**  
**Analysis Batch: 338580**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 334713**

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	0.974		11.8	10.97		1.12	1.00	0.0552	pCi/L	85	75 - 138
Carrier	MS %Yield	MS Qualifier	Limits								
Ba Carrier	95.6		40 - 110								

**Lab Sample ID: 490-139345-G-22-B MSD**  
**Matrix: Water**  
**Analysis Batch: 338580**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 334713**

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.974		11.8	11.18		1.14	1.00	0.0602	pCi/L	86	75 - 138	0.1	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Ba Carrier	94.1		40 - 110										

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-334714/1-A**  
**Matrix: Water**  
**Analysis Batch: 336179**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 334714**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.1179	U	0.223	0.223	1.00	0.416	pCi/L	10/30/17 08:49	11/08/17 17:55	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110	10/30/17 08:49	11/08/17 17:55	1
Y Carrier	83.0		40 - 110	10/30/17 08:49	11/08/17 17:55	1

**Lab Sample ID: LCS 160-334714/2-A**  
**Matrix: Water**  
**Analysis Batch: 336179**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 334714**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.84	8.776		1.02	1.00	0.317	pCi/L	99	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	102		40 - 110
Y Carrier	84.9		40 - 110

**Lab Sample ID: 490-139345-F-22-B MS**  
**Matrix: Water**  
**Analysis Batch: 336179**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**  
**Prep Batch: 334714**

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	2.00		8.85	9.175		1.07	1.00	0.348	pCi/L	81	45 - 150

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	95.6		40 - 110
Y Carrier	86.7		40 - 110

**Lab Sample ID: 490-139345-G-22-D MSD**  
**Matrix: Water**  
**Analysis Batch: 336179**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 334714**

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	2.00		8.85	9.660		1.13	1.00	0.371	pCi/L	87	45 - 150	0.22	1

Carrier	MSD %Yield	MSD Qualifier	Limits
Ba Carrier	94.1		40 - 110
Y Carrier	82.6		40 - 110

**CHAIN OF CUSTODY RECORD**



Pace Analytical Services, Inc.  
 110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
 (770) 734-4200 : FAX (770) 734-4201 : www.asi-lab.com

<b>CLIENT NAME:</b> Georgia Power <b>CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:</b> 241 Ralph McGill Blvd SE B10185 Atlanta, GA 30308 404-506-7239		<b>REPORT TO:</b> Joju Abraham Heeth McCorkle laburch@southernco.com	
<b>PROJECT #:</b> Phase II CCR & State D&O		<b>PROJECT NAME/STATE:</b> Plant Arkwright Pond 2	
<b>CONTAINER TYPE:</b> P 3 <b>PRESERVATION:</b> 3 <b>ANALYSIS REQUESTED:</b> P 3 P 3 P 3			
<b>C O N T A I N E R S</b>			
400-145095 COC			
<b>L A B I D N U M B E R</b>			
Collection DATE	Collection TIME	MATRIX CODE*	SAMPLE IDENTIFICATION
10-24-17	0950	W	FB-2-10-24-17
10-24-17	1015	GW	AR6WA-19
10-24-17	1515	GW	AR6WA-20
10-24-17	1725	GW	AR6WC-21
10-24-17	1805	W	FB-2-10-24-17
10-24-17	---	GW	DUP-2
REMARKS/ADDITIONAL INFORMATION 1805: collected from Hume			
CONTAINER TYPE: P - PLASTIC, A - AMBER GLASS, G - CLEAR GLASS, V - VOA VIAL, S - STERILE, O - OTHER PRESERVATION: 1 - HCl, ≤6°C, 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C, 3 - HNO <sub>3</sub> , 4 - NaOH, ≤6°C, 5 - NaOH/ZnAc, ≤6°C, 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C, 7 - ≤6°C not frozen			
MATRIX CODES: DW - DRINKING WATER, WW - WASTEWATER, GW - GROUNDWATER, SW - SURFACE WATER, ST - STORM WATER, W - WATER, S - SOIL, SL - SLUDGE, SD - SOLID, A - AIR, L - LIQUID, P - PRODUCT			
SAMPLED BY AND TITLE: C. Parker		DATE/TIME: 10-25-17 1015	
RECEIVED BY:		DATE/TIME: 10-25-17 1040	
RECEIVED BY LAB:		DATE/TIME: 10-25-17 0826	
RELINQUISHED BY:		DATE/TIME: 10-25-17 1040	
RELINQUISHED BY:		DATE/TIME: 10-25-17 1215	
SAMPLE SHIPPED VIA: UPS Intact		COURIER: FS	
CLIENT:		COOLER ID:	
TRACKING #:		ENTERED INTO LIMS:	

Plant Arkwright - Ash Pond 2 COC

Plant Arkwright State constituents: As, Ag, Ba, Cd, Pb, Se



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-145095-2  
SDG Number: Plant Arkwright Ash Pond 2

**Login Number: 145095**

**List Number: 1**

**Creator: Johnson, Jeremy N**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	2.9°C IR8
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 <math><6\text{mm}</math> (1/4").	N/A	
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: 400-145095-2  
SDG Number: Plant Arkwright Ash Pond 2

**Login Number: 145095**  
**List Number: 2**  
**Creator: Clarke, Jill C**

**List Source: TestAmerica St. Louis**  
**List Creation: 10/27/17 04:44 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, 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?	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	

# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-18
Arizona	State Program	9	AZ0710	01-11-18
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	03-31-18
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	12-31-17
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-17
L-A-B	ISO/IEC 17025		L2471	02-22-20
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-17
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-18
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-17
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-18
Rhode Island	State Program	1	LAO00307	12-30-17
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-17-12	09-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18

## Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18
California	State Program	9	2886	03-31-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18
Illinois	NELAP	5	200023	11-30-17 *
Iowa	State Program	7	373	02-01-18
Kansas	NELAP	7	E-10236	12-31-17 *
Kentucky (DW)	State Program	4	90125	12-31-17
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA170011	12-31-17
Maryland	State Program	3	310	09-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542017-1	07-31-18
New Jersey	NELAP	2	MO002	06-30-18
New York	NELAP	2	11616	03-31-18

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

TestAmerica Pensacola

# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-145095-2  
SDG: Plant Arkwright Ash Pond 2

## Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-21-18
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18



Product Name: Low-Flow System

Date: 2017-10-24 10:17:50

Project Information:

Operator Name Chris Parker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 32° 55' 25.37"  
Longitude -83° -42' -3.1"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .375 in  
Tubing Length 52 ft

Pump placement from TOC 47.7 ft

Well Information:

Well ID ARGWA-19  
Well diameter 2 in  
Well Total Depth 52.74 ft  
Screen Length 10 ft  
Depth to Water 31.17 ft

Pumping Information:

Final Pumping Rate 150 mL/min  
Total System Volume 1.61437 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1 in  
Total Volume Pumped 7.2 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	09:52:56	900.00	18.80	6.11	169.09	2.41	31.20	4.18	98.65
Last 5	09:57:56	1199.99	18.83	5.89	169.48	1.99	31.20	4.17	105.67
Last 5	10:02:56	1499.99	18.92	5.85	169.84	1.76	31.20	4.15	107.18
Last 5	10:07:56	1799.98	19.37	5.76	168.27	1.91	31.20	4.05	112.58
Last 5	10:12:56	2099.99	19.70	5.82	167.83	1.56	31.20	4.05	110.64
Variance 0			0.09	-0.03	0.36			-0.02	1.51
Variance 1			0.45	-0.09	-1.58			-0.09	5.40
Variance 2			0.33	0.06	-0.43			-0.00	-1.94

Notes

Collected at 10:15. Sunny 60s. EB-2 here at 0950 (gloves)

Grab Samples

Product Name: Low-Flow System

Date: 2017-10-24 15:15:11

Project Information:

Operator Name Chris Parker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 32° 55' 25.37"  
Longitude -83° -42' -3.1"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .375 in  
Tubing Length 38 ft

Pump placement from TOC 32.7 ft

Well Information:

Well ID ARGWA-20  
Well diameter 2 in  
Well Total Depth 37.7 ft  
Screen Length 10 ft  
Depth to Water 18.75 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 1.310309 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1 in  
Total Volume Pumped 44 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	14:48:20	12609.82	18.12	5.58	143.70	11.00	18.80	5.91	131.83
Last 5	14:53:20	12909.81	18.16	5.58	143.77	10.00	18.80	5.90	131.81
Last 5	14:58:20	13209.81	18.18	5.60	143.88	10.00	18.80	5.92	131.21
Last 5	15:03:20	13509.81	18.14	5.59	143.80	9.83	18.70	5.91	132.12
Last 5	15:08:20	13809.80	18.12	5.58	143.83	9.69	18.70	5.92	131.53
Variance 0			0.02	0.01	0.11			0.01	-0.60
Variance 1			-0.05	-0.01	-0.07			-0.00	0.91
Variance 2			-0.01	-0.01	0.02			0.01	-0.59

Notes

Collected at 15:15. Sunny 60s. DUP 2 here.

Grab Samples

Product Name: Low-Flow System

Date: 2017-10-24 17:26:46

Project Information:

Operator Name Chris Parker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 32° 55' 25.37"  
Longitude -83° -42' -3.1"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .375 in  
Tubing Length 28 ft

Pump placement from TOC 22.3 ft

Well Information:

Well ID ARGWC-21  
Well diameter 2 in  
Well Total Depth 27.28 ft  
Screen Length 10 ft  
Depth to Water 13.92 ft

Pumping Information:

Final Pumping Rate 140 mL/min  
Total System Volume 1.093122 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 44 in  
Total Volume Pumped 7.7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	17:02:08	1799.99	19.37	6.02	563.65	10.00	16.50	0.21	26.11
Last 5	17:07:08	2099.99	19.28	6.01	565.56	7.34	16.60	0.20	24.72
Last 5	17:12:08	2399.98	19.32	6.02	569.46	6.18	16.60	0.18	21.91
Last 5	17:17:09	2700.98	19.28	6.02	570.25	5.20	16.60	0.19	21.27
Last 5	17:22:10	3001.97	19.25	6.02	572.50	4.37	16.60	0.18	20.20
Variance 0			0.05	0.00	3.89			-0.02	-2.80
Variance 1			-0.05	-0.00	0.79			0.01	-0.64
Variance 2			-0.03	0.01	2.25			-0.01	-1.08

Notes

Collected at 17:25. Sunny 60s. FB-2 here

Grab Samples

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-152145-1

TestAmerica 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



Authorized for release by:

4/24/2018 7:33:14 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*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.*

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# Case Narrative

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

**Job ID: 400-152145-1**

**Laboratory: TestAmerica Pensacola**

## Narrative

**Job Narrative  
400-152145-1**

### HPLC/IC

Method(s) 300.0: The following sample was diluted to bring the concentration of target analytes within the calibration range: ARGWC-21 (400-152145-3). Elevated reporting limits (RLs) are provided.

### Metals

Method(s) 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 394330 and analytical batch 394514 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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# Detection Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

## Client Sample ID: ARGWA-19

## Lab Sample ID: 400-152145-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.2		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	7.9		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.044		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.022	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	12		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0015	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0057	F1	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Molybdenum	0.00096	J	0.015	0.00085	mg/L	5		6020	Total Recoverable
Selenium	0.00074	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	120		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: ARGWA-20

## Lab Sample ID: 400-152145-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.7		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	18		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.081		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.060		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	9.9		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0071		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0021	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0012	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	100		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: ARGWC-21

## Lab Sample ID: 400-152145-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.8		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.094	J	0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate - DL	170		5.0	3.5	mg/L	5		300.0	Total/NA
Arsenic	0.0022		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.12		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.61		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	51		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.0019	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.012		0.0050	0.0011	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
 SDG: Ash Pond #2

## Client Sample ID: ARGWC-21 (Continued)

## Lab Sample ID: 400-152145-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	370		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: EB-2-4-9-18

## Lab Sample ID: 400-152145-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Molybdenum	0.0012	J	0.015	0.00085	mg/L	5		6020	Total Recoverable
Mercury	0.000070	J	0.00020	0.000070	mg/L	1		7470A	Total/NA

## Client Sample ID: DUP-2

## Lab Sample ID: 400-152145-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.2		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	7.9		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.044		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.023	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	12		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0016	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0055		0.0050	0.0011	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	150		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: FB-2-4-10-18

## Lab Sample ID: 400-152145-6

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola



# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

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

#### 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 PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-152145-1	ARGWA-19	Water	04/10/18 09:22	04/12/18 09:32
400-152145-2	ARGWA-20	Water	04/09/18 18:46	04/12/18 09:32
400-152145-3	ARGWC-21	Water	04/10/18 11:32	04/13/18 09:10
400-152145-4	EB-2-4-9-18	Water	04/09/18 19:10	04/12/18 09:32
400-152145-5	DUP-2	Water	04/10/18 00:00	04/12/18 09:32
400-152145-6	FB-2-4-10-18	Water	04/10/18 11:50	04/12/18 09:32

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-152145-1**

**Date Collected: 04/10/18 09:22**

**Matrix: Water**

**Date Received: 04/12/18 09:32**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>7.2</b>		1.0	0.89	mg/L			04/19/18 04:48	1
Fluoride	<0.082		0.20	0.082	mg/L			04/19/18 04:48	1
<b>Sulfate</b>	<b>7.9</b>		1.0	0.70	mg/L			04/19/18 04:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/18 11:32	04/18/18 22:35	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/18/18 11:32	04/18/18 22:35	5
<b>Barium</b>	<b>0.044</b>		0.0025	0.00049	mg/L		04/18/18 11:32	04/18/18 22:35	5
Silver	<0.00011		0.0013	0.00011	mg/L		04/18/18 11:32	04/18/18 22:35	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 22:35	5
<b>Boron</b>	<b>0.022</b>	<b>J</b>	0.050	0.021	mg/L		04/18/18 11:32	04/18/18 22:35	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 22:35	5
<b>Calcium</b>	<b>12</b>		0.25	0.13	mg/L		04/18/18 11:32	04/18/18 22:35	5
<b>Chromium</b>	<b>0.0015</b>	<b>J</b>	0.0025	0.0011	mg/L		04/18/18 11:32	04/18/18 22:35	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/18 11:32	04/18/18 22:35	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/18/18 11:32	04/18/18 22:35	5
<b>Lithium</b>	<b>0.0057</b>	<b>F1</b>	0.0050	0.0011	mg/L		04/18/18 11:32	04/18/18 22:35	5
<b>Molybdenum</b>	<b>0.00096</b>	<b>J</b>	0.015	0.00085	mg/L		04/18/18 11:32	04/18/18 22:35	5
<b>Selenium</b>	<b>0.00074</b>	<b>J</b>	0.0013	0.00024	mg/L		04/18/18 11:32	04/18/18 22:35	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/18 11:32	04/18/18 22:35	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/21/18 13:35	04/23/18 14:11	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>120</b>		5.0	3.4	mg/L			04/16/18 17:53	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-152145-2**

Date Collected: 04/09/18 18:46

Matrix: Water

Date Received: 04/12/18 09:32

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>4.7</b>		1.0	0.89	mg/L			04/19/18 05:10	1
Fluoride	<0.082		0.20	0.082	mg/L			04/19/18 05:10	1
<b>Sulfate</b>	<b>18</b>		1.0	0.70	mg/L			04/19/18 05:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/18 11:32	04/18/18 23:20	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/18/18 11:32	04/18/18 23:20	5
<b>Barium</b>	<b>0.081</b>		0.0025	0.00049	mg/L		04/18/18 11:32	04/18/18 23:20	5
Silver	<0.00011		0.0013	0.00011	mg/L		04/18/18 11:32	04/18/18 23:20	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 23:20	5
<b>Boron</b>	<b>0.060</b>		0.050	0.021	mg/L		04/18/18 11:32	04/18/18 23:20	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 23:20	5
<b>Calcium</b>	<b>9.9</b>		0.25	0.13	mg/L		04/18/18 11:32	04/18/18 23:20	5
<b>Chromium</b>	<b>0.0071</b>		0.0025	0.0011	mg/L		04/18/18 11:32	04/18/18 23:20	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/18 11:32	04/18/18 23:20	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/18/18 11:32	04/18/18 23:20	5
<b>Lithium</b>	<b>0.0021</b>	<b>J</b>	0.0050	0.0011	mg/L		04/18/18 11:32	04/18/18 23:20	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/18 11:32	04/18/18 23:20	5
<b>Selenium</b>	<b>0.0012</b>	<b>J</b>	0.0013	0.00024	mg/L		04/18/18 11:32	04/18/18 23:20	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/18 11:32	04/18/18 23:20	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/21/18 13:35	04/23/18 14:13	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>100</b>		5.0	3.4	mg/L			04/14/18 16:44	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-152145-3**

**Date Collected: 04/10/18 11:32**

**Matrix: Water**

**Date Received: 04/13/18 09:10**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.8		1.0	0.89	mg/L			04/19/18 05:33	1
Fluoride	0.094	J	0.20	0.082	mg/L			04/19/18 05:33	1

### Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	170		5.0	3.5	mg/L			04/19/18 19:47	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/18 11:32	04/18/18 23:24	5
Arsenic	0.0022		0.0013	0.00046	mg/L		04/18/18 11:32	04/18/18 23:24	5
Barium	0.12		0.0025	0.00049	mg/L		04/18/18 11:32	04/18/18 23:24	5
Silver	<0.00011		0.0013	0.00011	mg/L		04/18/18 11:32	04/18/18 23:24	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 23:24	5
Boron	0.61		0.050	0.021	mg/L		04/18/18 11:32	04/18/18 23:24	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 23:24	5
Calcium	51		0.25	0.13	mg/L		04/18/18 11:32	04/18/18 23:24	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/18/18 11:32	04/18/18 23:24	5
Cobalt	0.0019	J	0.0025	0.00040	mg/L		04/18/18 11:32	04/18/18 23:24	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/18/18 11:32	04/18/18 23:24	5
Lithium	0.012		0.0050	0.0011	mg/L		04/18/18 11:32	04/18/18 23:24	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/18 11:32	04/18/18 23:24	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/18 11:32	04/18/18 23:24	5
Thallium	<0.00085		0.00050	0.00085	mg/L		04/18/18 11:32	04/18/18 23:24	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/21/18 13:35	04/23/18 14:36	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	370		5.0	3.4	mg/L			04/16/18 12:04	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

**Client Sample ID: EB-2-4-9-18**

**Lab Sample ID: 400-152145-4**

**Date Collected: 04/09/18 19:10**

**Matrix: Water**

**Date Received: 04/12/18 09:32**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			04/19/18 05:56	1
Fluoride	<0.082		0.20	0.082	mg/L			04/19/18 05:56	1
Sulfate	<0.70		1.0	0.70	mg/L			04/19/18 05:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/18 11:32	04/18/18 23:29	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/18/18 11:32	04/18/18 23:29	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/18/18 11:32	04/18/18 23:29	5
Silver	<0.00011		0.0013	0.00011	mg/L		04/18/18 11:32	04/18/18 23:29	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 23:29	5
Boron	<0.021		0.050	0.021	mg/L		04/18/18 11:32	04/18/18 23:29	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 23:29	5
Calcium	<0.13		0.25	0.13	mg/L		04/18/18 11:32	04/18/18 23:29	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/18/18 11:32	04/18/18 23:29	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/18 11:32	04/18/18 23:29	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/18/18 11:32	04/18/18 23:29	5
Lithium	<0.0011		0.0050	0.0011	mg/L		04/18/18 11:32	04/18/18 23:29	5
<b>Molybdenum</b>	<b>0.0012</b>	<b>J</b>	0.015	0.00085	mg/L		04/18/18 11:32	04/18/18 23:29	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/18 11:32	04/18/18 23:29	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/18 11:32	04/18/18 23:29	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Mercury</b>	<b>0.000070</b>	<b>J</b>	0.00020	0.000070	mg/L		04/21/18 13:35	04/23/18 14:39	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			04/14/18 16:44	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

**Client Sample ID: DUP-2**

**Date Collected: 04/10/18 00:00**

**Date Received: 04/12/18 09:32**

**Lab Sample ID: 400-152145-5**

**Matrix: Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>7.2</b>		1.0	0.89	mg/L			04/19/18 06:19	1
Fluoride	<0.082		0.20	0.082	mg/L			04/19/18 06:19	1
<b>Sulfate</b>	<b>7.9</b>		1.0	0.70	mg/L			04/19/18 06:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/18 11:32	04/18/18 23:33	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/18/18 11:32	04/18/18 23:33	5
<b>Barium</b>	<b>0.044</b>		0.0025	0.00049	mg/L		04/18/18 11:32	04/18/18 23:33	5
Silver	<0.00011		0.0013	0.00011	mg/L		04/18/18 11:32	04/18/18 23:33	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 23:33	5
<b>Boron</b>	<b>0.023</b>	<b>J</b>	0.050	0.021	mg/L		04/18/18 11:32	04/18/18 23:33	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 23:33	5
<b>Calcium</b>	<b>12</b>		0.25	0.13	mg/L		04/18/18 11:32	04/18/18 23:33	5
<b>Chromium</b>	<b>0.0016</b>	<b>J</b>	0.0025	0.0011	mg/L		04/18/18 11:32	04/18/18 23:33	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/18 11:32	04/18/18 23:33	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/18/18 11:32	04/18/18 23:33	5
<b>Lithium</b>	<b>0.0055</b>		0.0050	0.0011	mg/L		04/18/18 11:32	04/18/18 23:33	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/18 11:32	04/18/18 23:33	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/18 11:32	04/18/18 23:33	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/18 11:32	04/18/18 23:33	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/21/18 13:35	04/23/18 14:40	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>150</b>		5.0	3.4	mg/L			04/14/18 16:44	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

**Client Sample ID: FB-2-4-10-18**

**Lab Sample ID: 400-152145-6**

**Date Collected: 04/10/18 11:50**

**Matrix: Water**

**Date Received: 04/12/18 09:32**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			04/19/18 16:03	1
Fluoride	<0.082		0.20	0.082	mg/L			04/19/18 16:03	1
Sulfate	<0.70		1.0	0.70	mg/L			04/19/18 16:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/18 11:32	04/18/18 23:38	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/18/18 11:32	04/18/18 23:38	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/18/18 11:32	04/18/18 23:38	5
Silver	<0.00011		0.0013	0.00011	mg/L		04/18/18 11:32	04/18/18 23:38	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 23:38	5
Boron	<0.021		0.050	0.021	mg/L		04/18/18 11:32	04/18/18 23:38	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 23:38	5
Calcium	<0.13		0.25	0.13	mg/L		04/18/18 11:32	04/18/18 23:38	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/18/18 11:32	04/18/18 23:38	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/18 11:32	04/18/18 23:38	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/18/18 11:32	04/18/18 23:38	5
Lithium	<0.0011		0.0050	0.0011	mg/L		04/18/18 11:32	04/18/18 23:38	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/18 11:32	04/18/18 23:38	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/18 11:32	04/18/18 23:38	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/18 11:32	04/18/18 23:38	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/21/18 13:35	04/23/18 14:42	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			04/16/18 12:04	1



# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: 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.
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.
E	Result exceeded calibration range.

### 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.
F1	MS and/or MSD Recovery is outside acceptance limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

**Client Sample ID: ARGWA-19**

**Date Collected: 04/10/18 09:22**

**Date Received: 04/12/18 09:32**

**Lab Sample ID: 400-152145-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	394496	04/19/18 04:48	JAW	TAL PEN
Total Recoverable	Prep	3005A			394330	04/18/18 11:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	394514	04/18/18 22:35	DRE	TAL PEN
Total/NA	Prep	7470A			394619	04/21/18 13:35	DN1	TAL PEN
Total/NA	Analysis	7470A		1	394938	04/23/18 14:11	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	394044	04/16/18 17:53	RRC	TAL PEN

**Client Sample ID: ARGWA-20**

**Date Collected: 04/09/18 18:46**

**Date Received: 04/12/18 09:32**

**Lab Sample ID: 400-152145-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	394496	04/19/18 05:10	JAW	TAL PEN
Total Recoverable	Prep	3005A			394330	04/18/18 11:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	394514	04/18/18 23:20	DRE	TAL PEN
Total/NA	Prep	7470A			394619	04/21/18 13:35	DN1	TAL PEN
Total/NA	Analysis	7470A		1	394938	04/23/18 14:13	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	393943	04/14/18 16:44	TET	TAL PEN

**Client Sample ID: ARGWC-21**

**Date Collected: 04/10/18 11:32**

**Date Received: 04/13/18 09:10**

**Lab Sample ID: 400-152145-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	394496	04/19/18 05:33	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	394564	04/19/18 19:47	JAW	TAL PEN
Total Recoverable	Prep	3005A			394330	04/18/18 11:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	394514	04/18/18 23:24	DRE	TAL PEN
Total/NA	Prep	7470A			394619	04/21/18 13:35	DN1	TAL PEN
Total/NA	Analysis	7470A		1	394938	04/23/18 14:36	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	394035	04/16/18 12:04	RRC	TAL PEN

**Client Sample ID: EB-2-4-9-18**

**Date Collected: 04/09/18 19:10**

**Date Received: 04/12/18 09:32**

**Lab Sample ID: 400-152145-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	394496	04/19/18 05:56	JAW	TAL PEN
Total Recoverable	Prep	3005A			394330	04/18/18 11:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	394514	04/18/18 23:29	DRE	TAL PEN
Total/NA	Prep	7470A			394619	04/21/18 13:35	DN1	TAL PEN
Total/NA	Analysis	7470A		1	394938	04/23/18 14:39	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

**Client Sample ID: EB-2-4-9-18**

**Lab Sample ID: 400-152145-4**

**Date Collected: 04/09/18 19:10**

**Matrix: Water**

**Date Received: 04/12/18 09:32**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	393943	04/14/18 16:44	TET	TAL PEN

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-152145-5**

**Date Collected: 04/10/18 00:00**

**Matrix: Water**

**Date Received: 04/12/18 09:32**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	394496	04/19/18 06:19	JAW	TAL PEN
Total Recoverable	Prep	3005A			394330	04/18/18 11:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	394514	04/18/18 23:33	DRE	TAL PEN
Total/NA	Prep	7470A			394619	04/21/18 13:35	DN1	TAL PEN
Total/NA	Analysis	7470A		1	394938	04/23/18 14:40	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	393943	04/14/18 16:44	TET	TAL PEN

**Client Sample ID: FB-2-4-10-18**

**Lab Sample ID: 400-152145-6**

**Date Collected: 04/10/18 11:50**

**Matrix: Water**

**Date Received: 04/12/18 09:32**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	394564	04/19/18 16:03	JAW	TAL PEN
Total Recoverable	Prep	3005A			394330	04/18/18 11:32	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	394514	04/18/18 23:38	DRE	TAL PEN
Total/NA	Prep	7470A			394619	04/21/18 13:35	DN1	TAL PEN
Total/NA	Analysis	7470A		1	394938	04/23/18 14:42	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	394035	04/16/18 12:04	RRC	TAL PEN

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

## HPLC/IC

### Analysis Batch: 394496

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-1	ARGWA-19	Total/NA	Water	300.0	
400-152145-2	ARGWA-20	Total/NA	Water	300.0	
400-152145-3	ARGWC-21	Total/NA	Water	300.0	
400-152145-4	EB-2-4-9-18	Total/NA	Water	300.0	
400-152145-5	DUP-2	Total/NA	Water	300.0	
MB 400-394496/4	Method Blank	Total/NA	Water	300.0	
LCS 400-394496/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-394496/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-152097-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-152097-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 394564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-3 - DL	ARGWC-21	Total/NA	Water	300.0	
400-152145-6	FB-2-4-10-18	Total/NA	Water	300.0	
MB 400-394564/4	Method Blank	Total/NA	Water	300.0	
LCS 400-394564/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-394564/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-152147-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-152147-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 394330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-1	ARGWA-19	Total Recoverable	Water	3005A	
400-152145-2	ARGWA-20	Total Recoverable	Water	3005A	
400-152145-3	ARGWC-21	Total Recoverable	Water	3005A	
400-152145-4	EB-2-4-9-18	Total Recoverable	Water	3005A	
400-152145-5	DUP-2	Total Recoverable	Water	3005A	
400-152145-6	FB-2-4-10-18	Total Recoverable	Water	3005A	
MB 400-394330/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-394330/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-152145-1 MS	ARGWA-19	Total Recoverable	Water	3005A	
400-152145-1 MSD	ARGWA-19	Total Recoverable	Water	3005A	

### Analysis Batch: 394514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-1	ARGWA-19	Total Recoverable	Water	6020	394330
400-152145-2	ARGWA-20	Total Recoverable	Water	6020	394330
400-152145-3	ARGWC-21	Total Recoverable	Water	6020	394330
400-152145-4	EB-2-4-9-18	Total Recoverable	Water	6020	394330
400-152145-5	DUP-2	Total Recoverable	Water	6020	394330
400-152145-6	FB-2-4-10-18	Total Recoverable	Water	6020	394330
MB 400-394330/1-A ^5	Method Blank	Total Recoverable	Water	6020	394330
LCS 400-394330/2-A	Lab Control Sample	Total Recoverable	Water	6020	394330
400-152145-1 MS	ARGWA-19	Total Recoverable	Water	6020	394330
400-152145-1 MSD	ARGWA-19	Total Recoverable	Water	6020	394330

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

## Metals (Continued)

### Prep Batch: 394619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-1	ARGWA-19	Total/NA	Water	7470A	
400-152145-2	ARGWA-20	Total/NA	Water	7470A	
400-152145-3	ARGWC-21	Total/NA	Water	7470A	
400-152145-4	EB-2-4-9-18	Total/NA	Water	7470A	
400-152145-5	DUP-2	Total/NA	Water	7470A	
400-152145-6	FB-2-4-10-18	Total/NA	Water	7470A	
MB 400-394619/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-394619/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-152145-2 MS	ARGWA-20	Total/NA	Water	7470A	
400-152145-2 MSD	ARGWA-20	Total/NA	Water	7470A	

### Analysis Batch: 394938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-1	ARGWA-19	Total/NA	Water	7470A	394619
400-152145-2	ARGWA-20	Total/NA	Water	7470A	394619
400-152145-3	ARGWC-21	Total/NA	Water	7470A	394619
400-152145-4	EB-2-4-9-18	Total/NA	Water	7470A	394619
400-152145-5	DUP-2	Total/NA	Water	7470A	394619
400-152145-6	FB-2-4-10-18	Total/NA	Water	7470A	394619
MB 400-394619/14-A	Method Blank	Total/NA	Water	7470A	394619
LCS 400-394619/15-A	Lab Control Sample	Total/NA	Water	7470A	394619
400-152145-2 MS	ARGWA-20	Total/NA	Water	7470A	394619
400-152145-2 MSD	ARGWA-20	Total/NA	Water	7470A	394619

## General Chemistry

### Analysis Batch: 393943

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-2	ARGWA-20	Total/NA	Water	SM 2540C	
400-152145-4	EB-2-4-9-18	Total/NA	Water	SM 2540C	
400-152145-5	DUP-2	Total/NA	Water	SM 2540C	
MB 400-393943/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-393943/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-151993-B-3 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 394035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-3	ARGWC-21	Total/NA	Water	SM 2540C	
400-152145-6	FB-2-4-10-18	Total/NA	Water	SM 2540C	
MB 400-394035/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-394035/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-152145-3 DU	ARGWC-21	Total/NA	Water	SM 2540C	

### Analysis Batch: 394044

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-1	ARGWA-19	Total/NA	Water	SM 2540C	
MB 400-394044/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-394044/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-152147-A-5 DU	Duplicate	Total/NA	Water	SM 2540C	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 400-394496/4**  
**Matrix: Water**  
**Analysis Batch: 394496**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			04/18/18 19:05	1
Fluoride	<0.082		0.20	0.082	mg/L			04/18/18 19:05	1
Sulfate	<0.70		1.0	0.70	mg/L			04/18/18 19:05	1

**Lab Sample ID: LCS 400-394496/5**  
**Matrix: Water**  
**Analysis Batch: 394496**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.54		mg/L		95	90 - 110
Fluoride	10.0	9.93		mg/L		99	90 - 110
Sulfate	10.0	10.0		mg/L		100	90 - 110

**Lab Sample ID: LCSD 400-394496/6**  
**Matrix: Water**  
**Analysis Batch: 394496**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.55		mg/L		96	90 - 110	0	15
Fluoride	10.0	9.89		mg/L		99	90 - 110	0	15
Sulfate	10.0	9.92		mg/L		99	90 - 110	1	15

**Lab Sample ID: 400-152097-A-1 MS**  
**Matrix: Water**  
**Analysis Batch: 394496**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	9.1		10.0	18.7		mg/L		96	80 - 120
Fluoride	<0.082		10.0	9.99		mg/L		100	80 - 120
Sulfate	12		10.0	22.0		mg/L		102	80 - 120

**Lab Sample ID: 400-152097-A-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 394496**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	9.1		10.0	18.7		mg/L		96	80 - 120	0	20
Fluoride	<0.082		10.0	10.0		mg/L		100	80 - 120	0	20
Sulfate	12		10.0	22.0		mg/L		102	80 - 120	0	20

**Lab Sample ID: MB 400-394564/4**  
**Matrix: Water**  
**Analysis Batch: 394564**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			04/19/18 14:31	1
Fluoride	<0.082		0.20	0.082	mg/L			04/19/18 14:31	1
Sulfate	<0.70		1.0	0.70	mg/L			04/19/18 14:31	1

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 400-394564/5**  
**Matrix: Water**  
**Analysis Batch: 394564**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.65		mg/L		97	90 - 110
Fluoride	10.0	10.1		mg/L		101	90 - 110
Sulfate	10.0	10.3		mg/L		103	90 - 110

**Lab Sample ID: LCSD 400-394564/6**  
**Matrix: Water**  
**Analysis Batch: 394564**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.64		mg/L		96	90 - 110	0	15
Fluoride	10.0	9.96		mg/L		100	90 - 110	2	15
Sulfate	10.0	10.2		mg/L		102	90 - 110	1	15

**Lab Sample ID: 400-152147-A-1 MS**  
**Matrix: Water**  
**Analysis Batch: 394564**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.8		10.0	13.4		mg/L		96	80 - 120
Fluoride	<0.082		10.0	10.3		mg/L		103	80 - 120
Sulfate	230	E	10.0	242	E 4	mg/L		125	80 - 120

**Lab Sample ID: 400-152147-A-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 394564**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	3.8		10.0	13.4		mg/L		96	80 - 120	0	20
Fluoride	<0.082		10.0	10.5		mg/L		105	80 - 120	2	20
Sulfate	230	E	10.0	241	E 4	mg/L		119	80 - 120	0	20

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 400-394330/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 394514**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 394330**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/18/18 11:32	04/18/18 22:21	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/18/18 11:32	04/18/18 22:21	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/18/18 11:32	04/18/18 22:21	5
Silver	<0.00011		0.0013	0.00011	mg/L		04/18/18 11:32	04/18/18 22:21	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 22:21	5
Boron	<0.021		0.050	0.021	mg/L		04/18/18 11:32	04/18/18 22:21	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/18/18 11:32	04/18/18 22:21	5
Calcium	<0.13		0.25	0.13	mg/L		04/18/18 11:32	04/18/18 22:21	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/18/18 11:32	04/18/18 22:21	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/18/18 11:32	04/18/18 22:21	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/18/18 11:32	04/18/18 22:21	5

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

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

**Lab Sample ID: MB 400-394330/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 394514**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 394330**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0011		0.0050	0.0011	mg/L		04/18/18 11:32	04/18/18 22:21	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/18/18 11:32	04/18/18 22:21	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/18/18 11:32	04/18/18 22:21	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/18/18 11:32	04/18/18 22:21	5

**Lab Sample ID: LCS 400-394330/2-A**  
**Matrix: Water**  
**Analysis Batch: 394514**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 394330**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0521		mg/L		104	80 - 120
Arsenic	0.0500	0.0510		mg/L		102	80 - 120
Barium	0.0500	0.0524		mg/L		105	80 - 120
Silver	0.0500	0.0496		mg/L		99	80 - 120
Beryllium	0.0500	0.0512		mg/L		102	80 - 120
Boron	0.100	0.103		mg/L		103	80 - 120
Cadmium	0.0500	0.0517		mg/L		103	80 - 120
Calcium	5.00	5.12		mg/L		102	80 - 120
Chromium	0.0500	0.0531		mg/L		106	80 - 120
Cobalt	0.0500	0.0545		mg/L		109	80 - 120
Lead	0.0500	0.0537		mg/L		107	80 - 120
Lithium	0.0500	0.0502		mg/L		100	80 - 120
Molybdenum	0.0500	0.0507		mg/L		101	80 - 120
Selenium	0.0500	0.0471		mg/L		94	80 - 120
Thallium	0.0100	0.0101		mg/L		101	80 - 120

**Lab Sample ID: 400-152145-1 MS**  
**Matrix: Water**  
**Analysis Batch: 394514**

**Client Sample ID: ARGWA-19**  
**Prep Type: Total Recoverable**  
**Prep Batch: 394330**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0010		0.0500	0.0541		mg/L		108	75 - 125
Antimony	<0.0010		0.0500	0.0541		mg/L		108	75 - 125
Arsenic	<0.00046		0.0500	0.0515		mg/L		103	75 - 125
Arsenic	<0.00046		0.0500	0.0515		mg/L		103	75 - 125
Barium	0.044		0.0500	0.0962		mg/L		105	75 - 125
Barium	0.044		0.0500	0.0962		mg/L		105	75 - 125
Silver	<0.00011		0.0500	0.0509		mg/L		102	75 - 125
Silver	<0.00011		0.0500	0.0509		mg/L		102	75 - 125
Beryllium	<0.00034		0.0500	0.0513		mg/L		103	75 - 125
Beryllium	<0.00034		0.0500	0.0513		mg/L		103	75 - 125
Boron	0.022	J	0.100	0.132		mg/L		109	75 - 125
Boron	0.022	J	0.100	0.132		mg/L		109	75 - 125
Cadmium	<0.00034		0.0500	0.0511		mg/L		102	75 - 125
Cadmium	<0.00034		0.0500	0.0511		mg/L		102	75 - 125
Calcium	12		5.00	17.4		mg/L		104	75 - 125
Calcium	12		5.00	17.4		mg/L		104	75 - 125
Chromium	0.0015	J	0.0500	0.0546		mg/L		106	75 - 125
Chromium	0.0015	J	0.0500	0.0546		mg/L		106	75 - 125

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

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

**Lab Sample ID: 400-152145-1 MS**  
**Matrix: Water**  
**Analysis Batch: 394514**

**Client Sample ID: ARGWA-19**  
**Prep Type: Total Recoverable**  
**Prep Batch: 394330**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier					
Cobalt	<0.00040		0.0500	0.0521		mg/L		104	75 - 125	
Cobalt	<0.00040		0.0500	0.0521		mg/L		104	75 - 125	
Lead	<0.00035		0.0500	0.0492		mg/L		98	75 - 125	
Lead	<0.00035		0.0500	0.0492		mg/L		98	75 - 125	
Lithium	0.0057	F1	0.0500	0.0723	F1	mg/L		133	75 - 125	
Lithium	0.0057	F1	0.0500	0.0723	F1	mg/L		133	75 - 125	
Molybdenum	0.00096	J	0.0500	0.0519		mg/L		102	75 - 125	
Molybdenum	0.00096	J	0.0500	0.0519		mg/L		102	75 - 125	
Selenium	0.00074	J	0.0500	0.0500		mg/L		99	75 - 125	
Selenium	0.00074	J	0.0500	0.0500		mg/L		99	75 - 125	
Thallium	<0.000085		0.0100	0.0102		mg/L		102	75 - 125	
Thallium	<0.000085		0.0100	0.0102		mg/L		102	75 - 125	

**Lab Sample ID: 400-152145-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 394514**

**Client Sample ID: ARGWA-19**  
**Prep Type: Total Recoverable**  
**Prep Batch: 394330**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier							
Antimony	<0.0010		0.0500	0.0531		mg/L		106	75 - 125	2	20	
Antimony	<0.0010		0.0500	0.0531		mg/L		106	75 - 125	2	20	
Arsenic	<0.00046		0.0500	0.0512		mg/L		102	75 - 125	1	20	
Arsenic	<0.00046		0.0500	0.0512		mg/L		102	75 - 125	1	20	
Barium	0.044		0.0500	0.0949		mg/L		103	75 - 125	1	20	
Barium	0.044		0.0500	0.0949		mg/L		103	75 - 125	1	20	
Silver	<0.00011		0.0500	0.0507		mg/L		101	75 - 125	0	20	
Silver	<0.00011		0.0500	0.0507		mg/L		101	75 - 125	0	20	
Beryllium	<0.00034		0.0500	0.0510		mg/L		102	75 - 125	1	20	
Beryllium	<0.00034		0.0500	0.0510		mg/L		102	75 - 125	1	20	
Boron	0.022	J	0.100	0.129		mg/L		106	75 - 125	2	20	
Boron	0.022	J	0.100	0.129		mg/L		106	75 - 125	2	20	
Cadmium	<0.00034		0.0500	0.0517		mg/L		103	75 - 125	1	20	
Cadmium	<0.00034		0.0500	0.0517		mg/L		103	75 - 125	1	20	
Calcium	12		5.00	17.3		mg/L		103	75 - 125	0	20	
Calcium	12		5.00	17.3		mg/L		103	75 - 125	0	20	
Chromium	0.0015	J	0.0500	0.0546		mg/L		106	75 - 125	0	20	
Chromium	0.0015	J	0.0500	0.0546		mg/L		106	75 - 125	0	20	
Cobalt	<0.00040		0.0500	0.0522		mg/L		104	75 - 125	0	20	
Cobalt	<0.00040		0.0500	0.0522		mg/L		104	75 - 125	0	20	
Lead	<0.00035		0.0500	0.0494		mg/L		99	75 - 125	0	20	
Lead	<0.00035		0.0500	0.0494		mg/L		99	75 - 125	0	20	
Lithium	0.0057	F1	0.0500	0.0726	F1	mg/L		134	75 - 125	0	20	
Lithium	0.0057	F1	0.0500	0.0726	F1	mg/L		134	75 - 125	0	20	
Molybdenum	0.00096	J	0.0500	0.0510		mg/L		100	75 - 125	2	20	
Molybdenum	0.00096	J	0.0500	0.0510		mg/L		100	75 - 125	2	20	
Selenium	0.00074	J	0.0500	0.0484		mg/L		95	75 - 125	3	20	
Selenium	0.00074	J	0.0500	0.0484		mg/L		95	75 - 125	3	20	
Thallium	<0.000085		0.0100	0.0102		mg/L		102	75 - 125	0	20	
Thallium	<0.000085		0.0100	0.0102		mg/L		102	75 - 125	0	20	

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 400-394619/14-A**  
**Matrix: Water**  
**Analysis Batch: 394938**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 394619**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/21/18 13:35	04/23/18 14:07	1

**Lab Sample ID: LCS 400-394619/15-A**  
**Matrix: Water**  
**Analysis Batch: 394938**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 394619**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.00111		mg/L		111	80 - 120

**Lab Sample ID: 400-152145-2 MS**  
**Matrix: Water**  
**Analysis Batch: 394938**

**Client Sample ID: ARGWA-20**  
**Prep Type: Total/NA**  
**Prep Batch: 394619**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070		0.00201	0.00214		mg/L		106	80 - 120

**Lab Sample ID: 400-152145-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 394938**

**Client Sample ID: ARGWA-20**  
**Prep Type: Total/NA**  
**Prep Batch: 394619**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000070		0.00201	0.00214		mg/L		106	80 - 120	0	20

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

**Lab Sample ID: MB 400-393943/1**  
**Matrix: Water**  
**Analysis Batch: 393943**

**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	<3.4		5.0	3.4	mg/L			04/14/18 16:44	1

**Lab Sample ID: LCS 400-393943/2**  
**Matrix: Water**  
**Analysis Batch: 393943**

**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	293	282		mg/L		96	78 - 122

**Lab Sample ID: 400-151993-B-3 DU**  
**Matrix: Water**  
**Analysis Batch: 393943**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	170		172		mg/L		0	5

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
SDG: Ash Pond #2

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

**Lab Sample ID: MB 400-394035/1**  
**Matrix: Water**  
**Analysis Batch: 394035**

**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	<3.4		5.0	3.4	mg/L			04/16/18 12:04	1

**Lab Sample ID: LCS 400-394035/2**  
**Matrix: Water**  
**Analysis Batch: 394035**

**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	293	246		mg/L		84	78 - 122

**Lab Sample ID: 400-152145-3 DU**  
**Matrix: Water**  
**Analysis Batch: 394035**

**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	370		374		mg/L		0	5

**Lab Sample ID: MB 400-394044/1**  
**Matrix: Water**  
**Analysis Batch: 394044**

**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	<3.4		5.0	3.4	mg/L			04/16/18 17:53	1

**Lab Sample ID: LCS 400-394044/2**  
**Matrix: Water**  
**Analysis Batch: 394044**

**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	293	274		mg/L		94	78 - 122

**Lab Sample ID: 400-152147-A-5 DU**  
**Matrix: Water**  
**Analysis Batch: 394044**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	60		60.0		mg/L		0	5



Pace Analytical Services, Inc.  
110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
(770) 734-4200 : FAX (770) 734-4201 : [www.asi-lab.com](http://www.asi-lab.com)

**CHAIN OF CUSTODY RECORD**

PAGE: 1 OF 1

<b>CLIENT NAME:</b> Georgia Power <b>CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:</b> 241 Ralph McGill Blvd SE B10185 Atlanta, GA 30308 404-506-7239		<b>REPORT TO:</b> Joiu Abraham CC: Maria Padilla Heath McCorkle <b>PO #:</b> laburch@southernco.com		<b>PROJECT NAME/STATE:</b> Plant Arkwright Pond 2 <b>PROJECT #:</b> Phase II CCR & State D&O	
<b>CONTAINER TYPE:</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER  <b>PRESERVATION:</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen	<b>CONTAINER TYPE:</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER  <b>PRESERVATION:</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen	<b>ANALYSIS REQUESTED</b>			
		<b>CONTAINER TYPE:</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER  <b>PRESERVATION:</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen	<b>CONTAINER TYPE:</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER  <b>PRESERVATION:</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen	<b>CONTAINER TYPE:</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER  <b>PRESERVATION:</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen	<b>CONTAINER TYPE:</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER  <b>PRESERVATION:</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen
<b>REMARKS/ADDITIONAL INFORMATION</b>		<b>REMARKS/ADDITIONAL INFORMATION</b>			

L A B	I D N U M B E R	CONTAINER TYPE	PRESERVATION	ANALYSIS REQUESTED						DATE/TIME	LAB #
				# of	Metals App. III & IV (EPA 6020/7470)	Metals (see additional list below) (EPA 6020)	Cl, F, SO <sub>4</sub> & TDS (EPA 300.0 & SM 2540C)	Radium 226 & 228 (SW-846 9315/9320)	RELINQUISHED BY:		
				3	✓	✓	✓	✓	APR vch	4-11-18	1230
				3	✓	✓	✓	✓		4-11-18	
				3	✓	✓	✓	✓		4-11-18	
				3	✓	✓	✓	✓		4-11-18	
				3	✓	✓	✓	✓		4-11-18	
				3	✓	✓	✓	✓		4-11-18	

4/12/18 2.2°C JRS  
4/13/18 0.9°C JRS

Plant Arkwright - Ash Pond 2 COC.xlsx

4/24/2018



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-152145-1

SDG Number: Ash Pond #2

**Login Number: 152145**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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, 0.9°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 <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Accreditation/Certification Summary

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-1  
 SDG: Ash Pond #2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-18
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	03-31-18 *
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-18
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-18
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-17-12	09-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18

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

# TestAmerica

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## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-152145-2

TestAmerica Sample Delivery Group: Ash Pond #2

Client Project/Site: CCR Plant Arkwright

For:

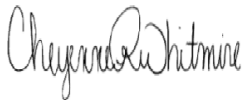
Southern Company

Southern Accounts Payable-SCS

PO BOX 830749

Birmingham, Alabama 35283

Attn: Accounts Payable



Authorized for release by:

5/13/2018 7:45:25 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

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

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# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: 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 = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-152145-1	ARGWA-19	Water	04/10/18 09:22	04/12/18 09:32
400-152145-2	ARGWA-20	Water	04/09/18 18:46	04/12/18 09:32
400-152145-3	ARGWC-21	Water	04/10/18 11:32	04/13/18 09:10
400-152145-4	EB-2-4-9-18	Water	04/09/18 19:10	04/12/18 09:32
400-152145-5	DUP-2	Water	04/10/18 00:00	04/12/18 09:32
400-152145-6	FB-2-4-10-18	Water	04/10/18 11:50	04/12/18 09:32

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-152145-1**

Date Collected: 04/10/18 09:22

Matrix: Water

Date Received: 04/12/18 09:32

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.201		0.0753	0.0774	1.00	0.0677	pCi/L	04/18/18 13:31	05/10/18 06:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					04/18/18 13:31	05/10/18 06:22	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0990	U	0.215	0.215	1.00	0.368	pCi/L	04/18/18 13:59	04/24/18 08:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					04/18/18 13:59	04/24/18 08:59	1
Y Carrier	91.6		40 - 110					04/18/18 13:59	04/24/18 08:59	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	0.300	U	0.228	0.229	5.00	0.368	pCi/L		05/11/18 10:34	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-152145-2**

Date Collected: 04/09/18 18:46

Matrix: Water

Date Received: 04/12/18 09:32

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.106		0.0564	0.0572	1.00	0.0638	pCi/L	04/18/18 13:31	05/10/18 06:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					04/18/18 13:31	05/10/18 06:22	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.434		0.228	0.231	1.00	0.338	pCi/L	04/18/18 13:59	04/24/18 08:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					04/18/18 13:59	04/24/18 08:59	1
Y Carrier	87.9		40 - 110					04/18/18 13:59	04/24/18 08:59	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	0.539		0.235	0.238	5.00	0.338	pCi/L		05/11/18 10:34	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-152145-3**

Date Collected: 04/10/18 11:32

Matrix: Water

Date Received: 04/13/18 09:10

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.261		0.0826	0.0859	1.00	0.0568	pCi/L	04/18/18 13:31	05/10/18 06:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					04/18/18 13:31	05/10/18 06:22	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.360		0.202	0.205	1.00	0.302	pCi/L	04/18/18 13:59	04/24/18 09:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					04/18/18 13:59	04/24/18 09:00	1
Y Carrier	94.6		40 - 110					04/18/18 13:59	04/24/18 09:00	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		0.218	0.222	5.00	0.302	pCi/L		05/11/18 10:34	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

**Client Sample ID: EB-2-4-9-18**

**Lab Sample ID: 400-152145-4**

**Date Collected: 04/09/18 19:10**

**Matrix: Water**

**Date Received: 04/12/18 09:32**

### Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0370	U	0.0430	0.0432	1.00	0.0690	pCi/L	04/18/18 13:31	05/10/18 06:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					04/18/18 13:31	05/10/18 06:22	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.333		0.213	0.216	1.00	0.329	pCi/L	04/18/18 13:59	04/24/18 09:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					04/18/18 13:59	04/24/18 09:00	1
Y Carrier	95.7		40 - 110					04/18/18 13:59	04/24/18 09:00	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	0.370		0.217	0.220	5.00	0.329	pCi/L		05/11/18 10:34	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

**Client Sample ID: DUP-2**  
**Date Collected: 04/10/18 00:00**  
**Date Received: 04/12/18 09:32**

**Lab Sample ID: 400-152145-5**  
**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	0.318		0.0974	0.101	1.00	0.0833	pCi/L	04/18/18 13:31	05/10/18 06:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					04/18/18 13:31	05/10/18 06:28	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.210	U	0.183	0.184	1.00	0.293	pCi/L	04/18/18 13:59	04/24/18 09:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					04/18/18 13:59	04/24/18 09:00	1
Y Carrier	91.2		40 - 110					04/18/18 13:59	04/24/18 09:00	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	0.529		0.207	0.210	5.00	0.293	pCi/L		05/11/18 10:34	1

# Client Sample Results

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
 SDG: Ash Pond #2

**Client Sample ID: FB-2-4-10-18**

**Lab Sample ID: 400-152145-6**

**Date Collected: 04/10/18 11:50**

**Matrix: Water**

**Date Received: 04/12/18 09:32**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0263	U	0.0529	0.0529	1.00	0.0951	pCi/L	04/18/18 13:31	05/10/18 06:28	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					04/18/18 13:31	05/10/18 06:28	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.142	U	0.185	0.185	1.00	0.307	pCi/L	04/18/18 13:59	04/24/18 09:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					04/18/18 13:59	04/24/18 09:01	1
Y Carrier	94.2		40 - 110					04/18/18 13:59	04/24/18 09:01	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	0.168	U	0.192	0.192	5.00	0.307	pCi/L		05/11/18 10:34	1



# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: 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)
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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

**Client Sample ID: ARGWA-19**

**Date Collected: 04/10/18 09:22**

**Date Received: 04/12/18 09:32**

**Lab Sample ID: 400-152145-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			361659	04/18/18 13:31	TJT	TAL SL
Total/NA	Analysis	9315		1	364918	05/10/18 06:22	CDR	TAL SL
Total/NA	Prep	PrecSep_0			361663	04/18/18 13:59	TJT	TAL SL
Total/NA	Analysis	9320		1	362306	04/24/18 08:59	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	365230	05/11/18 10:34	RTM	TAL SL

**Client Sample ID: ARGWA-20**

**Date Collected: 04/09/18 18:46**

**Date Received: 04/12/18 09:32**

**Lab Sample ID: 400-152145-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			361659	04/18/18 13:31	TJT	TAL SL
Total/NA	Analysis	9315		1	364918	05/10/18 06:22	CDR	TAL SL
Total/NA	Prep	PrecSep_0			361663	04/18/18 13:59	TJT	TAL SL
Total/NA	Analysis	9320		1	362306	04/24/18 08:59	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	365230	05/11/18 10:34	RTM	TAL SL

**Client Sample ID: ARGWC-21**

**Date Collected: 04/10/18 11:32**

**Date Received: 04/13/18 09:10**

**Lab Sample ID: 400-152145-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			361659	04/18/18 13:31	TJT	TAL SL
Total/NA	Analysis	9315		1	364918	05/10/18 06:22	CDR	TAL SL
Total/NA	Prep	PrecSep_0			361663	04/18/18 13:59	TJT	TAL SL
Total/NA	Analysis	9320		1	362306	04/24/18 09:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	365230	05/11/18 10:34	RTM	TAL SL

**Client Sample ID: EB-2-4-9-18**

**Date Collected: 04/09/18 19:10**

**Date Received: 04/12/18 09:32**

**Lab Sample ID: 400-152145-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			361659	04/18/18 13:31	TJT	TAL SL
Total/NA	Analysis	9315		1	364918	05/10/18 06:22	CDR	TAL SL
Total/NA	Prep	PrecSep_0			361663	04/18/18 13:59	TJT	TAL SL
Total/NA	Analysis	9320		1	362306	04/24/18 09:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	365230	05/11/18 10:34	RTM	TAL SL

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

**Client Sample ID: DUP-2**

**Date Collected: 04/10/18 00:00**

**Date Received: 04/12/18 09:32**

**Lab Sample ID: 400-152145-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			361659	04/18/18 13:31	TJT	TAL SL
Total/NA	Analysis	9315		1	365002	05/10/18 06:28	CDR	TAL SL
Total/NA	Prep	PrecSep_0			361663	04/18/18 13:59	TJT	TAL SL
Total/NA	Analysis	9320		1	362306	04/24/18 09:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	365230	05/11/18 10:34	RTM	TAL SL

**Client Sample ID: FB-2-4-10-18**

**Date Collected: 04/10/18 11:50**

**Date Received: 04/12/18 09:32**

**Lab Sample ID: 400-152145-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			361659	04/18/18 13:31	TJT	TAL SL
Total/NA	Analysis	9315		1	365002	05/10/18 06:28	CDR	TAL SL
Total/NA	Prep	PrecSep_0			361663	04/18/18 13:59	TJT	TAL SL
Total/NA	Analysis	9320		1	362306	04/24/18 09:01	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	365230	05/11/18 10:34	RTM	TAL SL

**Laboratory References:**

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

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

## Rad

### Prep Batch: 361659

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-1	ARGWA-19	Total/NA	Water	PrecSep-21	
400-152145-2	ARGWA-20	Total/NA	Water	PrecSep-21	
400-152145-3	ARGWC-21	Total/NA	Water	PrecSep-21	
400-152145-4	EB-2-4-9-18	Total/NA	Water	PrecSep-21	
400-152145-5	DUP-2	Total/NA	Water	PrecSep-21	
400-152145-6	FB-2-4-10-18	Total/NA	Water	PrecSep-21	
MB 160-361659/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-361659/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
180-76795-B-1-E DU	Duplicate	Total/NA	Water	PrecSep-21	

### Prep Batch: 361663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-152145-1	ARGWA-19	Total/NA	Water	PrecSep_0	
400-152145-2	ARGWA-20	Total/NA	Water	PrecSep_0	
400-152145-3	ARGWC-21	Total/NA	Water	PrecSep_0	
400-152145-4	EB-2-4-9-18	Total/NA	Water	PrecSep_0	
400-152145-5	DUP-2	Total/NA	Water	PrecSep_0	
400-152145-6	FB-2-4-10-18	Total/NA	Water	PrecSep_0	
MB 160-361663/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-361663/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
180-76795-B-1-F DU	Duplicate	Total/NA	Water	PrecSep_0	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-361659/23-A**  
**Matrix: Water**  
**Analysis Batch: 365002**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 361659**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04068	U	0.0567	0.0568	1.00	0.0960	pCi/L	04/18/18 13:31	05/10/18 08:17	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					04/18/18 13:31	05/10/18 08:17	1

**Lab Sample ID: LCS 160-361659/1-A**  
**Matrix: Water**  
**Analysis Batch: 364917**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 361659**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.8	10.58		1.08	1.00	0.0678	pCi/L	90	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	100		40 - 110						

**Lab Sample ID: 180-76795-B-1-E DU**  
**Matrix: Water**  
**Analysis Batch: 364918**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 361659**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.258		0.1589		0.0708	1.00	0.0736	pCi/L	0.63	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	104		40 - 110							

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-361663/23-A**  
**Matrix: Water**  
**Analysis Batch: 362310**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 361663**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.07061	U	0.240	0.240	1.00	0.415	pCi/L	04/18/18 13:59	04/24/18 09:04	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					04/18/18 13:59	04/24/18 09:04	1
Y Carrier	83.4		40 - 110					04/18/18 13:59	04/24/18 09:04	1

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

## Method: 9320 - Radium-228 (GFPC) (Continued)

**Lab Sample ID: LCS 160-361663/1-A**  
**Matrix: Water**  
**Analysis Batch: 362306**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 361663**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.37	8.314		0.977	1.00	0.361	pCi/L	99	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	100		40 - 110
Y Carrier	88.2		40 - 110

**Lab Sample ID: 180-76795-B-1-F DU**  
**Matrix: Water**  
**Analysis Batch: 362306**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 361663**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.286	U	0.3444		0.214	1.00	0.322	pCi/L	0.14	1

Carrier	DU %Yield	DU Qualifier	Limits
Ba Carrier	104		40 - 110
Y Carrier	93.1		40 - 110

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

**Lab Sample ID: 400-152147-A-5 DU**  
**Matrix: Water**  
**Analysis Batch: 365230**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.262	U	0.2718	U	0.206	5.00	0.320	pCi/L	0.02	





Pace Analytical Services, Inc.  
110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
(770) 734-4200 : FAX (770) 734-4201 : [www.asi-lab.com](http://www.asi-lab.com)

**CHAIN OF CUSTODY RECORD**

PAGE: 1 OF 1

<b>CLIENT NAME:</b> Georgia Power <b>CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:</b> 241 Ralph McGill Blvd SE B10185 Atlanta, GA 30308 404-506-7239		<b>REPORT TO:</b> Joiu Abraham <b>CC:</b> Maria Padilla Heath McCorkle <b>PO #:</b> laburch@southernco.com <b>PROJECT NAME/STATE:</b> Plant Arkwright Pond 2		<b>PROJECT #:</b> Phase II CCR & State D&O	
Collection DATE	Collection TIME	MATRIX CODE*	C O M P	G R A B	SAMPLE IDENTIFICATION
4-10-18	0922	GW	V		ARGWA-19
4-9-18	1846	GW	V		ARGWA-20
4-10-18	1132	GW	V		ARGWC-21
4-9-18	1910	W	V		EB-2-4-9-18
4-10-18	—	GW	V		DUP-2
4-10-18	1150	W	V		FB-2-4-10-18
<b>SAMPLED BY AND TITLE:</b> Ryan Walker <b>DATE/TIME:</b> 4-10-18 1300 <b>RECEIVED BY:</b> [Signature] 4-11-18 10:30 <b>RECEIVED BY LAB:</b> [Signature] 4-11-18 0932					
<b>pH checked:</b> Yes No NA Yes No NA		<b>Ice:</b> Yes No NA		<b>Temperature:</b> 4/13/18 0932 Min: Max:	
<b>REINQUIRED BY:</b> [Signature] 4-11-18 <b>DATE/TIME:</b> 4-11-18 1230		<b>REINQUIRED BY:</b> [Signature] 4-11-18 <b>DATE/TIME:</b> 4-11-18 10:10		<b>REINQUIRED BY:</b> [Signature] 4-11-18 <b>DATE/TIME:</b> 4-11-18 1230	
<b>RELINQUISHED BY:</b> [Signature] 4-11-18 <b>DATE/TIME:</b> 4-11-18 10:10		<b>RELINQUISHED BY:</b> [Signature] 4-11-18 <b>DATE/TIME:</b> 4-11-18 10:10		<b>RELINQUISHED BY:</b> [Signature] 4-11-18 <b>DATE/TIME:</b> 4-11-18 1230	
<b>LAB #:</b> 1230 <b>Entered into LIMS:</b> <b>Tracking #:</b>		<b>CLIENT:</b> COURIER <b>Cooler ID:</b> FS		<b>USPS:</b> # of Coolers <b>OTHER:</b> FS	
<b>ANALYSIS REQUESTED:</b> Metals App. III & IV (EPA 6020/7470) Metals (see additional list below) (EPA 6020) Cl, F, SO <sub>4</sub> & TDS (EPA 300.0 & SM 2540C) Radium 226 & 228 (SW-846 9315/9320)		<b>CONTAINER TYPE:</b> # of CONTAINERS → 3		<b>DATE/TIME:</b> 4-11-18 10:10	
<b>CONTAINER TYPE:</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER		<b>PRESERVATION:</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen		<b>DATE/TIME:</b> 4-11-18 10:10	
<b>*MATRIX CODES:</b> DW - DRINKING WATER WW - WASTEWATER GW - GROUNDWATER SW - SURFACE WATER ST - STORM WATER W - WATER		<b>S - SOIL          SL - SLUDGE          SD - SOLID          A - AIR          L - LIQUID          P - PRODUCT</b>		<b>REMARKS/ADDITIONAL INFORMATION</b>	

4/12/18 2.2°C JRS  
4/13/18 0.9°C JRS

Plant Arkwright - Ash Pond 2 COC.xlsx

4/13/18 0910

Plant Arkwright State constituents: As, Ag, Ba, Cd, Pb, Se



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-152145-2

SDG Number: Ash Pond #2

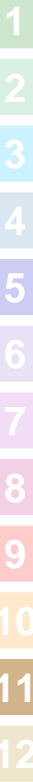
**Login Number: 152145**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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, 0.9°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 <math><6\text{mm}</math> (1/4").	N/A	
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: 400-152145-2

SDG Number: Ash Pond #2

**Login Number: 152145**

**List Number: 2**

**Creator: Taylor, Kristene N**

**List Source: TestAmerica St. Louis**

**List Creation: 04/17/18 03:09 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	20.0
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?	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 <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-18
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	06-30-18
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-18
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-18
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-17-12	09-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18

## Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18 *
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	06-30-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18 *
Illinois	NELAP	5	200023	11-30-18
Iowa	State Program	7	373	12-01-18
Kansas	NELAP	7	E-10236	10-31-18
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18
Michigan	State Program	5	9005	06-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542018-1	07-31-18

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

# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-152145-2  
SDG: Ash Pond #2

## Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
New Jersey	NELAP	2	MO002	06-30-18 *
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18 *
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18 *

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

Product Name: Low-Flow System

Date: 2018-04-10 09:23:39

Project Information:

Operator Name Ryan Walker  
Company Name Atlantic Coast Consulting  
Project Name Plant Arkwright  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 407446  
Turbidity Make/Model Hach 2100Q

Pump Information:

Pump Model/Type QED  
Tubing Type Teflon  
Tubing Diameter .25 in  
Tubing Length 52 ft

Pump placement from TOC 47 ft

Well Information:

Well ID ARGWA-19  
Well diameter 2 in  
Well Total Depth 52.74 ft  
Screen Length 10 ft  
Depth to Water 31 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.891942 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1.2 in  
Total Volume Pumped 8.2 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 3%	+/- 10		+/- 0.3	+/- 10
Last 5	09:02:53	1500.00	18.21	5.93	171.68	0.18	31.10	3.77	502.61
Last 5	09:07:53	1799.99	18.26	5.92	171.26	0.19	31.10	3.77	505.71
Last 5	09:12:53	2099.98	18.19	5.92	170.91	0.21	31.10	3.78	506.81
Last 5	09:17:53	2399.98	18.20	5.92	170.21	0.16	31.10	3.75	502.56
Last 5	09:22:53	2699.97	18.26	5.92	170.49	0.16	31.10	3.76	499.67
Variance 0			-0.07	-0.00	-0.35			0.01	1.10
Variance 1			0.01	0.00	-0.70			-0.03	-4.25
Variance 2			0.06	-0.01	0.28			0.02	-2.89

Notes

Sampled at 09:22. Cloudy, 50's.

Grab Samples

Product Name: Low-Flow System

Date: 2018-04-09 18:47:34

Project Information:

Operator Name Ryan Walker  
Company Name Atlantic Coast Consulting  
Project Name Plant Arkwright  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 407446  
Turbidity Make/Model Hach 2100Q

Pump Information:

Pump Model/Type QED  
Tubing Type Teflon  
Tubing Diameter .375 in  
Tubing Length 42 ft

Pump placement from TOC 32 ft

Well Information:

Well ID ARGWA-20  
Well diameter 2 in  
Well Total Depth 37.7 ft  
Screen Length 10 ft  
Depth to Water 18.05 ft

Pumping Information:

Final Pumping Rate 350 mL/min  
Total System Volume 1.302183 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 5.4 in  
Total Volume Pumped 63 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 3%	+/- 10		+/- 0.3	+/- 10
Last 5	18:26:42	9602.83	17.57	5.78	138.84	8.86	18.50	5.74	543.44
Last 5	18:31:42	9902.82	17.59	5.78	139.12	9.57	18.50	5.74	536.23
Last 5	18:36:42	10202.82	17.59	5.78	139.03	8.97	18.50	5.75	529.52
Last 5	18:41:42	10502.81	17.59	5.78	139.21	8.21	18.50	5.75	526.51
Last 5	18:46:42	10802.81	17.58	5.78	139.17	7.85	18.50	5.74	525.13
Variance 0			0.00	0.00	-0.09			0.00	-6.71
Variance 1			-0.00	-0.00	0.18			0.00	-3.01
Variance 2			-0.01	-0.00	-0.04			-0.01	-1.38

Notes

Sampled at 18:46. Cloudy, 60's. EB-2 here.

Grab Samples

Product Name: Low-Flow System

Date: 2018-04-10 11:33:45

Project Information:

Operator Name Ryan Walker  
Company Name Atlantic Coast Consulting  
Project Name Plant Arkwright  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 407446  
Turbidity Make/Model Hach 2100Q

Pump Information:

Pump Model/Type QED  
Tubing Type Teflon  
Tubing Diameter .25 in  
Tubing Length 27 ft

Pump placement from TOC 22 ft

Well Information:

Well ID ARGWC-21  
Well diameter 2 in  
Well Total Depth 27.28 ft  
Screen Length 10 ft  
Depth to Water 13.84 ft

Pumping Information:

Final Pumping Rate 150 mL/min  
Total System Volume 0.6506238 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 39.12 in  
Total Volume Pumped 12 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 3%	+/- 10		+/- 0.3	+/- 10
Last 5	11:12:58	3299.95	18.58	6.13	579.91	2.67	17.10	0.53	286.43
Last 5	11:17:58	3599.95	18.78	6.13	583.89	2.02	17.10	0.46	309.11
Last 5	11:22:58	3899.94	18.85	6.13	588.79	1.32	17.10	0.39	326.10
Last 5	11:28:00	4201.94	18.97	6.12	591.97	1.02	17.10	0.34	350.37
Last 5	11:33:00	4501.93	19.02	6.12	595.08	1.26	17.10	0.31	412.15
Variance 0			0.07	-0.00	4.89			-0.06	16.99
Variance 1			0.12	-0.00	3.18			-0.05	24.28
Variance 2			0.05	-0.00	3.11			-0.04	61.78

Notes

Sampled at 11:32. Sunny, 70's.

Grab Samples

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-160835-1

TestAmerica Sample Delivery Group: Ash Pond 2

Client Project/Site: CCR Plant Arkwright

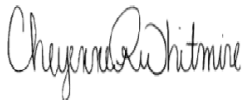
For:

Southern Company

PO BOX 2641 GSC8

Birmingham, Alabama 35291

Attn: Joju Abraham



Authorized for release by:

11/1/2018 6:14:27 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

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results through

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[www.testamericainc.com](http://www.testamericainc.com)

*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*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.*

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# Case Narrative

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

---

**Job ID: 400-160835-1**

---

**Laboratory: TestAmerica Pensacola**

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**Narrative**

**Job Narrative  
400-160835-1**

**HPLC/IC**

Method(s) 300.0: The following sample was diluted to bring the concentration of target analytes within the calibration range: ARGWC-21 (400-160835-3). Elevated reporting limits (RLs) are provided.

**Metals**

Method(s) 6020: The method blank for preparation batch 416486 and analytical batch 416741 contained Lead above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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# Detection Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

## Client Sample ID: ARGWA-19

## Lab Sample ID: 400-160835-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.083	J	0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate	8.2		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.047		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	14		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0014	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0048	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	140		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: ARGWA-20

## Lab Sample ID: 400-160835-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.3		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	18		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.080		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.036	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	9.8		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0071		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0018	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0015		0.0013	0.00071	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	110		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: ARGWC-21

## Lab Sample ID: 400-160835-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.1		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.17	J	0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate	170		5.0	3.5	mg/L	5		300.0	Total/NA
Arsenic	0.0021		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.10		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.59		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	57		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.0019	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.010		0.0050	0.0011	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	380		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: FB-2-10-16-18

## Lab Sample ID: 400-160835-4

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

**Client Sample ID: EB-2-10-16-18**

**Lab Sample ID: 400-160835-5**

No Detections.

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-160835-6**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	5.3		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	18		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.075		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.036	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	9.0		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0067		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0017	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0015		0.0013	0.00071	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	140		5.0	3.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

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

#### 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 PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-160835-1	ARGWA-19	Water	10/16/18 11:10	10/19/18 09:04
400-160835-2	ARGWA-20	Water	10/16/18 12:58	10/19/18 09:04
400-160835-3	ARGWC-21	Water	10/16/18 14:14	10/19/18 09:04
400-160835-4	FB-2-10-16-18	Water	10/16/18 11:40	10/19/18 09:04
400-160835-5	EB-2-10-16-18	Water	10/16/18 14:55	10/19/18 09:04
400-160835-6	DUP-2	Water	10/16/18 00:00	10/19/18 09:04

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-160835-1**

**Date Collected: 10/16/18 11:10**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10		1.0	0.89	mg/L			10/31/18 20:40	1
Fluoride	0.083	J	0.20	0.082	mg/L			10/31/18 20:40	1
Sulfate	8.2		1.0	0.70	mg/L			10/31/18 20:40	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/22/18 16:59	10/23/18 17:26	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/22/18 16:59	10/23/18 17:26	5
Barium	0.047		0.0025	0.00049	mg/L		10/22/18 16:59	10/23/18 17:26	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:26	5
Boron	<0.021		0.050	0.021	mg/L		10/22/18 16:59	10/23/18 17:26	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:26	5
Calcium	14		0.25	0.13	mg/L		10/22/18 16:59	10/23/18 17:26	5
Chromium	0.0014	J	0.0025	0.0011	mg/L		10/22/18 16:59	10/23/18 17:26	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/22/18 16:59	10/23/18 17:26	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/22/18 16:59	10/23/18 17:26	5
Lithium	0.0048	J	0.0050	0.0011	mg/L		10/22/18 16:59	10/23/18 17:26	5
Molybdenum	<0.0020		0.015	0.0020	mg/L		10/22/18 16:59	10/23/18 17:26	5
Selenium	<0.00071		0.0013	0.00071	mg/L		10/22/18 16:59	10/23/18 17:26	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/22/18 16:59	10/23/18 17:26	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/30/18 12:36	10/31/18 15:16	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	140		5.0	3.4	mg/L			10/23/18 11:59	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-160835-2**

**Date Collected: 10/16/18 12:58**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>5.3</b>		1.0	0.89	mg/L			10/31/18 21:03	1
Fluoride	<0.082		0.20	0.082	mg/L			10/31/18 21:03	1
<b>Sulfate</b>	<b>18</b>		1.0	0.70	mg/L			10/31/18 21:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/22/18 16:59	10/23/18 17:31	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/22/18 16:59	10/23/18 17:31	5
<b>Barium</b>	<b>0.080</b>		0.0025	0.00049	mg/L		10/22/18 16:59	10/23/18 17:31	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:31	5
<b>Boron</b>	<b>0.036</b>	<b>J</b>	0.050	0.021	mg/L		10/22/18 16:59	10/23/18 17:31	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:31	5
<b>Calcium</b>	<b>9.8</b>		0.25	0.13	mg/L		10/22/18 16:59	10/23/18 17:31	5
<b>Chromium</b>	<b>0.0071</b>		0.0025	0.0011	mg/L		10/22/18 16:59	10/23/18 17:31	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/22/18 16:59	10/23/18 17:31	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/22/18 16:59	10/23/18 17:31	5
<b>Lithium</b>	<b>0.0018</b>	<b>J</b>	0.0050	0.0011	mg/L		10/22/18 16:59	10/23/18 17:31	5
Molybdenum	<0.0020		0.015	0.0020	mg/L		10/22/18 16:59	10/23/18 17:31	5
<b>Selenium</b>	<b>0.0015</b>		0.0013	0.00071	mg/L		10/22/18 16:59	10/23/18 17:31	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/22/18 16:59	10/23/18 17:31	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/30/18 12:36	10/31/18 15:18	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>110</b>		5.0	3.4	mg/L			10/23/18 11:59	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-160835-3**

**Date Collected: 10/16/18 14:14**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.1		1.0	0.89	mg/L			10/31/18 15:42	1
Fluoride	0.17	J	0.20	0.082	mg/L			10/31/18 15:42	1
Sulfate	170		5.0	3.5	mg/L			11/01/18 11:07	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/22/18 16:59	10/23/18 17:35	5
Arsenic	0.0021		0.0013	0.00046	mg/L		10/22/18 16:59	10/23/18 17:35	5
Barium	0.10		0.0025	0.00049	mg/L		10/22/18 16:59	10/23/18 17:35	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:35	5
Boron	0.59		0.050	0.021	mg/L		10/22/18 16:59	10/23/18 17:35	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:35	5
Calcium	57		0.25	0.13	mg/L		10/22/18 16:59	10/23/18 17:35	5
Chromium	<0.0011		0.0025	0.0011	mg/L		10/22/18 16:59	10/23/18 17:35	5
Cobalt	0.0019	J	0.0025	0.00040	mg/L		10/22/18 16:59	10/23/18 17:35	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/22/18 16:59	10/23/18 17:35	5
Lithium	0.010		0.0050	0.0011	mg/L		10/22/18 16:59	10/23/18 17:35	5
Molybdenum	<0.0020		0.015	0.0020	mg/L		10/22/18 16:59	10/23/18 17:35	5
Selenium	<0.00071		0.0013	0.00071	mg/L		10/22/18 16:59	10/23/18 17:35	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/22/18 16:59	10/23/18 17:35	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/30/18 12:36	10/31/18 15:19	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	380		5.0	3.4	mg/L			10/23/18 11:59	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

**Client Sample ID: FB-2-10-16-18**

**Lab Sample ID: 400-160835-4**

**Date Collected: 10/16/18 11:40**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			10/31/18 16:05	1
Fluoride	<0.082		0.20	0.082	mg/L			10/31/18 16:05	1
Sulfate	<0.70		1.0	0.70	mg/L			10/31/18 16:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/22/18 16:59	10/23/18 17:40	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/22/18 16:59	10/23/18 17:40	5
Barium	<0.00049		0.0025	0.00049	mg/L		10/22/18 16:59	10/23/18 17:40	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:40	5
Boron	<0.021		0.050	0.021	mg/L		10/22/18 16:59	10/23/18 17:40	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:40	5
Calcium	<0.13		0.25	0.13	mg/L		10/22/18 16:59	10/23/18 17:40	5
Chromium	<0.0011		0.0025	0.0011	mg/L		10/22/18 16:59	10/23/18 17:40	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/22/18 16:59	10/23/18 17:40	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/22/18 16:59	10/23/18 17:40	5
Lithium	<0.0011		0.0050	0.0011	mg/L		10/22/18 16:59	10/23/18 17:40	5
Molybdenum	<0.0020		0.015	0.0020	mg/L		10/22/18 16:59	10/23/18 17:40	5
Selenium	<0.00071		0.0013	0.00071	mg/L		10/22/18 16:59	10/23/18 17:40	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/22/18 16:59	10/23/18 17:40	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/30/18 12:36	10/31/18 15:21	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/23/18 11:59	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

**Client Sample ID: EB-2-10-16-18**

**Lab Sample ID: 400-160835-5**

**Date Collected: 10/16/18 14:55**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			10/31/18 16:28	1
Fluoride	<0.082		0.20	0.082	mg/L			10/31/18 16:28	1
Sulfate	<0.70		1.0	0.70	mg/L			10/31/18 16:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/22/18 16:59	10/23/18 17:44	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/22/18 16:59	10/23/18 17:44	5
Barium	<0.00049		0.0025	0.00049	mg/L		10/22/18 16:59	10/23/18 17:44	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:44	5
Boron	<0.021		0.050	0.021	mg/L		10/22/18 16:59	10/23/18 17:44	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:44	5
Calcium	<0.13		0.25	0.13	mg/L		10/22/18 16:59	10/23/18 17:44	5
Chromium	<0.0011		0.0025	0.0011	mg/L		10/22/18 16:59	10/23/18 17:44	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/22/18 16:59	10/23/18 17:44	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/22/18 16:59	10/23/18 17:44	5
Lithium	<0.0011		0.0050	0.0011	mg/L		10/22/18 16:59	10/23/18 17:44	5
Molybdenum	<0.0020		0.015	0.0020	mg/L		10/22/18 16:59	10/23/18 17:44	5
Selenium	<0.00071		0.0013	0.00071	mg/L		10/22/18 16:59	10/23/18 17:44	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/22/18 16:59	10/23/18 17:44	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/30/18 12:36	10/31/18 15:23	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/23/18 11:59	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

**Client Sample ID: DUP-2**

**Date Collected: 10/16/18 00:00**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160835-6**

**Matrix: Water**

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Chloride</b>	<b>5.3</b>		1.0	0.89	mg/L			10/31/18 16:51	1
Fluoride	<0.082		0.20	0.082	mg/L			10/31/18 16:51	1
<b>Sulfate</b>	<b>18</b>		1.0	0.70	mg/L			10/31/18 16:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/22/18 16:59	10/23/18 17:49	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/22/18 16:59	10/23/18 17:49	5
<b>Barium</b>	<b>0.075</b>		0.0025	0.00049	mg/L		10/22/18 16:59	10/23/18 17:49	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:49	5
<b>Boron</b>	<b>0.036</b>	<b>J</b>	0.050	0.021	mg/L		10/22/18 16:59	10/23/18 17:49	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 17:49	5
<b>Calcium</b>	<b>9.0</b>		0.25	0.13	mg/L		10/22/18 16:59	10/23/18 17:49	5
<b>Chromium</b>	<b>0.0067</b>		0.0025	0.0011	mg/L		10/22/18 16:59	10/23/18 17:49	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/22/18 16:59	10/23/18 17:49	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/22/18 16:59	10/23/18 17:49	5
<b>Lithium</b>	<b>0.0017</b>	<b>J</b>	0.0050	0.0011	mg/L		10/22/18 16:59	10/23/18 17:49	5
Molybdenum	<0.0020		0.015	0.0020	mg/L		10/22/18 16:59	10/23/18 17:49	5
<b>Selenium</b>	<b>0.0015</b>		0.0013	0.00071	mg/L		10/22/18 16:59	10/23/18 17:49	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/22/18 16:59	10/23/18 17:49	5

### Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/30/18 12:36	10/31/18 15:38	1

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Total Dissolved Solids</b>	<b>140</b>		5.0	3.4	mg/L			10/22/18 14:36	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: 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.
F1	MS and/or MSD Recovery 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.
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.
α	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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

**Client Sample ID: ARGWA-19**

**Date Collected: 10/16/18 11:10**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160835-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	417783	10/31/18 20:40	BAW	TAL PEN
Total Recoverable	Prep	3005A			416486	10/22/18 16:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	416741	10/23/18 17:26	DRE	TAL PEN
Total/NA	Prep	7470A			417418	10/30/18 12:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	417857	10/31/18 15:16	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	416581	10/23/18 11:59	CLB	TAL PEN

**Client Sample ID: ARGWA-20**

**Date Collected: 10/16/18 12:58**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160835-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	417783	10/31/18 21:03	BAW	TAL PEN
Total Recoverable	Prep	3005A			416486	10/22/18 16:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	416741	10/23/18 17:31	DRE	TAL PEN
Total/NA	Prep	7470A			417418	10/30/18 12:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	417857	10/31/18 15:18	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	416581	10/23/18 11:59	CLB	TAL PEN

**Client Sample ID: ARGWC-21**

**Date Collected: 10/16/18 14:14**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160835-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	417783	10/31/18 15:42	BAW	TAL PEN
Total/NA	Analysis	300.0		5	417918	11/01/18 11:07	BAW	TAL PEN
Total Recoverable	Prep	3005A			416486	10/22/18 16:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	416741	10/23/18 17:35	DRE	TAL PEN
Total/NA	Prep	7470A			417418	10/30/18 12:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	417857	10/31/18 15:19	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	416581	10/23/18 11:59	CLB	TAL PEN

**Client Sample ID: FB-2-10-16-18**

**Date Collected: 10/16/18 11:40**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160835-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	417783	10/31/18 16:05	BAW	TAL PEN
Total Recoverable	Prep	3005A			416486	10/22/18 16:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	416741	10/23/18 17:40	DRE	TAL PEN
Total/NA	Prep	7470A			417418	10/30/18 12:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	417857	10/31/18 15:21	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

**Client Sample ID: FB-2-10-16-18**

**Lab Sample ID: 400-160835-4**

**Date Collected: 10/16/18 11:40**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	416581	10/23/18 11:59	CLB	TAL PEN

**Client Sample ID: EB-2-10-16-18**

**Lab Sample ID: 400-160835-5**

**Date Collected: 10/16/18 14:55**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	417783	10/31/18 16:28	BAW	TAL PEN
Total Recoverable	Prep	3005A			416486	10/22/18 16:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	416741	10/23/18 17:44	DRE	TAL PEN
Total/NA	Prep	7470A			417418	10/30/18 12:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	417857	10/31/18 15:23	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	416581	10/23/18 11:59	CLB	TAL PEN

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-160835-6**

**Date Collected: 10/16/18 00:00**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	417783	10/31/18 16:51	BAW	TAL PEN
Total Recoverable	Prep	3005A			416486	10/22/18 16:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	416741	10/23/18 17:49	DRE	TAL PEN
Total/NA	Prep	7470A			417418	10/30/18 12:36	JAP	TAL PEN
Total/NA	Analysis	7470A		1	417857	10/31/18 15:38	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	416446	10/22/18 14:36	CLB	TAL PEN

**Laboratory References:**

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

## HPLC/IC

### Analysis Batch: 417783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160835-1	ARGWA-19	Total/NA	Water	300.0	
400-160835-2	ARGWA-20	Total/NA	Water	300.0	
400-160835-3	ARGWC-21	Total/NA	Water	300.0	
400-160835-4	FB-2-10-16-18	Total/NA	Water	300.0	
400-160835-5	EB-2-10-16-18	Total/NA	Water	300.0	
400-160835-6	DUP-2	Total/NA	Water	300.0	
MB 400-417783/19	Method Blank	Total/NA	Water	300.0	
LCS 400-417783/20	Lab Control Sample	Total/NA	Water	300.0	
LCS 400-417783/21	Lab Control Sample Dup	Total/NA	Water	300.0	
400-161253-I-2 MS	Matrix Spike	Total/NA	Water	300.0	
400-161253-I-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 417918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160835-3	ARGWC-21	Total/NA	Water	300.0	
MB 400-417918/18	Method Blank	Total/NA	Water	300.0	
LCS 400-417918/19	Lab Control Sample	Total/NA	Water	300.0	
LCS 400-417918/20	Lab Control Sample Dup	Total/NA	Water	300.0	
660-90435-H-1 MS	Matrix Spike	Total/NA	Water	300.0	
660-90435-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 416486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160835-1	ARGWA-19	Total Recoverable	Water	3005A	
400-160835-2	ARGWA-20	Total Recoverable	Water	3005A	
400-160835-3	ARGWC-21	Total Recoverable	Water	3005A	
400-160835-4	FB-2-10-16-18	Total Recoverable	Water	3005A	
400-160835-5	EB-2-10-16-18	Total Recoverable	Water	3005A	
400-160835-6	DUP-2	Total Recoverable	Water	3005A	
MB 400-416486/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-416486/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-160175-B-20-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-160175-B-20-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 416741

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160835-1	ARGWA-19	Total Recoverable	Water	6020	416486
400-160835-2	ARGWA-20	Total Recoverable	Water	6020	416486
400-160835-3	ARGWC-21	Total Recoverable	Water	6020	416486
400-160835-4	FB-2-10-16-18	Total Recoverable	Water	6020	416486
400-160835-5	EB-2-10-16-18	Total Recoverable	Water	6020	416486
400-160835-6	DUP-2	Total Recoverable	Water	6020	416486
MB 400-416486/1-A ^5	Method Blank	Total Recoverable	Water	6020	416486
LCS 400-416486/2-A	Lab Control Sample	Total Recoverable	Water	6020	416486
400-160175-B-20-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	416486
400-160175-B-20-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	416486

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

## Metals (Continued)

### Prep Batch: 417418

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160835-1	ARGWA-19	Total/NA	Water	7470A	
400-160835-2	ARGWA-20	Total/NA	Water	7470A	
400-160835-3	ARGWC-21	Total/NA	Water	7470A	
400-160835-4	FB-2-10-16-18	Total/NA	Water	7470A	
400-160835-5	EB-2-10-16-18	Total/NA	Water	7470A	
400-160835-6	DUP-2	Total/NA	Water	7470A	
MB 400-417418/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-417418/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-161196-L-1-C MS	Matrix Spike	Total/NA	Water	7470A	
400-161196-L-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Analysis Batch: 417857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160835-1	ARGWA-19	Total/NA	Water	7470A	417418
400-160835-2	ARGWA-20	Total/NA	Water	7470A	417418
400-160835-3	ARGWC-21	Total/NA	Water	7470A	417418
400-160835-4	FB-2-10-16-18	Total/NA	Water	7470A	417418
400-160835-5	EB-2-10-16-18	Total/NA	Water	7470A	417418
400-160835-6	DUP-2	Total/NA	Water	7470A	417418
MB 400-417418/14-A	Method Blank	Total/NA	Water	7470A	417418
LCS 400-417418/15-A	Lab Control Sample	Total/NA	Water	7470A	417418
400-161196-L-1-C MS	Matrix Spike	Total/NA	Water	7470A	417418
400-161196-L-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	417418

## General Chemistry

### Analysis Batch: 416446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160835-6	DUP-2	Total/NA	Water	SM 2540C	
MB 400-416446/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-416446/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-160742-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 2540C	
400-160691-H-5 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 416581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160835-1	ARGWA-19	Total/NA	Water	SM 2540C	
400-160835-2	ARGWA-20	Total/NA	Water	SM 2540C	
400-160835-3	ARGWC-21	Total/NA	Water	SM 2540C	
400-160835-4	FB-2-10-16-18	Total/NA	Water	SM 2540C	
400-160835-5	EB-2-10-16-18	Total/NA	Water	SM 2540C	
MB 400-416581/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-416581/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-160738-A-4 DU	Duplicate	Total/NA	Water	SM 2540C	
400-160738-A-7 DU	Duplicate	Total/NA	Water	SM 2540C	



# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 400-417783/19**  
**Matrix: Water**  
**Analysis Batch: 417783**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			10/31/18 13:25	1
Fluoride	<0.082		0.20	0.082	mg/L			10/31/18 13:25	1
Sulfate	<0.70		1.0	0.70	mg/L			10/31/18 13:25	1

**Lab Sample ID: LCS 400-417783/20**  
**Matrix: Water**  
**Analysis Batch: 417783**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.2		mg/L		102	90 - 110
Fluoride	10.0	10.6		mg/L		106	90 - 110
Sulfate	10.0	10.7		mg/L		107	90 - 110

**Lab Sample ID: LCSD 400-417783/21**  
**Matrix: Water**  
**Analysis Batch: 417783**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.1		mg/L		101	90 - 110	1	15
Fluoride	10.0	10.3		mg/L		103	90 - 110	2	15
Sulfate	10.0	10.7		mg/L		107	90 - 110	0	15

**Lab Sample ID: 400-161253-I-2 MS**  
**Matrix: Water**  
**Analysis Batch: 417783**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4.4		10.0	14.1		mg/L		97	80 - 120
Fluoride	<0.082		10.0	9.89		mg/L		99	80 - 120
Sulfate	4.6		10.0	14.7		mg/L		101	80 - 120

**Lab Sample ID: 400-161253-I-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 417783**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	4.4		10.0	14.2		mg/L		98	80 - 120	0	20
Fluoride	<0.082		10.0	9.84		mg/L		98	80 - 120	0	20
Sulfate	4.6		10.0	14.8		mg/L		103	80 - 120	1	20

**Lab Sample ID: MB 400-417918/18**  
**Matrix: Water**  
**Analysis Batch: 417918**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/01/18 03:08	1
Fluoride	<0.082		0.20	0.082	mg/L			11/01/18 03:08	1
Sulfate	<0.70		1.0	0.70	mg/L			11/01/18 03:08	1

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 400-417918/19**  
**Matrix: Water**  
**Analysis Batch: 417918**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	10.1		mg/L		101	90 - 110
Fluoride	10.0	10.1		mg/L		101	90 - 110
Sulfate	10.0	10.6		mg/L		106	90 - 110

**Lab Sample ID: LCSD 400-417918/20**  
**Matrix: Water**  
**Analysis Batch: 417918**

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	10.1		mg/L		101	90 - 110	0	15
Fluoride	10.0	10.1		mg/L		101	90 - 110	0	15
Sulfate	10.0	10.7		mg/L		107	90 - 110	1	15

**Lab Sample ID: 660-90435-H-1 MS**  
**Matrix: Water**  
**Analysis Batch: 417918**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	26		10.0	35.0		mg/L		92	80 - 120
Fluoride	0.11	J	10.0	10.1		mg/L		100	80 - 120
Sulfate	32	F1	10.0	45.0	F1	mg/L		131	80 - 120

**Lab Sample ID: 660-90435-H-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 417918**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	26		10.0	35.2		mg/L		94	80 - 120	1	20
Fluoride	0.11	J	10.0	10.3		mg/L		102	80 - 120	2	20
Sulfate	32	F1	10.0	45.2	F1	mg/L		133	80 - 120	0	20

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 400-416486/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 416741**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 416486**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/22/18 16:59	10/23/18 16:19	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/22/18 16:59	10/23/18 16:19	5
Barium	<0.00049		0.0025	0.00049	mg/L		10/22/18 16:59	10/23/18 16:19	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 16:19	5
Boron	<0.021		0.050	0.021	mg/L		10/22/18 16:59	10/23/18 16:19	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/22/18 16:59	10/23/18 16:19	5
Calcium	<0.13		0.25	0.13	mg/L		10/22/18 16:59	10/23/18 16:19	5
Chromium	<0.0011		0.0025	0.0011	mg/L		10/22/18 16:59	10/23/18 16:19	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/22/18 16:59	10/23/18 16:19	5
Lead	0.000590	J	0.0013	0.00035	mg/L		10/22/18 16:59	10/23/18 16:19	5
Lithium	<0.0011		0.0050	0.0011	mg/L		10/22/18 16:59	10/23/18 16:19	5

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

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

**Lab Sample ID: MB 400-416486/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 416741**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 416486**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	<0.0020		0.015	0.0020	mg/L		10/22/18 16:59	10/23/18 16:19	5
Selenium	<0.00071		0.0013	0.00071	mg/L		10/22/18 16:59	10/23/18 16:19	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/22/18 16:59	10/23/18 16:19	5

**Lab Sample ID: LCS 400-416486/2-A**  
**Matrix: Water**  
**Analysis Batch: 416741**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 416486**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Antimony	0.0500	0.0491		mg/L		98	80 - 120
Arsenic	0.0500	0.0502		mg/L		100	80 - 120
Barium	0.0500	0.0483		mg/L		97	80 - 120
Beryllium	0.0500	0.0490		mg/L		98	80 - 120
Boron	0.100	0.0952		mg/L		95	80 - 120
Cadmium	0.0500	0.0537		mg/L		107	80 - 120
Calcium	5.00	4.96		mg/L		99	80 - 120
Chromium	0.0500	0.0507		mg/L		101	80 - 120
Cobalt	0.0500	0.0510		mg/L		102	80 - 120
Lead	0.0500	0.0526		mg/L		105	80 - 120
Lithium	0.0500	0.0529		mg/L		106	80 - 120
Molybdenum	0.0500	0.0489		mg/L		98	80 - 120
Selenium	0.0500	0.0484		mg/L		97	80 - 120
Thallium	0.0100	0.0104		mg/L		104	80 - 120

**Lab Sample ID: 400-160175-B-20-B MS ^5**  
**Matrix: Water**  
**Analysis Batch: 416741**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total Recoverable**  
**Prep Batch: 416486**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Antimony	<0.0010		0.0500	0.0517		mg/L		103	75 - 125
Arsenic	<0.00046		0.0500	0.0519		mg/L		104	75 - 125
Barium	0.022		0.0500	0.0720		mg/L		100	75 - 125
Beryllium	<0.00034		0.0500	0.0510		mg/L		102	75 - 125
Boron	<0.021		0.100	0.103		mg/L		103	75 - 125
Cadmium	<0.00034		0.0500	0.0548		mg/L		110	75 - 125
Calcium	31		5.00	37.3	4	mg/L		118	75 - 125
Chromium	<0.0011		0.0500	0.0574		mg/L		115	75 - 125
Cobalt	0.0031		0.0500	0.0539		mg/L		102	75 - 125
Lead	<0.00035		0.0500	0.0506		mg/L		101	75 - 125
Lithium	0.0044	J	0.0500	0.0590		mg/L		109	75 - 125
Molybdenum	<0.0020		0.0500	0.0504		mg/L		101	75 - 125
Selenium	0.00080	J	0.0500	0.0510		mg/L		100	75 - 125
Thallium	<0.000085		0.0100	0.0107		mg/L		107	75 - 125

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

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

**Lab Sample ID: 400-160175-B-20-C MSD ^5**

**Matrix: Water**  
**Analysis Batch: 416741**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total Recoverable**  
**Prep Batch: 416486**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.0010		0.0500	0.0512		mg/L		102	75 - 125	1	20
Arsenic	<0.00046		0.0500	0.0517		mg/L		103	75 - 125	0	20
Barium	0.022		0.0500	0.0721		mg/L		101	75 - 125	0	20
Beryllium	<0.00034		0.0500	0.0505		mg/L		101	75 - 125	1	20
Boron	<0.021		0.100	0.0981		mg/L		98	75 - 125	5	20
Cadmium	<0.00034		0.0500	0.0543		mg/L		109	75 - 125	1	20
Calcium	31		5.00	36.6	4	mg/L		104	75 - 125	2	20
Chromium	<0.0011		0.0500	0.0568		mg/L		114	75 - 125	1	20
Cobalt	0.0031		0.0500	0.0544		mg/L		103	75 - 125	1	20
Lead	<0.00035		0.0500	0.0503		mg/L		101	75 - 125	1	20
Lithium	0.0044	J	0.0500	0.0572		mg/L		106	75 - 125	3	20
Molybdenum	<0.0020		0.0500	0.0508		mg/L		102	75 - 125	1	20
Selenium	0.00080	J	0.0500	0.0497		mg/L		98	75 - 125	3	20
Thallium	<0.000085		0.0100	0.0107		mg/L		107	75 - 125	0	20

## Method: 7470A - Mercury (CVAA)

**Lab Sample ID: MB 400-417418/14-A**

**Matrix: Water**  
**Analysis Batch: 417857**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**  
**Prep Batch: 417418**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/29/18 13:00	10/31/18 14:47	1

**Lab Sample ID: LCS 400-417418/15-A**

**Matrix: Water**  
**Analysis Batch: 417857**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**  
**Prep Batch: 417418**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00101	0.00102		mg/L		101	80 - 120

**Lab Sample ID: 400-161196-L-1-C MS**

**Matrix: Water**  
**Analysis Batch: 417857**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**  
**Prep Batch: 417418**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	0.000077	J	0.00201	0.00200		mg/L		95	80 - 120

**Lab Sample ID: 400-161196-L-1-D MSD**

**Matrix: Water**  
**Analysis Batch: 417857**

**Client Sample ID: Matrix Spike Duplicate**

**Prep Type: Total/NA**  
**Prep Batch: 417418**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	0.000077	J	0.00201	0.00202		mg/L		96	80 - 120	1	20

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

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

**Lab Sample ID: MB 400-416446/1**  
**Matrix: Water**  
**Analysis Batch: 416446**

**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	<3.4		5.0	3.4	mg/L			10/22/18 14:36	1

**Lab Sample ID: LCS 400-416446/2**  
**Matrix: Water**  
**Analysis Batch: 416446**

**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	293	328		mg/L		112	78 - 122

**Lab Sample ID: 400-160691-H-5 DU**  
**Matrix: Water**  
**Analysis Batch: 416446**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	240		234		mg/L		0.9	5

**Lab Sample ID: MB 400-416581/1**  
**Matrix: Water**  
**Analysis Batch: 416581**

**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	<3.4		5.0	3.4	mg/L			10/23/18 11:59	1

**Lab Sample ID: LCS 400-416581/2**  
**Matrix: Water**  
**Analysis Batch: 416581**

**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	293	276		mg/L		94	78 - 122

**Lab Sample ID: 400-160738-A-4 DU**  
**Matrix: Water**  
**Analysis Batch: 416581**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	250		248		mg/L		0	5

**Lab Sample ID: 400-160738-A-7 DU**  
**Matrix: Water**  
**Analysis Batch: 416581**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	280		284		mg/L		0	5





Pace Analytical Services, Inc.  
110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
(770) 734-4200 : FAX (770) 734-4201 : [www.asi-lab.com](http://www.asi-lab.com)

**CHAIN OF CUSTODY RECORD**

PAGE: 1 OF 1

<b>CLIENT NAME:</b> Georgia Power <b>CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:</b> 241 Ralph McGill Blvd SE B10185 Atlanta, GA 30308 404-506-7239 <b>REPORT TO:</b> Joju Abraham <b>CC:</b> Maria Padilla Heath McCorkle <b>REQUESTED COMPLETION DATE:</b> PO # <u>aburch@southernmco.com</u> <b>PROJECT NAME/STATE:</b> Plant Arkwright Pond 2 <b>PROJECT #:</b> Phase II CCR & State D&O		<b>CONTAINER TYPE:</b> PRESERVATION: # of <b>C O N T A I N E R S</b> →		<b>ANALYSIS REQUESTED</b> Metals App. III & IV (EPA 6020/7470) ✓ Metals (see additional list below) (EPA 6020) ✓ Cl, F, SO <sub>4</sub> & TDS (EPA 300.0 & SM 2540C) ✓ Radium 226 & 228 (SW-846 9315/9320) ✓			<b>CONTAINER TYPE</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER <b>PRESERVATION</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen	
<b>LAB #:</b> 10-18-18/1130 <b>DATE/TIME:</b> 10-18-18 1800 <b>RELINQUISHED BY:</b> <i>[Signature]</i> <b>DATE/TIME:</b> 10-18-18 16:10 <b>REQUISITIONED BY:</b> <i>[Signature]</i> <b>DATE/TIME:</b> 10-18-18 16:10 <b>SAMPLE SHIPPED VIA:</b> UPS <b>FED-EX:</b> <input type="checkbox"/> <b>USPS:</b> <input checked="" type="checkbox"/> <b>COURIER:</b> <input type="checkbox"/> <b>CLIENT:</b> <input type="checkbox"/> <b>OTHER:</b> <input type="checkbox"/> <b>FS:</b> <input type="checkbox"/> <b>Cooler ID:</b>		<b>ENTERED INTO LIMS:</b> <b>Tracking #:</b>		<b>FOR LAB USE ONLY</b>				
<b>REMARKS/ADDITIONAL INFORMATION</b>		<b>REMARKS/ADDITIONAL INFORMATION</b>		<b>REMARKS/ADDITIONAL INFORMATION</b>				



Plant Arkwright - Ash Pond 2 COC.xlsx

Plant Arkwright State constituents: As, Ag, Ba, Cd, Pb, Se

3.32, 0.82, 1.07



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-160835-1

SDG Number: Ash Pond 2

**Login Number: 160835**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: 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	3.3°C, 0.8°C IR-7
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	

# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-1  
SDG: Ash Pond 2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-18 *
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-16	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

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



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-160835-2

TestAmerica Sample Delivery Group: Ash Pond 2

Client Project/Site: CCR Plant Arkwright

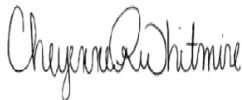
For:

Southern Company

PO BOX 2641 GSC8

Birmingham, Alabama 35291

Attn: Joju Abraham



Authorized for release by:

11/19/2018 6:04:18 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

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*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.*

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# Method Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: 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 = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-160835-1	ARGWA-19	Water	10/16/18 11:10	10/19/18 09:04
400-160835-2	ARGWA-20	Water	10/16/18 12:58	10/19/18 09:04
400-160835-3	ARGWC-21	Water	10/16/18 14:14	10/19/18 09:04
400-160835-4	FB-2-10-16-18	Water	10/16/18 11:40	10/19/18 09:04
400-160835-5	EB-2-10-16-18	Water	10/16/18 14:55	10/19/18 09:04
400-160835-6	DUP-2	Water	10/16/18 00:00	10/19/18 09:04

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# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 400-160835-1**

**Date Collected: 10/16/18 11:10**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.638		0.140	0.151	1.00	0.0945	pCi/L	10/25/18 10:10	11/16/18 05:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		40 - 110					10/25/18 10:10	11/16/18 05:36	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.354	U	0.262	0.264	1.00	0.412	pCi/L	10/25/18 14:37	11/06/18 17:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		40 - 110					10/25/18 14:37	11/06/18 17:15	1
Y Carrier	85.6		40 - 110					10/25/18 14:37	11/06/18 17:15	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	0.991		0.297	0.304	5.00	0.412	pCi/L		11/19/18 16:51	1

# Client Sample Results

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
 SDG: Ash Pond 2

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 400-160835-2**

**Date Collected: 10/16/18 12:58**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.330		0.104	0.108	1.00	0.0870	pCi/L	10/25/18 10:10	11/16/18 05:36	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/25/18 10:10	11/16/18 05:36	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0248	U	0.244	0.244	1.00	0.428	pCi/L	10/25/18 14:37	11/06/18 17:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/25/18 14:37	11/06/18 17:15	1
Y Carrier	87.9		40 - 110					10/25/18 14:37	11/06/18 17:15	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	0.354	U	0.265	0.267	5.00	0.428	pCi/L		11/19/18 16:51	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 400-160835-3**

**Date Collected: 10/16/18 14:14**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.296		0.0981	0.102	1.00	0.0959	pCi/L	10/25/18 10:10	11/16/18 05:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/25/18 10:10	11/16/18 05:37	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.500		0.267	0.271	1.00	0.399	pCi/L	10/25/18 14:37	11/06/18 17:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/25/18 14:37	11/06/18 17:15	1
Y Carrier	84.5		40 - 110					10/25/18 14:37	11/06/18 17:15	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	0.796		0.284	0.290	5.00	0.399	pCi/L		11/19/18 16:51	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

**Client Sample ID: FB-2-10-16-18**

**Lab Sample ID: 400-160835-4**

**Date Collected: 10/16/18 11:40**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.197		0.0794	0.0813	1.00	0.0815	pCi/L	10/25/18 10:10	11/16/18 05:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					10/25/18 10:10	11/16/18 05:37	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.281	U	0.212	0.214	1.00	0.332	pCi/L	10/25/18 14:37	11/06/18 17:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					10/25/18 14:37	11/06/18 17:15	1
Y Carrier	86.7		40 - 110					10/25/18 14:37	11/06/18 17:15	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	0.477		0.226	0.229	5.00	0.332	pCi/L		11/19/18 16:51	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

**Client Sample ID: EB-2-10-16-18**

**Lab Sample ID: 400-160835-5**

**Date Collected: 10/16/18 14:55**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

**Method: 9315 - Radium-226 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.214		0.0797	0.0820	1.00	0.0673	pCi/L	10/25/18 10:10	11/16/18 05:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/25/18 10:10	11/16/18 05:37	1

**Method: 9320 - Radium-228 (GFPC)**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0675	U	0.193	0.193	1.00	0.360	pCi/L	10/25/18 14:37	11/06/18 17:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/25/18 14:37	11/06/18 17:15	1
Y Carrier	87.5		40 - 110					10/25/18 14:37	11/06/18 17:15	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	0.209	0.210	5.00	0.360	pCi/L		11/19/18 16:51	1

# Client Sample Results

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
 SDG: Ash Pond 2

**Client Sample ID: DUP-2**  
**Date Collected: 10/16/18 00:00**  
**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160835-6**  
**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	0.330		0.0980	0.102	1.00	0.0700	pCi/L	10/25/18 10:10	11/16/18 05:37	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					10/25/18 10:10	11/16/18 05:37	1

### Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.301	U	0.239	0.241	1.00	0.379	pCi/L	10/25/18 14:37	11/06/18 17:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					10/25/18 14:37	11/06/18 17:15	1
Y Carrier	87.5		40 - 110					10/25/18 14:37	11/06/18 17:15	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	0.630		0.258	0.262	5.00	0.379	pCi/L		11/19/18 16:51	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: 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)
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)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

## Client Sample ID: ARGWA-19

Date Collected: 10/16/18 11:10

Date Received: 10/19/18 09:04

## Lab Sample ID: 400-160835-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			397280	10/25/18 10:10	JLC	TAL SL
Total/NA	Analysis	9315		1	401138	11/16/18 05:36	RTM	TAL SL
Total/NA	Prep	PrecSep_0			397412	10/25/18 14:37	JLC	TAL SL
Total/NA	Analysis	9320		1	399569	11/06/18 17:15	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	401672	11/19/18 16:51	RTM	TAL SL

## Client Sample ID: ARGWA-20

Date Collected: 10/16/18 12:58

Date Received: 10/19/18 09:04

## Lab Sample ID: 400-160835-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			397280	10/25/18 10:10	JLC	TAL SL
Total/NA	Analysis	9315		1	401138	11/16/18 05:36	RTM	TAL SL
Total/NA	Prep	PrecSep_0			397412	10/25/18 14:37	JLC	TAL SL
Total/NA	Analysis	9320		1	399569	11/06/18 17:15	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	401672	11/19/18 16:51	RTM	TAL SL

## Client Sample ID: ARGWC-21

Date Collected: 10/16/18 14:14

Date Received: 10/19/18 09:04

## Lab Sample ID: 400-160835-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			397280	10/25/18 10:10	JLC	TAL SL
Total/NA	Analysis	9315		1	401139	11/16/18 05:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			397412	10/25/18 14:37	JLC	TAL SL
Total/NA	Analysis	9320		1	399569	11/06/18 17:15	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	401672	11/19/18 16:51	RTM	TAL SL

## Client Sample ID: FB-2-10-16-18

Date Collected: 10/16/18 11:40

Date Received: 10/19/18 09:04

## Lab Sample ID: 400-160835-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			397280	10/25/18 10:10	JLC	TAL SL
Total/NA	Analysis	9315		1	401139	11/16/18 05:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			397412	10/25/18 14:37	JLC	TAL SL
Total/NA	Analysis	9320		1	399569	11/06/18 17:15	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	401672	11/19/18 16:51	RTM	TAL SL

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

**Client Sample ID: EB-2-10-16-18**

**Lab Sample ID: 400-160835-5**

**Date Collected: 10/16/18 14:55**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			397280	10/25/18 10:10	JLC	TAL SL
Total/NA	Analysis	9315		1	401139	11/16/18 05:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			397412	10/25/18 14:37	JLC	TAL SL
Total/NA	Analysis	9320		1	399569	11/06/18 17:15	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	401672	11/19/18 16:51	RTM	TAL SL

**Client Sample ID: DUP-2**

**Lab Sample ID: 400-160835-6**

**Date Collected: 10/16/18 00:00**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			397280	10/25/18 10:10	JLC	TAL SL
Total/NA	Analysis	9315		1	401139	11/16/18 05:37	RTM	TAL SL
Total/NA	Prep	PrecSep_0			397412	10/25/18 14:37	JLC	TAL SL
Total/NA	Analysis	9320		1	399569	11/06/18 17:15	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	401672	11/19/18 16:51	RTM	TAL SL

**Laboratory References:**

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

# QC Association Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

## Rad

### Leach Batch: 396696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-161067-A-11-K MS	Matrix Spike	ASTM Leach	Water	D3987-85	
490-161067-A-11-L MSD	Matrix Spike Duplicate	ASTM Leach	Water	D3987-85	
490-161067-A-11-N MS	Matrix Spike	ASTM Leach	Water	D3987-85	
490-161067-A-11-O MSD	Matrix Spike Duplicate	ASTM Leach	Water	D3987-85	

### Prep Batch: 397280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160835-1	ARGWA-19	Total/NA	Water	PrecSep-21	
400-160835-2	ARGWA-20	Total/NA	Water	PrecSep-21	
400-160835-3	ARGWC-21	Total/NA	Water	PrecSep-21	
400-160835-4	FB-2-10-16-18	Total/NA	Water	PrecSep-21	
400-160835-5	EB-2-10-16-18	Total/NA	Water	PrecSep-21	
400-160835-6	DUP-2	Total/NA	Water	PrecSep-21	
MB 160-397280/25-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-397280/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
490-161067-A-11-K MS	Matrix Spike	ASTM Leach	Water	PrecSep-21	396696
490-161067-A-11-L MSD	Matrix Spike Duplicate	ASTM Leach	Water	PrecSep-21	396696
680-159587-B-3-A DU	Duplicate	Total/NA	Water	PrecSep-21	

### Prep Batch: 397412

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160835-1	ARGWA-19	Total/NA	Water	PrecSep_0	
400-160835-2	ARGWA-20	Total/NA	Water	PrecSep_0	
400-160835-3	ARGWC-21	Total/NA	Water	PrecSep_0	
400-160835-4	FB-2-10-16-18	Total/NA	Water	PrecSep_0	
400-160835-5	EB-2-10-16-18	Total/NA	Water	PrecSep_0	
400-160835-6	DUP-2	Total/NA	Water	PrecSep_0	
MB 160-397412/25-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-397412/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
490-161067-A-11-N MS	Matrix Spike	ASTM Leach	Water	PrecSep_0	396696
490-161067-A-11-O MSD	Matrix Spike Duplicate	ASTM Leach	Water	PrecSep_0	396696
680-159587-B-3-B DU	Duplicate	Total/NA	Water	PrecSep_0	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

## Method: 9315 - Radium-226 (GFPC)

**Lab Sample ID: MB 160-397280/25-A**  
**Matrix: Water**  
**Analysis Batch: 401139**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 397280**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.3548		0.121	0.125	1.00	0.110	pCi/L	10/25/18 10:10	11/16/18 05:38	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110	10/25/18 10:10	11/16/18 05:38	1

**Lab Sample ID: LCS 160-397280/1-A**  
**Matrix: Water**  
**Analysis Batch: 401138**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 397280**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	15.1	15.26		1.56	1.00	0.124	pCi/L	101	68 - 137

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	101		40 - 110

**Lab Sample ID: 680-159587-B-3-A DU**  
**Matrix: Water**  
**Analysis Batch: 401139**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 397280**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.321		0.3061		0.113	1.00	0.0922	pCi/L	0.06	1

Carrier	DU %Yield	DU Qualifier	Limits
Ba Carrier	105		40 - 110

**Lab Sample ID: 490-161067-A-11-K MS**  
**Matrix: Water**  
**Analysis Batch: 401138**

**Client Sample ID: Matrix Spike**  
**Prep Type: ASTM Leach**  
**Prep Batch: 397280**

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	0.415		15.1	14.33		1.47	1.00	0.112	pCi/L	92	75 - 138

Carrier	MS %Yield	MS Qualifier	Limits
Ba Carrier	104		40 - 110

**Lab Sample ID: 490-161067-A-11-L MSD**  
**Matrix: Water**  
**Analysis Batch: 401138**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: ASTM Leach**  
**Prep Batch: 397280**

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	0.415		15.1	14.37		1.48	1.00	0.110	pCi/L	92	75 - 138	0.01	1

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

## Method: 9315 - Radium-226 (GFPC) (Continued)

**Lab Sample ID: 490-161067-A-11-L MSD**  
**Matrix: Water**  
**Analysis Batch: 401138**

**Client Sample ID: Matrix Spike Duplicate**  
**Prep Type: ASTM Leach**  
**Prep Batch: 397280**

	MSD	MSD	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	103		40 - 110

## Method: 9320 - Radium-228 (GFPC)

**Lab Sample ID: MB 160-397412/25-A**  
**Matrix: Water**  
**Analysis Batch: 399571**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 397412**

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.08554	U	0.248	0.248	1.00	0.460	pCi/L	10/25/18 14:37	11/06/18 17:17	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110	10/25/18 14:37	11/06/18 17:17	1
Y Carrier	91.2		40 - 110	10/25/18 14:37	11/06/18 17:17	1

**Lab Sample ID: LCS 160-397412/1-A**  
**Matrix: Water**  
**Analysis Batch: 399569**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 397412**

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	12.3	11.37		1.34	1.00	0.494	pCi/L	92	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	101		40 - 110
Y Carrier	85.2		40 - 110

**Lab Sample ID: 680-159587-B-3-B DU**  
**Matrix: Water**  
**Analysis Batch: 399569**

**Client Sample ID: Duplicate**  
**Prep Type: Total/NA**  
**Prep Batch: 397412**

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.115	U	0.08958	U	0.256	1.00	0.446	pCi/L	0.05	1

Carrier	DU %Yield	DU Qualifier	Limits
Ba Carrier	105		40 - 110
Y Carrier	87.9		40 - 110

**Lab Sample ID: 490-161067-A-11-N MS**  
**Matrix: Water**  
**Analysis Batch: 399569**

**Client Sample ID: Matrix Spike**  
**Prep Type: ASTM Leach**  
**Prep Batch: 397412**

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	0.428	U	12.3	12.27		1.43	1.00	0.582	pCi/L	96	45 - 150

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
 Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
 SDG: Ash Pond 2

Carrier	MS MS		Limits
	%Yield	Qualifier	
Ba Carrier	104		40 - 110
Y Carrier	84.5		40 - 110

Lab Sample ID: 490-161067-A-11-O MSD  
 Matrix: Water  
 Analysis Batch: 399569

Client Sample ID: Matrix Spike Duplicate  
 Prep Type: ASTM Leach  
 Prep Batch: 397412

Analyte	Sample	Sample	Spike	MSD	MSD	Total	RL	MDC	Unit	%Rec	%Rec.	RER	RER
	Result	Qual		Added	Result	Qual					Uncert.		Limits
Radium-228	0.428	U	12.3	12.78		1.47	1.00	0.566	pCi/L	100	45 - 150	0.18	1

Carrier	MSD MSD		Limits
	%Yield	Qualifier	
Ba Carrier	103		40 - 110
Y Carrier	87.9		40 - 110

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Lab Sample ID: 400-160352-A-16 DU  
 Matrix: Water  
 Analysis Batch: 401672

Client Sample ID: Duplicate  
 Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Total	RL	MDC	Unit	RER	RER
	Result	Qual		Result	Qual					Uncert.
Combined Radium 226 + 228	0.433	U	0.3324	U	0.388	5.00	0.532	pCi/L	0.14	



Pace Analytical Services, Inc.  
110 TECHNOLOGY PARKWAY, PEACHTREE CORNERS, GA 30092  
(770) 734-4200 : FAX (770) 734-4201 : [www.asi-lab.com](http://www.asi-lab.com)

**CHAIN OF CUSTODY RECORD**

PAGE: 1 OF 1

<b>CLIENT NAME:</b> Georgia Power <b>CLIENT ADDRESS/PHONE NUMBER/FAX NUMBER:</b> 241 Ralph McGill Blvd SE B10185 Atlanta, GA 30308 404-506-7239 <b>REPORT TO:</b> Joju Abraham <b>CC:</b> Maria Padilla Heath McCorkle <b>REQUESTED COMPLETION DATE:</b> PO # <b>PROJECT NAME/STATE:</b> Plant Arkwright Pond 2 <b>PROJECT #:</b> Phase II CCR & State D&O		<b>CONTAINER TYPE:</b> PRESERVATION: # of <b>CONTAINERS</b> →		<b>ANALYSIS REQUESTED</b> Metals App. III & IV (EPA 6020/7470) ✓ Metals (see additional list below) (EPA 6020) ✓ Cl, F, SO <sub>4</sub> & TDS (EPA 300.0 & SM 2540C) ✓ Radium 226 & 228 (SW-846 9315/9320) ✓			<b>CONTAINER TYPE</b> P - PLASTIC A - AMBER GLASS G - CLEAR GLASS V - VOA VIAL S - STERILE O - OTHER <b>PRESERVATION</b> 1 - HCl, ≤6°C 2 - H <sub>2</sub> SO <sub>4</sub> , ≤6°C 3 - HNO <sub>3</sub> 4 - NaOH, ≤6°C 5 - NaOH/ZnAc, ≤6°C 6 - Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> , ≤6°C 7 - ≤6°C not frozen		
<b>PROJECT #:</b> Phase II CCR & State D&O <b>Collection DATE</b> 10-16-18 10-16-18 10-16-18 10-16-18 10-16-18 10-16-18		<b>Collection TIME</b> 1110 1158 1414 1140 1455 —		<b>MATRIX CODE*</b> GW GW GW W W GW		<b>SAMPLE IDENTIFICATION</b> ARGWA-19 ARGWA-20 ARGWC-21 FB-2-10-16-18 FB-2-10-16-18 Dup-2		<b>LAB #:</b> 10-18-18 / 1130 <b>DATE/TIME:</b> 10-18-18 / 16:10	
<b>RELINQUISHED BY:</b> [Signature] <b>DATE/TIME:</b> 10-17-18 1800		<b>REQUISISHED BY:</b> [Signature] <b>DATE/TIME:</b> 10/18/18		<b>SAMPLE SHIPPED VIA:</b> UPS <b>FED-EX</b>		<b>COURIER</b> CLIENT OTHER FS # of Coolers Cooler ID:		<b>FOR LAB USE ONLY</b> Entered into LIMS: Tracking #:	
<b>pH checked:</b> Yes No NA <b>Ice:</b> Yes No NA <b>Temperature:</b> Min: Max:		<b>DATE/TIME:</b> 10/18/18 <b>DATE/TIME:</b> 10/18/18 <b>DATE/TIME:</b> 10/18/18		<b>Intact</b> Broken Not Present 0904		<b>Max:</b>		<b>Max:</b>	



Plant Arkwright - Ash Pond 2 COC.xlsx

Plant Arkwright State constituents: As, Ag, Ba, Cd, Pb, Se

3.32, 0.82, 1.07



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-160835-2

SDG Number: Ash Pond 2

**Login Number: 160835**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	3.3°C, 0.8°C IR-7
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 <math><6\text{mm}</math> (1/4").	N/A	
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: 400-160835-2

SDG Number: Ash Pond 2

**Login Number: 160835**

**List Number: 2**

**Creator: McKinney, Gerrod E**

**List Source: TestAmerica St. Louis**

**List Creation: 10/24/18 09:58 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-18 *
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA180023	12-31-18
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

## Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD ELAP		L2305	04-06-19
Arizona	State Program	9	AZ0813	12-08-18 *
California	State Program	9	2886	06-30-19
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-19
Illinois	NELAP	5	200023	11-30-18 *
Iowa	State Program	7	373	12-01-18 *
Kansas	NELAP	7	E-10236	10-31-18 *
Kentucky (DW)	State Program	4	90125	12-31-18
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA180017	12-31-18 *
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-18 *
Missouri	State Program	7	780	06-30-19

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

TestAmerica Pensacola

# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR Plant Arkwright

TestAmerica Job ID: 400-160835-2  
SDG: Ash Pond 2

## Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-19
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-12	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19



Product Name: Low-Flow System

Date: 2018-10-16 11:11:58

Project Information:

Operator Name Ryan Walker  
Company Name ACC  
Project Name CCR-Plant Arkwright - Ash Pond 2  
Site Name Plant Wansley - Ash Pond 2  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 466086  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .25 in  
Tubing Length 52 ft

Pump placement from TOC 47 ft

Well Information:

Well ID ARGWA-19  
Well diameter 2 in  
Well Total Depth 52.74 ft  
Screen Length 10 ft  
Depth to Water 29.53 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.891942 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 2 in  
Total Volume Pumped 25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	10:50:58	8100.91	21.98	5.96	196.73	0.21	29.60	4.63	145.95
Last 5	10:55:58	8400.91	22.25	5.95	197.89	0.05	29.60	4.44	145.40
Last 5	11:01:01	8703.90	22.29	5.95	197.56	0.07	29.60	4.49	145.81
Last 5	11:06:02	9003.95	22.51	5.95	196.04	0.04	29.60	4.55	145.87
Last 5	11:11:01	9303.91	22.56	5.94	196.63	0.18	29.60	4.50	147.28
Variance 0			0.03	-0.00	-0.33			0.05	0.41
Variance 1			0.23	0.00	-1.51			0.06	0.06
Variance 2			0.04	-0.01	0.59			-0.05	1.41

Notes

Collected at 11:10. Sunny 80's. FB-2-10-16-18 here.

Grab Samples

Product Name: Low-Flow System

Date: 2018-10-16 12:58:42

Project Information:

Operator Name Ryan Walker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Wansley - Ash Pond 2  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 369550  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .25 in  
Tubing Length 37 ft

Pump placement from TOC 32 ft

Well Information:

Well ID ARGWA-20  
Well diameter 2 in  
Well Total Depth 37.70 ft  
Screen Length 10 ft  
Depth to Water 17.02 ft

Pumping Information:

Final Pumping Rate 350 mL/min  
Total System Volume 0.7471511 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3 in  
Total Volume Pumped 17 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	12:37:59	1200.01	18.95	5.67	135.00	7.34	17.30	5.54	155.07
Last 5	12:42:59	1500.00	18.91	5.67	135.92	6.63	17.30	5.58	154.32
Last 5	12:47:59	1800.00	18.91	5.60	136.34	5.29	17.30	5.60	157.53
Last 5	12:52:59	2100.00	18.81	5.68	136.77	5.67	17.30	5.62	153.29
Last 5	12:57:59	2400.00	18.78	5.69	137.34	4.73	17.30	5.62	152.42
Variance 0			0.00	-0.07	0.42			0.02	3.21
Variance 1			-0.09	0.08	0.43			0.02	-4.24
Variance 2			-0.04	0.01	0.57			0.01	-0.87

Notes

Collected at 12:58. Sunny 80's.

Grab Samples



Product Name: Low-Flow System

Date: 2018-10-16 14:15:33

Project Information:

Operator Name Ryan Walker  
Company Name ACC  
Project Name Plant Arkwright- Ash Pond 2  
Site Name Plant Arkwright - Ash Pond 2  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 369550  
Turbidity Make/Model Hach 2100 Q

Pump Information:

Pump Model/Type QED bladder Pump  
Tubing Type poly  
Tubing Diameter .25 in  
Tubing Length 27 ft

Pump placement from TOC 22 ft

Well Information:

Well ID ARGWC-21  
Well diameter 2 in  
Well Total Depth 27.28 ft  
Screen Length 10 ft  
Depth to Water 14.35 ft

Pumping Information:

Final Pumping Rate 50 mL/min  
Total System Volume 0.6506238 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 26 in  
Total Volume Pumped 5.8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 0.2	+/- 0
Last 5	13:54:39	1199.99	22.97	6.09	585.75	14.40	16.40	0.24	-24.47
Last 5	13:59:39	1499.99	22.89	6.10	587.13	9.74	16.40	0.24	-25.34
Last 5	14:04:39	1799.99	23.58	6.11	585.22	7.28	16.50	0.25	-25.85
Last 5	14:09:39	2099.98	23.68	6.11	587.84	5.16	16.50	0.22	-26.44
Last 5	14:14:39	2399.98	23.18	6.12	592.98	4.75	16.50	0.22	-26.35
Variance 0			0.69	0.01	-1.91			0.01	-0.51
Variance 1			0.10	-0.00	2.63			-0.02	-0.59
Variance 2			-0.50	0.01	5.14			0.00	0.09

Notes

Collected at 14:14. Sunny 80's. EB-2-10-16-18 here. Gloves.

Grab Samples

## ANALYTICAL REPORT

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

Laboratory Job ID: 180-88349-1  
Laboratory Sample Delivery Group: App III  
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:  
4/15/2019 10:46:17 PM

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

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.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



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# Case Narrative

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

Job ID: 180-88349-1  
SDG: App III

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**Job ID: 180-88349-1**

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**Laboratory: Eurofins TestAmerica, Pittsburgh**

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**Narrative**

---

**Job Narrative**  
**180-88349-1**

**Comments**

No additional comments.

**Receipt**

The samples were received on 3/30/2019 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.4° C and 1.9° C.

**GC Semi VOA**

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

**Metals**

, 6020: The post digestion spike % recovery associated with batch 400-436932 was outside of control limits.

Method(s) 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 400-436610 and analytical batch 400-436932 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or 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: 180-88349-1  
SDG: App III

## 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
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.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	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: 180-88349-1  
 SDG: App III

## Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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



# Accreditation/Certification Summary

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

Job ID: 180-88349-1  
 SDG: App III

## Laboratory: Eurofins TestAmerica, Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-19
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-19
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA017	12-31-19
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-19
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-20
Rhode Island	State Program	1	LAO00307	12-30-19
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	07-31-19

# Sample Summary

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

Job ID: 180-88349-1  
SDG: App III

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-88349-1	ARGWA-19	Water	03/26/19 15:34	03/30/19 10:00
180-88349-2	ARGWA-20	Water	03/27/19 12:07	03/30/19 10:00
180-88349-3	ARGWC-21	Water	03/27/19 15:48	03/30/19 10:00
180-88349-4	EB-2-3-26-19	Water	03/26/19 16:00	03/30/19 10:00
180-88349-5	FB-2-3-27-19	Water	03/27/19 12:15	03/30/19 10:00
180-88349-6	DUP-2	Water	03/27/19 00:00	03/30/19 10:00



# Method Summary

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

Job ID: 180-88349-1  
SDG: App III

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

### 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 PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

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: 180-88349-1  
SDG: App III

## Client Sample ID: ARGWA-19

Date Collected: 03/26/19 15:34

Date Received: 03/30/19 10:00

## Lab Sample ID: 180-88349-1

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			275436	04/10/19 15:29	MJH	TAL PIT
Instrument ID: CHICS2000										
Total Recoverable	Prep	3005A			50 mL	50 mL	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Prep	3005A			50 mL	50 mL	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 16:55	DRE	TAL PEN
Instrument ID: ICPMS7700										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274515	04/01/19 14:05	TAM	TAL PIT
Instrument ID: NOEQUIP										

## Client Sample ID: ARGWA-20

Date Collected: 03/27/19 12:07

Date Received: 03/30/19 10:00

## Lab Sample ID: 180-88349-2

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			275436	04/10/19 15:46	MJH	TAL PIT
Instrument ID: CHICS2000										
Total Recoverable	Prep	3005A			50 mL	50 mL	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 17:15	DRE	TAL PEN
Instrument ID: ICPMS7700										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274611	04/02/19 12:58	TAM	TAL PIT
Instrument ID: NOEQUIP										

## Client Sample ID: ARGWC-21

Date Collected: 03/27/19 15:48

Date Received: 03/30/19 10:00

## Lab Sample ID: 180-88349-3

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			275293	04/10/19 09:06	MJH	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			50 mL	50 mL	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 17:19	DRE	TAL PEN
Instrument ID: ICPMS7700										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274611	04/02/19 12:58	TAM	TAL PIT
Instrument ID: NOEQUIP										

## Client Sample ID: EB-2-3-26-19

Date Collected: 03/26/19 16:00

Date Received: 03/30/19 10:00

## Lab Sample ID: 180-88349-4

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			275438	04/11/19 08:16	MJH	TAL PIT
Instrument ID: CHICS2100B										

# Lab Chronicle

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

Job ID: 180-88349-1  
SDG: App III

**Client Sample ID: EB-2-3-26-19**

**Lab Sample ID: 180-88349-4**

**Date Collected: 03/26/19 16:00**

**Matrix: Water**

**Date Received: 03/30/19 10:00**

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	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 17:23	DRE	TAL PEN
Instrument ID: ICPMS7700										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274515	04/01/19 14:05	TAM	TAL PIT
Instrument ID: NOEQUIP										

**Client Sample ID: FB-2-3-27-19**

**Lab Sample ID: 180-88349-5**

**Date Collected: 03/27/19 12:15**

**Matrix: Water**

**Date Received: 03/30/19 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			275438	04/11/19 07:12	MJH	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			50 mL	50 mL	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 17:47	DRE	TAL PEN
Instrument ID: ICPMS7700										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274611	04/02/19 12:58	TAM	TAL PIT
Instrument ID: NOEQUIP										

**Client Sample ID: DUP-2**

**Lab Sample ID: 180-88349-6**

**Date Collected: 03/27/19 00:00**

**Matrix: Water**

**Date Received: 03/30/19 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			275293	04/10/19 09:22	MJH	TAL PIT
Instrument ID: CHICS2100B										
Total Recoverable	Prep	3005A			50 mL	50 mL	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 17:51	DRE	TAL PEN
Instrument ID: ICPMS7700										
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274611	04/02/19 12:58	TAM	TAL PIT
Instrument ID: NOEQUIP										

**Laboratory References:**

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001  
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

**Analyst References:**

Lab: TAL PEN  
Batch Type: Prep  
DRE = Daniel Etscheid  
Batch Type: Analysis  
DRE = Daniel Etscheid  
Lab: TAL PIT  
Batch Type: Analysis  
MJH = Matthew Hartman  
TAM = Tessa Mastalski

Eurofins TestAmerica, Pittsburgh

# Client Sample Results

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

Job ID: 180-88349-1  
SDG: App III

## Client Sample ID: ARGWA-19

## Lab Sample ID: 180-88349-1

Date Collected: 03/26/19 15:34

Matrix: Water

Date Received: 03/30/19 10:00

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12		1.0	0.71	mg/L			04/10/19 15:29	1
Fluoride	0.041	J	0.20	0.026	mg/L			04/10/19 15:29	1
Sulfate	6.1		1.0	0.38	mg/L			04/10/19 15:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021	F1	0.050	0.021	mg/L		04/10/19 16:07	04/11/19 16:55	5
Calcium	15	F1	0.25	0.13	mg/L		04/10/19 16:07	04/11/19 16:55	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	170		10	10	mg/L			04/01/19 14:05	1

## Client Sample ID: ARGWA-20

## Lab Sample ID: 180-88349-2

Date Collected: 03/27/19 12:07

Matrix: Water

Date Received: 03/30/19 10:00

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.6		1.0	0.71	mg/L			04/10/19 15:46	1
Fluoride	<0.026		0.20	0.026	mg/L			04/10/19 15:46	1
Sulfate	15		1.0	0.38	mg/L			04/10/19 15:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.046	J	0.050	0.021	mg/L		04/10/19 16:07	04/11/19 17:15	5
Calcium	9.2		0.25	0.13	mg/L		04/10/19 16:07	04/11/19 17:15	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	100		10	10	mg/L			04/02/19 12:58	1

## Client Sample ID: ARGWC-21

## Lab Sample ID: 180-88349-3

Date Collected: 03/27/19 15:48

Matrix: Water

Date Received: 03/30/19 10:00

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.4		1.0	0.71	mg/L			04/10/19 09:06	1
Fluoride	0.050	J	0.20	0.026	mg/L			04/10/19 09:06	1
Sulfate	170		1.0	0.38	mg/L			04/10/19 09:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.65		0.050	0.021	mg/L		04/10/19 16:07	04/11/19 17:19	5
Calcium	58		0.25	0.13	mg/L		04/10/19 16:07	04/11/19 17:19	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	400		10	10	mg/L			04/02/19 12:58	1

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# Client Sample Results

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

Job ID: 180-88349-1  
SDG: App III

**Client Sample ID: EB-2-3-26-19**

**Lab Sample ID: 180-88349-4**

Date Collected: 03/26/19 16:00

Matrix: Water

Date Received: 03/30/19 10:00

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/11/19 08:16	1
Fluoride	<0.026		0.20	0.026	mg/L			04/11/19 08:16	1
Sulfate	<0.38		1.0	0.38	mg/L			04/11/19 08:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		04/10/19 16:07	04/11/19 17:23	5
Calcium	0.61		0.25	0.13	mg/L		04/10/19 16:07	04/11/19 17:23	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			04/01/19 14:05	1

**Client Sample ID: FB-2-3-27-19**

**Lab Sample ID: 180-88349-5**

Date Collected: 03/27/19 12:15

Matrix: Water

Date Received: 03/30/19 10:00

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/11/19 07:12	1
Fluoride	<0.026		0.20	0.026	mg/L			04/11/19 07:12	1
Sulfate	<0.38		1.0	0.38	mg/L			04/11/19 07:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		04/10/19 16:07	04/11/19 17:47	5
Calcium	<0.13		0.25	0.13	mg/L		04/10/19 16:07	04/11/19 17:47	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			04/02/19 12:58	1

**Client Sample ID: DUP-2**

**Lab Sample ID: 180-88349-6**

Date Collected: 03/27/19 00:00

Matrix: Water

Date Received: 03/30/19 10:00

**Method: 300.0 - Anions, Ion Chromatography**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.4		1.0	0.71	mg/L			04/10/19 09:22	1
Fluoride	0.055	J	0.20	0.026	mg/L			04/10/19 09:22	1
Sulfate	170		1.0	0.38	mg/L			04/10/19 09:22	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.64		0.050	0.021	mg/L		04/10/19 16:07	04/11/19 17:51	5
Calcium	59		0.25	0.13	mg/L		04/10/19 16:07	04/11/19 17:51	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	400		10	10	mg/L			04/02/19 12:58	1

Eurofins TestAmerica, Pittsburgh

# QC Sample Results

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

Job ID: 180-88349-1  
SDG: App III

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 180-275293/5**  
**Matrix: Water**  
**Analysis Batch: 275293**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/10/19 05:49	1
Fluoride	<0.026		0.20	0.026	mg/L			04/10/19 05:49	1
Sulfate	<0.38		1.0	0.38	mg/L			04/10/19 05:49	1

**Lab Sample ID: LCS 180-275293/6**  
**Matrix: Water**  
**Analysis Batch: 275293**

**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	50.4		mg/L		101	90 - 110
Fluoride	2.50	2.40		mg/L		96	90 - 110
Sulfate	50.0	49.5		mg/L		99	90 - 110

**Lab Sample ID: MB 180-275436/36**  
**Matrix: Water**  
**Analysis Batch: 275436**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/10/19 14:55	1
Fluoride	<0.026		0.20	0.026	mg/L			04/10/19 14:55	1
Sulfate	<0.38		1.0	0.38	mg/L			04/10/19 14:55	1

**Lab Sample ID: LCS 180-275436/37**  
**Matrix: Water**  
**Analysis Batch: 275436**

**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	53.8		mg/L		108	90 - 110
Fluoride	2.50	2.57		mg/L		103	90 - 110
Sulfate	50.0	47.2		mg/L		94	90 - 110

**Lab Sample ID: MB 180-275438/5**  
**Matrix: Water**  
**Analysis Batch: 275438**

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/11/19 06:02	1
Fluoride	<0.026		0.20	0.026	mg/L			04/11/19 06:02	1
Sulfate	<0.38		1.0	0.38	mg/L			04/11/19 06:02	1

**Lab Sample ID: LCS 180-275438/6**  
**Matrix: Water**  
**Analysis Batch: 275438**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.6		mg/L		102	90 - 110
Fluoride	1.25	1.15		mg/L		92	90 - 110
Sulfate	25.0	25.1		mg/L		100	90 - 110

# QC Sample Results

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

Job ID: 180-88349-1  
SDG: App III

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 400-436610/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 436932**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 436610**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		04/10/19 16:07	04/11/19 16:43	5
Calcium	<0.13		0.25	0.13	mg/L		04/10/19 16:07	04/11/19 16:43	5

**Lab Sample ID: LCS 400-436610/2-A**  
**Matrix: Water**  
**Analysis Batch: 436932**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 436610**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.100	0.105		mg/L		105	80 - 120
Calcium	5.00	4.87		mg/L		97	80 - 120

**Lab Sample ID: 180-88349-1 MS**  
**Matrix: Water**  
**Analysis Batch: 436932**

**Client Sample ID: ARGWA-19**  
**Prep Type: Total Recoverable**  
**Prep Batch: 436610**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	<0.021	F1	0.100	0.128	F1	mg/L		128	75 - 125
Calcium	15	F1	5.00	22.4	F1	mg/L		144	75 - 125

**Lab Sample ID: 180-88349-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 436932**

**Client Sample ID: ARGWA-19**  
**Prep Type: Total Recoverable**  
**Prep Batch: 436610**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Boron	<0.021	F1	0.100	0.126	F1	mg/L		126	75 - 125	2	20
Calcium	15	F1	5.00	20.1		mg/L		97	75 - 125	11	20

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

**Lab Sample ID: MB 180-274515/2**  
**Matrix: Water**  
**Analysis Batch: 274515**

**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			04/01/19 14:05	1

**Lab Sample ID: LCS 180-274515/1**  
**Matrix: Water**  
**Analysis Batch: 274515**

**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	304	318		mg/L		105	80 - 120

**Lab Sample ID: MB 180-274611/2**  
**Matrix: Water**  
**Analysis Batch: 274611**

**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			04/02/19 12:58	1

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# QC Sample Results

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

Job ID: 180-88349-1  
SDG: App III

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

Lab Sample ID: LCS 180-274611/1  
Matrix: Water  
Analysis Batch: 274611

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	304	308		mg/L		101	80 - 120

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13



# QC Association Summary

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

Job ID: 180-88349-1  
SDG: App III

## HPLC/IC

### Analysis Batch: 275293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88349-3	ARGWC-21	Total/NA	Water	300.0	
180-88349-6	DUP-2	Total/NA	Water	300.0	
MB 180-275293/5	Method Blank	Total/NA	Water	300.0	
LCS 180-275293/6	Lab Control Sample	Total/NA	Water	300.0	

### Analysis Batch: 275436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88349-1	ARGWA-19	Total/NA	Water	300.0	
180-88349-2	ARGWA-20	Total/NA	Water	300.0	
MB 180-275436/36	Method Blank	Total/NA	Water	300.0	
LCS 180-275436/37	Lab Control Sample	Total/NA	Water	300.0	

### Analysis Batch: 275438

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88349-4	EB-2-3-26-19	Total/NA	Water	300.0	
180-88349-5	FB-2-3-27-19	Total/NA	Water	300.0	
MB 180-275438/5	Method Blank	Total/NA	Water	300.0	
LCS 180-275438/6	Lab Control Sample	Total/NA	Water	300.0	

## Metals

### Prep Batch: 436610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88349-1	ARGWA-19	Total Recoverable	Water	3005A	
180-88349-2	ARGWA-20	Total Recoverable	Water	3005A	
180-88349-3	ARGWC-21	Total Recoverable	Water	3005A	
180-88349-4	EB-2-3-26-19	Total Recoverable	Water	3005A	
180-88349-5	FB-2-3-27-19	Total Recoverable	Water	3005A	
180-88349-6	DUP-2	Total Recoverable	Water	3005A	
MB 400-436610/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-436610/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88349-1 MS	ARGWA-19	Total Recoverable	Water	3005A	
180-88349-1 MSD	ARGWA-19	Total Recoverable	Water	3005A	

### Analysis Batch: 436932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88349-1	ARGWA-19	Total Recoverable	Water	6020	436610
180-88349-2	ARGWA-20	Total Recoverable	Water	6020	436610
180-88349-3	ARGWC-21	Total Recoverable	Water	6020	436610
180-88349-4	EB-2-3-26-19	Total Recoverable	Water	6020	436610
180-88349-5	FB-2-3-27-19	Total Recoverable	Water	6020	436610
180-88349-6	DUP-2	Total Recoverable	Water	6020	436610
MB 400-436610/1-A ^5	Method Blank	Total Recoverable	Water	6020	436610
LCS 400-436610/2-A	Lab Control Sample	Total Recoverable	Water	6020	436610
180-88349-1 MS	ARGWA-19	Total Recoverable	Water	6020	436610
180-88349-1 MSD	ARGWA-19	Total Recoverable	Water	6020	436610

## General Chemistry

### Analysis Batch: 274515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88349-1	ARGWA-19	Total/NA	Water	SM 2540C	

Eurofins TestAmerica, Pittsburgh

# QC Association Summary

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

Job ID: 180-88349-1  
SDG: App III

## General Chemistry (Continued)


### Analysis Batch: 274515 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88349-4	EB-2-3-26-19	Total/NA	Water	SM 2540C	
MB 180-274515/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-274515/1	Lab Control Sample	Total/NA	Water	SM 2540C	

### Analysis Batch: 274611

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88349-2	ARGWA-20	Total/NA	Water	SM 2540C	
180-88349-3	ARGWC-21	Total/NA	Water	SM 2540C	
180-88349-5	FB-2-3-27-19	Total/NA	Water	SM 2540C	
180-88349-6	DUP-2	Total/NA	Water	SM 2540C	
MB 180-274611/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-274611/1	Lab Control Sample	Total/NA	Water	SM 2540C	

# Chain of Custody Record

<b>Client Information</b> Client Contact: Jojo Abraham Company: Southern Company Address: PO BOX 2641 GSC8 City: Birmingham State, Zip: AL, 35291 Phone: Email: JAbraham@southernco.com Project Name: CCR Plant Arkwright - Ash Pond 2 Site: Georgia		Lab PM: Veronica Bortot E-Mail: Veronica.bortot@testamerica.com Phone: 770-594-5998		Carrier Tracking No(s): COC No: 400-73521-29028.1 Page: Page #: Job #							
Due Date Requested: TAT Requested (days): PO #: SCS10347656 WO #: Project #: 40007712 SSON#:		<b>Analysis Requested</b>									
Sample Identification ARGWA-19 ARGWA-20 ARGWC-21 EB-2-3-26-19 FB-2-3-27-19 Dup-2		Sample Date 3-26-19 3-27-19 3-27-19 3-26-19 3-27-19 3-27-19	Sample Time 1534 1207 1548 1600 1215 -	Sample Type (C=comp, G=grab) G G G G G G	Matrix (Liquid, Solid, Open-air, Other) Water Water Water Water Water Water Water Water Water Water	Field Filtered Sample (Yes or No) N N N N N N N N N	Perform MS/MSD (Yes or No) N N N N N N N N N	Metals - App III 300 ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	State Metals (arsenic, barium, cadmium, lead, silver, and selenium)	Total Number of Containers 2 2 2 2 2 2	Special Instructions/Note: APP III plus state metals 
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained long) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For		Special Instructions/OC Requirements:							
Empty Kit Relinquished by:		Date: 3-29-19/11:52am Date/Time: 3/29/19 11:52am Date/Time: 3/29/19 11:52am Date/Time:		Method of Shipment:							
Relinquished by: <i>[Signature]</i> Relinquished by: <i>[Signature]</i> Relinquished by:		Received by: <i>[Signature]</i> Received by: <i>[Signature]</i> Received by:		Company: <i>[Signature]</i> Company: <i>[Signature]</i> Company:							
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:							





TEST AMERICA

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID: NULA (678) 966-9991  
GEORGE TAYLOR  
TEST AMERICA ATLANTA  
6500 MCDONOUGH DRIVE  
NORCROSS, GA 30093  
UNITED STATES US

SHIP DATE: 29MAR19  
ACTWGTS: 3.10 LB  
CAD: 859 ALB/CAFE3211

BILL RECIPIENT

TO **SAMPLE RECEIVING**  
**TA PITTSBURGH**  
**301 ALPHA DRIVE**

**PITTSBURGH PA 15238**

(412) 963-7068  
REF: ACC-GP



FedEx Express  
AN L050908118181

1 of 2  
TRK# 4651 0080 9971  
0201  
## MASTER ##

**XO AGCA**

**SATURDAY 12:00P**  
**PRIORITY OVERNIGHT**

15238  
PA-US PIT

1.4 °C  
10

Uncorrected temp  
Thermometer ID

Initials BS

CF 0

P.T.XI-SR-001 effective 11/2/18



180-88349 Waybill

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# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

39-434 R1Z EXP 10/19

151966 10/04 MMW  
FedEx® Saturday Delivery  
151966 10/04 MMW

**SDR**

ORIGIN ID: MULA (678) 966-9991  
GEORGE TAYLOR  
TEST AMERICA  
6500 MCDONOUGH DRIVE  
NORCROSS, GA 30093  
UNITED STATES

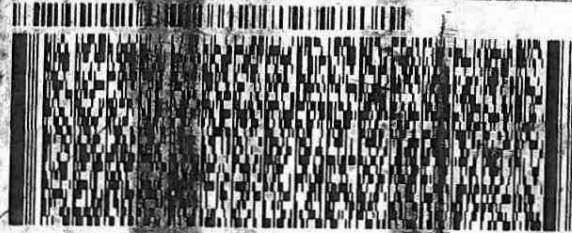
SHIP DATE: 29MAR19  
ACTWGT: 53.10 LB  
CAD: 859116/CAFE3211

BILL-RECIPIENT

TO **SAMPLE RECEIVING**  
**TA PITTSBURGH**  
**301 ALPHA DRIVE**

**PITTSBURGH PA 15238**

(412) 963-7058  
REF: ACC - GP



2 of 2  
MPS# 4651 0080 9982  
0269  
Mstr# 4651 0080 9971 0201

**SATURDAY 12:00P**  
**PRIORITY OVERNIGHT**

**XO AGCA**

15238  
PA-US PIT

Uncorrected temp 1.9 °C  
Thermometer ID 10  
CF 0 Initials B



ST 5  
RT 639  
03:30  
9982  
12:00  
5  
A

TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING  
692554

*Pitt*

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<b>Client Information (Sub Contract Lab)</b> Client Contact: Shipping/Receiving Company: TestAmerica Laboratories, Inc. Address: 3355 McLemore Drive, Pensacola, FL, 32514 Phone: 850-474-1001 (Tel) 850-478-2671 (Fax) Email: [Redacted] Project Name: CCR - Plant Arkwright Site: Georgia Power Site Sampling Data (GW)		Lab PM: Bortot, Veronica E-Mail: veronica.bortot@testamericainc.com Carrier Tracking No(s): 180-358762.1 State of Origin: Georgia Page: Page 1 of 1 Job #: 180-88349-1	
Due Date Requested: 4/11/2019 TAT Requested (days): 4		Analysis Requested:	
PO #: [Redacted] WO #: [Redacted]		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 Other:	
Sample Identification - Client ID (Lab ID)		Total Number of Containers	
Sample Time 3/26/19 15:34 Eastern 3/27/19 12:07 Eastern 3/27/19 15:48 Eastern 3/26/19 16:00 Eastern 3/27/19 12:15 Eastern 3/27/19 Eastern	Sample Date 3/26/19 3/27/19 3/27/19 3/26/19 3/27/19 3/27/19	Matrix (Water, Seawater, Other) Water Water Water Water Water Water	Special Instructions/Note: 1. Appili metals B and Ca in job 1 ; state metals in job 2 ; 1. Appili metals B and Ca in job 1 ; state metals in job 2 ; 1. Appili metals B and Ca in job 1 ; state metals in job 2 ; 1. Appili metals B and Ca in job 1 ; state metals in job 2 ; 1. Appili metals B and Ca in job 1 ; state metals in job 2 ; 1. Appili metals B and Ca in job 1 ; state metals in job 2 ;
Sample ID: ARGWA-19 (180-88349-1) ARGWA-20 (180-88349-2) ARGWC-21 (180-88349-3) EB-2-3-26-19 (180-88349-4) FB-2-3-27-19 (180-88349-5) DUP-2 (180-88349-6)		Field Filtered Sample (Yes or No) X X X X X X	Perform MS/MSD (Yes or No) X X X X X X
Accreditations Required (See note):		6020/3005A State Metals As Ba,Cd, Pb,Ag, Se 6020/3005A (MOD) App III B and Ca 7470A/7470A_Prep	
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/test/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 compliance to TestAmerica Laboratories, Inc.			
<b>Possible Hazard Identification</b> Unconfirmed Deliverable Requested: I, II, III, IV, Other (specify)			
Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Special Instructions/QC Requirements:			
Empty Kit Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Date: 4/11/19 17:00 Date/Time: [Redacted] Date/Time: [Redacted]	
Relinquished by: [Signature] Date/Time: [Redacted]		Received by: [Signature] Date/Time: 4-2-19 0859 Date/Time: [Redacted]	
Relinquished by: [Signature] Date/Time: [Redacted]		Received by: [Signature] Date/Time: [Redacted]	
Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks: 17.5°C, 13.5°C, 13.2°C (R7)	



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88349-1  
SDG Number: App III

**Login Number: 88349**  
**List Number: 1**  
**Creator: Kovitch, Christina M**

**List Source: Eurofins TestAmerica, Pittsburgh**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## ANALYTICAL REPORT

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

Laboratory Job ID: 180-88349-2

Laboratory Sample Delivery Group: State Compliance  
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:  
4/15/2019 10:32:37 PM

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

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.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





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# Case Narrative

Client: Southern Company  
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-88349-2  
SDG: State Compliance

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**Job ID: 180-88349-2**

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**Laboratory: Eurofins TestAmerica, Pittsburgh**

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## Narrative

**Job Narrative**  
**180-88349-2**

## Comments

No additional comments.

## Receipt

The samples were received on 3/30/2019 10:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.4° C and 1.9° C.

## Metals

Method(s) 6020: The post digestion spike % recovery associated with batch 400-436932 was outside of control limits.

Method(s) , 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 400-436610 and analytical batch 400-436932 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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: 180-88349-2  
SDG: State Compliance

## Qualifiers

### Metals

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.

## 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: 180-88349-2  
 SDG: State Compliance

## Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

# Accreditation/Certification Summary

Client: Southern Company  
 Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-88349-2  
 SDG: State Compliance

## Laboratory: Eurofins TestAmerica, Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-19
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-19
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA017	12-31-19
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-19
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-20
Rhode Island	State Program	1	LAO00307	12-30-19
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	07-31-19

# Sample Summary

Client: Southern Company  
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-88349-2  
SDG: State Compliance

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-88349-1	ARGWA-19	Water	03/26/19 15:34	03/30/19 10:00
180-88349-2	ARGWA-20	Water	03/27/19 12:07	03/30/19 10:00
180-88349-3	ARGWC-21	Water	03/27/19 15:48	03/30/19 10:00
180-88349-4	EB-2-3-26-19	Water	03/26/19 16:00	03/30/19 10:00
180-88349-5	FB-2-3-27-19	Water	03/27/19 12:15	03/30/19 10:00
180-88349-6	DUP-2	Water	03/27/19 00:00	03/30/19 10:00

# Method Summary

Client: Southern Company  
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-88349-2  
SDG: State Compliance

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

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# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-88349-2  
SDG: State Compliance

## Client Sample ID: ARGWA-19

Date Collected: 03/26/19 15:34

Date Received: 03/30/19 10:00

## Lab Sample ID: 180-88349-1

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	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 16:55	DRE	TAL PEN
Instrument ID: ICPMS7700										

## Client Sample ID: ARGWA-20

Date Collected: 03/27/19 12:07

Date Received: 03/30/19 10:00

## Lab Sample ID: 180-88349-2

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	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 17:15	DRE	TAL PEN
Instrument ID: ICPMS7700										

## Client Sample ID: ARGWC-21

Date Collected: 03/27/19 15:48

Date Received: 03/30/19 10:00

## Lab Sample ID: 180-88349-3

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	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 17:19	DRE	TAL PEN
Instrument ID: ICPMS7700										

## Client Sample ID: EB-2-3-26-19

Date Collected: 03/26/19 16:00

Date Received: 03/30/19 10:00

## Lab Sample ID: 180-88349-4

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	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 17:23	DRE	TAL PEN
Instrument ID: ICPMS7700										

## Client Sample ID: FB-2-3-27-19

Date Collected: 03/27/19 12:15

Date Received: 03/30/19 10:00

## Lab Sample ID: 180-88349-5

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	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 17:47	DRE	TAL PEN
Instrument ID: ICPMS7700										



# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-88349-2  
SDG: State Compliance

**Client Sample ID: DUP-2**

**Lab Sample ID: 180-88349-6**

**Date Collected: 03/27/19 00:00**

**Matrix: Water**

**Date Received: 03/30/19 10:00**

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	436610	04/10/19 16:07	DRE	TAL PEN
Total Recoverable	Analysis	6020		5			436932	04/11/19 17:51	DRE	TAL PEN

Instrument ID: ICPMS7700

### Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

### Analyst References:

Lab: TAL PEN

Batch Type: Prep

DRE = Daniel Etscheid

Batch Type: Analysis

DRE = Daniel Etscheid

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-88349-2  
SDG: State Compliance

**Client Sample ID: ARGWA-19**

**Lab Sample ID: 180-88349-1**

Date Collected: 03/26/19 15:34

Matrix: Water

Date Received: 03/30/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.00011		0.0013	0.00011	mg/L		04/10/19 16:07	04/11/19 16:55	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/10/19 16:07	04/11/19 16:55	5
<b>Barium</b>	<b>0.056</b>	<b>F1</b>	0.0025	0.00049	mg/L		04/10/19 16:07	04/11/19 16:55	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/10/19 16:07	04/11/19 16:55	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/10/19 16:07	04/11/19 16:55	5
Selenium	<0.00071		0.0013	0.00071	mg/L		04/10/19 16:07	04/11/19 16:55	5

**Client Sample ID: ARGWA-20**

**Lab Sample ID: 180-88349-2**

Date Collected: 03/27/19 12:07

Matrix: Water

Date Received: 03/30/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.00011		0.0013	0.00011	mg/L		04/10/19 16:07	04/11/19 17:15	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/10/19 16:07	04/11/19 17:15	5
<b>Barium</b>	<b>0.082</b>		0.0025	0.00049	mg/L		04/10/19 16:07	04/11/19 17:15	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/10/19 16:07	04/11/19 17:15	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/10/19 16:07	04/11/19 17:15	5
<b>Selenium</b>	<b>0.0015</b>		0.0013	0.00071	mg/L		04/10/19 16:07	04/11/19 17:15	5

**Client Sample ID: ARGWC-21**

**Lab Sample ID: 180-88349-3**

Date Collected: 03/27/19 15:48

Matrix: Water

Date Received: 03/30/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.00011		0.0013	0.00011	mg/L		04/10/19 16:07	04/11/19 17:19	5
<b>Arsenic</b>	<b>0.0011</b>	<b>J</b>	0.0013	0.00046	mg/L		04/10/19 16:07	04/11/19 17:19	5
<b>Barium</b>	<b>0.091</b>		0.0025	0.00049	mg/L		04/10/19 16:07	04/11/19 17:19	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/10/19 16:07	04/11/19 17:19	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/10/19 16:07	04/11/19 17:19	5
Selenium	<0.00071		0.0013	0.00071	mg/L		04/10/19 16:07	04/11/19 17:19	5

**Client Sample ID: EB-2-3-26-19**

**Lab Sample ID: 180-88349-4**

Date Collected: 03/26/19 16:00

Matrix: Water

Date Received: 03/30/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.00011		0.0013	0.00011	mg/L		04/10/19 16:07	04/11/19 17:23	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/10/19 16:07	04/11/19 17:23	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/10/19 16:07	04/11/19 17:23	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/10/19 16:07	04/11/19 17:23	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/10/19 16:07	04/11/19 17:23	5
Selenium	<0.00071		0.0013	0.00071	mg/L		04/10/19 16:07	04/11/19 17:23	5

# Client Sample Results

Client: Southern Company  
 Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-88349-2  
 SDG: State Compliance

**Client Sample ID: FB-2-3-27-19**

**Lab Sample ID: 180-88349-5**

Date Collected: 03/27/19 12:15

Matrix: Water

Date Received: 03/30/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.00011		0.0013	0.00011	mg/L		04/10/19 16:07	04/11/19 17:47	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/10/19 16:07	04/11/19 17:47	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/10/19 16:07	04/11/19 17:47	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/10/19 16:07	04/11/19 17:47	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/10/19 16:07	04/11/19 17:47	5
Selenium	<0.00071		0.0013	0.00071	mg/L		04/10/19 16:07	04/11/19 17:47	5

**Client Sample ID: DUP-2**

**Lab Sample ID: 180-88349-6**

Date Collected: 03/27/19 00:00

Matrix: Water

Date Received: 03/30/19 10:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.00011		0.0013	0.00011	mg/L		04/10/19 16:07	04/11/19 17:51	5
<b>Arsenic</b>	<b>0.00089</b>	<b>J</b>	0.0013	0.00046	mg/L		04/10/19 16:07	04/11/19 17:51	5
<b>Barium</b>	<b>0.094</b>		0.0025	0.00049	mg/L		04/10/19 16:07	04/11/19 17:51	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/10/19 16:07	04/11/19 17:51	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/10/19 16:07	04/11/19 17:51	5
Selenium	<0.00071		0.0013	0.00071	mg/L		04/10/19 16:07	04/11/19 17:51	5

# QC Sample Results

Client: Southern Company  
 Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-88349-2  
 SDG: State Compliance

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 400-436610/1-A ^5**  
**Matrix: Water**  
**Analysis Batch: 436932**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 436610**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.00011		0.0013	0.00011	mg/L		04/10/19 16:07	04/11/19 16:43	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/10/19 16:07	04/11/19 16:43	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/10/19 16:07	04/11/19 16:43	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/10/19 16:07	04/11/19 16:43	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/10/19 16:07	04/11/19 16:43	5
Selenium	<0.00071		0.0013	0.00071	mg/L		04/10/19 16:07	04/11/19 16:43	5

**Lab Sample ID: LCS 400-436610/2-A**  
**Matrix: Water**  
**Analysis Batch: 436932**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 436610**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	0.0500	0.0496		mg/L		99	80 - 120
Arsenic	0.0500	0.0516		mg/L		103	80 - 120
Barium	0.0500	0.0514		mg/L		103	80 - 120
Cadmium	0.0500	0.0517		mg/L		103	80 - 120
Lead	0.0500	0.0521		mg/L		104	80 - 120
Selenium	0.0500	0.0481		mg/L		96	80 - 120

**Lab Sample ID: 180-88349-1 MS**  
**Matrix: Water**  
**Analysis Batch: 436932**

**Client Sample ID: ARGWA-19**  
**Prep Type: Total Recoverable**  
**Prep Batch: 436610**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	<0.00011		0.0500	0.0548		mg/L		110	75 - 125
Arsenic	<0.00046		0.0500	0.0566		mg/L		113	75 - 125
Barium	0.056	F1	0.0500	0.120	F1	mg/L		128	75 - 125
Cadmium	<0.00034		0.0500	0.0573		mg/L		115	75 - 125
Lead	<0.00035		0.0500	0.0517		mg/L		103	75 - 125
Selenium	<0.00071		0.0500	0.0519		mg/L		104	75 - 125

**Lab Sample ID: 180-88349-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 436932**

**Client Sample ID: ARGWA-19**  
**Prep Type: Total Recoverable**  
**Prep Batch: 436610**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Silver	<0.00011		0.0500	0.0498		mg/L		100	75 - 125	10	20
Arsenic	<0.00046		0.0500	0.0524		mg/L		105	75 - 125	8	20
Barium	0.056	F1	0.0500	0.110		mg/L		107	75 - 125	9	20
Cadmium	<0.00034		0.0500	0.0510		mg/L		102	75 - 125	12	20
Lead	<0.00035		0.0500	0.0518		mg/L		104	75 - 125	0	20
Selenium	<0.00071		0.0500	0.0498		mg/L		100	75 - 125	4	20

# QC Association Summary

Client: Southern Company  
 Project/Site: CCR - Plant Arkwright Ash Pond 2

Job ID: 180-88349-2  
 SDG: State Compliance

## Metals

### Prep Batch: 436610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88349-1	ARGWA-19	Total Recoverable	Water	3005A	
180-88349-2	ARGWA-20	Total Recoverable	Water	3005A	
180-88349-3	ARGWC-21	Total Recoverable	Water	3005A	
180-88349-4	EB-2-3-26-19	Total Recoverable	Water	3005A	
180-88349-5	FB-2-3-27-19	Total Recoverable	Water	3005A	
180-88349-6	DUP-2	Total Recoverable	Water	3005A	
MB 400-436610/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-436610/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88349-1 MS	ARGWA-19	Total Recoverable	Water	3005A	
180-88349-1 MSD	ARGWA-19	Total Recoverable	Water	3005A	

### Analysis Batch: 436932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88349-1	ARGWA-19	Total Recoverable	Water	6020	436610
180-88349-2	ARGWA-20	Total Recoverable	Water	6020	436610
180-88349-3	ARGWC-21	Total Recoverable	Water	6020	436610
180-88349-4	EB-2-3-26-19	Total Recoverable	Water	6020	436610
180-88349-5	FB-2-3-27-19	Total Recoverable	Water	6020	436610
180-88349-6	DUP-2	Total Recoverable	Water	6020	436610
MB 400-436610/1-A ^5	Method Blank	Total Recoverable	Water	6020	436610
LCS 400-436610/2-A	Lab Control Sample	Total Recoverable	Water	6020	436610
180-88349-1 MS	ARGWA-19	Total Recoverable	Water	6020	436610
180-88349-1 MSD	ARGWA-19	Total Recoverable	Water	6020	436610



# Chain of Custody Record

<b>Client Information</b> Client Contact: Jojo Abraham Company: Southern Company Address: PO BOX 2641 GSC8 City: Birmingham State, Zip: AL, 35291 Phone: Email: JAbraham@southernco.com Project Name: CCR Plant Arkwright - Ash Pond 2 Site: Georgia		Lab PM: Veronica Bortot E-Mail: Veronica.bortot@testamerica.com Phone: 770-594-5998		Carrier Tracking No(s): COC No: 400-73521-29028.1 Page: Page #: Job #: Analysis Requested	
Due Date Requested: TAT Requested (days): PO #: SCS10347656 WO #: Project #: 40007712 SSON#:		State Metals (arsenic, barium, cadmium, lead, silver, and selenium) 300 ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS Metals - App III Perform MS/MSD (Yes or No)		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 Other: M - Hexane N - None O - AsNaO2 P - Na2SO4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
<b>Sample Identification</b>		Field Filtered Sample (Yes or No)		Total Number of Containers	
Sample Date 3-26-19 3-27-19 3-27-19 3-26-19 3-27-19 3-27-19	Sample Time 1534 1207 1548 1600 1215 -	Sample Type (C=comp, G=grab) G G G G G G	Matrix (Liquid, Solid, Open-Cell, Other) Water Water Water Water Water Water	D N N N N N	N N N N N N
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained long) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For		Special Instructions/Note: APP III plus state metals 180-88349 Chain of Custody	
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/OC Requirements:		Empty Kit Relinquished by:	
Relinquished by: [Signature] Relinquished by: [Signature] Relinquished by: [Signature]		Date: 3-29-19/11:52am Date: 3-29-19 11:52am Date: 3-29-19 11:52am		Method of Shipment: Received by: [Signature] Received by: [Signature] Received by: [Signature]	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:		Cooler Temperature (s) °C and Other Remarks:	





TEST AMERICA

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID: NULA (678) 966-9991  
GEORGE TAYLOR  
TEST AMERICA ATLANTA  
6500 MCDONOUGH DRIVE  
NORCROSS, GA 30093  
UNITED STATES US

SHIP DATE: 29MAR19  
ACTWGTS: 23.10 LB  
CAD: 859 ALB/CAFE3211

BILL RECIPIENT

TO **SAMPLE RECEIVING**  
**TA PITTSBURGH**  
**301 ALPHA DRIVE**

**PITTSBURGH PA 15238**

(412) 963-7068  
REF: ACC-GP



FedEx Express  
AN L050908111B1F

1 of 2  
TRK# 0201  
4651 0080 9971  
## MASTER ##

**XO AGCA**

**SATURDAY 12:00P**  
**PRIORITY OVERNIGHT**

15238  
PA-US PIT

1.4 °C

Uncorrected temp  
Thermometer ID

Initials BS

CF 0

PT.XII-SR-001 effective 11/2/18



180-88349 Waybill

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

39-434 R1Z EXP 10/19

151966 10/04 MMW  
FedEx Saturday Delivery  
151966 10/04 MMW

**SDR**

ORIGIN ID: MULA (678) 966-9991  
GEORGE TAYLOR  
TEST AMERICA  
6500 MCDONOUGH DRIVE  
NORCROSS, GA 30093  
UNITED STATES

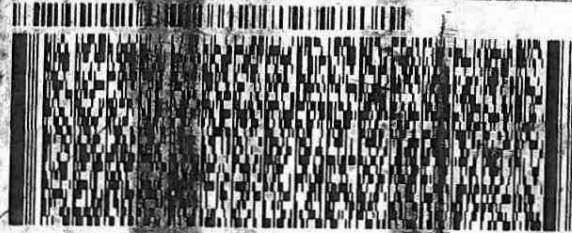
SHIP DATE: 29MAR19  
ACTWGT: 53.10 LB  
CAD: 859116/CAFE3211

BILL-RECIPIENT

TO **SAMPLE RECEIVING**  
**TA PITTSBURGH**  
**301 ALPHA DRIVE**

**PITTSBURGH PA 15238**

(412) 963-7058  
REF: ACC - GP



2 of 2  
MPS# 4651 0080 9982  
0269  
Mstr# 4651 0080 9971 0201

**SATURDAY 12:00P**  
**PRIORITY OVERNIGHT**

**XO AGCA**

15238  
PA-US PIT

Uncorrected temp 1.9 °C  
Thermometer ID 10  
CF 0 Initials B



ST 5  
RT 639  
03:30  
9982  
12:00  
5  
A

TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING  
692554

*Pitt*

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88349-2  
SDG Number: State Compliance

**Login Number: 88349**  
**List Number: 1**  
**Creator: Kovitch, Christina M**

**List Source: Eurofins TestAmerica, Pittsburgh**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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 <math><6\text{mm}</math> (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: 2019-03-26 15:31:31

**Project Information:**

Operator Name Taylor Goble  
Company Name ACC  
Project Name CCR Plant Arkwright AP2  
Site Name Plant Arkwright- Pond 2  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 354293  
Turbidity Make/Model Hach 2100Q

**Pump Information:**

Pump Model/Type QED Bladder Pump  
Tubing Type Poly  
Tubing Diameter 0.25 in  
Tubing Length ft

Pump placement from TOC ft

**Well Information:**

Well ID ARGWA-19  
Well diameter 2 in  
Well Total Depth 52.74 ft  
Screen Length 10 ft  
Depth to Water 27.34 ft

**Pumping Information:**

Final Pumping Rate 200 mL/min  
Total System Volume 0.39 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 1 in  
Total Volume Pumped 3.25 L

**Low-Flow Sampling Stabilization Summary**

	Time	Elapsed	Temp C	pH	SpCond µS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 10
Last 5	15:09:42	600.03	19.18	5.89	216.75	0.50	27.40	4.20	117.17
Last 5	15:14:42	900.03	19.05	5.86	221.59	0.62	27.40	4.26	120.25
Last 5	15:19:42	1200.54	19.00	5.86	222.84	1.42	27.40	4.26	122.68
Last 5	15:24:42	1500.61	18.95	5.85	223.46	0.53	27.41	4.26	123.79
Last 5	15:29:42	1800.53	18.89	5.85	224.04	0.38	27.41	4.27	124.08
Variance 0			-0.04	-0.01	1.25			-0.00	2.43
Variance 1			-0.05	-0.01	0.62			0.00	1.11
Variance 2			-0.06	-0.00	0.58			0.01	0.29

**Notes**

EB-2 here

**Grab Samples**

Product Name: Low-Flow System

Date: 2019-03-27 12:08:17

**Project Information:**

Operator Name Taylor Goble  
Company Name ACC  
Project Name CCR Plant Arkwright AP2  
Site Name Plant Arkwright- Pond 2  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 354293  
Turbidity Make/Model Hach 2100Q

**Pump Information:**

Pump Model/Type QED Bladder Pump  
Tubing Type Poly  
Tubing Diameter 0.25 in  
Tubing Length ft

Pump placement from TOC ft

**Well Information:**

Well ID ARGWA-20  
Well diameter 2 in  
Well Total Depth 37.70 ft  
Screen Length 10 ft  
Depth to Water 14.35 ft

**Pumping Information:**

Final Pumping Rate 450 mL/min  
Total System Volume 0.39 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 0 in  
Total Volume Pumped 80 L

**Low-Flow Sampling Stabilization Summary**

	Time	Elapsed	Temp C	pH	SpCond µS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 10
Last 5	11:47:48	9602.64	17.52	5.96	134.36	10.50	14.61	5.25	134.36
Last 5	11:52:48	9902.64	17.57	5.96	134.34	10.70	14.61	5.24	134.03
Last 5	11:57:48	10202.64	17.53	5.96	133.81	9.70	14.61	5.27	134.53
Last 5	12:02:48	10502.64	17.54	5.96	134.24	9.90	14.61	5.35	134.56
Last 5	12:07:48	10802.64	17.53	5.96	134.04	9.60	14.61	5.31	134.11
Variance 0			-0.04	0.00	-0.54			0.03	0.50
Variance 1			0.01	0.00	0.44			0.08	0.03
Variance 2			-0.01	-0.00	-0.20			-0.04	-0.45

**Notes**

FB 2 here

**Grab Samples**

Product Name: Low-Flow System

Date: 2019-03-27 15:48:27

**Project Information:**

Operator Name Taylor Goble  
Company Name ACC  
Project Name CCR Plant Arkwright AP2  
Site Name Plant Arkwright- Pond 2  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 354293  
Turbidity Make/Model Hach 2100Q

**Pump Information:**

Pump Model/Type QED Bladder Pump  
Tubing Type Poly  
Tubing Diameter 0.25 in  
Tubing Length ft

Pump placement from TOC ft

**Well Information:**

Well ID ARGWC-21  
Well diameter 2 in  
Well Total Depth 27.28 ft  
Screen Length 10 ft  
Depth to Water 14.91 ft

**Pumping Information:**

Final Pumping Rate 50 mL/min  
Total System Volume 0.39 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 13 in  
Total Volume Pumped 6 L

**Low-Flow Sampling Stabilization Summary**

	Time	Elapsed	Temp C	pH	SpCond µS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 0.2	+/- 10
Last 5	15:28:00	6604.36	19.11	6.19	574.99	7.90	16.12	2.02	67.98
Last 5	15:33:05	6909.36	18.67	6.20	574.35	7.60	16.12	1.93	69.06
Last 5	15:38:05	7209.36	18.59	6.20	576.98	6.30	16.13	1.87	68.42
Last 5	15:43:05	7509.44	18.47	6.20	576.90	4.90	16.14	1.78	68.39
Last 5	15:48:05	7809.39	18.39	6.20	578.33	--	--	1.71	67.60
Variance 0			-0.08	-0.00	2.63			-0.07	-0.64
Variance 1			-0.13	0.00	-0.08			-0.08	-0.03
Variance 2			-0.08	-0.00	1.43			-0.07	-0.79

**Notes**

**Grab Samples**

# APPENDIX B

## Statistical Analyses

# 100% ND

Date: 8/14/2019 3:11 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

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Arsenic (mg/L)

ARGWA-19

Cadmium (mg/L)

ARGWA-19, ARGWA-20, ARGWC-21

Lead (mg/L)

ARGWA-19, ARGWC-21

# Interwell Prediction Limit Significant Results

Plant Arkwright    Client: Southern Company    Data: Arkwright No 2    Printed 7/15/2019, 4:04 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
<b>Boron (mg/L)</b>	<b>ARGWC-21</b>	<b>0.05301</b>	<b>3/27/2019</b>	<b>0.65</b>	<b>Yes</b>	<b>18</b>	<b>27.78</b>	<b>No</b>	<b>0.006563</b>	Param 1 of 2
<b>Calcium (mg/L)</b>	<b>ARGWC-21</b>	<b>13.95</b>	<b>3/27/2019</b>	<b>58</b>	<b>Yes</b>	<b>18</b>	<b>0</b>	<b>No</b>	<b>0.006563</b>	Param 1 of 2
<b>Sulfate (mg/L)</b>	<b>ARGWC-21</b>	<b>21</b>	<b>3/27/2019</b>	<b>170</b>	<b>Yes</b>	<b>43</b>	<b>0</b>	<b>n/a</b>	<b>0.001037</b>	NP (normality) 1 of 2
<b>Total Dissolved Solids (mg/L)</b>	<b>ARGWC-21</b>	<b>147.4</b>	<b>3/27/2019</b>	<b>400</b>	<b>Yes</b>	<b>18</b>	<b>0</b>	<b>No</b>	<b>0.006563</b>	Param 1 of 2

# Interwell Prediction Limit All Results

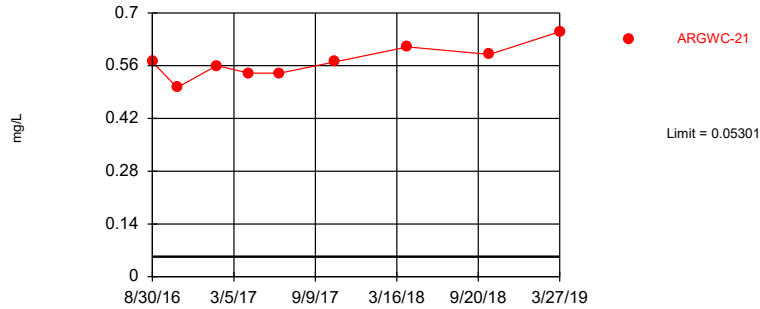
Plant Arkwright   Client: Southern Company   Data: Arkwright No 2   Printed 7/15/2019, 4:04 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
<b>Boron (mg/L)</b>	<b>ARGWC-21</b>	<b>0.05301</b>	<b>3/27/2019</b>	<b>0.65</b>	<b>Yes</b>	<b>18</b>	<b>27.78</b>	<b>No</b>	<b>0.006563</b>	Param 1 of 2
<b>Calcium (mg/L)</b>	<b>ARGWC-21</b>	<b>13.95</b>	<b>3/27/2019</b>	<b>58</b>	<b>Yes</b>	<b>18</b>	<b>0</b>	<b>No</b>	<b>0.006563</b>	Param 1 of 2
Fluoride (mg/L)	ARGWC-21	0.2	3/27/2019	0.05	No	18	77.78	n/a	0.005373	NP (NDs) 1 of 2
<b>Sulfate (mg/L)</b>	<b>ARGWC-21</b>	<b>21</b>	<b>3/27/2019</b>	<b>170</b>	<b>Yes</b>	<b>43</b>	<b>0</b>	<b>n/a</b>	<b>0.001037</b>	NP (normality) 1 of 2
<b>Total Dissolved Solids (mg/L)</b>	<b>ARGWC-21</b>	<b>147.4</b>	<b>3/27/2019</b>	<b>400</b>	<b>Yes</b>	<b>18</b>	<b>0</b>	<b>No</b>	<b>0.006563</b>	Param 1 of 2



Exceeds Limit: ARGWC-21

Prediction Limit  
Interwell Parametric

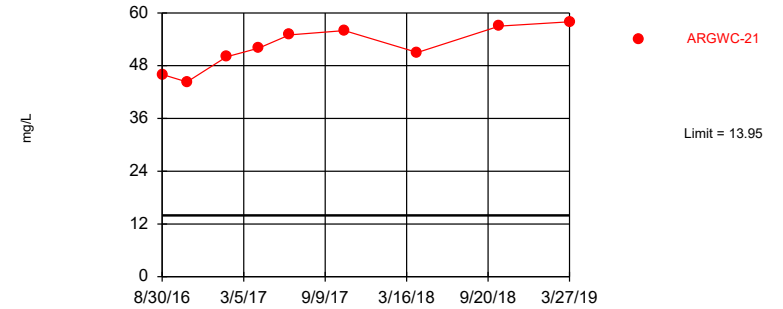


Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.03288, Std. Dev.=0.01256, n=18, 27.78% NDs. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8805, critical = 0.858. Kappa = 1.602 (c=8, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.006563.

Constituent: Boron Analysis Run 7/15/2019 4:02 PM View: CCR Interwell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limit: ARGWC-21

Prediction Limit  
Interwell Parametric

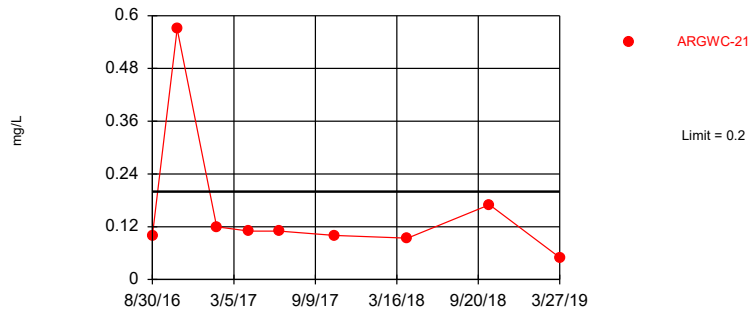


Background Data Summary: Mean=10.76, Std. Dev.=1.995, n=18. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.963, critical = 0.858. Kappa = 1.602 (c=8, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.006563.

Constituent: Calcium Analysis Run 7/15/2019 4:02 PM View: CCR Interwell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit  
Interwell Non-parametric

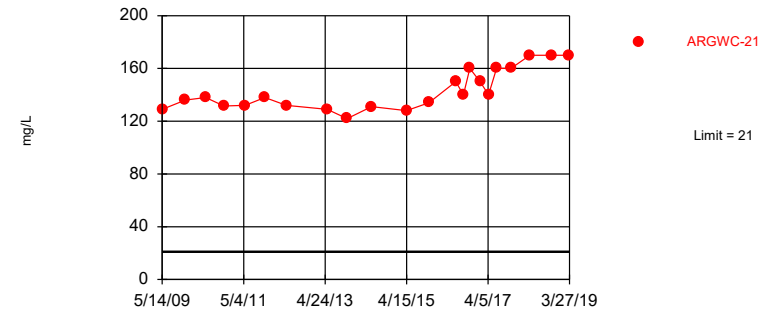


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 18 background values. 77.78% NDs. Annual per-constituent alpha = 0.01072. Individual comparison alpha = 0.005373 (1 of 2). Insufficient data to test for seasonality; data will not be deseasonalized.

Constituent: Fluoride Analysis Run 7/15/2019 4:02 PM View: CCR Interwell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limit: ARGWC-21

Prediction Limit  
Interwell Non-parametric

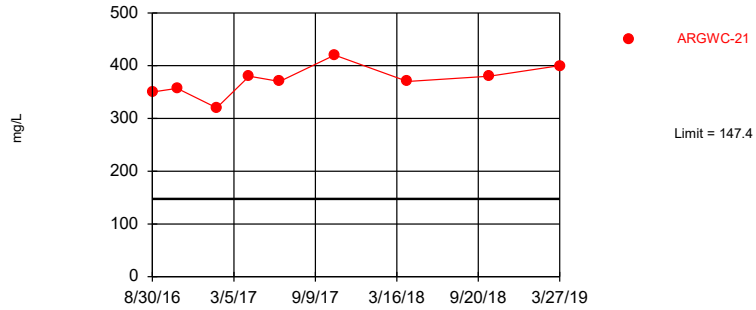


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 43 background values. Annual per-constituent alpha = 0.002073. Individual comparison alpha = 0.001037 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Sulfate Analysis Run 7/15/2019 4:02 PM View: CCR Interwell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limit: ARGWC-21

### Prediction Limit Interwell Parametric



Background Data Summary: Mean=111.4, Std. Dev.=22.46, n=18. Insufficient data to test for seasonality; not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9553, critical = 0.858. Kappa = 1.602 (c=8, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.006563.

Constituent: Total Dissolved Solids Analysis Run 7/15/2019 4:02 PM View: CCR Interwell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

# Prediction Limit

Constituent: Boron (mg/L) Analysis Run 7/15/2019 4:04 PM View: CCR Interwell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

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	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

# Prediction Limit

Constituent: Calcium (mg/L) Analysis Run 7/15/2019 4:04 PM View: CCR Interwell PL  
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

# Prediction Limit

Constituent: Fluoride (mg/L) Analysis Run 7/15/2019 4:04 PM View: CCR Interwell PL  
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)

# Prediction Limit

Constituent: Sulfate (mg/L) Analysis Run 7/15/2019 4:04 PM View: CCR Interwell PL  
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

# Prediction Limit

Constituent: Total Dissolved Solids (mg/L) Analysis Run 7/15/2019 4:04 PM View: CCR Interwell PL  
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

# Intrawell Prediction Limit Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/15/2019, 4:09 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg.N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
pH (SU)	ARGWA-20	5.82	5.417	3/27/2019	5.96	Yes	8	0	No	0.003282	Param 1 of 2



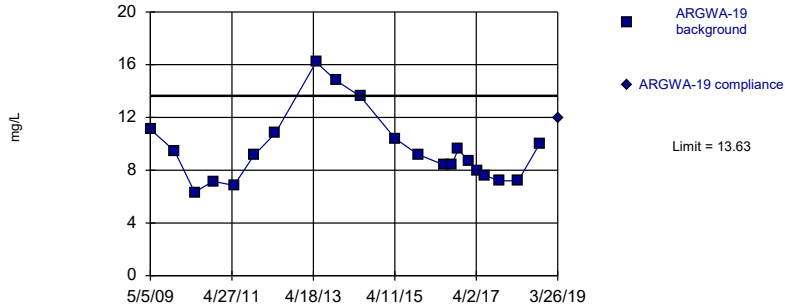
# Intrawell Prediction Limit All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 7/15/2019, 4:09 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Chloride (mg/L)	ARGWA-19	13.63	n/a	3/26/2019	12	No	21	0	No	0.006563	Param 1 of 2
Chloride (mg/L)	ARGWA-20	5.674	n/a	3/27/2019	4.6	No	20	0	No	0.006563	Param 1 of 2
Chloride (mg/L)	ARGWC-21	6.319	n/a	3/27/2019	5.161	No	21	0	No	0.006563	Param 1 of 2 Deseas
pH (SU)	ARGWA-19	6.104	5.519	3/26/2019	5.85	No	7	0	No	0.003282	Param 1 of 2
<b>pH (SU)</b>	<b>ARGWA-20</b>	<b>5.82</b>	<b>5.417</b>	<b>3/27/2019</b>	<b>5.96</b>	<b>Yes</b>	<b>8</b>	<b>0</b>	<b>No</b>	<b>0.003282</b>	Param 1 of 2
pH (SU)	ARGWC-21	6.392	5.848	3/27/2019	6.2	No	8	0	No	0.003282	Param 1 of 2

Within Limit

Prediction Limit  
Intrawell Parametric

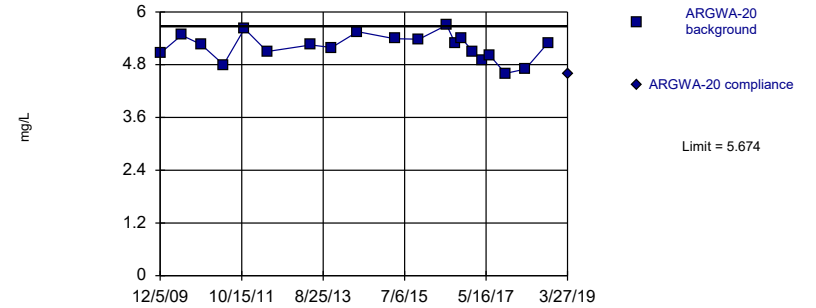


Background Data Summary: Mean=9.529, Std. Dev.=2.622, n=21. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8816, critical = 0.873. Kappa = 1.566 (c=8, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.006563.

Constituent: Chloride Analysis Run 7/15/2019 4:06 PM View: CCR Intrawell PL  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit  
Intrawell Parametric

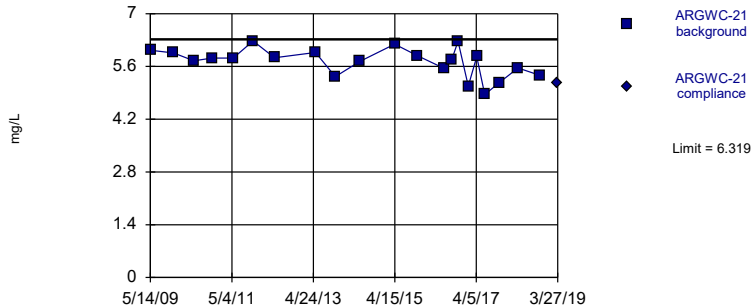


Background Data Summary: Mean=5.204, Std. Dev.=0.2988, n=20. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9755, critical = 0.868. Kappa = 1.574 (c=8, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.006563.

Constituent: Chloride Analysis Run 7/15/2019 4:06 PM View: CCR Intrawell PL  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit  
Intrawell Parametric

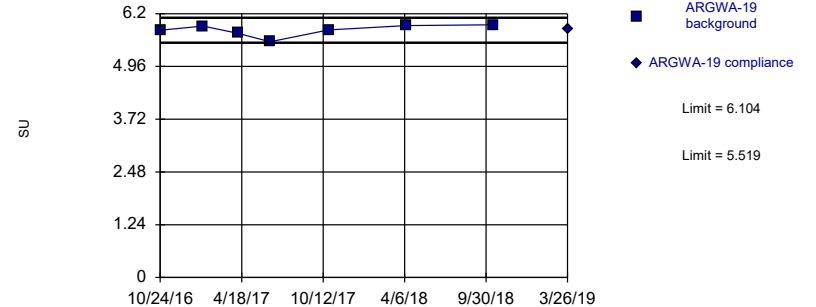


Background Data Summary: Mean=5.719, Std. Dev.=0.3832, n=21. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9466, critical = 0.873. Kappa = 1.566 (c=8, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.006563.

Constituent: Chloride Analysis Run 7/15/2019 4:06 PM View: CCR Intrawell PL  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limits

Prediction Limit  
Intrawell Parametric

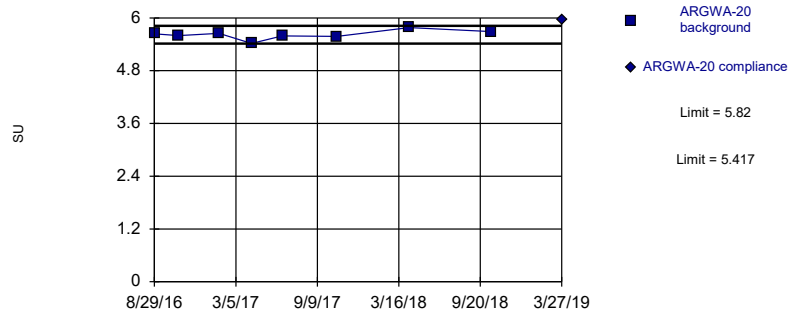


Background Data Summary: Mean=5.811, Std. Dev.=0.1396, n=7. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8645, critical = 0.73. Kappa = 2.095 (c=8, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.006563.

Constituent: pH Analysis Run 7/15/2019 4:06 PM View: CCR Intrawell PL  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

Exceeds Limits

Prediction Limit  
Intrawell Parametric

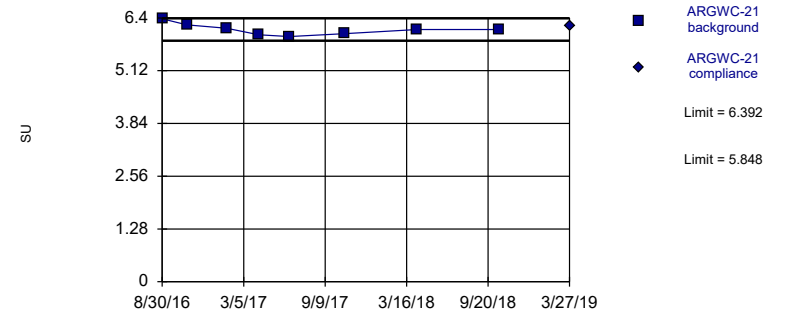


Background Data Summary: Mean=5.619, Std. Dev.=0.1033, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9429, critical = 0.749. Kappa = 1.95 (c=8, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.006563.

Constituent: pH Analysis Run 7/15/2019 4:06 PM View: CCR Intrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limits

Prediction Limit  
Intrawell Parametric



Background Data Summary: Mean=6.12, Std. Dev.=0.1396, n=8. Insufficient data to test for seasonality: data were not deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.944, critical = 0.749. Kappa = 1.95 (c=8, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.006563.

Constituent: pH Analysis Run 7/15/2019 4:06 PM View: CCR Intrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

# Prediction Limit

Constituent: Chloride, pH Analysis Run 7/15/2019 4:09 PM View: CCR Intrawell PL  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19	ARGWA-19	ARGWA-20	ARGWA-20	ARGWC-21	ARGWC-21	ARGWA-19	ARGWA-19
5/5/2009	11.1							
5/14/2009					6.38			
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				5.81	
10/26/2016					6			
1/25/2017	8.7		5.1		5.4		5.91	
4/10/2017	8		4.9		5.1		5.74	
6/19/2017	7.6				5.2		5.54	
6/20/2017			5					
10/24/2017	7.2		4.6		4.9		5.82	
4/9/2018			4.7					
4/10/2018	7.2				4.8		5.92	
10/16/2018	10		5.3		5.1		5.94	
3/26/2019		12						5.85
3/27/2019				4.6		4.4		

# Prediction Limit

Constituent: pH Analysis Run 7/15/2019 4:09 PM View: CCR Inrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-20	ARGWA-20	ARGWC-21	ARGWC-21
8/29/2016	5.64			
8/30/2016			6.38	
10/24/2016	5.6			
10/26/2016			6.23	
1/25/2017	5.65		6.15	
4/10/2017	5.42		5.99	
6/19/2017			5.95	
6/20/2017	5.59			
10/24/2017	5.58		6.02	
4/9/2018	5.78			
4/10/2018			6.12	
10/16/2018	5.69		6.12	
3/27/2019		5.96		6.2

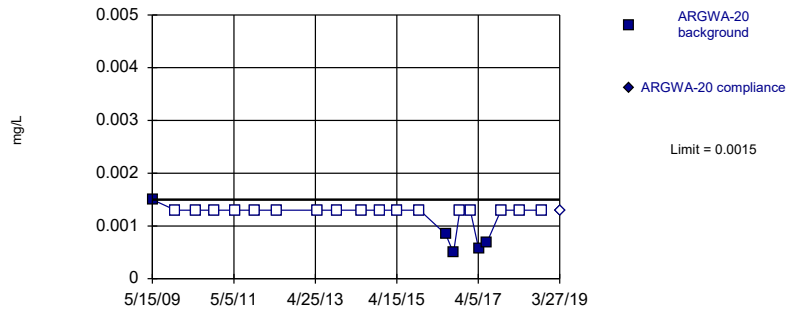
# Intrawell Prediction Limit All Results

Plant Arkwright    Client: Southern Company    Data: Arkwright No 2    Printed 8/14/2019, 3:36 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	ARGWA-20	0.0015	3/27/2019	0.0013ND	No	22	77.27	n/a	0.003707	NP (NDs) 1 of 2
Arsenic (mg/L)	ARGWC-21	0.005	3/27/2019	0.0011	No	22	50	n/a	0.003707	NP (normality) 1 of 2
Barium (mg/L)	ARGWA-19	0.06039	3/26/2019	0.056	No	22	0	No	0.008742	Param 1 of 2
Barium (mg/L)	ARGWA-20	0.08687	3/27/2019	0.082	No	22	0	sqrt(x)	0.008742	Param 1 of 2
Barium (mg/L)	ARGWC-21	0.13	3/27/2019	0.091	No	22	0	n/a	0.003707	NP (normality) 1 of 2
Lead (mg/L)	ARGWA-20	0.0013	3/27/2019	0.0013ND	No	22	95.45	n/a	0.003707	NP (NDs) 1 of 2
Selenium (mg/L)	ARGWA-19	0.0043	3/26/2019	0.0013ND	No	22	77.27	n/a	0.003707	NP (NDs) 1 of 2
Selenium (mg/L)	ARGWA-20	0.005702	3/27/2019	0.002783	No	22	50	No	0.008742	Param 1 of 2 Deseas
Selenium (mg/L)	ARGWC-21	0.0058	3/27/2019	0.0013ND	No	22	95.45	n/a	0.003707	NP (NDs) 1 of 2
Silver (mg/L)	ARGWA-19	0.0013	3/26/2019	0.0013ND	No	19	94.74	n/a	0.004832	NP (NDs) 1 of 2
Silver (mg/L)	ARGWA-20	0.0013	3/27/2019	0.0013ND	No	19	94.74	n/a	0.004832	NP (NDs) 1 of 2
Silver (mg/L)	ARGWC-21	0.0013	3/27/2019	0.0013ND	No	19	94.74	n/a	0.004832	NP (NDs) 1 of 2

Within Limit

Prediction Limit  
Intrawell Non-parametric

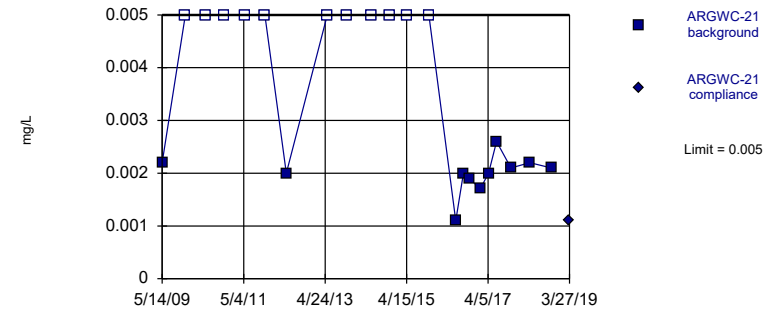


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 77.27% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Arsenic Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit  
Intrawell Non-parametric

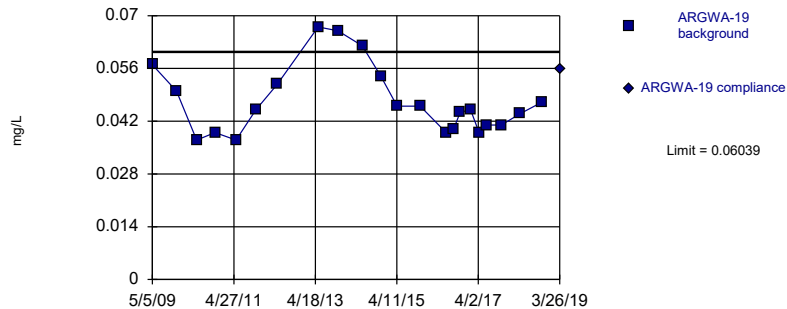


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 22 background values. 50% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Arsenic Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit  
Intrawell Parametric

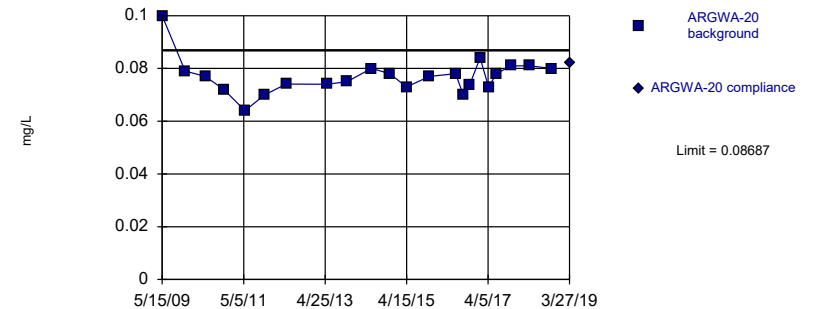


Background Data Summary: Mean=0.04719, Std. Dev.=0.009011, n=22. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8813, critical = 0.878. Kappa = 1.464 (c=6, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.008742.

Constituent: Barium Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit  
Intrawell Parametric

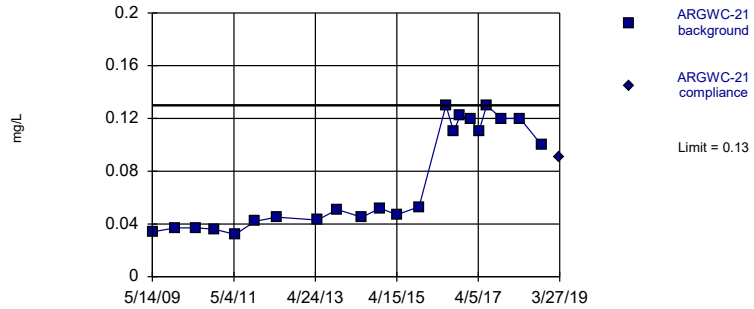


Background Data Summary (based on square root transformation): Mean=0.2771, Std. Dev.=0.01207, n=22. Seasonality was not detected with 95% confidence. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8849, critical = 0.878. Kappa = 1.464 (c=6, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.008742.

Constituent: Barium Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit  
Intrawell Non-parametric



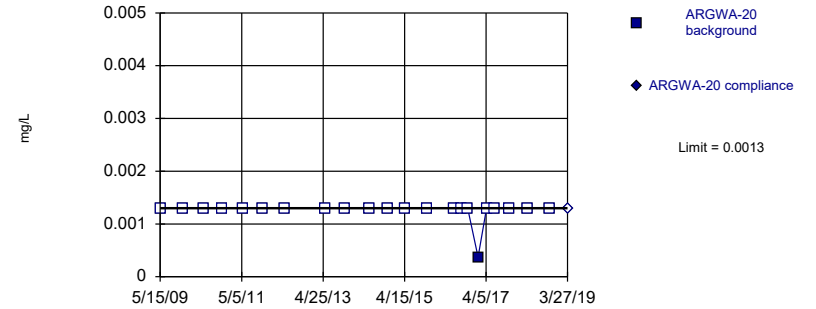
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 22 background values. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Barium Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

Hollow symbols indicate censored values.

Within Limit

Prediction Limit  
Intrawell Non-parametric



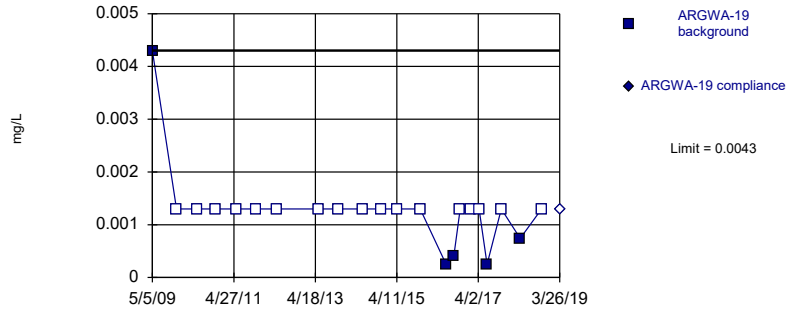
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 95.45% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Lead Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

Hollow symbols indicate censored values.

Within Limit

Prediction Limit  
Intrawell Non-parametric



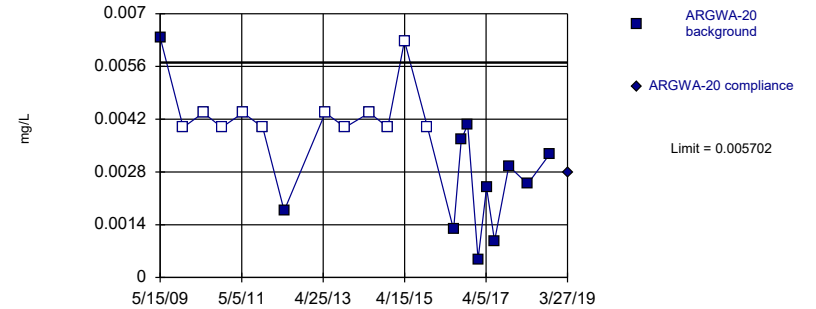
Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 77.27% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Selenium Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

Hollow symbols indicate censored values.

Within Limit

Prediction Limit  
Intrawell Parametric



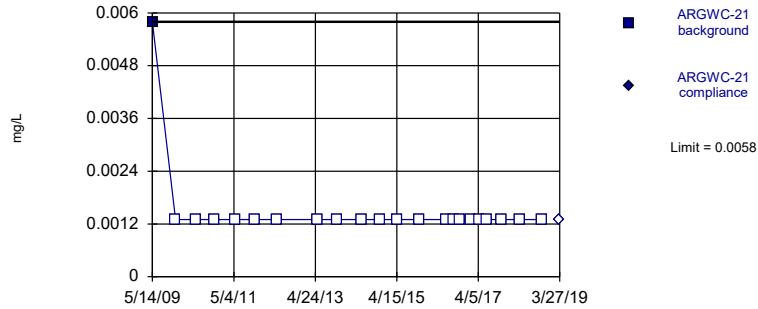
Background Data Summary: Mean=0.003514, Std. Dev.=0.001494, n=22, 50% NDs. Seasonality was detected with 95% confidence and data were deseasonalized. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9196, critical = 0.878. Kappa = 1.464 (c=6, w=1, 1 of 2, event alpha = 0.05132). Report alpha = 0.008742.

Constituent: Selenium Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2



Within Limit

Prediction Limit  
Intrawell Non-parametric

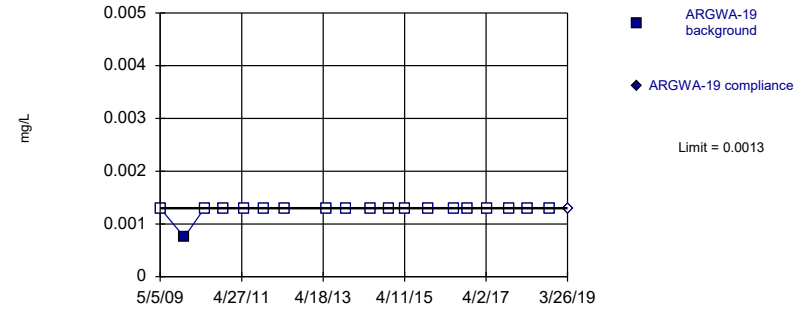


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 22 background values. 95.45% NDs. Well-constituent pair annual alpha = 0.007401. Individual comparison alpha = 0.003707 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Selenium Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit  
Intrawell Non-parametric

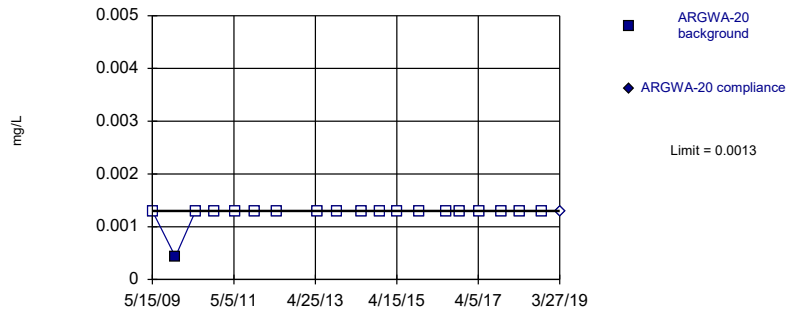


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 19 background values. 94.74% NDs. Well-constituent pair annual alpha = 0.009641. Individual comparison alpha = 0.004832 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Silver Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit  
Intrawell Non-parametric

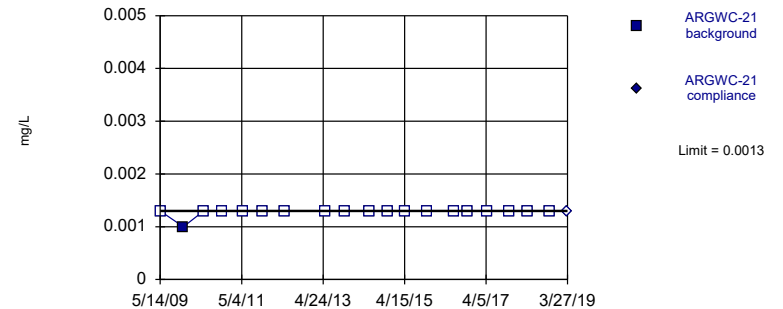


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 19 background values. 94.74% NDs. Well-constituent pair annual alpha = 0.009641. Individual comparison alpha = 0.004832 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Silver Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Within Limit

Prediction Limit  
Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 19 background values. 94.74% NDs. Well-constituent pair annual alpha = 0.009641. Individual comparison alpha = 0.004832 (1 of 2). Seasonality was not detected with 95% confidence.

Constituent: Silver Analysis Run 8/14/2019 3:25 PM View: Intrawell PL  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

# Prediction Limit

Constituent: Arsenic, Barium Analysis Run 8/14/2019 3:36 PM View: Intrawell PL

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-20	ARGWA-20	ARGWC-21	ARGWC-21	ARGWA-19	ARGWA-19	ARGWA-20	ARGWA-20
5/5/2009					0.057			
5/14/2009			0.0022					
5/15/2009	0.0015						0.1	
12/5/2009	<0.0013		<0.005		0.05		0.079	
6/1/2010	<0.0013				0.037		0.077	
6/2/2010			<0.005					
11/11/2010	<0.0013		<0.005		0.039		0.072	
5/17/2011	<0.0013		<0.005		0.037		0.064	
11/8/2011	<0.0013		<0.005		0.045		0.07	
5/16/2012	<0.0013		0.002 (J)		0.0518		0.0741	
5/14/2013	<0.0013		<0.005		0.067		0.074	
11/5/2013	<0.0013		<0.005		0.066		0.075	
6/9/2014	<0.0013		<0.005		0.062		0.08	
11/18/2014	<0.0013		<0.005				0.078	
11/19/2014					0.054			
4/14/2015	<0.0013		<0.005		0.046		0.073	
10/29/2015			<0.005					
11/4/2015	<0.0013				0.046		0.077	
6/22/2016	0.00084 (J)				0.039		0.078	
6/23/2016			0.0011 (J)					
8/29/2016	0.00049 (J)				0.04		0.07	
8/30/2016			0.002					
10/24/2016	<0.0013				0.0444		0.0738	
10/26/2016			0.0019 (J)					
1/25/2017	<0.0013		0.0017		0.045		0.084	
4/10/2017	0.00056 (J)		0.002		0.039		0.073	
6/19/2017			0.0026		0.041			
6/20/2017	0.00068 (J)						0.078	
10/24/2017	<0.0013		0.0021		0.041		0.081	
4/9/2018	<0.0013						0.081	
4/10/2018			0.0022		0.044			
10/16/2018	<0.0013		0.0021		0.047		0.08	
3/26/2019						0.056		
3/27/2019		<0.0013		0.0011 (J)				0.082

# Prediction Limit

Constituent: Barium, Lead, Selenium Analysis Run 8/14/2019 3:36 PM View: Intrawell PL  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21	ARGWC-21	ARGWA-20	ARGWA-20	ARGWA-19	ARGWA-19	ARGWA-20	ARGWA-20
5/5/2009					0.0043			
5/14/2009	0.034							
5/15/2009			<0.0013				0.007	
12/5/2009	0.037		<0.0013		<0.0013		<0.005	
6/1/2010			<0.0013		<0.0013		<0.005	
6/2/2010	0.037							
11/11/2010	0.036		<0.0013		<0.0013		<0.005	
5/17/2011	0.032		<0.0013		<0.0013		<0.005	
11/8/2011	0.042		<0.0013		<0.0013		<0.005	
5/16/2012	0.0451		<0.0013		<0.0013		0.0024 (J)	
5/14/2013	0.043		<0.0013		<0.0013		<0.005	
11/5/2013	0.051		<0.0013		<0.0013		<0.005	
6/9/2014	0.045		<0.0013		<0.0013		<0.005	
11/18/2014	0.052		<0.0013				<0.005	
11/19/2014					<0.0013			
4/14/2015	0.047		<0.0013		<0.0013		<0.005	
10/29/2015	0.053							
11/4/2015			<0.0013		<0.0013		<0.005	
6/22/2016			<0.0013		0.00025 (J)		0.0019	
6/23/2016	0.13							
8/29/2016			<0.0013		0.0004 (J)		0.0019	
8/30/2016	0.11							
10/24/2016			<0.0013		<0.0013		0.0023 (J)	
10/26/2016	0.122							
1/25/2017	0.12		0.00037 (J)		<0.0013		0.0015	
4/10/2017	0.11		<0.0013		<0.0013		0.0011 (J)	
6/19/2017	0.13				0.00025 (J)			
6/20/2017			<0.0013				0.0016	
10/24/2017	0.12		<0.0013		<0.0013		0.0012 (J)	
4/9/2018			<0.0013				0.0012 (J)	
4/10/2018	0.12				0.00074 (J)			
10/16/2018	0.1		<0.0013		<0.0013		0.0015	
3/26/2019						<0.0013		
3/27/2019		0.091		<0.0013				0.0015

# Prediction Limit

Constituent: Selenium, Silver Analysis Run 8/14/2019 3:36 PM View: IntraWell PL

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWC-21	ARGWC-21	ARGWA-19	ARGWA-19	ARGWA-20	ARGWA-20	ARGWC-21	ARGWC-21
5/5/2009			<0.0013					
5/14/2009	0.0058						<0.0013	
5/15/2009					<0.0013			
12/5/2009	<0.0013		0.00075		0.00043		0.001	
6/1/2010			<0.0013		<0.0013			
6/2/2010	<0.0013						<0.0013	
11/11/2010	<0.0013		<0.0013		<0.0013		<0.0013	
5/17/2011	<0.0013		<0.0013		<0.0013		<0.0013	
11/8/2011	<0.0013		<0.0013		<0.0013		<0.0013	
5/16/2012	<0.0013		<0.0013		<0.0013		<0.0013	
5/14/2013	<0.0013		<0.0013		<0.0013		<0.0013	
11/5/2013	<0.0013		<0.0013		<0.0013		<0.0013	
6/9/2014	<0.0013		<0.0013		<0.0013		<0.0013	
11/18/2014	<0.0013				<0.0013		<0.0013	
11/19/2014			<0.0013					
4/14/2015	<0.0013		<0.0013		<0.0013		<0.0013	
10/29/2015	<0.0013						<0.0013	
11/4/2015			<0.0013		<0.0013			
6/22/2016			<0.0013		<0.0013			
6/23/2016	<0.0013						<0.0013	
8/30/2016	<0.0013							
10/24/2016			<0.0013		<0.0013			
10/26/2016	<0.0013						<0.0013	
1/25/2017	<0.0013							
4/10/2017	<0.0013		<0.0013		<0.0013		<0.0013	
6/19/2017	<0.0013							
10/24/2017	<0.0013		<0.0013		<0.0013		<0.0013	
4/9/2018					<0.0013			
4/10/2018	<0.0013		<0.0013				<0.0013	
10/16/2018	<0.0013		<0.0013		<0.0013		<0.0013	
3/26/2019				<0.0013				
3/27/2019		<0.0013				<0.0013		<0.0013

# Trend Test Significant Results

Plant Arkwright    Client: Southern Company    Data: Arkwright No 2    Printed 8/14/2019, 3:41 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Alpha</u>	<u>Method</u>
<b>Calcium (mg/L)</b>	<b>ARGWC-21</b>	<b>4.916</b>	<b>28</b>	<b>23</b>	<b>Yes</b>	<b>9</b>	<b>0</b>	<b>n/a</b>	<b>0.02</b>	<b>NP</b>
<b>Sulfate (mg/L)</b>	<b>ARGWA-19 (bg)</b>	<b>-0.5232</b>	<b>-160</b>	<b>-84</b>	<b>Yes</b>	<b>22</b>	<b>0</b>	<b>n/a</b>	<b>0.02</b>	<b>NP</b>
<b>Sulfate (mg/L)</b>	<b>ARGWC-21</b>	<b>4.071</b>	<b>132</b>	<b>84</b>	<b>Yes</b>	<b>22</b>	<b>0</b>	<b>n/a</b>	<b>0.02</b>	<b>NP</b>

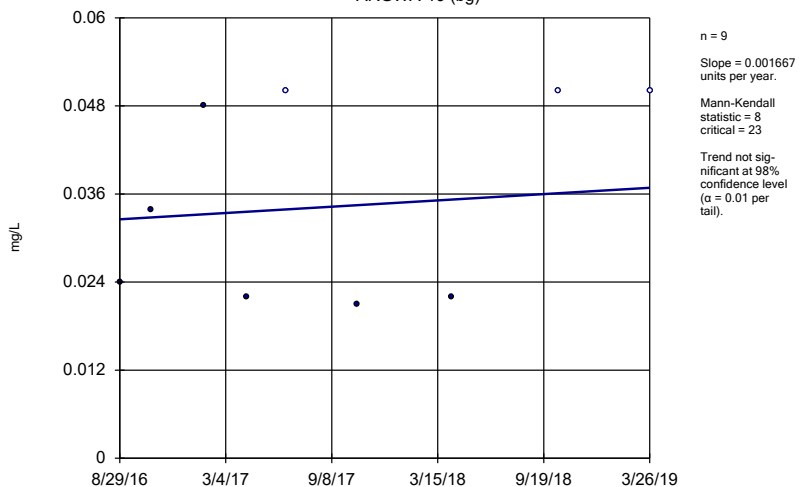
# Trend Test All Results

Plant Arkwright    Client: Southern Company    Data: Arkwright No 2    Printed 8/14/2019, 3:41 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	ARGWA-19 (bg)	0.001667	8	23	No	9	33.33	n/a	0.02	NP
Boron (mg/L)	ARGWA-20 (bg)	0.007667	11	23	No	9	22.22	n/a	0.02	NP
Boron (mg/L)	ARGWC-21	0.0415	20	23	No	9	0	n/a	0.02	NP
Calcium (mg/L)	ARGWA-19 (bg)	1.253	22	23	No	9	0	n/a	0.02	NP
Calcium (mg/L)	ARGWA-20 (bg)	0.6294	16	23	No	9	0	n/a	0.02	NP
<b>Calcium (mg/L)</b>	<b>ARGWC-21</b>	<b>4.916</b>	<b>28</b>	<b>23</b>	<b>Yes</b>	<b>9</b>	<b>0</b>	<b>n/a</b>	<b>0.02</b>	<b>NP</b>
<b>Sulfate (mg/L)</b>	<b>ARGWA-19 (bg)</b>	<b>-0.5232</b>	<b>-160</b>	<b>-84</b>	<b>Yes</b>	<b>22</b>	<b>0</b>	<b>n/a</b>	<b>0.02</b>	<b>NP</b>
Sulfate (mg/L)	ARGWA-20 (bg)	0	-5	-78	No	21	0	n/a	0.02	NP
<b>Sulfate (mg/L)</b>	<b>ARGWC-21</b>	<b>4.071</b>	<b>132</b>	<b>84</b>	<b>Yes</b>	<b>22</b>	<b>0</b>	<b>n/a</b>	<b>0.02</b>	<b>NP</b>
Total Dissolved Solids (mg/L)	ARGWA-19 (bg)	11.8	11	23	No	9	0	n/a	0.02	NP
Total Dissolved Solids (mg/L)	ARGWA-20 (bg)	1.858	6	23	No	9	0	n/a	0.02	NP
Total Dissolved Solids (mg/L)	ARGWC-21	19.37	20	23	No	9	0	n/a	0.02	NP

### Sen's Slope Estimator

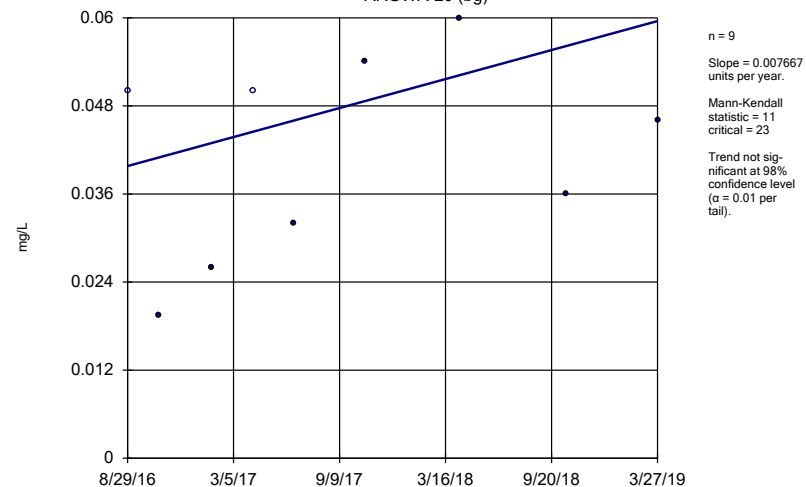
ARGWA-19 (bg)



Constituent: Boron Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Sen's Slope Estimator

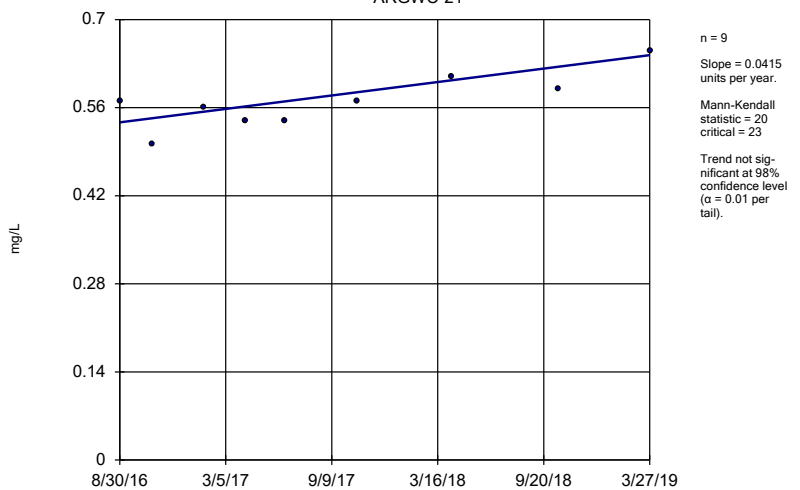
ARGWA-20 (bg)



Constituent: Boron Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Sen's Slope Estimator

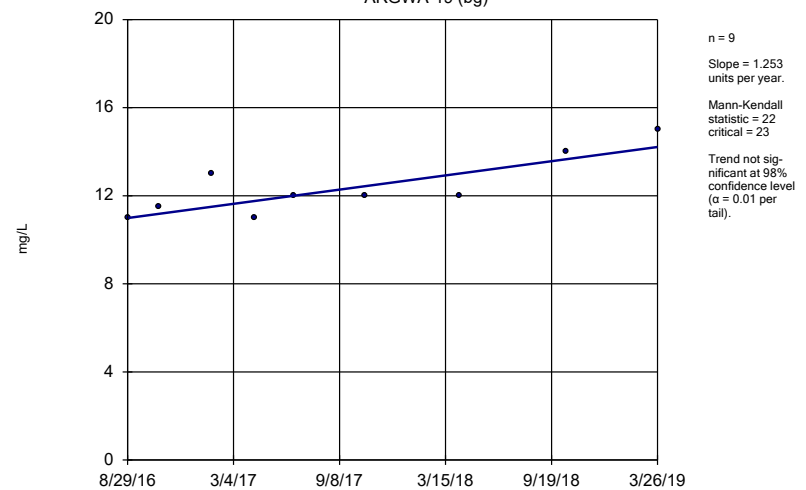
ARGWC-21



Constituent: Boron Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

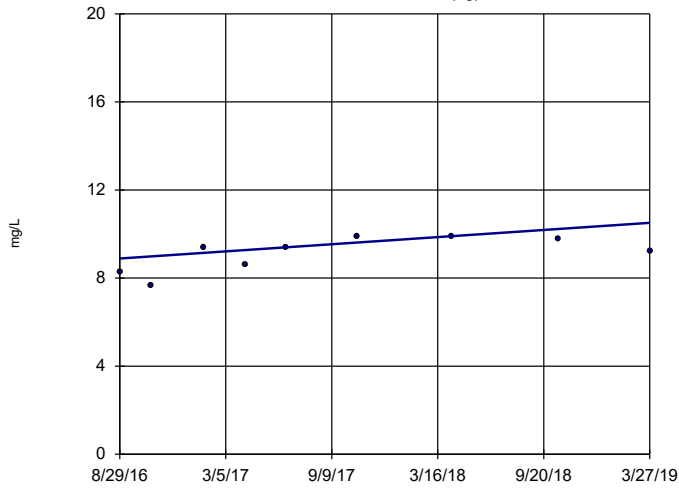
### Sen's Slope Estimator

ARGWA-19 (bg)



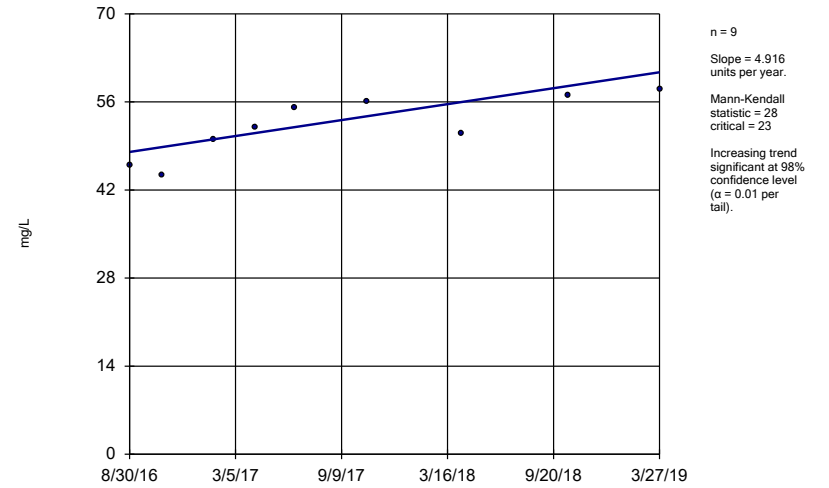
Constituent: Calcium Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator  
ARGWA-20 (bg)



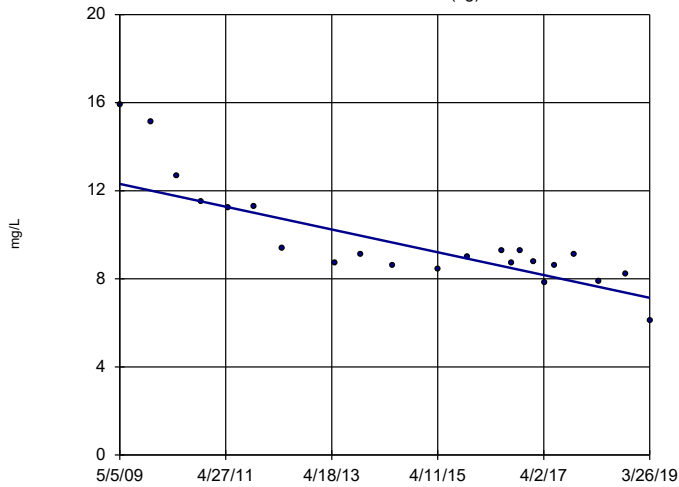
Constituent: Calcium Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator  
ARGWC-21



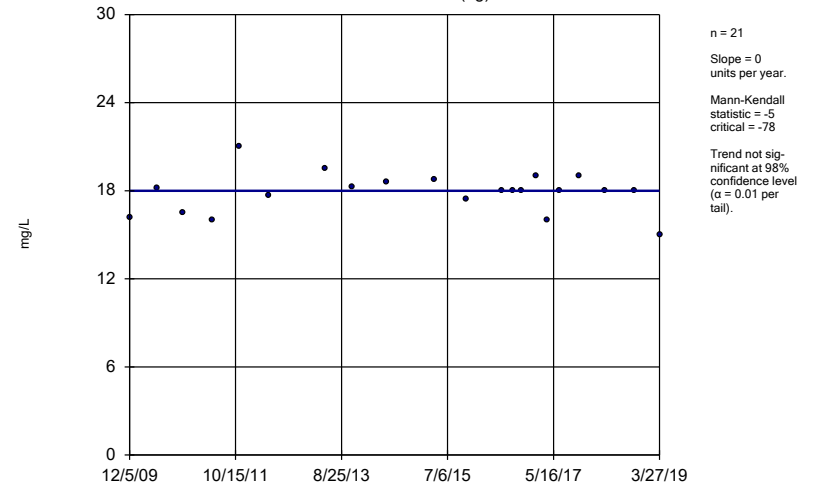
Constituent: Calcium Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sen's Slope Estimator  
ARGWA-19 (bg)



Constituent: Sulfate Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

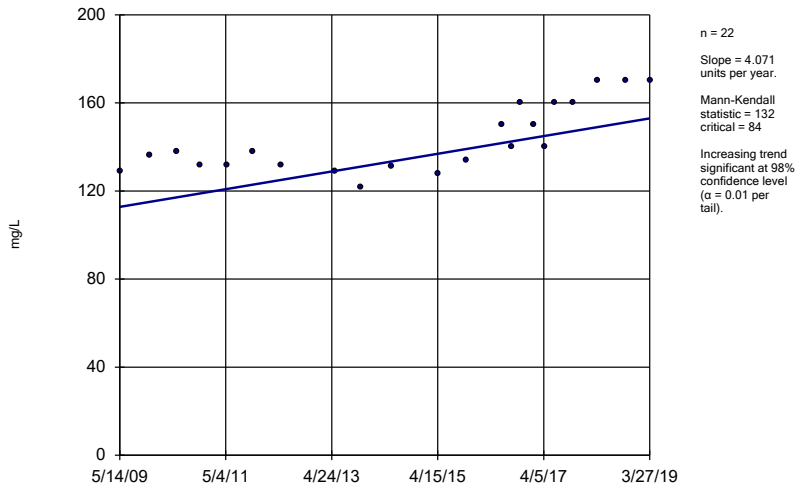
Sen's Slope Estimator  
ARGWA-20 (bg)



Constituent: Sulfate Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

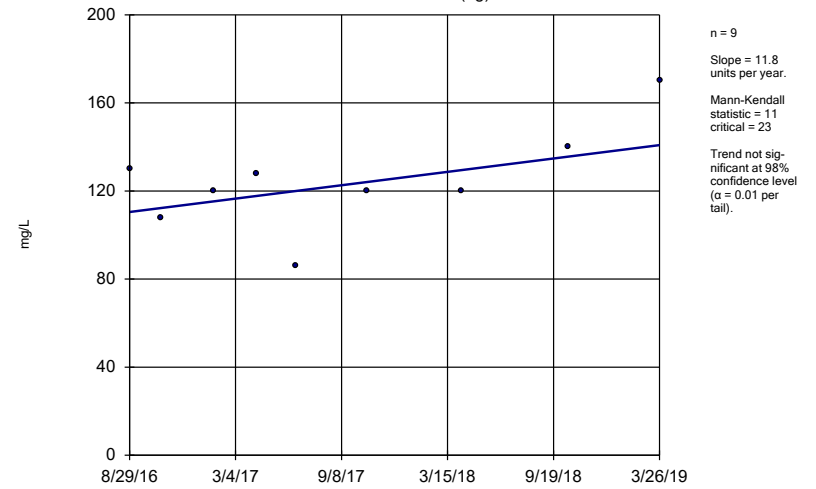


### Sen's Slope Estimator ARGWC-21



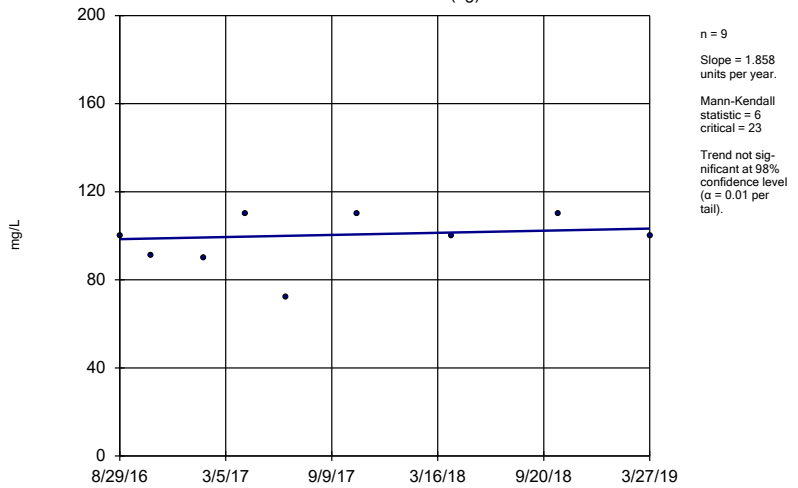
Constituent: Sulfate Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Sen's Slope Estimator ARGWA-19 (bg)



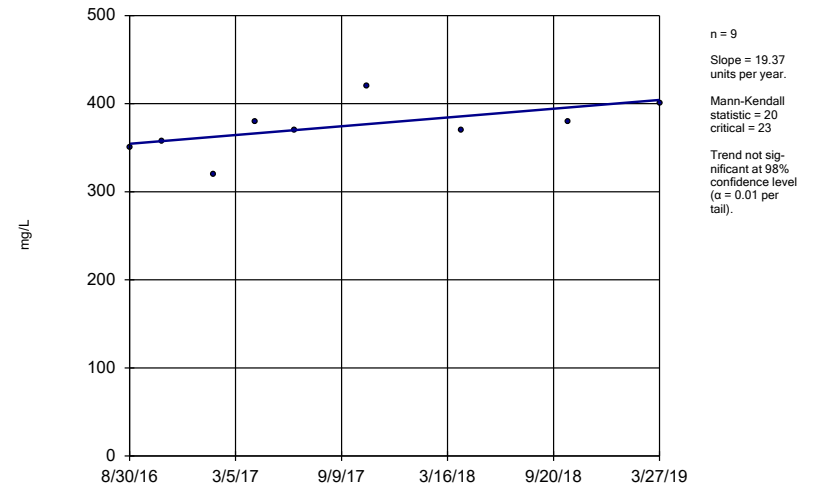
Constituent: Total Dissolved Solids Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Sen's Slope Estimator ARGWA-20 (bg)



Constituent: Total Dissolved Solids Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Sen's Slope Estimator ARGWC-21



Constituent: Total Dissolved Solids Analysis Run 8/14/2019 3:39 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

# Sen's Slope Estimator

Constituent: Boron, Calcium Analysis Run 8/14/2019 3:41 PM View: Trend Test  
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	

# Sen's Slope Estimator

Constituent: Calcium, Sulfate Analysis Run 8/14/2019 3:41 PM View: Trend Test

Plant Arkwright Client: Southern Company Data: Arkwright No 2

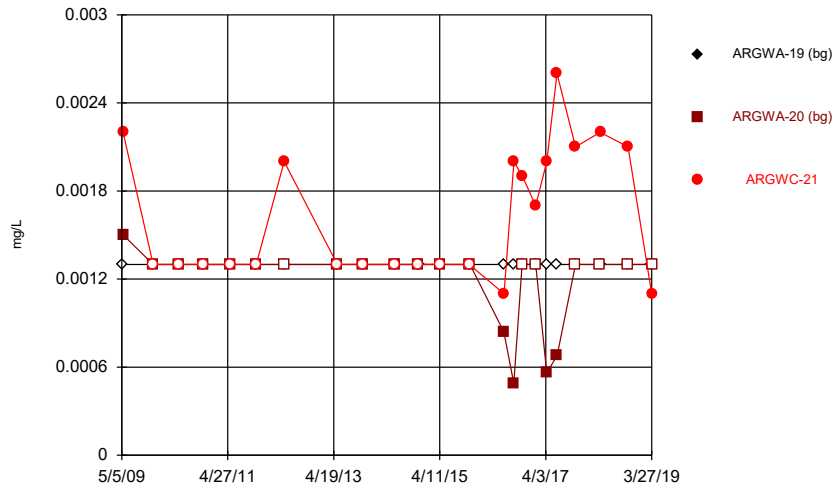
	ARGWA-20 (bg)	ARGWC-21	ARGWA-19 (bg)	ARGWA-20 (bg)
5/5/2009			15.9	
12/5/2009			15.1	16.2
6/1/2010			12.7	18.2
11/11/2010			11.5	16.5
5/17/2011			11.2	16
11/8/2011			11.3	21
5/16/2012			9.38	17.7
5/14/2013			8.74	19.5
11/5/2013			9.12	18.3
6/9/2014			8.61	18.6
4/14/2015			8.45	18.8
11/4/2015			9.01	17.4
6/22/2016			9.3	18
8/29/2016	8.3		8.7	18
8/30/2016		46		
10/24/2016	7.66		9.3	18
10/26/2016		44.3		
1/25/2017	9.4	50	8.8	19
4/10/2017	8.6	52	7.8	16
6/19/2017		55	8.6	
6/20/2017	9.4			18
10/24/2017	9.9	56	9.1	19
4/9/2018	9.9			18
4/10/2018		51	7.9	
10/16/2018	9.8	57	8.2	18
3/26/2019			6.1	
3/27/2019	9.2	58		15

# Sen's Slope Estimator

Constituent: Sulfate, Total Dissolved Solids Analysis Run 8/14/2019 3:41 PM View: Trend Test  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

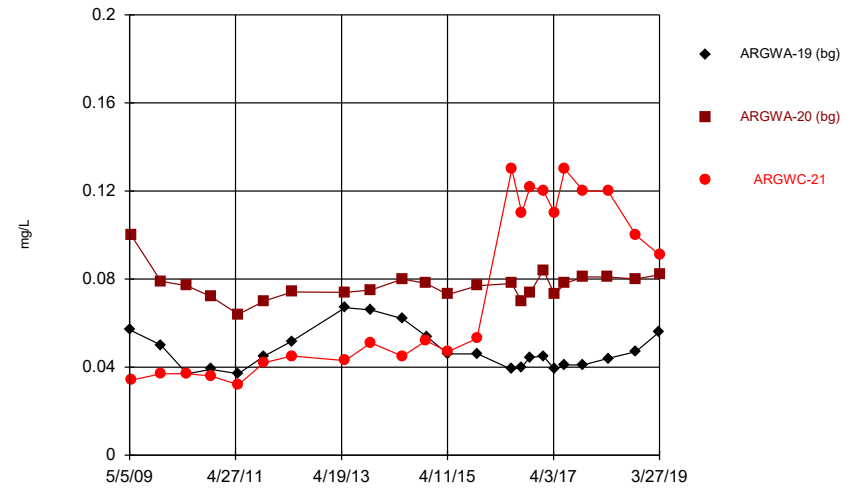
	ARGWC-21	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21
5/14/2009	129			
12/5/2009	136			
6/2/2010	138			
11/11/2010	131.49			
5/17/2011	132			
11/8/2011	138			
5/16/2012	132			
5/14/2013	129			
11/5/2013	122			
6/9/2014	131			
4/14/2015	128			
10/29/2015	134			
6/23/2016	150			
8/29/2016		130	100	
8/30/2016	140			350
10/24/2016		108	91	
10/26/2016	160			357
1/25/2017	150	120	90	320
4/10/2017	140	128 (D)	110	380
6/19/2017	160	86		370
6/20/2017			72	
10/24/2017	160	120	110	420
4/9/2018			100	
4/10/2018	170	120		370
10/16/2018	170	140	110	380
3/26/2019		170		
3/27/2019	170		100	400

Time Series



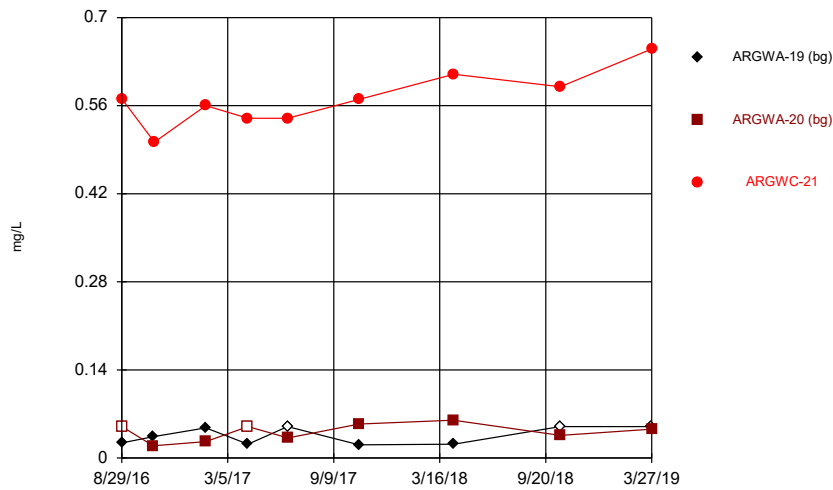
Constituent: Arsenic Analysis Run 8/14/2019 3:11 PM View: Time Series  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Time Series



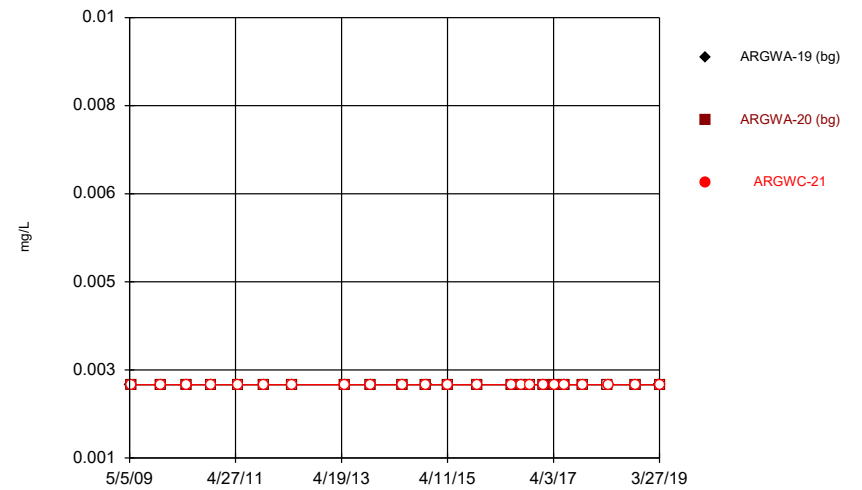
Constituent: Barium Analysis Run 8/14/2019 3:11 PM View: Time Series  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Time Series



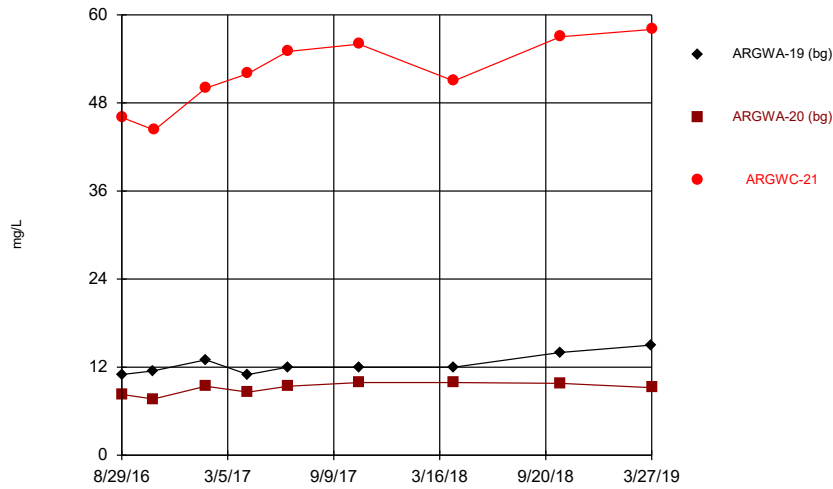
Constituent: Boron Analysis Run 8/14/2019 3:11 PM View: Time Series  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Time Series



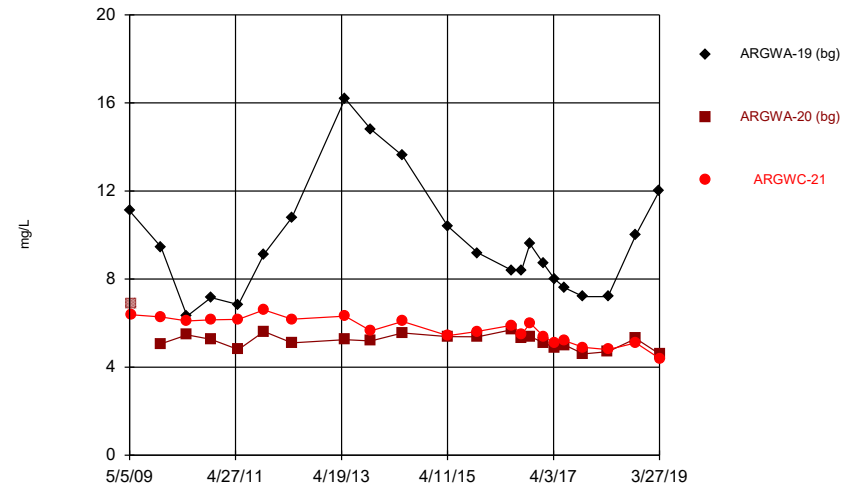
Constituent: Cadmium Analysis Run 8/14/2019 3:11 PM View: Time Series  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Time Series



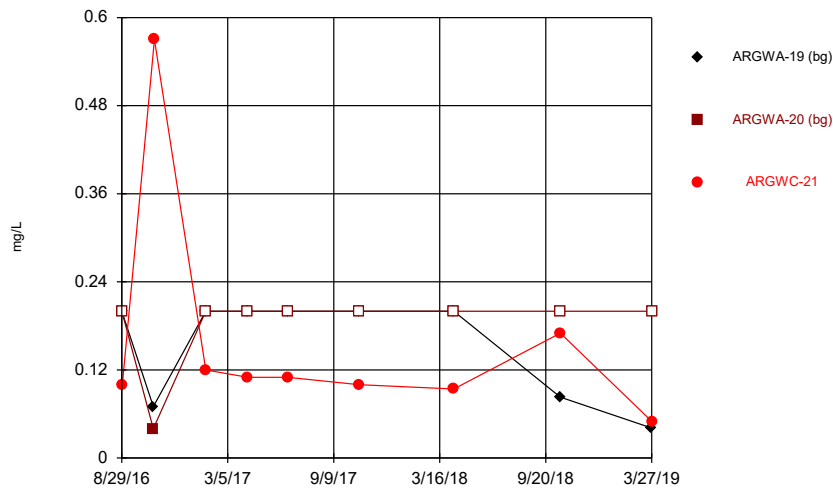
Constituent: Calcium Analysis Run 8/14/2019 3:11 PM View: Time Series  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

Time Series



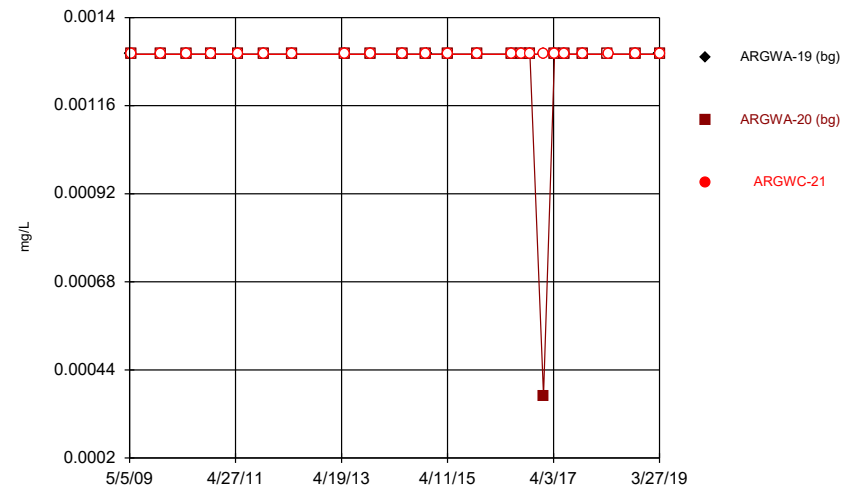
Constituent: Chloride Analysis Run 8/14/2019 3:11 PM View: Time Series  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

Time Series



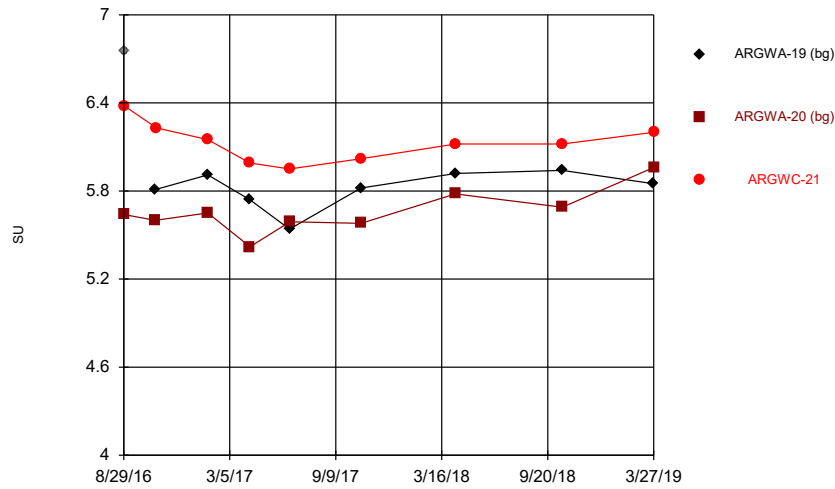
Constituent: Fluoride Analysis Run 8/14/2019 3:11 PM View: Time Series  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

Time Series



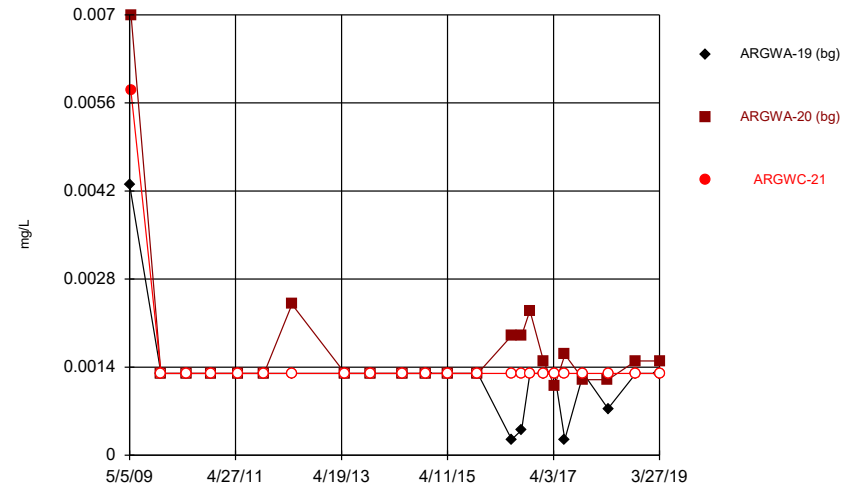
Constituent: Lead Analysis Run 8/14/2019 3:11 PM View: Time Series  
 Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Time Series



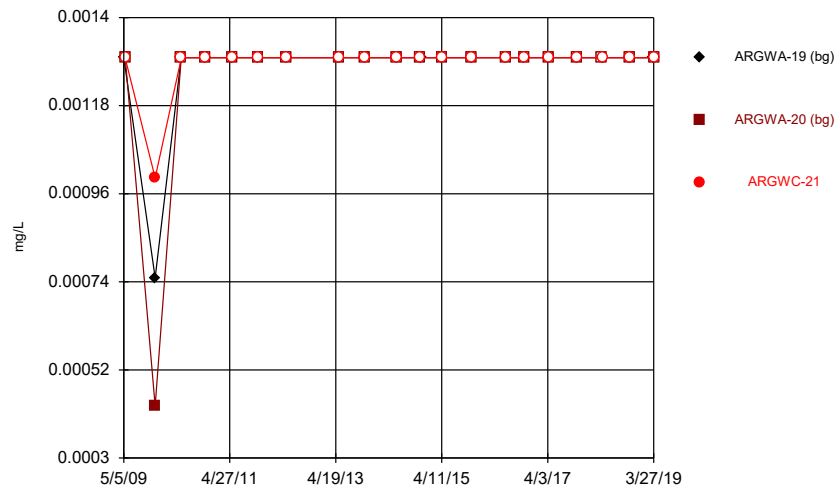
Constituent: pH Analysis Run 8/14/2019 3:11 PM View: Time Series  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Time Series



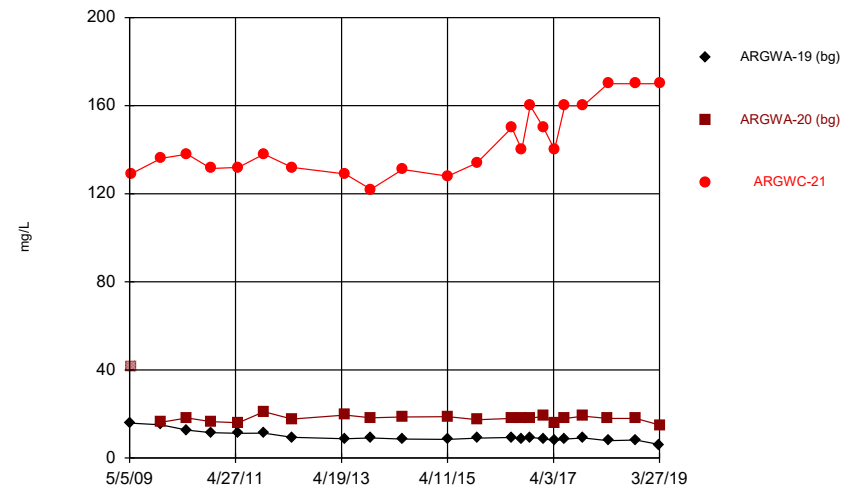
Constituent: Selenium Analysis Run 8/14/2019 3:11 PM View: Time Series  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Time Series



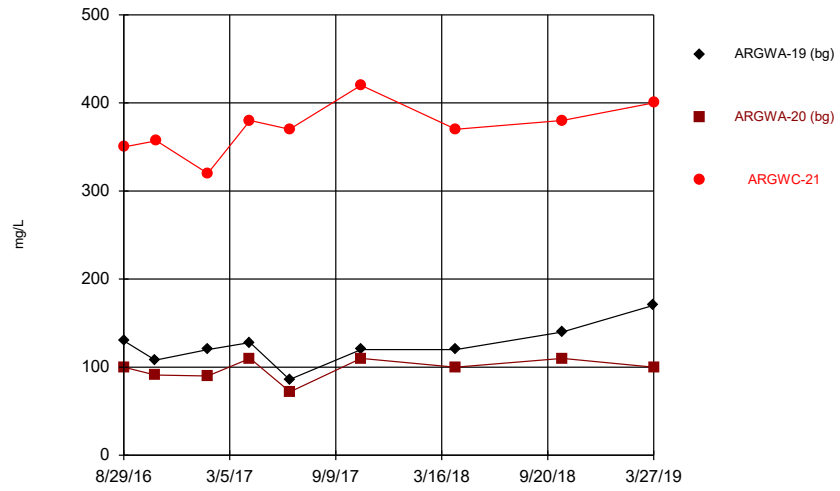
Constituent: Silver Analysis Run 8/14/2019 3:11 PM View: Time Series  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Time Series



Constituent: Sulfate Analysis Run 8/14/2019 3:11 PM View: Time Series  
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Time Series



Constituent: Total Dissolved Solids    Analysis Run 8/14/2019 3:11 PM    View: Time Series  
Plant Arkwright    Client: Southern Company    Data: Arkwright No 2