

# 2020 Semi-Annual Groundwater **Monitoring and Corrective Action** Report

**Georgia Power Company – Plant Arkwright** 

Ash Pond 2 Dry Ash Stockpile Project No.: 6122201429

Prepared for:



Atlanta, Georgia

#### CERTIFICATION STATEMENT

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

Gregory J. Wrenn, P.E.

Registered Professional Engineer Professional Engineer No. 025565

Date: 2/26/2021



Rhonda N. Quinn, P.G.

Registered Professional Geologist Georgia Registration No. 1031

Elouda N. Quem

Date: 7/26/2021

#### **SUMMARY**

This summary of the 2020 Semi-Annual Groundwater Monitoring and Corrective Action Report provides the status of groundwater monitoring and corrective action program through December 2020 at Georgia Power Company's (Georgia Power's) Plant Arkwright Ash Pond 2 Dry Ash Stockpile (AP-2 DAS). This summary was prepared by Wood Environment & Infrastructure Solutions, Inc. (Wood) on behalf of Georgia Power to meet the requirements listed in Georgia Environmental Protection Division Rules of Solid Waste Management 391-3-4-.10(6)(a)-(c) and 391-3-4-.14.

Plant Arkwright is located in Bibb County, Georgia approximately 6 miles northwest of the city of Macon. The physical address of the plant is Plant Arkwright Macon, GA 31211. When in operation, Plant Arkwright consisted of four 40-megawatt units. In years before retirement, the plant was used primarily to provide peaking power and operated approximately 40 to 60 days per year. The Plant Arkwright coal-fired power plant was retired in 2002 and decommissioned in 2003. The 11-acre AP-2 DAS is located between Arkwright Road to the north and Beaverdam Creek in the south and is shown on Figure 1. Georgia Power officially closed the AP-2 DAS in 2010 with EPD's approval and in accordance with the solid waste landfill regulations specified by GA EPD 391-3-4, in effect at the time of its closure.



Figure 1: Ash Pond 2 Dry Ash Stockpile at Plant Arkwright

The groundwater monitoring program for AP-2 DAS is managed in accordance with the landfill's Solid Waste Permit No. 011-031D(LI), as issued by the Georgia Environmental Protection Division (GA EPD), and in accordance with Georgia Solid Waste Management Rules for Groundwater Monitoring and Corrective Action of a municipal solid waste landfill, Rule 391-3-4.14. AP-2 DAS is also subject to the USEPA CCR rule and the GA EPD Rules for Solid Waste Management 391-3-4-.10. Groundwater at AP-2 DAS is monitored using a compliance well monitoring system comprised of 2 upgradient (ARGWA-19, ARGWA-20) and 3 downgradient wells (ARGWC-21, ARGWC-22, and ARGWC-23) installed between December 2008 and November 2019 that meet federal and state monitoring requirements. Routine sampling and reporting began after the background groundwater conditions were established between August 2016 and October 2018 for wells ARGWA-19, ARGWA-20, and ARGWC-21, and between December 2019 and September 2020 for wells ARGWC-22 and ARGWC-23. Based on groundwater conditions at AP-2 DAS, an assessment monitoring program and assessment of corrective measures were established on November 13, 2019 and July 9, 2020, respectively. During the 2020 reporting period, AP-2 DAS remained in assessment monitoring as corrective measures were evaluated.

During the 2020 semi-annual reporting period, Wood conducted two assessment groundwater sampling events in August and September/October. The August 2020 event was an annual assessment screening for Appendix IV constituents. Groundwater samples were submitted to TestAmerica Laboratories, Inc., for analysis. Per the CCR rule, groundwater results for the September/October 2020 data were evaluated in accordance with the certified statistical methods. That evaluation showed statistically significant values of Appendix III<sup>1</sup> and Appendix IV<sup>2</sup> parameters in wells provided in the table below.

Appendix III Parameters	September/October 2020
Boron	ARGWC-21, ARGWC-22, ARGWC-23
Calcium	ARGWC-21, ARGWC-22, ARGWC-23
Fluoride	ARGWC-23
рН	ARGWC-23
Sulfate	ARGWC-21, ARGWC-22, ARGWC-23
TDS	ARGWC-21, ARGWC-22, ARGWC-23
Appendix IV Parameters	September/October 2020
Cobalt	ARGWC-22
Lithium	ARGWC-23
Molybdenum	ARGWC-23

Based on review of the Appendix III and Appendix IV statistical results completed for the groundwater monitoring and corrective action program from July through December 2020, the Site will continue in assessment monitoring along with assessment of corrective measures. Georgia Power will continue routine groundwater monitoring and reporting at the Site. Reports will be provided to EPD semi-annually.

<sup>&</sup>lt;sup>2</sup> Antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, fluoride, lead, lithium, mercury, molybdenum, selenium, thallium, and radium 226 + 228



wood.

<sup>&</sup>lt;sup>1</sup> Boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids (TDS)

# **Table of Contents**

1.0	INT	RODUCTION	1
1.1		Site Description and Background	
1.2	F	Regional Geology & Hydrogeologic Setting	2
1.3	2.1	Site Geology	3
1.3	2.2	Site Hydrogeology	3
1.3	(	Groundwater Monitoring System	4
2.0 2.1		OUNDWATER MONITORING ACTIVITIES  Monitoring Well Installation and Maintenance	
2.2		Detection Monitoring Program	5
2.3	A	Assessment Monitoring	5
3.0 3.1		MPLE METHODOLOGY & ANALYSESGroundwater Elevation Measurements and Flow Direction	
3.2	(	Groundwater Gradient and Flow Velocity	7
3.3	C	Groundwater Sampling	8
3.4	L	aboratory Analyses	8
3.5	(	Quality Assurance & Quality Control	9
4.0 4.1		ATISTICAL ANALYSISStatistical Method	
4.	1.1	Appendix III Statistical Method	12
4.	1.2	Appendix IV Statistical Method	12
4.2	S	Statistical Analyses Results – Appendix I and Appendix III	13
4.3	S	Statistical Analyses - Appendix IV	14
5.0 5.1		ONITORING PROGRAM STATUSAssessment Monitoring Status	
5.2	A	Assessment of Corrective Measures	15
6.0 7.0		NCLUSIONS & FUTURE ACTIONS	



## **List of Tables**

Table 1	Summary of Monitoring Network Well Construction and Groundwater Elevations
Table 2	Summary of Piezometer Construction and Groundwater Elevations
Table 3	Groundwater Flow Velocity Calculations
Table 4	Analytical Data Summary
Table 5	Statistical Method Summary (embedded in text)
Table 6	Summary of Groundwater Protection Standards
Table 7	Summary of Statistical Analysis Results Appendix III - September/October 2020 (embedded in text)
Table 8	Summary of Statistical Analysis Results Appendix IV - September/October 2020 (embedded in text)

# **List of Figures**

Figure 1	Site Location Map
Figure 2	Monitoring Network Well Location Map
Figure 3	Potentiometric Surface – August 2020
Figure 4	Potentiometric Surface – September/October 2020

# **List of Appendices**

Appendix A	Well Installation Report
Appendix B	Field Sampling Logs and Analytical Data Reports
Appendix C	Statistical Analyses
Appendix D	Semi-Annual Remedy Selection and Design Progress Report





## 1.0 INTRODUCTION

In accordance with the Georgia Environmental Protection Division (GA EPD) Rules of Solid Waste Management 391-3-4-.10(6)(a)-(c) and 391-3-4-.14, this 2020 Semi-Annual Groundwater Monitoring and Corrective Action Report has been prepared to document groundwater monitoring activities conducted at Georgia Power Company's (GPC) former Plant Arkwright Ash Pond 2 Dry Ash Stockpile (AP-2DAS). To specify groundwater monitoring requirements, GA EPD Rule 391-3-4-.10(6)(a) incorporates by reference the United States Environmental Protection Agency (US EPA) Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) § 257 Subpart D. For ease of reference, the US EPA CCR rules are cited within this report.

Groundwater monitoring and reporting for Plant Arkwright AP-2DAS are performed in accordance with the monitoring requirements of § 257.90 through § 257.95 and the Georgia EPD Rule 391-3-4-.10(6)(a)-(c) and in accordance with EPD Rule 391-3-4-.14. This semi-annual report documents the activities completed during the second half of 2020. Two monitoring events were conducted during this monitoring period: (1) an assessment monitoring constituent screening event was conducted in August 2020, and (2) the subsequent semi-annual assessment monitoring event was conducted in September/October 2020. The installation and sampling of two new delineation piezometers was conducted in November and December 2020.

Due to statistically significant levels (SSLs) of lithium in well ARGWC-21 (October 2019) and cobalt in well ARGWC-22 (April 2020) identified in the *2020 Annual Groundwater Monitoring and Corrective Action Report* (Wood, 2020a), Georgia Power initiated an assessment of corrective measures (ACM) for AP-2 DAS on July 9, 2020 pursuant to EPD Rule 391-3-4-.10(6). In accordance with § 257.96(b), an Assessment of Corrective Measures Report for the cobalt in well ARGWC-22 was prepared and submitted to Georgia EPD in December 2020 (Wood, 2020b). A risk assessment report was also submitted in December 2020 as an Appendix to the ACM report. The risk assessment report concluded that concentrations of cobalt detected in groundwater at AP-2 DAS are not expected to pose a risk to human health or the environment. Surface water samples collected from Beaverdam Creek during this reporting period show that cobalt is delineated horizontally to below GWPS at the Site.

### 1.1 Site Description and Background

Plant Arkwright is located in Bibb County, Georgia approximately 6 miles northwest of the city of Macon (**Figure 1: Site Location Map**). The physical address of the plant is Plant Arkwright Macon, GA 31211. When in operation, Plant Arkwright consisted of four 40-megawatt units. In years before retirement, the plant was used primarily to provide peaking power and operated approximately 40 to 60 days per year. The Plant Arkwright coal-fired power plant was retired in

2002 and decommissioned in 2003. The 11-acre AP-2 DAS is located between Arkwright Road to the north and Beaverdam Creek in the south.

AP-2 DAS was in operation in the 1950s. Soil was placed over AP-2 DAS as a closure measure and was estimated to be closed in-place in the late 1970s to early 1980s. GPC officially closed the AP-2 DAS in 2010 with GA EPD's approval and in accordance with the solid waste landfill regulations specified by GA EPD Rule 391-3-4, in effect at the time of its closure. A closure certificate was issued by GA EPD for AP-2 DAS on June 30, 2010. The Closure Certificate initiated the post-closure care period for the CCR unit. Post closure care has been performed in accordance with the GA EPD Permit No. 011-031D(LI) following closure. AP-2 DAS is subject to the requirements of relevant portions of GA EPD 391-3-4-.10. The CCR unit referred to as AP-2 DAS is defined as an inactive CCR Landfill per GA EPD Rule 391-3-4-.10(2)(a)(3).

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

Semi-annual groundwater monitoring at AP-2 DAS is performed for an approved list of analytes in accordance with the post-closure care period requirements of GA EPD Permit #: 011-031D(LI). The Permit lists Appendix I constituents as arsenic, barium, cadmium, chloride, lead, selenium, silver, and sulfate and were analyzed during the September/October 2020 semi-annual event. A minor modification approved by GA EPD on August 9, 2017 added the Appendix III and IV constituents to the groundwater monitoring plan. The Appendix I constituents overlap with the Appendix III and IV constituents, with the exception of silver. To meet the new requirements of GA EPD rule 391-3-4-.10, a permit application package for the Site was submitted to GA EPD in November 2018 and is currently under review.

## 1.2 Regional Geology & Hydrogeologic Setting

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

Topography of the Washington Slope ranges from approximately 700 feet above sea level in the areas of southern Atlanta and Athens to approximately 300 feet above sea level at its southern

limit along the Georgia Fall Line. Streams follow the structure of underlying crystalline rocks eastward toward the Ocmulgee River. Relief throughout the district is between 50 and 100 feet with the greatest relief being along the Ocmulgee River with steep walled valleys with elevation changes between 150 – 200 feet (Clark and Zisa, 1976). Ultimately, the area surface water flow is directed toward the Ocmulgee River.

Bedrock in the region is composed of moderate- to high-grade metamorphic rocks, consisting of biotite-granite gneiss, schist, and amphibolite, and igneous rocks like granite. In the southernmost Piedmont, in the area of the Site, bedrock is predominantly composed of biotite gneiss. Major geologic structures in the region include the Ocmulgee fault, located approximately 7 miles to the northwest of the Site which strikes mostly northeast – southwest. The top of bedrock surface is highly weathered and where exposed is generally soft and friable (LeGrand, 1962).

## 1.2.1 Site Geology

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

## 1.2.2 Site Hydrogeology

The uppermost aquifer at the Site consists of two hydrostratigraphic units: the water table hydrostratigraphic unit and the underlying bedrock hydrostratigraphic unit. The water table unit is composed of the unconsolidated silty sands and sandy silts with clays and variable thicknesses of PWR mantling the bedrock surface. The unconsolidated sands, silts, and PWR are also referred to as overburden. The bedrock unit is the zone of weathered and fractured bedrock. The water table unit is hydraulically connected to the underlying bedrock through fractures in the partially weathered and fractured bedrock (Southern Company Services, 2005). The monitoring well network for AP-2 DAS (Figure 2: Monitoring Network Well Location Map) monitors the water table aquifer and the shallow weathered and fractured bedrock.

Slug testing data from the Site reflect a range of hydraulic conductivities from 10<sup>-3</sup> to 10<sup>-4</sup> centimeters per second in the water table hydrostratigraphic unit. Groundwater level monitoring data from the Site show stable water level trends and the potentiometric maps reflect groundwater generally flowing to the south across AP-2 DAS.

## 1.3 Groundwater Monitoring System

Pursuant to § 257.91 and § 391-3-4-.10(6)(a), Georgia Power installed a groundwater monitoring system within the uppermost aquifer at AP-2 DAS. The monitoring system is designed to monitor groundwater passing the waste boundary of AP-2 DAS within the uppermost aquifer. Wells were located to serve as upgradient and downgradient monitoring points based on groundwater flow direction (Table 1: Summary of Monitoring Network Well Construction and Groundwater **Elevations**). The monitoring well locations are shown in **Figure 2.** The current monitoring well network at AP-2 DAS consists of 5 monitoring wells: upgradient wells ARGWA-19 and ARGWA-20, and downgradient wells ARGWC-21, ARGWC-22, and ARGWC-23. The original groundwater monitoring network included ARGWA-19, ARGWA-20, and ARGWC-21 which were installed in December 2008, and was included in the 2008 Design and Operation Plans approved by GA EPD in 2010. Wells ARGWC-22 and ARGWC-23 were added to the monitoring network in November 2019. Four delineation piezometers ARAMW-1, ARAMW-2, ARAMW-7, and ARAMW-8 have also been installed at the downgradient edge of AP-2 DAS (Table 2: Summary of Piezometer Construction and Groundwater Elevations). ARAMW-1 and ARAMW-2 were installed in November 2019 to delineate the nature and extent of lithium at well ARGWC-21, and ARAMW-7 and ARAMW-8 were installed in November 2020 to delineate the nature and extent of cobalt at well ARGWC-22 and lithium and molybdenum at well ARGWC-23, respectively.

## 2.0 GROUNDWATER MONITORING ACTIVITIES

As required by § 257.90(e), the following describes monitoring-related activities performed during monitoring events conducted during the second half of 2020. The groundwater sampling was performed in accordance with § 257.93 and Georgia EPD Rule 391-3-4-.10(6). Samples were collected from each of the 9 wells in the monitoring system shown on **Figure 2**.

## 2.1 Monitoring Well Installation and Maintenance

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

- Visual inspection of well conditions prior to sampling, recording the Site conditions, and performing exterior maintenance to perform sampling under safe and clean conditions.
- Installation of two new delineation piezometers (ARAMW-7 and ARAMW-8) for characterization of groundwater quality downgradient of AP-2 DAS. The well installations are documented in **Appendix A: Well Installation Report**.
- The Site monitoring network wells and additional wells were re-surveyed for top of casing elevations and horizontal location in June 2020 to confirm the top-of-casing elevations. The two new piezometers were surveyed in December 2020.

## 2.2 Detection Monitoring Program

In accordance with § 257.94(b), the detection groundwater monitoring program was implemented by collecting 8 background groundwater samples. The initial detection monitoring event was performed in March 2019. Groundwater samples were collected from each monitoring well and analyzed for Appendix III constituents according to § 257.94(a) and EPD Rule 391-3-4-.10(6). The background study and the initial detection monitoring event were documented in the *2019 First Semiannual Groundwater Monitoring Report (August 2019)*. The 7<sup>th</sup> (August 20, 2020) and 8<sup>th</sup> background (September 22, 2020) sampling events for the new monitoring network wells ARGWC-22 and ARGWC-23 were completed during this monitoring period. Data reports for the last two background sampling events are included in **Appendix B**: **Field Sampling Logs and Analytical Data Reports**.

## 2.3 Assessment Monitoring

Statistically Significant Increases (SSI) of Appendix III constituents were identified in the initial detection monitoring event (March 2019). A notice of assessment monitoring was placed in the operation record on November 13, 2019. Pursuant to § 257.94(e)(1) and Georgia EPD Rule 391-3-4-.10(6), Georgia Power implemented assessment monitoring in accordance with § 257.95 and GA EPD Rule 391-3-4-.10(6). An assessment monitoring constituent screening event was conducted from August 19 to 21, 2020. Pursuant to § 257.95(b) and Georgia EPD Rule 391-3-4-

.10(6), the CCR monitoring wells were sampled for the full suite of Appendix IV constituents during the August 2020 assessment monitoring screening event. Following receipt of the Appendix IV screening results, a semi-annual assessment monitoring event was conducted September 29 to October 1, 2020. Pursuant to § 257.95(d)(1) and GA EPD Rule 391-3-4-.10(6), groundwater samples collected from the CCR monitoring network wells were analyzed for Appendix III constituents and those Appendix IV constituents detected during the August 2020 assessment monitoring screening event. The new delineation piezometers ARAMW-7 and ARAMW-8 were sampled on November 30, 2020 and December 1, 2020, respectively, and analyzed for Appendix III constituents, cobalt, lithium, molybdenum and major cation and anions. Data reports for the monitoring events are included in **Appendix B.** 

## 3.0 SAMPLE METHODOLOGY & ANALYSES

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

### 3.1 Groundwater Elevation Measurements and Flow Direction

Prior to each sampling event, groundwater elevations were recorded from each well in the network for Plant Arkwright AP-2 DAS. Groundwater elevations recorded during the assessment screening and semi-annual monitoring events are summarized **in Tables 1 and 2:** The elevations of the top of well casings were re-surveyed in June 2020. The August and September 2020 groundwater elevations were calculated using the top of casing elevations from the June 2020 resurvey. Groundwater elevation data from the monitoring events were used to develop potentiometric surface elevation contour maps (**Figure 3: Potentiometric Surface – August 2020** and **Figure 4: Potentiometric Surface – September 2020**). Groundwater flow in the uppermost aquifer (**Figures 3 and 4**) is to the south. The groundwater flow pattern observed during the August and September/October 2020 monitoring events are consistent with historical patterns with groundwater elevations at each of the wells maintaining a similar trend over time as can be seen in **Tables 1 and 2**.

## 3.2 Groundwater Gradient and Flow Velocity

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

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

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

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

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

$$n_e = \qquad \text{Effective porosity}$$

The general groundwater flow velocity was calculated for the Site based on hydraulic gradients, average permeability based on previous slug test data, and an estimated effective porosity of 0.20 (based on a review of several sources, including Driscoll, 1986; US EPA, 1989; Freeze and Cherry, 1979). The general groundwater flow velocity calculation is presented in **Table 3: Groundwater Flow Velocity Calculations**. Results for groundwater flow velocities were 0.31 feet/day (111.9 feet/year) in August 2020 and 0.30 feet/day (110.6 feet/year) in September 2020.

## 3.3 Groundwater Sampling

Groundwater samples were collected for the August and September/October 2020 assessment monitoring events and in December 2020 for the two newly installed piezometers (ARAMW-7 and ARAMW-8) in accordance with § 257.95(b) and (d) and Georgia EPD Rule 391-3-4-.10(6). Each of the monitoring wells at the Site is equipped with a dedicated QED bladder pump except for wells installed in November 2019 (ARGWC-22, ARGWC-23) and the four piezometers, which were pumped with peristaltic or non-dedicated QED bladder pumps. The monitoring wells were purged and sampled using low-flow sampling procedures. Sampling equipment and pump intakes were placed at the midpoint of the well screen. Care was taken to maintain a water level above the top of screen and not draw the water level down below the pump during purging. Water level stabilization was achieved when three consecutive water level measurements vary by 0.3 foot or less at a pumping rate of no less than 100 milliliters per minute (mL/min). A SmarTroll (In-Situ field instrument) was used to monitor and record field water quality parameters (pH, conductivity, dissolved oxygen, temperature, and ORP) and a Hach 2100Q was used to measure turbidity during well purging to verify stabilization prior to sampling. Groundwater samples were collected when the following stabilization criteria were met:

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

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

## 3.4 Laboratory Analyses

Groundwater samples collected in the September/October 2020 semi-annual monitoring event were analyzed for the full suite of the Appendix III constituents and the Appendix IV constituents detected in the August 2020 assessment constituent screening event. Antimony, cadmium, mercury, and thallium were not detected in the groundwater samples collected during the August 2020 assessment monitoring constituent screening event and were not analyzed during the subsequent semi-annual event (September/October 2020) in accordance with § 257.95(d)(1). Cadmium though not detected in the August assessment screening, was analyzed during the

semi-annual event because cadmium is an Appendix I metal. New delineation piezometers ARAMW-7 and ARAMW-8 were sampled in November/December 2020 for cobalt, lithium, and molybdenum along with major ions in support of corrective measures assessment activities. Analytical methods used for groundwater sample analysis are listed on the analytical laboratory reports included in **Appendix B**.

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

## 3.5 Quality Assurance & Quality Control

The analytical results provided in **Table 4: Analytical Data Summary** provide concentrations from the August and September/October 2020 assessment sampling events and the November/December 2020 sampling of the new piezometers as reported by the laboratory. During each sampling event, quality assurance/quality control (QA/QC) samples are collected at a rate of one QA/QC sample per 10 groundwater assessment samples. Equipment blanks (where non-dedicated sampling equipment is used) and duplicated samples were collected during each sampling event. QA/QC sample data were evaluated during data validation and are included in **Appendix B.** The relative percent difference (RPD) values of the parent and duplicate sample data for anion and metals data was less than 20% indicating good sampling precision (**Appendix B**). The data quality evaluation showed the data is valid and appropriate to use for monitoring the Site's groundwater quality.

#### 4.0 STATISTICAL ANALYSIS

The Site is currently conducting assessment monitoring and has entered into assessment of corrective measures. Statistical analysis of Appendix III groundwater monitoring data was performed on samples collected from the groundwater monitoring network pursuant to § 257.93(f) and Georgia Rule 391-3-4.-10(6) and following the statistical analysis plan. The statistical analysis method used at the Site was developed by Groundwater Stats Consulting, LLC (GSC) in accordance with § 257.93(f) and Georgia Rule 391-3-4.-10(6) using methodology presented in Statistical Analysis of Groundwater Data at RCRA Facilities, Unified Guidance, March 2009, EPA 530/R-09-007 (US EPA, 2009). To develop the statistical method, analytical data collected during the background period were evaluated and used to develop statistical limits for each Appendix III constituent. Subsequent detection monitoring results were compared to the statistical limits to determine if concentrations were statistically different from background.

Pursuant to § 257.95(d)(2) and Georgia Rule 391-3-4.-10(6), Georgia Power established groundwater protection standards for the Appendix IV monitoring constituents and conducted statistical analysis of the Appendix IV groundwater monitoring data obtained during the September/October 2020 semi-annual assessment monitoring event to evaluate if concentrations statistically exceeded the established state groundwater protection standards (GWPS). The following subsections provide an overview of the statistical methods used to evaluate Appendix III and IV parameters and statistical analyses results.

#### 4.1 Statistical Method

Sanitas groundwater statistical software was used to perform the statistical analyses at the Site following the September/October 2020 semi-annual assessment monitoring event. Sanitas is a commercially available decision support software package that incorporates the statistical tests required of Subtitle C and D facilities by US EPA regulations and guidance as recommended in the Unified Guidance (US EPA, 2009) document. The Interwell method was used for the analysis of the Appendix III constituents. Appendix I constituents were statistically evaluated using the interwell prediction limits. Confidence intervals were also used to evaluate the six Appendix I metals (arsenic, barium, cadmium, lead, selenium, and silver). Confidence intervals were calculated for each of the detected Appendix IV parameters in each downgradient well. The following table provides a summary of the statistical methodology used at AP-2 DAS for the monitoring events conducted in September/October 2020 and will be used for routine monitoring in the future. Specific methodology information is described in **Table 5: Statistical Method Summary** and in the following paragraphs.

# Table 5 Statistical Method Summary

	Data Screening on Proposed Background	Evaluate outliers, trends, and seasonality when sufficient data are available
	Statistical Limits	Interwell statistical limits will be applied on a parameter basis, depending on the appropriateness of the method as determined by the Analysis of Variance.
	Prediction Limits	Parametric when data follow a normal or transformed normal distribution and when less than 50% non-detects, utilizing Kaplan Meier non-detect adjustment when applicable.
		Nonparametric when data sets contain greater than 50% non- detects or when data are not normally or transformed- normally distributed.
Statistical Methodology	Management of Non-Detects	When data contain less than 15% non-detects in background, simple substitution of one-half the reporting limit is utilized in the statistical analysis. The reporting limit utilized for non-detects is the practical quantitation limit (PQL) as reported by the laboratory.
		When data contain between 15-50% non-detects the Kaplan-Meier non-detect adjustment is applied to the background data. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
	Confidence Intervals	Used in Assessment and Corrective Action monitoring.
	No Statistical Testing	Statistical testing is not required for parameters containing 100% non-detects (US EPA Unified Guidance, 2009, Chapter 6).
	Verification Resample Plan	Optional 1-of-2 with minimum of 8 samples per well for interwell testing.
	Optional	<ul> <li>Initial statistical exceedance warrants optional independent resampling within 90 days.</li> <li>If resample passes, well/parameter is not a confirmed statistically significant increase (SSI).</li> <li>If resample exceeds, well/parameter has a confirmed SSI.</li> <li>If no resample is collected, the original result is</li> </ul>
		deemed verified.

## 4.1.1 Appendix III Statistical Method

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

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

Data from groundwater samples from downgradient wells collected in the September/October 2020 monitoring event were compared to the statistical limits to evaluate whether concentrations exceed background statistical limits.

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

## 4.1.2 Appendix IV Statistical Method

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

Interwell tolerance limits were used to calculate the site-specific background limits from pooled upgradient well data for Appendix IV constituents. Parametric tolerance limits are used when data follow a normal or transformed-normal distribution such as for radium. When data contained greater than 50% nondetects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were used. The background limits were then used when determining the groundwater protection standard (GWPS) under 40 CFR § 257.95(h) and Georgia EPD Rule 391-3-4-.10(6)(a).

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

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

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

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

Following the above Georgia EPD Rule requirements, GWPS were established for statistical comparison of Appendix IV constituents for the September/October 2020 sampling events. **Table**6: Summary of Groundwater Protection Standards summarizes the background limits established for each Appendix IV constituent and the GWPS established under Georgia EPD Rules.

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

## 4.2 Statistical Analyses Results – Appendix I and Appendix III

Analytical data for Appendix I and Appendix III constituents from the September/October 2020 semi-annual monitoring events were analyzed in accordance with the statistical analysis plan. The Appendix I constituent barium in well ARGWC-23 was identified as a statistical exceedance using the interwell method but was not confirmed as an exceedance using confidence intervals. **Table 7: Summary of Statistical Analysis Results Appendix III - September/October 2020** shows the

Appendix III SSIs for the September/October 2020 semi-annual event. The statistical analysis and comparison to prediction limits are included as **Appendix C: Statistical Analyses**.

Table 7
Summary of Statistical Analysis Results Appendix III - September/October 2020

Appendix III	Wells with Concentrations Above Prediction Limits (SSI)
<u>Constituent</u>	
Boron	ARGWC-21, ARGWC-22, ARGWC-23
Calcium	ARGWC-21, ARGWC-22, ARGWC-23
Fluoride	ARGWC-23
рН	ARGWC-23
Sulfate	ARGWC-21, ARGWC-22, ARGWC-23
Total Dissolved	ARGWC-21, ARGWC-22, ARGWC-23
Solids	

## 4.3 Statistical Analyses - Appendix IV

**Appendix C: Statistical Analyses** shows the individual well/constituent pairs with their respective confidence intervals in comparison to the respective constituent state derived site GWPS. Based on the statistical results presented in **Appendix C**, **Table 8: Statistical Analysis Results Summary Appendix IV September/October 2020** summarizes the SSLs identified during the September/October 2020 semi-annual monitoring event.

Table 8
Summary of Statistical Analysis Results Appendix IV - September/October 2020

Appendix IV Constituent	We	ells with Confidence Intervals Above GWPS (SSLs)
Cobalt	ARGWC-22	
Lithium	ARGWC-23	
Molybdenum	ARGWC-23	

## 5.0 MONITORING PROGRAM STATUS

## 5.1 Assessment Monitoring Status

Pursuant to 40 CFR 257.96(b) and Georgia EPD Rule 391-3-4.-10(6), Georgia Power will continue to monitor the groundwater at the Plant Arkwright AP-2 DAS in accordance with the assessment monitoring program regulations of 40 CFR 257.95. Georgia Power initiated an Assessment of Corrective Measures (ACM) on July 9, 2020. On December 4, 2020, the Assessment of Corrective Measures Report was submitted to GA EPD presenting an evaluation of potential remedies for the cobalt SSL in well ARGWC-22 identified in the April 2020 semi-annual groundwater data.

### **5.2** Assessment of Corrective Measures

The ACM efforts completed during the reporting period covered by this groundwater monitoring and corrective action report are presented in the *Semi-Annual Remedy Selection and Design Progress Report* provided in **Appendix D: Semi-Annual Remedy Selection and Design Progress Report**. The semi-annual progress report summarizes:

- (i) Completion and submittal of the ACM Report (Wood, 2020) in December 2020.
- (ii) The installation of two additional delineation piezometers (ARAMW-7 and ARAMW-8) screened in the bedrock hydrostratigraphic unit to delineate the vertical extent of the cobalt SSL in well ARGWC-22 and lithium and molybdenum SSLs in well ARGWC-23.
- (iii) The SSLs for cobalt and molybdenum are horizontally delineated by surface water samples collected from Beaverdam Creek (**Table 4**), while the vertical delineation for cobalt and molybdenum are ongoing. The SSL for lithium is horizontally delineated by surface water samples from Beaverdam Creek and vertically delineated onsite by piezometer ARAMW-8.
- (iv) The status of evaluating applicable corrective measures.
- (v) The planned activities and anticipated schedule for the following semi-annual reporting period.

Georgia Power will include future Semi-Annual Remedy Selection and Design Progress Reports with each groundwater monitoring and corrective action report.



## 6.0 CONCLUSIONS & FUTURE ACTIONS

The 2020 Semi-Annual Groundwater Monitoring and Corrective Action Report was prepared to fulfill the requirements of GA EPD Rules for Solid Waste Management 391-3-4-.10. Statistical evaluations of the groundwater monitoring data for AP-2 DAS identified the presence of SSLs of cobalt in ARGWC-22 and lithium and molybdenum in ARGWC-23 above the state GWPS.

Georgia Power will continue to monitor AP-2 DAS under the assessment monitoring program pursuant to § 257.95 and GA EPD Rule 391-3-4-.10(6) and proceed with the evaluation of potential remedies presented in the ACM Report (Wood, 2020). During the next semi-annual reporting period of 2021, Georgia Power will update the groundwater protection standards for Appendix IV constituents and conduct statistical analysis according to the regulations. The next semi-annual sampling event is planned for February 2021.

#### 7.0 REFERENCES

- Clark, W.Z. and Zisa A.C., 1976, Physiographic Map of Georgia, Georgia Department of Natural Resources.
- Driscoll, F.G. 1986, Ground Water and Wells, 2<sup>nd</sup> Edition, Johnson Filtration Systems, Inc., St. Paul. Minnesota, 1089p.
- Freeze, R.A. and Cherry, JA. 1979, Groundwater, Prentice-Hall, Englewood Cliffs, New Jersey, 604 pp.
- LeGrand, H. E. 1962, Geology and Ground-water Resources of the Macon Area, Georgia. The Geological Survey Bulletin No. 72.
- Southern Company Services, Inc., 2005, Plant Arkwright Ash Ponds 2 and 3 and Ash Monofill Site Acceptability Report, Revision 1.
- Sanitas: Groundwater Statistical Software, Sanitas Technologies, Shawnee, KS, 2007. www.sanitastech.com
- U.S. Environmental Protection Agency (US EPA), 1989. US EPA 530/SW-89-031 Interim Final RCRA Investigation (RFI) Guidance, Volume I and II.
- US EPA, 1993. Subpart E, Groundwater Monitoring and Corrective Action, in Chapter 5, Solid Waste Disposal Facility Criteria Technical Manual. EA530-R-93-017.
- US EPA, 2000. Guidance for Data Quality Assessment: Practical Methods for data analysis; US EPA QA/G-9, QA00 Update. Environmental Protection Agency report US EPA/600/R-96/084, Office of Environmental Information, Washington, D.C.
- US EPA, March 2009. Unified Guidance, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities. Office of Solid Waste Management Division, U.S. Environmental Protection Agency, Washington, D. C.
- US EPA. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance. Office of Resource Conservation and Recovery – Program Implementation and Information Division, March.
- US EPA. 2011. Data Validation Standard Operating Procedures. Science and Ecosystem Support Division. Region IV. Athens, GA. September.

- US EPA. 2015. Federal Register. Volume 80. No. 74. Friday April 17, 2015. Part II. Environmental Protection Agency. 40 CFR Parts 257and 261. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule. [EPA-HQ-RCRA-2009-0640; FRL-9919-44-OSWER]. RIN-2050-AE81. April.
- US EPA. 2017. National Functional Guidelines for Inorganic Superfund Methods Data. Office of Superfund Remediation and Technology Innovation. OLEM 9355.0-135 [EPA-540-R-2017-001]. Washington, DC. January.
- Wood Environment & Infrastructure Solutions, Inc., 2020a. 2020 Annual Groundwater Monitoring and Corrective Action Report – Georgia Power Company Plant Arkwright Ash Pond 2 Dry Ash Stockpile, July 31, 2020.
- Wood Environment & Infrastructure Solutions, Inc., 2020b. Risk Evaluation Report Georgia Power Company Plant Arkwright Ash Pond 2 Dry Ash Stockpile, December 2020.

Project No.: 6122201429 | 2/26/2021

2020 Semi-Annual Groundwater Monitoring and Corrective Action Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

# **TABLES & FIGURES**

TABLE 1
SUMMARY OF MONITORING NETWORK WELL CONSTRUCTION AND GROUNDWATER ELEVATIONS

Well	Installation Date	Northing <sup>(1)</sup>	Easting <sup>(1)</sup>	Top of Casing Elevation (feet NAVD88) <sup>(2)</sup> (Prior to June 2020 Resurvey)	Top of Casing Elevation (feet NAVD88) <sup>(2)</sup> (June 2020 Resurvey) <sup>(3)</sup>	Ground Surface Elevation (feet NAVD88) <sup>(2)</sup> (June 2020 Resurvey) <sup>(3)</sup>	Top of Screen Elevation (feet NAVD88) <sup>(3)</sup>	Screen Bottom Elevation (feet NAVD88) <sup>(3)</sup>	Screen Length	on Construction	Measured Sentember 2020		Location	Depth to Water (feet below TOC) 8/17/2020	Elevation	Depth to Water (feet below TOC) 9/28/2020	Groundwater Elevation (feet NAVD88) 9/28/2020
ARGWA-19	12/16/2008	1063774.45	2439488.71	343.48	343.30	339.86	300.2	290.2	10.0	50.0	44.55	Bedrock	Upgradient	26.39	316.91	26.60	316.70
ARGWA-20	12/4/2008	1063732.73	2439088.01	331.48	331.28	327.73	303.2	293.2	10.0	34.9	29.44	Overburden	Upgradient	13.73	317.55	14.24	317.04
ARGWC-21	12/2/2008	1062941.24	2439112.52	309.40	309.15	305.97	291.7	281.7	10.0	24.6	18.71	Overburden	Downgradient	13.88	295.27	14.12	295.03
ARGWC-22	11/19/2019	1063039.36	2438925.04	310.18	309.95	307.01	292.0	282.0	10.0	25.0	27.74	Overburden	Downgradient	13.77	296.18	13.67	296.28
ARGWC-23	11/20/2019	1062884.38	2439202.38	307.79	307.70	304.29	289.3	279.3	10.0	25.0	28.08	Overburden	Downgradient	12.10	295.60	12.10	295.60

#### Notes:

- 1. Horizontal locations referenced to Georgia State Plane West, North American Datum of (NAD) 1983 surveyed in June 2020.
- 2. Vertical elevations are feet above mean sea level referenced to North American Vertical Datum of 1988 (NAVD88)
- 3. Elevations based on June 2020 survey.
- 4. TOC indicates top of casing.

TABLE 2
SUMMARY OF PIEZOMETER CONSTRUCTION AND GROUNDWATER ELEVATIONS

Well	Installation Date	Northing <sup>(1)</sup>	Easting <sup>(1)</sup>	Top of Casing Elevation (feet NAVD88) <sup>(2)</sup> (Prior to June 2020 Resurvey)	Top of Casing Elevation (feet NAVD88) <sup>(2)</sup> (June 2020 Resurvey)	Ground Surface Elevation (feet NAVD88) <sup>(3)</sup>	Elevation	Screen Bottom Elevation (feet NAVD88) <sup>(3)</sup>	Screen Length	on Construction Log	Total Well Depth Measured December 2, 2019 (feet below TOC) <sup>(4)</sup>	Groundwater	Location	Depth to Water (feet below TOC) 8/17/2020	Elevation	Depth to Water (feet below TOC) 9/28/2020	Groundwater Elevation (feet NAVD88) 9/28/2020
ARAMW-1	11/20/2019	1062938.38	2439120.01	308.67	308.51	305.07	271.1	261.1	10.0	44.0	45.32	Bedrock	Downgradient	13.13	295.38	13.39	295.12
ARAMW-2	11/20/2019	1062925.96	2439114.97	308.52	308.27	305.12	293.1	283.1	10.0	22.0	24.84	Overburden	Downgradient	13.31	294.96	13.58	294.69
ARAMW-7	11/14/2020	1063049.07	2438913.27	NA	309.81	307.13	272.1	262.1	10.0	48.0	50.82	Bedrock	Downgradient	Not in	stalled	Not in:	stalled
ARAMW-8	11/13/2020	1062895.98	2439197.40	NA	307.36	304.53	270.7	260.7	10.0	47.0	49.61	Bedrock	Downgradient	Not in	stalled	Not in:	stalled

#### Notes:

- 1. Horizontal locations referenced to Georgia State Plane West, North American Datum (NAD) of 1983 surveyed in June 2020.
- 2. Vertical elevations are feet above mean sea level referenced to North American Vertical Datum of 1988 (NAVD88)
- 3. Elevations based on June 2020 survey.
- 4. TOC indicates top of casing.
- 5. NA indicates not applicable

TABLE 3
GROUNDWATER FLOW VELOCITY CALCULATIONS

Potentiometric Map Date	Water-Bearing Zone	Location	Ground Elevation Pa (h <sub>1</sub> ,	s in Well irs	Change in Elevation (Δh) (feet)	Distance Measured (L) (feet)	Hydraulic Gradient (i) (feet/feet)	Average Hydraulic Conductivity (K) (feet/day)	Estimated Effective Porosity (n <sub>e</sub> )	Calculated Groundwater Flow Velocity (V) (feet/day)	Calculated Groundwater Flow Velocity (V) (feet/year)
August 2020	Water Table Aquifer	ARGWA-20 to ARGWC-21	317.55	295.27	22.28	792	0.028	2.18	0.2	0.31	111.9
September 2020	Water Table Aquifer	ARGWA-20 to ARGWC-21	317.04	295.03	22.01	792	0.028	2.18	0.2	0.30	110.6

# TABLE 4 ANALYTICAL DATA SUMMARY

						Well ID				
	Substance	ARGWA-19	ARGWA-19	ARGWA-20	ARGWA-20	ARGWC-21	ARGWC-21	ARGWC-22	ARGWC-22	ARGWC-22
		8/19/2020	9/29/2020	8/19/2020	9/30/2020	8/21/2020	10/1/2020	8/19/2020	9/22/2020	9/30/2020
	Boron	NA	<0.039	NA	0.083	NA	0.90	1.3	2.8	2.9
≡ [	Calcium	NA	12	NA	9.9	NA	79	220	190	200
	Chloride	NA	10	NA	5.6	NA	4.3	5.7	7.1	8.0
APPENDIX	Fluoride	<0.026	0.051 J	<0.026	0.032 J	0.084 J	0.098 J	<0.026	0.049 J	0.045 J
PPE	Sulfate	NA	8.4	NA	15	NA	210	1000	720	650
₹	TDS	NA	110	NA	82	NA	500	1400	1300	1200
	рН	6.25	5.83	6.16	5.65	5.89	5.99	6.21	5.77	5.81
	Antimony	<0.00038	NA	<0.00038	NA	<0.00038	NA	<0.00038	<0.00038	NA
	Arsenic	<0.00031	<0.00031	<0.00031	<0.00031	<0.00031	<0.00031	<0.00031	<0.00031	<0.00031
	Barium	0.044	0.040	0.085	0.080	0.054	0.051	0.046	0.038	0.033
	Beryllium	<0.00018	<0.00018	0.00022 J	0.00019 J	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018
	Cadmium	<0.00022	<0.00022	<0.00022	<0.00022	<0.00022	<0.00022	<0.00022	<0.00022	<0.00022
	Chromium	<0.0015	<0.0015	0.0063	0.0057	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
â	Cobalt	<0.00013	<0.00013	0.00064 J	0.00031 J	0.00066 J	0.00082 J	0.0032	0.0085	0.0055
M	Lead	<0.00013	<0.00013	0.00039 J	0.00022 J	<0.00013	<0.00013	<0.00013	<0.00013	<0.00013
APPENDIX	Lithium	0.0038 J	0.0041 J	<0.0034	<0.0034	0.013	0.012	0.026	0.014	0.014
`	Mercury	<0.00013	NA	<0.00013	NA	<0.00013	NA	<0.00013	<0.00013	NA
	Molybdenum	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061	<0.00061
	Radium	0.294 U	0.372 U	0.940	0.679	0.472	0.496 U	0.587 U	0.884	0.602
	Selenium	<0.0015	<0.0015	0.0015 J	0.0016 J	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
	Thallium	<0.00015	NA	<0.00015	NA	<0.00015	NA	<0.00015	<0.00015	NA
*	Silver	NA	<0.00018	NA	<0.00018	NA	<0.00018	NA	NA	<0.00018

#### Notes:

- 1. Results for constituents are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
- 2. < indicates the constituent was not detected above the analytical method detection limit (MDL).
- 3. J indicates the substance was detected at such low levels that the precision of the laboratory instrument could not produce a reliable value.

Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.

- 4. TDS indicates total dissolved solids.
- 5. U indicates the constituent was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value.

Therefore, the value followed by U is qualified by the laboratory as estimated.

- 6. NA indicates constituent was not analyzed
- 7.  $^{\star}$  Georgia Appendix I constituent that is not also included in Appendix IV.

# TABLE 4 ANALYTICAL DATA SUMMARY

						Well ID				
Substance		ARGWC-23	ARGWC-23	ARGWC-23	ARAMW-1	ARAMW-1	ARAMW-2	ARAMW-2	ARAMW-7	ARAMW-8
		8/20/2020	9/22/2020	10/1/2020	8/20/2020	9/30/2020	8/20/2020	10/1/2020	11/30/2020	12/1/2020
	Boron	0.44	0.50	0.49	NA	0.98	NA	0.95	2.1	0.40
≡ [	Calcium	69	66	73	NA	100	NA	91	260	81
	Chloride	3.9	3.6	3.8	NA	5.2	NA	4.2	6.3	12
APPENDIX	Fluoride	0.19	0.33	0.32	0.23	0.20	<0.026	0.098 J	0.044 J	0.14
	Sulfate	69	68	64	NA	230	NA	270	990	120
₹	TDS	310	310	290	NA	520	NA	530	1600	420
	рН	6.33	6.29	6.38	6.09	6.16	5.99	5.96	6.00	7.05
	Antimony	<0.00038	<0.00038	NA	<0.00038	NA	<0.00038	NA	NA	NA
	Arsenic	<0.00031	<0.00031	<0.00031	<0.00031	<0.00031	0.084	0.0085	NA	NA
	Barium	0.16	0.16	0.17	0.055	0.052	0.14	0.075	NA	NA
	Beryllium	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	<0.00018	NA	NA
	Cadmium	<0.00022	<0.00022	<0.00022	<0.00022	<0.00022	<0.00022	<0.00022	NA	NA
	Chromium	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	NA	NA
合	Cobalt	0.0023 J	0.0036	0.0052	0.0010 J	0.0010 J	0.0022 J	0.0036	0.028	0.0054
APPENDIX	Lead	<0.00013	<0.00013	<0.00013	<0.00013	<0.00013	<0.00013	<0.00013	NA	NA
APF	Lithium	0.036	0.039	0.040	0.0066	0.0091	0.036	0.019	0.061	0.0044 J
` [	Mercury	<0.00013	<0.00013	<0.00013	<0.00013	NA	<0.00013	NA	NA	NA
	Molybdenum	0.061	0.053	0.064	0.0076 J	0.0054 J	0.0013 J	<0.00061	0.0012 J	0.056
	Radium	0.242 U	0.0177 U	0.749	0.527	0.249 U	4.13	2.86	NA	NA
	Selenium	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	NA	NA
	Thallium	<0.00015	<0.00015	NA	<0.00015	NA	<0.00015	NA	NA	NA
*	Silver	NA	NA	<0.00018	NA	<0.00018	NA	<0.00018	NA	NA

#### Notes:

- 1. Results for constituents are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
- 2. < indicates the constituent was not detected above the analytical method detection limit (MDL).
- 3. J indicates the substance was detected at such low levels that the precision of the laboratory instrument could not produce a reliable value.

Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.

- 4. TDS indicates total dissolved solids.
- 5. U indicates the constituent was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value.

Therefore, the value followed by U is qualified by the laboratory as estimated.

- 6. NA indicates constituent was not analyzed
- 7. \* Georgia Appendix I constituent that is not also included in Appendix IV.

TABLE 4
ANALYTICAL DATA SUMMARY

		Surface Water Sample Location											
	Substance	BC-0.8	BC-0.8	BC-0.5.7	BC-0.5.6	BC-0.5.5	BC-0.5.5	BC-BR	BC-BR	BC-0.3	BC-0.1		
		11/3/2020	2/10/2021	2/10/2021	2/10/2021	11/3/2020	2/10/2021	11/3/2020	2/10/2021	2/10/2021	2/10/2021		
APPENDIX III	Boron	NA	0.27	0.047 J	< 0.039	NA	< 0.039	NA	< 0.039	< 0.039	< 0.039		
	Calcium	NA	15	8.4	8.7	NA	8.1	NA	9.0	8.6	8.3		
	Chloride	9.5	8.0	8.5	8.6	9.2	8.7	9.3	8.6	8.0	8.7		
	Fluoride	0.066 J	0.050 J	0.055 J	0.055 J	0.050 J	0.062 J	<0.044	0.056 J	0.051 J	0.056 J		
PPE	Sulfate	3.8	32	6.4	6.7	6.1	6.8	6.2	6.7	6.5	6.9		
₹	TDS	84	130	85	96	88	76	85	88	98	92		
	рН	7.6	7.2	7.3	7.4	7.4	7.4	7.4	7.4	7.5	7.5		
	Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
>	Chromium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
APPENDIX	Cobalt	0.00042 J	0.0019 J	0.00056 J	0.00057 J	0.00047 J	0.00050 J	0.00048 J	0.00052 J	0.00050 J	0.00057 J		
M	Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
APF	Lithium	NA	<0.0034	< 0.0034	< 0.0034	NA	<0.0034	NA	<0.0034	< 0.0034	<0.0034		
`[	Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Molybdenum	NA	<0.00061	< 0.00061	<0.00061	NA	<0.00061	NA	<0.00061	<0.00061	<0.00061		
	Radium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
*	Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		

#### Notes:

- 1. Results for constituents are reported in milligrams per liter (mg/L). Radium results are reported in picocuries per liter (pCi/L).
- 2. < indicates the constituent was not detected above the analytical method detection limit (MDL).
- 3. J indicates the substance was detected at such low levels that the precision of the laboratory instrument could not produce a reliable value.

Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.

- 4. TDS indicates total dissolved solids.
- 5. U indicates the constituent was detected below the Minimum Detection Concentration (MDC) and the precision of the laboratory instruments could not produce a reliable value.

Therefore, the value followed by U is qualified by the laboratory as estimated.

- 6. NA indicates constituent was not analyzed
- 7.  $^{\star}$  Georgia Appendix I constituent that is not also included in Appendix IV.

TABLE 6
SUMMARY OF GROUNDWATER PROTECTION STANDARDS

Constituent	Units	MCL	Federal CCR Rules Specified Limit	Site-Specific Background October 2020	State Derived Site GWPS <sup>(2)</sup> October 2020
Antimony	mg/L	0.006		0.002	0.006
Arsenic	mg/L	0.01		0.0015	0.01
Barium	mg/L	2.0		0.1	2.0
Beryllium	mg/L	0.004		0.0025	0.004
Cadmium	mg/L	0.005		0.0025	0.005
Chromium	mg/L	0.1		0.0078	0.1
Cobalt <sup>(1)</sup>	mg/L		0.006	0.0025	0.0025 <sup>(2)</sup>
Fluoride	mg/L	4.0		0.14	4.0
Lead <sup>(1) (3)</sup>	mg/L		0.015	0.001	0.001 (2)
Lithium <sup>(1)</sup>	mg/L		0.04	0.013	0.013 <sup>(2)</sup>
Mercury	mg/L	0.002		0.0002	0.002
Molybdenum <sup>(1)</sup>	mg/L		0.1	0.015	0.015 <sup>(2)</sup>
Combined Radium	piC/L	5.0		1.341	5.0
Selenium	mg/L	0.05		0.005	0.05
Silver <sup>(1)</sup>	mg/L			0.001	0.001 (2)
Thallium	mg/L	0.002		0.001	0.002

#### Notes:

mg/L - milligrams per liter

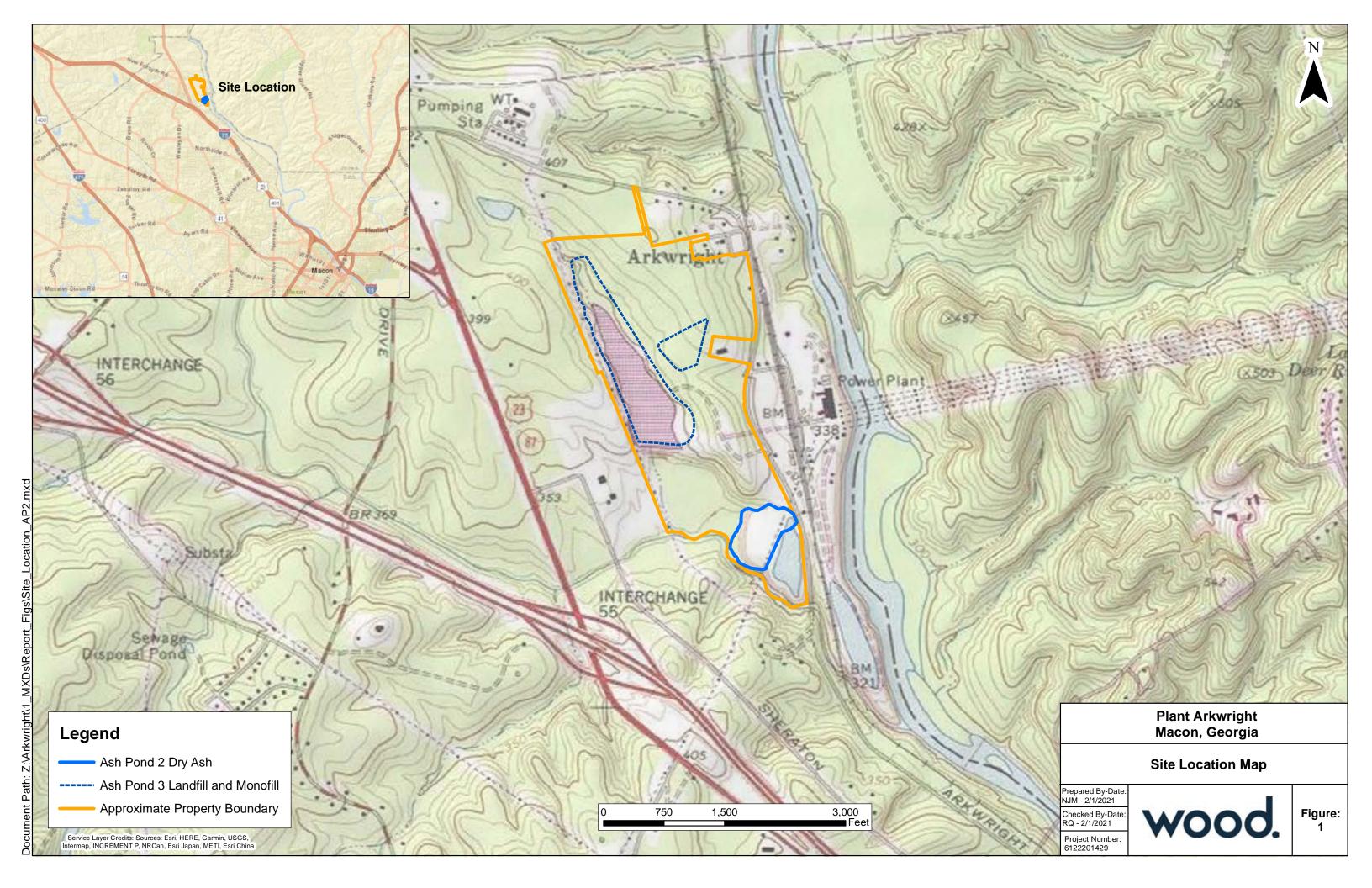
piC/L - picoCuries per liter

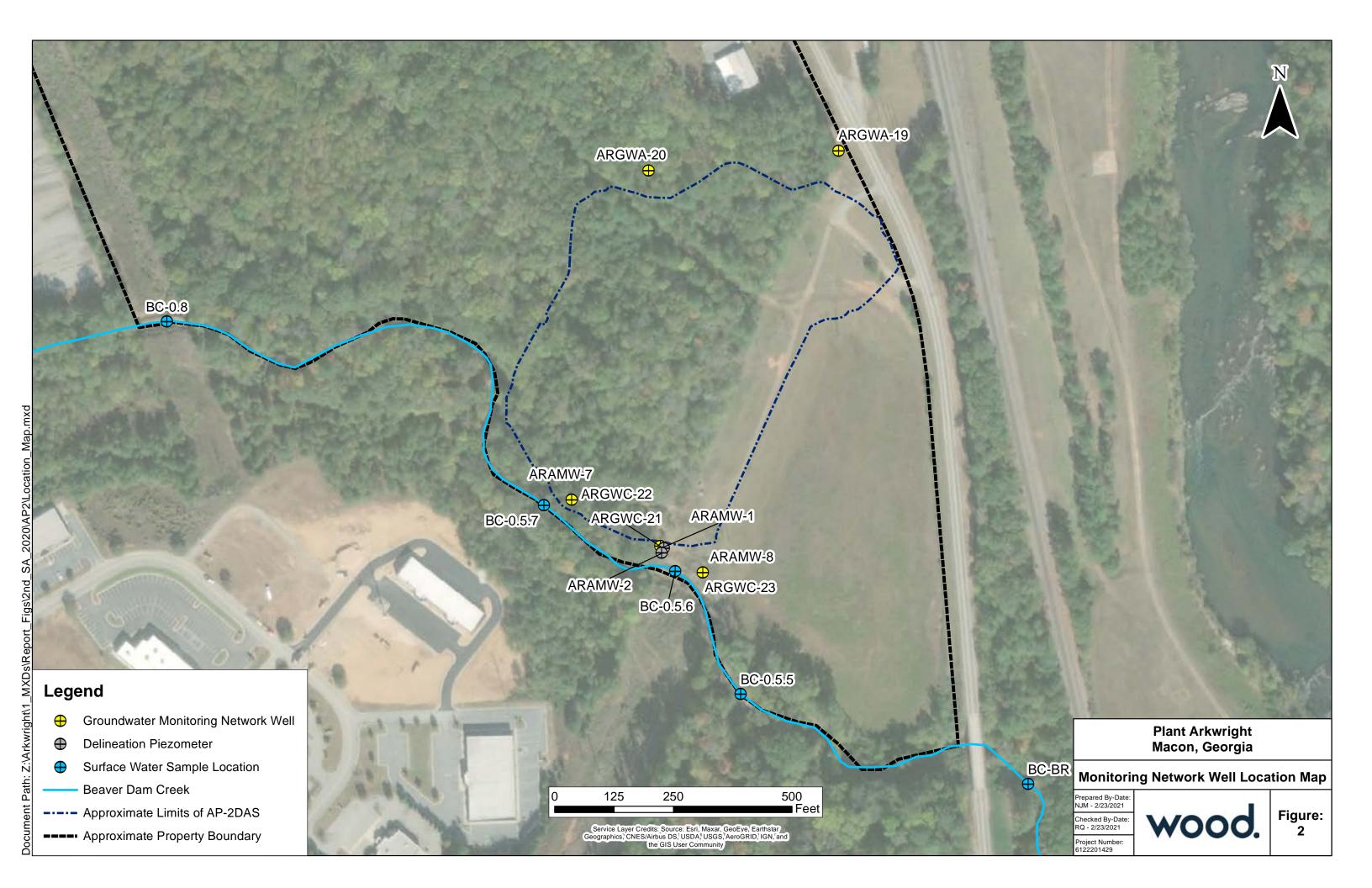
**GWPS - Groundwater Protection Standard** 

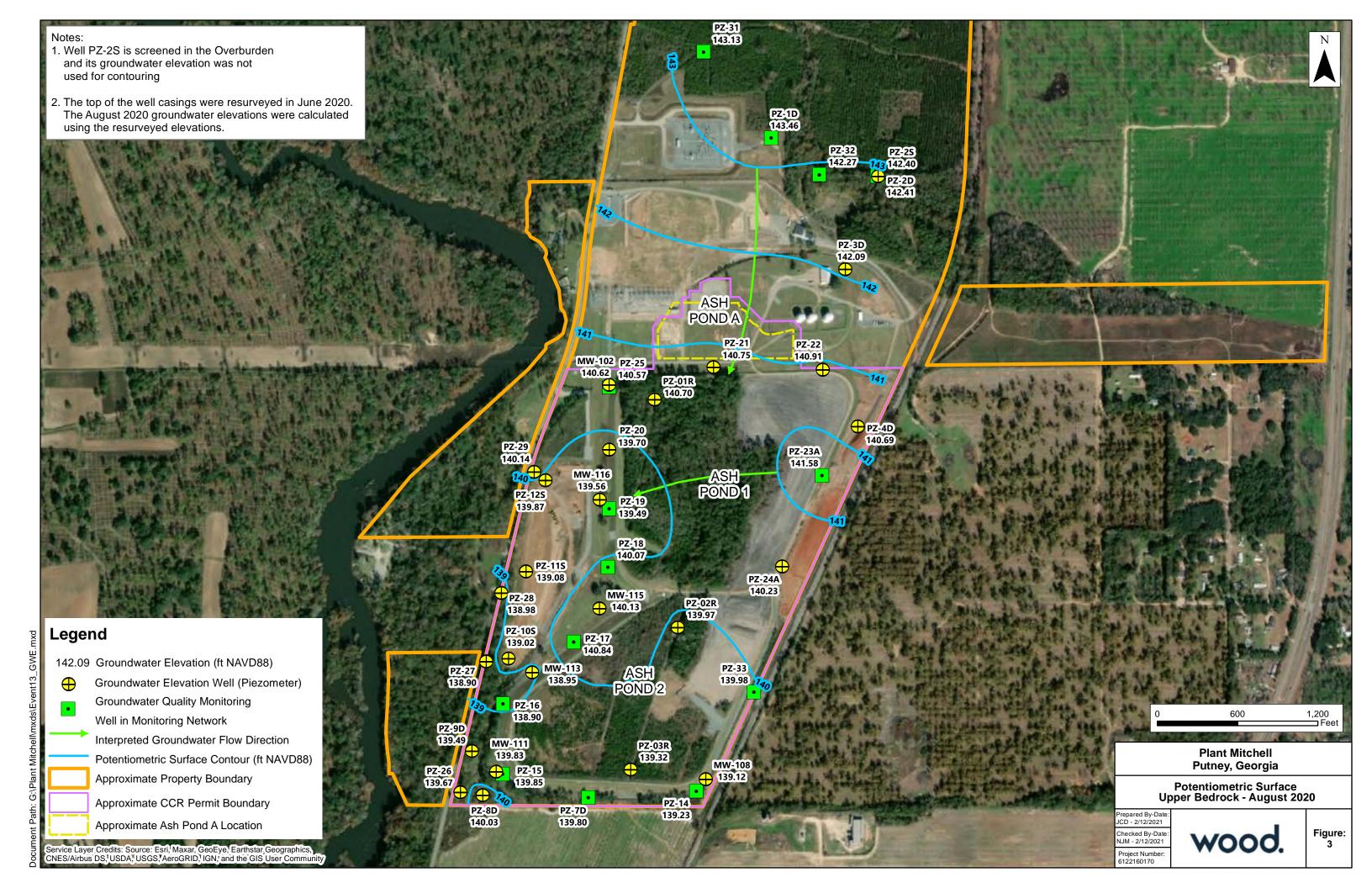
MCL - Maximum Contaminant Level: The MCL is the GWPS under the Federal CCR Rule unless background is greater.

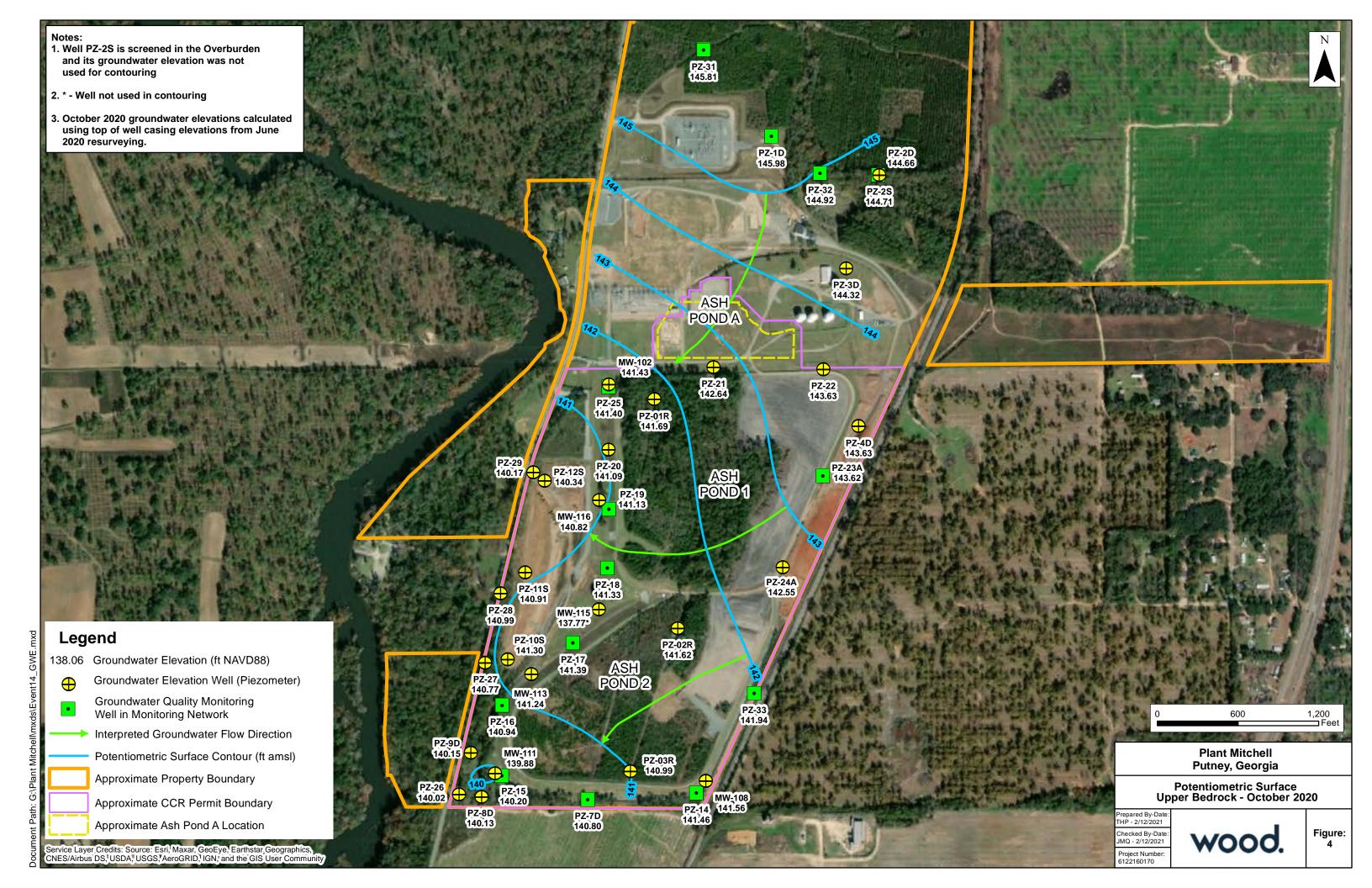
Federal CCR Rule 40 CFR § 257.95 (h) Amendment July 30, 2018 lists levels for cobalt, lead, lithium, and molybdenum.

- (1) Constituent without an established MCL. The background limits were used when determining the groundwater protection standard (GWPS) under 40 CFR §257.95(h) and Georgia Environmental Protection Division (EPD) Rule 391-3-4-.10(6)(a).
- (2) Under the existing Georgia EPD Rules, the GWPS is: (i) the MCL, (ii) where the MCL is not established, the background concentration, or (iii) background concentrations for constituents where the background level is higher than the MCL.
- (3) Currently, there is no MCL established for lead. The value listed is the established USEPA Action Level for drinking water.









2020 Semi-Annual Groundwater Monitoring and Corrective Action Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

# **APPENDIX A**

**WELL INSTALLATION REPORT** 



# **Groundwater Monitoring Well Installation Report**

**Georgia Power Company – Plant Arkwright** 

Ash Pond 2 Dry Ash Stockpile Project No.: 6122201429

Prepared for:



Atlanta, Georgia

### **Professional Groundwater Scientist Certification**

I certify that I am a qualified ground-water scientist who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and have sufficient training and experience in groundwater hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport. I further certify that this report was prepared by myself or by a subordinate working under my direction. We certify that the information included is to the best of our knowledge and belief, true, accurate and complete. In preparing this report, we have relied on information provided by Southern Company Services and Georgia Power.

Gregory J. Wrenn, P.E.

Registered Professional Engineer Professional Engineer No. 025565 Nicholas J. McMillan, P.G.

Via M'Miller

Registered Professional Geologist Georgia Registration No. 2308

Date: Feb. 15, 202



Alla

Date: Feb. 15, 202

### **Table of Contents**

1.0	INTRODUCTION	1
2.0	DRILLING AND WELL INSTALLATION	2
2.1	Drilling Method	2
2.2	Screened Interval	2
2.3	Well Casing and Screens	3
2.4	Filter Pack	3
2.5	Annular Seal	3
2.6	Cap and Protective Casing	4
3.0	WELL DEVELOPMENT	5
4.0	SURVEY	6
5.0	GENERAL REFERENCES	7

### **List of Tables**

Table 1 Summary of Piezometer Construction

**List of Figures** 

Figure 1 Monitoring Network Well Location Map

**List of Appendices** 

Appendix A Well Construction and Boring Logs

Appendix B Well Development Forms Appendix C Well Survey Document



### 1.0 INTRODUCTION

The Georgia Power Company (GPC) former Plant Arkwright is located in Bibb County, Georgia approximately 6 miles northwest of the city of Macon. The former coal-fired power plant was retired in 2002 and decommissioned in 2003. The Ash Pond 2 Dry Ash Stockpile (AP-2 DAS) area is comprised of approximately 11 acres, located between Arkwright Road to the north and Beaverdam Creek in the south.

AP-2 DAS was in operation in the 1950s and was estimated to be closed in-place in the late 1970s to early 1980s. In 2010, GPC officially closed the AP-2 DAS with the Georgia Environmental Protection Division's (GA EPD) approval. Post-closure groundwater monitoring for AP-2 DAS is performed on a semi-annual basis in accordance with the GA EPD monitoring requirements.

Pursuant to regulations, GPC implemented a groundwater monitoring system within the uppermost aquifer at AP-2 DAS. The monitoring system is designed to monitor groundwater passing the waste boundary of AP-2 DAS within the uppermost aquifer. Wells are positioned to serve as upgradient and downgradient monitoring points based on groundwater flow direction.

In order to supplement the groundwater monitoring system, two additional delineation piezometers (ARAMW-7 and ARAMW-8) were installed to delineate SSLs of constituents observed at compliance well monitoring locations ARGWC-22 and ARGWC-23. The current monitoring well network at AP-2 DAS now consists of two upgradient monitoring wells (ARGWA-19 and ARGWA-20) and three downgradient monitoring wells (ARGWC-21, ARGWC-22, and ARGWC-23). Additionally, four delineation piezometers (ARAMW-1, ARAMW-2, ARAMW-7, and ARAMW-8) have been installed at the downgradient edge of AP-2 DAS.

This report provides details for the drilling and installation of vertical delineation piezometers ARAMW-7 and ARAMW-8 in November 2020. The delineation piezometer details are included in **Table 1: Summary of Piezometer Construction** and the locations are shown in **Figure 1: Monitoring Network Well Location Map.** 

### 2.0 DRILLING AND WELL INSTALLATION

The following sections provide details and description of drilling methodology, materials, and installation procedures used in constructing the vertical delineation piezometers ARAMW-7 and ARAMW-8. Monitoring piezometer installation details are summarized in **Table 1**.

### 2.1 Drilling Method

Wood provided oversight and documented drilling and installation of the two vertical delineation piezometers by Cascade Drilling, under contract with Southern Company, on November 13 and November 14, 2020. The drilling was performed using sonic technology with a Terra Sonic, compact, track-mounted drill rig. To provide clearance of any potential underground utilities, the first 10 feet of ARAMW-7 was completed by hand auger, and the first 10 feet of ARAMW-8 was completed by air knife.

Following subsurface clearance, a 4-inch diameter sampling core barrel and tooling, followed by a 6-inch override (outer) casing, was advanced via sonic methodology to depths of 48 feet and 47 feet at the ARAMW-7 and ARAMW-8 locations, respectively, for the purpose of collecting soil and rock for characterization and subsequent piezometer installation. Soil and/or rock were collected continuously, in core runs up to 10 feet, from the ground surface to the boring termination depth. Upon completion of a core run, prior to retracting the core barrel, 6-inch override (outer) casing was advanced over the 4-inch core barrel and tooling to maintain borehole integrity. Once the override casing was in place, the core barrel was retracted from the borehole and the soil and/or rock sample was extruded into a plastic sleeve and provided to the Wood field geologist for characterization and documentation. After sample retrieval, the core barrel was advanced and another core run was completed. This process was continued until the target depth was reached.

Upon reaching the target depth, the 6-inch override casing was used to flush/clean-out the borehole and left in place for piezometer construction. The piezometer was installed directly through the override casing. The screen and casing (riser) were placed in the override casing and the annular space was filled (i.e., emplacement of the filter pack, bentonite, and grout) as the override casing was retracted.

### 2.2 Screened Interval

The vertical delineation piezometers are screened in the bedrock and are constructed with 10 feet of slotted screen as shown in the boring logs provided in **Appendix A: Well Construction and Boring Logs**. The screen interval of each piezometer is set at a depth that establishes vertical separation from the screened zone of a nearby shallower monitoring well screened in the overburden. Specifically, there is approximately nine to nine and a half feet of vertical

separation between the bottom of the nearest overburden monitoring well (ARGWC-22 and ARGWC-23) and the top of the filter pack of the delineation piezometer set in bedrock.

### 2.3 Well Casing and Screens

The piezometers are constructed of 2-inch inside diameter Schedule 40 polyvinyl chloride (PVC) casing (riser) and pre-packed Number 10 slot (0.010-inch aperture) screen. The pre-pack screens are comprised of a 5-foot section of slotted PVC screen covered with a stainless-steel mesh (outer screen) to contain filter pack material situated between the outer stainless-steel mesh and the slotted PVC. Two pre-packed screens were used in the construction of each piezometer. Well construction materials are designed to be sufficiently durable to resist chemical and physical degradation and not interfere with the quality of groundwater samples. The casing and screen sections were flush-threaded and did not require the use of solvent or adhesive to construct the piezometers. The pre-packed well screens generally combine a centralized inner well screen (slotted PVC), a void filled with filter pack (sand) appropriately sized for the screen aperture, and an outer conductor screen (stainless steel mesh) in one integrated unit.

The piezometers were designed and constructed to:

- 1) allow sufficient groundwater flow to the piezometer for sampling;
- 2) minimize the passage of formation materials (turbidity) into the piezometers; and,
- 3) ensure sufficient structural integrity to prevent collapse of the piezometer.

### 2.4 Filter Pack

The filter pack material is designed to be chemically inert, clean, well-graded, well-rounded, dimensionally stable, silica (quartz) sand of which the 80 to 90 percent retained size is 0.010-inch diameter (the screen aperture). The filter pack sand used for the construction of the piezometers was the #1 well gravel from Southern Products & Silica Co. The filter pack material was emplaced in the annular space between the outside of the pre-pack screen and borehole wall to ensure an adequate thickness of filter pack material between the well and the formation. The filter pack was extended approximately two to three feet above the top of the screen. Potable water was mixed with the filter pack material to generate a slurry in order to prevent bridging from occurring during filter pack emplacement. After installing the filter pack, the wells were pumped to ensure settlement of the filter pack material, prior to installing the annular seal. The filter pack depth/interval is documented in well construction logs provided in **Appendix A**.

### 2.5 Annular Seal

After installing the filter pack, approximately three to three and a half feet of bentonite pellets were emplaced in the annular space directly above the filter pack to seal the annulus and

prevent vertical flow of water along the well casing. The bentonite used for the construction of the piezometers were 3/8-inch, non-coated pellets (PDS Pel-Plug). The bentonite pellets were allowed to hydrate and settle in accordance with the manufacturer's recommendations prior to grouting the well.

After the bentonite was adequately hydrated, the remaining annular space was sealed using AQUAGUARD by Baroid Industrial Drilling Products, a sodium bentonite blended grout. The grout was prepared in accordance with manufacturer's instructions and emplaced from the bentonite seal to the near ground surface via tremie method. The grout was injected at a low velocity as to not displace the bentonite seal and the tremie pipe was raised as grout filled the annular space. A concrete seal extends from approximately two feet below ground surface to grade and was formed into a slightly mounded cement apron extending outward to help direct rainwater run-off away from the piezometer.

### 2.6 Cap and Protective Casing

Each piezometer was fitted with a sealable cap and a lockable, 4-inch square, steel, above-grade (stick-up) protective casing was installed over the piezometer to protect the PVC riser from damage and secure the well from unauthorized access. The annular space between the piezometer riser and protective casing was filled with pea-size gravel, and a small weep-hole was drilled near the base to allow for drainage from inside the protective casing. Additionally, bollards were installed at the corners of the concrete pad to protect the piezometer. Prior to leaving the site, each piezometer was secured with a padlock, keyed specific to the site (Master, 2246 key). Piezometer construction details are documented in Well Construction Logs provided in **Appendix A**.

### 3.0 WELL DEVELOPMENT

Each piezometer was developed using an electric submersible pump to restore the natural hydraulic conductivity of the formation and to remove fine-grained sediment to help ensure low-turbidity groundwater samples. Wells were alternately surged and purged until visually clear of particulates. Groundwater quality parameters, including turbidity, pH, and specific conductivity were monitored for stabilization during development to verify that each piezometer was adequately developed.

Development of the piezometers continued until criteria indicating adequate development was achieved. Development is generally recognized as being complete when the well/piezometer yields water with a turbidity less than 10 Nephelometric Turbidity Units (NTU) and the pH and specific conductivity have stabilized (i.e., pH within 0.1 standard unit and specific conductivity within 5% over three consecutive measurements). The development forms are included in **Appendix B: Well Development Forms**.

Prior to deploying the development pump in each piezometer, the pump was decontaminated and fitted with new disposable tubing. New, disposable, nitrile gloves were worn throughout the development process, including when initially deploying the pump, handling the pump and tubing while surging, and during decontamination activities.

### 4.0 SURVEY

Piezometer locations, top of casing (TOC) elevations, and ground surface elevations were surveyed by Donaldson Garrett & Associates, Inc. Northings and easting are in feet relative to Georgia State Plane, West Zone, North America Datum of 1983 (NAD 83). TOC and ground surface elevations are in feet above mean sea level relative to North American Vertical Datum of 1988 (NAVD 88). Survey data are included in **Table 1**. A certified well survey report is provided in **Appendix C: Well Survey Document**.

Project No.: 6122201429 | 2/15/2021 Page 6 of



### 5.0 GENERAL REFERENCES

- Southern Company Services, Inc., 2016, Draft Monitoring Well Development Procedures, Birmingham, Alabama, March 2016.
- USEPA, 2018. Science and Ecosystem Support Division, Guidance: SESDGUID-101-R2 Design and Installation of Monitoring Wells, US Environmental Protection Agency, Region 4, Athens, Georgia, January 16, 2018.
- USEPA, 2020. Laboratory Services and Applied Science and Division, Operating Procedure: LSASDPROC-205-R4 Field Equipment Cleaning and Decontamination, US Environmental Protection Agency, Region 4, Athens, Georgia, June 22, 2020.

Project No.: 6122201429 | 2/15/2021 Page 7



# **TABLE**

TABLE 1
SUMMARY OF PIEZOMETER CONSTRUCTION

Well	Installation Date	Northing <sup>(1)</sup>	Easting <sup>(1)</sup>	Top of Casing Elevation (ft msl) <sup>(2)</sup>	Ground Surface Elevation (ft msl) <sup>(3)</sup>	Top of Screen Elevation (ft msl) <sup>(3)</sup>	Screen Bottom Elevation (ft msl) <sup>(3)</sup>	Screen Length (feet)	Total Boring Depth on Construction Log (ft below land surface)	Total Well Depth Measured (ft below TOC) <sup>(4)</sup>	Groundwater Zone Screened	Location
ARAMW-7	11/14/2020	1063049.07	2438913.27	309.81	307.13	269.3	259.3	10.0	48.0	50.82	Bedrock	Downgradient
ARAMW-8	11/13/2020	1062895.98	2439197.40	307.36	304.53	268.1	258.1	10.0	47.0	49.61	Bedrock	Downgradient

#### Notes:

1. Horizontal locations referenced to Georgia State Plane West, North American Datum of 1983 (NAD 83)

- 2. ft msl indicates feet above mean sea level
- 3. Elevations referenced to North American Vertical Datum of 1988 (NAVD 88)
- 4. TOC indicates top of casing

Prepared by: KN 1/11/2021 Checked by: NJM 1/25/2021

Groundwater Monitoring Well Installation Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

# **FIGURE**



Groundwater Monitoring Well Installation Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

# **APPENDIX A**

**WELL CONSTRUCTION AND BORING LOGS** 

### **BORING ARAMW-7**

W	00	O.									PAGE 1 OF 1			
CLIE	NT Georg	jia Power					PROJECT NAME Plant Arkwright							
		<b>BER</b> 6122					PROJECT LOCATION Bibb County							
		<b>D</b> 11/14/20		COMI	PLET	<b>ED</b> 11/14/20								
		TRACTOR												
		HOD Sonic					AT TIME OF DRILLING							
	GED BY			CHEC	CKED	BY NJM								
		S N:10630	049.07, E: 2				AFTER DRILLING 12.81ft (11/18/2020)							
O DEPTH (ft)	SAMPLE TYPE NUMBER	BLOW COUNTS (N VALUE)	ENVIRONMENTAL DATA	GRAPHIC LOG		MAT	ERIAL DESCRIPTION	WELL DIAGRAM  Casing Top Elev: 309.81 (ft) Casing Type: 2 in SCH 40 PVC						
ENVIRONMENTAL BH - GINT STD US GDT - 1/25/21 21:52 - C: USERSWADELINE. LEWISDESKTOPIGINT/PLANT ARKWRIGHT. GPJ					10.0 13.5 15.5 16.5	-POORLY GRADED moist, with organics.  -SAND (SP), gray-bro silt and clay.  -CLAYEY SAND (SC) trace cobbles.  -SILTY SAND (SM), y saprolitic, wet, with pl	HERED GNEISS, brown-gray, highly	297.1 293.6 291.6 290.6			F Grout  Top of Bentonite Seal 276. F Bentonite seal  Top of Filter Pack 272.6  Top of Screen 269.3  Gravel Pack  #1-Southern Product and Silica Co.  10 feet of 0.01-inch slotted 2" OD PVC (SCH 40)  Bottom of Screen 259.3			
EN-					48.0	(Same as above) wea	ithered.	259.1		-	Sump and cap (0.3 ft)			

### **BORING ARAMW-8** CLIENT Georgia Power PROJECT NAME Plant Arkwright PROJECT NUMBER 6122201429 PROJECT LOCATION Bibb County, Georgia DATE STARTED 11/13/20 **COMPLETED** <u>11/13/20</u> **GROUND ELEVATION** 304.53 ft **HOLE SIZE** 6-in **DRILLING CONTRACTOR** Cascade **GROUND WATER LEVELS: DRILLING METHOD** Sonic AT TIME OF DRILLING ---LOGGED BY KN AT END OF DRILLING ---CHECKED BY NJM **AFTER DRILLING** 11.97ft (11/17/2020) **COORDINATES** N:1062895.98, E: 2439197.40 ENVIRONMENTAI DATA SAMPLE TYPE NUMBER GRAPHIC LOG DEPTH (ft) MATERIAL DESCRIPTION WELL DIAGRAM Casing Top Elev: 307.36 (ft) Casing Type: 2 in SCH 40 PVC -CLAYEY SAND (SC), brownish orange, loose to medium dense, moist 5 10 -SILTY SAND (SM), grayish brown, saprolitic, medium dense, wet, with quartz and plagioclase grain rich areas. 15 Grout 2 in SCH 40 PVC 20 trace clay and mica. 25 (Same as above) poor recovery from 30-35 feet, saprolite and 30 PWR Γop of Bentonite Seal 273.5 Bentonite seal Top of Filter Pack 270.5 35 269.5 -GNEISS, fractured, slightly weathered. Top of Screen 268.1 **Gravel Pack**

micaceous seam.

#1-Southern Product and Silica Co.

10 feet of 0.01-inch slotted 2" OD PVC

Bottom of Screen 258.1 Sump and cap (0.3 ft)

(SCH 40)

ENVIRONMENTAL BH - GINT STD US.GDT - 1/25/21 21:52 - C:USERSWADELINE.LEWIS\DESKTOP\GINT\PLANT ARKWRIGHT.GP.

40

45

Groundwater Monitoring Well Installation Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

# **APPENDIX B**

**WELL DEVELOPMENT FORMS** 

Location:	Identify Measuring Point (MP):	page of _ l
1111111	(e.g. Top of Casing)	Well Depth. (Ft.) 50.82
Well ID: ARAMW-7	Depth to Screen below MP: 45.52 of screen 50.52 of screen	Depth To Water (Ft.)/2 - 8/
Field Sampling Personnet:  DSVSLOPMENT KINYS	Top Bottom Pump Intake at (ft. below MP): VAILISP	Water Column (Ft.) 38.0/ Well Volume (gal) - 6.29
	Purging Device (Pump Type): ELECTIC JUB m SN 1/B L &	

											tic pump, bailer, bi	ladder pump; etc.)	
Date	Time		Purge Rate	pН	Spec	Turbidity	DO	Temp.	Redox	Cum. Volume	CHEMetrics	Hach	Comments
		Water			Cond.		Flow cell		Potential	Purged	DO	Ferrous	i I
		Below MP	GPM		l						mg/L	Iron	
L	24 hr	ft	mL/min	pH units	mS/cm	NTUs	mg/L	°C	mV	gallons	(low)	mg/L	
11/12/20		12.81	2.0			OL				-	N/A	N/A	STARTED ~ 2.0 GPm
	1104	33.34	-			16.3				25.0			RATE V ~ 1.56 pm, 2000 - 2000
	1122	14.78				579				_			RESTART ~ 2.0 GPM
	1137	31.18	1.5			10.6				50.0			GPM + ~1.5 DAML PAGE
	1139	_	-			-				-			5509050 - 520655
	1154	13.51	2.0			338				_			RISKART ~ 2.06Am
	1209	32.04	1.5			4.62				75.0			1416 + MIGEN DAME PAR
	1215	-	_							_			STOPPID - SINGSD
	1226		_			324							RESTART NZ. O GAM
		32.10				4.12				10000			2978 4-1.5 6Pm
	1256	32.22				0.93				122.5			RMPINE ACRUS SCREEN IN
	1311	32.29				0.28				145.0			PUMPING MID-SCREEN
	1321	72.21				1.89				160.0			
	1331	32.28	1.5			0.74				125.0			SCOLED MAS TO NIOGPA
	1346	30.92	1.0	6.15	1.441	1.35	0.51	18.06	75.7	190.0			81 MARES (SGGING - YSISSE
	1351	35.41	1.0	6.13	1,742	1.01	0.50	18.57	46,2	195.0			
	1346			6.12	1.743	1.24				200.0			
		30.36		6.12	1.744	2.96	0.34	18.57	19.6	205.0			
	1406	30.36	1.0	6.12	1.745	1.33		18.36		210.0			
	1411	35.36	1.0	6.11	1.746	0.94	0.25	18.06	0.5	215.0			
	-												

#### Notes:

Note when "Stabilization " has occurred. Stabilization Criteria (achieved after a minimum of three successive readings) ±0.1 for pH

±10 mV for redox ±3% for specific cond. ±10% for DO

If stabilization does not occur within 2 hours, contact Site Manager for action. If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

<10 NTUs for turbidity
NA for temperature

Well Casing Volume (Gal):

2" diameter well: Water column (ft.) x 0.163 4" diameter well: Water column x 0.653

Location:	Identify Measuring Point (MP):	page <u>1</u> of <u>7</u>
Well ID: ARAMW-8	(e.g. Top of Casing)  Depth to Screen below MP: 39.3 / of screen 49.1/ of screen	Well Depth, (Ft.) 49.61 Depth To Water (Ft.) 11.57
Field Sampling Personnel  DSIALO PA & T K. NYS	Pump Intake at (ft. below MP): VANIED  Bottom	Water Column (Ft.) 37.69 Well Volume (gal) ~ 6.79
Valent Mari Files	Purging Device (Pump Type): [22 CT/L/C ] BM3/L3/ BL3  (e.g. Dedicated owns peristalic owns baller bladder own	

												pladder pump, etc.)	
Date	Time		Purge Rate	ρH	Spec	Turbidity	DO	Temp.			CHEMetrics		Comments
		Water			Cond.		Flow cell		Potential	Purged	DO	Ferrous	
		Below MP		1			_				mg/L	Iron	
<b>-,</b> , ,	24 hr	ft	mL/min	pH units	mS/cm	NTUs	mg/L	°C	mV	gallons	(low)	mg/L	
11/17/20	1317	11,97	2500			OL							SINN NO.0 GPM
	1322	DRY	_			187				8.0			RATE & BRANC PROPERL
	1359	35.00	-			_							CONTINUENT TO RECHARGE
	1410	37.00	1			-				_			SURGAL
	1441	32.82	5700			DL				-			RUISMAB ~ 1.56PM
	1444	DRY	1			_				12.5			
	1523	38.50	-			-				-			SURGINL
	1532	38.35	5700			06				_			RESEART ~ 1.5 GPM
	1534	DRY	-			_				15.5			
	1614	38.00	-			-				-			SORGING
	1619	32.50	800			-				_			RESTARTED LOWER PLATE
	1622	41.35	900			OL				16.2			
	1625	43.30	y20			423				16.5			V RME
	1630	44.03	400			489				12.4			
	1635	44.89	ccy			257				12.9			
	1641	45.3%	400			106				18-5			
		46.79	400			134				19.0			
	1651	47.64	400			252				19.5			
		(Pump)	350			236				20.0			
	1201		_			_				20.4			
		46.90	_			_				_			5-16-85
			2500			843				21.0			pumper ory

#### Notes:

Note when "Stabilization" has occurred. Stabilization Criteria (achieved after a minimum of three successive readings) #0.1 for pH

±10 mV for redox ±3% for specific cand. ±10% for DO

±10% <10 N

<10 NTUs for turbidity NA for temperature

If stabilization does not occur within 2 hours, contact Site Manager for action. If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

Well Casing Volume (Gal): 2" diameter well: Water column (ft.) x 0.163

4" diameter well: Water column x 0.653

					VVE	LL PURGIN	G-FIELU	WATER	QUALITY M	IEASUREMEN	112 FORM		
Location:						Identify Mo	easuring P of Casing)	oint (MP):	To	C	-		page <u>2</u> of <u>3</u>
Field Samoli	no Personne	24M4				Depth to S	Screen bek	ow MP:	35.31 Too	of screen	49.31 Bottom	of screen	Well Depth, (Ft.)
PENRO	PMENT	K. /	Uy3			Pump Inta Purging D	ke at (ft. b evice (Pun	elow MP): np Type):	ELECTRIC S-BMERS BLE				Well Volume (gal) ~ 6 : / 4
	,								(e.g. Dedicated pump, peristaltic pump, bailer, bladder pump, etc.)				
Date	Time		Purge Rate	pН	Spec	Turbidity		Temp.		Cum. Volume		Hach	Comments
1		Water			Cond.	1 1	Flow cell		Potential	Purged	DO	Ferrous	
1		Below MF									mg/L	Iron	1
L.,	24 hr	l tt	mL/min	pH units	mS/cm	NTUs	mg/L	°C	mV	gallons	(low)	mg/L	
11/18/2>	0835	11.98	-			-				21.0			FULL RECOVERY OLDERNICHT - STAGE
7.2,0		11,98				658				-			STARTS PURCES ~ 2.0 GPM
		DRY				457				28.0			RATE & NI PLANTS
	0935	37.50	_			_				_			S-RGNL
	0944	34.32	5700			202				-			REXENTES ~ 1.5 GPM
	0946	DRY	_			138				31.0			KOPPED - PULLED PUMP
11/18/20		N.73				-							Sacre
	1454	H.77	7500			576			İ.,				STARRES - 2.0 GPM
	1458					181				38.0			TULBIDITY &
	1536	38.84				-				_			RECHARGAL - SURVEL
	1543	38.60	7500			745				_			RESTART
	1545	DILY	-			224				40.0			
	_	36.63				_							S-RGINL
	1648	36.58	7500			1/82				_			RSITART
	1650	DRY	_			117				42.5			
		40.29				_							RECHARGE - SURGE
	1722	40.50	1000			269							STRATES PLACE & RATE
		41.63				185				43.0			1 port
				7.37		112		1	41.2				STARTED LOVER-YSI556
	1732	43.60	300	7.27	0,637	73.2	7.38	19.67	54.6	43.5			

7.33 11.54 60.3

7.10 20.07

### Nates:

Note when "Stabilization " has occurred. Stabilization Criteria (achieved after a minimum of three successive readings)±0.1 for pH

0.641

0.626

41.4

20.3

±10 mV for redox ±3% for specific cond.

±10% for DO

<10 NTUs for turbidity NA for temperature

If stabilization does not occur within 2 hours, contact Site Manager for action. If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

7.25

7.34

300

100

Well Casing Volume (Gal):

2" diameter well: Water column (ft.) x 0.163 4" diameter well: Water column x 0.653

Location:						Identify M	easuring P of Casing)	oint (MP):	To	o C	-		page <u>3</u> of <u>3</u>
Well ID:	ARA	nw-	3					w MP:	19.51	of screen	Y5.31 Bottom	of screen	Well Depth, (Ft.)
A Cuttle	rg Personnei محمد کا معا	2.1	IVS			Pumo Inta	ke at (ft h	elow MP1	100	50	Bollotti		Water Column (Ft.) 37.67 Well Volume (gal) ~ 6.77
prieco	10000		72			Purging D	evice (Pun	no Type):	REGRIC SUBMERSIBLE				Then Political (gas)
						. u.g.i.g	C 1.00 (. 0	.,,,,,,	(e.g. Dedicated pump, peristaltic pump, bailer, bladder pump, etc.			iadder pump, etc.)	-
Date	Time	Depth to	Purge Rate	pН	Spec	Turbidity	DO	Temp.			CHEMetrics		Comments
		Water			Cond.		Flow cell		Potential	Purged	DO	Ferrous	
		Below MP									mg/L	Iron	
	24 hr	ft	mL/min		mS/cm	NTUs	mg/L	°C	mV_	gallons	(low)	mg/L	
11/18/20		46.84	300		0.580	11.5		20.14		44.4			
	1253	47.92	700	7.47	0.544	2.6	6.74	20.15	62.1	44.7			
	1258	(Ps. 20)	100	7.54	0.523	6.4	4.78	20,12	57.8	45.0			
	1801	DRY	_	-		-	_	_	_	45,1			
													-
						1							
											1		

Notes:

Note when "Stabilization" has occurred. Stabilization Criteria (achieved after a minimum of three successive readings) ±0.1 for pH

±10 mV for redax ±3% for specific cond.

±10% for DO

<10 NTUs for turbidity NA for temperature

If stabilization does not occur within 2 hours, contact Site Manager for action. If well goes dry prior to stabilization, stop, allow well to recharge, and collect sample.

Well Casing Volume (Gal):

2" diameter well: Water column (ft.) x 0.163 4" diameter well: Water column x 0.653

Groundwater Monitoring Well Installation Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

# **APPENDIX C**

**WELL SURVEY DOCUMENT** 

# GEORGIA POWER PLANT ARKWRIGHT MONITORING WELL SURVEY DATA December 18, 2020

DGA JOB # 6620-002-D1, C1335

	7	DGA 100 # 0020	002 01, 01333							
WELL ID	NORTHING	EASTING	ELEVATIONS							
			GROUND	NAIL	TOP OF	TOP OF				
			ELEVATION	IN CONCRETE	WELL PAD	CASING				
AP3PZ-1	1066652.20	2436953.26	361.53		NO PAD	364.22				
AP3PZ-1A	1066656.17	2436950.62	361.37		NO PAD	364.36				
AP3PZ-2	1065960.86	2437314.65	361.69		NO PAD	364.93				
AP3PZ-2A	1065955.86	2437317.22	361.55		NO PAD	364.74				
AP3PZ-3	1065501.28	2437527.97	360.11		NO PAD	362.69				
AP3PZ-3A	1065495.58	2437530.17	360.25		NO PAD	363.23				
AP3PZ-4	1065047.94	2437729.54	358.54		NO PAD	361.32				
AP3PZ-4A	1065042.69	2437732.09	358.56		NO PAD	361.57				
AP3PZ-5A	1064633.46	2437909.87	357.02		NO PAD	360.14				
ARAMW-1	1062938.38	2439120.01	305.07		305.49	308.51				
ARAMW-2	1062925.96	2439114.97	305.12		305.23	308.27				
ARAMW-3	1064530.73	2437569.81	352.20		352.41	355.39				
ARAMW-4	1065463.83	2438004.43	364.56	364.83		367.86				
ARAMW-6	1064439.35	2437606.99	334.23		334.56	337.46				
ARAMW-7	1063049.07	2438913.27	307.13	307.13		309.81				
ARAMW-8	1062895.98	2439197.40	304.53	304.94		307.36				
ARGWA-12	1067003.79	2436788.45	369.27		369.56	372.72				
ARGWA-13	1065951.25	2438129.93	368.10		368.72	371.57				
ARGWA-14	1066023.70	2438384.80	384.94		385.46	388.25				
ARGWA-19	1063774.45	2439488.71	339.86		340.38	343.30				
ARGWA-20	1063732.73	2439088.01	327.73		328.37	331.28				
ARGWA-24	1066895.28	2437012.63	370.85	371.08		373.75				
ARGWA-3	1066899.39	2437431.05	386.53		386.94	388.33				
ARGWA-5	1066885.12	2437209.22	373.51		373.69	376.15				
ARGWC-10	1065419.44	2437192.51	367.56		367.77	370.67				
ARGWC-15	1065475.43	2438360.90	371.76		372.51	375.64				
ARGWC-16	1065263.69	2438174.15	361.52		361.98	364.90				
ARGWC-17	1065458.82	2438009.52	365.04		365.31	368.24				
ARGWC-18	1064482.45	2437961.15	351.92		352.42	355.20				
ARGWC-21	1062941.24	2439112.52	305.97		306.34	309.15				
ARGWC-22	1063039.36	2438925.04	307.01		307.08	309.95				
ARGWC-23	1062884.38	2439202.38	304.29		304.67	307.70				
ARGWC-7	1064410.59	2438355.19	348.97		349.13	352.42				
ARGWC-8	1064521.98	2437572.92	352.19		352.26	355.53				
ARGWC-9	1065139.64	2437297.96	363.44		363.87	367.07				
CCRLF-1	1065801.62	2437806.69	354.06	354.39		357.51				
CCRLF-2	1066565.98	2437457.04	367.27			370.67				
CCRLF-3	1066338.44	2437920.60	372.06			375.19				
CCRLF-4	1066801.77	2437509.61	370.11	370.47		373.35				
CCRLF-5	1066251.06	2438257.93	385.88	386.16		388.73				
INV. 24" PIPE	1064401.47	2437857.62	318.50							
WET WELL	1064422.09	2437710.35			330.81	329.20				
	·									

COORDINATES ARE GA STATE PLANE, WEST ZONE, NAD 83. ELEVATIONS ARE BASED ON MEAN SEA LEVEL, NAVD 88.

Survey data shown below has a horizontal positional tolerance of +/-0.5 feet and a vertical positional tolerance of +/- 0.01 feet at the 95% level of confidence.

Equipment used to obtain horizontal and vertical coordinates was a LEICA SYSTEM 1200 GPS RECEIVER WITH A LEICA RX1200 DATA COLLECTOR.

Benchmark used to establish horizontal and vertical positions was established from LEICA SMARTNET REAL TIME NETWORK.

(TOP OF WELL PIPE)



2020 Semi-Annual Groundwater Monitoring and Corrective Action Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

# **APPENDIX B**

FIELD SAMPLING LOGS AND ANALYTICAL DATA REPORTS



# **Environment Testing** America

### **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-109846-1

Client Project/Site: CCR - Plant Arkwright

### For:

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

Attn: Joju Abraham

Authorized for release by: 9/24/2020 4:40:14 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

..... Links ......

Review your project results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

Client: Southern Company Project/Site: CCR - Plant Arkwright Laboratory Job ID: 180-109846-1

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	5
Certification Summary	6
Sample Summary	7
Method Summary	8
Lab Chronicle	9
Client Sample Results	20
QC Sample Results	49
QC Association Summary	61
Chain of Custody	69
Receipt Chacklists	87

-5

4

\_

0

9

10

12

1:

### Case Narrative

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-109846-1

#### Comments

No additional comments.

### Receipt

The samples were received on 8/20/2020 9:30 AM. 8/21/2020 9:45 AM and 8/22/2020 10:00 AM; the samples arrived in good condition. and where required, properly preserved and on ice. The temperatures of the 9 coolers at receipt time were 1.1° C, 1.2° C, 1.5° C, 1.6° C, 2.1° C, 2.4° C, 2.6° C, 2.7° C and 3.6° C.

#### **Receipt Exceptions**

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): ARGWC-10 (180-109848-1). The container labels list an id of GWC-10 while the COC lists ARGWC10.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): ARGWC-9 (180-109848-3). The container labels list an id of GWC-9 while the COC lists ARGWC-9. The id's on the Coc were used.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): ARGWA-5 (180-109850-1). The container labels list an id of GWA-5 while the COC lists ARGWA-5.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): ARGWA-3 (180-109850-2). The container labels list an id of GWA-3 while the COC lists ARGWA-3.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): ARGWC-7 (180-109850-3). The container labels list an id of GWC-7 while the COC lists ARGWC-7. The id's on the Coc were used.

#### GC Semi VOA

Method 300.0: The matrix spike and matrix spike duplicate (MS/MSD) recoveries for the following sample associated with analytical batch 180-326478 were outside control limits for Fluoride: (180-109846-B-2 MS) and (180-109846-B-2 MSD). The associated laboratory control sample (LCS) recovery met acceptance criteria.

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

Methods 6020A, 6020B: The ICVL failed high for tin. Another (ICVL 180-330300/6) made from a separate stock solution was run and passes for 6020B method with 103% recovery; therefore, the data has been reported.

Method 6020B: The method blank for preparation batch 180-327642 contained boron above the reporting limit (RL). None of the samples associated with this method blank contained the target compound above the RL; therefore, re-extraction and/or re-analysis of samples were not performed.

Method 6020B: The method blank for preparation batch 180-327640 contained zinc above the reporting limit (RL). None of the samples associated with this method blank contained the target compound above the RL; therefore, re-extraction and/or re-analysis of samples were not performed.

Method 7470A: The continuing calibration verification (CCV) associated with batch 180-328261 recovered above the upper control limit for mercury. The samples associated with this CCV were non-detects for the affected analytes or were below the reporting limit (RL); therefore, the data have been reported.

Method 7470A: The low level continuing calibration verification (CCVL) associated with batch 180-328261 recovered above the upper control limit for mercury. The samples associated with this CCVL were non-detects for the affected analytes or below the reporting limit (RL); therefore, the data have been reported.

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

### Field Service / Mobile Lab

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

Job ID: 180-109846-1

### **Case Narrative**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-1

### Job ID: 180-109846-1 (Continued)

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

### **General Chemistry**

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

3

Δ

5

6

R

9

4 4

13

### **Definitions/Glossary**

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

### **Qualifiers**

	_	_		_
ш	п	_	• / •	~
п	_	LU	•/I	۱.

 Qualifier
 Qualifier Description

 F1
 MS and/or MSD recovery exceeds control limits.

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

**Metals** 

Qualifier Qualifier Description

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

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 ma	y or may not be	present in this report.
--------------	----------------	-----------------------	-----------------	-------------------------

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

4

\_

5

6

7

10

111

12

1

### **Accreditation/Certification Summary**

Client: Southern Company

Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

### Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	<b>Expiration Date</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21

-

\_\_\_\_

Ω

9

10

12

11:

### Sample Summary

Client: Southern Company

180-109929-2

180-109930-1

180-109930-2

180-109930-3

180-109970-1

180-109970-2

ARGWC-18

ARAMW-3

ARAMW-4

ARAMW-6

ARGWC-21

EB#1

Project/Site: CCR - Plant Arkwright

Lab Sample ID Client Sample ID Matrix Collected Received Asset ID 180-109846-1 ARGWA-14 Water 08/19/20 13:55 08/20/20 09:30 180-109846-2 ARGWC-15 Water 08/19/20 10:05 08/20/20 09:30 180-109846-3 ARGWC-16 Water 08/19/20 12:05 08/20/20 09:30 180-109847-1 FB#1 Water 08/18/20 11:00 08/20/20 09:30 180-109847-2 ARGWA-12 Water 08/18/20 13:00 08/20/20 09:30 08/18/20 14:50 08/20/20 09:30 Water 180-109847-3 ARGWA-13 180-109847-4 ARGWC-17 Water 08/18/20 14:45 08/20/20 09:30 180-109848-1 ARGWC-10 Water 08/19/20 11:35 08/20/20 09:30 180-109848-2 DUP-1 Water 08/19/20 00:00 08/20/20 09:30 180-109848-3 ARGWC-9 Water 08/19/20 14:25 08/20/20 09:30 180-109850-1 ARGWA-5 Water 08/18/20 11:35 08/20/20 09:30 180-109850-2 ARGWA-3 Water 08/18/20 13:20 08/20/20 09:30 180-109850-3 ARGWC-7 Water 08/18/20 15:25 08/20/20 09:30 EB#2 Water 08/19/20 09:15 08/20/20 09:30 180-109851-1 180-109851-2 ARGWA-19 Water 08/19/20 10:56 08/20/20 09:30 ARGWA-20 180-109851-3 Water 08/19/20 13:44 08/20/20 09:30 180-109851-4 ARGWC-22 Water 08/19/20 15:32 08/20/20 09:30 180-109918-1 FB#2 Water 08/20/20 10:45 08/21/20 09:45 180-109918-2 ARGWC-23 Water 08/20/20 12:15 08/21/20 09:45 180-109918-3 DUP-2 Water 08/20/20 00:00 08/21/20 09:45 Water 180-109918-4 ARAMW-1 08/20/20 14:36 08/21/20 09:45 180-109918-5 ARAMW-2 Water 08/20/20 16:35 08/21/20 09:45 ARGWC-8 Water 08/20/20 10:35 08/21/20 09:45 180-109929-1

Water

Water

Water

Water

Water

Water

08/20/20 17:05 08/21/20 09:45

08/20/20 09:30 08/21/20 09:45

08/20/20 14:45 08/21/20 09:45

08/20/20 11:45 08/21/20 09:45

08/21/20 09:45 08/22/20 10:00

08/21/20 10:36 08/22/20 10:00

Job ID: 180-109846-1

### **Method Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
Field Sampling	Field Sampling	EPA	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT
Filtration	Sample Filtration	None	TAL PIT

### **Protocol References:**

EPA = US Environmental Protection Agency

None = None

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

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

### **Laboratory References:**

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

Client: Southern Company Job ID: 180-109846-1 Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWA-14** 

Lab Sample ID: 180-109846-1 Date Collected: 08/19/20 13:55

**Matrix: Water** 

Lab Sample ID: 180-109846-2

Lab Sample ID: 180-109846-3

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrument	EPA 300.0 R2.1		1			326785	08/24/20 08:46	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327640	08/28/20 15:02	TJO	TAL PIT
Total Recoverable	Analysis Instrument	EPA 6020B t ID: A		1			330300	09/17/20 21:08	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrument	EPA 7470A t ID: HGY		1			328261	09/02/20 15:09	RJR	TAL PIT
Total/NA	Analysis Instrument	Field Sampling		1			326626	08/19/20 13:55	FDS	TAL PIT

**Client Sample ID: ARGWC-15** 

Date Collected: 08/19/20 10:05

Date Received: 08/20/20 09:30

Prep Type	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: CHICS2000		1			326478	08/21/20 13:28	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327640	08/28/20 15:02	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			330300	09/17/20 21:11	RSK	TAL PIT
	Instrumen	t ID: A								
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A at ID: HGY		1			328261	09/02/20 15:13	RJR	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling		1			326626	08/19/20 10:05	FDS	TAL PIT

**Client Sample ID: ARGWC-16** 

Date Collected: 08/19/20 12:05

Date Received: 08/20/20 09:30

Dron Tyno	Batch	Batch Method	Run	Dil Factor	Initial Amount	Final	Batch Number	Prepared	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHICS2000	- Kull	1	Amount	Amount	326785	or Analyzed 08/24/20 09:01	Analyst EPS	TAL PIT
Total Recoverable Total Recoverable	Prep Analysis Instrumen	3005A EPA 6020B t ID: A		1	50 mL	50 mL	327640 330300	08/28/20 15:02 09/17/20 21:36		TAL PIT
Total/NA Total/NA	Prep Analysis Instrumen	7470A EPA 7470A t ID: HGY		1	50 mL	50 mL	328121 328261	09/02/20 05:45 09/02/20 15:14		TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			326626	08/19/20 12:05	FDS	TAL PIT

Eurofins TestAmerica, Pittsburgh

9/24/2020

Page 9 of 95

**Matrix: Water** 

**Matrix: Water** 

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Client Sample ID: FB#1

Date Collected: 08/18/20 11:00 Date Received: 08/20/20 09:30

Lab Sample ID: 180-109847-1

**Matrix: Water** 

	Batch	Batch		Dil Factor	Initial Amount	Final Amount	Batch	Prepared		Lab
Prep Type	Type	Method	Run				Number	or Analyzed	Analyst	
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 nt ID: CHICS2000		1			326917	08/25/20 11:35	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327640	08/28/20 15:02	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B nt ID: A		1			330300	09/17/20 21:40	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumer	EPA 7470A nt ID: HGY		1			328261	09/02/20 15:15	RJR	TAL PIT

Client Sample ID: ARGWA-12

Date Collected: 08/18/20 13:00 Date Received: 08/20/20 09:30

Lab Sample ID: 180-109847-2

**Matrix: Water** 

Dil Initial Final Batch Batch Batch Prepared **Prep Type** Type Method Run **Factor Amount** Amount Number or Analyzed **Analyst** Lab Total/NA 326917 08/25/20 11:50 MJH TAL PIT Analysis EPA 300.0 R2.1 Instrument ID: CHICS2000 Total Recoverable 3005A 50 mL 08/28/20 15:02 TJO TAL PIT Prep 50 mL 327640 Total Recoverable **EPA 6020B** 330300 09/17/20 21:43 RSK Analysis 1 TAL PIT Instrument ID: A Total/NA Prep 7470A 50 mL 50 mL 328121 09/02/20 05:45 RJR TAL PIT Total/NA EPA 7470A 328261 TAL PIT Analysis 09/02/20 15:16 RJR 1 Instrument ID: HGY Total/NA Analysis Field Sampling 326626 08/18/20 13:00 FDS TAL PIT 1 Instrument ID: NOEQUIP

**Client Sample ID: ARGWA-13** 

Date Collected: 08/18/20 14:50 Date Received: 08/20/20 09:30

Lab Sample ID: 180-109847-3

**Matrix: Water** 

Prep Type	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: CHIC2100A		1			326890	08/25/20 14:31	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327640	08/28/20 15:02	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			330300	09/17/20 21:47	RSK	TAL PIT
	Instrumen	t ID: A								
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A at ID: HGY		1			328261	09/02/20 15:17	RJR	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling		1			326626	08/18/20 14:50	FDS	TAL PIT

Job ID: 180-109846-1

Client: Southern Company

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-17** 

Date Collected: 08/18/20 14:45

Date Received: 08/20/20 09:30

Lab Sample ID: 180-109847-4

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 at ID: CHIC2100A		1			326890	08/25/20 14:47	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327640	08/28/20 15:02	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B nt ID: A		1			330300	09/17/20 21:50	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumer	EPA 7470A nt ID: HGY		1			328261	09/02/20 15:21	RJR	TAL PIT
Total/NA	Analysis Instrumer	Field Sampling of ID: NOEQUIP		1			326626	08/18/20 14:45	FDS	TAL PIT

**Client Sample ID: ARGWC-10** 

Date Collected: 08/19/20 11:35

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 at ID: CHIC2100A		1			326890	08/25/20 05:59	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327640	08/28/20 15:02	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B nt ID: A		1			330300	09/17/20 21:54	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumer	EPA 7470A nt ID: HGY		1			328261	09/02/20 15:22	RJR	TAL PIT
Total/NA	Analysis Instrumer	Field Sampling at ID: NOEQUIP		1			326626	08/19/20 11:35	FDS	TAL PIT

**Client Sample ID: DUP-1** Date Collected: 08/19/20 00:00

Date Received: 08/20/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 at ID: CHIC2100A		1			326890	08/25/20 06:46	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327640	08/28/20 15:02	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B at ID: A		1			330300	09/17/20 22:06	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumer	EPA 7470A nt ID: HGY		1			328261	09/02/20 15:23	RJR	TAL PIT
Total/NA	Analysis Instrumer	Field Sampling at ID: NOEQUIP		1			326626	08/19/20 00:00	FDS	TAL PIT

Lab Sample ID: 180-109848-1 **Matrix: Water** 

Lab Sample ID: 180-109848-2

**Matrix: Water** 

Project/Site: CCR - Plant Arkwright

Client: Southern Company

**Client Sample ID: ARGWC-9** 

Date Collected: 08/19/20 14:25 Date Received: 08/20/20 09:30

Lab Sample ID: 180-109848-3

Lab Sample ID: 180-109850-1

Lab Sample ID: 180-109850-2

**Matrix: Water** 

**Matrix: Water** 

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 at ID: CHIC2100A		1			326890	08/25/20 07:02	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327640	08/28/20 15:02	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B at ID: A		1			330300	09/17/20 22:10	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumer	EPA 7470A at ID: HGY		1			328261	09/02/20 15:24	RJR	TAL PIT
Total/NA	Analysis Instrumer	Field Sampling at ID: NOEQUIP		1			326626	08/19/20 14:25	FDS	TAL PIT

**Client Sample ID: ARGWA-5** 

Date Collected: 08/18/20 11:35

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			326890	08/25/20 07:50	EPS	TAL PIT
	Instrumer	nt ID: CHIC2100A								
Total Recoverable	Prep	3005A			50 mL	50 mL	327642	08/28/20 15:10	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			330300	09/17/20 17:56	RSK	TAL PIT
	Instrumer	nt ID: A								
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			328261	09/02/20 15:25	RJR	TAL PIT
	Instrumer	nt ID: HGY								
Total/NA	Analysis	Field Sampling		1			326626	08/18/20 11:35	FDS	TAL PIT
	Instrumer	nt ID: NOEQUIP								

**Client Sample ID: ARGWA-3** 

Date Collected: 08/18/20 13:20

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHIC2100A		1			326890	08/25/20 08:06	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327642	08/28/20 15:10	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			330300	09/17/20 18:14	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A t ID: HGY		1			328261	09/02/20 15:26	RJR	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			326626	08/18/20 13:20	FDS	TAL PIT

Page 12 of 95

Client: Southern Company

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-7** 

Date Collected: 08/18/20 15:25 Date Received: 08/20/20 09:30

Lab Sample ID: 180-109850-3

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHIC2100A		1			326890	08/25/20 08:21	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327642	08/28/20 15:10	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			330300	09/17/20 18:18	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A t ID: HGY		1			328261	09/02/20 15:27	RJR	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			326626	08/18/20 15:25	FDS	TAL PIT

Client Sample ID: EB#2

Date Collected: 08/19/20 09:15

Date Received: 08/20/20 09:30

Lab Sample ID: 180-109851-1

Lab Sample ID: 180-109851-2

**Matrix: Water** 

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			326890	08/25/20 10:19	EPS	TAL PIT
	Instrumen	t ID: CHIC2100A								
Total Recoverable	Prep	3005A			50 mL	50 mL	327642	08/28/20 15:10	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			330300	09/17/20 18:21	RSK	TAL PIT
	Instrumen	t ID: A								
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			328261	09/02/20 15:28	RJR	TAL PIT
	Instrumen	t ID: HGY								
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	326608	08/21/20 11:11	AVS	TAL PIT
	Instrumen	t ID: NOEQUIP								

**Client Sample ID: ARGWA-19** 

Date Collected: 08/19/20 10:56

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			326890	08/25/20 11:50	EPS	TAL PIT
	Instrumen	t ID: CHIC2100A								
Total Recoverable	Prep	3005A			50 mL	50 mL	327642	08/28/20 15:10	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			330300	09/17/20 18:25	RSK	TAL PIT
	Instrumen	t ID: A								
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			328261	09/02/20 15:29	RJR	TAL PIT
	Instrumen	t ID: HGY								
Total/NA	Analysis	Field Sampling		1			326626	08/19/20 10:56	FDS	TAL PIT
	Instrumen	t ID: NOEQUIP								

Page 13 of 95

Project/Site: CCR - Plant Arkwright

Client: Southern Company

**Client Sample ID: ARGWA-20** Date Collected: 08/19/20 13:44

Lab Sample ID: 180-109851-3

**Matrix: Water** 

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 at ID: CHIC2100A		1			326890	08/25/20 12:06	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327642	08/28/20 15:10	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B nt ID: A		1			330300	09/17/20 18:36	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumer	EPA 7470A nt ID: HGY		1			328261	09/02/20 15:30	RJR	TAL PIT
Total/NA	Analysis Instrumer	Field Sampling at ID: NOEQUIP		1			326626	08/19/20 13:44	FDS	TAL PIT

Lab Sample ID: 180-109851-4 **Client Sample ID: ARGWC-22** 

Date Collected: 08/19/20 15:32 **Matrix: Water** 

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: CHIC2100A		1			326890	08/25/20 10:35	EPS	TAL PIT
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: CHIC2100A		10			326890	08/25/20 11:31	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327642	08/28/20 15:10	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B at ID: A		1			330300	09/17/20 18:39	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	327642	08/28/20 15:10	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B at ID: A		1			330464	09/18/20 13:03	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328121	09/02/20 05:45	RJR	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A at ID: HGY		1			328261	09/02/20 15:34	RJR	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C at ID: NOEQUIP		1	100 mL	100 mL	326608	08/21/20 11:11	AVS	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling		1			326626	08/19/20 15:32	FDS	TAL PIT

Client Sample ID: FB#2 Lab Sample ID: 180-109918-1

Date Collected: 08/20/20 10:45 **Matrix: Water** Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 at ID: CHIC2100A		1			326777	08/24/20 14:46	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			329135	09/10/20 01:16	DSH	TAL PIT
	Instrumer	nt ID: DORY								

Eurofins TestAmerica, Pittsburgh

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

Client Sample ID: FB#2 Lab Sample ID: 180-109918-1 Date Collected: 08/20/20 10:45

**Matrix: Water** 

Job ID: 180-109846-1

Date Received: 08/21/20 09:45

Batch		Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			50 mL	50 mL	328516	09/04/20 08:35	RJR	TAL PIT
Total/NA	Analysis Instrumer	EPA 7470A nt ID: HGZ		1			328649	09/05/20 09:53	RJR	TAL PIT
Total/NA	Analysis Instrumer	SM 2540C nt ID: NOEQUIP		1	100 mL	100 mL	326682	08/22/20 08:53	AVS	TAL PIT

Lab Sample ID: 180-109918-2 **Client Sample ID: ARGWC-23** 

Date Collected: 08/20/20 12:15 **Matrix: Water** 

Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: CHIC2100A		1			326777	08/24/20 13:43	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B at ID: DORY		1			329135	09/10/20 01:19	DSH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B at ID: DORY		1			329474	09/11/20 22:34	DSH	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328516	09/04/20 08:35	RJR	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A at ID: HGZ		1			328649	09/05/20 09:54	RJR	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C at ID: NOEQUIP		1	100 mL	100 mL	326682	08/22/20 08:53	AVS	TAL PI
Total/NA	Analysis Instrumen	Field Sampling		1			327279	08/20/20 12:15	FDS	TAL PIT

Lab Sample ID: 180-109918-3 **Client Sample ID: DUP-2** Date Collected: 08/20/20 00:00 **Matrix: Water** 

Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHIC2100A		1			326777	08/24/20 13:59	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: DORY		1			329135	09/10/20 01:23	DSH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: DORY		1			330720	09/21/20 15:00	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328516	09/04/20 08:35	RJR	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A t ID: HGZ		1			328649	09/05/20 09:57	RJR	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	326682	08/22/20 08:53	AVS	TAL PIT

Eurofins TestAmerica, Pittsburgh

Page 15 of 95

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Client Sample ID: DUP-2 Lab Sample ID: 180-109918-3

Date Collected: 08/20/20 00:00 Matrix: Water Date Received: 08/21/20 09:45

Date Neceived. 00/21/20 03.43

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Method **Factor** Number or Analyzed Type Run **Amount Amount** Analyst Lab Total/NA Analysis Field Sampling 327279 08/20/20 00:00 FDS TAL PIT

Client Sample ID: ARAMW-1

Date Collected: 08/20/20 14:36

Lab Sample ID: 180-109918-4

Matrix: Water

Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrument	EPA 300.0 R2.1 ID: CHICS2000		1			326785	08/24/20 10:29	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Total Recoverable	Analysis Instrument	EPA 6020B ID: DORY		1			329135	09/10/20 01:26	DSH	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328516	09/04/20 08:35	RJR	TAL PIT
Total/NA	Analysis Instrument	EPA 7470A ID: HGZ		1			328649	09/05/20 09:58	RJR	TAL PIT
Total/NA	Analysis Instrument	Field Sampling		1			327279	08/20/20 14:36	FDS	TAL PIT

Client Sample ID: ARAMW-2

Date Collected: 08/20/20 16:35

Lab Sample ID: 180-109918-5

Matrix: Water

Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrument	EPA 300.0 R2.1 ID: CHIC2100A		1			326777	08/24/20 12:32	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Total Recoverable	Analysis Instrument	EPA 6020B ID: DORY		1			329135	09/10/20 01:30	DSH	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328516	09/04/20 08:35	RJR	TAL PIT
Total/NA	Analysis Instrument	EPA 7470A ID: HGZ		1			328649	09/05/20 09:59	RJR	TAL PIT
Total/NA	Analysis Instrument	Field Sampling ID: NOEQUIP		1			327279	08/20/20 16:35	FDS	TAL PIT

Client Sample ID: ARGWC-8 Lab Sample ID: 180-109929-1

Date Collected: 08/20/20 10:35 Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 at ID: CHIC2100A		1			327077	08/26/20 06:26	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B It ID: DORY		1			329135	09/10/20 01:33	DSH	TAL PIT

Eurofins TestAmerica, Pittsburgh

Page 16 of 95

2

Job ID: 180-109846-1

3

5

7

Q

10

12

Client: Southern Company

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-8** 

Date Collected: 08/20/20 10:35

Date Received: 08/21/20 09:45

Lab Sample ID: 180-109929-1

**Matrix: Water** 

Batch		Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	7470A	_		50 mL	50 mL	328516	09/04/20 08:35	RJR	TAL PIT
Total/NA	Analysis Instrumer	EPA 7470A nt ID: HGZ		1			328649	09/05/20 10:00	RJR	TAL PIT
Total/NA	Analysis Instrumer	Field Sampling nt ID: NOEQUIP		1			327279	08/20/20 10:35	FDS	TAL PIT

**Client Sample ID: ARGWC-18** 

Date Collected: 08/20/20 17:05

Date Received: 08/21/20 09:45

Lab Sample ID: 180-109929-2

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHIC2100A		1			327077	08/26/20 11:27	EPS	TAL PIT
Dissolved	Filtration	Filtration			250 mL	250 mL	326831	08/24/20 09:48	TJO	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Dissolved	Analysis Instrumen	EPA 6020B t ID: DORY		1			329135	09/10/20 01:40	DSH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: DORY		1			329135	09/10/20 01:37	DSH	TAL PIT
Dissolved	Filtration	Filtration			250 mL	250 mL	326831	08/24/20 09:48	TJO	TAL PIT
Dissolved	Prep	7470A			50 mL	50 mL	328516	09/04/20 08:35	RJR	TAL PIT
Dissolved	Analysis Instrumen	EPA 7470A t ID: HGZ		1			328649	09/05/20 10:03	RJR	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328516	09/04/20 08:35	RJR	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A t ID: HGZ		1			328649	09/05/20 10:01	RJR	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			327279	08/20/20 17:05	FDS	TAL PIT

**Client Sample ID: EB#1** 

Date Collected: 08/20/20 09:30

Date Received: 08/21/20 09:45

Lab Sample ID: 180-109930-1

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1	<del>.</del>		327077	08/26/20 11:59	EPS	TAL PIT
	Instrumer	nt ID: CHIC2100A								
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:00	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			329135	09/10/20 01:44	DSH	TAL PIT
	Instrumer	nt ID: DORY								
Total/NA	Prep	7470A			50 mL	50 mL	328516	09/04/20 08:35	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			328649	09/05/20 10:04	RJR	TAL PIT
	Instrumer	nt ID: HGZ								

Eurofins TestAmerica, Pittsburgh

3

4

6

0

10

12

1

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

**Client Sample ID: ARAMW-3** 

Date Collected: 08/20/20 14:45 Date Received: 08/21/20 09:45

Lab Sample ID: 180-109930-2

**Matrix: Water** 

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1 t ID: CHIC2100A		1			327077	08/26/20 13:02	EPS	TAL PIT
Total Recoverable Total Recoverable	Prep Analysis Instrumen	3005A EPA 6020B t ID: DORY		1	50 mL	50 mL	328062 329135	09/01/20 16:01 09/10/20 01:55		TAL PIT TAL PIT
Total/NA Total/NA	Prep Analysis Instrumen	7470A EPA 7470A t ID: HGZ		1	50 mL	50 mL	328516 328649	09/04/20 08:35 09/05/20 10:05		TAL PIT TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			327279	08/20/20 14:45	FDS	TAL PIT

Client Sample ID: ARAMW-4

Date Collected: 08/20/20 11:45

Date Received: 08/21/20 09:45

	•	Matrix: Water
Batch	Prepared	

Lab Sample ID: 180-109930-3

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHIC2100A		1			327077	08/26/20 11:11	EPS	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328062	09/01/20 16:04	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: DORY		1			329135	09/10/20 02:12	DSH	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328515	09/04/20 08:35	RJR	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A t ID: HGZ		1			328649	09/05/20 09:50	RJR	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			327279	08/20/20 11:45	FDS	TAL PIT

**Client Sample ID: ARAMW-6** 

Date Collected: 08/21/20 09:45

Date Received: 08/22/20 10:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: CHICS2000		1			327578	08/28/20 15:07	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	328065	09/01/20 16:08	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B at ID: DORY		1			328773	09/04/20 22:07	RJR	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	328636	09/05/20 06:15	RJR	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A at ID: HGZ		1			328684	09/07/20 08:48	RJR	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling at ID: NOEQUIP		1			327279	08/21/20 09:45	FDS	TAL PIT

Eurofins TestAmerica, Pittsburgh

9/24/2020

Page 18 of 95

#### **Lab Chronicle**

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARGWC-21 Lab Sample ID: 180-109970-2

Date Collected: 08/21/20 10:36

Date Received: 08/22/20 10:00

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1	7 unount	741104111	327578	08/28/20 15:21	MJH	TAL PIT
Total Recoverable Total Recoverable	Prep Analysis	3005A EPA 6020B		1	50 mL	50 mL	328065 328773	09/01/20 16:08 09/04/20 22:10		TAL PIT
Total/NA Total/NA	Prep Analysis	7470A EPA 7470A at ID: HGZ		1	50 mL	50 mL	328636 328684	09/05/20 06:15 09/07/20 08:49		TAL PIT TAL PIT
Total/NA	Analysis Instrumen	Field Sampling at ID: NOEQUIP		1			327279	08/21/20 10:36	FDS	TAL PIT

#### **Laboratory References:**

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

#### Analyst References:

Lab: TAL PIT

Batch Type: Filtration

TJO = Tyler Oliver

Batch Type: Prep

RJR = Ron Rosenbaum

TJO = Tyler Oliver

Batch Type: Analysis

AVS = Abbey Smith

DSH = David Heakin

EPS = Evan Scheuer

FDS = Sampler Field

MJH = Matthew Hartman

RJR = Ron Rosenbaum

RSK = Robert Kurtz

3

4

6

8

3

11

12

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWA-14** Lab Sample ID: 180-109846-1 Date Collected: 08/19/20 13:55

**Matrix: Water** 

Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.12		0.10	0.026	mg/L			08/24/20 08:46	1
Method: EPA 6020B -	Metals (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:02	09/17/20 21:08	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		08/28/20 15:02	09/17/20 21:08	1
Barium	0.041		0.010	0.0016	mg/L		08/28/20 15:02	09/17/20 21:08	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 21:08	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 21:08	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 21:08	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 21:08	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 21:08	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 21:08	1
Molybdenum	0.00065	J	0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 21:08	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 21:08	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 21:08	1
Method: EPA 7470A -	Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:09	1
Method: Field Samplii	ng - Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.62				SU			08/19/20 13:55	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-15** 

Date Collected: 08/19/20 10:05 Date Received: 08/20/20 09:30

Lab Sample ID: 180-109846-2

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.081	J F1	0.10	0.026	mg/L			08/21/20 13:28	1
Method: EPA 6020B -	Metals (ICP/MS) - To	otal Recov	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:02	09/17/20 21:11	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		08/28/20 15:02	09/17/20 21:11	1
Barium	0.028		0.010	0.0016	mg/L		08/28/20 15:02	09/17/20 21:11	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 21:11	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 21:11	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 21:11	1
Cobalt	0.00040	J	0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 21:11	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 21:11	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 21:11	1
Molybdenum	0.0016	J	0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 21:11	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 21:11	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 21:11	1
Method: EPA 7470A -	Mercury (CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:13	1
Method: Field Sampli	ing - Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.47				SU			08/19/20 10:05	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-16** 

Lab Sample ID: 180-109846-3 Date Collected: 08/19/20 12:05

**Matrix: Water** 

Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/24/20 09:01	1
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:02	09/17/20 21:36	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		08/28/20 15:02	09/17/20 21:36	1
Barium	0.045		0.010	0.0016	mg/L		08/28/20 15:02	09/17/20 21:36	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 21:36	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 21:36	1
Chromium	0.0021		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 21:36	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 21:36	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 21:36	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 21:36	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 21:36	1
Selenium	0.0029	J	0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 21:36	1
Thallium	0.00027	J	0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 21:36	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:14	1
Method: Field Samp	ling - Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.24				SU			08/19/20 12:05	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Lab Sample ID: 180-109847-1 **Client Sample ID: FB#1** 

**Matrix: Water** 

Date Collected: 08/18/20 11:00 Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 11:35	1
Method: EPA 6020B -	Metals (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:02	09/17/20 21:40	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		08/28/20 15:02	09/17/20 21:40	1
Barium	<0.0016		0.010	0.0016	mg/L		08/28/20 15:02	09/17/20 21:40	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 21:40	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 21:40	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 21:40	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 21:40	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 21:40	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 21:40	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 21:40	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 21:40	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 21:40	1
Method: EPA 7470A -	Mercury (CVAA)								
Analyte	• •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:15	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Lab Sample ID: 180-109847-2 **Client Sample ID: ARGWA-12** 

**Matrix: Water** 

Date Collected: 08/18/20 13:00 Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.041	J	0.10	0.026	mg/L			08/25/20 11:50	1
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recov	erable						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:02	09/17/20 21:43	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		08/28/20 15:02	09/17/20 21:43	1
Barium	0.079		0.010	0.0016	mg/L		08/28/20 15:02	09/17/20 21:43	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 21:43	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 21:43	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 21:43	1
Cobalt	0.00019	J	0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 21:43	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 21:43	1
Lithium	0.0039	J	0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 21:43	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 21:43	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 21:43	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 21:43	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:16	1
Method: Field Samp	oling - Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.48				SU			08/18/20 13:00	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWA-13** Lab Sample ID: 180-109847-3 Date Collected: 08/18/20 14:50

**Matrix: Water** 

Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 14:31	1
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recov	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:02	09/17/20 21:47	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		08/28/20 15:02	09/17/20 21:47	1
Barium	0.025		0.010	0.0016	mg/L		08/28/20 15:02	09/17/20 21:47	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 21:47	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 21:47	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 21:47	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 21:47	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 21:47	1
Lithium	0.0042	J	0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 21:47	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 21:47	1
Selenium	0.019		0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 21:47	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 21:47	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:17	1
•	ling - Field Sampling								
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
pH	6.15				SU			08/18/20 14:50	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Lab Sample ID: 180-109847-4 **Client Sample ID: ARGWC-17** 

**Matrix: Water** 

Date Collected: 08/18/20 14:45 Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 14:47	1
Mathada EDA COCOD	Matala (IOD/MO) Ta	4-1 D							
Analyte	- Metals (ICP/MS) - To Result	Qualifier	erable RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L	=	08/28/20 15:02		1
Arsenic	<0.00031		0.0010	0.00031	Ū		08/28/20 15:02	09/17/20 21:50	1
Barium	0.062		0.010	0.0016	Ū		08/28/20 15:02	09/17/20 21:50	1
Beryllium	0.00039	J	0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 21:50	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 21:50	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 21:50	1
Cobalt	0.030		0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 21:50	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 21:50	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 21:50	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 21:50	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 21:50	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 21:50	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	^	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:21	1
Method: Field Samp	ling - Field Sampling								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.07				SU			08/18/20 14:45	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-10** Lab Sample ID: 180-109848-1 Date Collected: 08/19/20 11:35

**Matrix: Water** 

Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 05:59	1
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recov	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:02	09/17/20 21:54	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		08/28/20 15:02	09/17/20 21:54	1
Barium	0.034		0.010	0.0016	mg/L		08/28/20 15:02	09/17/20 21:54	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 21:54	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 21:54	1
Chromium	0.0049		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 21:54	1
Cobalt	0.00015	J	0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 21:54	1
Lead	0.00013	J	0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 21:54	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 21:54	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 21:54	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 21:54	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 21:54	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:22	1
Method: Field Samp	ling - Field Sampling								
Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
pH	7.06				SU			08/19/20 11:35	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: DUP-1** Lab Sample ID: 180-109848-2 Date Collected: 08/19/20 00:00

**Matrix: Water** 

Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 06:46	1
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recove	erable						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:02	09/17/20 22:06	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		08/28/20 15:02	09/17/20 22:06	1
Barium	0.034		0.010	0.0016	mg/L		08/28/20 15:02	09/17/20 22:06	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 22:06	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 22:06	1
Chromium	0.0051		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 22:06	1
Cobalt	0.00020	J	0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 22:06	1
Lead	0.00016	J	0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 22:06	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 22:06	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 22:06	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 22:06	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 22:06	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	^	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:23	1
Method: Field Samp	ling - Field Sampling								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.06				SU			08/19/20 00:00	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-9** Lab Sample ID: 180-109848-3 Date Collected: 08/19/20 14:25

**Matrix: Water** 

Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 07:02	1
Mothod: EDA 6020B	- Metals (ICP/MS) - To	stal Pocovi	orablo						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:02	09/17/20 22:10	
Arsenic	<0.00031		0.0010	0.00031	mg/L		08/28/20 15:02	09/17/20 22:10	1
Barium	0.046		0.010	0.0016	mg/L		08/28/20 15:02	09/17/20 22:10	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 22:10	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 22:10	1
Chromium	0.0080		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 22:10	1
Cobalt	0.00013	J	0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 22:10	1
Lead	< 0.00013		0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 22:10	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 22:10	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 22:10	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 22:10	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 22:10	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:24	1
Method: Field Samp	ling - Field Sampling								
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.21				SU			08/19/20 14:25	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWA-5** Lab Sample ID: 180-109850-1

Date Collected: 08/18/20 11:35 **Matrix: Water** Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 07:50	1
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:10	09/17/20 17:56	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		08/28/20 15:10	09/17/20 17:56	1
Barium	0.031		0.010	0.0016	mg/L		08/28/20 15:10	09/17/20 17:56	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:10	09/17/20 17:56	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:10	09/17/20 17:56	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/28/20 15:10	09/17/20 17:56	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		08/28/20 15:10	09/17/20 17:56	1
Lead	0.00013	J	0.0010	0.00013	mg/L		08/28/20 15:10	09/17/20 17:56	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/28/20 15:10	09/17/20 17:56	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:10	09/17/20 17:56	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:10	09/17/20 17:56	1
Thallium	0.00021	J	0.0010	0.00015	mg/L		08/28/20 15:10	09/17/20 17:56	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:25	1
Method: Field Sampl	ling - Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.18				SU			08/18/20 11:35	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWA-3** Lab Sample ID: 180-109850-2 Date Collected: 08/18/20 13:20

**Matrix: Water** 

Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 08:06	1
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recove	erable						
Analyte	-	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:10	09/17/20 18:14	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		08/28/20 15:10	09/17/20 18:14	1
Barium	0.021		0.010	0.0016	mg/L		08/28/20 15:10	09/17/20 18:14	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:10	09/17/20 18:14	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:10	09/17/20 18:14	1
Chromium	0.0027		0.0020	0.0015	mg/L		08/28/20 15:10	09/17/20 18:14	1
Cobalt	0.00022	J	0.0025	0.00013	mg/L		08/28/20 15:10	09/17/20 18:14	1
Lead	0.00019	J	0.0010	0.00013	mg/L		08/28/20 15:10	09/17/20 18:14	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/28/20 15:10	09/17/20 18:14	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:10	09/17/20 18:14	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:10	09/17/20 18:14	1
Thallium	0.00036	J	0.0010	0.00015	mg/L		08/28/20 15:10	09/17/20 18:14	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:26	1
Method: Field Samp	ling - Field Sampling								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.47				SU			08/18/20 13:20	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-7** Lab Sample ID: 180-109850-3 Date Collected: 08/18/20 15:25

**Matrix: Water** 

Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 08:21	1
Method: EPA 6020B -	Metals (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:10	09/17/20 18:18	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		08/28/20 15:10	09/17/20 18:18	1
Barium	0.044		0.010	0.0016	mg/L		08/28/20 15:10	09/17/20 18:18	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:10	09/17/20 18:18	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:10	09/17/20 18:18	1
Chromium	0.0031		0.0020	0.0015	mg/L		08/28/20 15:10	09/17/20 18:18	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		08/28/20 15:10	09/17/20 18:18	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:10	09/17/20 18:18	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/28/20 15:10	09/17/20 18:18	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:10	09/17/20 18:18	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:10	09/17/20 18:18	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:10	09/17/20 18:18	1
Method: EPA 7470A -	Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:27	1
Method: Field Sampl	ing - Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.70				SU			08/18/20 15:25	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Client Sample ID: EB#2 Lab Sample ID: 180-109851-1

**Matrix: Water** 

Date Collected: 08/19/20 09:15 Date Received: 08/20/20 09:30

Total Dissolved Solids

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			08/25/20 10:19	1
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 10:19	1
Sulfate	<0.38		1.0	0.38	mg/L			08/25/20 10:19	1
Method: EPA 6020B - Met	tals (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:10	09/17/20 18:21	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		08/28/20 15:10	09/17/20 18:21	1
Barium	< 0.0016		0.010	0.0016	mg/L		08/28/20 15:10	09/17/20 18:21	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:10	09/17/20 18:21	1
Boron	<0.039	٨	0.080	0.039	mg/L		08/28/20 15:10	09/17/20 18:21	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:10	09/17/20 18:21	1
Calcium	<0.13		0.50	0.13	mg/L		08/28/20 15:10	09/17/20 18:21	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/28/20 15:10	09/17/20 18:21	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		08/28/20 15:10	09/17/20 18:21	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:10	09/17/20 18:21	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/28/20 15:10	09/17/20 18:21	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:10	09/17/20 18:21	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:10	09/17/20 18:21	1
Thallium	0.00015	J	0.0010	0.00015	mg/L		08/28/20 15:10	09/17/20 18:21	1
Method: EPA 7470A - Mei	cury (CVAA)								
Analyte	• •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:28	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa

10 mg/L

<10

9/24/2020

08/21/20 11:11

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWA-19** Lab Sample ID: 180-109851-2 Date Collected: 08/19/20 10:56

**Matrix: Water** 

Method: EPA 300.0 R Analyte	-	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 11:50	1
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:10	09/17/20 18:25	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		08/28/20 15:10	09/17/20 18:25	1
Barium	0.044		0.010	0.0016	mg/L		08/28/20 15:10	09/17/20 18:25	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:10	09/17/20 18:25	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:10	09/17/20 18:25	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/28/20 15:10	09/17/20 18:25	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		08/28/20 15:10	09/17/20 18:25	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:10	09/17/20 18:25	1
Lithium	0.0038	J	0.0050	0.0034	mg/L		08/28/20 15:10	09/17/20 18:25	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:10	09/17/20 18:25	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:10	09/17/20 18:25	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:10	09/17/20 18:25	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:29	1
Method: Field Sampl									
Analyte		Qualifier	RL	MDL		<u>D</u>	Prepared	Analyzed	Dil Fac
pH	6.25				SU			08/19/20 10:56	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWA-20** Lab Sample ID: 180-109851-3

Date Collected: 08/19/20 13:44

**Matrix: Water** Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 12:06	1
Method: FPA 6020B	- Metals (ICP/MS) - To	ntal Recov	erable						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:10	09/17/20 18:36	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		08/28/20 15:10	09/17/20 18:36	1
Barium	0.085		0.010	0.0016	mg/L		08/28/20 15:10	09/17/20 18:36	1
Beryllium	0.00022	J	0.0025	0.00018	mg/L		08/28/20 15:10	09/17/20 18:36	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:10	09/17/20 18:36	1
Chromium	0.0063		0.0020	0.0015	mg/L		08/28/20 15:10	09/17/20 18:36	1
Cobalt	0.00064	J	0.0025	0.00013	mg/L		08/28/20 15:10	09/17/20 18:36	1
Lead	0.00039	J	0.0010	0.00013	mg/L		08/28/20 15:10	09/17/20 18:36	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/28/20 15:10	09/17/20 18:36	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:10	09/17/20 18:36	1
Selenium	0.0015	J	0.0050	0.0015	mg/L		08/28/20 15:10	09/17/20 18:36	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:10	09/17/20 18:36	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	^	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:30	1
Method: Field Samp	ling - Field Sampling								
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.16				SU			08/19/20 13:44	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-22** 

Lab Sample ID: 180-109851-4 Date Collected: 08/19/20 15:32

**Matrix: Water** 

Date Received: 08/20/20 09:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.7		1.0	0.32	mg/L			08/25/20 10:35	1
Fluoride	<0.026		0.10	0.026	mg/L			08/25/20 10:35	1
Sulfate	1000		10	3.8	mg/L			08/25/20 11:31	10
Method: EPA 6020B - Meta	als (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:10	09/17/20 18:39	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		08/28/20 15:10	09/17/20 18:39	1
Barium	0.046		0.010	0.0016	mg/L		08/28/20 15:10	09/17/20 18:39	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:10	09/17/20 18:39	1
Boron	1.3		0.080	0.039	mg/L		08/28/20 15:10	09/18/20 13:03	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:10	09/17/20 18:39	1
Calcium	220	В	0.50	0.13	mg/L		08/28/20 15:10	09/17/20 18:39	1
Chromium	< 0.0015		0.0020	0.0015	mg/L		08/28/20 15:10	09/17/20 18:39	1
Cobalt	0.0032		0.0025	0.00013	mg/L		08/28/20 15:10	09/17/20 18:39	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:10	09/17/20 18:39	1
Lithium	0.026		0.0050	0.0034	mg/L		08/28/20 15:10	09/17/20 18:39	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:10	09/17/20 18:39	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:10	09/17/20 18:39	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:10	09/17/20 18:39	1
Method: EPA 7470A - Merc	cury (CVAA)								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013	۸	0.00020	0.00013	mg/L		09/02/20 05:45	09/02/20 15:34	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1400		10	10	mg/L			08/21/20 11:11	1
Method: Field Sampling -	Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.21				SU		-	08/19/20 15:32	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Client Sample ID: FB#2 Lab Sample ID: 180-109918-1 Date Collected: 08/20/20 10:45

**Matrix: Water** 

Date Received: 08/21/20 09:45

Total Dissolved Solids

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			08/24/20 14:46	1
Fluoride	<0.026		0.10	0.026	mg/L			08/24/20 14:46	1
Sulfate	<0.38		1.0	0.38	mg/L			08/24/20 14:46	1
Method: EPA 6020B - Met	als (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:00	09/10/20 01:16	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		09/01/20 16:00	09/10/20 01:16	1
Barium	<0.0016		0.010	0.0016	mg/L		09/01/20 16:00	09/10/20 01:16	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:00	09/10/20 01:16	1
Boron	0.056	J ^	0.080	0.039	mg/L		09/01/20 16:00	09/10/20 01:16	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:00	09/10/20 01:16	1
Calcium	<0.13		0.50	0.13	mg/L		09/01/20 16:00	09/10/20 01:16	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:00	09/10/20 01:16	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		09/01/20 16:00	09/10/20 01:16	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:00	09/10/20 01:16	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		09/01/20 16:00	09/10/20 01:16	1
Molybdenum	< 0.00061		0.015	0.00061	mg/L		09/01/20 16:00	09/10/20 01:16	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:00	09/10/20 01:16	1
Thallium	<0.00015		0.0010	0.00015	mg/L		09/01/20 16:00	09/10/20 01:16	1
Method: EPA 7470A - Mer	cury (CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		09/04/20 08:35	09/05/20 09:53	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

10

10 mg/L

<10

9/24/2020

08/22/20 08:53

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Lab Sample ID: 180-109918-2 **Client Sample ID: ARGWC-23** 

Date Collected: 08/20/20 12:15 **Matrix: Water** 

Date Received: 08/21/20 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.9		1.0	0.32	mg/L			08/24/20 13:43	
Fluoride	0.19		0.10	0.026	mg/L			08/24/20 13:43	
Sulfate	69		1.0	0.38	mg/L			08/24/20 13:43	
Method: EPA 6020B - Meta	als (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:00	09/10/20 01:19	
Arsenic	< 0.00031		0.0010	0.00031	mg/L		09/01/20 16:00	09/10/20 01:19	
Barium	0.16		0.010	0.0016	mg/L		09/01/20 16:00	09/10/20 01:19	
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:00	09/10/20 01:19	
Boron	0.44		0.080	0.039	mg/L		09/01/20 16:00	09/11/20 22:34	
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:00	09/10/20 01:19	
Calcium	69		0.50	0.13	mg/L		09/01/20 16:00	09/10/20 01:19	
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:00	09/10/20 01:19	
Cobalt	0.0023	J	0.0025	0.00013	mg/L		09/01/20 16:00	09/10/20 01:19	
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:00	09/10/20 01:19	
Lithium	0.036		0.0050	0.0034	mg/L		09/01/20 16:00	09/10/20 01:19	
Molybdenum	0.061		0.015	0.00061	mg/L		09/01/20 16:00	09/10/20 01:19	
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:00	09/10/20 01:19	
Thallium	<0.00015		0.0010	0.00015	mg/L		09/01/20 16:00	09/10/20 01:19	
Method: EPA 7470A - Merc	cury (CVAA)								
Analyte	• •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Mercury	<0.00013		0.00020	0.00013	mg/L		09/04/20 08:35	09/05/20 09:54	
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Total Dissolved Solids	310		10	10	mg/L			08/22/20 08:53	
Method: Field Sampling -	Field Sampling								
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
pH	6.33				SU			08/20/20 12:15	

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: DUP-2** Lab Sample ID: 180-109918-3 Date Collected: 08/20/20 00:00

**Matrix: Water** 

Date Received: 08/21/20 09:45

Method: EPA 300.0 R2.1 - Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.9		1.0		mg/L			08/24/20 13:59	1
Fluoride	0.19		0.10	0.026	-			08/24/20 13:59	1
Sulfate	70		1.0	0.38	mg/L			08/24/20 13:59	1
Method: EPA 6020B - Meta	als (ICP/MS) - To	otal Recove	erable						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:00	09/10/20 01:23	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		09/01/20 16:00	09/10/20 01:23	1
Barium	0.16		0.010	0.0016	mg/L		09/01/20 16:00	09/10/20 01:23	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:00	09/10/20 01:23	1
Boron	0.40		0.080	0.039	mg/L		09/01/20 16:00	09/21/20 15:00	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:00	09/10/20 01:23	1
Calcium	68		0.50	0.13	mg/L		09/01/20 16:00	09/10/20 01:23	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:00	09/10/20 01:23	1
Cobalt	0.0022	J	0.0025	0.00013	mg/L		09/01/20 16:00	09/10/20 01:23	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:00	09/10/20 01:23	1
Lithium	0.035		0.0050	0.0034	mg/L		09/01/20 16:00	09/10/20 01:23	1
Molybdenum	0.061		0.015	0.00061	mg/L		09/01/20 16:00	09/10/20 01:23	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:00	09/10/20 01:23	1
Thallium	<0.00015		0.0010	0.00015	mg/L		09/01/20 16:00	09/10/20 01:23	1
Method: EPA 7470A - Merc	cury (CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		09/04/20 08:35	09/05/20 09:57	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	310		10	10	mg/L			08/22/20 08:53	1
Method: Field Sampling -	Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.33				SU			08/20/20 00:00	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Method: Field Sampling - Field Sampling

Analyte

рН

Result Qualifier

6.09

**Client Sample ID: ARAMW-1** Lab Sample ID: 180-109918-4

Date Collected: 08/20/20 14:36 **Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.23		0.10	0.026	mg/L			08/24/20 10:29	1
Method: EPA 6020B -	Metals (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:00	09/10/20 01:26	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		09/01/20 16:00	09/10/20 01:26	1
Barium	0.055		0.010	0.0016	mg/L		09/01/20 16:00	09/10/20 01:26	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:00	09/10/20 01:26	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:00	09/10/20 01:26	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:00	09/10/20 01:26	1
Cobalt	0.0010	J	0.0025	0.00013	mg/L		09/01/20 16:00	09/10/20 01:26	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:00	09/10/20 01:26	1
Lithium	0.0066		0.0050	0.0034	mg/L		09/01/20 16:00	09/10/20 01:26	1
Molybdenum	0.0076	J	0.015	0.00061	mg/L		09/01/20 16:00	09/10/20 01:26	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:00	09/10/20 01:26	1
Thallium	<0.00015		0.0010	0.00015	mg/L		09/01/20 16:00	09/10/20 01:26	1
Method: EPA 7470A -	Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		09/04/20 08:35	09/05/20 09:58	1

RL

MDL Unit

SU

Prepared

Analyzed

08/20/20 14:36

9/24/2020

Dil Fac

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-2** Lab Sample ID: 180-109918-5 Date Collected: 08/20/20 16:35

**Matrix: Water** 

Date Received: 08/21/20 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/24/20 12:32	1
Method: EPA 6020B -	Metals (ICP/MS) - To	otal Recov	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:00	09/10/20 01:30	1
Arsenic	0.084		0.0010	0.00031	mg/L		09/01/20 16:00	09/10/20 01:30	1
Barium	0.14		0.010	0.0016	mg/L		09/01/20 16:00	09/10/20 01:30	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:00	09/10/20 01:30	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:00	09/10/20 01:30	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:00	09/10/20 01:30	1
Cobalt	0.0022	J	0.0025	0.00013	mg/L		09/01/20 16:00	09/10/20 01:30	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:00	09/10/20 01:30	1
Lithium	0.036		0.0050	0.0034	mg/L		09/01/20 16:00	09/10/20 01:30	1
Molybdenum	0.0013	J	0.015	0.00061	mg/L		09/01/20 16:00	09/10/20 01:30	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:00	09/10/20 01:30	1
Thallium	<0.00015		0.0010	0.00015	mg/L		09/01/20 16:00	09/10/20 01:30	1
Method: EPA 7470A -	Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		09/04/20 08:35	09/05/20 09:59	1
Method: Field Samplii									
Analyte		Qualifier	RL	MDL		<u>D</u>	Prepared	Analyzed	Dil Fac
pH	5.99				SU			08/20/20 16:35	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-8** Lab Sample ID: 180-109929-1 Date Collected: 08/20/20 10:35

**Matrix: Water** 

Date Received: 08/21/20 09:45

Method: EPA 300.0 R2 Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.054	J	0.10	0.026	mg/L			08/26/20 06:26	1
Method: EPA 6020B -	Metals (ICP/MS) - To	otal Recov	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:00	09/10/20 01:33	
Arsenic	<0.00031		0.0010	0.00031	mg/L		09/01/20 16:00	09/10/20 01:33	1
Barium	0.053		0.010	0.0016	mg/L		09/01/20 16:00	09/10/20 01:33	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:00	09/10/20 01:33	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:00	09/10/20 01:33	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:00	09/10/20 01:33	1
Cobalt	0.00023	J	0.0025	0.00013	mg/L		09/01/20 16:00	09/10/20 01:33	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:00	09/10/20 01:33	1
Lithium	<0.0034		0.0050	0.0034	mg/L		09/01/20 16:00	09/10/20 01:33	1
Molybdenum	0.042		0.015	0.00061	mg/L		09/01/20 16:00	09/10/20 01:33	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:00	09/10/20 01:33	1
Thallium	<0.00015		0.0010	0.00015	mg/L		09/01/20 16:00	09/10/20 01:33	1
Method: EPA 7470A -	Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		09/04/20 08:35	09/05/20 10:00	1
Method: Field Samplin	• •	Ovelifier	RL	MDL	I I m i 4	ь.	Dramarad	Analyzad	Dil Fa
Analyte pH	6.34	Qualifier		MDL	SU	D	Prepared	Analyzed 08/20/20 10:35	Dil Fac

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARGWC-18 Lab Sample ID: 180-109929-2

Date Collected: 08/20/20 17:05

Matrix: Water

Date Received: 08/21/20 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Fluoride	<0.026		0.10	0.026	mg/L			08/26/20 11:27	
Method: EPA 6020B - M	letals (ICP/MS) - To	otal Recove	erable						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:00	09/10/20 01:37	
Arsenic	<0.00031		0.0010	0.00031	-		09/01/20 16:00	09/10/20 01:37	
Barium	0.041		0.010	0.0016	Ū		09/01/20 16:00	09/10/20 01:37	
Beryllium	<0.00018		0.0025	0.00018			09/01/20 16:00	09/10/20 01:37	
Cadmium	<0.00022		0.0025	0.00022	-		09/01/20 16:00	09/10/20 01:37	
Chromium	<0.0015		0.0020	0.0015	-		09/01/20 16:00	09/10/20 01:37	
Cobalt	0.0015		0.0025	0.00013			09/01/20 16:00	09/10/20 01:37	
Lead	0.00028		0.0010	0.00013	-		09/01/20 16:00	09/10/20 01:37	
_ithium	<0.0034		0.0050	0.0034	_			09/10/20 01:37	
Molybdenum	<0.00061		0.015	0.00061			09/01/20 16:00	09/10/20 01:37	
Selenium	<0.0015		0.0050	0.0015	-		09/01/20 16:00	09/10/20 01:37	
Thallium	<0.00015		0.0010	0.00015	-			09/10/20 01:37	
•	<0.00038				-				
Method: EPA 6020B - M Analyte	•	ISSOIVED Qualifier	RL	MDL		D	Prepared	Analyzed	Dil F
Antimony	<0.00038		0.0020	0.00038	-		09/01/20 16:00	09/10/20 01:40	
Arsenic	<0.00031		0.0010	0.00031	-		09/01/20 16:00	09/10/20 01:40	
					ma/L		09/01/20 16:00	09/10/20 01:40	
	0.037		0.010	0.0016					
	<b>0.037</b> <0.00018		0.010	0.00018	mg/L			09/10/20 01:40	
Beryllium					mg/L		09/01/20 16:00		
Beryllium Cadmium	<0.00018		0.0025	0.00018 0.00022 0.0015	mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00	09/10/20 01:40	
Beryllium Cadmium Chromium	<0.00018 <0.00022	J	0.0025 0.0025	0.00018 0.00022	mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40	
Beryllium Cadmium Chromium Cobalt	<0.00018 <0.00022 <0.0015	J	0.0025 0.0025 0.0020	0.00018 0.00022 0.0015 0.00013 0.00013	mg/L mg/L mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	
Beryllium Cadmium Chromium Cobalt Lead	<0.00018 <0.00022 <0.0015 <b>0.0013</b>	J	0.0025 0.0025 0.0020 0.0025	0.00018 0.00022 0.0015 0.00013	mg/L mg/L mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	
Beryllium Cadmium Chromium Cobalt Lead Lithium	<0.00018 <0.00022 <0.0015 <b>0.0013</b> <0.00013	J	0.0025 0.0025 0.0020 0.0025 0.0010	0.00018 0.00022 0.0015 0.00013 0.00013	mg/L mg/L mg/L mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	
Beryllium Cadmium Chromium Cobalt Lead Lithium Molybdenum	<0.00018 <0.00022 <0.0015  0.0013 <0.00013 <0.0034	J	0.0025 0.0025 0.0020 0.0025 0.0010 0.0050	0.00018 0.00022 0.0015 0.00013 0.00013 0.0034	mg/L mg/L mg/L mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	
Beryllium Cadmium Chromium Cobalt Lead Lithium Molybdenum Selenium	<0.00018 <0.00022 <0.0015  0.0013 <0.00013 <0.0034 <0.00061	J	0.0025 0.0025 0.0020 0.0025 0.0010 0.0050 0.015	0.00018 0.00022 0.0015 0.00013 0.00013 0.0034 0.00061	mg/L mg/L mg/L mg/L mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	
Beryllium Cadmium Chromium Cobalt Lead Lithium Molybdenum Selenium	<0.00018 <0.00022 <0.0015  0.0013 <0.00013 <0.00061 <0.0015 <0.0015	J	0.0025 0.0025 0.0020 0.0025 0.0010 0.0050 0.015	0.00018 0.00022 0.0015 0.00013 0.00013 0.0034 0.00061 0.0015	mg/L mg/L mg/L mg/L mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	
Beryllium Cadmium Chromium Cobalt Lead Lithium Molybdenum Selenium Thallium Method: EPA 7470A - M	<0.00018 <0.00022 <0.0015 0.0013 <0.00013 <0.00061 <0.0015 <0.0015 <0.0015	J	0.0025 0.0025 0.0020 0.0025 0.0010 0.0050 0.015	0.00018 0.00022 0.0015 0.00013 0.00013 0.0034 0.00061 0.0015	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	 	09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	Dil F
Beryllium Cadmium Chromium Cobalt Lead Lithium Molybdenum Selenium Thallium Method: EPA 7470A - Ma	<0.00018 <0.00022 <0.0015 0.0013 <0.00013 <0.00061 <0.0015 <0.0015 <0.0015		0.0025 0.0025 0.0020 0.0025 0.0010 0.0050 0.015 0.0050 0.0010	0.00018 0.00022 0.0015 0.00013 0.00013 0.0034 0.00061 0.0015	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	Dil F
Beryllium Cadmium Chromium Cobalt Lead Lithium Molybdenum Selenium Thallium  Method: EPA 7470A - Manalyte Mercury	<0.00018 <0.00022 <0.0015  0.0013 <0.00013 <0.00061 <0.0015 <0.00015 <percury (cvaa)="" <0.00013<="" result="" td=""><td>Qualifier</td><td>0.0025 0.0025 0.0020 0.0025 0.0010 0.0050 0.015 0.0050 0.0010</td><td>0.00018 0.00022 0.0015 0.00013 0.00013 0.0034 0.00061 0.0015</td><td>mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L</td><td> <u>D</u></td><td>09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00</td><td>09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40</td><td>Dil F</td></percury>	Qualifier	0.0025 0.0025 0.0020 0.0025 0.0010 0.0050 0.015 0.0050 0.0010	0.00018 0.00022 0.0015 0.00013 0.00013 0.0034 0.00061 0.0015	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	<u>D</u>	09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	Dil F
Beryllium Cadmium Chromium Cobalt Lead Lithium Molybdenum Selenium Thallium  Method: EPA 7470A - Manalyte Mercury  Method: EPA 7470A - Manalyte	<pre>&lt;0.00018 &lt;0.00022 &lt;0.0015</pre>	Qualifierissolved	0.0025 0.0025 0.0020 0.0025 0.0010 0.0050 0.015 0.0050 0.0010	0.00018 0.00022 0.0015 0.00013 0.00013 0.00061 0.00015 0.00015 MDL 0.00013	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	<u>D</u>	09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	
Beryllium Cadmium Chromium Cobalt Lead Lithium Molybdenum Selenium Thallium  Method: EPA 7470A - MAnalyte Method: EPA 7470A - MAnalyte	<pre>&lt;0.00018 &lt;0.00022 &lt;0.0015</pre>	Qualifier	0.0025 0.0025 0.0020 0.0025 0.0010 0.0050 0.015 0.0050 0.0010	0.00018 0.00022 0.0015 0.00013 0.00013 0.00061 0.00015 0.00015 MDL 0.00013	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 Prepared 09/04/20 08:35	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40	
Barium Beryllium Cadmium Chromium Cobalt Lead Lithium Molybdenum Selenium Thallium  Method: EPA 7470A - Manalyte Mercury	<pre>&lt;0.00018</pre>	Qualifierissolved	0.0025 0.0025 0.0020 0.0025 0.0010 0.0050 0.015 0.0050 0.0010  RL  0.00020	0.00018 0.00022 0.0015 0.00013 0.00013 0.00061 0.00015 0.00015 MDL 0.00013	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 Prepared 09/04/20 08:35	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40  Analyzed  Analyzed	
Beryllium Cadmium Chromium Cobalt Lead Lithium Molybdenum Selenium Thallium  Method: EPA 7470A - MAnalyte Method: EPA 7470A - MAnalyte	<pre>&lt;0.00018</pre>	Qualifierissolved	0.0025 0.0025 0.0020 0.0025 0.0010 0.0050 0.015 0.0050 0.0010  RL  0.00020	0.00018 0.00022 0.0015 0.00013 0.00013 0.00061 0.00015 0.00015 MDL 0.00013	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L		09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 09/01/20 16:00 Prepared 09/04/20 08:35	09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40 09/10/20 01:40  Analyzed  Analyzed	Dil F

2

3

5

7

9

11

16

1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Lab Sample ID: 180-109930-1 **Client Sample ID: EB#1** 

**Matrix: Water** 

Date Collected: 08/20/20 09:30 Date Received: 08/21/20 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/26/20 11:59	1
Method: EPA 6020B -	Metals (ICP/MS) - To	otal Recove	rable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:00	09/10/20 01:44	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		09/01/20 16:00	09/10/20 01:44	1
Barium	<0.0016		0.010	0.0016	mg/L		09/01/20 16:00	09/10/20 01:44	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:00	09/10/20 01:44	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:00	09/10/20 01:44	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:00	09/10/20 01:44	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		09/01/20 16:00	09/10/20 01:44	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:00	09/10/20 01:44	1
Lithium	<0.0034		0.0050	0.0034	mg/L		09/01/20 16:00	09/10/20 01:44	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		09/01/20 16:00	09/10/20 01:44	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:00	09/10/20 01:44	1
Thallium	<0.00015		0.0010	0.00015	mg/L		09/01/20 16:00	09/10/20 01:44	1
Method: EPA 7470A -	Mercury (CVAA)								
Analyte	• • • • • • • • • • • • • • • • • • • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		09/04/20 08:35	09/05/20 10:04	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-3** Lab Sample ID: 180-109930-2

Date Collected: 08/20/20 14:45 **Matrix: Water** 

Date Received: 08/21/20 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/26/20 13:02	1
Method: EPA 6020B - I	Metals (ICP/MS) - To	otal Recove	erable						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:01	09/10/20 01:55	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		09/01/20 16:01	09/10/20 01:55	1
Barium	0.093		0.010	0.0016	mg/L		09/01/20 16:01	09/10/20 01:55	1
Beryllium	<0.00018	Λ	0.0025	0.00018	mg/L		09/01/20 16:01	09/10/20 01:55	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:01	09/10/20 01:55	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:01	09/10/20 01:55	1
Cobalt	0.00056	J	0.0025	0.00013	mg/L		09/01/20 16:01	09/10/20 01:55	1
Lead	< 0.00013		0.0010	0.00013	mg/L		09/01/20 16:01	09/10/20 01:55	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		09/01/20 16:01	09/10/20 01:55	1
Molybdenum	0.0029	J	0.015	0.00061	mg/L		09/01/20 16:01	09/10/20 01:55	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:01	09/10/20 01:55	1
Thallium	<0.00015		0.0010	0.00015	mg/L		09/01/20 16:01	09/10/20 01:55	1
Method: EPA 7470A - I	Mercury (CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		09/04/20 08:35	09/05/20 10:05	1
Method: Field Samplir	ng - Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.24				SU			08/20/20 14:45	1

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-4** Lab Sample ID: 180-109930-3

**Matrix: Water** 

Date Collected: 08/20/20 11:45 Date Received: 08/21/20 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.026		0.10	0.026	mg/L			08/26/20 11:11	1
Mothod: EDA 6020D	Motole (ICD/MS) To	stal Bassy	oroblo						
Analyte	- Metals (ICP/MS) - To Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:04		1
Arsenic	0.00034	J	0.0010	0.00031	mg/L		09/01/20 16:04	09/10/20 02:12	1
Barium	0.053		0.010	0.0016	mg/L		09/01/20 16:04	09/10/20 02:12	1
Beryllium	<0.00018	^	0.0025	0.00018	mg/L		09/01/20 16:04	09/10/20 02:12	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:04	09/10/20 02:12	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:04	09/10/20 02:12	1
Cobalt	0.0050		0.0025	0.00013	mg/L		09/01/20 16:04	09/10/20 02:12	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:04	09/10/20 02:12	1
Lithium	0.012		0.0050	0.0034	mg/L		09/01/20 16:04	09/10/20 02:12	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		09/01/20 16:04	09/10/20 02:12	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:04	09/10/20 02:12	1
Thallium	0.00022	J	0.0010	0.00015	mg/L		09/01/20 16:04	09/10/20 02:12	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		09/04/20 08:35	09/05/20 09:50	1
Method: Field Sampl	ling - Field Sampling								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.77				SU			08/20/20 11:45	

# **Client Sample Results**

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARAMW-6 Lab Sample ID: 180-109970-1

Matrix: Water

Date Collected: 08/21/20 09:45 Date Received: 08/22/20 10:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.051	J	0.10	0.026	mg/L			08/28/20 15:07	1
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recov	erable						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:08	09/04/20 22:07	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		09/01/20 16:08	09/04/20 22:07	1
Barium	0.049		0.010	0.0016	mg/L		09/01/20 16:08	09/04/20 22:07	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:08	09/04/20 22:07	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:08	09/04/20 22:07	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:08	09/04/20 22:07	1
Cobalt	0.0018	J	0.0025	0.00013	mg/L		09/01/20 16:08	09/04/20 22:07	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:08	09/04/20 22:07	1
Lithium	<0.0034		0.0050	0.0034	mg/L		09/01/20 16:08	09/04/20 22:07	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		09/01/20 16:08	09/04/20 22:07	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:08	09/04/20 22:07	1
Thallium	0.00018	J	0.0010	0.00015	mg/L		09/01/20 16:08	09/04/20 22:07	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte	• • •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		09/05/20 06:15	09/07/20 08:48	1
Method: Field Sampl	ing - Field Sampling								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.32				SU			08/21/20 09:45	1

9/24/2020

9

Л

O -

9

11

# **Client Sample Results**

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-21** Lab Sample ID: 180-109970-2 Date Collected: 08/21/20 10:36

**Matrix: Water** 

Date Received: 08/22/20 10:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.084	J	0.10	0.026	mg/L			08/28/20 15:21	1
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recov	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:08	09/04/20 22:10	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		09/01/20 16:08	09/04/20 22:10	1
Barium	0.054		0.010	0.0016	mg/L		09/01/20 16:08	09/04/20 22:10	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:08	09/04/20 22:10	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:08	09/04/20 22:10	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:08	09/04/20 22:10	1
Cobalt	0.00066	J	0.0025	0.00013	mg/L		09/01/20 16:08	09/04/20 22:10	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:08	09/04/20 22:10	1
Lithium	0.013		0.0050	0.0034	mg/L		09/01/20 16:08	09/04/20 22:10	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		09/01/20 16:08	09/04/20 22:10	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:08	09/04/20 22:10	1
Thallium	<0.00015		0.0010	0.00015	mg/L		09/01/20 16:08	09/04/20 22:10	1
Method: EPA 7470A	- Mercury (CVAA)								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		09/05/20 06:15	09/07/20 08:49	1
•	ling - Field Sampling								
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
pH	5.89				SU			08/21/20 10:36	1

Job ID: 180-109846-1

Client Sample ID: Method Blank

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Client Sample ID: ARGWC-15

Client Sample ID: ARGWC-15

Client Sample ID: Method Blank

**Client Sample ID: Lab Control Sample** 

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

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

Lab Sample ID: MB 180-326478/18

**Matrix: Water** 

**Analysis Batch: 326478** 

MB MB

Analyte Result Qualifier RL **MDL** Unit Analyzed Dil Fac Prepared Fluoride 0.10 08/21/20 11:35 < 0.026 0.026 mg/L

Lab Sample ID: LCS 180-326478/17

**Matrix: Water** 

**Analysis Batch: 326478** 

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit D %Rec Limits 2.50 90 - 110 Fluoride 2.73 mg/L 109

Lab Sample ID: 180-109846-2 MS

**Matrix: Water** 

**Analysis Batch: 326478** 

Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Limits Unit %Rec Fluoride 0.081 JF1 2.50 2.22 F1 85 90 - 110 mg/L

Lab Sample ID: 180-109846-2 MSD

**Matrix: Water** 

**Analysis Batch: 326478** 

Spike MSD MSD %Rec. **RPD** Sample Sample Added Analyte Result Qualifier Result Qualifier Unit %Rec Limits **RPD** Limit Fluoride 0.081 JF1 2.50 2.21 F1 90 - 110 mg/L 85

Lab Sample ID: MB 180-326777/6

**Matrix: Water** 

**Analysis Batch: 326777** 

MR MR

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			08/24/20 06:29	1
Fluoride	<0.026		0.10	0.026	mg/L			08/24/20 06:29	1
Sulfate	<0.38		1.0	0.38	mg/L			08/24/20 06:29	1

Lab Sample ID: LCS 180-326777/5

**Matrix: Water** 

**Analysis Batch: 326777** 

-	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%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	52.7		mg/L		105	90 - 110	

Lab Sample ID: MB 180-326785/6

**Matrix: Water** 

**Analysis Batch: 326785** 

MB MB

Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Fluoride <0.026 0.10 0.026 mg/L 08/24/20 08:17

Eurofins TestAmerica, Pittsburgh

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

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-1

# Method: EPA 300.0 R2.1 - Anions, Ion Chromatography (Continued)

**Client Sample ID: Lab Control Sample** Lab Sample ID: LCS 180-326785/5 **Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 326785** 

Spike LCS LCS %Rec. Added Result Qualifier Unit %Rec Limits Analyte D Fluoride 2.50 2.38 mg/L 95 90 - 110

Lab Sample ID: MB 180-326890/6 Client Sample ID: Method Blank Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 326890** 

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Analyte 0.10 0.026 mg/L 08/25/20 05:13 Fluoride < 0.026

Lab Sample ID: LCS 180-326890/5 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 326890** 

Spike LCS LCS %Rec. Added Result Qualifier Limits Analyte Unit %Rec Fluoride 2.50 2.52 101 90 - 110 mg/L

Lab Sample ID: 180-109847-4 MS Client Sample ID: ARGWC-17 **Matrix: Water Prep Type: Total/NA** 

**Analysis Batch: 326890** 

Spike MS MS %Rec. Sample Sample Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Fluoride <0.026 90 - 110 2.50 2.48 mg/L

Lab Sample ID: 180-109847-4 MSD

**Matrix: Water** 

Analysis Batch: 326890

MSD MSD RPD Sample Sample Spike %Rec. Analyte Result Qualifier Added Limits Result Qualifier Unit %Rec Limit Fluoride <0.026 2.50 2.52 101 90 - 110 mg/L

Lab Sample ID: 180-109848-1 MS

**Matrix: Water** 

**Analysis Batch: 326890** 

Sample Sample Spike MS MS %Rec. Result Qualifier Added Result Qualifier Limits Analyte Unit D %Rec <0.026 2.50 Fluoride 2.48 mg/L 99 90 - 110

Lab Sample ID: 180-109848-1 MSD

**Matrix: Water** 

**Analysis Batch: 326890** 

Sample Sample Spike MSD MSD %Rec. **RPD** Result Qualifier Added Analyte Result Qualifier Limits RPD Limit Unit D %Rec Fluoride <0.026 2.50 2 41 mg/L 97 90 - 110

Lab Sample ID: MB 180-326917/18 Client Sample ID: Method Blank Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 326917** 

MB MB Result Qualifier RL **MDL** Unit Analyte Prepared Analyzed Dil Fac Fluoride <0.026 0.10 08/25/20 10:20 0.026 mg/L

Eurofins TestAmerica, Pittsburgh

Page 50 of 95

10

Prep Type: Total/NA

Client Sample ID: ARGWC-10 Prep Type: Total/NA

Client Sample ID: ARGWC-17

Client Sample ID: ARGWC-10

Prep Type: Total/NA

Job ID: 180-109846-1 Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: LCS 180-326917/17 Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 326917

Spike LCS LCS %Rec. Added Result Qualifier Unit %Rec Limits Analyte D Fluoride 2.50 2.40 mg/L 96 90 - 110

Lab Sample ID: 180-109847-2 MS **Client Sample ID: ARGWA-12** 

**Matrix: Water** 

**Analysis Batch: 326917** 

Sample Sample Spike MS MS %Rec. Result Qualifier Added Result Qualifier Unit D %Rec Limits Analyte 2.50 90 - 110 Fluoride 0.041 .1 2.52 mg/L 99

Lab Sample ID: 180-109847-2 MSD Client Sample ID: ARGWA-12 **Prep Type: Total/NA** 

**Matrix: Water** 

**Analysis Batch: 326917** 

Sample Sample Spike MSD MSD %Rec. **RPD** Result Qualifier Added Result Qualifier Limits **RPD** Analyte Unit %Rec Limit Fluoride 0.041 J 2.50 2.52 99 20 mg/L

Lab Sample ID: MB 180-327077/6 Client Sample ID: Method Blank **Prep Type: Total/NA** 

**Matrix: Water** 

**Analysis Batch: 327077** 

MB MB

Analyte Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac 0.10 0.026 ma/L 08/26/20 05:39 Fluoride < 0.026

Lab Sample ID: LCS 180-327077/5 **Client Sample ID: Lab Control Sample** Prep Type: Total/NA

LCS LCS

**Matrix: Water** 

**Analysis Batch: 327077** 

Spike %Rec. Analyte Added Result Qualifier Unit %Rec Limits Fluoride 2.50 2.55 102 90 - 110 mg/L

Client Sample ID: ARGWC-8 Lab Sample ID: 180-109929-1 MS **Prep Type: Total/NA** 

**Matrix: Water** 

**Analysis Batch: 327077** 

Sample Sample Spike MS MS %Rec. Result Qualifier Added Analyte Result Qualifier Unit D %Rec Limits 0.054 2.50 Fluoride 2.62 mg/L 102 90 - 110

Lab Sample ID: 180-109929-1 MSD Client Sample ID: ARGWC-8 Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 327077** 

Sample Sample Spike MSD MSD %Rec. **RPD** Result Qualifier Added Result Qualifier Limits RPD Limit Analyte Unit D %Rec Fluoride 2.50 0.054 J. 2.48 mg/L 97 90 - 110

Lab Sample ID: 180-109930-2 MS Client Sample ID: ARAMW-3 Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 327077** 

Spike MS MS %Rec. Sample Sample Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Fluoride <0.026 90 - 110 2.50 2.42 mg/L 97

Eurofins TestAmerica, Pittsburgh

**Prep Type: Total/NA** 

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: 180-109930-2 MSD **Matrix: Water** 

**Analysis Batch: 327077** 

Sample Sample Spike MSD MSD %Rec. **RPD** Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Fluoride 2.50 <0.026 2.47 mg/L 99 90 - 110 2

Lab Sample ID: MB 180-327578/6 Client Sample ID: Method Blank **Matrix: Water Prep Type: Total/NA** 

Analysis Batch: 327578

MB MB **MDL** Unit Analyte Result Qualifier RL Prepared Analyzed Dil Fac 0.10 0.026 mg/L 08/28/20 13:11 Fluoride < 0.026

Lab Sample ID: LCS 180-327578/5 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 327578** 

Spike LCS LCS %Rec. Added Result Qualifier Limits **Analyte** Unit %Rec Fluoride 2.50 2.43 97 90 - 110 mg/L

Lab Sample ID: 180-109970-2 MS Client Sample ID: ARGWC-21 **Prep Type: Total/NA** 

**Matrix: Water** 

**Analysis Batch: 327578** 

Spike MS MS %Rec. Sample Sample Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Fluoride 0.084 2.50 2.55 90 - 110 mg/L

Lab Sample ID: 180-109970-2 MSD Client Sample ID: ARGWC-21

**Matrix: Water** 

**Analysis Batch: 327578** 

MSD MSD RPD Sample Sample Spike %Rec. Analyte Result Qualifier Added Limits Result Qualifier Unit %Rec Limit Fluoride 0.084 J 2.50 2.75 mg/L 107 90 - 110 20

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

Lab Sample ID: MB 180-327640/1-A **Client Sample ID: Method Blank** 

**Matrix: Water Prep Type: Total Recoverable** Analysis Batch: 330300 Prep Batch: 327640 MR MR

	1410	IVID							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:02	09/17/20 20:39	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		08/28/20 15:02	09/17/20 20:39	1
Barium	<0.0016		0.010	0.0016	mg/L		08/28/20 15:02	09/17/20 20:39	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:02	09/17/20 20:39	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:02	09/17/20 20:39	1
Chromium	<0.0015		0.0020	0.0015	mg/L		08/28/20 15:02	09/17/20 20:39	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		08/28/20 15:02	09/17/20 20:39	1
Lead	<0.00013		0.0010	0.00013	mg/L		08/28/20 15:02	09/17/20 20:39	1
Lithium	<0.0034		0.0050	0.0034	mg/L		08/28/20 15:02	09/17/20 20:39	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:02	09/17/20 20:39	1
Selenium	<0.0015		0.0050	0.0015	mg/L		08/28/20 15:02	09/17/20 20:39	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:02	09/17/20 20:39	1
					U				1 1

Eurofins TestAmerica, Pittsburgh

Page 52 of 95

Client Sample ID: ARAMW-3

Prep Type: Total/NA

Prep Type: Total/NA

10

Spike

Added

0.250

1.00

1.00

0.500

0.500

0.500

0.500

0.500

0.500

0.500

1.00

1.00

Client: Southern Company Job ID: 180-109846-1 Project/Site: CCR - Plant Arkwright

LCS LCS

0.262

1.05

1.05

0.525

0.525

0.521

0.520

0.526

0.497

0.540

1.01

1.13

mg/L

mg/L

mg/L

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

Lab Sample ID: LCS 180-327640/2-A

Analysis Batch: 330300

**Matrix: Water** 

Analyte

Antimony

Arsenic

Barium

Beryllium

Cadmium

Chromium

Cobalt

Lithium

Molybdenum

Selenium

Thallium

Lead

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

**Prep Batch: 327640** %Rec. Result Qualifier Unit D %Rec Limits mg/L 105 80 - 120 mg/L 105 80 - 120 mg/L 105 80 - 120 105 80 - 120 mg/L mg/L 105 80 - 120 mg/L 104 80 - 120 104 80 - 120 mg/L mg/L 105 80 - 120 mg/L 99 80 - 120

108

101

113

Lab Sample ID: 180-109846-2 MS

**Matrix: Water** 

Analysis Ratch: 330300

**Client Sample ID: ARGWC-15 Prep Type: Total Recoverable** 

80 - 120

80 - 120

80 - 120

**Prep Batch: 327640** 

Alialysis Batch. 330300	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Antimony	<0.00038		0.250	0.262		mg/L		105	75 - 125
Arsenic	<0.00031		1.00	1.06		mg/L		106	75 <sub>-</sub> 125
Barium	0.028		1.00	1.08		mg/L		106	75 <sub>-</sub> 125
Beryllium	<0.00018		0.500	0.523		mg/L		105	75 <sub>-</sub> 125
Cadmium	<0.00022		0.500	0.522		mg/L		104	75 <sub>-</sub> 125
Chromium	<0.0015		0.500	0.523		mg/L		105	75 - 125
Cobalt	0.00040	J	0.500	0.516		mg/L		103	75 - 125
Lead	<0.00013		0.500	0.529		mg/L		106	75 <sub>-</sub> 125
Lithium	< 0.0034		0.500	0.513		mg/L		103	75 <sub>-</sub> 125
Molybdenum	0.0016	J	0.500	0.544		mg/L		109	75 <sub>-</sub> 125
Selenium	<0.0015		1.00	1.01		mg/L		101	75 - 125
Thallium	<0.00015		1.00	1.14		mg/L		114	75 - 125

Lab Sample ID: 180-109846-2 MSD

**Matrix: Water** 

**Analysis Batch: 330300** 

Client Sample ID: ARGWC-15 **Prep Type: Total Recoverable Prep Batch: 327640** 

Analysis Daten. 330300									Lieh Do	alcii. Ja	27040
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.00038		0.250	0.268		mg/L		107	75 - 125	3	20
Arsenic	<0.00031		1.00	1.06		mg/L		106	75 - 125	1	20
Barium	0.028		1.00	1.09		mg/L		106	75 - 125	1	20
Beryllium	<0.00018		0.500	0.510		mg/L		102	75 - 125	3	20
Cadmium	<0.00022		0.500	0.530		mg/L		106	75 - 125	2	20
Chromium	<0.0015		0.500	0.518		mg/L		104	75 - 125	1	20
Cobalt	0.00040	J	0.500	0.522		mg/L		104	75 - 125	1	20
Lead	<0.00013		0.500	0.530		mg/L		106	75 - 125	0	20
Lithium	< 0.0034		0.500	0.496		mg/L		99	75 - 125	3	20
Molybdenum	0.0016	J	0.500	0.547		mg/L		109	75 - 125	0	20
Selenium	<0.0015		1.00	1.01		mg/L		101	75 - 125	0	20
Thallium	<0.00015		1.00	1.14		mg/L		114	75 - 125	1	20
<del>-</del>											

Eurofins TestAmerica, Pittsburgh

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-1

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

MR MR

MB MB Result Qualifier

<0.039

Lab Sample ID: MB 180-327642/1-A

**Matrix: Water** 

**Analysis Batch: 330300** 

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

**Prep Batch: 327642** 

	IVID	IVID							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		08/28/20 15:10	09/17/20 17:35	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		08/28/20 15:10	09/17/20 17:35	1
Barium	< 0.0016		0.010	0.0016	mg/L		08/28/20 15:10	09/17/20 17:35	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		08/28/20 15:10	09/17/20 17:35	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		08/28/20 15:10	09/17/20 17:35	1
Chromium	< 0.0015		0.0020	0.0015	mg/L		08/28/20 15:10	09/17/20 17:35	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		08/28/20 15:10	09/17/20 17:35	1
Lead	< 0.00013		0.0010	0.00013	mg/L		08/28/20 15:10	09/17/20 17:35	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		08/28/20 15:10	09/17/20 17:35	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		08/28/20 15:10	09/17/20 17:35	1
Selenium	< 0.0015		0.0050	0.0015	mg/L		08/28/20 15:10	09/17/20 17:35	1
Thallium	<0.00015		0.0010	0.00015	mg/L		08/28/20 15:10	09/17/20 17:35	1

Lab Sample ID: MB 180-327642/1-A

**Matrix: Water** 

Analyte

Boron

Analysis Batch: 330464

**Client Sample ID: Method Blank Prep Type: Total Recoverable** Prep Batch: 327642

Dil Fac Prepared Analyzed 08/28/20 15:10 09/18/20 12:56

Lab Sample ID: LCS 180-327642/2-A

**Matrix: Water** 

**Analysis Batch: 330300** 

**Client Sample ID: Lab Control Sample Prep Type: Total Recoverable Prep Batch: 327642** 

MDL Unit

0.039 mg/L

•	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Antimony	0.250	0.259		mg/L		103	80 - 120	
Arsenic	1.00	1.07		mg/L		107	80 - 120	
Barium	1.00	1.04		mg/L		104	80 - 120	
Beryllium	0.500	0.523		mg/L		105	80 - 120	
Cadmium	0.500	0.522		mg/L		104	80 - 120	
Chromium	0.500	0.522		mg/L		104	80 - 120	
Cobalt	0.500	0.520		mg/L		104	80 - 120	
Lead	0.500	0.527		mg/L		105	80 - 120	
Lithium	0.500	0.499		mg/L		100	80 - 120	
Molybdenum	0.500	0.545		mg/L		109	80 - 120	
Selenium	1.00	1.01		mg/L		101	80 - 120	
Thallium	1.00	1.13		mg/L		113	80 - 120	

RL

0.080

Lab Sample ID: LCS 180-327642/2-A

**Matrix: Water** 

Analyte

Boron

Analysis Batch: 330464

**Prep Type: Total Recoverable Prep Batch: 327642** LCS LCS Spike %Rec. Added Result Qualifier Unit Limits

1.19

mg/L

Eurofins TestAmerica, Pittsburgh

80 - 120

**Client Sample ID: Lab Control Sample** 

95

Page 54 of 95

1.25

liant: Southorn Company

Client: Southern Company

Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: 180-109850-1 MS Matrix: Water

Analysis Batch: 330300

Client Sample ID: ARGWA-5 Prep Type: Total Recoverable Prep Batch: 327642

Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits Antimony <0.00038 0.250 0.260 mg/L 104 75 - 125 Arsenic <0.00031 1.00 1.08 mg/L 108 75 - 125 Barium 1.00 1.08 0.031 mg/L 105 75 - 125 Beryllium < 0.00018 0.500 0.516 103 75 - 125 mg/L Cadmium < 0.00022 0.500 0.526 mg/L 105 75 - 125 Chromium < 0.0015 0.500 0.533 mg/L 107 75 - 125 0.500 106 Cobalt < 0.00013 0.531 mg/L 75 - 125 Lead 0.00013 0.500 0.535 mg/L 107 75 - 125 75 - 125 Lithium < 0.0034 0.500 0.501 mg/L 100 0.500 Molybdenum < 0.00061 0.558 mg/L 112 75 - 125 Selenium < 0.0015 1.00 1.01 mg/L 101 75 - 125 Thallium 0.00021 J 1.00 1.16 mg/L 116 75 - 125

Lab Sample ID: 180-109850-1 MSD

**Matrix: Water** 

Analysis Batch: 330300

Client Sample ID: ARGWA-5
Prep Type: Total Recoverable

Prep Batch: 327642

Alialysis Dalcii. 330300									Fieb Do	alcii. 34	27042
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.00038		0.250	0.262		mg/L		105	75 - 125	1	20
Arsenic	<0.00031		1.00	1.06		mg/L		106	75 - 125	2	20
Barium	0.031		1.00	1.08		mg/L		105	75 - 125	0	20
Beryllium	<0.00018		0.500	0.511		mg/L		102	75 - 125	1	20
Cadmium	<0.00022		0.500	0.522		mg/L		104	75 - 125	1	20
Chromium	<0.0015		0.500	0.524		mg/L		105	75 - 125	2	20
Cobalt	<0.00013		0.500	0.524		mg/L		105	75 - 125	1	20
Lead	0.00013	J	0.500	0.527		mg/L		105	75 - 125	2	20
Lithium	< 0.0034		0.500	0.495		mg/L		99	75 - 125	1	20
Molybdenum	<0.00061		0.500	0.544		mg/L		109	75 - 125	3	20
Selenium	<0.0015		1.00	1.00		mg/L		100	75 - 125	1	20
Thallium	0.00021	J	1.00	1.11		mg/L		111	75 - 125	4	20

Lab Sample ID: MB 180-328062/1-A

**Matrix: Water** 

**Analysis Batch: 329135** 

Client Sample ID: Method Blank Prep Type: Total Recoverable

**Prep Batch: 328062** 

	MB	MR							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:00	09/10/20 00:30	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		09/01/20 16:00	09/10/20 00:30	1
Barium	<0.0016		0.010	0.0016	mg/L		09/01/20 16:00	09/10/20 00:30	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:00	09/10/20 00:30	1
Boron	<0.039	^	0.080	0.039	mg/L		09/01/20 16:00	09/10/20 00:30	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:00	09/10/20 00:30	1
Calcium	<0.13		0.50	0.13	mg/L		09/01/20 16:00	09/10/20 00:30	1
Chromium	<0.0015		0.0020	0.0015	mg/L		09/01/20 16:00	09/10/20 00:30	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		09/01/20 16:00	09/10/20 00:30	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:00	09/10/20 00:30	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		09/01/20 16:00	09/10/20 00:30	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		09/01/20 16:00	09/10/20 00:30	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:00	09/10/20 00:30	1

MD MD

Eurofins TestAmerica, Pittsburgh

9/24/2020

Page 55 of 95

2

3

4

6

8

10

12

< 0.00015

Job ID: 180-109846-1 Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: MB 180-328062/1-A **Matrix: Water** 

**Analysis Batch: 329135** 

MB MB Result Qualifier **MDL** Unit Prepared Analyzed Dil Fac

0.00015 mg/L

0.0010 Lab Sample ID: MB 180-328062/1-A Client Sample ID: Method Blank

**Matrix: Water** 

Analyte

Thallium

Analysis Batch: 329474

MB MB Result Qualifier RL **MDL** Unit D Prepared Analyzed Dil Fac Analyte Boron <0.039 0.080 0.039 mg/L 09/01/20 16:00 09/11/20 22:27 Chromium <0.0015 0.0020 0.0015 mg/L 09/01/20 16:00 09/11/20 22:27

Lab Sample ID: PB 180-326831/1-E

**Matrix: Water** 

**Analysis Batch: 329135** 

Client Sample ID: Method Blank **Prep Type: Total Recoverable** Prep Batch: 328062

PB PB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Antimony <0.00038 0.0020 0.00038 mg/L 09/01/20 16:00 09/10/20 00:37 0.0010 0.00031 mg/L Arsenic < 0.00031 09/01/20 16:00 09/10/20 00:37 Barium < 0.0016 0.010 0.0016 mg/L 09/01/20 16:00 09/10/20 00:37 Beryllium 0.00018 mg/L 09/01/20 16:00 09/10/20 00:37 <0.00018 0.0025 Cadmium 0.00022 mg/L < 0.00022 0.0025 09/01/20 16:00 09/10/20 00:37 0.0020 Chromium 0.0015 mg/L 09/01/20 16:00 09/10/20 00:37 < 0.0015 Cobalt 0.00013 mg/L 09/01/20 16:00 09/10/20 00:37 < 0.00013 0.0025 Lead < 0.00013 0.0010 0.00013 mg/L 09/01/20 16:00 09/10/20 00:37 0.0050 0.0034 mg/L 09/01/20 16:00 09/10/20 00:37 Lithium < 0.0034 Molybdenum <0.00061 0.015 0.00061 mg/L 09/01/20 16:00 09/10/20 00:37 Selenium <0.0015 0.0050 0.0015 mg/L 09/01/20 16:00 09/10/20 00:37 Thallium 0.000185 J 0.0010 0.00015 mg/L 09/01/20 16:00 09/10/20 00:37

Lab Sample ID: LCS 180-328062/2-A

**Matrix: Water** 

Analysis Batch: 329135

**Client Sample ID: Lab Control Sample Prep Type: Total Recoverable Prep Batch: 328062** 

**Client Sample ID: Method Blank** 

09/01/20 16:00 09/10/20 00:30

Prep Type: Total Recoverable

**Prep Type: Total Recoverable** 

Prep Batch: 328062

Prep Batch: 328062

	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Antimony	0.250	0.249		mg/L		100	80 - 120
Arsenic	1.00	0.945		mg/L		95	80 - 120
Barium	1.00	1.04		mg/L		104	80 - 120
Beryllium	0.500	0.525		mg/L		105	80 - 120
Cadmium	0.500	0.483		mg/L		97	80 - 120
Chromium	0.500	0.478		mg/L		96	80 - 120
Cobalt	0.500	0.477		mg/L		95	80 - 120
Lead	0.500	0.486		mg/L		97	80 - 120
Lithium	0.500	0.484		mg/L		97	80 - 120
Molybdenum	0.500	0.498		mg/L		100	80 - 120
Selenium	1.00	0.986		mg/L		99	80 - 120
Thallium	1.00	0.987		mg/L		99	80 - 120

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: LCS 180-328062/2-A

**Matrix: Water** 

**Prep Type: Total Recoverable** Analysis Batch: 329571 **Prep Batch: 328062** Spike LCS LCS %Rec. Added Analyte Result Qualifier Unit D %Rec Limits 1.25 Boron 80 - 120 1.32 mg/L 105

Lab Sample ID: 180-109930-2 MS

**Matrix: Water** 

Analysis Batch: 329135

**Client Sample ID: ARAMW-3 Prep Type: Total Recoverable Prep Batch: 328062** 

_	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Antimony	<0.00038		0.250	0.255		mg/L		102	75 - 125	
Arsenic	<0.00031		1.00	0.981		mg/L		98	75 - 125	
Barium	0.093		1.00	1.16		mg/L		106	75 - 125	
Beryllium	<0.00018	٨	0.500	0.548	٨	mg/L		110	75 - 125	
Cadmium	<0.00022		0.500	0.492		mg/L		98	75 - 125	
Chromium	< 0.0015		0.500	0.489		mg/L		98	75 - 125	
Cobalt	0.00056	J	0.500	0.486		mg/L		97	75 - 125	
Lead	< 0.00013		0.500	0.495		mg/L		99	75 - 125	
Lithium	< 0.0034		0.500	0.505		mg/L		101	75 - 125	
Molybdenum	0.0029	J	0.500	0.513		mg/L		102	75 - 125	
Selenium	< 0.0015		1.00	0.983		mg/L		98	75 - 125	
Thallium	<0.00015		1.00	1.00		mg/L		100	75 - 125	

Lab Sample ID: 180-109930-2 MSD

**Matrix: Water** 

Analysis Batch: 329135

**Client Sample ID: ARAMW-3 Prep Type: Total Recoverable** Prep Batch: 328062

/ maryolo Batom 020100									op De	ato 01	
_	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Antimony	<0.00038		0.250	0.251		mg/L		101	75 - 125	2	20
Arsenic	< 0.00031		1.00	0.983		mg/L		98	75 - 125	0	20
Barium	0.093		1.00	1.14		mg/L		105	75 - 125	1	20
Beryllium	<0.00018	^	0.500	0.543	٨	mg/L		109	75 - 125	1	20
Cadmium	<0.00022		0.500	0.486		mg/L		97	75 - 125	1	20
Chromium	<0.0015		0.500	0.485		mg/L		97	75 - 125	1	20
Cobalt	0.00056	J	0.500	0.483		mg/L		97	75 - 125	1	20
Lead	<0.00013		0.500	0.491		mg/L		98	75 - 125	1	20
Lithium	< 0.0034		0.500	0.496		mg/L		99	75 - 125	2	20
Molybdenum	0.0029	J	0.500	0.505		mg/L		100	75 - 125	2	20
Selenium	<0.0015		1.00	0.985		mg/L		98	75 - 125	0	20
Thallium	<0.00015		1.00	0.998		mg/L		100	75 - 125	0	20

Lab Sample ID: MB 180-328065/1-A

**Matrix: Water** 

**Analysis Batch: 328773** 

Client Sample ID: Method Blank **Prep Type: Total Recoverable Prep Batch: 328065** 

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		09/01/20 16:08	09/04/20 21:35	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		09/01/20 16:08	09/04/20 21:35	1
Barium	< 0.0016		0.010	0.0016	mg/L		09/01/20 16:08	09/04/20 21:35	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		09/01/20 16:08	09/04/20 21:35	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		09/01/20 16:08	09/04/20 21:35	1
Chromium	< 0.0015		0.0020	0.0015	mg/L		09/01/20 16:08	09/04/20 21:35	1

Eurofins TestAmerica, Pittsburgh

9/24/2020

Page 57 of 95

Job ID: 180-109846-1

**Client Sample ID: Lab Control Sample** 

Job ID: 180-109846-1 Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: MB 180-328065/1-A

**Matrix: Water** 

**Analysis Batch: 328773** 

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

**Prep Batch: 328065** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.00013		0.0025	0.00013	mg/L		09/01/20 16:08	09/04/20 21:35	1
Lead	<0.00013		0.0010	0.00013	mg/L		09/01/20 16:08	09/04/20 21:35	1
Lithium	<0.0034		0.0050	0.0034	mg/L		09/01/20 16:08	09/04/20 21:35	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		09/01/20 16:08	09/04/20 21:35	1
Selenium	<0.0015		0.0050	0.0015	mg/L		09/01/20 16:08	09/04/20 21:35	1
Thallium	<0.00015		0.0010	0.00015	mg/L		09/01/20 16:08	09/04/20 21:35	1

MB MB

Lab Sample ID: LCS 180-328065/2-A

**Matrix: Water** 

**Analysis Batch: 328773** 

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

**Prep Batch: 328065** 

								•
•	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Antimony	0.250	0.261		mg/L		105	80 - 120	_
Arsenic	1.00	1.04		mg/L		104	80 - 120	
Barium	1.00	1.08		mg/L		108	80 - 120	
Beryllium	0.500	0.479		mg/L		96	80 - 120	
Cadmium	0.500	0.514		mg/L		103	80 - 120	
Chromium	0.500	0.498		mg/L		100	80 - 120	
Cobalt	0.500	0.510		mg/L		102	80 - 120	
Lead	0.500	0.510		mg/L		102	80 - 120	
Lithium	0.500	0.483		mg/L		97	80 - 120	
Molybdenum	0.500	0.522		mg/L		104	80 - 120	
Selenium	1.00	0.995		mg/L		100	80 - 120	
Thallium	1.00	1.03		mg/L		103	80 - 120	
_								

Lab Sample ID: LCS 180-326831/2-E

**Matrix: Water** 

**Analysis Batch: 329135** 

**Client Sample ID: Lab Control Sample** 

**Prep Type: Dissolved** Prep Batch: 328062

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Antimony 0.250 0.255 mg/L 102 80 - 120 Arsenic 1.00 0.960 mg/L 96 80 - 120 Barium 1.00 1.05 mg/L 105 80 - 120 Beryllium 0.500 0.518 mg/L 104 80 - 120 Boron 1.25 1.08 ^ mg/L 87 80 - 120 0.500 0.482 Cadmium mg/L 96 80 - 120 Calcium 25.0 26.6 mg/L 107 80 - 120 Chromium 0.500 0.492 mg/L 98 80 - 120 Cobalt 0.500 0.477 mg/L 95 80 - 120 Lead 0.500 0.491 mg/L 98 80 - 120 Lithium 0.500 0.480 mg/L 96 80 - 120 Molybdenum 0.500 0.494 mg/L 99 80 - 120 Selenium 1.00 0.977 mg/L 98 80 - 120 Thallium 1.00 0.980 mg/L 98 80 - 120

10

Job ID: 180-109846-1

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Prep Type: Total/NA

**Prep Batch: 328121** 

Prep Type: Total/NA **Prep Batch: 328121** 

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

Lab Sample ID: MB 180-328121/1-A

**Matrix: Water** 

Mercury

Analyte

Mercury

Analyte

Mercury

Analysis Batch: 328261

MB MB

Analyte

Result Qualifier

<0.00013 ^

RL 0.00020

**MDL** Unit 0.00013 mg/L

09/02/20 05:45 09/02/20 15:07

Prepared

Analyzed

Dil Fac

**Client Sample ID: Lab Control Sample** 

**Matrix: Water** 

**Analysis Batch: 328261** 

Lab Sample ID: LCS 180-328121/2-A

Added 0.00250 0.00297 ^

LCS LCS Result Qualifier

Unit mg/L

D %Rec 119

80 - 120

%Rec. Limits

Client Sample ID: Method Blank

Lab Sample ID: 180-109846-1 MS Client Sample ID: ARGWA-14

**Matrix: Water** 

**Analysis Batch: 328261** 

Sample Sample Result Qualifier <0.00013 ^

Sample Sample

< 0.00013

Result Qualifier

MR MR

MB MB Result Qualifier

Result Qualifier

Spike Added 0.00100

Spike

Added

0.00100

Spike

Added

0.00250

Spike

MS MS Result Qualifier 0.00118 ^

MSD MSD

0.00120 ^

RL

RL

0.00020

0.00020

Result Qualifier

**MDL** Unit

0.00013 mg/L

LCS LCS

0.00253

Result Qualifier

Unit mg/L

Unit

mg/L

Unit

mg/L

%Rec

%Rec

Prepared

101

**Prepared** 

D %Rec

120

**Prep Batch: 328121** %Rec.

**Prep Type: Total/NA** 

**Prep Batch: 328121** 

**RPD** 

Prep Type: Total/NA

Limits

%Rec.

Limits

75 - 125

75 - 125

Client Sample ID: ARGWA-14

Lab Sample ID: 180-109846-1 MSD

**Matrix: Water** 

**Matrix: Water** 

**Matrix: Water** 

**Analysis Batch: 328261** 

Analyte <0.00013 ^ Mercury

Lab Sample ID: MB 180-328515/1-A

Analysis Batch: 328649

Analyte

Lab Sample ID: LCS 180-328515/2-A

**Analysis Batch: 328649** 

Analyte Mercury

Analyte

Mercury

Lab Sample ID: MB 180-328516/1-A **Matrix: Water** 

**Analysis Batch: 328649** 

Mercury < 0.00013 Lab Sample ID: LCS 180-328516/2-A

**Matrix: Water Analysis Batch: 328649** 

Analyte Mercury

Spike Added 0.00250

LCS LCS Result Qualifier 0.00255

**MDL** Unit

0.00013 mg/L

Unit mg/L

%Rec 102

Limits 80 - 120

%Rec.

09/04/20 08:35 09/05/20 09:51

**Client Sample ID: Lab Control Sample** 

Eurofins TestAmerica, Pittsburgh

Prep Type: Total/NA

**Prep Batch: 328516** 

9/24/2020

Limit

**RPD** 

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

Prep Batch: 328515

Analyzed Dil Fac 09/04/20 08:35 09/05/20 09:24

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA **Prep Batch: 328515** 

%Rec.

Limits

80 - 120

Client Sample ID: Method Blank

Prep Type: Total/NA **Prep Batch: 328516** 

Dil Fac

Analyzed

Client: Southern Company Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-328636/1-A

Analysis Batch: 328684

MB MB

Result Qualifier RL **MDL** Unit Analyzed Dil Fac Analyte **Prepared** 0.00020 09/05/20 06:15 09/07/20 08:30 Mercury <0.00013 0.00013 mg/L

RL

RL

10

RL

10

Spike

Added

567

0.00020

LCS LCS

0.00263

Result Qualifier

**MDL** Unit

**MDL** Unit

LCS LCS

602

Result Qualifier

10 mg/L

Unit

mg/L

Unit

mg/L

0.00013 mg/L

Unit

mg/L

Spike

Added

0.00250

Lab Sample ID: LCS 180-328636/2-A

**Matrix: Water** 

**Matrix: Water** 

**Analysis Batch: 328684** 

Analyte Mercury

Lab Sample ID: PB 180-326831/1-F

**Matrix: Water** 

**Analysis Batch: 328649** 

PB PB

Result Qualifier

<del><</del>10

<10

Result Qualifier

Analyte Mercury <0.00013

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

Lab Sample ID: MB 180-326608/2

**Matrix: Water** 

**Analysis Batch: 326608** 

MB MB

Analyte

**Total Dissolved Solids** 

Lab Sample ID: LCS 180-326608/1

**Matrix: Water** 

**Analysis Batch: 326608** 

Analyte

Total Dissolved Solids

Lab Sample ID: MB 180-326682/2 **Matrix: Water** 

**Analysis Batch: 326682** 

MB MB

Analyte Result Qualifier

**Total Dissolved Solids** 

Lab Sample ID: LCS 180-326682/1 **Matrix: Water** 

**Analysis Batch: 326682** 

Total Dissolved Solids

567

Spike

Added

562

LCS LCS

Result Qualifier

**MDL** Unit

10 mg/L

%Rec 99 Limits 80 - 120

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

Prep Batch: 328636

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

**Prep Batch: 328636** 

%Rec. Limits

80 - 120

**Client Sample ID: Method Blank** 

**Prep Type: Dissolved** 

**Prep Batch: 328516** 

Dil Fac Prepared Analyzed

09/04/20 08:35 09/05/20 10:02

Client Sample ID: Method Blank

Prep Type: Total/NA

Prepared

106

Prepared

D %Rec

105

Analyzed Dil Fac 08/21/20 11:11

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

%Rec.

Limits 80 - 120

Client Sample ID: Method Blank

Dil Fac

Prep Type: Total/NA

Analyzed

08/22/20 08:11

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Client: Southern Company

Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

HPLC/IC

**Analysis Batch: 326478** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109846-2	ARGWC-15	Total/NA	Water	EPA 300.0 R2.1	
MB 180-326478/18	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-326478/17	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-109846-2 MS	ARGWC-15	Total/NA	Water	EPA 300.0 R2.1	
180-109846-2 MSD	ARGWC-15	Total/NA	Water	EPA 300.0 R2.1	

**Analysis Batch: 326777** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-1	FB#2	Total/NA	Water	EPA 300.0 R2.1	
180-109918-2	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
180-109918-3	DUP-2	Total/NA	Water	EPA 300.0 R2.1	
180-109918-5	ARAMW-2	Total/NA	Water	EPA 300.0 R2.1	
MB 180-326777/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-326777/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

**Analysis Batch: 326785** 

<b>Lab Sample ID</b> 180-109846-1	Client Sample ID  ARGWA-14	Prep Type Total/NA	Matrix Water	Method Prep Batch EPA 300.0 R2.1
180-109846-3	ARGWC-16	Total/NA	Water	EPA 300.0 R2.1
180-109918-4	ARAMW-1	Total/NA	Water	EPA 300.0 R2.1
MB 180-326785/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1
LCS 180-326785/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1

**Analysis Batch: 326890** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109847-3	ARGWA-13	Total/NA	Water	EPA 300.0 R2.1	
180-109847-4	ARGWC-17	Total/NA	Water	EPA 300.0 R2.1	
180-109848-1	ARGWC-10	Total/NA	Water	EPA 300.0 R2.1	
180-109848-2	DUP-1	Total/NA	Water	EPA 300.0 R2.1	
180-109848-3	ARGWC-9	Total/NA	Water	EPA 300.0 R2.1	
180-109850-1	ARGWA-5	Total/NA	Water	EPA 300.0 R2.1	
180-109850-2	ARGWA-3	Total/NA	Water	EPA 300.0 R2.1	
180-109850-3	ARGWC-7	Total/NA	Water	EPA 300.0 R2.1	
180-109851-1	EB#2	Total/NA	Water	EPA 300.0 R2.1	
180-109851-2	ARGWA-19	Total/NA	Water	EPA 300.0 R2.1	
180-109851-3	ARGWA-20	Total/NA	Water	EPA 300.0 R2.1	
180-109851-4	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-109851-4	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
MB 180-326890/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-326890/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-109847-4 MS	ARGWC-17	Total/NA	Water	EPA 300.0 R2.1	
180-109847-4 MSD	ARGWC-17	Total/NA	Water	EPA 300.0 R2.1	
180-109848-1 MS	ARGWC-10	Total/NA	Water	EPA 300.0 R2.1	
180-109848-1 MSD	ARGWC-10	Total/NA	Water	EPA 300.0 R2.1	

**Analysis Batch: 326917** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method F	rep Batch
180-109847-1	FB#1	Total/NA	Water	EPA 300.0 R2.1	
180-109847-2	ARGWA-12	Total/NA	Water	EPA 300.0 R2.1	
MB 180-326917/18	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-326917/17	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

Eurofins TestAmerica, Pittsburgh

Page 61 of 95

2

3

4

<u>ی</u>

7

10

11

Ľ

# **QC Association Summary**

Client: Southern Company

Job ID: 180-109846-1 Project/Site: CCR - Plant Arkwright

# **HPLC/IC (Continued)**

#### **Analysis Batch: 326917 (Continued)**

١	Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
	180-109847-2 MS	ARGWA-12	Total/NA	Water	EPA 300.0 R2.1	
	180-109847-2 MSD	ARGWA-12	Total/NA	Water	EPA 300.0 R2.1	

#### **Analysis Batch: 327077**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109929-1	ARGWC-8	Total/NA	Water	EPA 300.0 R2.1	
180-109929-2	ARGWC-18	Total/NA	Water	EPA 300.0 R2.1	
180-109930-1	EB#1	Total/NA	Water	EPA 300.0 R2.1	
180-109930-2	ARAMW-3	Total/NA	Water	EPA 300.0 R2.1	
180-109930-3	ARAMW-4	Total/NA	Water	EPA 300.0 R2.1	
MB 180-327077/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-327077/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-109929-1 MS	ARGWC-8	Total/NA	Water	EPA 300.0 R2.1	
180-109929-1 MSD	ARGWC-8	Total/NA	Water	EPA 300.0 R2.1	
180-109930-2 MS	ARAMW-3	Total/NA	Water	EPA 300.0 R2.1	
180-109930-2 MSD	ARAMW-3	Total/NA	Water	EPA 300.0 R2.1	

#### **Analysis Batch: 327578**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109970-1	ARAMW-6	Total/NA	Water	EPA 300.0 R2.1	
180-109970-2	ARGWC-21	Total/NA	Water	EPA 300.0 R2.1	
MB 180-327578/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-327578/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-109970-2 MS	ARGWC-21	Total/NA	Water	EPA 300.0 R2.1	
180-109970-2 MSD	ARGWC-21	Total/NA	Water	EPA 300.0 R2.1	

#### Metals

#### Filtration Batch: 326831

Lab Sample ID 180-109929-2	Client Sample ID  ARGWC-18	Prep Type Dissolved	Matrix Water	Method Prep Batch Filtration
PB 180-326831/1-E	Method Blank	Total Recoverable	Water	Filtration
PB 180-326831/1-F	Method Blank	Dissolved	Water	Filtration
LCS 180-326831/2-E	Lab Control Sample	Dissolved	Water	Filtration

#### **Prep Batch: 327640**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109846-1	ARGWA-14	Total Recoverable	Water	3005A	
180-109846-2	ARGWC-15	Total Recoverable	Water	3005A	
180-109846-3	ARGWC-16	Total Recoverable	Water	3005A	
180-109847-1	FB#1	Total Recoverable	Water	3005A	
180-109847-2	ARGWA-12	Total Recoverable	Water	3005A	
180-109847-3	ARGWA-13	Total Recoverable	Water	3005A	
180-109847-4	ARGWC-17	Total Recoverable	Water	3005A	
180-109848-1	ARGWC-10	Total Recoverable	Water	3005A	
180-109848-2	DUP-1	Total Recoverable	Water	3005A	
180-109848-3	ARGWC-9	Total Recoverable	Water	3005A	
MB 180-327640/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-327640/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-109846-2 MS	ARGWC-15	Total Recoverable	Water	3005A	
180-109846-2 MSD	ARGWC-15	Total Recoverable	Water	3005A	

Eurofins TestAmerica, Pittsburgh

9/24/2020

Page 62 of 95

# **QC Association Summary**

Client: Southern Company Project/Site: CCR - Plant Arkwright Job ID: 180-109846-1

#### **Metals**

**Prep Batch: 327642** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109850-1	ARGWA-5	Total Recoverable	Water	3005A	
180-109850-2	ARGWA-3	Total Recoverable	Water	3005A	
180-109850-3	ARGWC-7	Total Recoverable	Water	3005A	
180-109851-1	EB#2	Total Recoverable	Water	3005A	
180-109851-2	ARGWA-19	Total Recoverable	Water	3005A	
180-109851-3	ARGWA-20	Total Recoverable	Water	3005A	
180-109851-4	ARGWC-22	Total Recoverable	Water	3005A	
MB 180-327642/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-327642/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-109850-1 MS	ARGWA-5	Total Recoverable	Water	3005A	
180-109850-1 MSD	ARGWA-5	Total Recoverable	Water	3005A	

#### **Prep Batch: 328062**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-1	FB#2	Total Recoverable	Water	3005A	
180-109918-2	ARGWC-23	Total Recoverable	Water	3005A	
180-109918-3	DUP-2	Total Recoverable	Water	3005A	
180-109918-4	ARAMW-1	Total Recoverable	Water	3005A	
180-109918-5	ARAMW-2	Total Recoverable	Water	3005A	
180-109929-1	ARGWC-8	Total Recoverable	Water	3005A	
180-109929-2	ARGWC-18	Dissolved	Water	3005A	326831
180-109929-2	ARGWC-18	Total Recoverable	Water	3005A	
180-109930-1	EB#1	Total Recoverable	Water	3005A	
180-109930-2	ARAMW-3	Total Recoverable	Water	3005A	
180-109930-3	ARAMW-4	Total Recoverable	Water	3005A	
MB 180-328062/1-A	Method Blank	Total Recoverable	Water	3005A	
PB 180-326831/1-E	Method Blank	Total Recoverable	Water	3005A	326831
LCS 180-326831/2-E	Lab Control Sample	Dissolved	Water	3005A	326831
LCS 180-328062/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-109930-2 MS	ARAMW-3	Total Recoverable	Water	3005A	
180-109930-2 MSD	ARAMW-3	Total Recoverable	Water	3005A	

#### **Prep Batch: 328065**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109970-1	ARAMW-6	Total Recoverable	Water	3005A	
180-109970-2	ARGWC-21	Total Recoverable	Water	3005A	
MB 180-328065/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-328065/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

#### **Prep Batch: 328121**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109846-1	ARGWA-14	Total/NA	Water	7470A	
180-109846-2	ARGWC-15	Total/NA	Water	7470A	
180-109846-3	ARGWC-16	Total/NA	Water	7470A	
180-109847-1	FB#1	Total/NA	Water	7470A	
180-109847-2	ARGWA-12	Total/NA	Water	7470A	
180-109847-3	ARGWA-13	Total/NA	Water	7470A	
180-109847-4	ARGWC-17	Total/NA	Water	7470A	
180-109848-1	ARGWC-10	Total/NA	Water	7470A	
180-109848-2	DUP-1	Total/NA	Water	7470A	
180-109848-3	ARGWC-9	Total/NA	Water	7470A	

Eurofins TestAmerica, Pittsburgh

9/24/2020

Page 63 of 95

Client: Southern Company

Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

**Metals (Continued)** 

#### Prep Batch: 328121 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109850-1	ARGWA-5	Total/NA	Water	7470A	
180-109850-2	ARGWA-3	Total/NA	Water	7470A	
180-109850-3	ARGWC-7	Total/NA	Water	7470A	
180-109851-1	EB#2	Total/NA	Water	7470A	
180-109851-2	ARGWA-19	Total/NA	Water	7470A	
180-109851-3	ARGWA-20	Total/NA	Water	7470A	
180-109851-4	ARGWC-22	Total/NA	Water	7470A	
MB 180-328121/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-328121/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-109846-1 MS	ARGWA-14	Total/NA	Water	7470A	
180-109846-1 MSD	ARGWA-14	Total/NA	Water	7470A	

#### **Analysis Batch: 328261**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109846-1	ARGWA-14	Total/NA	Water	EPA 7470A	328121
180-109846-2	ARGWC-15	Total/NA	Water	EPA 7470A	328121
180-109846-3	ARGWC-16	Total/NA	Water	EPA 7470A	328121
180-109847-1	FB#1	Total/NA	Water	EPA 7470A	328121
180-109847-2	ARGWA-12	Total/NA	Water	EPA 7470A	328121
180-109847-3	ARGWA-13	Total/NA	Water	EPA 7470A	328121
180-109847-4	ARGWC-17	Total/NA	Water	EPA 7470A	328121
180-109848-1	ARGWC-10	Total/NA	Water	EPA 7470A	328121
180-109848-2	DUP-1	Total/NA	Water	EPA 7470A	328121
180-109848-3	ARGWC-9	Total/NA	Water	EPA 7470A	328121
180-109850-1	ARGWA-5	Total/NA	Water	EPA 7470A	328121
180-109850-2	ARGWA-3	Total/NA	Water	EPA 7470A	328121
180-109850-3	ARGWC-7	Total/NA	Water	EPA 7470A	328121
180-109851-1	EB#2	Total/NA	Water	EPA 7470A	328121
180-109851-2	ARGWA-19	Total/NA	Water	EPA 7470A	328121
180-109851-3	ARGWA-20	Total/NA	Water	EPA 7470A	328121
180-109851-4	ARGWC-22	Total/NA	Water	EPA 7470A	328121
MB 180-328121/1-A	Method Blank	Total/NA	Water	EPA 7470A	328121
LCS 180-328121/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	328121
180-109846-1 MS	ARGWA-14	Total/NA	Water	EPA 7470A	328121
180-109846-1 MSD	ARGWA-14	Total/NA	Water	EPA 7470A	328121

#### **Prep Batch: 328515**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109930-3	ARAMW-4	Total/NA	Water	7470A	
MB 180-328515/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-328515/2-A	Lab Control Sample	Total/NA	Water	7470A	

#### **Prep Batch: 328516**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-1	FB#2	Total/NA	Water	7470A	
180-109918-2	ARGWC-23	Total/NA	Water	7470A	
180-109918-3	DUP-2	Total/NA	Water	7470A	
180-109918-4	ARAMW-1	Total/NA	Water	7470A	
180-109918-5	ARAMW-2	Total/NA	Water	7470A	
180-109929-1	ARGWC-8	Total/NA	Water	7470A	
180-109929-2	ARGWC-18	Dissolved	Water	7470A	326831

Eurofins TestAmerica, Pittsburgh

Page 64 of 95 9/24/2020

5

7

10

11

12

# **QC Association Summary**

Client: Southern Company

Job ID: 180-109846-1 Project/Site: CCR - Plant Arkwright

#### **Metals (Continued)**

#### Prep Batch: 328516 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109929-2	ARGWC-18	Total/NA	Water	7470A	
180-109930-1	EB#1	Total/NA	Water	7470A	
180-109930-2	ARAMW-3	Total/NA	Water	7470A	
MB 180-328516/1-A	Method Blank	Total/NA	Water	7470A	
PB 180-326831/1-F	Method Blank	Dissolved	Water	7470A	326831
LCS 180-328516/2-A	Lab Control Sample	Total/NA	Water	7470A	

#### **Prep Batch: 328636**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109970-1	ARAMW-6	Total/NA	Water	7470A	
180-109970-2	ARGWC-21	Total/NA	Water	7470A	
MB 180-328636/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-328636/2-A	Lab Control Sample	Total/NA	Water	7470A	

#### **Analysis Batch: 328649**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-1	FB#2	Total/NA	Water	EPA 7470A	328516
180-109918-2	ARGWC-23	Total/NA	Water	EPA 7470A	328516
180-109918-3	DUP-2	Total/NA	Water	EPA 7470A	328516
180-109918-4	ARAMW-1	Total/NA	Water	EPA 7470A	328516
180-109918-5	ARAMW-2	Total/NA	Water	EPA 7470A	328516
180-109929-1	ARGWC-8	Total/NA	Water	EPA 7470A	328516
180-109929-2	ARGWC-18	Dissolved	Water	EPA 7470A	328516
180-109929-2	ARGWC-18	Total/NA	Water	EPA 7470A	328516
180-109930-1	EB#1	Total/NA	Water	EPA 7470A	328516
180-109930-2	ARAMW-3	Total/NA	Water	EPA 7470A	328516
180-109930-3	ARAMW-4	Total/NA	Water	EPA 7470A	328515
MB 180-328515/1-A	Method Blank	Total/NA	Water	EPA 7470A	328515
MB 180-328516/1-A	Method Blank	Total/NA	Water	EPA 7470A	328516
PB 180-326831/1-F	Method Blank	Dissolved	Water	EPA 7470A	328516
LCS 180-328515/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	328515
LCS 180-328516/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	328516

#### Analysis Batch: 328684

Lab Sample ID 180-109970-1	Client Sample ID  ARAMW-6	Prep Type Total/NA	Matrix Water	Method EPA 7470A	Prep Batch 328636
180-109970-1	ARGWC-21	Total/NA	Water	EPA 7470A EPA 7470A	328636
MB 180-328636/1-A	Method Blank	Total/NA	Water	EPA 7470A	328636
LCS 180-328636/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	328636

#### **Analysis Batch: 328773**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method F	Prep Batch
180-109970-1	ARAMW-6	Total Recoverable	Water	EPA 6020B	328065
180-109970-2	ARGWC-21	Total Recoverable	Water	EPA 6020B	328065
MB 180-328065/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	328065
LCS 180-328065/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	328065

#### **Analysis Batch: 329135**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-1	FB#2	Total Recoverable	Water	EPA 6020B	328062
180-109918-2	ARGWC-23	Total Recoverable	Water	EPA 6020B	328062

Eurofins TestAmerica, Pittsburgh

Client: Southern Company

Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

# **Metals (Continued)**

#### **Analysis Batch: 329135 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-3	DUP-2	Total Recoverable	Water	EPA 6020B	328062
180-109918-4	ARAMW-1	Total Recoverable	Water	EPA 6020B	328062
180-109918-5	ARAMW-2	Total Recoverable	Water	EPA 6020B	328062
180-109929-1	ARGWC-8	Total Recoverable	Water	EPA 6020B	328062
180-109929-2	ARGWC-18	Dissolved	Water	EPA 6020B	328062
180-109929-2	ARGWC-18	Total Recoverable	Water	EPA 6020B	328062
180-109930-1	EB#1	Total Recoverable	Water	EPA 6020B	328062
180-109930-2	ARAMW-3	Total Recoverable	Water	EPA 6020B	328062
180-109930-3	ARAMW-4	Total Recoverable	Water	EPA 6020B	328062
MB 180-328062/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	328062
PB 180-326831/1-E	Method Blank	Total Recoverable	Water	EPA 6020B	328062
LCS 180-326831/2-E	Lab Control Sample	Dissolved	Water	EPA 6020B	328062
LCS 180-328062/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	328062
180-109930-2 MS	ARAMW-3	Total Recoverable	Water	EPA 6020B	328062
180-109930-2 MSD	ARAMW-3	Total Recoverable	Water	EPA 6020B	328062

#### **Analysis Batch: 329474**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-2	ARGWC-23	Total Recoverable	Water	EPA 6020B	328062
MB 180-328062/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	328062

#### **Analysis Batch: 329571**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-328062/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	328062

#### Analysis Batch: 330300

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109846-1	ARGWA-14	Total Recoverable	Water	EPA 6020B	327640
180-109846-2	ARGWC-15	Total Recoverable	Water	EPA 6020B	327640
180-109846-3	ARGWC-16	Total Recoverable	Water	EPA 6020B	327640
180-109847-1	FB#1	Total Recoverable	Water	EPA 6020B	327640
180-109847-2	ARGWA-12	Total Recoverable	Water	EPA 6020B	327640
180-109847-3	ARGWA-13	Total Recoverable	Water	EPA 6020B	327640
180-109847-4	ARGWC-17	Total Recoverable	Water	EPA 6020B	327640
180-109848-1	ARGWC-10	Total Recoverable	Water	EPA 6020B	327640
180-109848-2	DUP-1	Total Recoverable	Water	EPA 6020B	327640
180-109848-3	ARGWC-9	Total Recoverable	Water	EPA 6020B	327640
180-109850-1	ARGWA-5	Total Recoverable	Water	EPA 6020B	327642
180-109850-2	ARGWA-3	Total Recoverable	Water	EPA 6020B	327642
180-109850-3	ARGWC-7	Total Recoverable	Water	EPA 6020B	327642
180-109851-1	EB#2	Total Recoverable	Water	EPA 6020B	327642
180-109851-2	ARGWA-19	Total Recoverable	Water	EPA 6020B	327642
180-109851-3	ARGWA-20	Total Recoverable	Water	EPA 6020B	327642
180-109851-4	ARGWC-22	Total Recoverable	Water	EPA 6020B	327642
MB 180-327640/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	327640
MB 180-327642/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	327642
LCS 180-327640/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	327640
LCS 180-327642/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	327642
180-109846-2 MS	ARGWC-15	Total Recoverable	Water	EPA 6020B	327640
180-109846-2 MSD	ARGWC-15	Total Recoverable	Water	EPA 6020B	327640
180-109850-1 MS	ARGWA-5	Total Recoverable	Water	EPA 6020B	327642

Eurofins TestAmerica, Pittsburgh

9/24/2020

Page 66 of 95

2

3

5

7

9

10

12

# **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-1

#### **Metals (Continued)**

#### **Analysis Batch: 330300 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109850-1 MSD	ARGWA-5	Total Recoverable	Water	EPA 6020B	327642

#### Analysis Batch: 330464

Lab Sample ID 180-109851-4	Client Sample ID ARGWC-22	Prep Type Total Recoverable	Matrix Water	Method EPA 6020B	Prep Batch 327642
MB 180-327642/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	327642
LCS 180-327642/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	327642

#### **Analysis Batch: 330720**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-3	DUP-2	Total Recoverable	Water	EPA 6020B	328062

#### **General Chemistry**

#### **Analysis Batch: 326608**

Lab Sample ID 180-109851-1	Client Sample ID EB#2	Prep Type Total/NA	Matrix Water	Method SM 2540C	Prep Batch
180-109851-4	ARGWC-22	Total/NA	Water	SM 2540C	
MB 180-326608/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-326608/1	Lab Control Sample	Total/NA	Water	SM 2540C	

#### Analysis Batch: 326682

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-1	FB#2	Total/NA	Water	SM 2540C	
180-109918-2	ARGWC-23	Total/NA	Water	SM 2540C	
180-109918-3	DUP-2	Total/NA	Water	SM 2540C	
MB 180-326682/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-326682/1	Lab Control Sample	Total/NA	Water	SM 2540C	

#### Field Service / Mobile Lab

#### **Analysis Batch: 326626**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109846-1	ARGWA-14	Total/NA	Water	Field Sampling	
180-109846-2	ARGWC-15	Total/NA	Water	Field Sampling	
180-109846-3	ARGWC-16	Total/NA	Water	Field Sampling	
180-109847-2	ARGWA-12	Total/NA	Water	Field Sampling	
180-109847-3	ARGWA-13	Total/NA	Water	Field Sampling	
180-109847-4	ARGWC-17	Total/NA	Water	Field Sampling	
180-109848-1	ARGWC-10	Total/NA	Water	Field Sampling	
180-109848-2	DUP-1	Total/NA	Water	Field Sampling	
180-109848-3	ARGWC-9	Total/NA	Water	Field Sampling	
180-109850-1	ARGWA-5	Total/NA	Water	Field Sampling	
180-109850-2	ARGWA-3	Total/NA	Water	Field Sampling	
180-109850-3	ARGWC-7	Total/NA	Water	Field Sampling	
180-109851-2	ARGWA-19	Total/NA	Water	Field Sampling	
180-109851-3	ARGWA-20	Total/NA	Water	Field Sampling	
180-109851-4	ARGWC-22	Total/NA	Water	Field Sampling	

#### **Analysis Batch: 327279**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-2	ARGWC-23	Total/NA	Water	Field Sampling	

Eurofins TestAmerica, Pittsburgh

Page 67 of 95 9/24/2020

2

1

5

6

2

9

11

12

TS

# **QC Association Summary**

Client: Southern Company

Job ID: 180-109846-1

Project/Site: CCR - Plant Arkwright

# Field Service / Mobile Lab (Continued)

#### **Analysis Batch: 327279 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-3	DUP-2	Total/NA	Water	Field Sampling	
180-109918-4	ARAMW-1	Total/NA	Water	Field Sampling	
180-109918-5	ARAMW-2	Total/NA	Water	Field Sampling	
180-109929-1	ARGWC-8	Total/NA	Water	Field Sampling	
180-109929-2	ARGWC-18	Total/NA	Water	Field Sampling	
180-109930-2	ARAMW-3	Total/NA	Water	Field Sampling	
180-109930-3	ARAMW-4	Total/NA	Water	Field Sampling	
180-109970-1	ARAMW-6	Total/NA	Water	Field Sampling	
180-109970-2	ARGWC-21	Total/NA	Water	Field Sampling	

4

6

9

10

oder Temparature(s) "C and Other Remarks

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

P - Na204S O Na2503 S - Na2503 S - H2504 T - TSP DodecalyJris V - MC-A V - MC-A Z - Other (specify) Special Instructions/Note: 244- ATLANTA Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client 

Disposal By Lab 
Month =6,62 1 = 6,47 - Amchlor - Ascorbic Acid 180-109846 Chain of Custody Total Number of containers Analysis Requested Special Instructions/OC Requirements ceived by (935) (315) (325) (326) DHEWEZZA, EG L. 11 Ro, A Shared to Brown, Shall Frome eld Filtered Sample (Yes or No.) Type (Waynear, Seattle (C=comp, O=wasteroll, G=grab) BT-ctrosue A-GC) Preservation Code: Company Sompany Сотралу 3 3 Radiological Sample 00 8/19/20/1815 1205 1005 Saniple 8/19/20 1355 Unknown TAT Requested (days): Due Date Requested: Sample Date Project # 18020201 SSO-W# Poison B Skin Irritant Detiverable Requested 1, II, III, IV, Other (specify) Pittsburgh, PA 15238 Phone (412) 963-7058 Fax (412) 963-2468 ARGWC-15 ARGWC-16 ARGWA-IH Possible Hazard Identification

Non-Hazard Cammable Empty Kit Relinquished by Daniel K House ddress 241 Raiph McGill Blvd SE Client Information Sample Identification CR - Plant Arkwright (04-508-7116(Tel) Hent Contact ICS Contacts SCS Contacts quistied by State, Zip GA, 30308 GA Power Atlanta

Custody Seal No.

Custody Seals Intact. A Yes A No

# Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

Phone (412) 963-7058 Fax (412) 963-2468

244- ATLANTA

0 - AsNaO2 P - Na2O4S G - Na2S2O3 R - Na2S2O3 S - H2SO4 U - Aceforne V - MCAA W - PH 4-5 Z - Other (specify) Special Instructions/Note: Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Sisposal By Lab Archive For. Month 3 pH=6.48 reservation Codes Total Number of containers 180-109847 Chain of Custody Analysis Requested ooler Temperature(s) C and Other Remarks Special Instructions/QC Requirements April mdal 60203 + Hg 7170A Fligoride 300-000 MADAO Rahin 226/228(9312/9320) eceived by eceived by. DHO ward E Gulka, ASharek & Brown, Shall Woulthis Preservation Code 33 3 Radiological Type (C=comp, G=grab) Sample 1300 1445 Sample 8/18/20 1100 Standard Unknown TAT Requested (days) Due Date Requested: Sample Date Project # 18020201 SSOW# Poison B Skin Irritant Custody Seal No. ARGWA-12 ARGWA-13 4RGWC-17 Flammable Possible Hazard Identification Barnel of Athor 241 Ralph McGill Blvd SE ustody Seals Intact. △ Yes △ No Client Information 8 井 1 Sample Identification Project Name. CCR - Plant Arkwright Phone 404-506-7116(Tel) Ema SCS Contacts SCS Contacts quished by State, Zip. GA, 30308 GA Power Atlanta

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

- H2SO4 - TSP Dodecahydrate Ver. 01/16/2019 Special Instructions/Note: 244- ATLANTA 0 - ASNBO2 P - NB2O4S Q - NB2SO3 R - NB2S2O3 Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Return To Client Risposal By Lab Archive For Month DH-7.06 PH= 7.06 180-109848 Chain of Custody Archive For ette Total Mumber of containers Analysis Requested saler Temperature(s) "C and Other Remarks Special Instructions/QC Requirements Return To Client hall brown@eurofinset.com yd baylede +(0209 DHOWALL, EGiller AShore Brown, Shall Type (Waster, September (G=Comp.) G=wasterbold (G=Grab.) Birtissue, Aufor) Proservation Code: Matrix упедто Company 3 3 Radiological Sample Saniple 1425 8 19/20 1135 Unknown FAT Requested (days): Due Date Requested: Sample Date Project# 18020201 SSC√V# Poison B Skin Imitant ARGWC-16 Deliverable Requested: I, II, III, IV, Other (specify) 5 WC-9 Custody Seal No. Phone (412) 963-7058 Fax (412) 963-2468 Flammable Dem KHowen Rossible Hazard Identification Empty Kit Relinquished by 444 Ralph McGill Blvd SE Custody Seals Intact.
A Yes A No Client Information ample Identification oject Name CCR - Plant Arkwright 404-506-7116(Tet) Clent Contact SCS Contacts quished by SCS Contacts State 2/p GA, 30308 GA Power Atlanta

Phone (412) 963-7058 Fax (412) 963-2468				T ST
Client Information	The seed EGwiller, Ashered & Brown, Shall	orc Lts Brown, Shal	Carner Tracking No(s)	COC No
Clerif Contact SCS Contacts	Phone	E-Mail Shall brown	E-Mail Strail brown@eurofinset.com	Page 1 of 1
Campany GA Power	nemanned de marc'e principal de marc'e de marc		Analysis Requested	Job #
Address 241 Raiph McGill Bivd SE	Due Date Requested:		(02	18
Sity Atlanta	TAT Requested (days):		E6/82	A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2
State, Zip GA, 30308			312 H	
Phone 404-506-7116(Tel)	# Od	(0	OKC	
Email SCS Contacts		Charles and Control	-01	I - Ice J - DI Water
Rogat Name CCR - Plant Arkwright	Project # 18920201	mari demographics	36	K-EDTA L-EDA
Site Georgia	\$SOV#	combetgheds.	Ar.	Other
	Sanple	Matrix (Wessell (Wess	m II age	redinuli late
Sample Identification	Sample Date Time G=grab)	ation Code:		Special Instructions/Note:
ARGWA-5	8/18/20 1135 G	3		3 off = 6,18
ARGWA-3	1320	3	111	31
ARGWG-7		3		3 pH = 6.70
		+		180-109850 Chain of Custody
ant	Poison B Unknown Radiological		Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)  Return To Client Sisposal By Lab Chive For. Month	es are retained fonger than 1 month)  Archive For.  Months
I, III, IV, OI			Special Instructions/QC Requirements:	
Emply Kit Relinquished by:	Date:	Time	Method of	
Reinquistred () Kowe D	8/18/20/1730	West EtS	Received by Delline Wally Received by	Date/Time Company
Relinquished by	Date/Time:	Company	Received by CateAtine	
Custody Seals Intact.   Custody Seal No.	A catalogue en la company de la catalogue de l		Cooler Temperature(s) <sup>6</sup> C and Other Remarks	
A Tes A No	AND THE PROPERTY OF THE PROPER	-	A CONTRACT OF THE PROPERTY AND A CONTRACT OF THE PROPERTY OF T	Ver 01/16/2019

Eurofins TestAmerica, Pittsburgh

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

TSP Dodecahydrate Special Instructions/Note: 244- ATLANTA N - None O - AsNaD2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 ompany Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Sisposal By Lab Archive For. Month 6009 180-109918 Chain of Custody Archive For m mm c Total Number of containers Analysis Requested Special Instructions/QC Requirements DAGUM 224/28(328)+Hg(MY) DAGUM 224/28(4315) ACACUM (300) Habberde, 24/15/26, Flooride (300) DOHEL 2GT H (00E) 26/17/24(4) XX 4××× 4××× 4××× yd Leviece Lab PM Brown, Shall E-Mail Shall brown@e Wood Type (N-with)
Separate (C=comp, O-washing)
G=grab) BT=Tossey A=ATy 33 Preservation Code: Matrix Company 33 Radiological Sample 0 8/20/20/1840 1436 1215 1635 8/20/20 1045 Saniple Unknown TAT Requested (days): Due Date Requested: DHoward Sample Date Project # 18020201 Poison B Skin Irritant Iverable Requested: I, II, IV, Other (specify) Custody Seal No Phone (412) 963-7058 Fax (412) 963-2468 ARGWC-23 Flammable Possible Hazard Identification F8#2 mpty Kit Relinquished by 241 Raiph McGill Blvd SE Custody Seals Intact A Yes A No Client Information Sample Identification CR - Plant Arkwrigh 104-505-7116(Tel) Famile Prince itent Contact ICS Contacts quishedthy State Zip GA, 30308 GA Power Atlanta

Assa 22 Na2045 Na2033 - Na2803 - H2804 T - ISP Dudecahydrat U - Acchonse W - pH 4-5 Z - other (specify) Special Instructions/Note: Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Spisposal By Lab Mont PH= 6.43 244- ATLANTA 180-109929 Chain of Custody reservation Total Number of containers Analysis Requested coler Temperature(s) °C and Other Remarks × × × × × ApplImeto + Holeo 2018 HTOD saived by Chain of Custody Record EVEC CAN ILED, A Shored, to Brown, Shall Wood 33 Radiological G=grab) (C=comp Type 00 11840 8/20/20 1035 8/20/20 1705 Sample Unknown TAT Requested (days) Due Date Requested 8/20/20 Sample Date Project# 18020201 Poison B Skin Imitant Custody Seal No. Phone (412) 963-7058 Fax (412) 963-2468 ARGWC-8 ARGWC-18 Flammable Soun-Hazard Identification 241 Ralph McGill Blvd SE Custody Seals Intact

Δ Yes Δ No Client Information Sample Identification Pittsburgh, PA 15238 CCR - Plant Arkwright 404-505-7116(Tel) Complete Com SCS Contacts State Zip GA, 30308 **SA Power** 

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh	
TestAmerica,	ve RIDC Park
irofins	Aloha Driv

Eurofins TestAmerica, Pittsburgh				
301 Alpha Drive RIDC Park Pittsburgh, PA 15238 Phone (412) 963-7058 Fax (412) 963-2468	Chain of Custody Record	stody Rec		244- ATLANTA
Client Information	Sampler C A. Jos. Shell Lab PM	Lab PM	JOURNAL TO THE PROPERTY OF THE	COC Na
Cleur Contact SCS Contacts	Prone Prone	E-Mail	E-Mail Shait browingewofmset oom	Palls
Singary GA Power	annima. La como como marco de La partima describados de cara oprima apareción da estano en porquesa		Analysis Requested	Job#
Address 241 Ralph McGill Blvd SE	Due Date Requested:		OZ.	16
ীপ Atlanta State 7pp	TAT Requested (days):		E\$/51E H4/80	A HCL M-Haxane B-taoN N-None C Zn Aceate O -Ashao2 D Nutric Acid P-Na2Cu52
GA, 30308 Privine 404-508-7116(Tel)	PO#		485	
Ental. SCS Contacts	WO#	where we make	2/9 6H-	1 - Koe J - Di Water
Paper Nava UCR - Plant Akwright	Project # 1802/201	UST LAMBOUR THREE	+210	K-EDTA L-EDA
Georgia	SSOvie	100	131	05 to
Sample Identification	Sample Date Time G=grah)	Matrix Coversion Service Coversion C	MI GOTAL	Number Special Instructions/Note:
E8# !	8/20/20 0930 6	3	XXX	
ARAMW-3	1443	3	XXX	pH=6,24
ARAMW-H	1345 6	3	X	TT: 2= Hq
			(80-109	180-109930 Chain of Custody
Possible Hazard Identification  Non-Hazard Elemmable Skin tritant Perpendicular Remiseraci II III IV Other (specify)	Poison B Unknown Radiological		Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)  Return To Client Apisposal By Lab Archive For Month Special Instructions/OC Requirements	are retained longer than 1 month)  Archive For: Months
Emply Kit Relinquished by:	Date:	Tip	Ime: Method of Shipnent	TI.
Famil Lyman	8/20/20 / 18 40	Compay of	Bunandy	18 - 31-30 Company A.A.
Remainshed by Sein to calculate the sein to	Date/1108	Company	Recaived by Date (1.09	THE COMPANY
Nempositutos Costodo Seals Intard   Custodo Seal No	District states	S. cardinario	eraturessi <sup>e</sup> C and Cher Remarks	
A Yes A No	AND	A SPORT OF THE SPORT OF THE OWNER OF THE SPORT OF THE SPO	The second secon	Vet 01/16/2019

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

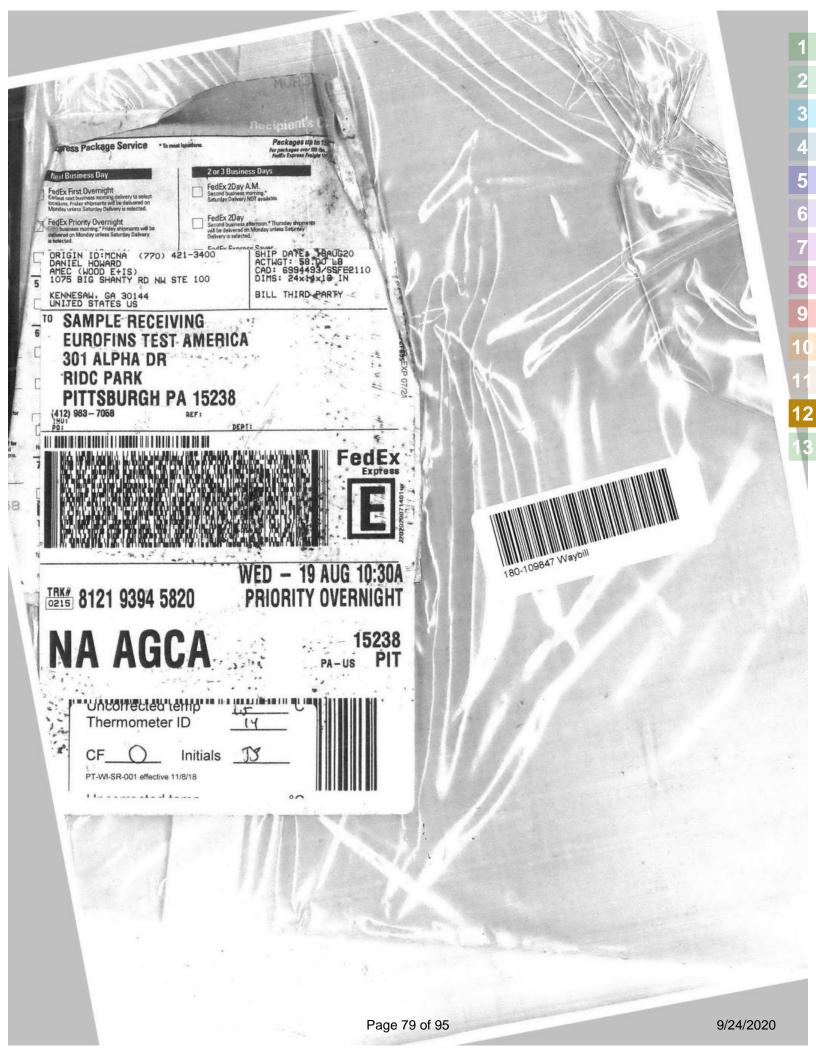
Phone (412) 953-7058 Fax (412) 953-2468

244- ATLANTA

- Assago - Na2045 - Na2045 - Na2004 - Harsood T TSP Dodecatydral U Acebroile V MCAA W - PH 4-6 Z - other (speofy) Special Instructions/Note Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Sisposal By Lab Month reservation Codes 180-109970 Chain of Custody 1 w Water Analysis Requested colar Temperature(s) °C and Other Remarks Special Instructions/QC Requirements sceived by. Mother (6020) HT 10A) Lab PM Brown, Shall E-Mail Shall, b Matrix ompany Radiological G=grab) (C=Comp, Sample OHoward, Ashoredits 1036 8/21/20045 Sample Standard Unknown (AT Requested (days): Oue Date Requested: Sample Date Project #. 18020201 SSOW#. Poison B Skin.Irritant Deliverable Requested 1, III, IV, Other (specify) Custody Seal No. Possible Hazard Identification ARAMW-6 ARG WC-21 mpty Kit Relinquished by. 241 Ralph McGill Blvd SE Custody Seals Intact Client Information Sample Identification Project Name CCR - Plant Arkwright 404-508-7116(Tel) Commercial by SCS Contacts SCS Contacts quished by Atlanta State, Zip, GA, 30308 GA Power









PT-WI-SR-001 effective 14/8/18

Env Tes

BILL THIRD PARTY

RIDC PARK PITTSBURGH PA 15238



TRK# 8121 9394 5830

15238

**NA AGCA** 

Uncorrected temp Thermometer ID





Align Open End of FedEx Pouch Here



RD NW STE 100

BILL THIRD PARTY

**EUROFINS TEST AMERICA** 301 ALPHA DR

PITTSBURGH PA 15238



TRK# 8121 9394 5841

THU - 20 AUG 10:30A

15238

**NA AGCA** 



uncorrected temp Thermometer ID

PT-WI-SR-001 effective 11/8/18







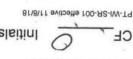
BILL THIRD PARTY

EUROFINS TEST AMERICA EUROFINS TEST AMERICA

TADINAS YADRUTAS THOIRS

8151 9394 2348

Uncorrected ramp



84102 SIVINCSO MCHY ÉGBCS/1180/02VS

Job Number: 180-109846-1

Login Number: 109846

List Number: 1

Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

Job Number: 180-109846-1

Login Number: 109847

List Number: 1

Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

Job Number: 180-109846-1

Login Number: 109848 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

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

Job Number: 180-109846-1

Login Number: 109850 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

ordator: Matoon, Bobbio		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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	
s the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 180-109846-1

Login Number: 109851 List Source: Eurofin

List Number: 1

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

Client: Southern Company Job Number: 180-109846-1

Login Number: 109918 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

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

Job Number: 180-109846-1

Login Number: 109929 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

ordator: Matoon, Bobbio		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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	
s the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Number: 180-109846-1

Login Number: 109930 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

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

Job Number: 180-109846-1

Login Number: 109970

List Number: 1

Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-109846-2

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: 10/8/2020 5:03:16 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

Client: Southern Company Project/Site: CCR - Plant Arkwright Laboratory Job ID: 180-109846-2

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	6
Certification Summary	7
Sample Summary	8
Method Summary	9
Lab Chronicle	10
Client Sample Results	19
QC Sample Results	48
QC Association Summary	
Chain of Custody	58
Receipt Checklists	77

10

11

13

#### **Case Narrative**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-2

Job ID: 180-109846-2

Laboratory: Eurofins TestAmerica, Pittsburgh

**Narrative** 

Job Narrative 180-109846-2

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/20/2020 9:30 AM, 8/21/2020 9:45 AM and 8/22/2020 10:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 9 coolers at receipt time were 1.1° C, 1.2° C, 1.5° C, 1.6° C, 2.1° C, 2.4° C, 2.6° C, 2.7° C and 3.6° C.

#### **Receipt Exceptions**

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): ARGWC-10 (180-109848-1). The container labels list an id of GWC-10 while the COC lists ARGWC-10. The id's on the Coc were used.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): ARGWC-9 (180-109848-3). The container labels list an id of GWC-9 while the COC lists ARGWC-9. The id's on the Coc were used.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): ARGWA-5 (180-109850-1). The container labels list an id of GWA-5 while the COC lists ARGWA-5. The id's on the Coc were used.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): ARGWA-3 (180-109850-2). The container labels list an id of GWA-3 while the COC lists ARGWA-3. The id's on the Coc were used.

The container label for the following sample did not match the information listed on the Chain-of-Custody (COC): ARGWC-7 (180-109850-3). The container labels list an id of GWC-7 while the COC lists ARGWC-7. The id's on the Coc were used.

#### **RAD**

Methods 903.0, 9315: Radium-226 prep batch 160-480640:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

ARGWA-14 (180-109846-1), ARGWC-15 (180-109846-2), ARGWC-16 (180-109846-3), FB#1 (180-109847-1), ARGWA-12 (180-109847-2), ARGWA-13 (180-109847-3), ARGWC-17 (180-109847-4), ARGWC-10 (180-109848-1), DUP-1 (180-109848-2), ARGWC-9 (180-109848-3), (LCS 160-480640/1-A) and (MB 160-480640/24-A)

Method 9315: Radium-226 prep batch 160-480684:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

ARGWA-5 (180-109850-1), ARGWA-3 (180-109850-2), ARGWC-7 (180-109850-3), EB#2 (180-109851-1), ARGWA-19 (180-109851-2), ARGWA-20 (180-109851-3), ARGWC-22 (180-109851-4), (LCS 160-480684/1-A), (LCSD 160-480684/2-A) and (MB 160-480684/10-A)

Methods 903.0, 9315: Radium-226 prep batch 160-481082:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

FB#2 (180-109918-1), ARGWC-23 (180-109918-2), DUP-2 (180-109918-3), ARAMW-1 (180-109918-4), ARAMW-2 (180-109918-5), ARGWC-8 (180-109929-1), ARGWC-18 (180-109929-2), ARAMW-6 (180-109970-1), ARGWC-21 (180-109970-2), (LCS 160-481082/1-A), (LCSD 160-481082/2-A) and (MB 160-481082/24-A)

Methods 903.0, 9315: Radium-226 prep batch 160-481232:

7

9

10

12

1

#### **Case Narrative**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-2

#### Job ID: 180-109846-2 (Continued)

#### Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

EB#1 (180-109930-1), ARAMW-3 (180-109930-2), ARAMW-4 (180-109930-3), (LCS 160-481232/1-A) and (MB 160-481232/23-A)

Methods 904.0, 9320: Radium-228 prep batch 160-481237:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

EB#1 (180-109930-1), ARAMW-3 (180-109930-2), ARAMW-4 (180-109930-3), (LCS 160-481237/1-A) and (MB 160-481237/23-A)

Methods 904.0, 9320: Radium-228 prep batch 160-480651:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

ARGWA-14 (180-109846-1), ARGWC-15 (180-109846-2), ARGWC-16 (180-109846-3), FB#1 (180-109847-1), ARGWA-12 (180-109847-2), ARGWA-13 (180-109847-3), ARGWC-17 (180-109847-4), ARGWC-10 (180-109848-1), DUP-1 (180-109848-2), ARGWC-9 (180-109848-3), (LCS 160-480651/1-A) and (MB 160-480651/24-A)

Method 9320: Radium-228 prep batch 160-480689:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

EB#2 (180-109851-1), (LCS 160-480689/1-A), (LCSD 160-480689/2-A) and (MB 160-480689/10-A)

Method 9320: Ra228 160-480689

The laboratory control sample (LCS) recovery (137%) was high, outside acceptance criteria 75-125% indicating a potential high bias to sample activity. Activity in the sample was less than the MDC and is reported with this narrative.

Methods 904.0, 9320: Radium-228 prep batch 160-481085:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

FB#2 (180-109918-1), ARGWC-23 (180-109918-2), ARAMW-1 (180-109918-4), ARAMW-2 (180-109918-5), ARGWC-8 (180-109929-1), ARGWC-18 (180-109929-2), ARAMW-6 (180-109970-1), ARGWC-21 (180-109970-2), (LCS 160-481085/1-A), (LCSD 160-481085/2-A) and (MB 160-481085/24-A)

Method 9320: Radium-228 prep batch 160-482400:

The method blank (MB) associated with the preparation batch 160-482400 and analytical batch 160-483126, has activity above the MDC and RL. Per client request, the data has been reported with this narrative.

Method 9320: Radium-228 prep batch 160-482400:

The Radium-228 laboratory control sample duplicate (LCSD) recovery (134%) associated with the following samples is outside the standard upper QC limit (125%) indicating a potential positive bias for that analyte. However the recovery falls within in house statistical limits (upper limit 138%). Per client request, the data have been reported with this narrative. ARGWA-5 (180-109850-1), ARGWA-3 (180-109850-2), ARGWC-7 (180-109850-3), ARGWA-19 (180-109851-2), ARGWA-20 (180-109851-3), ARGWC-22 (180-109851-4), (LCS 160-482400/1-A), (LCSD 160-482400/2-A) and (MB 160-482400/9-A)

Method 9320: Radium-228 prep batch 160-482400:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

ARGWA-5 (180-109850-1), ARGWA-3 (180-109850-2), ARGWC-7 (180-109850-3), ARGWA-19 (180-109851-2), ARGWA-20 (180-109851-3), ARGWC-22 (180-109851-4), (LCS 160-482400/1-A), (LCSD 160-482400/2-A) and (MB 160-482400/9-A)

Eurofins TestAmerica, Pittsburgh 10/8/2020

#### **Case Narrative**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-2

#### Job ID: 180-109846-2 (Continued)

#### Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

Method 9320: Radium-228 prep batch 160-483141:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

DUP-2 (180-109918-3), (LCS 160-483141/1-A), (LCSD 160-483141/2-A) and (MB 160-483141/4-A)

#### Method PrecSep 0: Radium 228 Prep Batch 160-480689:

Insufficient sample volume was available to perform a sample duplicate for the following samples: ARGWA-5 (180-109850-1), ARGWA-3 (180-109850-2), ARGWC-7 (180-109850-3), EB#2 (180-109851-1), ARGWA-19 (180-109851-2), ARGWA-20 (180-109851-3) and ARGWC-22 (180-109851-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

#### Method PrecSep 0: Radium 228 Prep Batch 160-481237:

Samples 240-135743-1 and 240-135511-2 were prepared at a reduced aliquot due to yellow discoloration and a cloudy appearance: EB#1 (180-109930-1), ARAMW-3 (180-109930-2) and ARAMW-4 (180-109930-3). All samples were prepared at a reduced aliquot to insure sufficient volume remains if needed for analysis: <CommaMerge>.

#### Method PrecSep 0: Radium 228 Prep Batch 160-482400:

The following samples were prepared at a reduced aliquot to insure sufficient volume remains if needed for analysis: ARGWA-5 (180-109850-1), ARGWA-3 (180-109850-2), ARGWC-7 (180-109850-3), ARGWA-19 (180-109851-2), ARGWA-20 (180-109851-3) and ARGWC-22 (180-109851-4).

#### Method PrecSep\_0: Radium 228 Prep Batch 160-482400:

Insufficient sample volume was available to perform a sample duplicate for the following samples: ARGWA-5 (180-109850-1), ARGWA-3 (180-109850-2), ARGWC-7 (180-109850-3), ARGWA-19 (180-109851-2), ARGWA-20 (180-109851-3) and ARGWC-22 (180-109851-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

#### Method PrecSep 0: Radium 228 Prep Batch 160-483141:

Insufficient sample volume was available to perform a sample duplicate for the following sample: DUP-2 (180-109918-3). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

#### Method PrecSep 0: Radium 228 Prep Batch 160-483141:

The following sample was prepared at a reduced aliquot due to re-prep: DUP-2 (180-109918-3).

#### Method PrecSep-21: Radium 226 Prep Batch 160-480684:

Insufficient sample volume was available to perform a sample duplicate for the following samples: ARGWA-5 (180-109850-1), ARGWA-3 (180-109850-2), ARGWC-7 (180-109850-3), EB#2 (180-109851-1), ARGWA-19 (180-109851-2), ARGWA-20 (180-109851-3) and ARGWC-22 (180-109851-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

#### Method PrecSep-21: Radium 226 Prep Batch 160-481232:

Samples 240-135743-1 and 240-135511-2 were prepared at a reduced aliquot due to yellow discoloration and a cloudy appearance: EB#1 (180-109930-1), ARAMW-3 (180-109930-2) and ARAMW-4 (180-109930-3). All samples were prepared at a reduced aliquot to insure sufficient volume remains if needed for analysis: <CommaMerge>.

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

5

6

9

1 4

12

13

### **Definitions/Glossary**

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

#### **Qualifiers**

R	а	d

Qualifier **Qualifier Description** LCS or LCSD is outside acceptance limits.

U Result is less than the sample detection limit.

#### **Glossary**

Abbreviation	These commonly	used abbreviations ma	v or mav i	not be pre	sent in this report
ADDIGNICION	THESE COMMISSIONS	, useu abbievialions ina	y Oi iiiay i	HOL DE PIE	Jent in ting 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 Colony Forming Unit CFU **CNF** Contains No Free Liquid

**DER** Duplicate Error Ratio (normalized absolute difference)

Dil Fac **Dilution Factor** 

Detection Limit (DoD/DOE) DΙ

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

Decision Level Concentration (Radiochemistry) DLC

**EDL** Estimated Detection Limit (Dioxin) LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit ML Minimum Level (Dioxin) Most Probable Number MPN MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL **Practical Quantitation Limit** 

**PRES** Presumptive QC **Quality Control** 

Relative Error Ratio (Radiochemistry) RER

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) Toxicity Equivalent Quotient (Dioxin) **TEQ** 

**TNTC** Too Numerous To Count

### **Accreditation/Certification Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-2

### Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	<b>Identification Number</b>	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-21
California	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-21
HI - RadChem Recognition	State	n/a	06-30-21
Illinois	NELAP	004553	11-30-20
Kansas	NELAP	E-10236	10-31-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	10-05-20
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-21
MI - RadChem Recognition	State	9005	06-30-21
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	02-28-21
Texas	NELAP	T104704193-19-13	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-21
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

5

9

10

4.6

13

### **Sample Summary**

Client: Southern Company

180-109970-1

180-109970-2

ARAMW-6

ARGWC-21

Project/Site: CCR - Plant Arkwright

Lab Sample ID Client Sample ID Matrix Collected Received Asset ID 180-109846-1 ARGWA-14 Water 08/19/20 13:55 08/20/20 09:30 180-109846-2 ARGWC-15 Water 08/19/20 10:05 08/20/20 09:30 180-109846-3 ARGWC-16 Water 08/19/20 12:05 08/20/20 09:30 180-109847-1 FB#1 Water 08/18/20 11:00 08/20/20 09:30 180-109847-2 ARGWA-12 Water 08/18/20 13:00 08/20/20 09:30 08/18/20 14:50 08/20/20 09:30 Water 180-109847-3 ARGWA-13 ARGWC-17 Water 08/18/20 14:45 08/20/20 09:30 180-109847-4 180-109848-1 ARGWC-10 Water 08/19/20 11:35 08/20/20 09:30 180-109848-2 DUP-1 Water 08/19/20 00:00 08/20/20 09:30 180-109848-3 ARGWC-9 Water 08/19/20 14:25 08/20/20 09:30 180-109850-1 ARGWA-5 Water 08/18/20 11:35 08/20/20 09:30 180-109850-2 ARGWA-3 Water 08/18/20 13:20 08/20/20 09:30 180-109850-3 ARGWC-7 Water 08/18/20 15:25 08/20/20 09:30 EB#2 Water 08/19/20 09:15 08/20/20 09:30 180-109851-1 180-109851-2 ARGWA-19 Water 08/19/20 10:56 08/20/20 09:30 ARGWA-20 180-109851-3 Water 08/19/20 13:44 08/20/20 09:30 180-109851-4 ARGWC-22 Water 08/19/20 15:32 08/20/20 09:30 180-109918-1 FB#2 Water 08/20/20 10:45 08/21/20 09:45 180-109918-2 ARGWC-23 Water 08/20/20 12:15 08/21/20 09:45 180-109918-3 DUP-2 Water 08/20/20 00:00 08/21/20 09:45 Water 180-109918-4 ARAMW-1 08/20/20 14:36 08/21/20 09:45 180-109918-5 ARAMW-2 Water 08/20/20 16:35 08/21/20 09:45 ARGWC-8 Water 08/20/20 10:35 08/21/20 09:45 180-109929-1 180-109929-2 ARGWC-18 Water 08/20/20 17:05 08/21/20 09:45 180-109930-1 EB#1 Water 08/20/20 09:30 08/21/20 09:45 180-109930-2 ARAMW-3 Water 08/20/20 14:45 08/21/20 09:45 180-109930-3 ARAMW-4 Water 08/20/20 11:45 08/21/20 09:45

Water

Water

08/21/20 09:45 08/22/20 10:00

08/21/20 10:36 08/22/20 10:00

Eurofins TestAmerica, Pittsburgh

10/8/2020

Job ID: 180-109846-2

9

4

6

\_ /

9

10

10

13

### **Method Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-2

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

#### **Protocol References:**

None = None

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

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

#### **Laboratory References:**

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

-

4

5

7

8

9

10

1:

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARGWA-14

Date Collected: 08/19/20 13:55 Date Received: 08/20/20 09:30

Lab Sample ID: 180-109846-1

**Matrix: Water** 

Batch Dil Initial Batch Batch Final Prepared Method Number or Analyzed **Prep Type** Type Run **Factor** Amount **Amount** Analyst Lab Total/NA PrecSep-21 1000.10 mL 480640 08/24/20 15:59 AVB TAL SL Prep 1.0 g Total/NA 482515 TAL SL 9315 09/15/20 11:21 SCB Analysis 1 Instrument ID: GFPCRED Total/NA Prep PrecSep\_0 1000.10 mL 1.0 g 480651 08/24/20 18:23 AVB TAL SL Total/NA Analysis 9320 482102 09/10/20 12:19 SCB TAL SL Instrument ID: GFPCBLUE Total/NA Analysis Ra226\_Ra228 482641 09/17/20 10:50 CAH TAL SL Instrument ID: NOEQUIP

Client Sample ID: ARGWC-15 Lab Sample ID: 180-109846-2

Date Collected: 08/19/20 10:05 **Matrix: Water** 

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.48 mL	1.0 g	480640	08/24/20 15:59	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 at ID: GFPCRED		1			482515	09/15/20 11:21	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.48 mL	1.0 g	480651	08/24/20 18:23	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 at ID: GFPCBLUE		1			482102	09/10/20 12:19	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228		1			482641	09/17/20 10:50	CAH	TAL SL

Client Sample ID: ARGWC-16 Lab Sample ID: 180-109846-3 Date Collected: 08/19/20 12:05 **Matrix: Water** 

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.56 mL	1.0 g	480640	08/24/20 15:59	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCRED		1			482515	09/15/20 11:22	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.56 mL	1.0 g	480651	08/24/20 18:23	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			482102	09/10/20 12:20	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228		1			482641	09/17/20 10:50	CAH	TAL SL

Lab Sample ID: 180-109847-1 Client Sample ID: FB#1

Date Collected: 08/18/20 11:00 Date Received: 08/20/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.98 mL	1.0 g	480640	08/24/20 15:59	AVB	TAL SL
Total/NA	Analysis	9315		1			482515	09/15/20 11:22	SCB	TAL SL
	Instrumer	nt ID: GFPCRED								

Eurofins TestAmerica, Pittsburgh

Page 10 of 94

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

Client Sample ID: FB#1

Lab Sample ID: 180-109847-1

**Matrix: Water** 

Date Collected: 08/18/20 11:00 Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1000.98 mL	1.0 g	480651	08/24/20 18:23	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			482102	09/10/20 12:20	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 nt ID: NOEQUIP		1			482641	09/17/20 10:50	CAH	TAL SL

Client Sample ID: ARGWA-12 Lab Sample ID: 180-109847-2

Date Collected: 08/18/20 13:00 Matrix: Water

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.27 mL	1.0 g	480640	08/24/20 15:59	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCRED		1			482515	09/15/20 11:22	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.27 mL	1.0 g	480651	08/24/20 18:23	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			482102	09/10/20 12:20	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 nt ID: NOEQUIP		1			482641	09/17/20 10:50	CAH	TAL SL

Client Sample ID: ARGWA-13 Lab Sample ID: 180-109847-3

Date Collected: 08/18/20 14:50 Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.64 mL	1.0 g	480640	08/24/20 15:59	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 at ID: GFPCRED		1			482515	09/15/20 11:22	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.64 mL	1.0 g	480651	08/24/20 18:23	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 at ID: GFPCBLUE		1			482102	09/10/20 12:20	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 at ID: NOEQUIP		1			482641	09/17/20 10:50	CAH	TAL SL

Client Sample ID: ARGWC-17 Lab Sample ID: 180-109847-4

Date Collected: 08/18/20 14:45 Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.83 mL	1.0 g	480640	08/24/20 15:59	AVB	TAL SL
Total/NA	Analysis	9315		1			482515	09/15/20 11:22	SCB	TAL SL
	Instrumen	t ID: GFPCRED								
Total/NA	Prep	PrecSep_0			999.83 mL	1.0 g	480651	08/24/20 18:23	AVB	TAL SL
Total/NA	Analysis	9320		1			482102	09/10/20 12:20	SCB	TAL SL
	Instrumen	t ID: GFPCBLUE								

Eurofins TestAmerica, Pittsburgh

Page 11 of 94

2

3

5

7

0

10

12

1

**Matrix: Water** 

10/8/2020

Project/Site: CCR - Plant Arkwright

Client: Southern Company

Client Sample ID: ARGWC-17

Lab Sample ID: 180-109847-4

Date Collected: 08/18/20 14:45 **Matrix: Water** Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1			482641	09/17/20 10:50	CAH	TAL SL

**Client Sample ID: ARGWC-10** 

Lab Sample ID: 180-109848-1 Date Collected: 08/19/20 11:35 **Matrix: Water** 

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.89 mL	1.0 g	480640	08/24/20 15:59	AVB	TAL SL
Total/NA	Analysis	9315		1			482515	09/15/20 11:23	SCB	TAL SL
	Instrumer	nt ID: GFPCRED								
Total/NA	Prep	PrecSep_0			1000.89 mL	1.0 g	480651	08/24/20 18:23	AVB	TAL SL
Total/NA	Analysis	9320		1			482071	09/10/20 12:22	SCB	TAL SL
	Instrumer	nt ID: GFPCPURPLE								
Total/NA	Analysis	Ra226_Ra228		1			482641	09/17/20 10:50	CAH	TAL SL
	Instrumer	nt ID: NOEQUIP								

Lab Sample ID: 180-109848-2 **Client Sample ID: DUP-1** 

Date Collected: 08/19/20 00:00 **Matrix: Water** 

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.10 mL	1.0 g	480640	08/24/20 15:59	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCRED		1			482515	09/15/20 11:23	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.10 mL	1.0 g	480651	08/24/20 18:23	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCPURPLE		1			482071	09/10/20 12:22	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 nt ID: NOEQUIP		1			482641	09/17/20 10:50	CAH	TAL SL

Lab Sample ID: 180-109848-3 **Client Sample ID: ARGWC-9** 

Date Collected: 08/19/20 14:25 Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.50 mL	1.0 g	480640	08/24/20 15:59	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 at ID: GFPCRED		1			482515	09/15/20 13:55	SCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.50 mL	1.0 g	480651	08/24/20 18:23	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 at ID: GFPCPURPLE		1			482071	09/10/20 12:22	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 at ID: NOEQUIP		1			482641	09/17/20 10:50	CAH	TAL SL

Eurofins TestAmerica, Pittsburgh

Page 12 of 94

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Lab Sample ID: 180-109850-1 **Client Sample ID: ARGWA-5** 

Date Collected: 08/18/20 11:35

**Matrix: Water** 

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.23 mL	1.0 g	480684	08/25/20 11:29	AVB	TAL SL
Total/NA	Analysis Instrumen	9315 t ID: GFPCPURPLE		1			482643	09/16/20 08:04	SCB	TAL SL
Total/NA	Prep	PrecSep_0			750.08 mL	1.0 g	482400	09/14/20 10:14	AVB	TAL SL
Total/NA	Analysis Instrumen	9320 t ID: GFPCBLUE		1			483126	09/21/20 11:52	SCB	TAL SL
Total/NA	Analysis Instrumen	Ra226_Ra228 t ID: NOEQUIP		1			484497	10/02/20 17:53	СММ	TAL SL

**Client Sample ID: ARGWA-3** Lab Sample ID: 180-109850-2

Date Collected: 08/18/20 13:20 **Matrix: Water** 

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.90 mL	1.0 g	480684	08/25/20 11:29	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 at ID: GFPCPURPLE		1			482643	09/16/20 09:50	SCB	TAL SL
Total/NA	Prep	PrecSep_0			749.34 mL	1.0 g	482400	09/14/20 10:14	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 at ID: GFPCBLUE		1			483126	09/21/20 11:52	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228		1			484497	10/02/20 17:53	CMM	TAL SL

**Client Sample ID: ARGWC-7** Lab Sample ID: 180-109850-3 Date Collected: 08/18/20 15:25

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.96 mL	1.0 g	480684	08/25/20 11:29	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCBLUE		1			482613	09/16/20 09:49	SCB	TAL SL
Total/NA	Prep	PrecSep_0			750.00 mL	1.0 g	482400	09/14/20 10:14	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			483126	09/21/20 11:53	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228		1			484497	10/02/20 17:53	СММ	TAL SL

Client Sample ID: EB#2 Lab Sample ID: 180-109851-1

Date Collected: 08/19/20 09:15 Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.44 mL	1.0 g	480684	08/25/20 11:29	AVB	TAL SL
Total/NA	Analysis	9315		1			482613	09/16/20 09:50	SCB	TAL SL

Eurofins TestAmerica, Pittsburgh

Page 13 of 94

**Matrix: Water** 

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

Client Sample ID: EB#2 Lab Sample ID: 180-109851-1

Date Collected: 08/19/20 09:15 **Matrix: Water** Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			999.44 mL	1.0 g	480689	08/25/20 12:41	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCPROTE	AN	1			481799	09/09/20 13:23	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 at ID: NOEQUIP		1			484497	10/02/20 17:53	СММ	TAL SL

Lab Sample ID: 180-109851-2 **Client Sample ID: ARGWA-19** 

Date Collected: 08/19/20 10:56 **Matrix: Water** Date Received: 08/20/20 09:30

Batch Dil Initial Final Batch Batch Prepared Method Amount Number or Analyzed **Prep Type** Type **Factor** Amount Run Analyst Lab Total/NA PrecSep-21 1000.35 mL 480684 08/25/20 11:29 AVB TAL SL Prep 1.0 g Total/NA 9315 TAL SL Analysis 1 482613 09/16/20 12:20 SCB Instrument ID: GFPCBLUE Total/NA Prep PrecSep\_0 09/14/20 10:14 AVB TAL SL 749.87 mL 1.0 g 482400 TAL SL Total/NA Analysis 9320 483126 09/21/20 11:53 SCB Instrument ID: GFPCBLUE Total/NA Analysis Ra226 Ra228 484497 10/02/20 17:53 CMM TAL SL Instrument ID: NOEQUIP

**Client Sample ID: ARGWA-20** Lab Sample ID: 180-109851-3

Date Collected: 08/19/20 13:44 **Matrix: Water** Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.17 mL	1.0 g	480684	08/25/20 11:29	AVB	TAL SL
Total/NA	Analysis Instrumen	9315 nt ID: GFPCBLUE		1			482613	09/16/20 12:21	SCB	TAL SL
Total/NA	Prep	PrecSep_0			749.41 mL	1.0 g	482400	09/14/20 10:14	AVB	TAL SL
Total/NA	Analysis Instrumen	9320 nt ID: GFPCBLUE		1			483126	09/21/20 11:53	SCB	TAL SL
Total/NA	Analysis Instrumen	Ra226_Ra228 nt ID: NOEQUIP		1			484497	10/02/20 17:53	СММ	TAL SL

Client Sample ID: ARGWC-22 Lab Sample ID: 180-109851-4

Date Collected: 08/19/20 15:32 **Matrix: Water** Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.16 mL	1.0 g	480684	08/25/20 11:29	AVB	TAL SL
Total/NA	Analysis	9315		1			482613	09/16/20 14:43	SCB	TAL SL
	Instrumer	t ID: GFPCBLUE								
Total/NA	Prep	PrecSep_0			750.49 mL	1.0 g	482400	09/14/20 10:14	AVB	TAL SL
Total/NA	Analysis	9320		1			483126	09/21/20 11:53	SCB	TAL SL
	Instrumer	t ID: GFPCBLUE								

Eurofins TestAmerica, Pittsburgh

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Lab Sample ID: 180-109851-4 Client Sample ID: ARGWC-22 Date Collected: 08/19/20 15:32

**Matrix: Water** 

Date Received: 08/20/20 09:30

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1			484497	10/02/20 17:53	CMM	TAL SL

**Client Sample ID: FB#2** Lab Sample ID: 180-109918-1 Date Collected: 08/20/20 10:45 **Matrix: Water** 

Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.65 mL	1.0 g	481082	08/28/20 16:42	AVB	TAL SL
Total/NA	Analysis Instrumen	9315 nt ID: GFPCRED		1			483033	09/21/20 10:52	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.65 mL	1.0 g	481085	08/28/20 17:17	AVB	TAL SL
Total/NA	Analysis Instrumen	9320 nt ID: GFPCPURPLE		1			482946	09/18/20 11:58	SCB	TAL SL
Total/NA	Analysis Instrumen	Ra226_Ra228 nt ID: NOEQUIP		1			483465	09/23/20 12:33	СММ	TAL SL

Lab Sample ID: 180-109918-2 **Client Sample ID: ARGWC-23** 

Date Collected: 08/20/20 12:15 Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.18 mL	1.0 g	481082	08/28/20 16:42	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 t ID: GFPCRED		1			483033	09/21/20 10:52	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.18 mL	1.0 g	481085	08/28/20 17:17	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 t ID: GFPCBLUE		1			482957	09/18/20 11:59	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228		1			483465	09/23/20 12:33	CMM	TAL SL

Lab Sample ID: 180-109918-3 **Client Sample ID: DUP-2** 

Date Collected: 08/20/20 00:00 Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.21 mL	1.0 g	481082	08/28/20 16:42	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 at ID: GFPCRED		1			483033	09/21/20 10:52	SCB	TAL SL
Total/NA	Prep	PrecSep_0			749.11 mL	1.0 g	483141	09/21/20 14:11	RBR	TAL SL
Total/NA	Analysis Instrumer	9320 at ID: GFPCBLUE		1			484399	09/30/20 12:41	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 at ID: NOEQUIP		1			483465	09/23/20 12:33	СММ	TAL SL

Eurofins TestAmerica, Pittsburgh

Page 15 of 94

**Matrix: Water** 

**Matrix: Water** 

10/8/2020

Project/Site: CCR - Plant Arkwright

Client: Southern Company

**Client Sample ID: ARAMW-1** 

Date Collected: 08/20/20 14:36

Lab Sample ID: 180-109918-4

**Matrix: Water** 

Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.06 mL	1.0 g	481082	08/28/20 16:42	AVB	TAL SL
Total/NA	Analysis Instrumen	9315 at ID: GFPCRED		1			483033	09/21/20 10:52	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.06 mL	1.0 g	481085	08/28/20 17:17	AVB	TAL SL
Total/NA	Analysis Instrumen	9320 at ID: GFPCBLUE		1			482957	09/18/20 12:00	SCB	TAL SL
Total/NA	Analysis Instrumen	Ra226_Ra228 at ID: NOEQUIP		1			483465	09/23/20 12:33	СММ	TAL SL

Client Sample ID: ARAMW-2 Lab Sample ID: 180-109918-5 **Matrix: Water** 

Date Collected: 08/20/20 16:35

Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.58 mL	1.0 g	481082	08/28/20 16:42	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCRED		1			483033	09/21/20 12:46	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.58 mL	1.0 g	481085	08/28/20 17:17	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			482957	09/18/20 12:00	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 nt ID: NOEQUIP		1			483465	09/23/20 12:33	CMM	TAL SL

**Client Sample ID: ARGWC-8** Lab Sample ID: 180-109929-1 Date Collected: 08/20/20 10:35 **Matrix: Water** 

Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.96 mL	1.0 g	481082	08/28/20 16:42	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCRED		1			483033	09/21/20 12:46	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.96 mL	1.0 g	481085	08/28/20 17:17	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			482957	09/18/20 12:00	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228		1			483465	09/23/20 12:33	СММ	TAL SL

**Client Sample ID: ARGWC-18** Lab Sample ID: 180-109929-2

Date Collected: 08/20/20 17:05 Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.67 mL	1.0 g	481082	08/28/20 16:42	AVB	TAL SL
Total/NA	Analysis	9315		1			483033	09/21/20 12:46	SCB	TAL SL
	Instrumen	t ID: GFPCRED								

Eurofins TestAmerica, Pittsburgh

Page 16 of 94

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

Client Sample ID: ARGWC-18 Lab Sample ID: 180-109929-2 Date Collected: 08/20/20 17:05

**Matrix: Water** 

Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1000.67 mL	1.0 g	481085	08/28/20 17:17	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			482957	09/18/20 12:00	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 nt ID: NOEQUIP		1			483465	09/23/20 12:33	СММ	TAL SL

Lab Sample ID: 180-109930-1 Client Sample ID: EB#1

Date Collected: 08/20/20 09:30 **Matrix: Water** 

Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.85 mL	1.0 g	481232	08/31/20 13:50	AVB	TAL SL
Total/NA	Analysis Instrument	9315 ID: GFPCRED		1			483161	09/22/20 09:54	SCB	TAL SL
Total/NA	Prep	PrecSep_0			749.85 mL	1.0 g	481237	08/31/20 14:14	AVB	TAL SL
Total/NA	Analysis Instrument	9320 ID: GFPCPURPLE		1			481801	09/09/20 13:13	CMM	TAL SL
Total/NA	Analysis Instrument	Ra226_Ra228 ID: NOEQUIP		1			484496	10/02/20 17:52	CMM	TAL SL

**Client Sample ID: ARAMW-3** Lab Sample ID: 180-109930-2

Date Collected: 08/20/20 14:45 Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.36 mL	1.0 g	481232	08/31/20 13:50	AVB	TAL SL
Total/NA	Analysis Instrumen	9315 at ID: GFPCRED		1			483161	09/22/20 09:55	SCB	TAL SL
Total/NA	Prep	PrecSep_0			750.36 mL	1.0 g	481237	08/31/20 14:14	AVB	TAL SL
Total/NA	Analysis Instrumen	9320 at ID: GFPCPURPLE		1			481801	09/09/20 13:14	СММ	TAL SL
Total/NA	Analysis Instrumen	Ra226_Ra228 at ID: NOEQUIP		1			484496	10/02/20 17:52	CMM	TAL SL

Client Sample ID: ARAMW-4 Lab Sample ID: 180-109930-3

Date Collected: 08/20/20 11:45 Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			749.18 mL	1.0 g	481232	08/31/20 13:50	AVB	TAL SL
Total/NA	Analysis	9315		1			483161	09/22/20 09:55	SCB	TAL SL
	Instrumer	t ID: GFPCRED								
Total/NA	Prep	PrecSep_0			749.18 mL	1.0 g	481237	08/31/20 14:14	AVB	TAL SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	481801	09/09/20 13:14	CMM	TAL SL
	Instrumer	t ID: GFPCPURPLE								

Eurofins TestAmerica, Pittsburgh

Page 17 of 94

**Matrix: Water** 

#### **Lab Chronicle**

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-4** Lab Sample ID: 180-109930-3

Date Collected: 08/20/20 11:45 **Matrix: Water** Date Received: 08/21/20 09:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1			484496	10/02/20 17:52	CMM	TAL SL

**Client Sample ID: ARAMW-6** 

Lab Sample ID: 180-109970-1 Date Collected: 08/21/20 09:45 **Matrix: Water** 

Date Received: 08/22/20 10:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.25 mL	1.0 g	481082	08/28/20 16:42	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCRED		1			483033	09/21/20 12:46	SCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.25 mL	1.0 g	481085	08/28/20 17:17	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			482957	09/18/20 12:00	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 at ID: NOEQUIP		1			483465	09/23/20 12:33	СММ	TAL SL

Lab Sample ID: 180-109970-2 Client Sample ID: ARGWC-21 **Matrix: Water** 

Date Collected: 08/21/20 10:36 Date Received: 08/22/20 10:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.57 mL	1.0 g	481082	08/28/20 16:42	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCRED		1			483033	09/21/20 12:46	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.57 mL	1.0 g	481085	08/28/20 17:17	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			482957	09/18/20 12:00	SCB	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228		1			483465	09/23/20 12:33	СММ	TAL SL

#### **Laboratory References:**

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

**Analyst References:** 

Lab: TAL SL

Batch Type: Prep

AVB = Amber Bleem

RBR = Rachael Ratcliff

Batch Type: Analysis

CAH = Chris Hough

CMM = Chelsea Mazariegos

SCB = Sarah Bernsen

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWA-14** 

Lab Sample ID: 180-109846-1 Date Collected: 08/19/20 13:55

**Matrix: Water** 

Date Received: 08/20/20 09:30

Method: 9315 - Rac	dium-226 (	GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0256	U	0.0765	0.0765	1.00	0.144	pCi/L	08/24/20 15:59	09/15/20 11:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.1		40 - 110					08/24/20 15:59	09/15/20 11:21	1

Method: 9320 -	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0805	U	0.258	0.258	1.00	0.480	pCi/L	08/24/20 18:23	09/10/20 12:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.1		40 - 110					08/24/20 18:23	09/10/20 12:19	1
Y Carrier	85.2		40 - 110					08/24/20 18:23	09/10/20 12:19	1

Method: Ra226_Ra2	228 - Con	bined Rad	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0549	U	0.269	0.269	5.00	0.480	pCi/L		09/17/20 10:50	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-15** 

Lab Sample ID: 180-109846-2

**Matrix: Water** 

Date Collected: 08/19/20 10:05 Date Received: 08/20/20 09:30

Method: 9315 - Rad	dium-226 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0702	Ū	0.0795	0.0798	1.00	0.129	pCi/L	08/24/20 15:59	09/15/20 11:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					08/24/20 15:59	09/15/20 11:21	1

Method: 9320 - F	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.468		0.260	0.264	1.00	0.391	pCi/L	08/24/20 18:23	09/10/20 12:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	108		40 - 110					08/24/20 18:23	09/10/20 12:19	1
Y Carrier	81.5		40 - 110					08/24/20 18:23	09/10/20 12:19	1

Method: Ra226_Ra	228 - Com	bined Rad	dium-226 a	nd Radium	1-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.538		0.272	0.276	5.00	0.391	pCi/L		09/17/20 10:50	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-16** 

Lab Sample ID: 180-109846-3 Date Collected: 08/19/20 12:05

**Matrix: Water** 

Date Received: 08/20/20 09:30

Method: 9315 - R	adium-226 (	GFPC)								
	·		Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.161	·	0.0973	0.0983	1.00	0.124	pCi/L	08/24/20 15:59	09/15/20 11:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.4		40 - 110					08/24/20 15:59	09/15/20 11:22	1

Method: 9320 -		, ,	Count Uncert.	Total Uncert.						
Analyte	Posult	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Allalyte		Qualifier	(20+1-)	(20+/-)	NL _	IVIDC	OIIIL	Fiepaieu	Allalyzeu	Dil Fac
Radium-228	0.144	U	0.269	0.269	1.00	0.459	pCi/L	08/24/20 18:23	09/10/20 12:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.4		40 - 110					08/24/20 18:23	09/10/20 12:20	1
Y Carrier	83.0		40 - 110					08/24/20 18:23	09/10/20 12:20	1

Method: Ra226_Ra2	228 - Con	nbined Rad	dium-226 a	nd Radium	<b>-228</b>					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.306	U	0.286	0.286	5.00	0.459	pCi/L		09/17/20 10:50	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Client Sample ID: FB#1 Lab Sample ID: 180-109847-1

. Matrix: Water

Date Collected: 08/18/20 11:00 Date Received: 08/20/20 09:30

Method: 9315 -	Radium-226 (	(GFPC)								
	·	,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00971	U	0.0738	0.0738	1.00	0.144	pCi/L	08/24/20 15:59	09/15/20 11:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					08/24/20 15:59	09/15/20 11:22	1
_										

Method: 9320 - F	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.533		0.333	0.337	1.00	0.515	pCi/L	08/24/20 18:23	09/10/20 12:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					08/24/20 18:23	09/10/20 12:20	1
Y Carrier	83.4		40 - 110					08/24/20 18:23	09/10/20 12:20	1

Method: Ra226_Ra	228 - Con	nbined Rad	dium-226 a	nd Radiun	1-228					
_			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.543		0.341	0.345	5.00	0.515	pCi/L		09/17/20 10:50	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARGWA-12

Lab Sample ID: 180-109847-2

**Matrix: Water** 

Date Collected: 08/18/20 13:00 Date Received: 08/20/20 09:30

Method: 9315 - Rad	dium-226	(GFPC)								
		` '	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.110	U	0.0818	0.0824	1.00	0.111	pCi/L	08/24/20 15:59	09/15/20 11:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.0		40 - 110					08/24/20 15:59	09/15/20 11:22	1

Method: 9320 - I	Radium-228 (	(GFPC)								
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.477	U	0.335	0.338	1.00	0.521	pCi/L	08/24/20 18:23	09/10/20 12:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.0		40 - 110					08/24/20 18:23	09/10/20 12:20	1
Y Carrier	77.4		40 - 110					08/24/20 18:23	09/10/20 12:20	1

Method: Ra226_Ra	228 - Con	nbined Rad	dium-226 a	nd Radium	1-228					
_	_		Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.587		0.345	0.348	5.00	0.521	pCi/L		09/17/20 10:50	1

1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWA-13** Lab Sample ID: 180-109847-3

Date Collected: 08/18/20 14:50 **Matrix: Water** 

Date Received: 08/20/20 09:30

Method: 9315 - Rac	lium-226 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0366	U	0.0581	0.0582	1.00	0.101	pCi/L	08/24/20 15:59	09/15/20 11:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.4		40 - 110					08/24/20 15:59	09/15/20 11:22	1

Method: 9320 - I	Radium-228 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.344	U	0.261	0.263	1.00	0.410	pCi/L	08/24/20 18:23	09/10/20 12:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.4		40 - 110					08/24/20 18:23	09/10/20 12:20	1
Y Carrier	83.7		40 - 110					08/24/20 18:23	09/10/20 12:20	1

Method: Ra226_Ra2	28 - Con	nbined Rad	dium-226 a	nd Radium	<b>-228</b>					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.380	U	0.267	0.269	5.00	0.410	pCi/L		09/17/20 10:50	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-17** 

Lab Sample ID: 180-109847-4

**Matrix: Water** 

Date Collected: 08/18/20 14:45 Date Received: 08/20/20 09:30

Method: 9315 - I	Radium-226 (	(GFPC)								
	·		Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0989	U	0.0751	0.0756	1.00	0.104	pCi/L	08/24/20 15:59	09/15/20 11:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.2		40 - 110					08/24/20 15:59	09/15/20 11:22	1
_										

Method: 9320 - I	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.324	U	0.246	0.248	1.00	0.386	pCi/L	08/24/20 18:23	09/10/20 12:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.2		40 - 110					08/24/20 18:23	09/10/20 12:20	1
Y Carrier	83.4		40 - 110					08/24/20 18:23	09/10/20 12:20	1

Method: Ra226_Ra	228 - Con	bined Rad	dium-226 a	nd Radium	<b>-228</b>					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.423		0.257	0.259	5.00	0.386	pCi/L		09/17/20 10:50	1

5

4

5

7

a

J

11

12

1

10/8/2020

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-10** 

Lab Sample ID: 180-109848-1 Date Collected: 08/19/20 11:35

**Matrix: Water** 

Date Received: 08/20/20 09:30

Method: 9315 - Rad	dium- <mark>226</mark> (	GFPC)	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0672	U	0.0665	0.0668	1.00	0.102	pCi/L	08/24/20 15:59	09/15/20 11:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.1		40 - 110					08/24/20 15:59	09/15/20 11:23	1

Method: 9320 - I	Radium-228 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0942	U	0.245	0.245	1.00	0.451	pCi/L	08/24/20 18:23	09/10/20 12:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.1		40 - 110					08/24/20 18:23	09/10/20 12:22	1
Y Carrier	81.9		40 - 110					08/24/20 18:23	09/10/20 12:22	1

Method: Ra226_Ra2	228 - Con	nbined Rad	dium-226 a	nd Radium	1-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0271	U	0.254	0.254	5.00	0.451	pCi/L		09/17/20 10:50	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Client Sample ID: DUP-1 Lab Sample ID: 180-109848-2

Matrix: Water

Date Collected: 08/19/20 00:00 Date Received: 08/20/20 09:30

Method: 9315 - Ra	dium-226 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0617	U	0.0657	0.0659	1.00	0.103	pCi/L	08/24/20 15:59	09/15/20 11:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.6		40 - 110					08/24/20 15:59	09/15/20 11:23	1

	- "	o 115	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.285	U	0.231	0.233	1.00	0.464	pCi/L	08/24/20 18:23	09/10/20 12:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.6		40 - 110					08/24/20 18:23	09/10/20 12:22	1
Y Carrier	79.3		40 - 110					08/24/20 18:23	09/10/20 12:22	1

Method: Ra226_Ra2	28 - Con	nbined Rad	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.224	U	0.240	0.242	5.00	0.464	pCi/L		09/17/20 10:50	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-9** 

Lab Sample ID: 180-109848-3

**Matrix: Water** 

Date Collected: 08/19/20 14:25 Date Received: 08/20/20 09:30

Method: 9315 - R		GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0965		0.0703	0.0708	1.00	0.0930	pCi/L	08/24/20 15:59	09/15/20 13:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.2		40 - 110					08/24/20 15:59	09/15/20 13:55	1
_										

Method: 9320 - I	Radium-228 (	GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0279	U	0.272	0.272	1.00	0.479	pCi/L	08/24/20 18:23	09/10/20 12:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.2		40 - 110					08/24/20 18:23	09/10/20 12:22	1
Y Carrier	81.5		40 - 110					08/24/20 18:23	09/10/20 12:22	1

Method: Ra226_Ra2	28 - Con	nbined Rad	dium-226 a	nd Radium	-228					
_			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.124	U	0.281	0.281	5.00	0.479	pCi/L		09/17/20 10:50	1

Client: Southern Company Project/Site: CCR - Plant Arkwright Job ID: 180-109846-2

Client Sample ID: ARGWA-5

Lab Sample ID: 180-109850-1

**Matrix: Water** 

<b>Date</b>	<b>Collected:</b>	08/18/20	11:35
<b>Date</b>	Received:	08/20/20	09:30

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0111	U	0.0550	0.0550	1.00	0.109	pCi/L	08/25/20 11:29	09/16/20 08:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110					08/25/20 11:29	09/16/20 08:04	1

Method: 9320 - F	Radium-228 (	(GFPC)	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.11	*	0.432	0.444	1.00	0.597	pCi/L	09/14/20 10:14	09/21/20 11:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.6		40 - 110					09/14/20 10:14	09/21/20 11:52	1
Y Carrier	81.9		40 - 110					09/14/20 10:14	09/21/20 11:52	1

Method: Ra226_Ra	228 - Con	bined Rad	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.12		0.435	0.447	5.00	0.597	pCi/L		10/02/20 17:53	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Date Received: 08/20/20 09:30

**Client Sample ID: ARGWA-3** Lab Sample ID: 180-109850-2

Date Collected: 08/18/20 13:20

**Matrix: Water** 

Method: 9315 - Ra	dium-226 (	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0283	U	0.0621	0.0622	1.00	0.114	pCi/L	08/25/20 11:29	09/16/20 09:50	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analvzed	Dil Fac
Ba Carrier	05.0		40 - 110					08/25/20 11:29	09/16/20 09:50	
Da Carrier	85.8		40 - 110					00/23/20 11.29	09/10/20 09.50	ı

Method: 9320 - I	Radium-228 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.104	U *	0.299	0.299	1.00	0.520	pCi/L	09/14/20 10:14	09/21/20 11:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.7		40 - 110					09/14/20 10:14	09/21/20 11:52	1
Y Carrier	82.6		40 - 110					09/14/20 10:14	09/21/20 11:52	1

Method: Ra226_Ra2	228 - Con	bined Ra	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.132	U	0.305	0.305	5.00	0.520	pCi/L		10/02/20 17:53	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-7** 

Lab Sample ID: 180-109850-3

**Matrix: Water** 

Date Collected: 08/18/20 15:25 Date Received: 08/20/20 09:30

Method: 9315 - Rac	lium-226 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0331	U	0.0879	0.0880	1.00	0.159	pCi/L	08/25/20 11:29	09/16/20 09:49	1
<b>Carrier</b> Ba Carrier	<b>%Yield</b> 87.3	Qualifier	Limits 40 - 110					<b>Prepared</b> 08/25/20 11:29	Analyzed 09/16/20 09:49	Dil Fac

Analyte	Posult	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analvzed	Dil Fac
Analyte	Result	Qualifier	(20+/-)	(20+/-)	KL .	MIDC	UIIIL	Frepareu	Allalyzeu	DII Fac
Radium-228	0.343	U *	0.360	0.362	1.00	0.588	pCi/L	09/14/20 10:14	09/21/20 11:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.2		40 - 110					09/14/20 10:14	09/21/20 11:53	1
Y Carrier	81.9		40 - 110					09/14/20 10:14	09/21/20 11:53	1

Method: Ra226_Ra2	28 - Con	bined Ra	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.376	U	0.371	0.373	5.00	0.588	pCi/L		10/02/20 17:53	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Client Sample ID: EB#2 Lab Sample ID: 180-109851-1

Matrix: Water

Date Collected: 08/19/20 09:15 Date Received: 08/20/20 09:30

dium-226 (	(GFPC)								
		Count Uncert.	Total Uncert.						
Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
0.0278	U	0.0658	0.0658	1.00	0.121	pCi/L	08/25/20 11:29	09/16/20 09:50	1
%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
84.3		40 - 110					08/25/20 11:29	09/16/20 09:50	1
	Result     0.0278     %Yield	Result Qualifier 0.0278 U  Wield Qualifier 84.3	Count Uncert.	Count Uncert. Uncert. Uncert.	Count   Total   Uncert.   Uncert.   Uncert.   Uncert.   Uncert.   O.0278   U   O.0658   O.	Count   Total   Uncert.   Uncert.	Count   Total   Uncert.   Uncert.   Uncert.     Result   Qualifier   (2σ+/-)   (2σ+/-)   RL   MDC   Unit     PCi/L	Count Uncert. Uncert.   Uncert.	Count Uncert. Uncert. Uncert.   Variety   V

Method: 9320 - I	Radium-228 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0971	U *	0.314	0.314	1.00	0.546	pCi/L	08/25/20 12:41	09/09/20 13:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.3		40 - 110					08/25/20 12:41	09/09/20 13:23	1
Y Carrier	78.5		40 - 110					08/25/20 12:41	09/09/20 13:23	1

Method: Ra226_Ra2	228 - Con	bined Ra	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.125	U	0.321	0.321	5.00	0.546	pCi/L		10/02/20 17:53	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWA-19** 

Lab Sample ID: 180-109851-2 Date Collected: 08/19/20 10:56

**Matrix: Water** 

Date Received: 08/20/20 09:30

Method: 9315 - Ra	dium-226 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0997	U	0.100	0.100	1.00	0.159	pCi/L	08/25/20 11:29	09/16/20 12:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					08/25/20 11:29	09/16/20 12:20	1

Method: 9320 - I	Radium-228 (	(GFPC)								
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.194	U *	0.371	0.372	1.00	0.632	pCi/L	09/14/20 10:14	09/21/20 11:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.0		40 - 110					09/14/20 10:14	09/21/20 11:53	1
Y Carrier	84.1		40 - 110					09/14/20 10:14	09/21/20 11:53	1

Method: Ra226_Ra2	228 - Con	nbined Rad	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.294	U	0.384	0.385	5.00	0.632	pCi/L		10/02/20 17:53	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARGWA-20

Lab Sample ID: 180-109851-3 Date Collected: 08/19/20 13:44

**Matrix: Water** 

Date	Received:	08/20/20	09:30

Method: 9315 - F	Radium-226 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.100	U	0.0809	0.0814	1.00	0.119	pCi/L	08/25/20 11:29	09/16/20 12:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.2		40 - 110					08/25/20 11:29	09/16/20 12:21	1

Method: 9320 - F	Radium-228 (	(GFPC)	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.840	*	0.402	0.409	1.00	0.582	pCi/L	09/14/20 10:14	09/21/20 11:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	85.3		40 - 110					09/14/20 10:14	09/21/20 11:53	1
Y Carrier	81.1		40 - 110					09/14/20 10:14	09/21/20 11:53	1

Method: Ra226_Ra	228 - Con	ibined Rad	dium-226 a	nd Radium	<b>-228</b>					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.940		0.410	0.417	5.00	0.582	pCi/L		10/02/20 17:53	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARGWC-22 Lab Sample ID: 180-109851-4

Matrix: Water

Date Collected: 08/19/20 15:32 Date Received: 08/20/20 09:30

Method: 9315 - Ra	dium-226 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0279	U	0.0970	0.0970	1.00	0.178	pCi/L	08/25/20 11:29	09/16/20 14:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.2		40 - 110					08/25/20 11:29	09/16/20 14:43	1

Method: 9320 - I	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.560	U *	0.458	0.461	1.00	0.731	pCi/L	09/14/20 10:14	09/21/20 11:53	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.1	·	40 - 110					09/14/20 10:14	09/21/20 11:53	1
Y Carrier	78.9		40 - 110					09/14/20 10:14	09/21/20 11:53	1

Method: Ra226_Ra2	28 - Con	nbined Rad	dium-226 a	nd Radium	<b>-228</b>					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.587	U	0.468	0.471	5.00	0.731	pCi/L		10/02/20 17:53	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Client Sample ID: FB#2 Lab Sample ID: 180-109918-1

Matrix: Water

Date Collected: 08/20/20 10:45 Date Received: 08/21/20 09:45

Method: 9315 - R	adium-226 (	GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.117	U	0.101	0.101	1.00	0.146	pCi/L	08/28/20 16:42	09/21/20 10:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.4		40 - 110					08/28/20 16:42	09/21/20 10:52	1

Method: 9320 - I	Radium-228 (	(GFPC)	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.312	U	0.367	0.368	1.00	0.605	pCi/L	08/28/20 17:17	09/18/20 11:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.4		40 - 110					08/28/20 17:17	09/18/20 11:58	1
Y Carrier	72.9		40 - 110					08/28/20 17:17	09/18/20 11:58	1

Method: Ra226_Ra2	228 - Con	bined Rad	dium-226 a	nd Radium	-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.429	U	0.381	0.382	5.00	0.605	pCi/L		09/23/20 12:33	1

3

5

\_

\_

*A* 

11

45

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-23** 

Lab Sample ID: 180-109918-2 Date Collected: 08/20/20 12:15

**Matrix: Water** 

Date Received: 08/21/20 09:45

Method: 9315 - Rad	dium-226 (	(GFPC)	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.101	U	0.102	0.102	1.00	0.159	pCi/L	08/28/20 16:42	09/21/20 10:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.1		40 - 110					08/28/20 16:42	09/21/20 10:52	1

Method: 9320 - I	Radium-228 (	(GFPC)								
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.141	U	0.263	0.263	1.00	0.447	pCi/L	08/28/20 17:17	09/18/20 11:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.1		40 - 110					08/28/20 17:17	09/18/20 11:59	1
Y Carrier	81.1		40 - 110					08/28/20 17:17	09/18/20 11:59	1

Method: Ra226_Ra2	28 - Con	bined Ra	dium-226 a	nd Radium	<b>-228</b>					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.242	U	0.282	0.282	5.00	0.447	pCi/L		09/23/20 12:33	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: DUP-2** Lab Sample ID: 180-109918-3 Date Collected: 08/20/20 00:00

**Matrix: Water** 

Date Received: 08/21/20 09:45

Method: 9315 - R	Radium-226 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.130	U	0.115	0.115	1.00	0.173	pCi/L	08/28/20 16:42	09/21/20 10:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.4		40 - 110					08/28/20 16:42	09/21/20 10:52	1

Method: 9320 - I	Radium-228 (	GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.266	U	0.400	0.401	1.00	0.670	pCi/L	09/21/20 14:11	09/30/20 12:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.6		40 - 110					09/21/20 14:11	09/30/20 12:41	1
Y Carrier	89.3		40 - 110					09/21/20 14:11	09/30/20 12:41	1

Method: Ra226_Ra2	28 - Con	bined Rad	dium-226 a	nd Radium	n-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.396	U	0.416	0.417	5.00	0.670	pCi/L		09/23/20 12:33	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Date Received: 08/21/20 09:45

**Client Sample ID: ARAMW-1** 

Lab Sample ID: 180-109918-4 Date Collected: 08/20/20 14:36 **Matrix: Water** 

Method: 9315 -	Radium-226	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.121		0.104	0.105	1.00	0.155			09/21/20 10:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.4		40 _ 110					08/28/20 16:42	09/21/20 10:52	1

Method: 9320 - I	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.406	U	0.321	0.323	1.00	0.509	pCi/L	08/28/20 17:17	09/18/20 12:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.4		40 - 110					08/28/20 17:17	09/18/20 12:00	1
Y Carrier	75.5		40 - 110					08/28/20 17:17	09/18/20 12:00	1

Method: Ra226_Ra	228 - Con	nbined Rad	dium-226 a	nd Radium	<b>-228</b>					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.527		0.337	0.340	5.00	0.509	pCi/L	_	09/23/20 12:33	1

10/8/2020

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-2** 

Lab Sample ID: 180-109918-5

**Matrix: Water** 

Date Collected: 08/20/20 16:35 Date Received: 08/21/20 09:45

Method: 9315 - R	adium-226 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.516		0.150	0.157	1.00	0.109	pCi/L	08/28/20 16:42	09/21/20 12:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier			40 - 110					08/28/20 16:42	09/21/20 12:46	1

Method: 9320 - F	Radium-228 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	3.61		0.462	0.569	1.00	0.413	pCi/L	08/28/20 17:17	09/18/20 12:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					08/28/20 17:17	09/18/20 12:00	1
Y Carrier	80.4		40 - 110					08/28/20 17:17	09/18/20 12:00	1

Method: Ra226_Ra	228 - Con	nbined Ra	dium-226 a	nd Radiun	n- <b>228</b>					
_			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	4.13		0.486	0.590	5.00	0.413	pCi/L		09/23/20 12:33	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARGWC-8** Lab Sample ID: 180-109929-1 Date Collected: 08/20/20 10:35

**Matrix: Water** 

Date Received: 08/21/20 09:45

Method: 9315 - Ra	adium-226 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.136		0.0990	0.0997	1.00	0.136	pCi/L	08/28/20 16:42	09/21/20 12:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					08/28/20 16:42	09/21/20 12:46	1

Method: 9320 -	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
	<b>.</b> .,									
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.00477	U	0.249	0.249	1.00	0.444	pCi/L	08/28/20 17:17	09/18/20 12:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					08/28/20 17:17	09/18/20 12:00	1
Y Carrier	82.6		40 - 110					08/28/20 17:17	09/18/20 12:00	1

Method: Ra226_Ra2	228 - Con	bined Rad	dium-226 a	nd Radium	1-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.140	U	0.268	0.268	5.00	0.444	pCi/L		09/23/20 12:33	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Date Received: 08/21/20 09:45

**Client Sample ID: ARGWC-18** Lab Sample ID: 180-109929-2 Date Collected: 08/20/20 17:05

**Matrix: Water** 

Method: 9315 - R	adium-226 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0554	U	0.0711	0.0713	1.00	0.117	pCi/L	08/28/20 16:42	09/21/20 12:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.5		40 - 110					08/28/20 16:42	09/21/20 12:46	1

Method: 9320 - I	Radium-228 (	GFPC)								
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.136	U	0.233	0.233	1.00	0.395	pCi/L	08/28/20 17:17	09/18/20 12:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.5		40 - 110					08/28/20 17:17	09/18/20 12:00	1
Y Carrier	84.5		40 - 110					08/28/20 17:17	09/18/20 12:00	1

		ibilica ita		nd Radium	1-220					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.191	U	0.244	0.244	5.00	0.395	pCi/L		09/23/20 12:33	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Client Sample ID: EB#1 Lab Sample ID: 180-109930-1 Date Collected: 08/20/20 09:30

**Matrix: Water** 

Date Received: 08/21/20 09:45

Method: 9315 - Rac	dium-226 (	GFPC)	Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0471	U	0.0764	0.0765	1.00	0.133	pCi/L	08/31/20 13:50	09/22/20 09:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.1		40 - 110					08/31/20 13:50	09/22/20 09:54	1

Method: 9320 - I	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.106	U	0.348	0.348	1.00	0.609	pCi/L	08/31/20 14:14	09/09/20 13:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	88.1		40 - 110					08/31/20 14:14	09/09/20 13:13	1
Y Carrier	82.6		40 - 110					08/31/20 14:14	09/09/20 13:13	1

Method: Ra226_Ra2	28 - Con	ibined Rad	dium-226 a	nd Radium	1-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.154	U	0.356	0.356	5.00	0.609	pCi/L		10/02/20 17:52	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-3** Lab Sample ID: 180-109930-2 Date Collected: 08/20/20 14:45

**Matrix: Water** 

Date Received: 08/21/20 09:45

Method: 9315 -	Radium-226 (	(GFPC)								
	·	,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0239	U	0.0600	0.0600	1.00	0.141	pCi/L	08/31/20 13:50	09/22/20 09:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.8		40 - 110					08/31/20 13:50	09/22/20 09:55	1

Method: 9320 - I	Radium-228 (	(GFPC)								
Analyte	Rosult	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analvzed	Dil Fac
			<del></del>							Dil Fac
Radium-228	-0.113	U	0.381	0.382	1.00	0.707	pCi/L	08/31/20 14:14	09/09/20 13:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.8		40 - 110					08/31/20 14:14	09/09/20 13:14	1
Y Carrier	79.6		40 - 110					08/31/20 14:14	09/09/20 13:14	1

Method: Ra226_Ra2	28 - Con	nbined Rad	dium-226 a	nd Radium	n-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.137	U	0.386	0.387	5.00	0.707	pCi/L		10/02/20 17:52	1

10/8/2020

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-4** 

Lab Sample ID: 180-109930-3 Date Collected: 08/20/20 11:45

**Matrix: Water** 

Date Received: 08/21/20 09:45	
Method: 9315 - Radium-226 (GFPC	

Method: 9315 - Rad	dium-226 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.204		0.110	0.112	1.00	0.135	pCi/L	08/31/20 13:50	09/22/20 09:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.3		40 - 110					08/31/20 13:50	09/22/20 09:55	1

Method: 9320 - I	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.419	U	0.434	0.436	1.00	0.708	pCi/L	08/31/20 14:14	09/09/20 13:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	81.3		40 - 110					08/31/20 14:14	09/09/20 13:14	1
Y Carrier	87.5		40 - 110					08/31/20 14:14	09/09/20 13:14	1

Method: Ra226_Ra2	228 - Con	nbined Rad	dium-226 a	nd Radium	<b>-228</b>					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.624	U	0.448	0.450	5.00	0.708	pCi/L		10/02/20 17:52	1

10/8/2020

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-6** 

Lab Sample ID: 180-109970-1 Date Collected: 08/21/20 09:45 **Matrix: Water** 

Date Received: 08/22/20 10:00

Method: 9315 -	Radium-226 (	GFPC)								
Analyte		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.142	U	0.120	0.121	1.00	0.179	pCi/L	08/28/20 16:42	09/21/20 12:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.3		40 - 110					08/28/20 16:42	09/21/20 12:46	1

Method: 9320 - I	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.143	U	0.295	0.295	1.00	0.505	pCi/L	08/28/20 17:17	09/18/20 12:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	78.3		40 - 110					08/28/20 17:17	09/18/20 12:00	1
Y Carrier	80.4		40 - 110					08/28/20 17:17	09/18/20 12:00	1

Method: Ra226_Ra2	28 - Con	bined Ra	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.285	U	0.318	0.319	5.00	0.505	pCi/L		09/23/20 12:33	1

Client: Southern Company Job ID: 180-109846-2

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARGWC-21

Lab Sample ID: 180-109970-2 Date Collected: 08/21/20 10:36

**Matrix: Water** 

Date	Collected:	00/21/20	10.30
Date	Received:	08/22/20	10:00

adium-226 (	(GFPC)								
		Count Uncert.	Total Uncert.						
Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
0.0115	U	0.0905	0.0905	1.00	0.176	pCi/L	08/28/20 16:42	09/21/20 12:46	1
%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
93.9		40 - 110					08/28/20 16:42	09/21/20 12:46	1
	Result	Result Qualifier 0.0115 U  WYield Qualifier 93.9	Count Uncert.	Count Uncert. Uncert. Uncert.	Count   Total   Uncert.   Uncert.   Uncert.   Uncert.   Uncert.   O.0115   U   O.0905   O.	Count   Total   Uncert.   Uncert.	Count   Total   Uncert.   Uncert.	Count Uncert. Uncert. Uncert.   Variety   V	Count   Uncert.   Uncert.   Uncert.   Uncert.   Uncert.   Uncert.   Count   Uncert.   Uncert.

Method: 9320 - F	Radium-228 (	GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.461		0.264	0.267	1.00	0.394	pCi/L	08/28/20 17:17	09/18/20 12:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.9		40 - 110					08/28/20 17:17	09/18/20 12:00	1
Y Carrier	79.6		40 - 110					08/28/20 17:17	09/18/20 12:00	1

		inilien Kat	ilum-226 a	nd Radium	1-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.472		0.279	0.282	5.00	0.394	pCi/L		09/23/20 12:33	1

Job ID: 180-109846-2

Client: Southern Company

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: MB 160-480640/24-A

**Matrix: Water** 

**Matrix: Water** 

Analysis Batch: 482515

Analysis Batch: 482515

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

**Prep Batch: 480640** 

	MB	MB	Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.04136	U	0.0641	0.0642	1.00	0.111	pCi/L	08/24/20 17:59	09/15/20 13:55	1

Total

Count

40 - 110

MB MB

%Yield Qualifier Carrier Limits Prepared Analyzed Dil Fac Ba Carrier 92.1 40 - 110 08/24/20 17:59 09/15/20 13:55

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

**Prep Batch: 480640** 

Total LCS LCS Spike Uncert. %Rec. Analyte Added Result Qual  $(2\sigma + / -)$ RL**MDC** Unit %Rec Limits Radium-226 11.3 10.31 1.14 1.00 0.135 pCi/L 75 - 125

LCS LCS Carrier %Yield Qualifier Limits Ba Carrier 74.3 40 - 110

Lab Sample ID: MB 160-480684/10-A

Lab Sample ID: LCS 160-480640/1-A

**Matrix: Water** 

**Analysis Batch: 482613** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA **Prep Batch: 480684** 

,			Count	Total						
	МВ	MB	Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.01097	U	0.0590	0.0590	1.00	0.116	pCi/L	08/25/20 11:29	09/16/20 14:43	1
	MB	MB								
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac

Lab Sample ID: LCS 160-480684/1-A

**Matrix: Water** 

Ba Carrier

Analysis Batch: 482613

**Client Sample ID: Lab Control Sample** 

08/25/20 11:29 09/16/20 14:43

Prep Type: Total/NA **Prep Batch: 480684** 

			Total					
	Spike	LCS LC	S Uncert.					%Rec.
Analyte	Added	Result Qua	al (2σ+/-)	RL	MDC	Unit	%Rec	Limits
Radium-226	11.3	9.909	1.06	1.00	0.157	pCi/L	87	75 - 125

LCS LCS %Yield Qualifier

87.6

Carrier Limits Ba Carrier 89.1 40 - 110

Lab Sample ID: LCSD 160-480684/2-A

**Matrix: Water** 

**Analysis Batch: 482613** 

**Client Sample ID: Lab Control Sample Dup** 

**Prep Type: Total/NA** 

**Prep Batch: 480684** 

				Total						
	Spike	LCSD	LCSD	Uncert.				%Rec.		RER
Analyte	Added	Result	Qual	(2σ+/-)	RL	MDC Unit	%Rec	Limits	RER	Limit
Radium-226	11.3	10.37		1.10	1.00	0.119 pCi/L	91	75 - 125	0.21	1

Eurofins TestAmerica, Pittsburgh

Page 48 of 94

10/8/2020

10

10

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-2

Prep Type: Total/NA

Prep Batch: 480684

Prep Type: Total/NA

Prep Batch: 481082

0.07

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

Lab Sample ID: LCSD 160-480684/2-A

**Matrix: Water** 

**Analysis Batch: 482613** 

LCSD LCSD

Carrier **%Yield Qualifier** Limits Ba Carrier 86 1 40 - 110

Lab Sample ID: MB 160-481082/24-A

**Matrix: Water** 

**Analysis Batch: 483033** 

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

**Prep Batch: 481082** 

Client Sample ID: Lab Control Sample Dup

MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-226 0.04354 0.0772 0.0773 1.00 0.137 pCi/L 08/28/20 16:42 09/21/20 12:46

Total

MB MB

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 93.6 40 - 110 08/28/20 16:42 09/21/20 12:46

**Client Sample ID: Lab Control Sample** 

Lab Sample ID: LCS 160-481082/1-A **Matrix: Water** Prep Type: Total/NA **Analysis Batch: 483033 Prep Batch: 481082** 

Total

**Spike** LCS LCS %Rec. Uncert. Analyte Added Result Qual  $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits 75 - 125 Radium-226 11.3 9.948 1.12 1.00 0.128 pCi/L 88

LCS LCS Carrier %Yield Qualifier Limits Ba Carrier 84.1 40 - 110

Lab Sample ID: LCSD 160-481082/2-A Client Sample ID: Lab Control Sample Dup

10.11

Count

0.0728

11.3

Count

**Matrix: Water** 

**Analysis Batch: 483033** 

Total **Spike** LCSD LCSD Uncert. %Rec. **RER** Added Result Qual RL **MDC** Unit %Rec Limits Analyte  $(2\sigma + / -)$ RER Limit Radium-226 75 - 125

1.14

1.00

0.109 pCi/L

0.151 pCi/L

89

LCSD LCSD

Carrier %Yield Qualifier Limits 40 - 110 Ba Carrier 82.9

Lab Sample ID: MB 160-481232/23-A **Client Sample ID: Method Blank** 

**Matrix: Water** 

Radium-226

Prep Type: Total/NA Analysis Batch: 483161 **Prep Batch: 481232** 

Total

0.0732

MB MB Uncert. Uncert. Analyte Result Qualifier **MDC** Unit  $(2\sigma + / -)$  $(2\sigma + / -)$ RL Prepared Analyzed Dil Fac

1.00

ΜB MΒ

U

0.08056

%Yield Qualifier Limits Prepared Dil Fac Carrier Analyzed Ba Carrier 40 - 110 08/31/20 13:50 09/22/20 11:59 94.8

Eurofins TestAmerica, Pittsburgh

08/31/20 13:50 09/22/20 11:59

Client: Southern Company

Job ID: 180-109846-2 Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: LCS 160-481232/1-A Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA **Prep Batch: 481232** 

Analysis Batch: 483161

				Total					
	Spike	LCS	LCS	Uncert.				%Rec.	
Analyte	Added	Result	Qual	(2σ+/-)	RL	MDC Unit	%Rec	Limits	
Radium-226	15.1	13.59		1.42	1.00	0.121 pCi/L	90	75 - 125	

LCS LCS Carrier %Yield Qualifier Limits Ba Carrier 84.1 40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-480651/24-A **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA **Analysis Batch: 482071 Prep Batch: 480651** Count Total

MB MB Uncert. Uncert. **Analyte** Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-228 0.414 pCi/L 08/24/20 18:23 09/10/20 12:22 0.01611 U 0.232 0.232 1.00

MB MB Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac 40 - 110 Ba Carrier 92.1 08/24/20 18:23 09/10/20 12:22 Y Carrier 85.2 40 - 110 08/24/20 18:23 09/10/20 12:22

Lab Sample ID: LCS 160-480651/1-A Client Sample ID: Lab Control Sample **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 482102 **Prep Batch: 480651** 

Total Spike LCS LCS Uncert. %Rec. Added Result Qual  $(2\sigma + / -)$ RL**MDC** Unit Limits **Analyte** %Rec Radium-228 7.82 8.153 1.08 1.00 0.560 pCi/L 104 75 - 125

LCS LCS Carrier %Yield Qualifier Limits 74.3 40 - 110 Ba Carrier Y Carrier 79.6 40 - 110

Lab Sample ID: MB 160-480689/10-A **Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 481811 Prep Batch: 480689** 

Count Total MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-228 -0.03910 U 0.226 0.226 1.00 0.418 pCi/L 08/25/20 12:41 09/09/20 13:26

MR MB Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 87.6 40 - 110 08/25/20 12:41 09/09/20 13:26 Y Carrier 86.0 40 - 110 08/25/20 12:41 09/09/20 13:26

10/8/2020

10

Job ID: 180-109846-2

Client: Southern Company

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: LCS 160-480689/1-A

**Matrix: Water** 

Analysis Batch: 481799

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

**Prep Batch: 480689** 

Total Spike LCS LCS Uncert. %Rec. **MDC** Unit Analyte Added Result Qual  $(2\sigma + / -)$ RL%Rec Limits Radium-228 7.82 10.69 1.30 1.00 0.596 pCi/L 137 75 <sub>-</sub> 125

LCS LCS

Carrier %Yield Qualifier Limits Ba Carrier 89.1 40 - 110 Y Carrier 76.6 40 - 110

**Client Sample ID: Lab Control Sample Dup** 

Prep Type: Total/NA

**Prep Batch: 480689** 

Lab Sample ID: LCSD 160-480689/2-A

**Matrix: Water** 

Radium-228

**Analysis Batch: 481799** 

Total Spike LCSD LCSD Analyte

Added Result Qual  $(2\sigma + / -)$ 7.82 9.539 1.19

Uncert.

RL

1.00

**MDC** Unit 0.634 pCi/L

%Rec. Limits %Rec 122

**RER** RER Limit

75 - 1250.46

LCSD LCSD

Carrier %Yield Qualifier Limits 40 - 110 Ba Carrier 86.1 Y Carrier 82.2 40 - 110

Lab Sample ID: MB 160-481085/24-A

**Matrix: Water** 

**Analysis Batch: 482957** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

**Prep Batch: 481085** 

Count Total MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-228 0.1718 U 0.210 0.210 1.00 0.347 pCi/L 08/28/20 17:17 09/18/20 12:00

MB MΒ

Carrier %Yield Qualifier Limits Ba Carrier 93.6 40 - 110 Y Carrier 88.6 40 - 110

Prepared Analyzed Dil Fac 08/28/20 17:17 09/18/20 12:00 08/28/20 17:17 09/18/20 12:00

Lab Sample ID: LCS 160-481085/1-A

**Matrix: Water** 

**Analysis Batch: 482946** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA **Prep Batch: 481085** 

Total

Spike LCS LCS Uncert. %Rec. Added Analyte Result Qual  $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-228 1.05 7.80 8.379 1.00 0.503 pCi/L 107 75 - 125

LCS LCS

Carrier %Yield Qualifier Limits Ba Carrier 84.1 40 - 110 Y Carrier 82.2 40 - 110

10

10/8/2020

Job ID: 180-109846-2

Client: Southern Company

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: LCSD 160-481085/2-A

**Matrix: Water** 

Analysis Batch: 482946

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

**Prep Batch: 481085** 

Total

Spike LCSD LCSD Uncert. %Rec. **RER** Analyte Added Result Qual  $(2\sigma + / -)$ RL**MDC** Unit %Rec Limits RER Limit Radium-228 7.80 7.434 0.978 1.00 0.518 pCi/L 95 75 - 125 0.47

LCSD LCSD

Carrier %Yield Qualifier Limits Ba Carrier 82.9 40 - 110 Y Carrier 79.3 40 - 110

Lab Sample ID: MB 160-481237/23-A

**Matrix: Water** 

**Analysis Batch: 481838** 

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 481237

Count Total MB MB Uncert. Uncert. Result Qualifier RL **MDC** Unit Analyte  $(2\sigma + / -)$  $(2\sigma + / -)$ Prepared Analyzed Dil Fac 0.564 pCi/L 08/31/20 14:14 09/09/20 13:16 Radium-228 -0.006322 U 0.314 0.314 1.00

> MB MR

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac 40 - 110 08/31/20 14:14 Ba Carrier 94.8 09/09/20 13:16 40 - 110 Y Carrier 84.5 08/31/20 14:14 09/09/20 13:16

Lab Sample ID: LCS 160-481237/1-A **Client Sample ID: Lab Control Sample** 

**Matrix: Water** 

**Analysis Batch: 481801** 

Prep Type: Total/NA

**Prep Batch: 481237** 

Total

Spike LCS LCS Uncert. %Rec. Analyte Added Result Qual  $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits Radium-228 10.4 10.82 1.39 1.00 0.707 pCi/L 104 75 - 125

LCS LCS Carrier %Yield Qualifier Limits Ba Carrier 84.1 40 - 110 Y Carrier 82.6 40 - 110

Lab Sample ID: MB 160-482400/9-A Client Sample ID: Method Blank

Total

Count

**Matrix: Water** 

Analysis Batch: 483126

Prep Type: Total/NA

Prep Batch: 482400

MR MR Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-228 0.473 0.620 pCi/L 09/14/20 10:14 09/21/20 11:53 1.266 0.458 1.00

MB MB

Qualifier Carrier Limits Prepared Dil Fac %Yield Analyzed Ba Carrier 79.5 40 - 110 09/14/20 10:14 09/21/20 11:53 Y Carrier 81.5 40 - 110 09/14/20 10:14 09/21/20 11:53

Eurofins TestAmerica, Pittsburgh

10

10

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-109846-2

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

Lab Sample ID: LCS 160-482400/1-A

**Matrix: Water** 

Analysis Batch: 483126

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 482400

Spike LCS LCS Uncert.

%Rec. **MDC** Unit Analyte Added Result Qual  $(2\sigma + / -)$ RL%Rec Limits Radium-228 10.4 12.18 1.46 1.00 0.526 pCi/L 75 <sub>-</sub> 125

LCS LCS

Carrier %Yield Qualifier Limits Ba Carrier 81.0 40 - 110 Y Carrier 86.0 40 - 110

Lab Sample ID: LCSD 160-482400/2-A **Client Sample ID: Lab Control Sample Dup** 

Total

**Matrix: Water** 

Analysis Batch: 483126

Prep Type: Total/NA

**Prep Batch: 482400** 

Total

Spike LCSD LCSD Uncert. %Rec. **RER** Limits Added  $(2\sigma + / -)$ RL **MDC** Unit %Rec Analyte Result Qual RER Limit 13.89 1.00 Radium-228 10.4 1.69 0.690 pCi/L 134 75 - 1250.54

LCSD LCSD

Carrier %Yield Qualifier Limits 40 - 110 Ba Carrier 70.9 Y Carrier 83.4 40 - 110

Lab Sample ID: MB 160-483141/4-A **Client Sample ID: Method Blank** 

**Matrix: Water** 

**Analysis Batch: 484399** 

Prep Type: Total/NA

**Prep Batch: 483141** 

Count Total MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-228 0.1677 U 0.434 0.435 1.00 0.752 pCi/L 09/21/20 14:11 09/30/20 12:43

MB ΜB

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 63.9 40 - 110 09/21/20 14:11 09/30/20 12:43 Y Carrier 85.2 09/21/20 14:11 09/30/20 12:43 40 - 110

Lab Sample ID: LCS 160-483141/1-A

**Matrix: Water** 

**Analysis Batch: 484399** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA **Prep Batch: 483141** 

Total

Spike LCS LCS Uncert. %Rec. Added Analyte Result Qual  $(2\sigma + / -)$ RL MDC Unit %Rec Limits Radium-228 10.4 11.05 1.41 1.00 0.674 pCi/L 107 75 - 125

LCS LCS

Carrier	%Yield	Qualifier	Limits
Ba Carrier	81.3		40 - 110
Y Carrier	80 4		40 - 110

## **QC Sample Results**

Job ID: 180-109846-2 Client: Southern Company

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: LCSD 160-483141/2-A **Client Sample ID: Lab Control Sample Dup** 

**Matrix: Water** 

Analysis Batch: 484399

**Prep Type: Total/NA** 

**Prep Batch: 483141** 

				Iotai							
	Spike	LCSD	LCSD	Uncert.					%Rec.		RER
Analyte	Added	Result	Qual	(2σ+/-)	RL	MDC	Unit	%Rec	Limits	RER	Limit
Radium-228	10.4	10.75		1.39	1.00	0.640	pCi/L	104	75 - 125	0.11	1

LCSD LCSD Limits Carrier %Yield Qualifier Ba Carrier 80.7 40 - 110 Y Carrier 78.9 40 - 110

# **QC Association Summary**

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

## **Prep Batch: 480640**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109846-1	ARGWA-14	Total/NA	Water	PrecSep-21	
180-109846-2	ARGWC-15	Total/NA	Water	PrecSep-21	
180-109846-3	ARGWC-16	Total/NA	Water	PrecSep-21	
180-109847-1	FB#1	Total/NA	Water	PrecSep-21	
180-109847-2	ARGWA-12	Total/NA	Water	PrecSep-21	
180-109847-3	ARGWA-13	Total/NA	Water	PrecSep-21	
180-109847-4	ARGWC-17	Total/NA	Water	PrecSep-21	
180-109848-1	ARGWC-10	Total/NA	Water	PrecSep-21	
180-109848-2	DUP-1	Total/NA	Water	PrecSep-21	
180-109848-3	ARGWC-9	Total/NA	Water	PrecSep-21	
MB 160-480640/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-480640/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

#### **Prep Batch: 480651**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109846-1	ARGWA-14	Total/NA	Water	PrecSep_0	
180-109846-2	ARGWC-15	Total/NA	Water	PrecSep_0	
180-109846-3	ARGWC-16	Total/NA	Water	PrecSep_0	
180-109847-1	FB#1	Total/NA	Water	PrecSep_0	
180-109847-2	ARGWA-12	Total/NA	Water	PrecSep_0	
180-109847-3	ARGWA-13	Total/NA	Water	PrecSep_0	
180-109847-4	ARGWC-17	Total/NA	Water	PrecSep_0	
180-109848-1	ARGWC-10	Total/NA	Water	PrecSep_0	
180-109848-2	DUP-1	Total/NA	Water	PrecSep_0	
180-109848-3	ARGWC-9	Total/NA	Water	PrecSep_0	
MB 160-480651/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-480651/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

## **Prep Batch: 480684**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109850-1	ARGWA-5	Total/NA	Water	PrecSep-21	
180-109850-2	ARGWA-3	Total/NA	Water	PrecSep-21	
180-109850-3	ARGWC-7	Total/NA	Water	PrecSep-21	
180-109851-1	EB#2	Total/NA	Water	PrecSep-21	
180-109851-2	ARGWA-19	Total/NA	Water	PrecSep-21	
180-109851-3	ARGWA-20	Total/NA	Water	PrecSep-21	
180-109851-4	ARGWC-22	Total/NA	Water	PrecSep-21	
MB 160-480684/10-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-480684/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-480684/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

#### **Prep Batch: 480689**

Lab Sample ID 180-109851-1	Client Sample ID EB#2	Prep Type Total/NA	Matrix Water	Method PrecSep_0	Prep Batch
MB 160-480689/10-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-480689/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-480689/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

## **Prep Batch: 481082**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-1	FB#2	Total/NA	Water	PrecSep-21	

Eurofins TestAmerica, Pittsburgh

Page 55 of 94

Job ID: 180-109846-2

# **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Rad (Continued)

## Prep Batch: 481082 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-2	ARGWC-23	Total/NA	Water	PrecSep-21	
180-109918-3	DUP-2	Total/NA	Water	PrecSep-21	
180-109918-4	ARAMW-1	Total/NA	Water	PrecSep-21	
180-109918-5	ARAMW-2	Total/NA	Water	PrecSep-21	
180-109929-1	ARGWC-8	Total/NA	Water	PrecSep-21	
180-109929-2	ARGWC-18	Total/NA	Water	PrecSep-21	
180-109970-1	ARAMW-6	Total/NA	Water	PrecSep-21	
180-109970-2	ARGWC-21	Total/NA	Water	PrecSep-21	
MB 160-481082/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-481082/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-481082/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

## **Prep Batch: 481085**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-1	FB#2	Total/NA	Water	PrecSep_0	
180-109918-2	ARGWC-23	Total/NA	Water	PrecSep_0	
180-109918-4	ARAMW-1	Total/NA	Water	PrecSep_0	
180-109918-5	ARAMW-2	Total/NA	Water	PrecSep_0	
180-109929-1	ARGWC-8	Total/NA	Water	PrecSep_0	
180-109929-2	ARGWC-18	Total/NA	Water	PrecSep_0	
180-109970-1	ARAMW-6	Total/NA	Water	PrecSep_0	
180-109970-2	ARGWC-21	Total/NA	Water	PrecSep_0	
MB 160-481085/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-481085/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-481085/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep 0	

## **Prep Batch: 481232**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109930-1	EB#1	Total/NA	Water	PrecSep-21	
180-109930-2	ARAMW-3	Total/NA	Water	PrecSep-21	
180-109930-3	ARAMW-4	Total/NA	Water	PrecSep-21	
MB 160-481232/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-481232/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

#### **Prep Batch: 481237**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109930-1	EB#1	Total/NA	Water	PrecSep_0	- <u> </u>
180-109930-2	ARAMW-3	Total/NA	Water	PrecSep_0	
180-109930-3	ARAMW-4	Total/NA	Water	PrecSep_0	
MB 160-481237/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-481237/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

## **Prep Batch: 482400**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109850-1	ARGWA-5	Total/NA	Water	PrecSep_0	
180-109850-2	ARGWA-3	Total/NA	Water	PrecSep_0	
180-109850-3	ARGWC-7	Total/NA	Water	PrecSep_0	
180-109851-2	ARGWA-19	Total/NA	Water	PrecSep_0	
180-109851-3	ARGWA-20	Total/NA	Water	PrecSep_0	
180-109851-4	ARGWC-22	Total/NA	Water	PrecSep_0	
MB 160-482400/9-A	Method Blank	Total/NA	Water	PrecSep_0	

Eurofins TestAmerica, Pittsburgh

10/8/2020

Page 56 of 94

Job ID: 180-109846-2

3

4

6

8

9

11

12

1.

# **QC Association Summary**

Client: Southern Company Project/Site: CCR - Plant Arkwright Job ID: 180-109846-2

# Rad (Continued)

## Prep Batch: 482400 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 160-482400/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-482400/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

## **Prep Batch: 483141**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-109918-3	DUP-2	Total/NA	Water	PrecSep_0	
MB 160-483141/4-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-483141/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-483141/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

7 - N4204S 0 - N42503 8 - N42504 T - TSP Dodeallydra U - Acetors V - M03-A W - M14-5 Z - other (sneptly) Ver. 01/16/2019 Special Instructions/Note: 244- ATLANTA Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Risposal By Lab Archive For. Month =6,62 1 = 6,47 - Amehior - Assorbic Acid - DI Water C-EDTA - ED4 180-109846 Chain of Custody Total Number of containors Analysis Requested oler Temparabale(s) \*C and Color Remarks Special Instructions/QC Requirements scowed by. (AOTH ?) H+ (OSOS) H DHEWEZZZE ELM Hea ASherdits Brown, Shall Parone oid Filtwred Sample (Yes or No) Gegrab) serting Auto Preservation Code: Metrix August, Company Company 3 3 (C=comp, Radiological Sample 00 SIBI/ OX/61/8 1205 1005 8/19/20 1355 Unknown (AT Requested (days): Due Date Requested: Sample Date 18020201 SSOA# Poison B Skin Imitant Defiverable Requested: I, II, III, IV, Other (specify) Custody Seal No. Pitisburgh, PA 15238 Phone (412) 963-7058 Fax (412) 963-2468 ARGWC-15 ARGWC-16 ARGWA-14 Possible Hazard Identification

X Non-Hazard | Flammable mpty Kit Relinquished by Hamel KABur ddress: 941 Ralph McGill Blvd SE Sustody Seals Intact. A Yes A No Client Information opstittane CR - Pient Arkwright Sample Identification (04-508-7116(Tel) SCS Contacts CS Contacts yd beneuty State, Zip GA, 30308 GA Power Allanta

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

Phone (412) 963-7058 Fax (412) 953-2468

244- ATLANTA

0 - AsNaO2 P - Na2O4S 0 - Na2O4S S - H2SO4 S - H2SO4 U - Acetone V - MCA4 W - PH 4-5 Z - Other (specify) Special Instructions/Note: Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Sisposal By Lab Archive For. Month 3 pH=6.48 reservation Codes: Total Number of containers 180-109847 Chain of Custody Analysis Requested ooler Temperature(s) "C and Other Remarks Special Instructions/QC Requirements App II mark 60208 + H5 74701 Flugside 300 2006 FM 2880) Rakina 226/228(4315/9320) eceived by: eceived by. Sampler D. He ward E Guillen, ASharek-ABrown, Shali WassErIS Preservation Code 3 3 3 Radiological | Type (C=comp, G=grab) Sample 1450 1445 8/18/20 1100 Standard Unknown TAT Requested (days) Due Date Requested: 8/18/20 Sample Date Project # 18020201 SSOW# Poison B Skin Imtant Custody Seal No. ARGWA-12 ARGWA-13 ARGWC-17 Possible Hazard Identification Fernal Lynn 241 Ralph McGill Blvd SE ustody Seals Intact. A Yes A No Client Information Sample Identification roject Name. 2CR - Plant Arkwright 404-506-7116(Tel) SCS Contacts CS Contacts quished by. State, Zip. G.A., 30308 GA Power Allanta

5 - H2SO4 T - TSP Dodecahydrate Special Instructions/Nate: Ver. 01/16/2019 244- ATLANTA O - ASNBO2 P - NBZO4S Q - NBZSO3 R - NBZS2O3 Sample Disposal ( A fee may be assessed if samples are retained forger than 1 month)

Return To Client Risposal By Lab Archive For. Month DH-7.06 PH= 7.06 180-109848 Chain of Custody Archive For 9the Total Number of containers Method of Shipment Analysis Requested soler Temperature(s) "C and Disor Renarks Special Instructions/QC Requirements Return To Client shall brownigeurofinset com yd bayede Chain of Custody Record DHoward, EGiller AShore Brown, Shall Type (waster September (Carcomp, personnel, Gargrab) sertione, anti-Prospivation Code: 33 ompany Company 3 Radiological Sample 8/19/20/1815 Sangle 1425 8 19/20 1135 Unknown TAT Requested (days): has Date Requested Sample Date Project # 18020201 SSOA# Paison B ARGWC-10 Skin Imtant Eurofins TestAmerica, Pittsburgh Deliverable Requested: I, III, IV, Other (specify Custody Seal No Phone (412) 963-7058 Fax (412) 963-2468 Rossible Hazard Identification Hem & Hound 301 Alpha Drive RIDC Park Empty Kit Relinquished by 241 Ralph McGill Blvd SE Custody Seals Intact. Client Information Sample Identification luject Ranas CR - Plant Arkwright 404-505-7116(Tel) SCS Contacts sign speaking by CS Contacts Stafe, Zip. GA, 30308 GA Power Atlanta

TSP Dodecahydr Special Instructions/Note: Ver. 01/16/2019 244- ATLANTA Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month) 01.6.47 81'9 = Hd 180-109850 Chain of Custody 40 G - Amehior H - Assarbic Acid Archive Far X Disposal By Lab Analysis Requested palar Temperature(s) \*C and Other Researks Return To Client Special Instructions/QC Requirements shall brown@eurofinset.com 226/228 (9315 / 9326) 300-036FM-28D Chain of Custody Record The seed, Elevilles, Ashered to Brown, Shall Wood EtTS Type (nineater, Sessie, Carcomp, ownstered, Gagrab) grituses, sode) Preservation Code: Matrix Sompany Radiological Sample 1730 1320 1525 8/18/20 1135 Saniple Time Unknown TAT Requested (days): Oue Date Requested: 100/8/18 Sample Date Project # 18920201 Poison B Skin Imtant iverable Requested: I, III, IV, Other (specify) Custody Seal No Phone (412) 953-7058 Fax (412) 953-2468 Won-Hazard Hammable Possible Hazard Identification Hamel Klowen Empty Kit Relinquished by: 241 Ralph McGill Blvd SE Sustady Seals Intact. A Yes A No Client Information Sample Identification Pittsburgh, PA 15238 CR - Plant Arkwright 104-508-7116(Tel) SCS Contacts iguished by SCS Contacts State, Zip. GA, 30308 GA Power Atlanta

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

- National - Nazodes - Nazosog - Nazosog - Hzsod - TSP Dodecatydrate Special Instructions/Note: 244- ATLANTA Months Sample Disposal ( A fee may be assessed in samplies are received rought unan it month)

Return To Citent Citent Cisposal By Lab Archive For. Month 180-109851 Chain of Custody Analysis Requested ooter Temperature(s) \*C and Other Remark Special Instructions/QC Requirements Return To Chent × × × × eceived by Chain of Custody Record DHoward Esulka, AShardits Brown, Shall Type (wester. Septime (C=comp, oversteer. G=grab) Sertusee Anti) Preservation Code: Matrix ompany ompany 33 Radiological Sample 2/18/20/1815 1056 1532 8/19/20 0915 Unknown (AT Requested (days): Due Date Requested: Sample Date Project # 18020201 \$50V# Poison B Skin Imitant Eurofins TestAmerica, Pittsburgh eliverable Requested 1, II, III, IV, Other (specify) E8#2 ARGWA-19 ARGWA-20 ARGWC-22 Custody Seal No Phone (412) 953-7058 Fax (412) 963-2468 Possible Hazard Identification
XNon-Hazard | Flammable Damel Hours 301 Alpha Drive RIDC Park Emply Kit Relinquished by 241 Raiph McGill Blvd SE Custody Seals Intact. A Yes A No Client Information Sampte Identification CR - Plant Arkwright Pillsburgh, PA 15238 04-508-7116(Tel) SCS Contacts questiedby. Shate, Zip. GA, 30308 GA Power Atlanta

244- ATLANTA	ame, Technology COCNo		Page	Job #	Preservation Codes:	A - HCL M Hexane B - NaOH N - Naon C - Zn Acesse O - Ashag2	- Naric And P Naris O4 Q	G - Amelon R - Na25503 G - Amelon S - H2504 H - Accordic Acid T - TSP Delevativation	1 - Di Water	K.EDTA L.ED4	Cop poo	Todmulv labo	1	2	3 pH= 6.33	3 pH= 6,33	3 OH = 6.09	PH-	180-109918 Chain of Custody	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	By Lab Archive Por	Method of Shipmant	9 Ostelina 8-3-30 Commercial MAN	Datisfune / f / Company		Ver. B1/16/2019
Chain of Custody Record	Cario		E-Mail Shall brovangeurofinset.com	Analysis Requested	VOL.	390	114 A2 30	(8) (3)	-	2/92	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		ation Code: XXD	-	XXXX	XXX	_	X X X				Time:	Company Received & Wordy	Company Receive Lty.	Cooler Temperabare(s) *C and Cohe Remarks	
Chain of Cu	Sampler	DHoward	Figure		Due Date Requested:	TAT Requested (days):		PO A.	AVO III	Project # 1892/0201	SSOA	Sample Sample (Seconds Date Time Generally	X	8/20/20/1045 G	1215 6	0	1436 G	1635 6			Poison B Unknown Radiological	Date:	8/20/24/1840	DataGrina		
Eurofins TestAmerica, Pittsburgh 301 Alpha Diive RIDC Park Pubburgh, PA 15238	Phone (412) 963-7058 Fax (412) 963-2468	Client Information	Clent Contact SCS Contacts	Conpany GA Power	viddinss. 241 Raigh McGill Blvd SE	Gry Atlanta	State, Zip GA, 30338	Phone 404-506-7116(Te!)	Final SCS Contacts	Project Nama. CCR - Plant Arkwright	Sid Georgia	Samele Hentification		FR#Z	ARGWC-23	DWP-2	ARAMW-1	ARAMW-2		Possible Hazard Identification	Non-Hazard Flammable Skin Imlant Deliverable Requested 1, II, III, IV, Other (specify)	Empty Kit Relinquished by:	Reductioned by the Konner	Re qualed by	Custody Seels Intact. Custody Seal No.: A Yes A No.	

7

- ANNACZ - NAZCAS 2 - NAZCAS 2 - NAZCAS S - HZSCA S - HZSCA U - ACCACA W - PH 4-5 Z - Other (specify) Special Instructions/Note: Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client . \*\*A Disposal By Lab \*\* Archive For Month 4 PH = 6.43 244- ATLANTA 180-109929 Chain of Custody reservation 304= Total Number of containers Analysis Requested oler Temperatura(s) <sup>9</sup>C and Other Remarks Special Instructions/QC Requirements × × × × × cived by: P Rodium 22 6/228 (316 1320) Chain of Custody Record EVEC Guillen, A Shored; to Brown, Shall Wood 33 Radiological (C=Comp, G=grab) Type 00 8/20/20/18+10 8/20/20 1035 Sample 8/20/20 1705 Unknown TAT Requested (days) Due Date Requested: Sample Date 710/ect.#1 Paison B Skin irritant Custody Seal No. Phone (412) 953-7058 Fax (412) 963-2468 ARGWC-8 ARGWC-18 Fiammable Possible Hazard Identification Town & House 301 Alpha Drive RIDC Park 241 Ralph McGill Blvd SE Custody Seals Intact Client Information Sample Identification Pittsburgh, PA 15238 CCR - Plant Arkwright 404-506-7116(Tel) SCS Contacts SCS Contacts State, Zlp. GA, 30308 GA Power Atlanta

Eurofins TestAmerica, Pittsburgh

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

Phone (412) 963-7058 Fax (412) 963-2468

244- ATLANTA

N - Nons 0 - ARNBOZ 0 - NBZOJ4S 0 - NBZSOJ3 R - NBZSOJ3 S - NBZSOJ4 T - TSP Dodecahyarano Special Instructions/Note: Sample Disposal ( A fee may be assessed if samples are retained forger than 1 month)

Return To Client Cisposal By Lab Archive For. Month TT:3= H0 PH=6,24 Preservation Codes: 180-109930 Chain of Custody 1-31 Archive For Total Mumber of containers Muy well Analysis Requested oplar Temperature(s) \*C and Dear Remarks Special Instructions/QC Requirements Return To Client (300) Received by (4071-1/2050) PH+2 yd bawede ecained by Engler Coulton Andreas Sherid & Brown, Shall Time: (ON TO BOY) CISHIRIN (ITOTAM) Doo Co Field Filtered Sample (Yes or No.) Gagrab) arrane And Preservation Code: Matrix Company 33 3 Radiological Sample 8/20/20/1840 1745 8/20/20 0930 Saniple Unknown TAT Requested (days): Due Date Requested: Sample Date 18020201 SSOA# Poison B Skin Imtant iverable Requested: I. II, III, IV, Other (specify) Custody Seal No. ARAMW-3 ARAMW-4 Sable Hazard Identification mpty Kit Relinquished by: 4ddress 241 Ralph McGill Blwd SE E8# Sustady Seals Intact. Client Information ample Identification June Dy CR - Plant Arkwright 404-508-7116(Tel) SCS Contacts CS Contacts sansped by State, 7/p. GA, 30308 GA Power Atlanta

## Chain of Custody Record

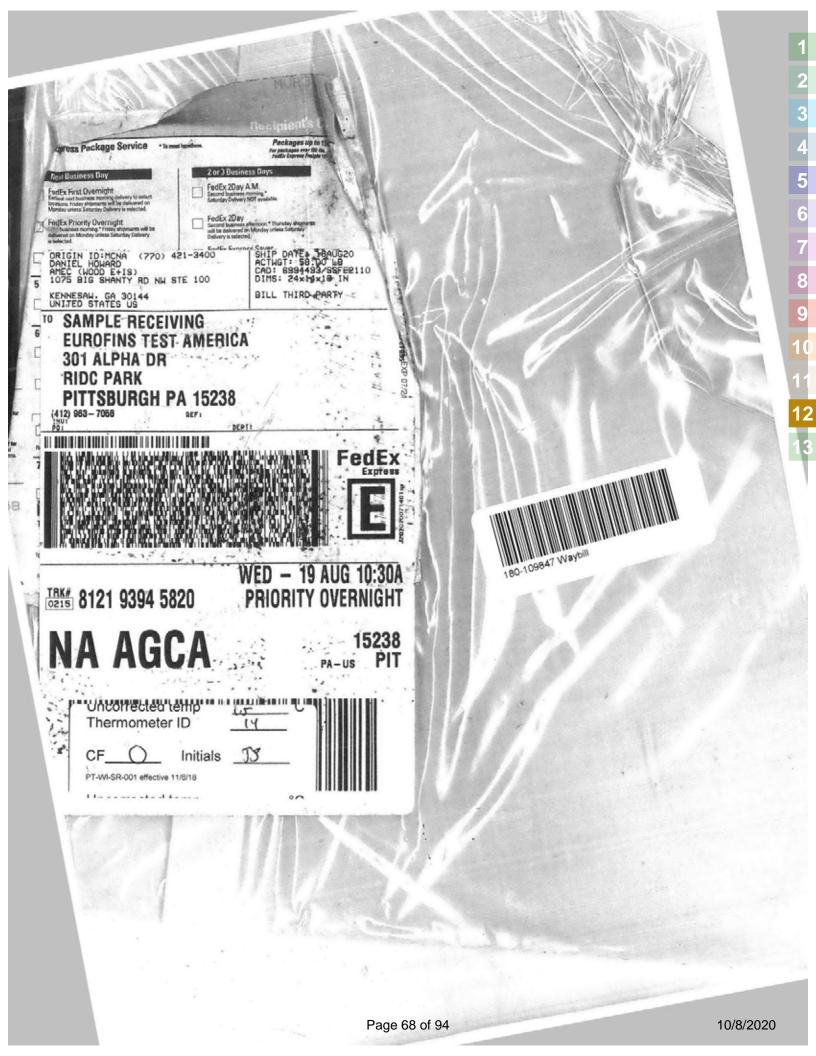
Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

244- ATLANTA

Standard   Comparison   Compa	Client Information	BHOverd , Asheredits	Lab PW Cerrier Tracking Nots) Brown, Shall	COC No.
Standard	SCS Contacts	-17436	shall brown@eurofinset.com	1 of (
Standard	Company. GA Power			the day.
Standard   Sample Date   Sam	Address 241 Raiph McGill Bivd SE	Due Date Requested:	(Aor	on Codes:
Sample Date	Cry. Atlanta	TAT Requested (days):	DE E	aye
100   100	State, 2/2 G.A., 30308	Standard	6/9	700
AR MWA-6  Recentification  Recentificati	Phone: 404-508-7116(Te))	PO #:	09)	Aoid T
Sample Date   Sample Date   Sample Date   Sample Date   Sample   Corporation   Sample Date   Sample Date   Sample Date   Sample   Corporation   Sample Date   Sample Dat	Email SCS Contacts	WO#	SCC,	1 - Ibe J - Di Water
Sample Date   Sample Date   Time   Sample   Water	Project Name: CCR - Plant Arkwright	Project #. 18020201	72+	L-EDA
Sample Date Time Gagab) and water the first of the first	Silve Georgia	SSOWE	y y	
Strait 2009 445 G W X X X X X X X X X X X X X X X X X X		Sample Type Sample (C=comp.	benefili ble MisM mione	
	Sample Identification	Time Gagrab)	a X	1
and Poison B Unknown Peasiological Sample Disposal (A fee may be assessed if samples are related longer than 1 m. Sample Disposal (A fee may be assessed if samples are related longer than 1 m. Special Instructions/OC Requirements.    Delectric   Delectric   Time.   Special Instructions/OC Requirements.   Vietnos of Singment   Poster   Time.   Special Instructions/OC Requirements.   Vietnos of Singment   Poster   P	ARAMW-6	45	××××	0H=63
Semple Disposal ( A fee may be assessed if samples are retained longer than 1 mm Sharines   Spacial Instructions/GC Requirements:    Spacial Instructions/GC Requirements:   Time:   T	ARG We-21	36	×	PH= 5.8
Sample Disposal (A fee may be as sessed if Sample Sample Disposal (A fee may be as sessed if Samples are retained longer than if may be as sessed if an interpretained longer than it may be as sessed if a samples are retained longer than it may be as sessed if a sample are retained longer than it may be as sessed if a sample are retained longer than it may be as sessed if a sample are retained longer than it may be as sessed if a sample are retained longer than it may be as sessed if a sample are retained longer than it may be as				
Sample Disposal ( A fee may be assessed if Samples are retained longer than 1 m   Special Disposal ( A fee may be assessed if Samples are retained longer than 1 m   Special Disposal ( A fee may be assessed if Samples are retained longer than 1 m   Special Instructions/OC Requirements:    Data   Date:   Time:				
Sample Disposal (A fee may be assessed if samples are retained fonger than 1 mm. Special instructions/QC Requirements.  Date:  ate:  Date:				180-109970 Chain of Custody
Sample Disposal ( A fee may be assessed if samples are retained longer than 1 mm  Return To Client Suisposal By Leb Archive For Special Instructions/OC Requirements:  Date:  Dat				
Date:   Date:   Time:   Received by:   Date:	100	- Colores	Sample Disposal ( A fee may be assessed if s	samples are retained longer than 1 month)
Desertine Desertine Company Received by NULLY With Shipment 10 70 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			Special Instructions/QC Requirements.	D. DARIOTO
A Land Date Time.	Empty Kit Relinquished by:	Date:		# Shipment:
Date/Time Company Received by: Date/Time Date/Time Company Received by: Date/Time Company Received by: Date/Time Company A No.	James L Horand	1315	Received by Milling	
Date/Trine Company Received by: Date/Trine Control of Cooker Temperature (s) *C and Other Remarks.	Relinquished by:		company Received by:	Datefrene 70 C Cempany
Custody Seal No.		Date/Time: (		
			Cooler Temperature(s) *C and Other Remarks.	та в при в при









E S

BILL THIRD PARTY

PITTSBURGH PA 15238



TRK# 8121 9394 5830

15238

Uncorrected temp Thermometer ID

**NA AGCA** 



Align Open End of FedEx Pouch Here



3

3

5

6

8

9

11

13

Fe ..97

1 10:30 A 5841 08:20

ORIGIN ID: MCNA (770) 421-3400 DANIEL HOWARD ADEC TUDD ETIS) 1075 BIG SHANIY RD NH STE 100 KENNESAH, GA 30144 SHIP DATE: 19AUG20 ACTUGT: 57.45 LB CAD: 6594493/55FE2110 DIMS: 24x13x14 IN BILL THIRD PARTY

SAMPLE RECIEVING EUROFINS TEST AMERICA 301 ALPHA DR

## PITTSBURGH PA 15238

FedEx Express

TRK# 8121 9394 5841

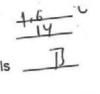
**NA AGCA** 

THU - 20 AUG 10:30A PRIORITY OVERNIGHT DSR

15238

PA-US PI





Page 71 of 94







180-109930 Waybill





Ver. 01/16/2019

Seurofins Environment Testing America

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

Phone: 412-963-7058 Fax: 412-963-2468

N - None
O - AsNaO2
P - Na2O45
O - Na2SO3
R - Na2SO3
S - H2SO4
T - TSP Dodecalydrate ETAST2 state is bloomed as subject to change. Eurofins TestAmerica places the ownership of method, analyse & accreditation compilance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory do other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins estAmerica. Special Instructions/Note: W - pH 4-5 Z - other (specify) U - Acetone V - MCAA Months Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mon Preservation Codes A - HCL B - NaOH C - Zn Acetake D - Nitric Acid F - MahSO4 F - MacHor G - AmcHor H - Ascorbic Acid 180-408215.1 180-109846-2 08:30 Page 1 of 1 I - Ke J - DI Water K - EDTA - EDA Total Number of containers 8/22/23 ethod of Shipment amer Tracking No(s): State of Origin Analysis Requested Georgia Cooler Temperature(s) "C and Other Remarks: Special Instructions/QC Requirements: Return To Client Shali.Brown@Eurofinset.com × × × RazzeRazze GFPC 9320 RazzaiPrecSep\_0 Radium 228 × × × 9315\_Ra226/PrecSep\_21 Radium 226 × × × Brown, Shall ime ST-Tissue, A-Ab Water Matrix Preservation Code: Water Water ompany G=grab) (C=comp, Sample Type Primary Deliverable Rank: 2 TO:05 12:05 Sample Eastern Time Due Date Requested: 9/23/2020 TAT Requested (days): Sample Date 8/19/20 8/19/20 8/19/20 18020201 Date/Time. Client Information (Sub Contract Lab) Deliverable Requested: I, II, III, IV, Other (specify) Custody Seal No.: Sample Identification - Client ID (Lab ID) 314-298-8566(Tel) 314-298-8757(Fax) Possible Hazard Identification FestAmerica Laboratories, Inc. ARGWA-14 (180-109846-1) ARGWC-15 (180-109846-2) ARGWC-16 (180-109846-3) Empty Kit Relinquished by Custody Seals Intact: 13715 Rider Trail North CCR - Plant Arkwright A Yes A No Shipping/Receiving inquished by: quished by. State, Zp. MO, 63045 shed by Earth City Arkwright

Login Number: 109846 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey neter.</td <td>N/A</td> <td></td>	N/A	
Γhe 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 ampered 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	
s the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is 6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Number: 109846 List Number: 2 List Source: Eurofins TestAmerica, St. Louis

List Creation: 08/22/20 12:41 PM

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

Login Number: 109847 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

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

Login Number: 109847 List Number: 2 List Source: Eurofins TestAmerica, St. Louis

List Creation: 08/22/20 12:41 PM

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

Login Number: 109848 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

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

Login Number: 109848

List Number: 2

Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis

List Creation: 08/22/20 12:41 PM

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

Login Number: 109850 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

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

Login Number: 109850

List Source: Eurofins TestAmerica, St. Louis List Number: 2

List Creation: 08/22/20 12:41 PM

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

Client: Southern Company

Job Number: 180-109846-2

Login Number: 109851

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

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

Login Number: 109851

List Source: Eurofins TestAmerica, St. Louis

List Number: 2

List Creation: 08/22/20 12:41 PM

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

Client: Southern Company

Job Number: 180-109846-2

Login Number: 109918

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

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

Login Number: 109918 List Number: 2 List Source: Eurofins TestAmerica, St. Louis

List Creation: 08/25/20 02:54 PM

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

Login Number: 109929 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

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

Login Number: 109929

List Source: Eurofins TestAmerica, St. Louis

List Number: 2

List Creation: 08/25/20 02:54 PM

Creator:	Boyd,	Jacob	C
----------	-------	-------	---

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

Client: Southern Company

Job Number: 180-109846-2

Login Number: 109930

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Answer	Comment
N/A	
True	
N/A	
	N/A  True True True True True True True Tru

Login Number: 109930

List Source: Eurofins TestAmerica, St. Louis

List Number: 2

List Creation: 08/25/20 02:54 PM

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

Login Number: 109970 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

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

Login Number: 109970

List Source: Eurofins TestAmerica, St. Louis

List Number: 2

List Creation: 08/25/20 02:54 PM

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

		C.	orgio Do		2-2-112-F	See COMA	
Site Name: Plant /	4ck			wer site s	ampling I	Data ( GW )  Date: 8/19-21/2020	
FILLATI	Sample	Sample		Equipment		Bate: 8/19-21/2020	
Well ID	Date	Time	Field Blank		Field Dup.	Additional Comments	
EB#2	8/19/20	0915		EB#2		m: 1 - 1 - 3	peristablic pump
ARGWA-19	8/19/20	1056				- TAND DIENTE: THOMSE WITH	periorenie pump
AR GWA-1420	8/19/20	1344					
ARGWC-22	8/19/20	1532					
FB#2	\$120/20		FB#2	1		Field Blank taking at Ash Pond 2	
ARGWC-23	8/20/20					ļ	
Dup-2	8/20/20		<u> </u>		ARGNC-23	Duplicate of ARGWC-23(DUP-2)	
ARAMW-I	8/20/20						
ARAMW-2 AAGWC-21	8/20/20		]				
ANGWC-A	8/21/20	1036			•		
			<u> </u>				
		<u> </u>	<u> </u>				
<del></del>							
		<u></u>					
		-					
						·	
	<u> </u>			-			
Additional comments :	Field Bl	ank F	B#2 x	ias take	n using	ASTM Type I/II water.	
KI CCAB-and	Lot#3	2002 A.	53, Exp	8/2021	Equipi	Blank EB#2 was collected  p. Tubing Lot# 12759-05	
tranthe HDPE	Tubing	<u>used</u> i	with the	perista	Hicpun	-p. Tubing Lot# 12759-05	
Reagent water u	JGY AZ	TM Typ	eI/II A	ICCA B	rand Lo	## 2002 #53, Exp 8/2021.	
	· · · · · · · · · · · · · · · · · · ·	<del>-</del>					

Date: 8/18/20
Time: 0900
Prepared By: Daniel Howard
Checked By:

Wood. Project No. 6122201429 Pine Sonde ID:
Pine Handset ID: 407447
Battery Voltage %: 60

	3RATION	PRIOR TO	) SAMPLIN	G		
DISSOLVED OXYGEN (DO)						VALUE
Was DO membrane changed?	Yes	No•	Date:	Time:		<del></del>
Current Air Temperature °C (meter reading):					· · · · · · · · · · · · · · · · · · ·	23,4
Current Barometric Pressure (from Weather						1
Channel or NOAA.gov, which is corrected to						
sea level): Elevation Corrected Barometric Pressure to	ļ					
enter into YSI DO calibration:					mm Hg for every	1 -ma
Theoretical DO (mg/L) from DO table based	100 ft. abo	ove sea level	: 565/100 x 2	2.54 = 14.4 mn	n Hg	750,2
on current temperature and elevation corrected						
pressure:						
DO concentration before Calibration (mg/L):	Daniel Co				11 1 1	
DO concentration after Calibration (mg/L):	Dependin	ig on meter	version, thi	s may not be	available.	7.97
% Recovery (actual/theory x 100)		00 : 4400	/ Fa	····		
L			Recovery		<u> </u>	95%
DO Charge (DO ch):		le Range is			1.0	
DO Gain (should be between -0.7 and 1.5):	Exit Cali	nration me	nu and go to	Advanced/C	al Constants	1.0534
Note:						
CONDUCTIVITY [Note: Calibrate before pH to av				uffers are conduc	tive)]	整饰门 医蜂虫
Calibration standard used (mS/cm)	1	OGE	438	$\frac{5}{21}$		1.413
Temperature (°C)						24.9
Reading before Calibration (mS/cm)						1.417
Reading AFTER Calibration (mS/cm)						1.413
Conductivity Cell Constant (unitless):						0.9975
Note: Be sure conductivity cell is submerged and free of bubi	bles (gently ta	p sonde on tal	ole)			
pH	en de joint			PA		1,600
pH 7.0 value before calibration:	40	<u> </u>	721	11/21		7,47
pH 7.0 value after calibration:					25,50	7.00
pH 7.0 mV (range is -50 to +50 mV):	, , , , , , , , , , , , , , , , , , ,					728.0
pH 10 value before calibration:	La"	F 9 G	L648	12/21		9.37
pH 10 value after calibration:					25,3°C	10.00
pH 10 mV (range is -130 to -230 mV):						-139,9
pH 4.0 value before calibration:		1 0 C	5046	7-472	2	5,79
pH 4.0 value after calibration:			, , , , , , , , , , , , , , , , , , , ,		25,2°C	4.8
pH 4.0 mV (range is 130 to 230 mV):			·			71.8
Note: Span between ph 4 and 7, and 7 and 10 should be betw OXIDATION/REDUCTION POTENTIAL (		0 mV	25			
Calibration Temperature (°C):	r	10/	2)520	1/2	<u> </u>	125.1
Theoretical Calibration standard (mV)	0.231+0.0		x 1000 = m	<b>1/2</b> V (T is Ter	nperature °C)	
Reading before calibration (mV):	0.231 0.0	.015(25-1)	7 1000 - III	1 (1 10 101	nporature C)	229
Reading after calibration (mV):	<u> </u>					198,2
	an anti 1	, to bo J			TANA	レベベブ
Note: mV theory will change with temperature TURBIDITY Note: Lens wiper should be parked 186	, SO Calicula Laureer fro	m the ontice	n your curre	nt temp.		
				7.1.	40 0:	T.A. s
20 NTU Turbidity Standard Lot A 9254	1 1/2	O .	Before (		After Cal:	20.2
NTU Turbidity Standard Lot A9213	11/20	,	Before (		After Cal:	100
800 NTU Turbidity Standard L of A 924	1,12/2	٥	Before (		After Cal:	796
NTU Turbidity Check STD Lat A 921		=	Before (		After Cal:	10.1
<b><u>CALIBRATION SUCCESSFUL?</u></b>	37, X/2	<u> </u>	Before (	Cal:	After Cal:	0.19
CALIBRATION SUCCESSFUL:	. 6 -					

Date: 8/19/20		Wood.		Pine Sonde I	D:	
Date: 8/19/20 Time: 0865	Project	No. 612220	1429	Pine Handse		シャムムブ
Prepared By: Daniel Howard		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	25	Battery Volta		
Checked By:					9- / <u></u>	
	NO LOTAN	( ))D(A) (DA)	21.1D1.13.6			
DISSOLVED OXYGEN (DO)	BRATION	PRIOR TO	SAMPLING			TAT WIND
	77	17	4	701		VALUE
Was DO membrane changed?	Yes	No 🏏	Date:	Time:		
Current Air Temperature °C (meter reading): Current Barometric Pressure (from Weather						<u> 25,4</u>
Channel or NOAA.gov, which is corrected to	<i>'</i>					
sea level): Elevation Corrected Barometric Pressure to						
				btract 2.54 mm II		
enter into YSI DO calibration:	100 It. ao	ove sea level:	365/100 x 2.54	4 = 14.4 mm Hg		749.96
Theoretical DO (mg/L) from DO table based						
on current temperature and elevation corrected						
pressure:	T> 11			4		
DO concentration before Calibration (mg/L):	Dependi	ng on meter v	ersion, this r	nay not be availa	ble.	
DO concentration after Calibration (mg/L):	<u></u>					7. ] ]
% Recovery (actual/theory x 100)		90 to 110% I				95,4
DO Charge (DO ch):		ole Range is 2				
DO Gain (should be between -0.7 and 1.5):	Exit Cali	bration menu	and go to A	dvanced/Cal Con	stants	1.0492
Note:						
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-ov					
Calibration standard used (mS/cm)	<u> </u>	Lot OC	SEH38	5/21		1.413
Temperature (°C)						27.6
Reading before Calibration (mS/cm)						1,413
Reading AFTER Calibration (mS/cm)	-					1.413
Conductivity Cell Constant (unitless):				- 1		0.9999
Note: Be sure conductivity cell is submerged and free of bub	bles (gently t	ap sonde on table	)			
pH						
pH 7.0 value before calibration:	1 2	0+96	K721	11/21		7,49
pH 7.0 value after calibration:				3-7	7.50	7.00
pH 7.0 mV (range is -50 to +50 mV):	<u> </u>				*******	28.7
pH 10 value before calibration:	1	07 9G	IGHA"	12/21		940
pH 10 value after calibration:		<u>- / </u>	<u> </u>		1.1.0	12.00
pH 10 mV (range is -130 to -230 mV):	<del> </del>			<u> </u>	-2	-HI.O
pH 4.0 value before calibration:		7-56	0046	11/22		5.70
pH 4.0 value after calibration:	<i>,</i>	<u>, , , , , , , , , , , , , , , , , , , </u>	<u> </u>		6,900	4.8
pH 4.0 mV (range is 130 to 230 mV):	<u> </u>				- '7 <u>~</u>	74.9
Note: Span between ph 4 and 7, and 7 and 10 should be between	een 165 to 1	80 mV				
OXIDATION/REDUCTION POTENTIAL (			4 .			
Calibration Temperature (°C):	<del></del>	× 107	1520	1/2:		2/2
carroravious a surporavior ( C).	<i></i> _	54- OC	<u> </u>	1/21_		268

OXIDATION/REDUCTION POTENTIA	AL (ORP)		· · · ·
Calibration Temperature (°C):	Lot 06 0520	1/21	26.8
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$	(T is Temperature °C)	227
Reading before calibration (mV):			193.2
Reading after calibration (mV):		7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	227

Note: mV theory will change with temperature, so calculate based on your current temp TURBIDITY Note: Lens wiper should be parked 180 degrees from the optics. 20 NTU Turbidity Standard Lot A9234, 12/20
100 NTU Turbidity Standard Lot A9213, 11/20
800 NTU Turbidity Standard Lot A9241, 12/20
10 NTU Turbidity Check STD Lot A9213, 11/20 After Cal: Before Cal: 19.9 After Cal: Before Cal: 100 After Cal; Before Cal: 200 Before Cal: After Cal: 40.1 NTU Turbidity Check STD Lot A0037, 2122 Before Cal: After Cal: CALIBRATION SUCCESSFUL?

Date: 8/20/20
Date: 8/20/20 Time: 08/5
Prepared By: Danie Howard
Checked By:

Wood. Project No. 6122201429 Pine Sonde ID: 369555
Pine Handset ID: 36955
Battery Voltage %: 50

CALIBRATION PRIOR TO SAMPLING

DISSOLVED OXYGEN (DO)	3KATI	ON PRIC	OR TO SA	MPLING			VALUE
Was DO membrane changed?	Yes	No	Δ	Date:	Time:		VALUE
Current Air Temperature °C (meter reading):	1 65_	140	<u></u>	Date	I ime:		01 -71
Current Barometric Pressure (from Weather	-						21.8
Channel or NOAA.gov, which is corrected to							
sea level):							
Elevation Corrected Barometric Pressure to	Ev · 3	30.02 in H	a v 25 / =	mm Hores	shtenet 2.54 m	nın Hg for ever	
enter into YSI DO calibration:					64 = 14.4  mm		750.2
Theoretical DO (mg/L) from DO table based	1 2 3 4 2 4	. 200 ( 2 1/20	- 101011 00			118	- WUL
on current temperature and elevation corrected							
oressure:							
DO concentration before Calibration (mg/L):	Depe	nding on	meter ver	sion, this	may not be a	vailable.	
DO concentration after Calibration (mg/L):					1100 00 00	, , , , , , , , , , , , , , , , , , , ,	8.46
% Recovery (actual/theory x 100)	Rang	e is 90 to	110% Re	coverv		<del></del>	97,7
OO Charge (DO ch):		otable Rai					
DO Gain (should be between -0.7 and 1.5):	<del></del>				dvanced/Ca	Constants	1.0238
Note:				0. 101		- ~ C.A.GOMILEG	H-DEX
CONDUCTIVITY [Note: Calibrate before pH to av	oid carr	y-over from p	oH standard	s (i.e. pH buf	fers are conducti	ye)]	
Calibration standard used (mS/cm)			OGE		5/2/		1.413
Temperature (°C)		<u> </u>	006	<u> </u>	-1/6-1		25.1
Reading before Calibration (mS/cm)					——————————————————————————————————————	<del></del>	1,409
leading AFTER Calibration (mS/cm)				******			1.413
Conductivity Cell Constant (unitless):					*****		7,003
lote: Be sure conductivity cell is submerged and free of bubl	les (gen	tly tan sonde	on table)				14 00.5
oH	MOD (BOI)	iry cup doncie	on more,				· · · · · · · · · · · · · · · · · · ·
H 7.0 value before calibration:	i i	o+ 0	2011.		11/21		T~7 -/17
H 7.0 value after calibration:	-	-0	(G/	/2/		24.6°C	7,82
H 7.0 mV (range is -50 to +50 mV):	<u> </u>	····				2.1.0	7.00
pH 10 value before calibration:		7					يحد الأنط كالكروسية الأ
pH 10 value after calibration:		207	4 GL	648	12/3	24,600	10.69
pH 10 mV (range is -130 to -230 mV):						MAN C	10.00
H 4.0 value before calibration:		Lot	757	711			7185
H 4.0 value after calibration:		0 1	06	1076	7/2	24,60	4.94
H 4.0 mV (range is 130 to 230 mV):						d- 106 C	4.00
ote: Span between ph 4 and 7, and 7 and 10 should be betw		to 180 mV					11226
OXIDATION/REDUCTION POTENTIAL (		100 IIIV					
alibration Temperature (°C):		1	OGD	120	1/2 .		2115
	0.231-	<u> </u>	<u>را وي ت</u> 25-T) x 10	000 = mV	(T is Tem	perature °C)	229
eading before calibration (mV):	0.201		., .,		(1 10 1011)	perature ()	
eading after calibration (mV):							189.4
ote: mV theory will change with temperature	go. 00	loulate be	end on vo	ur ourrort	tamn		1229
URBIDITY Note: Lens wiper should be parked 186	, so ca. ) degree	s from the	onfies	ui current	temp.		
ONTU Turbidity Standard Lot A92.				Doforo C	1.	A Ba - C-1	La 40 2
NTU Turbidity Standard Lot A92	27,	12/20		Before Ca		After Cal:	20,1
10 NTITurbidity Standard 1 4 A	`S ,	11/20		Before Ca		After Cal:	100
NTU Turbidity Standard Lot A 92	٠,	12/26		Before Ca		After Cal:	808
NTU Turbidity Check STD Lat A9:	<b>∡Ι</b> Ο	) 11/2 C	2	Before Ca		After Cal:	9.92
ALIBRATION SUCCESSFUL?	037	, 2/22		Before Ca	1:	After Cal:	0,26
ALLDRATION SUCCESSIVE!							

Date: 8/21/20
Time: 0815
Prepared By: Danie Howard
Checked By:

Wood. Project No. 6122201429 Pine Sonde ID:
Pine Handset ID: 369555
Battery Voltage %: 50

CALL	BRATION PRIOR TO SAMPLING	
DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	YesNoDate:Time:	
Current Air Temperature °C (meter reading):		23.5
Current Barometric Pressure (from Weather		
Channel or NOAA.gov, which is corrected to		
sea level):		1
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for ever	у
enter into YSI DO calibration:	100 ft. above sea level: 565/100 x 2.54 = 14.4 mm Hg	749,6
Theoretical DO (mg/L) from DO table based		,
on current temperature and elevation corrected		
pressure:		
DO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	
DO concentration after Calibration (mg/L):		8,16
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	97.5
DO Charge (DO ch):	Acceptable Range is 25 to 75	
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	n <sub>e</sub>
Note:		
	void carry-over from pH standards (i.e. pH buffers are conductive)]	
Calibration standard used (mS/cm)	Lot OGE 438 1.413	124.0
Temperature (°C)	5/2/	240
Reading before Calibration (mS/cm)		1379
Reading AFTER Calibration (mS/cm)		1,413
Conductivity Cell Constant (unitless):		1 1249
Note: Be sure conductivity cell is submerged and free of bub	bles (gently tap sonde on table)	
pH		
pH 7.0 value before calibration:	Lot 9 GK721 1/21	7.78
pH 7.0 value after calibration:	2 4,100	7,00
pH 7.0 mV (range is -50 to +50 mV):		-46.2
pH 10 value before calibration:	Lot 9 & -648 12/21	10.62
pH 10 value after calibration:	24.2	10.00
pH 10 mV (range is -130 to -230 mV):	172	72155
pII 4.0 value before calibration:	LOT 060046 4/22	4.93
pH 4.0 value after calibration:	2 4 2	4.00
pH 4.0 mV (range is 130 to 230 mV):	- 1,70	123,2
Note: Span between ph 4 and 7, and 7 and 10 should be betw	1 veen 165 to 180 mV	
OXIDATION/REDUCTION POTENTIAL (		:
Calibration Temperature (°C):		1240
Theoretical Calibration standard (mV)	$\frac{L_0 + 7}{0.231 + 0.0013(25 - T) \times 1000} = \text{mV}$ (T is Temperature °C)	230
Reading before calibration (mV):	(Tio Temperature C)	
Reading after calibration (mV):		191.7
Note: mV theory will change with temperature	an against hagad on your average trans	230
TURBIDITY Note: Lens wiper should be parked 18	9, so calculate based on your current temp.	······································
2 ONTU Turbidity Standard L'of A925	10 10 10 10 10 10 10 10 10 10 10 10 10 1	12200
10 NTH Turbidity Standard 1 at A0	4 /2/26 Before Cal: After Cal:	20,2
100NTU Turbidity Standard Lot A92	Before Cal: After Cal: After Cal:	99,8
800 NTU Turbidity Standard Lot A9		792
10 NTU Turbidity Check STD Lot 12	) · · · ·	101
Col NTU Turbidity Check STD Lot 7	Before Cal: After Cal:	0.27
CALIBRATION SUCCESSFUL?		\$14.11 (a.m./p)

Date: 08/18/20 Time: 08:50 Prepared By: A. SHOREPITS

Checked By:\_\_

Wood. Project No. 6122201429

SHARTRULL Pod Pine Handset ID: 036616

Battery Voltage %: අව

Hach 2100@ SIN121100021737 PENE #022853

CALIF	PENE #022853	
DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	Yes <u>K</u> No Date: <u>8//8</u> Time: <u>10:3</u> 5	
Current Air Temperature °C (meter reading):		
Current Barometric Pressure (from Weather		29.89 in Hs
Channel or NOAA.gov, which is corrected to		2110 1110 115
sea level):		1
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in, Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for	r every 759.206 mmHz
enter into YSI DO calibration:	100 ft. above sea level: $565/100 \times 2.54 = 14.4 \text{ mm Hg}$	r every 759.206 mmHs -4754/100×2.54) = 10.6 =>748.606 mmHs
Theoretical DO (mg/L) from DO table based		= 10.6
on current temperature and elevation corrected	•	=>748. 606 mm. He
pressure:		5
DO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	986.7%
DO concentration after Calibration (mg/L):		79.9% 7.76mg/L
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	
DO Charge (DO ch):	Acceptable Range is 25 to 75	
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constan	ats
Note:		
	oid carry-over from pH standards (i.e, pH buffers are conductive)]	
Calibration standard used (mS/cm)	Lof# ORE 438 Fago. 05/21	1.2013
Temperature (°C)		22.90
Reading before Calibration (mS/cm)		1.36
Reading AFTER Calibration (mS/cm)		1413
Conductivity Cell Constant (unitless):		
Note: Be sure conductivity cell is submerged and free of bubb	oles (gently tap sonde on table)	
pH		10
pH 7.0 value before calibration:	Lot# 94K721 Fxp. 11/21	7.36 27 08/18/20
pH 7.0 value after calibration:		A.60 C
pH 7.0 mV (range is -50 to +50 mV):		-4Z.7 @23.3°C
pH 10 value before calibration:	20f# 996648 Bxp. 12/21	10-3-47 15.
pH 10 value after calibration:		10.00
pH 10 mV (range is -130 to -230 mV):		-206.3
pH 4.0 value before calibration:	Lof# 09D046 Fg. 04/22	4.80 @23.3°c
pH 4.0 value after calibration:		1-00
pH 4.0 mV (range is 130 to 230 mV):		1231.1 A.S.8/18/10
Note: Span between ph 4 and 7, and 7 and 10 should be between		
OXIDATION/REDUCTION POTENTIAL (		
Calibration Temperature (°C):	Lot # 09D520 Ep. 01/21	23. 7
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$ (T is Temperature	°C)
Reading before calibration (mV):		242.7
Reading after calibration (mV):		240.0
Note: mV theory will change with temperature TURBIDITY Note: Lens wiper should be parked 180		
		Cal: 20.9
100 NTU Turbidity Standard Lof# A9	(2) Frp. 08/20 Before Call: 98:3 After	OCCUPATION OF STREET PLANS
LO NTU Turbidity Standard Lof# 407		
NTU Turbidity Check STD	·	
CALIBRATION SUCCESSFUL?	Before Cal: After	
CALIDIATION SUCCESSFUL!		YES

Date: <u>08//9/20</u>
Time: <u>06:30</u>
Prepared By: <u>R. SHORED</u>TTS
Checked By: —

### Wood. Project No. 6122201429

SMARTROLL
Pine Sonde ID: 25467

Pod Pine Handset ID: 030616

Battery Voltage %: 90

Uach 2000 S/N/21100021737

PINE # 022853

CALIBRATION PRIOR TO SAMPLING

CALIF	3RATIO	<u> 1 PRIOI</u>	R TO S.	AMPLING	j			<del>-1</del>
DISSOLVED OXYGEN (DO)						***	VALUE	
Was DO membrane changed?	Yes	No	X	Date:	Time:			1
Current Air Temperature °C (meter reading):								1
Current Barometric Pressure (from Weather	Ţ						29.85 in	1 ہے
Channel or NOAA.gov, which is corrected to								1,,2
sea level):								}
Elevation Corrected Barometric Pressure to						mm Hg for every	/	
enter into YSI DO calibration:	100 ft. al	oove sea	level: 5	65/100 x 2.5	54 = 14.4  mm	Hg		
Theoretical DO (mg/L) from DO table based								
on current temperature and elevation corrected	İ							
pressure:	<u> </u>							
DO concentration before Calibration (mg/L):	Depend	ing on m	ieter ve	rsion, this	may not be a	ivailable.	9.06	105-6%
DO concentration after Calibration (mg/L):		NA-					8.53	105-6%
% Recovery (actual/theory x 100)		s 90 to 1						
DO Charge (DO ch):		ble Rang					1701	
DO Gain (should be between -0.7 and 1.5):	Exit Cal	libration	menu	and go to A	Advanced/Ca	l Constants		
Note:								-
CONDUCTIVITY [Note: Calibrate before pH to av					iters are conducti	ive)]		
Calibration standard used (mS/cm)	Lof#	09E	438	Ex	p-05/21	/	1.413	
Temperature (°C)	ļ	,			· · · · · · · · · · · · · · · · · · ·		21.75	
Reading before Calibration (mS/cm)	Ī						1.410	
Reading AFTER Calibration (mS/cm)							1.413	
Conductivity Cell Constant (unitless):								
Note: Be sure conductivity cell is submerged and free of bubl	oles (gently	tap sonde (	on table)					1
pH								
pH 7.0 value before calibration:	20+#	99K	721	Esp	11/21		7-05	Z1,80°C
pH 7.0 value after calibration:				7	norm in the later of the later		7.00	CITTOL
pH 7.0 mV (range is -50 to +50 mV):							-36.8	
pII 10 value before calibration:	1.014	9GL	348	Exp	12/21	V 2002 II 2000 II 2001 AV 200	9.80	21.80°C
pH 10 value after calibration:					, , , , , , , , , , , , , , , , , , , ,		10.00	<b>-</b>
pH 10 mV (range is -130 to -230 mV):					\ <u></u>	· · · · · · · · · · · · · · · · · · ·	-205.8	
pH 4.0 value before calibration:	10/#	084	DO4	Ex	2.04/22	T MANUAL SER SONIES SE SER	4.10	21.8500
pH 4.0 value after calibration:			<del></del>	3		-	4.60	
pH 4.0 mV (range is 130 to 230 mV):	<b> </b>						132.2	
Note: Span between ph 4 and 7, and 7 and 10 should be between	cen 165 to 1	180 mV				V-1-1		İ
OXIDATION/REDUCTION POTENTIAL (		stel Z	40.0	mV)			***************************************	
Calibration Temperature (°C):		# 0GE			0.01/21		21.80	
Theoretical Calibration standard (mV)					(T is Tem	perature °C)	رو ، ; م <u>ن</u> بحد	
Reading before calibration (mV):						·P	243.2	
Reading after calibration (mV):					<u>, , , , , , , , , , , , , , , , , , , </u>		240.0	
Note: mV theory will change with temperature	so calcu	late basi	ed on y	our curren'	f temp.			!
TURBIDITY Note: Lens wiper should be parked 180	degrees fi	rom the op	ptics.	J41 V1111 V	, tomp,			
26 NTU Turbidity Standard / 15 # 16011	7 ==	- 62	101	Before C	al: 20.3	After Cal:	20.5	
26 NTU Turbidity Standard  100 NTU Turbidity Standard  100 NTU Turbidity Standard  100 NTU Turbidity Standard  100 NTU Turbidity Check STD Lof # A92	3 万	20 08	120		al: 100	After Cal:	101	
800 NTU Turbidity Standard Lot # A Old	(1 B)	20.07	121		al: 789	After Cal:	798	
113 NTU Turbidity Check STD Lof # A92	13 Ex	P-11/	20		al: 9.84	After Cal:		
NTU Turbidity Check STD		'		Before Ca		After Cal: After Cal:	9.38	
CALIBRATION SUCCESSFUL?				DC1010 C	.11;	Alter Car.	UEE	
							YES	

Date: 08/20/20 Time: 08:05

Checked By: \_\_\_\_

Prepared By: A.SHOREDFT

Wood. Project No. 6122201429 SMARTROLL
Pine Sende ID: 25467
Pod Pine Handset ID: 030616
Battery Voltage %: 100

Hach 2100@ S/N 12110C021737 PINEH 022853

DISSOLVED OXYGEN (DO)	DKA.	HONT	'RIOR TO	J SALVIP	LING			VALUE
Was DO membrane changed?	Yes		No_j×	Dat	te:	Time:		YALIDA
Current Air Temperature °C (meter reading):		-						21.31
Current Barometric Pressure (from Weather								
Channel or NOAA.gov, which is corrected to								29.89 in
sea level):							•	l
Elevation Corrected Barometric Pressure to	Ex.:	30.02	in. Hg x 2:	5.4 = mm	Hg; sub	tract 2.54	mm Hg for every	у
enter into YSI DO calibration:	100	ft. abov	e sea level	l: 565/10	0 x 2.54	= 14.4 mm	Hg	
Theoretical DO (mg/L) from DO table based								
on current temperature and elevation corrected	ŀ							
pressure:								
OO concentration before Calibration (mg/L):	Dep	ending	on meter	version	, this m	ay not be a	available.	8.71
OO concentration after Calibration (mg/L):							-	8-73
% Recovery (actual/theory x 100)	Ran	ige is 9	0 to 110%	6 Recove	ry			
OO Charge (DO ch):			Range is					
OO Gain (should be between -0.7 and 1.5):	Exit	t Calibi	ation me	nu and g	o to Ad	vanced/Ca	ıl Constants	
Note:								
CONDUCTIVITY [Note: Calibrate before pH to a							Marie Company of the	
Calibration standard used (mS/cm)	Lo	1#	09F	438	T	= x62, 0	5/21	1.413
Temperature (°C)						V		22.11
Reading before Calibration (mS/cm)	<u> </u>							1.420
Reading AFTER Calibration (mS/cm)							·	1.413
Conductivity Cell Constant (unitless):								
lote: Be sure conductivity cell is submerged and free of bu	bbles (g	ently tap	sonde on tal	ole)				
oH								
H 7.0 value before calibration:	Lo	+#	99K-	721	E	xp. 11,	121	6.89
H 7.0 value after calibration:								7.00
H 7.0 mV (range is -50 to +50 mV):								-36-1
pH 10 value before calibration:	Lo	1#	9916	48	7 5	20.12	121	9.98
pH 10 value after calibration:								(0.00
pH 10 mV (range is -130 to -230 mV):								-205.0
H 4.0 value before calibration:	20	F#	oano.	46	Æ	x10.04	122	4.03
H 4.0 value after calibration:								4.00
H 4.0 mV (range is 130 to 230 mV):								13116
ote: Span between ph 4 and 7, and 7 and 10 should be bet								
DXIDATION/REDUCTION POTENTIAL				240.0		<u> </u>		
Calibration Temperature (°C):			09D5		Fx	p.01/2		22.06
heoretical Calibration standard (mV)	0.23	1 + 0.00	13(25-T)	x 1000	= mV	(T is Tem	perature °C)	
eading before calibration (mV):								239.4
eading after calibration (mV):								240.0
ote: mV theory will change with temperatur					urrent to	emp.		
URBIDITY Note: Lens wiper should be parked 1	-	ees from	the optics.					
NTU Turbidity Standard Lof # Aoll	3	Bzp	07/21	Befo	ore Cal:	19.0	After Cal:	18.8
OO NTU Turbidity Standard Lof # Agr	21	Exp	07/21 08/20	Befo	ore Cal;	47.8	After Cal:	96.1
NTU Turbidity Standard Lof# Acid  NTU Turbidity Check STD Lof # A9	1	Exp.	07/21	Befo	ore Cal:	789	After Cal:	796
	43	FRP.	11/20	Befo	ore Cal:	9.15	After Cal:	10.4
NTU Turbidity Check STD				Befo	ore Cal:		After Cal:	
ALIBRATION SUCCESSFUL?					MAI. (1711 — — — — — — — — — — — — — — — — — —			YES

Date: 08/21/2020 Time: 06:00 Prepared By: A.SHONEDITS Checked By:\_\_

Wood. Project No. 6122201429 SMANTROLL.
Pine Sende ID: 25467

Poul Pine Handset ID: 030616

Battery Voltage %: 100

Hach 21000 S/N 121100021737

ING

PENEA 022853

	<b>BRATIO</b>	V PRIOR TO	SAMPLI	NG	TANEA	022863	
DISSOLVED OXYGEN (DO)						VALUE	1
Was DO membrane changed?	Yes	No_1/	Date:	Time:			
Current Air Temperature °C (meter reading):							
Current Barometric Pressure (from Weather						29.88	<i>U</i>
Channel or NOAA.gov, which is corrected to						100000	415.
sea level):						<u>i</u>	
Elevation Corrected Barometric Pressure to	1	_		g; subtract 2.54 t	- ,	/	
enter into YSI DO calibration:	100 ft. al	oove sea level:	565/100 x	2.54 = 14.4  mm	Hg		
Theoretical DO (mg/L) from DO table based							
on current temperature and elevation corrected							
pressure:							
DO concentration before Calibration (mg/L):	Dependi	ing on meter	version, th	nis may not be a	vailable.	8.43	19.5%
DO concentration after Calibration (mg/L):						8-63	160.0%
% Recovery (actual/theory x 100)		s 90 to 110%					-0
DO Charge (DO ch):		ble Range is					
DO Gain (should be between -0.7 and 1.5):	Exit Cal	ibration men	u and go t	o Advanced/Ca	l Constants	<u> </u>	
Note:							-
CONDUCTIVITY [Note: Calibrate before pH to av							
Calibration standard used (mS/cm)	Lott	OGE4	38	For 95	121	1.413	
Temperature (°C)				ν		21.10	
Reading before Calibration (mS/cm)						1.420	
Reading AFTER Calibration (mS/cm)						1.413	
Conductivity Cell Constant (unitless):	<u> </u>	···					
Note: Be sure conductivity cell is submerged and free of bubi	bles (gently	tap sonde on tabl	e)				
pH		<u></u>		·	Constitution of the second		
pH 7.0 value before calibration:	Lott	# 99K7	21	Emp W/	21	6.99	21-600
pH 7.0 value after calibration:						7.00	
pH 7.0 mV (range is -50 to +50 mV):		·				-36.9	
pH 10 value before calibration:	LOT A	+99L64	8	5=200 12/	2/	)	21.120
pH 10 value after calibration:				U		10.00	
pH 10 mV (range is -130 to -230 mV):		<b>——</b> —————				-207.2	
pH <b>4.0</b> value before calibration:	201 A	09004	6	Bx0.041	22		21.60%
pII 4.0 value after calibration:				V		4.00	
pH 4.0 mV (range is 130 to 230 mV):						128.7	
Note: Span between ph 4 and 7, and 7 and 10 should be betw	een 165 to 1						
OXIDATION/REDUCTION POTENTIAL (	ORP) (.S.	td 240.	0 m/)				
Calibration Temperature (°C):		09D52		Fexy 81/2		22.60	
Theoretical Calibration standard (mV)	0.231 + 0.	.0013(25-T)	x 1000 = r	nV (Tis Tem	perature °C)		
Reading before calibration (mV):						2/1.0	
Reading after calibration (mV):						240.0	
Note: mV theory will change with temperature			your curr	ent temp.			
TURBIDATY Note: Lens wiper should be parked 180	************************						
20 NTU Turbidity Standard Lof # AOII.	I B	15/60 %	Before	Cal: 12.5	Aster Cal:	20-0	
NTU Turbidity Standard 1 44 A9 18	1 02	908/20	Before	Cal: 986	After Cal:	94.0	
500 NTU Turbidity Standard Cot # AO W	$H$ $\mathbb{Z}_2$	4p 03/21		Cal: Al	After Cal:	800	
NTU Turbidity Standard  NTU Turbidity Standard  NTU Turbidity Standard  NTU Turbidity Standard  NTU Turbidity Check STD 2044 A 9	213 区	ep 11/20	Before	Cal: 4.77	After Cal:	9.99	
NTU Turbidity Check STD		·	Before	Cal:	After Cal:		
CALIBRATION SUCCESSFUL?						YES	

Date: 8-18-20
Time: 935
Prepared By: EVER GUILLEN
Checked By:

Wood. Project No. 6122201429 Pine Sonde ID: 30666 Pine Handset ID: 30618 Battery Voltage %:\_\_\_\_\_\_\_

	BRATION PRIOR TO SAMPLING	
DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	Ycs No Date: Time:	
Current Air Temperature °C (meter reading):		23,11
Current Barometric Pressure (from Weather		
Channel or NOAA.gov, which is corrected to		
sea level):		
Elevation Corrected Barometric Pressure to	Ex.: $30.02$ in. Hg x $25.4 = mm$ Hg; subtract $2.54$ mm Hg for every	_
enter into YSI DO calibration:	100 ft, above sea level: $565/100 \times 2.54 = 14.4 \text{ mm Hg}$	750,9
Theoretical DO (mg/L) from DO table based		
on current temperature and elevation corrected		
pressure:		and ) and an early design the design through the con-
DO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	8,61
DO concentration after Calibration (mg/L):		7.88
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	
DO Charge (DO ch):	Acceptable Range is 25 to 75	.154
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	,r=
Note:		
	void carry-over from pH standards (i.e. pH buffers are conductive)]	
Calibration standard used (mS/cm)		1.413
Temperature (°C)		Z3, 1
Reading before Calibration (mS/cm)		15 ZG
Reading AFTER Calibration (mS/cm)		1,279
Conductivity Cell Constant (unitless):		
Note: Be sure conductivity cell is submerged and free of bub	bles (gently tap sonde on table)	MANUAL PROPERTY OF THE PARTY OF
pH		
pH 7.0 value before calibration:		7,56
pH 7.0 value after calibration:		7,0
pH 7.0 mV (range is -50 to +50 mV):		-37,1
pH 10 value before calibration:	7 3 7	10.58
pH 10 value after calibration:		10,0
pH 10 mV (range is -130 to -230 mV):		-212.8
pH 4.0 value before calibration:	T STORT ST ST ST ST ST ST ST ST ST ST ST ST ST	4.88
pH 4.0 value after calibration:		4.0
pH 4.0 mV (range is 130 to 230 mV):		125,6
Note: Span between ph 4 and 7, and 7 and 10 should be betw OXIDATION/REDUCTION POTENTIAL (		
Calibration Temperature (°C):		23.8
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$ (T is Temperature °C)	240,0
Reading before calibration (mV):		1989
Reading after calibration (mV):		231,0
Note: mV theory will change with temperature	s, so calculate based on your current temp.	
TURBIDITY Note: Lens wiper should be parked 18		
O NTU Turbidity Standard	Before Cal: 9,19 After Cal:	9,53
NTU Turbidity Standard	Before Cal: 20.4 After Cal:	19.7
100 NTU Turbidity Standard	Before Cal: 100 After Cal:	99.8
800 NTU Turbidity Check STD	Before Cal: 796 After Cal:	796
/O NTU Turbidity Check STD	Before Cal: 9.50 After Cal:	9.69
CALIBRATION SUCCESSFUL?	The second of th	
		YES

Date: 8-19-20
Time:
Prepared By: EVER GUILLEN
Checked By:

## Wood. Project No. 6122201429

Pine Sonde ID:	30666
Pine Handset ID:	30618
Battery Voltage %	:

CALI   DISSOLVED OXYGEN (DO)	BRATION	N PRIOR TO	SAMPLING	····		X7AT TIVO
Was DO membrane changed?	Yes	No C	Data	Time:		VALUE
Current Air Temperature °C (meter reading):	1 CS	NO	Date:	1 line:	<del></del>	
Current Barometric Pressure (from Weather						23,z/
Channel or NOAA.gov, which is corrected to						ŀ
sea level):						
Elevation Corrected Barometric Pressure to	Eu. 207	00 in Ha 25 /	l ≕ mm Hg; subt		II F	<del> </del>
enter into YSI DO calibration:			565/100 x 2.54 :			750,1
Theoretical DO (mg/L) from DO table based	100 10, 40	DOVE SCA TEVEL.	303/100 X 2.34	- 17.7 11111 1	rg	13011
on current temperature and elevation corrected	1					
pressure:						
DO concentration before Calibration (mg/L):	Denendi	no on meter s	ersion, this ma	iv not be as	/ailable	8,43
DO concentration after Calibration (mg/L):	2 op off an	ing on moter ,	ersion, and me	y not be av	dilabio.	7.95
% Recovery (actual/theory x 100)	Range is	s 90 to 110% ]	Recovery		7-7-11-11-11-11-11-11-11-11-11-11-11-11-	7,73
DO Charge (DO ch):		ble Range is 2				
DO Gain (should be between -0.7 and 1.5):			and go to Adv	ranced/Cal	Constante	
Note:	LAIT Cal	In acion ment	and go to Au	rancou/Cal	Constants	<u></u>
CONDUCTIVITY [Note: Calibrate before pH to a	void carry-ov	er from pH standa	urds (i.e. pH buffers	are conductiv		
Calibration standard used (mS/cm)	l v				-71	1,413
Temperature (°C)						24,0
Reading before Calibration (mS/cm)	<del>                                     </del>		<del></del>			1.522
Reading AFTER Calibration (mS/cm)	+			· · · · · · · · · · · · · · · · · · ·		
Conductivity Cell Constant (unitless):	<del> </del>			<del></del>		1,279
Note: Be sure conductivity cell is submerged and free of but	hles (gently i	tan conde on table				
рН	oreo (gonny	·	<u> </u>			
pH 7.0 value before calibration:	1	· · · · · · · · · · · · · · · · · · ·				7.78
pH 7.0 value after calibration:	-					7.0
pH 7.0 mV (range is -50 to +50 mV):						- 38,2
pH 10 value before calibration:	·+			* # ### # ### # #		10.79
pH 10 value after calibration:	<del>                                     </del>					10,0
pH 10 mV (range is -130 to -230 mV):						-218.4
pH 4.0 value before calibration:	· <del> </del> -					4.93
pH <b>4.0</b> value after calibration:	<del></del>					4.0
pH 4.0 mV (rauge is 130 to 230 mV):	<u> </u>					136.9
Note: Span between ph 4 and 7, and 7 and 10 should be between	. <u> </u> veen 165 to 1	80 mV	·			13617
OXIDATION/REDUCTION POTENTIAL (		00 1111			· · · · · · · · · · · · · · · · · · ·	
Calibration Temperature (°C):	<del>`                                    </del>	<del></del>		***************************************		29.1
Theoretical Calibration standard (mV)	0.231+0	.0013(25-T) x	1000 = mV	(T is Temr	erature °C)	240,0
Reading before calibration (mV):	1			( - 10 10111)		201,7
Reading after calibration (mV):	<del> </del>					
Note: mV theory will change with temperature	L a. so calcu	late based on	Volit current to	mn		233,0
TURBIDITY Note: Lens wiper should be parked 18			your current te	111p.		
NTU Turbidity Standard		1	Before Cal:	9.57	After Cal:	0 00
NTU Turbidity Standard			Before Cal:	•	After Cal:	9,98
100 NTU Turbidity Standard			Before Cal:	19.3	After Cal:	20,0
800 NTU Turbidity Check STD			Before Cal:	98.0	After Cal:	100
NTU Turbidity Check STD			Before Cal:	79€		799
CALIBRATION SUCCESSFUL?			Defore Cal;		After Cal:	
				······································		

Date: 8-20-20	Wood.	Pine Sonde ID: 3066 #
Time:	Project No. 6122201429	Pine Handset ID: 3061B
Time:		Battery Voltage %: /00
Checked By:		
CALD	BRATION PRIOR TO SAMPLING	
DISSOLVED OXYGEN (DO)	BRATION I RIOR TO SAMI ENG	VALUE
Was DO membrane changed?	Yes No Date:	Time:
Current Air Temperature °C (meter reading):	103 10 - Date.	
Current Barometric Pressure (from Weather		19.33
Channel or NOAA.gov, which is corrected to		
sea level):		
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in, Hg x 25.4 = mm Hg; subtr	net 2.54 mm Ha for every
enter into YSI DO calibration:	100 ft. above sea level: $565/100 \times 2.54 =$	
Theoretical DO (mg/L) from DO table based	100 101 400 10 101 1010 1100 1100 1100	7 July Marie
on current temperature and elevation corrected		
pressure:		
DO concentration before Calibration (mg/L):	Depending on meter version, this may	not be available. 9,19
DO concentration after Calibration (mg/L):		8,62
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	77
DO Charge (DO ch):	Acceptable Range is 25 to 75	
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Adva	inced/Cal Constants
Note:		The state of the s
CONDUCTIVITY [Note: Calibrate before pH to as	void carry-over from pH standards (i.e. pH buffers a	re conductive)]
Calibration standard used (mS/cm)		1,413
Temperature (°C)		Z2,/
Reading before Calibration (mS/cm)		1.564
Reading AFTER Calibration (mS/cm)	, , , , , , , , , , , , , , , , , , , ,	1,413
Conductivity Cell Constant (unitless):		
Note: Be sure conductivity cell is submerged and free of bub	bles (gently tap sonde on table)	The manufacture of the second
pH		
pH 7.0 value before calibration:		7,43
pH 7.0 value after calibration:		7,0
pH 7.0 mV (range is -50 to +50 mV):		
pH 10 value before calibration:	# 250 0 250 2 250 2 250 2 250 2 250 2 250 2 250 2 250 2 250 2 250 2 250 2 250 2 250 2 250 2 250 2 250 2 250 2	9.11
pH 10 value after calibration:		10,0
pH 10 mV (range is -130 to -230 mV):		125,3
pH 4.0 value before calibration:		
pH 4.0 value after calibration:		
pH 4.0 mV (range is 130 to 230 mV):		
Note: Span between ph 4 and 7, and 7 and 10 should be between		Fig. 19 Sec. 1
OXIDATION/REDUCTION POTENTIAL (	ORP)	
Calibration Temperature (°C):		27,5
Theoretical Calibration standard (mV)	$0.231 \pm 0.0013(25 - T) \times 1000 = mV$ (	Γ is Temperature °C) 240
10 11 1 0 11 11 11 11 11		

Calibration Temperature (°C):		27,5
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$ (T is Temperature °C)	240
Reading before calibration (mV):		£199,8
Reading after calibration (mV):		231

Before Cal: /9,1	After Cal;	20.2
D 0 0 1		
Before Cal: 📝 🗗	After Cal:	100
Before Cal: 796	After Cal:	799
Before Cal:	After Cal:	
_	Before Cal: 796	Before Cal: 7% After Cal:

Date: 2020-08-19 10:58:43

Project Information:

**Operator Name** 

Company Name

Daniel Howard

Wood E&IS Plant Arkwright CCR

Project Name Site Name ARGWA-19 00 0' 0" Latitude 00 0' 0" Longitude

Sonde SN 407447 Hach 2100Q

Turbidity Make/Model

Pump Information:

Pump Model/Type QED Micropurge dedicated

Tubing Type HDPE Tubing Diameter .25 in Tubing Length 52.7 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 26.39 ft

**Pumping Information:** 

Final Pumping Rate 200 mL/min Total System Volume 0.988699 L Calculated Sample Rate 300 sec Stabilization Drawdown 0.01 in **Total Volume Pumped** 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	10:34:03	600.03	22.00	6.34	172.55	1.09	26.41	3.28	110.15
Last 5	10:39:03	900.03	21.92	6.30	172.10	1.01	26.41	3.24	119.92
Last 5	10:44:03	1200.03	22.08	6.27	171.73	0.71	26.41	3.20	143.34
Last 5	10:49:03	1500.03	22.31	6.25	171.71	0.79	26.41	3.20	175.87
Last 5	10:54:03	1800.03	22.26	6.25	171.19	0.62	26.41	3.21	203.88
Variance 0			0.17	-0.04	-0.36			-0.03	23.42
Variance 1			0.23	-0.02	-0.03			-0.00	32.53
Variance 2			-0.05	0.00	-0.52			0.01	28.01

Notes

ARGWA-19 sample time 1056.

Date: 2020-08-19 13:46:03

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Daniel Howard Company Name Wood E&IS

Project Name Plant Arkwright CCR Site Name ARGWA-20

 Latitude
 0° 0' 0"

 Longitude
 0° 0' 0"

 Sonde SN
 407447

Turbidity Make/Model Hach 2100Q

Pump placement from TOC

Well Information:

Well ID ARGWA-20
Well diameter 2 in
Well Total Depth 37.7 ft
Screen Length 10 ft
Depth to Water 13.73 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.843908 L
Calculated Sample Rate 300 sec
Stabilization Drawdown
Total Volume Pumped 15 L

QED Micropurge dedicated

HDPE

.25 in

37.7 ft

32.7 ft

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	13:21:57	3299.99	19.39	6.03	132.62	7.85	13.86	5.39	106.74
Last 5	13:27:05	3607.99	19.48	6.22	132.79	6.90	13.86	5.38	106.95
Last 5	13:32:05	3907.99	19.41	6.21	133.73	5.21	13.86	5.39	107.10
Last 5	13:37:05	4207.99	19.37	6.19	133.96	4.95	13.86	5.41	107.82
Last 5	13:42:05	4507.99	19.50	6.16	134.36	4.84	13.86	5.43	108.18
Variance 0			-0.06	-0.01	0.94			0.01	0.15
Variance 1			-0.04	-0.01	0.23			0.01	0.72
Variance 2			0.13	-0.04	0.40			0.02	0.35

Notes

ARGWA-20 sample time 1344

Date: 2020-08-2110:42:13

**Pumping Information:** 

Project Information:

Pump Information:

Howard Pump Model/Type

Operator Name Daniel Howard Company Name Wood E&IS

Tubing Type HDPE
Tubing Diameter .25 in
Tubing Length 27 ft

QED Micropurge dedicated

200 mL/min

300 sec

0.05 in

8 L

0.7406238 L

Project Name Plant Arkwright CCR Site Name ARGWC-21 Latitude 0° 0' 0"

0° 0' 0" 0° 0' 0" 369555

Sonde SN 369555 Turbidity Make/Model Hach 2100Q

Pump placement from TOC 22 ft

Well Information:

Longitude

Well IDARGWC-21Final Pumping RateWell diameter2 inTotal System VolumeWell Total Depth26.98 ftCalculated Sample RateScreen Length10 ftStabilization DrawdownDepth to Water13.88 ftTotal Volume Pumped

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization	1		+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	10:14:12	1200.03	20.81	5.89	702.49	8.46	14.75	0.28	62.96
Last 5	10:19:12	1500.03	20.91	5.89	702.48	6.42	14.75	0.25	63.23
Last 5	10:24:12	1800.03	20.78	5.89	702.04	5.63	14.75	0.23	64.58
Last 5	10:29:12	2100.03	20.82	5.89	701.45	4.33	14.75	0.22	65.22
Last 5	10:34:12	2400.03	20.75	5.89	701.44	4.17	14.76	0.21	64.34
Variance 0			-0.13	0.00	-0.44			-0.02	1.35
Variance 1			0.04	0.00	-0.59			-0.00	0.64
Variance 2			-0.07	-0.00	-0.01			-0.02	-0.89

Notes

ARGWC-21 sample time 1036

Date: 2020-08-19 15:33:34

Project Information:

Operator Name Daniel Howard Company Name Wood E&IS

Project Name Plant Arkwright CCR Site Name ARGWC-22

 Latitude
 0° 0' 0"

 Longitude
 0° 0' 0"

 Sonde SN
 407447

Turbidity Make/Model Hach 2100Q

Well Information:

Well ID ARGWC-22
Well diameter 2 in
Well Total Depth 27.87 ft
Screen Length 10 ft
Depth to Water 13.77 ft

Pump Information:

Pump Model/Type Peristaltic pump

Tubing TypeHDPETubing Diameter.17 inTubing Length27.9 ft

Pump placement from TOC 22.9 ft

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.6045295 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 0 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	15:09:39	900.03	22.17	6.19	1586.36	0.87	14.09	0.18	19.60
Last 5	15:14:40	1201.03	21.98	6.20	1577.37	1.00	14.09	0.17	17.45
Last 5	15:19:41	1502.03	21.91	6.22	1559.51	0.99	14.09	0.15	17.05
Last 5	15:24:41	1802.03	21.91	6.22	1553.10	1.17	14.09	0.16	16.03
Last 5	15:29:43	2104.03	21.90	6.21	1559.32	1.37	14.09	0.18	15.60
Variance 0			-0.06	0.02	-17.87			-0.01	-0.40
Variance 1			-0.00	0.00	-6.40			0.00	-1.02
Variance 2			-0.01	-0.01	6.22			0.02	-0.43

Notes

ARGWC-22 sample time 1532

Date: 2020-08-20 12:18:54

Project Information:

**Operator Name** Daniel Howard Company Name Wood E&IS

Project Name Plant Arkwright CCR Site Name ARGWC-23 00 0' 0" Latitude 00 0' 0" Longitude

Sonde SN 369555

Turbidity Make/Model Hach 2100Q Pump Information:

Pump Model/Type Peristaltic pump

Tubing Type HDPE Tubing Diameter .17 in Tubing Length 28 ft

Pump placement from TOC

23 ft

Well Information:

Well ID ARGWC-23 Well diameter 2 in Well Total Depth 28.08 ft Screen Length 10 ft Depth to Water 12.1 ft

Pumping Information:

Final Pumping Rate 100 mL/min Total System Volume 0.6049758 L Calculated Sample Rate 300 sec Stabilization Drawdown 0.04 in **Total Volume Pumped** 3.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	11:53:17	900.03	23.48	6.32	484.35	1.86	13.38	0.18	101.97
Last 5	11:58:17	1200.03	23.70	6.32	486.34	1.77	13.35	0.18	100.92
Last 5	12:03:16	1500.01	23.69	6.32	483.04	1.52	13.35	0.17	99.70
Last 5	12:08:16	1800.01	23.77	6.32	487.86	1.07	13.34	0.18	99.45
Last 5	12:13:16	2100.01	23.50	6.33	483.22	1.01	13.34	0.16	98.30
Variance 0			-0.01	0.00	-3.30			-0.01	-1.22
Variance 1			0.08	-0.00	4.82			0.01	-0.25
Variance 2			-0.27	0.01	-4.64			-0.02	-1.15

Notes

ARGWC-23 sample time 1215. Also collected DUP-2.

Date: 2020-08-20 14:37:52

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

Tubing Type

Project Information:

Operator Name Daniel Howard Company Name Wood E&IS

Project Name Plant Arkwright CCR
Site Name ARAMW-1
Latitude 0° 0' 0"

Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 369555

Turbidity Make/Model Hach 2100Q

Pump placement from TOC 40.3 ft

Peristaltic pump

HDPE

.17 in

45.5 ft

Well Information:

Well IDARAMW-1Well diameter2 inWell Total Depth45.31 ftScreen Length10 ftDepth to Water13.13 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.6830857 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 0.01 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	14:14:22	600.03	23.37	6.11	785.29	2.57	13.34	0.19	21.81
Last 5	14:19:22	900.03	23.32	6.10	785.35	2.98	13.34	0.18	22.35
Last 5	14:24:22	1200.03	23.41	6.09	788.89	3.37	13.34	0.18	21.63
Last 5	14:29:22	1500.03	22.83	6.09	787.43	3.24	13.34	0.18	22.70
Last 5	14:34:22	1800.03	22.79	6.09	786.44	2.46	13.34	0.18	23.32
Variance 0			0.09	-0.01	3.54			0.01	-0.72
Variance 1			-0.58	-0.00	-1.46			-0.00	1.07
Variance 2			-0.04	-0.00	-0.99			-0.00	0.62

Notes

ARAMW-1 sample time 1436.

Date: 2020-08-20 16:35:26

Project Information:

**Operator Name Daniel Howard** Company Name Wood E&IS

Project Name Plant Arkwright CCR Site Name ARAMW-2 00 0' 0" Latitude 00 0' 0" Longitude Sonde SN 369555

Pump Information: Pump Model/Type

Tubing Type **HDPE** Tubing Diameter .17 in Tubing Length

25 ft

Peristaltic pump

Turbidity Make/Model Hach 2100Q

Pump placement from TOC

20 ft

Well Information:

Well ID ARAMW-2 Well diameter 2 in Well Total Depth 24.85 ft Screen Length 10 ft Depth to Water 13.31 ft

Pumping Information:

Final Pumping Rate 200 mL/min Total System Volume 0.5915856 L Calculated Sample Rate 300 sec Stabilization Drawdown 0 in 9 L **Total Volume Pumped** 

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	16:12:18	1500.03	21.09	5.98	1122.56	1.49	12.79	0.10	-28.39
Last 5	16:17:18	1800.09	21.09	5.98	1147.05	1.30	12.79	0.10	-29.15
Last 5	16:22:18	2100.05	21.09	5.98	1222.17	1.17	12.79	0.10	-29.67
Last 5	16:27:18	2400.03	21.26	5.97	1218.61	1.29	12.79	0.09	-31.08
Last 5	16:32:18	2700.03	21.29	5.99	1208.81	1.24	12.79	0.09	-29.18
Variance 0			0.00	0.00	75.12			-0.00	-0.52
Variance 1			0.17	-0.00	-3.56			-0.00	-1.41
Variance 2			0.04	0.02	-9.80			-0.00	1.90

Notes

ARAMW-2 sample time 1635.

## **Groundwater Monitoring Well Integrity Form**

Name	Plant ARKWRIGHT			
nit Number	NA	-		
ID	ARAMW~I			
	8/17/20			
	— () / · · / · · · / · · · · · · · · · · ·	yes	no	n/a
1 Location	/Identification	,		,
a	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require			
	protection from traffic?		1	
ď	Is the drainage around the well acceptable? (no standing water,			
	nor is well located in obvious drainage flow path)			
O Dunt nit	0			
2 Protectiv				
а	Is the protective casing free from apparent damage and able to be secured?	,		
h	Is the casing free of degradation or deterioration?			
b	Does the casing have a functioning weep hole?			
c d	Is the annular space between casings clear of debris and water,			
u	or filled with pea gravel/sand?	./		
e	Is the well locked and is the lock in good condition?			
G	is the well locked and is the lock in good condition:			
3 <u>Surface</u> j	<u>pad</u>			
а	Is the well pad in good condition (not cracked or brokeп)?			
b	Is the well pad sloped away from the protective casing?	V	***************************************	
С	Is the well pad in complete contact with the protective casing?	$\overline{}$		
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)	V		
е	Is the pad surface clean (not covered with sediment or debris)?	<u>lum</u>		
4 Internal o	Pasina			
a a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from			
U	foreign objects (such as bailers)?			
С	Is the well properly vented for equilibration of air pressure?	<del></del>		
q	Is the survey point clearly marked on the inner casing?			
e	Is the depth of the well consistent with the original well log?			N/A
f	Is the casing stable? (or does the pvc move easily when touched			13/73
'	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	1/		
,	,	<del>`</del>		
5 <u>Sampling</u>	: Groundwater Wells Only:			
a	Does well recharge adequately when purged?		***************************************	<u>N/A</u>
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			N/A
С	Does the well require redevelopment (low flow, turbid)?			N/A
6 Based on	your professional judgement, is the well construction / location	-		
- 20000 011	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?	3/		
7 Corrective	e actions as needed, by date:			
		_		

## **Groundwater Monitoring Well Integrity Form**

Name	Plant ARKWRIGHT			
mit Number	NA	_		
II ID	ARAMW-2	_'		
е	8/17/20	-		
		yes	no	n/a
1 Location/	Identification	,		
a	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require			
	protection from traffic?		_1/_	
d	Is the drainage around the well acceptable? (no standing water,	_		
	nor is well located in obvious drainage flow path)			
2 Protective	e Casing			
а	Is the protective casing free from apparent damage and able to be			
	secured?	./		
b	Is the casing free of degradation or deterioration?			
С	Does the casing have a functioning weep hole?		***************************************	
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?			
0.0				
3 <u>Surface p</u>				
a	Is the well pad in good condition (not cracked or broken)?	<del>-</del>		
b	Is the well pad sloped away from the protective casing?			
C	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not move when stepped on)	· /		
е	Is the pad surface clean (not covered with sediment or debris)?	<u> </u>		
C	is the pad surface clean (not covered with sediment of deblis)?			
4 Internal ca	<u>asing</u>			
а	Does the cap prevent entry of foreign material into the well?	1_		
b	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?	1		
C	Is the well properly vented for equilibration of air pressure?	1		
d	Is the survey point clearly marked on the inner casing?			
е	Is the depth of the well consistent with the original well log?			N/A
f	Is the casing stable? (or does the pvc move easily when touched	,		
	or can it be taken apart by hand due to lack of grout or use of slip	,		
	couplings in construction)			
5 Sampling	Groundwater Wells Only:			
а <u>еспъртуг</u>	Does well recharge adequately when purged?			N/A
b	If dedicated sampling equipment installed, is it in good condition			
J	and specified in the approved groundwater plan for the facility?			N/A
С	Does the well require redevelopment (low flow, turbid)?			N/A
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?	<u>loo</u>		
7 Corrective	actions as needed, by date:			
. 5011001146	asilons as modesa, by date.	<del></del>		

	Groundwater Monitoring Well Integrity Form			
Name	Plant ARKWRIGHT			
nit Number	NA	•		
I ID	ARG WA-19	_		
Э	8/17/20			
		yes	no	n/a
1 <u>Locatio</u>	n/ldentification	< /		
a	Is the well visible and accessible?	V		PROPERTY NAMED IN
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require protection from traffic?			
d	Is the drainage around the well acceptable? (no standing water,			
	nor is well located in obvious drainage flow path)			The state of the state of
2 Protect	ive Casing	. /		+1
a a	Is the protective casing free from apparent damage and able to be			•
a	secured?			
b	Is the casing free of degradation or deterioration?			
C	Does the casing have a functioning weep hole?			
d	Is the annular space between casings clear of debris and water,	·		
u	or filled with pea gravel/sand?	_/		•
 е	Is the well locked and is the lock in good condition?		1—170 J	
3 <u>Surface</u>				
a	Is the well pad in good condition (not cracked or broken)?			
b .	Is the well pad sloped away from the protective casing?			P-WWW.Nahaman
C	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not	A		
	rnove when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			W-4
4 Internal	casing			
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from			
~	foreign objects (such as bailers)?	الممسا		
C	Is the well properly vented for equilibration of air pressure?			PATHOLINA
d	Is the survey point clearly marked on the inner casing?		HMILL	
е	Is the depth of the well consistent with the original well log?			N/A
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	1/		
- 2				
5 <u>Samplin</u>	g: Groundwater Wells Only:		•	
a	Does well recharge adequately when purged?			N/A
. b	If dedicated sampling equipment installed, is it in good condition			k I / A
_	and specified in the approved groundwater plan for the facility?			N/A
С	Does the well require redevelopment (low flow, turbid)?			<u>N/A</u>
6 Based o	on your professional judgement, is the well construction / location			
- 2000	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?			
7 Correcti	ve actions as needed, by date:			

## Groundwater Monitoring Weil Integrity Form

Name	Plant ARKWRIGHT			
it Number	NA	-		
ID	ARGWA-20			
	\$11972	-		
		- yes	по	n/a
1 Location	/Identification	yes	110	II/a
a	Is the well visible and accessible?	./		
b b	Is the well properly identified with the correct well ID?	<del>-/-</del>		
	Is the well in a high traffic area and does the well require			
С	protection from traffic?	**	_	•
<b>.</b>	•	<u>X</u>		
ď	Is the drainage around the well acceptable? (no standing water,	/		
	nor is well located in obvious drainage flow path)	<u> </u>	-	·····
2 Protectiv	e Casino		,	
a	Is the protective casing free from apparent damage and able to be	***************************************		
ü	secured?			
b	Is the casing free of degradation or deterioration?		*****	*****
,	Does the casing have a functioning weep hole?			
c d	Is the annular space between casings clear of debris and water,	B. S. S. S. S. S. S. S. S. S. S. S. S. S.	William men	
u		,		
	or filled with pea gravel/sand? Is the well locked and is the lock in good condition?			
e	is the well locked and is the lock in good condition?			
3 Surface p	pad			
a	Is the well pad in good condition (not cracked or broken)?			•
b	Is the well pad sloped away from the protective casing?	1		
.~ C	Is the well pad in complete contact with the protective casing?	1		to make a series over
ď	Is the well pad in complete contact with the ground surface and			
<b>-</b>	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)	1		
e	Is the pad surface clean (not covered with sediment or debris)?		#H	
4 Internal o				
4 <u>Internal c</u>				
a h	Does the cap prevent entry of foreign material into the well?		/	-
b	Is the casing free of kinks or bends, or any obstructions from	/		
	foreign objects (such as bailers)?	<u> </u>		
C	Is the well properly vented for equilibration of air pressure?			
d <sub>.</sub>	Is the survey point clearly marked on the inner casing?	1		PARTIE
е	Is the depth of the well consistent with the original well log?			<u>N/A</u>
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	1		
	couplings in construction)			
5 Sampling	: Groundwater Wells Only:			
	Does well recharge adequately when purged?			. ΄ ΝΙ/Δ
a b		PARTE AND DESCRIPTION OF THE SECOND		N/A
Ŋ	If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?		٠	NI/A
				N/A
С	Does the well require redevelopment (low flow, turbid)?			N/A
6 Based on	your professional judgement, is the well construction / location			
o pages on	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?			
7 Corroctive	e actions as needed, by date:			
COMECHAE				

## **Groundwater Monitoring Well Integrity Form**

Name	Plant ARKWRIGHT			
nit Number	NA	-		
ID	ARGWC-21	_		
)	8/17/20	-		
		yes	по	n/a
1 Location/	ldentification			
а	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require			
	protection from traffic?		/_	
d	is the drainage around the well acceptable? (no standing water,	_		
	nor is well located in obvious drainage flow path)			
2 Protective	e Casing			
a	Is the protective casing free from apparent damage and able to be			
	secured?	1		
b	Is the casing free of degradation or deterioration?			
С	Does the casing have a functioning weep hole?	~		
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?	سما		
е	Is the well locked and is the lock in good condition?	1		
3 <u>Surface p</u>	he			
a	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			
c	Is the well pad in complete contact with the protective casing?			
ď	Is the well pad in complete contact with the ground surface and		<del></del>	
~	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)	1/		
е	Is the pad surface clean (not covered with sediment or debris)?	1		
1 Internal of	aning.			
4 Internal ca	asing  Does the cap prevent entry of foreign material into the well?	——		
a	Is the casing free of kinks or bends, or any obstructions from	<u></u>		
b	foreign objects (such as bailers)?	./		
^	Is the well properly vented for equilibration of air pressure?			
c d	Is the survey point clearly marked on the inner casing?	<del></del>		
e	Is the depth of the well consistent with the original well log?			N/A
f	Is the casing stable? (or does the pvc move easily when touched			19/7
ı	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	1		
"				
	Groundwater Wells Only:			B.17.6
a	Does well recharge adequately when purged?			N/A
b	If dedicated sampling equipment installed, is it in good condition			NI/A
_	and specified in the approved groundwater plan for the facility?  Does the well require redevelopment (low flow, turbid)?			N/A
С	Does the well require redevelopment (low now, turbid)?	***************************************		<u>N/A</u>
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
•	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?			
7 Corrective	actions as needed, by date:		_	
, contective	actions as needed, by date.			

## **Groundwater Monitoring Well Integrity Form**

Name	Plant ARKWRIGHT			
it Number	NA	-		
ID	ARGWC-23	-		
	8/17/20	-		
		- yes	no	n/a
1 Location	/Identification	,		
а	Is the well visible and accessible?	~		
b	Is the well properly identified with the correct well ID?	1		
С	Is the well in a high traffic area and does the well require			
	protection from traffic?		0	
d	Is the drainage around the well acceptable? (no standing water,			
	nor is well located in obvious drainage flow path)	W	•	
2 Protosti	o Cooling			<del></del>
2 <u>Protectiv</u> a	e <u>Casing</u> Is the protective casing free from apparent damage and able to be	<u></u>		
a	secured?			
Ь	Is the casing free of degradation or deterioration?			
C	Does the casing have a functioning weep hole?		*****	
d	Is the annular space between casings clear of debris and water,			<del></del>
<b>u</b>	or filled with pea gravel/sand?	1		
е	Is the well locked and is the lock in good condition?			
Ü	to the wall tooked and to the look in good sendidon.			
3 <u>Surface</u>				
а	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?	Burney		
С	Is the well pad in complete contact with the protective casing?	No.		
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)	**************************************		
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal of	asing			
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from			
В	foreign objects (such as bailers)?	./		
С	Is the well properly vented for equilibration of air pressure?			
d	Is the survey point clearly marked on the inner casing?			
	is the depth of the well consistent with the original well log?			N/A
e f	Is the casing stable? (or does the pvc move easily when touched			11//
'	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	./		
	oodpiinigo iir oonoii dodon)			<del></del>
5 <u>Sampling</u>	: Groundwater Wells Only:			
а	Does well recharge adequately when purged?			N/A
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			N/A
С	Does the well require redevelopment (low flow, turbid)?			N/A
6 Pagadan	wour professional judgement, is the well construction (Inserting			
o based or	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?			
7 Corrective	e actions as needed, by date:			



Data Evaluation Narrative
Project: Plant Arkwright Annual Event

Wood Project Number: 6122201429.2003.\*\*\*\*

Sites: Ash Pond No. 2 - Former Plant Arkwright, Georgia

**Matrix: Groundwater** 

**Eurofins TestAmerica SDG No: 180-109846-1** 

#### Introduction

A data quality evaluation (DQE) was performed on the laboratory data reported for the Annual groundwater sampling event conducted at Ash Pond No. 2 (Dry Ash Stockpile) at the former Plant Arkwright, located in Arkwright, Georgia in August 2020 for Southern Company Services (SCS). The samples were collected and analyzed per the protocols presented in the *Draft Former Plant Arkwright Field Sampling Plan* (FSP) (SCS, 2016) and in accordance with the monitoring requirements of §§ 257.90. through 257.95 as referenced in the Georgia Environmental Protection Division (EPD) Rules 391-3-4-10(6)(a)-(c) and 391-3-4-.14. GA EPD rule 391-3-4-.10(6)(a) incorporates by reference the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) § 257 Subpart D.

The following sections provide summary discussions of the required data qualifications for the analytical methods for samples collected. A Level II DQE validation was performed on the samples analyzed by the fixed-based laboratory within these sample delivery groups (SDGs). A Level II DQE consists of review of the following criteria: sample integrity, holding times, method blanks, laboratory control samples (LCSs), matrix spikes/matrix spike duplicate (MS/MSD) recoveries and relative percent differences (RPDs), post digestion spikes (PDS), where applicable, laboratory and field duplicate RPDs, field and/or equipment blanks, and reporting limits. Additionally, the data summary tables generated from the electronic data deliverable (EDD) were compared to the laboratory hardcopy data report to verify that the EDD and laboratory data report agree.

The data were reviewed using the laboratory's precision and accuracy limits, the method requirements, and the SCS Field Sampling Plan (FSP) (SCS, 2016). DQE data qualifications were applied, if necessary, using the procedures in USEPA Region IV Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy (USEPA, 2011) and the National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2017), as guidance, and professional judgment using the following qualifiers:

<u>Qualifier</u>	<u>Usable Data</u>
J	The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. SCS
	Definition: Value J indicates the substance was detected at such low levels that the precision of
	the laboratory instruments could not produce as reliable of a value. Therefore, the value displayed (value J) is qualified by the laboratory as estimated.
UJ	The analyte was analyzed for but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.

SDG No: 180-109846-1 Page 1 of 13



<b>Qualifier</b>	<u>Usable Data (continued)</u>
U	Analyte was analyzed for but was not detected above the level of the reported sample
	reporting/method detection limit. Note: SCS does not use the "U" flag except when reporting
	results for radium that are detected below the Minimum Detection Concentration (MDC).
U*	This analyte should be considered "not-detected" because it was detected in an associated
	blank at a similar level.
O !:f:	Havrahia Data
<u>Qualifier</u>	<u>Unusable Data</u>
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample
	and meet QC criteria. The presence or absence of the analyte cannot be confirmed.
UR	The analyte was analyzed for but was not detected above the level of the reported sample
	reporting or method detection; however, the data are unusable. The sample results are
	rejected due to serious deficiencies in the ability to analyze the sample and meet quality
	control criteria. The analyte may or may not be present in the sample.

The analytical results for the samples reported in this SDG are usable with the qualifications discussed in this narrative. A summary of the data with associated qualifiers is presented in **Table 1**.

#### **Deliverables**

The data package as submitted to Wood Environment & Infrastructure Solutions, Inc. (Wood) is complete to perform a Level II DQE for United States Environmental Protection Agency (USEPA) Methods SW6020B, SW7470A, EPA 300.0 R2.1, and SM 2540C.

#### **Sample Integrity**

The groundwater samples were submitted to Eurofins TestAmerica in Pittsburgh, Pennsylvania (TAL PIT) and analyzed for CCR Appendix III and IV metals by Method SW6020B and mercury by Method SW7470A, anions (chloride, fluoride, and sulfate) by Method 300.0 R2.1, and total dissolved solids (TDS) by Method SM 2540C. The samples were also analyzed for radium-226 and 228 combined by Methods SW9315 and SW9320. The radium analyses were performed at Eurofins TAL St. Louis, Missouri laboratory (TAL SL) and reported in SDG 180-109846-2. The DQE for the radium analyses is presented separately.

Based on the information provided on the Chain-of-Custody (COC) forms, the field samples arrived at the laboratory intact and within the temperature range and preservation requirements. Completed COC documents are included in the data package.

#### **Sample Identification**

This SDG contains the following groundwater and/or quality control (QC) samples:

Sample ID	Sample Date	DQE Level	Sample ID	Sample Date	DQE Level
Ash Pond No. 2					
ARGWA-19	08/19/20	II	ARGWC-21	08/21/20	II
ARGWA-20	08/19/20	II			
ARGWC-22	08/19/20	II	<b>QC Samples</b>		
ARGWC-23	08/20/20	II	EB#2	08/19/20	II
ARAMW-1	08/20/20	II	FB#2	08/20/20	II
ARAMW-2	08/20/20	II	DUP-2	08/20/20	II

SDG No: 180-109846-1 Page 2 of 13



These samples were collected from the Ash Pond No. 2 monitoring wells listed above between August 19 and August 21, 2020. Each of the sample IDs above were amended with a date code (-0820) by Wood to create unique IDs in the database. Sample DUP-2 is a field duplicate of ARGWC-23. Sample EB#2 is an equipment blank, and sample FB#2 is a field blank. The equipment blank sample associations are listed below:

<u>Equipment Blank</u> <u>Associated Samples</u>

EB#2 (peristaltic pump) ARAMW-1, ARAMW-2, ARGWC-22, ARGWC-23, DUP-2

The analytical results for the metals, anions, and TDS data are usable with the qualifications discussed in this narrative. A summary of the data quality is presented below.

#### Metals (6020B/SW7470A)

The samples were submitted to TAL PIT for CCR Appendix III and Appendix IV metals by Method SW6020B and mercury by SW7470A. The CCR Appendix III metals are: boron (B) and calcium (Ca). The CCR Appendix IV metals are: antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), cadmium (Cd), chromium (Cr), cobalt (Co), lead (Pb), lithium (Li), mercury (Hg), molybdenum (Mo), selenium (Se), and thallium (Tl). Each of the Level II components were within QC limits except for method, field, and equipment blank contamination.

#### **Holding Times**

The sample analyses were performed within the 6-month and 28-day (for mercury) analysis holding times.

#### Method Blanks

One of the method blanks associated with the samples analyzed within this SDG contained thallium between the method detection limit (MDL) and the reporting limit (RL). Results less than ten times the blank are considered not detected as a possible laboratory artifact: **Reason Code: BL**.

Action: No qualification was required because thallium was not detected or greater than 10 times the amount in the blank in the samples associated with this blank.

#### <u>Laboratory Control Sample (LCS)</u>

Percent recoveries for target analytes were within quality control limits in the LCS.

#### Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Batch MS/MSD analyses for metals were not performed on project samples collected from Ash Pond No. 2. The recoveries and RPDs were within QC limits for the batch MS/MSDs.

#### Post Digestion Spike (PDS)

A PDS analysis was not available for review.

#### Field Duplicate Precision

One field duplicate/sample pair (DUP-2/ARGWC-23) was collected with this SDG, and the RPDs were within QC limits for results greater than or equal to five times the reporting limit.

SDG No: 180-109846-1 Page 3 of 13



#### Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

Field accuracy was measured through the collection of equipment/rinsate blanks and field blanks. Equipment rinsate blanks are collected to monitor the decontamination process on non-dedicated sampling equipment. Field blanks are collected to assess the water used to decontaminate the equipment and the containers into which samples are placed. Equipment blank EB#2 reported thallium between the MDL and the RL, and field blank FB#2 reported boron between the MDL and the RL. Results less than ten times the blank are considered not detected as a possible field artifact: **Reason Code: BF, BE** 

Action: The B results for ARGWC-23 and DUP-2 were qualified as not detected due to blank contamination and flagged "U\*".

#### **Reporting Limits**

The laboratory RLs met the SCS project RLs and were below the screening values for samples submitted for the analysis of metals by USEPA Methods SW6020B and SW7470A. The laboratory RL was elevated where dilutions were required to place the constituent within the calibration range. None of the samples in this SDG required dilution.

Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated and flagged "J" by the laboratory. The "J" qualifier is maintained by the data validator.

#### Total and Dissolved Metals Comparison

If total and dissolved metals samples were collected, comparison of the total and dissolved results can aid in the representativeness of the total metals value verses the metals that may be associated with suspended solids and metals actually dissolved within the water column. The dissolved metals results should be less than or equal to the total metals concentration for positive results greater than 5 times the RL. There were no dissolved metals collected from the wells at Ash Pond No. 2.

#### Anions (EPA 300.0 R2.1)

The samples were submitted to TAL PIT for anions (chloride, fluoride, and sulfate) by Method 300.0 R2.1. Each of the Level II components were within the QC limits.

#### **Holding Times**

The sample analyses were performed within the 28-day analysis holding times.

#### Method Blanks

The method blank associated with the samples analyzed in this SDG contained no reportable detections of anions.

#### **Laboratory Control Sample (LCS)**

Percent recoveries for target analytes were within quality control limits in the LCS.

SDG No: 180-109846-1 Page 4 of 13



#### Matrix Spike/Matrix Spike Duplicate (MS/MSD)

One of the batch MS/MSDs for anions (fluoride) was performed on Ash Pond No. 2 sample ARGWC-21. The MS and MSD recoveries and RPD were within QC limits.

#### Field Duplicate Precision

One field duplicate/sample pair (DUP-2/ARGWC-23) was collected with this SDG, and the RPDs were within QC limits.

#### Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

The equipment blank sample (EB#2) and field blank sample (FB#2) did not contain reportable concentration of anions.

#### **Reporting Limits**

The laboratory RLs met the SCS project RLs and were below the screening values for samples submitted for the analysis of anions by USEPA Method 300 R2.1. One sample required a dilution for sulfate resulting in elevated RLs. The following sample dilution was performed:

<u>Sample</u>	<u>Anion</u>	<b>Dilution</b>
ARGWC-22	sulfate	10x

Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated and flagged "J" by the laboratory. The "J" qualifier is maintained by the data validator.

#### **TDS (SM 2540C)**

The samples were submitted to TAL PIT for TDS by Method SM 2540C. Each of the Level II components were within the QC limits.

#### **Holding Times**

The sample analyses were performed within the 7-day analysis holding times.

#### Method Blanks

The method blank did not contain reportable levels of TDS.

#### <u>Laboratory Control Sample (LCS)</u>

Percent recoveries for target analytes were within quality control limits in the LCS.

#### Field Duplicate Precision

One field duplicate/sample pair in this SDG (DUP-2/ARGWC-23) was analyzed for TDS, and the RPD was within QC limits.

SDG No: 180-109846-1 Page 5 of 13



#### **Laboratory Duplicate Precision**

A laboratory duplicate was not analyzed on any samples in this SDG.

Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

The equipment blank sample (EB#2) and field blank sample (FB#2) did not contain TDS.

#### Reporting Limits

The laboratory RL met the SCS project RL and was below the screening value of 500 mg/L for samples submitted for the analysis of TDS by Method SM 2540C and no samples required dilutions; therefore, RLs were met for this project. Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated and flagged "J" by the laboratory, however there were none in this SDG.

#### **Overall Site Evaluation and Professional Judgment Flagging Changes**

The chemical data included in this SDG was validated in general accordance with the guidelines contained in the project work plan and validation SOPs. Professional judgment was not used to modify flags for results reported in samples presented in this SDG.

#### **Completeness**

A total of 7 wells, along with the required QC samples, were sampled and analyzed during the August 2020 annual event at Ash Pond No. 2 according to the FSP. The 7 well locations along with field duplicate, field blank, and equipment blank samples were reported in this SDG and were sampled and analyzed as scoped.

Therefore, both field and analytical completeness calculated for this SDG was 100%.

#### References

SCS, 2016, Draft Field Sampling Plan – Former Plant Arkwright, Georgia Power Company, Earth Science and Environmental Engineering Technical Services, Southern Company Services, Inc. (SCS), August 17, 2016. Permit modification to include the Appendix III and IV sampling requirements; approval of modified permit and FSP pending.

USEPA, 2011. Region 4, Science and Ecosystem Support Division, Quality Assurance Section, MTSB, Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy, Revision 2.0; September 2011.

USEPA, 2017. National Office of Superfund Remediation and Technology Innovation, National Functional Guidelines for Inorganic Superfund Methods Data Review, Revision 0.0; January 2017.

Prepared by/Date: <u>DWK 10/05/2020</u> Checked by/Date: <u>JAH 10/08/2020</u>

SDG No: 180-109846-1 Page 6 of 13



# TABLE 1 SUMMARY OF DATA QUALIFIERS

SDG No: 180-109846-1 Page 7 of 13

#### TABLE 1

# SUMMARY OF DATA QUALIFIERS SAMPLE DELIVERY GROUP 180-109846-1

## SAMPLING DATES: August 19 - 21, 2020

#### Plant Arkwright Ash Ponds No. 2 - Annual Event

Field Sample ID	Location ID	Type	SDG	Method	Parameter Name	Lab Result	Lab Qual	Val Qual	Reason Codes	Units
EB#2	Equipmemnt Blank	EB	180-109846-1	6020B	thallium	0.00015	J	J		mg/L
ARGWA-19	ARGWA-19	N	180-109846-1	6020B	lithium	0.0038	J	J		mg/L
ARGWA-20	ARGWA-20	N	180-109846-1	6020B	beryllium	0.00022	J	J		mg/L
ARGWA-20	ARGWA-20	N	180-109846-1	6020B	cobalt	0.00064	J	J		mg/L
ARGWA-20	ARGWA-20	N	180-109846-1	6020B	lead	0.00039	J	J		mg/L
ARGWA-20	ARGWA-20	N	180-109846-1	6020B	selenium	0.0015	J	J		mg/L
FB#2	Field Blank	FB	180-109846-1	6020B	boron	0.056	J^	J		mg/L
ARGWC-23	ARGWC-23	N	180-109846-1	6020B	boron	<0.44		U*	BF	mg/L
ARGWC-23	ARGWC-23	N	180-109846-1	6020B	cobalt	0.0023	J	J		mg/L
DUP-2	ARGWC-23	FD	180-109846-1	6020B	boron	<0.40		U*	BF	mg/L
DUP-2	ARGWC-23	FD	180-109846-1	6020B	cobalt	0.0022	J	J		mg/L
ARAMW-1	ARAMW-1	N	180-109846-1	6020B	cobalt	0.001	J	J		mg/L
ARAMW-1	ARAMW-1	N	180-109846-1	6020B	molybdenum	0.0076	J	J		mg/L
ARAMW-2	ARAMW-2	N	180-109846-1	6020B	cobalt	0.0022	J	J		mg/L
ARAMW-2	ARAMW-2	N	180-109846-1	6020B	molybdenum	0.0013	J	J		mg/L
ARGWC-21	ARGWC-21	N	180-109846-1	300.0 R2.1	fluoride	0.084	J	J		mg/L
ARGWC-21	ARGWC-21	N	180-109846-1	6020B	cobalt	0.00066	J	J		mg/L

#### Notes:

Metals results are total metals unless otherwise noted.

### **Laboratory Qualifiers:**

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

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

#### **Reason Codes:**

BF = Field blank contamination. The result should be considered "not-detected".

-- = No Reason Code assigned for values detected between the method detection limit (MDL) and the reporting limit (RL);estimated quantitation.

#### **Validation Qualifiers:**

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only. The associated numerical value is the approximate concentration of the analyte in the sample.

U\* = This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.

Prepared by/Date: <u>DWK 10/07/20</u> Checked by/Date: <u>JAH 10/08/20</u>



## **DQE CHECKLISTS**

SDG No: 180-109846-1 Page 8 of 13



#### LEVEL II DATA QUALITY VALIDATION RECORD

**Project:** Plant Arkwright CCR Annual Event

Project No: 6122201429.2003.\*\*\*\*

Method: Metals and Mercury by SW6020B/SW7470 Laboratory and Lot: TAL PIT SDG: 180-109846-1

**Reviewer/Date:** D. Knaub 10/02/2020 **Senior Reviewer/Date:** J. Hartness 10/08/2020

NO **COMMENTS** YES NA **Case Narrative and COC Completeness Review** OK Sample IDs on labels did not include the "AR" prefix, samples logged per the COC Χ Sample Preservation and cooler temperature met (HNO₃ to pH<2) OK, 1.1, 1.2, 1.5, 1.6, 2.1, 2.4, 2.6, 2.7, and 3.6°C X Holding times met (180 days; Hg = 28 days) Coll: 08/19/20 – 08/21/20 Prep: metals - 08/28/20, 09/01/20 Hg - 09/02/20, 09/04/20, 09/05/20 Anal: metals - 09/17/20, 09/10/20, 09/04/20 Hg - 09/02/20, 09/05/20, 09/07/20 X **QC Blanks Review** Method Blanks: p. 54 MB 180-327642/1-A = ND p. 54 MB 180-327642-2-A - B = NDp. 55 MB 180-328062/1-A = ND p. 55 MB 180-328062/1-A - B and Cr = NDp. 56 PB 180-326831/1-E TI = 0.000185 J mg/L x10 = 0.00185 mg/L Flag assoc. results "U\*" No flags - Tl ND or > 10x blank in associated Ash Pond No. 2 samples p. 57-58 MB 180-328065/1-A = ND Hq: p. 59 MB 180-328121/1-A Hg = NDp. 60 MB 180-328636/1-A Hg = ND Equipment Blanks: (non-dedicated equip.) EB#2 (peristaltic) TI = 0.00015 J mg/L x 10 = 0.0015 mg/L Flag assoc. results "U\*": No flags - Tl ND or > 10x blank in associated Ash Pond No. 2 samples Field Blanks: (DI water) FB#2 (AP2) B = 0.056 J mg/L x10 = 0.56 mg/LFlag assoc. results "U\*": Reason Code: BF ARGWC-23, DUP-2 X **Laboratory Control Sample (LCS) recovery within limits** (Metals 80-120%, Hg = 80-120%) p. 54 LCS 180-327642/2-A metals = All OK p. 56-57 LCS 180-328062/2-A metals = All OK p. 58 LCS 180-328065/2-A metals = All OK Hq: p. 59 LCS 180-328121/1-A Hg = 119% p. 61 LCS 180-328636/2-A Hg = 105%

SDG No: 180-109846-1 Page 9 of 13



Metals and Mercury by SW6020B/SW7470A (cont.)

YES NO NA

Χ

**COMMENTS** 

Lab Duplicate - Field Duplicate precision goals met (20%)

Results in mg/L

metal	ARGWC-23	DUP-2-0820	RPD/Diff	RL
Sb	<0.00038	<0.00038	-	
As	<0.00031	<0.00031	-	
Ва	0.16	0.16	0.0%	
Ве	<0.00018	<0.00018	-	
В	0.44	0.4	9.5%	
Cd	<0.00022	<0.00022	-	
Ca	69	68	1.5%	
Cr	<0.0015	<0.0015	-	
Co*	0.0023J	0.0022J	0.0001	0.0025
Pb	<0.00013	<0.00013	-	
Li	0.036	0.035	2.8%	
Мо	0.061	0.061	0.0%	
Se	<0.0015	<0.0015	-	
TI	<0.00015	<0.00015	-	
Hg	<0.00013	<0.00013	-	

<sup>\*</sup>For detections  $\leq$ 5x RL – use absolute difference. Difference should be < RL. All RPDs/Diff OK

Matrix Spike recoveries and RPDs within limits (75-125%, RPD 20)

p. 55 Not from AP2

p. 57 Not from AP2

p. 59 Hg: Not from AP2

Total metals vs dissolved metals within limits (RPD < 20% or diff. < RL)

No samples were analyzed for dissolved metals in AP2

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

SDG No: 180-109846-1 Page 10 of 13



#### **LEVEL II DATA QUALITY VALIDATION RECORD**

**Project:** Plant Arkwright CCR Annual Event

**Project No:** 6122201429.2003.\*\*\*\*

Method: Anions (chloride, fluoride, and sulfate) by E300.0 R2.1

Laboratory and Lot: TAL PIT SDG: 180-109846-1

Reviewer/Date: D. Knaub 10/02/2020 Senior Reviewer/Date: J. Hartness 10/08/2020

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK

Sample IDs on labels did not include the "AR" prefix, samples logged per the COC

Sample Preservation and cooler temperature met (Cool to 6°C)

OK, 1.1, 1.2, 1.5, 1.6, 2.1, 2.4, 2.6, 2.7, and 3.6°C

Holding times met (CI, SO₄, F – 28 days)

Coll: 08/19/20 - 08/21/20

Anal: 08/21/20, 08/24/20, 08/25/20, 08/26/20, 08/28/20

QC Blanks Review

X

Method Blanks:

p. 49 MB 180-326777/6 F, Cl,  $SO_4 = ND$ 

p. 49 MB 180-326785/6 F = ND

p. 50 MB 180-326890/6 F = ND

p. 52 MB 180-327578/6 F = ND

**Equipment Blanks**:

EB#2 - F, CI,  $SO_4 = ND$ 

Field Blanks:

FB#2 - F, CI,  $SO_4 = ND$ 

Laboratory Control Sample (LCS) recovery within limits (90-110%)

p. 49 LCS 180-326777/5 – CI = 108%, F = 103%, SO<sub>4</sub> = 105%

p. 50 LCS 180-326785/5 - F = 95%

p. 50 LCS 180-326890/5 - F = 101%

p. 52 LCS 180-327578/5 – F = 97%

Lab Duplicate - Field Duplicate precision goals met (20%)

Results in mg/L

<i>j</i> ,						
anion	ARGWC-23	DUP-2-0820	RPD			
Cl	3.9	3.9	0.0%			
F	0.19	0.19	0.0%			
SO <sub>4</sub>	69	70	1.4%			

All OK

SDG No: 180-109846-1 Page 11 of 13



# Anions (chloride, fluoride, and sulfate) by E300.0 R2.1 (cont.)

YES NO NA COMMENTS

Matrix Spike recoveries and RPDs within limits (lab %Rec limits, RPD = 20)

p. 49 Not from AP2

p. 50 Not from AP2

p. 50 Not from AP2

p. 51 Not from AP2

p. 51 Not from AP2

Χ

p. 51-52 Not from AP2

p. 52 ARGWC-21 F = 99, 107% RPD = 7 - OK

No MS/MSDs on Cl or SO<sub>4</sub> for samples in this SDG

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

Dilutions: ARGWC-22 SO<sub>4</sub> – 10x

SDG No: 180-109846-1 Page 12 of 13



### **LEVEL II DATA QUALITY VALIDATION RECORD**

**Project:** Plant Arkwright CCR Annual Event

Project No: 6122201429.2003.\*\*\*\*

Method: <u>Total Dissolved Solids (TDS) by SM 2540C</u> Laboratory and Lot: <u>TAL PIT SDG</u>: 180-109846-1

**Reviewer/Date:** D. Knaub 10/02/2020 **Senior Reviewer/Date:** J. Hartness 10/08/2020

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK

Sample IDs on labels did not include the "AR" prefix, samples logged per the COC

Sample Preservation and cooler temperature met (Cool to 6°C)

OK, 1.1, 1.2, 1.5, 1.6, 2.1, 2.4, 2.6, 2.7, and 3.6°C

Holding times met (7 days)

Coll: 08/18/20 - 08/21/20

Anal: 08/21/20

X QC Blanks Review

Method Blanks

p. 60 MB 180-326608/2 TDS = ND p. 60 MB 180-326682/2 TDS = ND

**Equipment Blanks**:

EB#2 TDS = ND

Field Blanks:

FB#2 TDS = ND

Laboratory Control Sample (LCS) recovery within lab limits (80-120%)

p. 60 LCS 180-326608/1 TDS = 106% - OK p. 60 LCS 180-326682/1 TDS = 99% - OK

Lab Duplicate - Field Duplicate precision goals met (20%)

Results in mg/L

anion	anion ARGWC-23		RPD
TDS	310	310	0.0%

Matrix Spike recoveries and RPDs within limits (if applicable)

MS/MSD not applicable for TDS

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

SDG No: 180-109846-1 Page 13 of 13



Data Evaluation Narrative
Project: Plant Arkwright Annual Event

Wood Project Number: 6122201429.2003.\*\*\*\*

Site: Ash Pond No. 2 – Former Plant Arkwright, Georgia

**Matrix: Groundwater** 

**Eurofins TestAmerica SDG No: 180-109846-2 (Radium)** 

# Introduction

A data quality evaluation (DQE) was performed on the radium laboratory data reported for the Annual groundwater sampling event conducted at Ash Pond No. 2 (Dry Ash Stockpile) at the former Plant Arkwright, located in Arkwright, Georgia in August 2020 for Southern Company Services (SCS). The samples were collected and analyzed per the protocols presented in the *Draft Former Plant Arkwright Field Sampling Plan* (FSP) (SCS, 2016) and in accordance with the monitoring requirements of §§ 257.90 through 257.95 as referenced in the Georgia Environmental Protection Division (EPD) Rules 391-3-4-.10(6)(a)-(c) and 391-3-4-.14. 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.

The following sections provide summary discussions of the required data qualifications for the analytical methods for samples collected. A Level II DQE validation was performed on the samples analyzed by the fixed-based laboratory within these sample delivery groups (SDGs). A Level II DQE consists of review of the following criteria: sample integrity, holding times, method blanks, laboratory control samples (LCSs), matrix spikes/matrix spike duplicate (MS/MSD) recoveries and relative percent differences (RPDs), post digestion spikes (PDS), where applicable, laboratory and field duplicate RPDs, field and/or equipment blanks, and reporting limits. Additionally, the data summary tables generated from the electronic data deliverable (EDD) were compared to the laboratory hardcopy data report to verify that the EDD and laboratory data report agree.

The data were reviewed using the laboratory's precision and accuracy limits, the method requirements, and the SCS Field Sampling Plan (FSP) (SCS, 2016). DQE data qualifications were applied, if necessary, using the procedures in USEPA Region IV Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy (USEPA, 2011) and the National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2017), as guidance, and professional judgment using the following qualifiers:

Qualifier	<u>Usable Data</u>
J	The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. SCS
	Definition: Value J indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce as reliable of a value. Therefore, the value displayed (value J) is qualified by the laboratory as estimated.
UJ	The analyte was analyzed for but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.

SDG No: 180-109846-2 (Radium) Page 1 of 9



<u>Qualifier</u>	<u>Usable Data (continued)</u>
U	Analyte was analyzed for but was not detected above the level of the reported sample
U*	reporting/method detection limit. Note: SCS does not use the "U" flag except when reporting results for radium that are detected below the Minimum Detection Concentration (MDC). This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
Qualifier	Unusable Data
	Ondodole Data
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample
R	<del></del>
R UR	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be confirmed.  The analyte was analyzed for but was not detected above the level of the reported sample
	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be confirmed. The analyte was analyzed for but was not detected above the level of the reported sample reporting or method detection; however, the data are unusable. The sample results are
	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be confirmed.  The analyte was analyzed for but was not detected above the level of the reported sample

The analytical results for the samples reported in this SDG are usable with the qualifications discussed in this narrative. A summary of the data with associated qualifiers is presented in **Table 1**.

## **Deliverables**

The data package as submitted to Wood Environment & Infrastructure Solutions, Inc. (Wood) is complete to perform a Level II DQE for United States Environmental Protection Agency (USEPA) Methods 9315 and 9320.

# **Sample Integrity**

The groundwater samples were submitted to Eurofins TestAmerica laboratory located in St. Louis, Missouri (TAL SL) via the Pittsburgh, Pennsylvania location and analyzed for radium-226 and 228 combined by Methods SW9315 and SW9320. As requested by SCS, the radium data was reported separately from the other CCR Appendix III and IV parameters (reported in SDG 180-109846-1).

Based on the information provided on the Chain-of-Custody (COC) forms, the field samples arrived at the laboratory intact and within the temperature range and preservation requirements. Completed COC documents are included in the data package.

# **Sample Identification**

This SDG contains the following groundwater and quality control (QC) samples:

Sample ID	Sample Date	<b>DQE Level</b>	Sample ID	Sample Date	DQE Level
Ash Pond No. 2					
ARGWA-19	08/19/20	П	ARGWC-21	08/21/20	II
ARGWA-20	08/19/20	II			
ARGWC-22	08/19/20	II	<b>QC Samples</b>		
ARGWC-23	08/20/20	II	EB#2	08/19/20	II
ARAMW-1	08/20/20	П	FB#2	08/20/20	II
ARAMW-2	08/20/20	П	DUP-2	08/20/20	II

These samples were collected from Ash Pond No. 2 monitoring wells listed above between August 19 and August 21, 2020. Sample DUP-2 is a field duplicate of sample ARGWC-23. Sample EB#2 is an equipment and sample FB#2 is a field blank associated with the AP2 wells reported in this SDG and described in this narrative. The equipment blank sample associations are listed below:

SDG No: 180-109846-2 (Radium)



<u>Equipment Blank</u> <u>Associated Samples</u>

EB#2 (peristaltic pump) ARAMW-1, ARAMW-2, ARGWC-22, ARGWC-23, DUP-2

The analytical results for the radium data are usable with the qualifications discussed in this narrative. A summary of the data quality is presented below.

### Radium (SW9315/SW9320)

The samples were submitted to TAL SL for radium-226, radium-228 and total radium by Methods SW9315 and SW9320. Total radium was measured by calculation. Each of the Level II components were within laboratory QC limits except for method blank and LCS recoveries.

### **Holding Times**

The sample analyses were performed within the 6 months analysis holding times.

### Method Blanks

The laboratory method blanks did not contain reportable concentrations of radium-226 above the minimum detected concentration (MDC) indicating no interference from the analytical systems. One of the method blanks contained radium-228 above the MDC, and any result less than the two-sigma (2 $\sigma$ ) normalized absolute difference (NAD) limit of 2.58 are considered "not detected" as possible lab artifacts: **Reason Code: BL** 

Action: The radium-228 and total radium results for sample ARGWA-20 were qualified as not detected and flagged "U\*".

### Laboratory Control Sample (LCS)

Percent recoveries for target analytes were within quality control limits except for the high LCS or LCSD recoveries of radium-228 in two analytical batches, and associated positive results are considered estimated.

Action: No qualification was necessary because radium-228 was not detected in the associated samples or was affected by method blank contamination in the associated sample and flagged "U\*".

### Laboratory Duplicate Precision

Laboratory duplicate analyses were performed via the analysis of LCSDs. The relative error ratios (RERs) between the LCS and LCSDs were within QC limits.

# Field Duplicate Precision

One field duplicate pair (ARGWC-23/DUP-2) was submitted and the RER could not be calculated because the results were less than the MDCs.

SDG No: 180-109846-2 (Radium) Page 3 of 9



# Sampling Accuracy (Equipment Blanks, Field Blanks)

Field accuracy was measured through the collection of equipment/rinsate blanks and field blanks. Equipment rinsate blanks are collected to monitor the decontamination process on non-dedicated sampling equipment. Field blanks are collected to assess the water used to decontaminate the equipment and the containers into which samples are placed. The equipment blanks and field blank did not contain radium-226 or radium-228 above the MDC.

### **Carrier and Tracer Yield Recoveries**

The carrier and tracer yield recoveries for the samples and QC were within the QC limits of 40% to 110%.

# Reporting Limits/Minimum Detectable Concentrations

The RLs (MDCs) met the SCS project RLs and were below the screening level of 5 pCi/L for samples submitted for the analysis of radium-226 and radium-228 by Methods SW9315 and SW9320.

Sample results in which the values were reported at concentrations below the MDC were flagged "U" and considered not detected.

# Total and Dissolved Radium Comparison

If total and dissolved radium samples were collected, comparison of the total and dissolved results can aid in the representativeness of the total radium value verses the radium that may be associated with suspended solids and radium actually dissolved within the water column. The dissolved radium results should be less than or equal to the total radium concentration for positive results greater than 5 times the RL. No total and dissolved samples were collected and reported in this SDG.

# **Overall Site Evaluation and Professional Judgment Flagging Changes**

The chemical data included in this SDG was validated in general accordance with the guidelines contained in the project work plan and validation SOPs. Professional judgment was not used to modify flags for results reported in samples presented in this SDG.

### **Completeness**

A total of 7 wells, along with the required QC samples, were sampled and analyzed during the August 2020 event in Ash Pond No. 2 according to the FSP. The 7 well locations along with field duplicate, equipment blank, and field blank samples were reported in this SDG and were sampled and analyzed as scoped.

Therefore, both field and analytical completeness calculated for this SDG was 100%.

SDG No: 180-109846-2 (Radium) Page 4 of 9



### References

SCS, 2016, Draft Field Sampling Plan – Former Plant Arkwright, Georgia Power Company, Earth Science and Environmental Engineering Technical Services, Southern Company Services, Inc. (SCS), August 17, 2016. Permit modification to include the Appendix III and IV sampling requirements; approval of modified permit and FSP pending.

USEPA, 2011. Region 4, Science and Ecosystem Support Division, Quality Assurance Section, MTSB, Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy, Revision 2.0; September 2011.

USEPA, 2017. National Office of Superfund Remediation and Technology Innovation, National Functional Guidelines for Inorganic Superfund Methods Data Review, Revision 0.0; January 2017.

Prepared by/Date: <u>DWK 10/12/2020</u> Checked by/Date: <u>JAH 10/14/2020</u>

SDG No: 180-109846-2 (Radium) Page 5 of 9



# TABLE 1 SUMMARY OF DATA QUALIFIERS

SDG No: 180-109846-2 (Radium) Page 6 of 9

Wood Project No. 6122201429

# TABLE 1

# SUMMARY OF DATA QUALIFIERS

# **SAMPLE DELIVERY GROUP 180-109846-2**

SAMPLING DATES: August 19 - 21, 2020

Plant Arkwright Ash Pond No. 2 - Annual Event

Field Sample ID	Location ID	Type	SDG	Method	Parameter Name	Lab Result	Lab Qual	Val Qual	Reason Codes	Units
ARGWA-20	ARGWA-20	N	180-109846-2	9320	radium-228	0.84	*	U*	BL	pCi/L
ARGWA-20	ARGWA-20	N	180-109846-2	9315 + 9320	total radium	0.94		U*	BL	pCi/L

# Notes:

# **Laboratory Qualifiers:**

\* LCS or LCSD is outside acceptance limits

# **Reason Codes:**

BL = Laboratory blank contamination. The result should be considered "not-detected".

# **Validation Qualifiers:**

U\* = This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.

Prepared by/Date: <u>DWK 10/12/20</u> Checked by/Date: <u>JAH 10/14/20</u>



# **DQE CHECKLISTS**

SDG No: 180-109846-2 (Radium) Page 7 of 9



### **LEVEL II DATA QUALITY VALIDATION RECORD**

**Project:** Plant Arkwright CCR Annual Event

**Project No:** 6122201429.2003.\*\*\*\*

Method: Radium-226, Radium-228 and Combined Radium by Methods 9315 and 9320

Laboratory and Lot: TAL PIT SDG: 180-109846-2

Reviewer/Date: D. Knaub 10/12/2020 Senior Reviewer/Date: J. Hartness 10/14/2020

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK – Samples anal. @ TAL-St. Louis

Sample IDs on labels did not include the "AR" prefix, samples logged per the COC

Sample Preservation and cooler temperature met (HNO₃ to pH<2)

OK, 1.1, 1.2, 1.5, 1.6, 2.1, 2.4, 2.6, 2.7 and 3.6° C.

Holding times met (180 days)

Collected: 08/18/20 - 08/21/20

Ra-226: prep: 08/24/20, 08/25/20, 08/28/20;

anal: 09/15/20, 09/16/20, 09/21/20

Ra 228: prep: 08/24/20, 08/25/20, 08/28/20, 08/31/20, 09/14/20, 09/21/20;

anal: 09/09/20, 09/10/20, 09/18/20, 09/21/20, 09/30/20

Ra, combined: anal: 09/17/20, 09/23/20, 10/02/20

QC Blanks Review (net blank value < MDC)

p. 48 MB 160-480640/24-A Ra-226 < MDC

p. 48 MB 160-480684/10-A Ra-226 < MDC

p. 49 MB 160-481082/24-A Ra-226 < MDC

p. 50 MB 160-480689/10-A Ra-228 < MDC

p. 51 MB 160-481085/24-A Ra-228 < MDC

p. 52 MB 160-482400/9-A Ra-228 = 1.266 pCi/L

Assoc. results < NAD  $2\sigma$  flagged "U\*"

**Reason code: BL** ARGWA-20

p. 53 MB 160-483141/4-A Ra-228 < MDC

Equipment Blanks: (non-dedicated equip.)

EB#2 (peristaltic) - All < MDC

Field Blanks: (DI water)

FB#2 (AP2) - AII < MDC

Laboratory Control Sample (LCS) recovery within lab limits

 $(75-125\%; RPD = RER (2\sigma < 3)$ 

p. 48 LCS 160-480640/1-A Ra-226 = 91%

p. 48 LCS/LCSD 160-480684/1-A, 2-A Ra-226 = 87, 91% RER = 0.21

p. 49 LCS/LCSD 160-481082/1-A, 2-A Ra-226 = 88, 89% RER = 0.07

SDG No: 180-109846-2 (Radium) Page 8 of 9



YES **COMMENTS** NO NA Χ **Laboratory Control Sample (cont.)** p. 51 LCS/LCSD 160-480689/1-A, 2-A Ra-228 = 137, 122% RER = 0.46 No flags, assoc. results < MDC p. 51-52 LCS/LCSD 160-481085/1-A, 2-A Ra-228=107, 95% RER = 0.47 p. 53 LCS/LCSD 160-482400/1-A, 2-A Ra-228 = 117, 134% RER = 0.54 Assoc. pos. results flagged "J": Reason code: LCS-H No flags, assoc. results < MDC or flagged "U\*" p. 53 -54 LCS/LCSD 160-483141/1-A, 2-A Ra-228 = 107, 104% Χ Lab Duplicate - Field Duplicate precision goals met (lab limits); lab dup every 10 samples (RPD = RER  $(2\sigma)$  <3) Field Duplicate: ARGWC-23 = DUP-2 RER NC Ra-226 <MDC <MDC Ra-226 <MDC <MDC NC Ra, total <MDC <MDC NC Χ Matrix Spike recoveries and RPDs within limits (if applicable) Χ Carrier/Tracer Yield Recovery Ra-226 (Carrier: Ba); Ra-228 (Carrier Ba, Tracer: Y) (40-110%) All ok Χ EDD Data Verification vs. Hardcopy (10% samples for each SDG)

SDG No: 180-109846-2 (Radium) Page 9 of 9



# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-111426-1

Client Project/Site: Plant Arkwright Background Wells 22 23

For:

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

Attn: Joju Abraham

Authorized for release by: 10/12/2020 7:05:21 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

Laboratory Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	
Certification Summary	
Sample Summary	6
Method Summary	7
Lab Chronicle	8
Client Sample Results	10
QC Sample Results	14
QC Association Summary	17
Chain of Custody	19
Receipt Chacklists	21

# **Case Narrative**

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

Job ID: 180-111426-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-111426-1

### Comments

No additional comments.

### Receipt

The samples were received on 9/24/2020 9:15 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.1° C.

### GC Semi VOA

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

### **Metals**

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

### Field Service / Mobile Lab

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

### **General Chemistry**

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

3

5

6

7

4.0

13

# **Definitions/Glossary**

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

# Qualifiers

	_	_		_
ш	п	_	• / •	~
п	_	LU	•/I	١.

Qualifier Qualifier Description

F1 MS and/or MSD recovery exceeds control limits.

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

**Metals** 

Qualifier Qualifier Description

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.

Eisted under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

\_\_\_\_

-

5

6

1

0

10

4 6

1

# **Accreditation/Certification Summary**

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

# Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	<b>Expiration Date</b>	
Arkansas DEQ	State	19-033-0	06-27-21	
California	State	2891	04-30-21	
Connecticut	State	PH-0688	09-30-20 *	
Florida	NELAP	E871008	06-30-21	
Georgia	State	PA 02-00416	04-30-21	
Illinois	NELAP	004375	06-30-21	
Kansas	NELAP	E-10350	01-31-21	
Kentucky (UST)	State	162013	04-30-21	
Kentucky (WW)	State	KY98043	12-31-20	
Louisiana	NELAP	04041	06-30-21	
Maine	State	PA00164	03-06-22	
Minnesota	NELAP	042-999-482	12-31-20	
Nevada	State	PA00164	07-31-21	
New Hampshire	NELAP	2030	04-05-21	
New Jersey	NELAP	PA005	06-30-21	
New York	NELAP	11182	04-01-21	
North Carolina (WW/SW)	State	434	01-01-21	
North Dakota	State	R-227	04-30-21	
Oregon	NELAP	PA-2151	02-06-21	
Pennsylvania	NELAP	02-00416	04-30-21	
Rhode Island	State	LAO00362	12-31-20	
South Carolina	State	89014	04-30-21	
Texas	NELAP	T104704528	03-31-21	
US Fish & Wildlife	US Federal Programs	058448	07-31-21	
USDA	Federal	P-Soil-01	06-26-22	
USDA	US Federal Programs	P330-16-00211	06-26-22	
Utah	NELAP	PA001462019-8	05-31-21	
Virginia	NELAP	10043	09-14-21	
West Virginia DEP	State	142	02-01-21	
Wisconsin	State	998027800	08-31-21	

Eurofins TestAmerica, Pittsburgh

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

# **Sample Summary**

Client: Southern Company Project/Site: Plant Arkwright Background Wells 22 23

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset
180-111426-1	EB-01	Water	09/22/20 14:00	09/24/20 09:15	
180-111426-2	ARGWC-22	Water	09/22/20 15:52	09/24/20 09:15	
180-111426-3	ARGWC-23	Water	09/22/20 17:22	09/24/20 09:15	
180-111426-4	DUP-01	Water	09/22/20 00:00	09/24/20 09:15	

Job ID: 180-111426-1

# **Method Summary**

Client: Southern Company

Project/Site: Plant Arkwright Background Wells 22 23

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

### **Protocol References:**

EPA = US Environmental Protection Agency

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

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

# **Laboratory References:**

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

6

А

F

6

Ė

Q

10

13

Client: Southern Company

Project/Site: Plant Arkwright Background Wells 22 23

**Client Sample ID: EB-01** 

Date Collected: 09/22/20 14:00 Date Received: 09/24/20 09:15

Lab Sample ID: 180-111426-1

**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 Instrumer	EPA 300.0 R2.1 at ID: INTEGRION		1			332195	10/03/20 22:54	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	332470	10/06/20 13:44	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B at ID: NEMO		1			332836	10/08/20 16:46	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	332506	10/07/20 18:42	MM1	TAL PIT
Total/NA	Analysis Instrumer	EPA 7470A at ID: HGZ		1			332827	10/08/20 18:40	KEM	TAL PIT
Total/NA	Analysis Instrumer	SM 2540C at ID: NOEQUIP		1	100 mL	100 mL	331364	09/26/20 06:51	AVS	TAL PIT

**Client Sample ID: ARGWC-22** 

Date Collected: 09/22/20 15:52 Date Received: 09/24/20 09:15

Lab Sample ID: 180-111426-2

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: INTEGRION		1			332195	10/03/20 21:10	MJH	TAL PIT
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: INTEGRION		10			332195	10/03/20 21:31	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	332470	10/06/20 13:44	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B at ID: NEMO		1			332836	10/08/20 16:49	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	332506	10/07/20 18:42	MM1	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A at ID: HGZ		1			332827	10/08/20 18:42	KEM	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C at ID: NOEQUIP		1	100 mL	100 mL	331364	09/26/20 06:51	AVS	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling		1			333009	09/22/20 15:52	AGJ	TAL PIT

**Client Sample ID: ARGWC-23** 

Date Collected: 09/22/20 17:22

Date Received: 09/24/20 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 nt ID: INTEGRION		1			332195	10/03/20 18:44	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	332470	10/06/20 13:44	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B nt ID: NEMO		1			332836	10/08/20 16:51	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	332506	10/07/20 18:42	MM1	TAL PIT
Total/NA	Analysis Instrumer	EPA 7470A nt ID: HGZ		1			332827	10/08/20 18:43	KEM	TAL PIT

Lab Sample ID: 180-111426-3

**Matrix: Water** 

Page 8 of 21

10/12/2020

# **Lab Chronicle**

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

**Client Sample ID: ARGWC-23** 

Lab Sample ID: 180-111426-3

Date Collected: 09/22/20 17:22 **Matrix: Water** Date Received: 09/24/20 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	331364	09/26/20 06:51	AVS	TAL PIT
Total/NA	Analysis	Field Sampling		1			333009	09/22/20 17:22	AGJ	TAL PIT
	Instrumer	nt ID: NOEQUIP								

Lab Sample ID: 180-111426-4 **Client Sample ID: DUP-01** 

Date Collected: 09/22/20 00:00 **Matrix: Water** 

Date Received: 09/24/20 09:15

	Batch	Batch	_	Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrument	EPA 300.0 R2.1 ID: INTEGRION		1			332195	10/03/20 21:52	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	332470	10/06/20 13:44	TJO	TAL PIT
Total Recoverable	Analysis Instrument	EPA 6020B ID: NEMO		1			332836	10/08/20 16:54	RSK	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	332506	10/07/20 18:42	MM1	TAL PIT
Total/NA	Analysis Instrument	EPA 7470A ID: HGZ		1			332827	10/08/20 18:44	KEM	TAL PIT
Total/NA	Analysis Instrument	SM 2540C ID: NOEQUIP		1	100 mL	100 mL	331364	09/26/20 06:51	AVS	TAL PIT
Total/NA	Analysis Instrument	Field Sampling		1			333009	09/22/20 00:00	AGJ	TAL PIT

### **Laboratory References:**

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

# **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

MM1 = Mary Beth Miller

TJO = Tyler Oliver

Batch Type: Analysis

AGJ = Andy Johnson

AVS = Abbey Smith

KEM = Kimberly Mahoney

MJH = Matthew Hartman

RSK = Robert Kurtz

Eurofins TestAmerica, Pittsburgh

10/12/2020

Page 9 of 21

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

**Client Sample ID: EB-01** 

Lab Sample ID: 180-111426-1 Date Collected: 09/22/20 14:00

**Matrix: Water** 

Date Received: 09/24/20 09:15

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			10/03/20 22:54	1
Fluoride	<0.026		0.10	0.026	mg/L			10/03/20 22:54	1
Sulfate	<0.38		1.0	0.38	mg/L			10/03/20 22:54	1
Method: EPA 6020B - Me	tals (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		10/06/20 13:44	10/08/20 16:46	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		10/06/20 13:44	10/08/20 16:46	1
Barium	<0.0016		0.010	0.0016	mg/L		10/06/20 13:44	10/08/20 16:46	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		10/06/20 13:44	10/08/20 16:46	1
Boron	0.045	J	0.080	0.039	mg/L		10/06/20 13:44	10/08/20 16:46	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		10/06/20 13:44	10/08/20 16:46	1
Calcium	<0.13		0.50	0.13	mg/L		10/06/20 13:44	10/08/20 16:46	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/06/20 13:44	10/08/20 16:46	1
Cobalt	<0.00013		0.00050	0.00013	mg/L		10/06/20 13:44	10/08/20 16:46	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/06/20 13:44	10/08/20 16:46	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		10/06/20 13:44	10/08/20 16:46	1
Molybdenum	< 0.00061		0.0050	0.00061	mg/L		10/06/20 13:44	10/08/20 16:46	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/06/20 13:44	10/08/20 16:46	1
Thallium	<0.00015		0.0010	0.00015	mg/L		10/06/20 13:44	10/08/20 16:46	1
Method: EPA 7470A - Me	rcury (CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		10/07/20 18:42	10/08/20 18:40	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			09/26/20 06:51	1

10/12/2020

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

**Client Sample ID: ARGWC-22** 

Date Collected: 09/22/20 15:52 Date Received: 09/24/20 09:15

Lab Sample ID: 180-111426-2

**Matrix: Water** 

Method: EPA 300.0 R2.1 - Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.1		1.0	0.32	mg/L			10/03/20 21:10	1
Fluoride	0.049	J	0.10	0.026	-			10/03/20 21:10	1
Sulfate	720		10		mg/L			10/03/20 21:31	10
- Method: EPA 6020B - Meta	als (ICP/MS) - To	otal Recove	erable						
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		10/06/20 13:44	10/08/20 16:49	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		10/06/20 13:44	10/08/20 16:49	1
Barium	0.038		0.010	0.0016	mg/L		10/06/20 13:44	10/08/20 16:49	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		10/06/20 13:44	10/08/20 16:49	1
Boron	2.8		0.080	0.039	mg/L		10/06/20 13:44	10/08/20 16:49	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		10/06/20 13:44	10/08/20 16:49	1
Calcium	190		0.50	0.13	mg/L		10/06/20 13:44	10/08/20 16:49	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/06/20 13:44	10/08/20 16:49	1
Cobalt	0.0085		0.00050	0.00013	mg/L		10/06/20 13:44	10/08/20 16:49	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/06/20 13:44	10/08/20 16:49	1
Lithium	0.014		0.0050	0.0034	mg/L		10/06/20 13:44	10/08/20 16:49	1
Molybdenum	< 0.00061		0.0050	0.00061	mg/L		10/06/20 13:44	10/08/20 16:49	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/06/20 13:44	10/08/20 16:49	1
Thallium	<0.00015		0.0010	0.00015	mg/L		10/06/20 13:44	10/08/20 16:49	1
- Method: EPA 7470A - Merc	cury (CVAA)								
Analyte	• •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		10/07/20 18:42	10/08/20 18:42	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1300		10	10	mg/L			09/26/20 06:51	1
Method: Field Sampling -	Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.77				SU			09/22/20 15:52	1

10/12/2020

Client: Southern Company

Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

**Client Sample ID: ARGWC-23** 

Date Collected: 09/22/20 17:22 Date Received: 09/24/20 09:15 Lab Sample ID: 180-111426-3

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.6		1.0	0.32	mg/L			10/03/20 18:44	1
Fluoride	0.33		0.10	0.026	mg/L			10/03/20 18:44	1
Sulfate	68	F1	1.0	0.38	mg/L			10/03/20 18:44	1
Method: EPA 6020B - Meta	als (ICP/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		10/06/20 13:44	10/08/20 16:51	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		10/06/20 13:44	10/08/20 16:51	1
Barium	0.16		0.010	0.0016	mg/L		10/06/20 13:44	10/08/20 16:51	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		10/06/20 13:44	10/08/20 16:51	1
Boron	0.50		0.080	0.039	mg/L		10/06/20 13:44	10/08/20 16:51	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		10/06/20 13:44	10/08/20 16:51	1
Calcium	66		0.50	0.13	mg/L		10/06/20 13:44	10/08/20 16:51	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/06/20 13:44	10/08/20 16:51	1
Cobalt	0.0036		0.00050	0.00013	mg/L		10/06/20 13:44	10/08/20 16:51	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/06/20 13:44	10/08/20 16:51	1
Lithium	0.039		0.0050	0.0034	mg/L		10/06/20 13:44	10/08/20 16:51	1
Molybdenum	0.053		0.0050	0.00061	mg/L		10/06/20 13:44	10/08/20 16:51	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/06/20 13:44	10/08/20 16:51	1
Thallium	<0.00015		0.0010	0.00015	mg/L		10/06/20 13:44	10/08/20 16:51	1
Method: EPA 7470A - Merc	cury (CVAA)								
Analyte	• •	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		10/07/20 18:42	10/08/20 18:43	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	310		10	10	mg/L			09/26/20 06:51	1
Method: Field Sampling -	Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.29				SU			09/22/20 17:22	1

2

3

5

7

9

10

12

1

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

Lab Sample ID: 180-111426-4 **Client Sample ID: DUP-01** 

Date Collected: 09/22/20 00:00 **Matrix: Water** 

Date Received: 09/24/20 09:15

Method: EPA 300.0 R2.1 - Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.6		1.0		mg/L			10/03/20 21:52	1
Fluoride	0.32		0.10	0.026	-			10/03/20 21:52	1
Sulfate	67		1.0		mg/L			10/03/20 21:52	1
Method: EPA 6020B - Met	als (ICP/MS) - To	otal Recove	erable						
Analyte	,	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		10/06/20 13:44	10/08/20 16:54	1
Arsenic	< 0.00031		0.0010	0.00031	mg/L		10/06/20 13:44	10/08/20 16:54	1
Barium	0.16		0.010	0.0016	mg/L		10/06/20 13:44	10/08/20 16:54	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		10/06/20 13:44	10/08/20 16:54	1
Boron	0.48		0.080	0.039	mg/L		10/06/20 13:44	10/08/20 16:54	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		10/06/20 13:44	10/08/20 16:54	1
Calcium	67		0.50	0.13	mg/L		10/06/20 13:44	10/08/20 16:54	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/06/20 13:44	10/08/20 16:54	1
Cobalt	0.0037		0.00050	0.00013	mg/L		10/06/20 13:44	10/08/20 16:54	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/06/20 13:44	10/08/20 16:54	1
Lithium	0.039		0.0050	0.0034	mg/L		10/06/20 13:44	10/08/20 16:54	1
Molybdenum	0.055		0.0050	0.00061	mg/L		10/06/20 13:44	10/08/20 16:54	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/06/20 13:44	10/08/20 16:54	1
Thallium	<0.00015		0.0010	0.00015	mg/L		10/06/20 13:44	10/08/20 16:54	1
- Method: EPA 7470A - Mer	cury (CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		10/07/20 18:42	10/08/20 18:44	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	300		10	10	mg/L			09/26/20 06:51	1
Method: Field Sampling -	Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.29				SU			09/22/20 00:00	1

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

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

Lab Sample ID: MB 180-332195/6

**Matrix: Water** 

**Analysis Batch: 332195** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

MB MB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Chloride 0.32 mg/L < 0.32 1.0 10/03/20 06:50 Fluoride <0.026 0.10 0.026 mg/L 10/03/20 06:50 Sulfate < 0.38 1.0 0.38 mg/L 10/03/20 06:50

Lab Sample ID: LCS 180-332195/5

**Matrix: Water** 

**Analysis Batch: 332195** 

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

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	50.0	49.3		mg/L		99	90 - 110	
Fluoride	2.50	2.40		mg/L		96	90 - 110	
Sulfate	50.0	47.6		mg/L		95	90 - 110	

Lab Sample ID: 180-111426-3 MS

**Matrix: Water** 

Analysis Batch: 332195

Client Sample ID: ARGWC-23

Prep Type: Total/NA

-	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	3.6		50.0	52.0		mg/L		97	90 - 110	
Fluoride	0.33		2.50	2.70		mg/L		95	90 - 110	
Sulfate	68	F1	50.0	112	F1	mg/L		87	90 - 110	

Lab Sample ID: 180-111426-3 MSD

**Matrix: Water** 

**Analysis Batch: 332195** 

Client Sample	ID: ARGWC-23
Duan	Times Tetal/NIA

Prep Type: Total/NA

_	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	3.6		50.0	51.1		mg/L		95	90 - 110	2	20
Fluoride	0.33		2.50	2.65		mg/L		93	90 - 110	2	20
Sulfate	68	F1	50.0	109	F1	mg/L		82	90 - 110	2	20

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

Lab Sample ID: MB 180-332470/1-A

**Matrix: Water** 

Analysis Batch: 332836

**Client Sample ID: Method Blank Prep Type: Total Recoverable Prep Batch: 332470** 

/ indigolo Batolii Gozoo								. Top Batom	00 <u>-</u> 1. 0
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.00038		0.0020	0.00038	mg/L		10/06/20 13:44	10/08/20 15:50	1
Arsenic	<0.00031		0.0010	0.00031	mg/L		10/06/20 13:44	10/08/20 15:50	1
Barium	<0.0016		0.010	0.0016	mg/L		10/06/20 13:44	10/08/20 15:50	1
Beryllium	<0.00018		0.0010	0.00018	mg/L		10/06/20 13:44	10/08/20 15:50	1
Boron	<0.039		0.080	0.039	mg/L		10/06/20 13:44	10/08/20 15:50	1
Cadmium	<0.00022		0.0010	0.00022	mg/L		10/06/20 13:44	10/08/20 15:50	1
Calcium	<0.13		0.50	0.13	mg/L		10/06/20 13:44	10/08/20 15:50	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/06/20 13:44	10/08/20 15:50	1
Cobalt	<0.00013		0.00050	0.00013	mg/L		10/06/20 13:44	10/08/20 15:50	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/06/20 13:44	10/08/20 15:50	1
Lithium	<0.0034		0.0050	0.0034	mg/L		10/06/20 13:44	10/08/20 15:50	1
Molybdenum	<0.00061		0.0050	0.00061	mg/L		10/06/20 13:44	10/08/20 15:50	1

Eurofins TestAmerica, Pittsburgh

Page 14 of 21 10/12/2020

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

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

**Matrix: Water** 

Analyte

Selenium

Thallium

**Analysis Batch: 332836** 

Client Sample ID: Method Blank **Prep Type: Total Recoverable** Prep Batch: 332470

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac <0.0015 0.0050 0.0015 mg/L 10/06/20 13:44 10/08/20 15:50 < 0.00015 0.0010 0.00015 mg/L 10/06/20 13:44 10/08/20 15:50

Lab Sample ID: LCS 180-332470/2-A

Lab Sample ID: MB 180-332470/1-A

**Matrix: Water** 

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

Analysis Batch: 332836							Prep Batch: 332470
	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Antimony	0.250	0.258		mg/L		103	80 - 120
Arsenic	1.00	0.943		mg/L		94	80 - 120
Barium	1.00	1.07		mg/L		107	80 - 120
Beryllium	0.500	0.522		mg/L		104	80 - 120
Boron	1.25	1.26		mg/L		100	80 - 120
Cadmium	0.500	0.495		mg/L		99	80 - 120
Calcium	25.0	26.8		mg/L		107	80 - 120
Chromium	0.500	0.490		mg/L		98	80 - 120
Cobalt	0.500	0.470		mg/L		94	80 - 120
Lead	0.500	0.487		mg/L		97	80 - 120
Lithium	0.500	0.458		mg/L		92	80 - 120
Molybdenum	0.500	0.500		mg/L		100	80 - 120
Selenium	1.00	0.976		mg/L		98	80 - 120
Thallium	1.00	0.951		mg/L		95	80 - 120

RL

0.00020

Spike

Added

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-332506/1-A

**Matrix: Water** 

Analyte

Mercury

Analyte

**Analysis Batch: 332827** 

MB MB

Result Qualifier

<0.00013

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

Prep Batch: 332506

Prepared Analyzed Dil Fac 10/07/20 18:42 10/08/20 18:25

Lab Sample ID: LCS 180-332506/2-A

**Matrix: Water** 

Analysis Batch: 332827

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

Prep Batch: 332506

%Rec. %Rec Limits 80 - 120

0.00250 Mercury 0.00240 Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-331364/2

**Matrix: Water** 

**Analysis Batch: 331364** 

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

Unit

mg/L

MDL Unit

0.00013 mg/L

LCS LCS

Result Qualifier

MB MB Result Qualifier RL

MDL Unit Prepared Analyzed 10 Total Dissolved Solids <10 10 mg/L 09/26/20 06:51

Eurofins TestAmerica, Pittsburgh

10

10/12/2020

# **QC Sample Results**

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

**Matrix: Water** 

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

**Client Sample ID: Lab Control Sample** 

Lab Sample ID: LCS 180-331364/1 Prep Type: Total/NA Analysis Batch: 331364

LCS LCS Spike %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Total Dissolved Solids 632 624 mg/L 99 80 - 120

Lab Sample ID: 180-111426-3 DU Client Sample ID: ARGWC-23

**Matrix: Water** Prep Type: Total/NA

Analysis Batch: 331364 RPD Sample Sample DU DU

**Result Qualifier** Result Qualifier Unit D RPD Limit **Total Dissolved Solids** 310 2 306 mg/L 10

**Client Sample ID: DUP-01** Lab Sample ID: 180-111426-4 DU

**Matrix: Water** Prep Type: Total/NA

Analysis Batch: 331364 Sample Sample DU DU RPD

Result Qualifier Analyte Result Qualifier RPD Limit Unit Total Dissolved Solids 300 310 10 mg/L

10

10/12/2020

# **QC Association Summary**

Client: Southern Company

Project/Site: Plant Arkwright Background Wells 22 23

# HPLC/IC

# Analysis Batch: 332195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111426-1	EB-01	Total/NA	Water	EPA 300.0 R2.1	
180-111426-2	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-111426-2	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-111426-3	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
180-111426-4	DUP-01	Total/NA	Water	EPA 300.0 R2.1	
MB 180-332195/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-332195/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-111426-3 MS	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
180-111426-3 MSD	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	

# **Metals**

# Prep Batch: 332470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111426-1	EB-01	Total Recoverable	Water	3005A	
180-111426-2	ARGWC-22	Total Recoverable	Water	3005A	
180-111426-3	ARGWC-23	Total Recoverable	Water	3005A	
180-111426-4	DUP-01	Total Recoverable	Water	3005A	
MB 180-332470/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-332470/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

# **Prep Batch: 332506**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111426-1	EB-01	Total/NA	Water	7470A	<del></del> : <del></del> :
180-111426-2	ARGWC-22	Total/NA	Water	7470A	
180-111426-3	ARGWC-23	Total/NA	Water	7470A	
180-111426-4	DUP-01	Total/NA	Water	7470A	
MB 180-332506/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-332506/2-A	Lab Control Sample	Total/NA	Water	7470A	

# **Analysis Batch: 332827**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111426-1	EB-01	Total/NA	Water	EPA 7470A	332506
180-111426-2	ARGWC-22	Total/NA	Water	EPA 7470A	332506
180-111426-3	ARGWC-23	Total/NA	Water	EPA 7470A	332506
180-111426-4	DUP-01	Total/NA	Water	EPA 7470A	332506
MB 180-332506/1-A	Method Blank	Total/NA	Water	EPA 7470A	332506
LCS 180-332506/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	332506

# **Analysis Batch: 332836**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111426-1	EB-01	Total Recoverable	Water	EPA 6020B	332470
180-111426-2	ARGWC-22	Total Recoverable	Water	EPA 6020B	332470
180-111426-3	ARGWC-23	Total Recoverable	Water	EPA 6020B	332470
180-111426-4	DUP-01	Total Recoverable	Water	EPA 6020B	332470
MB 180-332470/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	332470
LCS 180-332470/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	332470

Eurofins TestAmerica, Pittsburgh

Page 17 of 21

2

Job ID: 180-111426-1

9

4

6

8

9

11

12

1

# **QC Association Summary**

Client: Southern Company Job ID: 180-111426-1

Project/Site: Plant Arkwright Background Wells 22 23

# **General Chemistry**

# Analysis Batch: 331364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111426-1	EB-01	Total/NA	Water	SM 2540C	
180-111426-2	ARGWC-22	Total/NA	Water	SM 2540C	
180-111426-3	ARGWC-23	Total/NA	Water	SM 2540C	
180-111426-4	DUP-01	Total/NA	Water	SM 2540C	
MB 180-331364/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-331364/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-111426-3 DU	ARGWC-23	Total/NA	Water	SM 2540C	
180-111426-4 DU	DUP-01	Total/NA	Water	SM 2540C	

# Field Service / Mobile Lab

# **Analysis Batch: 333009**

Lab Sample ID 180-111426-2	Client Sample ID ARGWC-22	Prep Type Total/NA	Matrix Water	Method Field Sampling	Prep Batch
180-111426-3	ARGWC-23	Total/NA	Water	Field Sampling	
180-111426-4	DUP-01	Total/NA	Water	Field Sampling	

P - Na2045 O - Na2303 R - Na23203 S - H2504 T - TSP Dodecanydrate U - Acethore U - Acethore V - MCAA W - PH 4-5 Z - other (specify) Special Instructions/Note: Cong. Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client

Month 0 H=6,29 V INVENTION VIN- TO CO 64070-12387.1 Preservation Codes 180-111426 Chain of Custody 915 Date/Time: 124/20 fotal Number of containers Method of Shipment. Analysis Requested oder Temperature(s) <sup>9</sup>C and Other Remarks Special Instructions/QC Requirements: Pesal - Bosos 2540C\_Calcd - Solids, Total Dissolved (TDS) Lab PM. Brown, Shali E-Mait. Shali, Brown@Eurofinset.com eceived by Perform MS/MSD (Yes or No) Matrix Company Company 33 3 Radiological G=grab) Sample (C=comp, O 0 DanielHoward 0 9/23/20 / 1245 1552 9/22/20 1400 Sample Time Due Date Requested: Unknown PO#. GPC11064570 Sample Date Project #: 18020201 Poison B Skin Imitant eliverable Requested: I, II, III, IV, Other (specify) Custody Seal No. Pittsburgh, PA 15238 Phone: 412-963-7058 Fax: 412-953-2468 A RGWC-22 A RGWC-23 Roon-Hazard Prammable 241 Ralph McGill Blvd SE B10185 DW P-0 Abraham@southernco.com empty Kit Relinquished by. E8-0 Custody Seals Intact: Client Information Sample Identification CCR - Plant Arkwright A Yes A No inquished by: Southern Company Joju Abraham squished by: State, Zlp: GA, 30308 Atlanta Atlanta Georgia

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

# Do Not Lift Using This Tag

DRIEIN ID:NCGA (770) 421-3382 DANEEL HOURD WOOD E 4 IS 1075 BIG SHANTY RD NH STE 100 KENNESAL, GA 30144 UNITED STATES US

SHIP DATE: 23SEP20 ACTWGT: 57,90 LB CAD: 699634/SFE2110 DIMS: 23x13x13 IN BILL THIRD PARTY

**EUROFINS TEST AMERICA** O SAMPLE RECEIVING

301 ALPHA DR RIDC PARK

PAIS 6 188897 9928/SHST/91898 11/20

PITTSBURGH PA 15238 (412) 983-7058 FedEx

PRIORITY OVERNIGHT THU - 24 SEP 10:30A

3971 2220 7888

## MASTER ##

1 of 2

늗

PA-US

Thermometer ID

O Initials PT-WI-SR-001 effective 11/8/18 7

180-111426 Waybill

Client: Southern Company Job Number: 180-111426-1

Login Number: 111426 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Say, Thomas C

QuestionAnswerCommentRadioactivity wasn't checked or is = background as measured by a survey<br/ meter.True
· · · · · · · · · · · · · · · · · · ·
The cooler's custody seal, if present, is intact.
Sample custody seals, if present, are intact.
The cooler or samples do not appear to have been compromised or tampered with.
Samples were received on ice.
Cooler Temperature is acceptable.
Cooler Temperature is recorded. True
COC is present. True
COC is filled out in ink and legible.
COC is filled out with all pertinent information.
Is the Field Sampler's name present on COC?
There are no discrepancies between the containers received and the COC. True
Samples are received within Holding Time (excluding tests with immediate True HTs)
Sample containers have legible labels.
Containers are not broken or leaking.
Sample collection date/times are provided.  True
Appropriate sample containers are used.
Sample bottles are completely filled. True
Sample Preservation Verified.
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").
Multiphasic samples are not present.
Samples do not require splitting or compositing.



2

3

6

8

10

12

10



# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-111426-2

Client Project/Site: Plant Arkwright Background Wells 22 23

### For:

🔅 eurofins

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

Attn: Joju Abraham



Authorized for release by: 11/5/2020 9:58:06 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

Review your project results through Total Access

Have a Question?



Visit us at: www.eurofinsus.com/Env 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

Laboratory Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	
Certification Summary	
Sample Summary	7
Method Summary	8
Lab Chronicle	9
Client Sample Results	11
QC Sample Results	15
QC Association Summary	17
Chain of Custody	18
Receint Checklists	21

3

4

\_\_\_\_\_

9

10

12

13

# **Case Narrative**

Client: Southern Company

Project/Site: Plant Arkwright Background Wells 22 23

Job ID: 180-111426-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-111426-2

### Comments

No additional comments.

### Receipt

The samples were received on 9/24/2020 9:15 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.1° C.

### **RAD**

Methods 903.0, 9315: Radium-226 prep batch 160-484436;

The Ra-226 laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recovery (153%/134%) associated with the following sample is outside the upper QC limit of (125%) indicating a potential positive bias for that analyte. This analyte was observed above the MDC/RL in the associated sample. All other QC are within limits (MB, RER/RPD). Per client request, the data have been reported with this narrative. (LCS 160-484436/1-A), (LCSD 160-484436/2-A) and (MB 160-484436/23-A)

Methods 903.0, 9315: Radium-226 prep batch 160-484436:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. (LCS 160-484436/1-A), (LCSD 160-484436/2-A) and (MB 160-484436/23-A)

Method 9315: Radium-226 prep batch 160-484436:

The Ra-226 laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recovery (153%/134%) associated with the following sample(s) is outside the upper QC limit of (125%) indicating a potential positive bias for that analyte. This analyte was not observed above the MDC/RL in the associated samples; therefore the sample data is not adversely affected by this excursion. The data have been reported with this narrative.

EB-01 (180-111426-1), ARGWC-22 (180-111426-2), ARGWC-23 (180-111426-3), (LCS 160-484436/1-A) and (LCSD 160-484436/2-A)

Method 9315: Radium-226 prep batch 160-484436:

The Ra-226 laboratory control sample/laboratory control sample duplicate (LCS/LCSD) recovery (153%/134%) associated with the following sample(s) is outside the upper QC limit of (125%) indicating a potential positive bias for that analyte. This analyte was observed above the MDC/RL in the associated samples. All other QC are within limits (MB, RER/RPD). Per client request, the data have been reported with this narrative.

DUP-01 (180-111426-4), (LCS 160-484436/1-A) and (LCSD 160-484436/2-A)

Method 9315: Radium-226 prep batch 160-484436:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. EB-01 (180-111426-1), ARGWC-22 (180-111426-2), ARGWC-23 (180-111426-3), DUP-01 (180-111426-4), (LCS 160-484436/1-A), (LCSD 160-484436/2-A) and (MB 160-484436/23-A)

Methods 904.0, 9320: Ra 228 prep batch: 160-484437

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. EB-01 (180-111426-1), ARGWC-22 (180-111426-2), ARGWC-23 (180-111426-3) and DUP-01 (180-111426-4)

Method PrecSep 0: Radium 228 Prep Batch 160-484437:

Insufficient sample volume was available to perform a sample duplicate for the following samples: EB-01 (180-111426-1), ARGWC-22 (180-111426-2), ARGWC-23 (180-111426-3) and DUP-01 (180-111426-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method PrecSep-21: Radium 226 Prep Batch 160-484436:

Job ID: 180-111426-2

#### **Case Narrative**

Client: Southern Company

Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

Job ID: 180-111426-2 (Continued)

#### Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

Insufficient sample volume was available to perform a sample duplicate for the following samples: EB-01 (180-111426-1), ARGWC-22 (180-111426-2), ARGWC-23 (180-111426-3) and DUP-01 (180-111426-4). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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

3

4

5

8

11

12

## **Definitions/Glossary**

Client: Southern Company Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

#### **Qualifiers**

Rad
Qualifier

Qualifier	Qualifier Description						
*	LCS or LCSD is outside acceptance limits.						
1.1	Deput is less than the comple detection limit						

U Result is less than the sample detection limit.

#### **Glossary**

Abbreviation	These commonly used abbreviations may or may not be present in this report.

Eisted under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

3

4

6

7

\_

10

11

12

# **Accreditation/Certification Summary**

Client: Southern Company

Project/Site: Plant Arkwright Background Wells 22 23

Job ID: 180-111426-2

## Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	<b>Identification Number</b>	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-21
California	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-21
HI - RadChem Recognition	State	n/a	06-30-21
Illinois	NELAP	004553	11-30-20
lowa	State	373	12-01-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-21
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-21
MI - RadChem Recognition	State	9005	06-30-21
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-21
Texas	NELAP	T104704193-19-13	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

5

7

a

10

10

# **Sample Summary**

Client: Southern Company Project/Site: Plant Arkwright Background Wells 22 23

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset
180-111426-1	EB-01	Water	09/22/20 14:00	09/24/20 09:15	
180-111426-2	ARGWC-22	Water	09/22/20 15:52	09/24/20 09:15	
180-111426-3	ARGWC-23	Water	09/22/20 17:22	09/24/20 09:15	
180-111426-4	DUP-01	Water	09/22/20 00:00	09/24/20 09:15	

Job ID: 180-111426-2

# **Method Summary**

Client: Southern Company

Project/Site: Plant Arkwright Background Wells 22 23

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

#### **Protocol References:**

None = None

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

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

#### Laboratory References:

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

Job ID: 180-111426-2

Client: Southern Company Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

Client Sample ID: EB-01

Date Collected: 09/22/20 14:00 Date Received: 09/24/20 09:15 Lab Sample ID: 180-111426-1

**Matrix: Water** 

Batch Dil Initial Batch Batch Final Prepared Method Number or Analyzed **Prep Type** Type Run **Factor** Amount Amount **Analyst** Lab Total/NA PrecSep-21 1000.95 mL 484436 10/02/20 06:38 TAL SL Prep 1.0 g Total/NA 486850 TAL SL 9315 10/26/20 09:56 SCB Analysis 1 Instrument ID: GFPCRED Total/NA Prep PrecSep\_0 1000.95 mL 1.0 g 484437 10/02/20 07:05 AVB TAL SL Total/NA Analysis 9320 486425 10/20/20 12:49 SCB TAL SL Instrument ID: GFPCBLUE Total/NA Analysis Ra226\_Ra228 487753 11/02/20 20:51 GRW TAL SL Instrument ID: NOEQUIP

Client Sample ID: ARGWC-22 Lab Sample ID: 180-111426-2 **Matrix: Water** 

Date Collected: 09/22/20 15:52 Date Received: 09/24/20 09:15

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Type Method Run Factor **Amount** Amount Number or Analyzed Analyst Lab Total/NA Prep PrecSep-21 1000.70 mL 484436 10/02/20 06:38 AVB TAL SL 1.0 g Total/NA Analysis 9315 486850 10/26/20 09:56 SCB TAL SL Instrument ID: GFPCRED Total/NA Prep PrecSep 0 1000.70 mL 10/02/20 07:05 AVB TAL SL 1.0 g 484437 Total/NA Analysis 9320 486271 10/20/20 12:55 SCB TAL SL 1 Instrument ID: GFPCORANGE Analysis Total/NA Ra226 Ra228 1 487753 11/02/20 20:51 GRW TAL SL

Client Sample ID: ARGWC-23 Lab Sample ID: 180-111426-3 Date Collected: 09/22/20 17:22

Date Received: 09/24/20 09:15

Instrument ID: NOEQUIP

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.11 mL	1.0 g	484436	10/02/20 06:38	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCRED		1			486850	10/26/20 09:56	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.11 mL	1.0 g	484437	10/02/20 07:05	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCORANGE	Ē	1			486271	10/20/20 12:56	SCB	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			487753	11/02/20 20:51	GRW	TAL SL

**Client Sample ID: DUP-01** Lab Sample ID: 180-111426-4 Date Collected: 09/22/20 00:00 **Matrix: Water** 

Date Received: 09/24/20 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.46 mL	1.0 g	484436	10/02/20 06:38	AVB	TAL SL
Total/NA	Analysis	9315		1			486850	10/26/20 09:57	SCB	TAL SL
	Instrumen	t ID: GFPCRED								

Eurofins TestAmerica, Pittsburgh

Page 9 of 22

### **Lab Chronicle**

Client: Southern Company Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

Client Sample ID: DUP-01 Lab Sample ID: 180-111426-4

Date Collected: 09/22/20 00:00 Matrix: Water Date Received: 09/24/20 09:15

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			999.46 mL	1.0 g	484437	10/02/20 07:05	AVB	TAL SL
Total/NA	Analysis Instrumen	9320 t ID: GFPCORANG	iΕ	1			486271	10/20/20 12:56	SCB	TAL SL
Total/NA	Analysis Instrumen	Ra226_Ra228 t ID: NOEQUIP		1			487753	11/02/20 20:51	GRW	TAL SL

#### **Laboratory References:**

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

#### **Analyst References:**

Lab: TAL SL

Batch Type: Prep

AVB = Amber Bleem

Batch Type: Analysis

GRW = George Witt

SCB = Sarah Bernsen

\_

6

R

Q

10

46

1:

Client: Southern Company Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

**Client Sample ID: EB-01** 

Lab Sample ID: 180-111426-1 Date Collected: 09/22/20 14:00

**Matrix: Water** 

Date Received: 09/24/20 09:15

Radium-226 (	GFPC)								
·	•	Count Uncert.	Total Uncert.						
Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
0.0544	U *	0.105	0.106	1.00	0.189	pCi/L	10/02/20 06:38	10/26/20 09:56	1
%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
82.5		40 - 110					10/02/20 06:38	10/26/20 09:56	1
	Result   0.0544   %Yield	Result Qualifier  0.0544 U *  %Yield Qualifier  82.5			Count   Total   Uncert.   Uncert.   Uncert.   Uncert.   Uncert.   O.0544   U * O.105   O.106   O.10	Count   Total   Uncert.   Uncert.   Uncert.   Uncert.   Uncert.   O.0544   U * O.105   O.106   O.106   O.108   O.108   O.106   O.10	Count   Total   Uncert.   Uncert.   Uncert.   Uncert.   Uncert.   O.0544   U * O.105   O.106   O.106   O.108   O.189   O.189   O.106   O.10	Count   Total   Uncert.   Uncert.   Uncert.   Count   Uncert.   Uncert.   Uncert.   Count   Uncert.   Uncert.   Uncert.   Count   Count Uncert. Uncert. Uncert.   Variety   V	

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.109	U	0.313	0.313	1.00	0.542	pCi/L	10/02/20 07:05	10/20/20 12:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.5		40 - 110					10/02/20 07:05	10/20/20 12:49	1
Y Carrier	72.9		40 - 110					10/02/20 07:05	10/20/20 12:49	1

Method: Ra226_Ra2	28 - Con	nbined Rad	dium-226 a	nd Radium	<b>-228</b>					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.164	U	0.330	0.330	5.00	0.542	pCi/L		11/02/20 20:51	1

Client: Southern Company Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

**Client Sample ID: ARGWC-22** 

Date Collected: 09/22/20 15:52 Date Received: 09/24/20 09:15

Lab Sample ID: 180-111426-2

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.308	*	0.155	0.158	1.00	0.181	pCi/L	10/02/20 06:38	10/26/20 09:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.8		40 - 110					10/02/20 06:38	10/26/20 09:56	1

Method: 9320 - F	Radium-228 (	(GFPC)								
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.576		0.329	0.334	1.00	0.493	pCi/L	10/02/20 07:05	10/20/20 12:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	82.8		40 - 110					10/02/20 07:05	10/20/20 12:55	1
Y Carrier	75.1		40 - 110					10/02/20 07:05	10/20/20 12:55	1

Method: Ra226_Ra	228 - Con	nbined Rad	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.884		0.364	0.369	5.00	0.493	pCi/L		11/02/20 20:51	1

Client: Southern Company Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

**Client Sample ID: ARGWC-23** 

Date Collected: 09/22/20 17:22 Date Received: 09/24/20 09:15 Lab Sample ID: 180-111426-3

adium-226 (	GFPC)								
	,	Count Uncert.	Total Uncert.						
Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
0.137	U *	0.119	0.119	1.00	0.175	pCi/L	10/02/20 06:38	10/26/20 09:56	1
%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
83.7		40 - 110					10/02/20 06:38	10/26/20 09:56	1
	Result	Result Qualifier 0.137 U*  WYield Qualifier 83.7	Count Uncert.	Count Uncert. Uncert.	Count Uncert. Uncert.   Uncert.	Count   Total   Uncert.   Uncert.   Uncert.     O.137   U *   O.119   O.119   O.119   O.175	Count   Total   Uncert.   Uncert.   Uncert.	Count Uncert. Uncert.   Uncert.	Count Uncert. Uncert. Uncert.   Variety   V

			Count Uncert.	Total Uncert.				_		
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.119	U	0.304	0.304	1.00	0.565	pCi/L	10/02/20 07:05	10/20/20 12:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.7		40 - 110					10/02/20 07:05	10/20/20 12:56	1
Y Carrier	72.9		40 - 110					10/02/20 07:05	10/20/20 12:56	1

Method: Ra226_Ra2	228 - Con	nbined Rad	dium-226 a	nd Radium	<b>-228</b>					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0177	U	0.326	0.326	5.00	0.565	pCi/L		11/02/20 20:51	1

Client: Southern Company Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

**Client Sample ID: DUP-01** 

Lab Sample ID: 180-111426-4 Date Collected: 09/22/20 00:00 Date Received: 09/24/20 09:15

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.28	*	0.287	0.309	1.00	0.202	pCi/L	10/02/20 06:38	10/26/20 09:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.9		40 - 110					10/02/20 06:38	10/26/20 09:57	1

Method: 9320 - F	Radium-228 (	(GFPC)								
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.874		0.393	0.402	1.00	0.563	pCi/L	10/02/20 07:05	10/20/20 12:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	79.9		40 - 110					10/02/20 07:05	10/20/20 12:56	1
Y Carrier	71.0		40 - 110					10/02/20 07:05	10/20/20 12:56	1

Method: Ra226 Ra	228 - Con	bined Ra	dium-226 a	nd Radiun	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.16		0.487	0.507	5.00	0.563	pCi/L		11/02/20 20:51	1

Client: Southern Company Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-484436/23-A

**Matrix: Water** 

Analysis Batch: 486850

Lab Sample ID: LCS 160-484436/1-A

Client Sample ID: Method Blank

**Prep Type: Total/NA** Prep Batch: 484436

MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-226 0.1527 U 0.117 0.118 1.00 0.166 pCi/L 10/02/20 06:38 10/26/20 11:48

Total

MB

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 93.5 40 - 110 10/02/20 06:38 10/26/20 11:48

**Client Sample ID: Lab Control Sample** 

75 - 125

Prep Type: Total/NA

Prep Batch: 484436

**Matrix: Water** Analysis Batch: 486850

**Spike** 

Added

40 - 110

11.3

LCS LCS

Result Qual

17.39

Count

Total

1.87

1.00

%Rec. Uncert.  $(2\sigma + / -)$ RL %Rec Limits MDC Unit 0.187 pCi/L

LCS LCS %Yield Qualifier Limits

Lab Sample ID: LCSD 160-484436/2-A

74.0

**Matrix: Water** 

Analyte

Carrier

Ba Carrier

Radium-226

**Analysis Batch: 486850** 

**Client Sample ID: Lab Control Sample Dup** 

153

Prep Type: Total/NA

Prep Batch: 484436

Total LCSD LCSD %Rec. **RER** Spike Uncert. Analyte Added  $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits Result Qual RER Limit Radium-226 11.3 15.16 1.65 1.00 0.181 pCi/L 134 75 - 125 0.64

LCSD LCSD Carrier %Yield Qualifier Limits Ba Carrier 79.0 40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-484437/23-A

**Matrix: Water** 

Analysis Batch: 486271

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

Prep Batch: 484437

Count Total MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Dil Fac Analyzed Radium-228 0.2421 Ū 0.285 0.286 1.00 0.470 pCi/L 10/02/20 07:05 10/20/20 12:57

> MB MB

Carrier %Yield Qualifier Limits Prepared Dil Fac Analyzed Ba Carrier 93.5 40 - 110 10/02/20 07:05 10/20/20 12:57 40 - 110 Y Carrier 79.6 10/02/20 07:05 10/20/20 12:57

Eurofins TestAmerica, Pittsburgh

## **QC Sample Results**

Client: Southern Company Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

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

Lab Sample ID: LCS 160-484437/1-A **Client Sample ID: Lab Control Sample** 

**Matrix: Water** 

**Analysis Batch: 486425** 

**Prep Type: Total/NA Prep Batch: 484437** 

				iotai						
	Spike	LCS	LCS	Uncert.					%Rec.	
Analyte	Added	Result	Qual	(2σ+/-)	RL	MDC	Unit	%Rec	Limits	
Radium-228	7.72	8.355		1.08	1.00	0.498	pCi/L	108	75 - 125	

LCS LCS Carrier %Yield Qualifier Limits Ba Carrier 74.0 40 - 110 Y Carrier 82.2 40 - 110

Lab Sample ID: LCSD 160-484437/2-A **Client Sample ID: Lab Control Sample Dup** 

**Matrix: Water** 

**Analysis Batch: 486425** 

**Prep Type: Total/NA** 

**Prep Batch: 484437** 

				Total						
	Spike	LCSD	LCSD	Uncert.				%Rec.		RER
Analyte	Added	Result	Qual	(2σ+/-)	RL	MDC U	nit %Rec	Limits	RER	Limit
Radium-228	7.72	7.414		0.983	1.00	0.465 pC	Ci/L 96	75 - 125	0.46	1

LCSD LCSD Carrier %Yield Qualifier Limits Ba Carrier 79.0 40 - 110 77.8 40 - 110 Y Carrier

11/5/2020

# **QC Association Summary**

Client: Southern Company Job ID: 180-111426-2

Project/Site: Plant Arkwright Background Wells 22 23

#### Rad

#### **Prep Batch: 484436**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111426-1	EB-01	Total/NA	Water	PrecSep-21	
180-111426-2	ARGWC-22	Total/NA	Water	PrecSep-21	
180-111426-3	ARGWC-23	Total/NA	Water	PrecSep-21	
180-111426-4	DUP-01	Total/NA	Water	PrecSep-21	
MB 160-484436/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-484436/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-484436/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

#### **Prep Batch: 484437**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111426-1	EB-01	Total/NA	Water	PrecSep_0	
180-111426-2	ARGWC-22	Total/NA	Water	PrecSep_0	
180-111426-3	ARGWC-23	Total/NA	Water	PrecSep_0	
180-111426-4	DUP-01	Total/NA	Water	PrecSep_0	
MB 160-484437/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-484437/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-484437/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep 0	

2

3

-

6

7

0

Eurofins TestAmerica, Pittsburgh 301 Alpha Drive RIDC Park Pitsburgh. PA 15238 Phone: 412-963-7058 Fax. 412-983-2468	Chain of Cus	Chain of Custody Record	Seurofins Environment Fection
Client Information	Daniel Howard	Lab PIX Brown, Shali	100 V (st) V (St. Na. 12387.1
Client Centact: Joju Abraham		E-Mait. Shali-Brown@Eurofinset.com	Page Page 1 of 1
Сетралу. Southern Company		Analysis Requested	
Address. 241 Ratoh McGill Blvd SE B10185	Due Date, Requested:	ut.	Pos
Cey. Atlanta	TAT Requested (days):		
State, Zip. GA, 30308			D - Nivîc Adid E - Nah 504 D - Na2303
Phone:	PO# GPC11064570	lius eb	32
Email JAbraham@southernco.com	WO#	No) Fluori	1 - Ice J - Di Water
Project Name: CCR - Plant Arkwright	Project #: 18020201	63 Or 82 226 226 1001ide	TITIS I L - EDA Z - other (specify)
Sate. Georgia	SSOWW.	PO - CH Sequent Seq Sequent Seq Seq Sequent Seq Seq Seq Seq Seq Seq Seq Seq Seq Seq	of coo
Sample Identification	Sample Type Sample (C=comp,	1 5	PadmuN Isto
	X	tion Code: XX D D D N D N	L
E8-01	9/22/20 1400 G	××××	1 1 1
A RGWC-22	1552	×××	480H=5,77
A	-/		HO H
A	-	X X X X X X X X X X X X X X X X X X X	4 % H=6,29
			180-111426 Chain of Custody
Possible Hazard Identification	Dojena B   Intercent		Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)
I, III, IV, Other (specify)			D. F. COLD. PROFILED STATES AND THE
Empty Kit Relinquished by:	Date:		Method of Shipment:
Reinquistred by.	9/23/20 / 12 4 5	Company Received by St. Company Received by	DataTimes Company Company Date Company Company
Retinquished by:	Date/Time:	Company Received by	Date/Time: Company
Custody Seals Intact: Custody Seal No.:		Cooker Temperature(s) <sup>9</sup> C and Other Remarks.	
J			Var. 011150010

# Do Not Lift Using This Tag

DRIEIN ID:NCGA (770) 421-3382 DANEEL HOURD WOOD E 4 IS 1075 BIG SHANTY RD NH STE 100 KENNESAL, GA 30144 UNITED STATES US

SHIP DATE: 23SEP20 ACTWGT: 57,90 LB CAD: 699634/SFE2110 DIMS: 23x13x13 IN BILL THIRD PARTY

**EUROFINS TEST AMERICA** O SAMPLE RECEIVING

PART 6 188897 9928/SHST/91898 11/20

PITTSBURGH PA 15238 301 ALPHA DR RIDC PARK

(412) 983-7058

FedEx



THU - 24 SEP 10:30A PRIORITY OVERNIGHT

3971 2220 7888

## MASTER ##

1 of 2

늗

PA-US

Thermometer ID

O Initials PT-WI-SR-001 effective 11/8/18 7

180-111426 Waybill

Ver. 01/16/2019

soment Testing Seurofins :

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

Phone: 412-963-7058 Fax: 412-963-2468

	-	
	ь.	
	е-	
	Ę.	
. 4	φ.	
•		
•		
-		
-		
=		
=		
8		
=		
•		
=		
=		
=		
×		
=		
≡		
=		
8		
=		
-		
=		
Ξ		
-		
=		
Ξ		
=		
=		
8		
=		
_		
_		
-		
١.		
•		
٠		
•		
3		
•		
•		
-		
-		
-		
-		
3		
•		
•		
٠		
•		
3		
w		
•		

N - None
O - ANACAS
O - NAZOGS
O - NAZOGS
R - NAZOGS
R - NAZOGA
T - TSP Dodecahydrate
V - MCAN Social phoratory accreditations are subject to change. Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins establishmenical aboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins establishmenical attentions. If all requested accreditations are current to date, return the signed Chain of Custody attenting to said complicance to Eurofins. TestAmerica. **ETASTL** Special Instructions/Note: W - pH 4-5 Z - other (specity) Months Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mont reservation Codes A - HCL 8 - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 G - Amchlor H - Ascorbic Acid J - Di Water K - EDTA COC No: 180-412754.1 180-111426-2 02:30 Page 1 of 1 9 /20/20 Total Number of containers -Date/Time: mer Tracking No(s) state of Origin Analysis Requested Georgia coler Temperature(s) "C and Other Remarks. Special Instructions/QC Requirements: E-Mait Shali.Brown@Eurofinset.com 8ZZ-unipey × × × × Sceived by.C Razzerazza GfPC/ Con ceived by: Received by × × × × decay 9315\_RazzelPrecSep\_21 Radium-226 (GFPC) - 21 day × × × × Brown, Shall Perform MS/MSD (Yes or No) ime (on so key) eign Company Of Preservation Code: Water Matrix Water Water Water ompany. Type (C=comp. G=grab) Sample Primary Deliverable Rank: 2 Eastern 15:52 Eastern 17:22 Eastern Eastern (AT Requested (days) Oue Date Requested: Sample Date 9/22/20 9/22/20 9/22/20 10/27/2020 9/22/20 Project #: 18020201 Date/Time: Date/Time: Client Information (Sub Contract Lab) eliverable Requested: I, II, III, IV, Other (specify) Custody Seals Intact: Custody Seal No. Sample Identification - Client ID (Lab ID) 314-298-8566(Tel) 314-298-8757(Fax) Plant Arkwright Background Wells 22 23 Fedex ossible Hazard Identification TestAmerica Laboratories, Inc. ARGWC-23 (180-111426-3) ARGWC-22 (180-111426-2) Empty Kit Relinquished by: DUP-01 (180-111426-4) 13715 Rider Trail North EB-01 (180-111426-1) Shipping/Receiving shed by: peuulinoou quished by: nquished by: State, Zip. MO, 63045 Earth City Arkwright

Client: Southern Company

Job Number: 180-111426-2

Login Number: 111426 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Say, Thomas C

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

Client: Southern Company

Job Number: 180-111426-2

Login Number: 111426

List Number: 2

Creator: Boyd, Jacob C

List Source: Eurofins TestAmerica, St. Louis

List Creation: 09/26/20 11:52 AM

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

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-111648-1

Client Project/Site: CCR - Plant Arkwright AP-2DAS

Revision: 2

#### For:

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

Attn: Joju Abraham



Authorized for release by: 1/15/2021 10:19:16 AM

Shali Brown, Project Manager II (615)301-5031

Shali, Brown @ Eurofinset.com

LINKS

Review your project results through

Have a Question?



Visit us at: www.eurofinsus.com/Env This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

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

PA Lab ID: 02-00416

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	4
Certification Summary	5
Sample Summary	6
Method Summary	7
Lab Chronicle	8
Client Sample Results	12
QC Sample Results	22
QC Association Summary	28
Chain of Custody	31
Receint Checklists	39

4

**O** 

7

9

10

12

#### **Case Narrative**

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

Job ID: 180-111648-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-111648-1

#### Comments

011521 Revised report to add Cadmium at client request. This report replaces the report previously issued on 122920.

102920 Revised Report to correct silver units from ug/L to mg/L. This report replaces the report previously issued on 102720.

#### Receipt

The samples were received on 9/30/2020 9:00 AM, 10/1/2020 9:00 AM and 10/2/2020 9:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.0° C, 2.4° C, 2.7° C and 3.6° C.

#### GC Semi VOA

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

#### Metals

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

#### Field Service / Mobile Lab

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

#### **General Chemistry**

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

Job ID: 180-111648-1

9

3

**O** 

0

0

0

10

10

1,

## **Definitions/Glossary**

Client: Southern Company Job ID: 180-111648-1

Project/Site: CCR - Plant Arkwright AP-2DAS

#### **Qualifiers**

**HPLC/IC** 

Qualifier Qualifier Description

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

**Metals** 

Qualifier Qualifier Description

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

Glossary

Abbreviation These commonly used abbreviations may or may not be present in this report.

Eisted under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)
LOD Limit of Detection (DoD/DOE)
LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

4

3

4

U

2

9

11

12

1.

# **Accreditation/Certification Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

Job ID: 180-111648-1

# Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	<b>Expiration Date</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	12-21-20
Illinois	NELAP	004375	12-21-20
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	12-21-20
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	12-21-20
New Jersey	NELAP	PA005	12-21-20
New York	NELAP	11182	12-21-20
North Carolina (WW/SW)	State	434	11-01-20
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	12-21-20
Pennsylvania	NELAP	02-00416	11-15-20
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	11-23-20
Texas	NELAP	T104704528	12-21-20
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	12-21-20
Virginia	NELAP	10043	12-21-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

4

5

8

1 N

11

12

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

Eurofins TestAmerica, Pittsburgh

# **Sample Summary**

Client: Southern Company Project/Site: CCR - Plant Arkwright AP-2DAS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-111648-1	ARGWA-19	Water	09/29/20 15:25	09/30/20 09:00
180-111686-1	ARGWA-20	Water	09/30/20 11:28	10/01/20 09:00
180-111686-2	EB-02	Water	09/30/20 12:20	10/01/20 09:00
180-111686-3	ARGWC-22	Water	09/30/20 14:00	10/01/20 09:00
180-111686-4	ARAMW-1	Water	09/30/20 15:56	10/01/20 09:00
180-111740-1	FB-02	Water	10/01/20 09:35	10/02/20 09:00
180-111740-2	ARGWC-23	Water	10/01/20 11:58	10/02/20 09:00
180-111740-3	DUP-02	Water	10/01/20 00:00	10/02/20 09:00
180-111741-1	ARAMW-2	Water	10/01/20 15:12	10/02/20 09:00
180-111741-2	ARGWC-21	Water	10/01/20 16:08	10/02/20 09:00

Job ID: 180-111648-1

# **Method Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

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

#### **Protocol References:**

EPA = US Environmental Protection Agency

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

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

#### **Laboratory References:**

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

Job ID: 180-111648-1

6

A

5

0

0

10

11

12

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARGWA-19** 

Date Collected: 09/29/20 15:25 Date Received: 09/30/20 09:00

Lab Sample ID: 180-111648-1

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			332371	10/06/20 17:47	MJH	TAL PIT
	Instrumen	t ID: INTEGRION								
Total Recoverable	Prep	3005A			50 mL	50 mL	333113	10/12/20 15:58	TJO	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			334462	10/22/20 14:59	RSK	TAL PIT
	Instrumen	t ID: NEMO								
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	331996	10/01/20 12:36	GRB	TAL PIT
	Instrumen	t ID: NOEQUIP								
Total/NA	Analysis	Field Sampling		1			333130	09/29/20 15:25	AGJ	TAL PIT
	Instrumen	t ID: NOEQUIP								

**Client Sample ID: ARGWA-20** 

Date Collected: 09/30/20 11:28

Date Received: 10/01/20 09:00

Lab Sample ID: 180-111686-1

Lab Sample ID: 180-111686-2

**Matrix: Water** 

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: INTEGRION		1			332371	10/06/20 20:14	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	333214	10/13/20 09:41	KHM	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B at ID: A		1			334271	10/21/20 20:13	RSK	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C at ID: NOEQUIP		1	100 mL	100 mL	332159	10/02/20 14:35	GRB	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling		1			333128	09/30/20 11:28	AGJ	TAL PIT

**Client Sample ID: EB-02** 

Date Collected: 09/30/20 12:20

Date Received: 10/01/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			332371	10/06/20 08:45	MJH	TAL PIT
	Instrumer	nt ID: INTEGRION								
Total Recoverable	Prep	3005A			50 mL	50 mL	333214	10/13/20 09:41	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			334271	10/21/20 20:17	RSK	TAL PIT
	Instrumer	nt ID: A								
Total/NA	Analysis	SM 2540C		1	100 ml	100 ml	332159	10/02/20 14:35	GRB	TAI PIT

Instrument ID: NOEQUIP	
Client Sample ID: ARGWC-22	Lab Sample ID: 180-111686-3
Date Collected: 09/30/20 14:00	Matrix: Water
Date Received: 10/01/20 09:00	

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			332371	10/06/20 21:16	MJH	TAL PIT
	Instrument	ID: INTEGRION								

Eurofins TestAmerica, Pittsburgh

Lab Sample ID: 180-111686-3

**Matrix: Water** 

Job ID: 180-111648-1

**Client Sample ID: ARGWC-22** Date Collected: 09/30/20 14:00 Date Received: 10/01/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		10			332371	10/06/20 21:37	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	333214	10/13/20 09:41	KHM	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			334271	10/21/20 20:21	RSK	TAL PIT
	Instrumen	t ID: A								
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	332159	10/02/20 14:35	GRB	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			333128	09/30/20 14:00	AGJ	TAL PIT

**Client Sample ID: ARAMW-1** 

Date Collected: 09/30/20 15:56

Lab Sample ID: 180-111686-4

Lab Sample ID: 180-111740-1

**Matrix: Water** 

**Matrix: Water** 

Date Received: 10/01/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1			332371	10/06/20 22:39	MJH	TAL PIT
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		5			332371	10/06/20 23:00	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	333214	10/13/20 09:41	KHM	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			334271	10/21/20 20:24	RSK	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	332159	10/02/20 14:35	GRB	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			333128	09/30/20 15:56	AGJ	TAL PIT

**Client Sample ID: FB-02** 

Date Collected: 10/01/20 09:35

Date Received: 10/02/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1 t ID: INTEGRION		1			333015	10/12/20 15:12	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	333214	10/13/20 09:41	KHM	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			334271	10/21/20 20:53	RSK	TAL PIT
Total/NA	Prep	7470A			25 mL	25 mL	333418	10/14/20 13:01	MM1	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A t ID: HGY		1			333677	10/15/20 19:33	KEM	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	332329	10/05/20 15:06	GRB	TAL PIT

Eurofins TestAmerica, Pittsburgh

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARGWC-23** 

Date Collected: 10/01/20 11:58 Date Received: 10/02/20 09:00 Lab Sample ID: 180-111740-2

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1			333015	10/12/20 13:06	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	333214	10/13/20 09:41	KHM	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			334271	10/21/20 20:56	RSK	TAL PIT
Total/NA	Prep	7470A			25 mL	25 mL	333418	10/14/20 13:01	MM1	TAL PIT
Total/NA	Analysis Instrumen	EPA 7470A t ID: HGY		1			333677	10/15/20 19:34	KEM	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	332329	10/05/20 15:06	GRB	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			333127	10/01/20 11:58	AGJ	TAL PIT

Client Sample ID: DUP-02 Lab Sample ID: 180-111740-3

Date Collected: 10/01/20 00:00 Matrix: Water

Date Received: 10/02/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 at ID: INTEGRION		1			333015	10/12/20 13:27	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	333214	10/13/20 09:41	KHM	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B at ID: A		1			334271	10/21/20 21:00	RSK	TAL PIT
Total/NA	Analysis Instrumer	SM 2540C at ID: NOEQUIP		1	100 mL	100 mL	332342	10/05/20 16:37	GRB	TAL PIT
Total/NA	Analysis Instrumer	Field Sampling		1			333127	10/01/20 00:00	AGJ	TAL PIT

Client Sample ID: ARAMW-2

Date Collected: 10/01/20 15:12

Lab Sample ID: 180-111741-1

Matrix: Water

Date Received: 10/02/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrument	EPA 300.0 R2.1 ID: INTEGRION		1			333015	10/12/20 12:25	MJH	TAL PIT
Total/NA	Analysis Instrument	EPA 300.0 R2.1 ID: INTEGRION		5			333147	10/13/20 07:56	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	333214	10/13/20 09:41	KHM	TAL PIT
Total Recoverable	Analysis Instrument	EPA 6020B ID: A		1			334271	10/21/20 21:03	RSK	TAL PIT
Total/NA	Analysis Instrument	SM 2540C ID: NOEQUIP		1	100 mL	100 mL	332329	10/05/20 15:06	GRB	TAL PIT
Total/NA	Analysis Instrument	Field Sampling ID: NOEQUIP		1			333127	10/01/20 15:12	AGJ	TAL PIT

Eurofins TestAmerica, Pittsburgh

3

4

6

8

10

11

#### **Lab Chronicle**

Client: Southern Company Job ID: 180-111648-1

Project/Site: CCR - Plant Arkwright AP-2DAS

Client Sample ID: ARGWC-21 Lab Sample ID: 180-111741-2

Date Collected: 10/01/20 16:08 Matrix: Water Date Received: 10/02/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1			333015	10/12/20 12:46	MJH	TAL PIT
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		5			333147	10/13/20 08:17	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	333214	10/13/20 09:41	KHM	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			334271	10/21/20 21:07	RSK	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	332329	10/05/20 15:06	GRB	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			333127	10/01/20 16:08	AGJ	TAL PIT

#### **Laboratory References:**

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

#### Analyst References:

Lab: TAL PIT

Batch Type: Prep

KHM = Kyle Mucroski

MM1 = Mary Beth Miller

TJO = Tyler Oliver

Batch Type: Analysis

AGJ = Andy Johnson

GRB = Gabriel Berghe

KEM = Kimberly Mahoney

MJH = Matthew Hartman

RSK = Robert Kurtz

Eurofins TestAmerica, Pittsburgh

**6** 

Ö

10

11

12

Ц

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

Client Sample ID: ARGWA-19

Date Collected: 09/29/20 15:25

Lab Sample ID: 180-111648-1

**Matrix: Water** 

Job ID: 180-111648-1

Date Received: 09/30/20 09:00	

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography												
	Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac			
	Chloride	10	1.0	0.32	mg/L			10/06/20 17:47	1			
	Fluoride	0.051 J	0.10	0.026	mg/L			10/06/20 17:47	1			
	Sulfate	8.4	1.0	0.38	mg/L			10/06/20 17:47	1			
	_											

_Sulfate	8.4		1.0	0.38	mg/L			10/06/20 17:47	1
	Metals (ICP/MS) - To	tal Recove	rable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031	·	0.0010	0.00031	mg/L		10/12/20 15:58	10/22/20 14:59	1
Barium	0.040		0.010	0.0016	mg/L		10/12/20 15:58	10/22/20 14:59	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		10/12/20 15:58	10/22/20 14:59	1
Boron	<0.039		0.080	0.039	mg/L		10/12/20 15:58	10/22/20 14:59	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		10/12/20 15:58	10/22/20 14:59	1
Calcium	12		0.50	0.13	mg/L		10/12/20 15:58	10/22/20 14:59	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/12/20 15:58	10/22/20 14:59	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		10/12/20 15:58	10/22/20 14:59	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/12/20 15:58	10/22/20 14:59	1
Lithium	0.0041	J	0.0050	0.0034	mg/L		10/12/20 15:58	10/22/20 14:59	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		10/12/20 15:58	10/22/20 14:59	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/12/20 15:58	10/22/20 14:59	1
Silver	<0.00018		0.0010	0.00018	mg/L		10/12/20 15:58	10/22/20 14:59	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	110		10	10	mg/L			10/01/20 12:36	1

wethod: Fleid Sampling - Fleid	Sampling									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Р	repared	Analyzed	Dil Fac
рН	5.83				SU				09/29/20 15:25	1

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARGWA-20** 

Date Collected: 09/30/20 11:28 Date Received: 10/01/20 09:00 Lab Sample ID: 180-111686-1

**Matrix: Water** 

Job ID: 180-111648-1

Method: EPA 300.0 R2.1 - A	nions, Ion Chi	romatograp	hy						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.6		1.0	0.32	mg/L			10/06/20 20:14	1
Fluoride	0.032	J	0.10	0.026	mg/L			10/06/20 20:14	1
Sulfate	15		1.0	0.38	mg/L			10/06/20 20:14	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031	·	0.0010	0.00031	mg/L		10/13/20 09:41	10/21/20 20:13	
Barium	0.080		0.010	0.0016	mg/L		10/13/20 09:41	10/21/20 20:13	•
Beryllium	0.00019	J	0.0025	0.00018	mg/L		10/13/20 09:41	10/21/20 20:13	
Boron	0.083		0.080	0.039	mg/L		10/13/20 09:41	10/21/20 20:13	
Cadmium	<0.00022		0.0025	0.00022	mg/L		10/13/20 09:41	10/21/20 20:13	
Calcium	9.9		0.50	0.13	mg/L		10/13/20 09:41	10/21/20 20:13	
Chromium	0.0057		0.0020	0.0015	mg/L		10/13/20 09:41	10/21/20 20:13	
Cobalt	0.00031	J	0.0025	0.00013	mg/L		10/13/20 09:41	10/21/20 20:13	•
Lead	0.00022	J	0.0010	0.00013	mg/L		10/13/20 09:41	10/21/20 20:13	
Lithium	<0.0034		0.0050	0.0034	mg/L		10/13/20 09:41	10/21/20 20:13	
Molybdenum	<0.00061		0.015	0.00061	mg/L		10/13/20 09:41	10/21/20 20:13	
Selenium	0.0016	J	0.0050	0.0015	mg/L		10/13/20 09:41	10/21/20 20:13	
Silver	<0.00018		0.0010	0.00018	mg/L		10/13/20 09:41	10/21/20 20:13	

<b>General Chemistry</b>								
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	82	10	10	mg/L			10/02/20 14:35	1

Method: Field Sampling - Field	Sampling									
Analyte	Result	Qualifier	RL	MDL	Unit	D	1	Prepared	Analyzed	Dil Fac
рН	5.65				SU				09/30/20 11:28	1

Client: Southern Company Job ID: 180-111648-1

Project/Site: CCR - Plant Arkwright AP-2DAS

Client Sample ID: EB-02 Lab Sample ID: 180-111686-2

Date Collected: 09/30/20 12:20 Matrix: Water Date Received: 10/01/20 09:00

Meth	nod: EPA 300.0 R2.1 - Anions, Ion Ch	romatography							
Analy	rte Resul	t Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlori	de <0.32	2	1.0	0.32	mg/L			10/06/20 08:45	1
Fluori	de <0.026	3	0.10	0.026	mg/L			10/06/20 08:45	1
Sulfat	e <0.38	3	1.0	0.38	mg/L			10/06/20 08:45	1

Sulfate -	<0.38	1.0	0.38	mg/L			10/06/20 08:45	1
- Method: EPA 6020B -	Metals (ICP/MS) - Total	I Recoverable						
Analyte	Result Qu	ualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031	0.0010	0.00031	mg/L		10/13/20 09:41	10/21/20 20:17	1
Barium	<0.0016	0.010	0.0016	mg/L		10/13/20 09:41	10/21/20 20:17	1
Beryllium	<0.00018	0.0025	0.00018	mg/L		10/13/20 09:41	10/21/20 20:17	1
Boron	<0.039	0.080	0.039	mg/L		10/13/20 09:41	10/21/20 20:17	1
Cadmium	<0.00022	0.0025	0.00022	mg/L		10/13/20 09:41	10/21/20 20:17	1
Calcium	<0.13	0.50	0.13	mg/L		10/13/20 09:41	10/21/20 20:17	1
Chromium	<0.0015	0.0020	0.0015	mg/L		10/13/20 09:41	10/21/20 20:17	1
Cobalt	<0.00013	0.0025	0.00013	mg/L		10/13/20 09:41	10/21/20 20:17	1
Lead	<0.00013	0.0010	0.00013	mg/L		10/13/20 09:41	10/21/20 20:17	1
Lithium	<0.0034	0.0050	0.0034	mg/L		10/13/20 09:41	10/21/20 20:17	1
Molybdenum	<0.00061	0.015	0.00061	mg/L		10/13/20 09:41	10/21/20 20:17	1
Selenium	<0.0015	0.0050	0.0015	mg/L		10/13/20 09:41	10/21/20 20:17	1
Silver	<0.00018	0.0010	0.00018	mg/L		10/13/20 09:41	10/21/20 20:17	1
_								

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	ma/L			10/02/20 14:35	

3

5

7

9

10

11

12

1/15/2021 (Rev. 2)

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

**Method: Field Sampling - Field Sampling** 

Result Qualifier

5.81

Analyte

pН

Client Sample ID: ARGWC-22

Date Collected: 09/30/20 14:00 Date Received: 10/01/20 09:00 Lab Sample ID: 180-111686-3

**Matrix: Water** 

Job ID: 180-111648-1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.0		1.0	0.32	mg/L			10/06/20 21:16	1
Fluoride	0.045	J	0.10	0.026	mg/L			10/06/20 21:16	1
Sulfate	650		10	3.8	mg/L			10/06/20 21:37	10
Method: EPA 6020B - Meta	als (ICP/MS) - To	otal Recove	rable						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		10/13/20 09:41	10/21/20 20:21	1
Barium	0.033		0.010	0.0016	mg/L		10/13/20 09:41	10/21/20 20:21	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		10/13/20 09:41	10/21/20 20:21	1
Boron	2.9		0.080	0.039	mg/L		10/13/20 09:41	10/21/20 20:21	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		10/13/20 09:41	10/21/20 20:21	1
Calcium	200		0.50	0.13	mg/L		10/13/20 09:41	10/21/20 20:21	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/13/20 09:41	10/21/20 20:21	1
Cobalt	0.0055		0.0025	0.00013	mg/L		10/13/20 09:41	10/21/20 20:21	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/13/20 09:41	10/21/20 20:21	1
Lithium	0.014		0.0050	0.0034	mg/L		10/13/20 09:41	10/21/20 20:21	1
Molybdenum	< 0.00061		0.015	0.00061	mg/L		10/13/20 09:41	10/21/20 20:21	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/13/20 09:41	10/21/20 20:21	1
Silver	<0.00018		0.0010	0.00018	mg/L		10/13/20 09:41	10/21/20 20:21	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1200		10	10	mg/L			10/02/20 14:35	1

RL

MDL Unit

SU

Prepared

Analyzed

09/30/20 14:00

Dil Fac

Eurofins TestAmerica, Pittsburgh

Client: Southern Company

0.0054 J

<0.0015

<0.00018

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARAMW-1** 

Date Collected: 09/30/20 15:56 Date Received: 10/01/20 09:00

Molybdenum

Selenium

Silver

Lab Sample ID: 180-111686-4

10/13/20 09:41 10/21/20 20:24

10/13/20 09:41 10/21/20 20:24

10/13/20 09:41 10/21/20 20:24

**Matrix: Water** 

Job ID: 180-111648-1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.2		1.0	0.32	mg/L			10/06/20 22:39	1
Fluoride	0.20		0.10	0.026	mg/L			10/06/20 22:39	1
Sulfate	230		5.0	1.9	mg/L			10/06/20 23:00	5
Method: EPA 6020B	- Metals (ICP/MS) - To	otal Recove	rable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		10/13/20 09:41	10/21/20 20:24	1
Barium	0.052		0.010	0.0016	mg/L		10/13/20 09:41	10/21/20 20:24	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		10/13/20 09:41	10/21/20 20:24	1
Boron	0.98		0.080	0.039	mg/L		10/13/20 09:41	10/21/20 20:24	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		10/13/20 09:41	10/21/20 20:24	1
Calcium	100		0.50	0.13	mg/L		10/13/20 09:41	10/21/20 20:24	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/13/20 09:41	10/21/20 20:24	1
Cobalt	0.0010	J	0.0025	0.00013	mg/L		10/13/20 09:41	10/21/20 20:24	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/13/20 09:41	10/21/20 20:24	1
Lithium	0.0091		0.0050	0.0034	ma/l		10/13/20 09:41	10/21/20 20:24	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	520		10	10	mg/L			10/02/20 14:35	1

0.015

0.0050

0.0010

0.00061 mg/L

0.0015 mg/L

0.00018 mg/L

Method: Field Sampling - Field Sampling									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.16				SU			09/30/20 15:56	1

2

4

5

7

8

10

11

Client: Southern Company Job ID: 180-111648-1

Project/Site: CCR - Plant Arkwright AP-2DAS

Client Sample ID: FB-02 Lab Sample ID: 180-111740-1

Date Collected: 10/01/20 09:35 Matrix: Water

Date Received: 10/02/20 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			10/12/20 15:12	1
Fluoride	<0.026		0.10	0.026	mg/L			10/12/20 15:12	1
Sulfate	<0.38		1.0	0.38	mg/L			10/12/20 15:12	1

Method: EPA 6020B -	Metals (ICP/MS) - To	tal Recove	rable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Arsenic	<0.00031		0.0010	0.00031	mg/L		10/13/20 09:41	10/21/20 20:53	
Barium	<0.0016		0.010	0.0016	mg/L		10/13/20 09:41	10/21/20 20:53	
Beryllium	<0.00018		0.0025	0.00018	mg/L		10/13/20 09:41	10/21/20 20:53	
Boron	0.11		0.080	0.039	mg/L		10/13/20 09:41	10/21/20 20:53	
Cadmium	<0.00022		0.0025	0.00022	mg/L		10/13/20 09:41	10/21/20 20:53	
Calcium	<0.13		0.50	0.13	mg/L		10/13/20 09:41	10/21/20 20:53	
Chromium	<0.0015		0.0020	0.0015	mg/L		10/13/20 09:41	10/21/20 20:53	
Cobalt	<0.00013		0.0025	0.00013	mg/L		10/13/20 09:41	10/21/20 20:53	
Lead	<0.00013		0.0010	0.00013	mg/L		10/13/20 09:41	10/21/20 20:53	
Lithium	<0.0034		0.0050	0.0034	mg/L		10/13/20 09:41	10/21/20 20:53	
Molybdenum	<0.00061		0.015	0.00061	mg/L		10/13/20 09:41	10/21/20 20:53	
Selenium	<0.0015		0.0050	0.0015	mg/L		10/13/20 09:41	10/21/20 20:53	
Silver	<0.00018		0.0010	0.00018	ma/l		10/13/20 09:41	10/21/20 20:53	

Silver	<0.00018		0.0010	0.00018	mg/L		10/13/20 09:41	10/21/20 20:53	1
Method: EPA 7470A - Mercury	(CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		10/14/20 13:01	10/15/20 19:33	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	ma/L			10/05/20 15:06	1

7

9

10

12

1:

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARGWC-23** 

Date Collected: 10/01/20 11:58 Date Received: 10/02/20 09:00

Lab Sample ID: 180-111740-2

**Matrix: Water** 

Job ID: 180-111648-1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.8		1.0	0.32	mg/L			10/12/20 13:06	1
Fluoride	0.32		0.10	0.026	mg/L			10/12/20 13:06	1
Sulfate	64		1.0	0.38	mg/L			10/12/20 13:06	1
Method: EPA 6020B - I	Metals (ICP/MS) - To	otal Recove	rable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		10/13/20 09:41	10/21/20 20:56	1
Barium	0.17		0.010	0.0016	mg/L		10/13/20 09:41	10/21/20 20:56	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		10/13/20 09:41	10/21/20 20:56	1
Boron	0.49		0.080	0.039	mg/L		10/13/20 09:41	10/21/20 20:56	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		10/13/20 09:41	10/21/20 20:56	1
Calcium	73		0.50	0.13	mg/L		10/13/20 09:41	10/21/20 20:56	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/13/20 09:41	10/21/20 20:56	1
Cobalt	0.0052		0.0025	0.00013	mg/L		10/13/20 09:41	10/21/20 20:56	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/13/20 09:41	10/21/20 20:56	1
Lithium	0.040		0.0050	0.0034	mg/L		10/13/20 09:41	10/21/20 20:56	1
Molybdenum	0.064		0.015	0.00061	mg/L		10/13/20 09:41	10/21/20 20:56	1
Selenium	<0.0015		0.0050	0.0015	ma/l		10/13/20 09:41	10/21/20 20:56	1

Silver	<0.00018		0.0010	0.00018	mg/L		10/13/20 09:41	10/21/20 20:56	1
Method: EPA 7470A - Mer	cury (CVAA)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.00020	0.00013	mg/L		10/14/20 13:01	10/15/20 19:34	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	290		10	10	mg/L			10/05/20 15:06	1
Method: Field Sampling -	Field Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
рН	6.38				SU			10/01/20 11:58	1

Eurofins TestAmerica, Pittsburgh

Client: Southern Company Job ID: 180-111648-1

Project/Site: CCR - Plant Arkwright AP-2DAS

Silver

Client Sample ID: DUP-02 Lab Sample ID: 180-111740-3

Date Collected: 10/01/20 00:00 Matrix: Water

Date Received: 10/02/20 09:00

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

Analyte Received: 10/02/20 09:00

Perceived: 10/02/20 09:00

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

Analyte Received: 10/02/20 09:00

<0.00018

mothod: El A 000.0 RELL - Allio	iio, ion oinomatogi	apily					
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.8	1.0	0.32 mg/L			10/12/20 13:27	1
Fluoride	0.32	0.10	0.026 mg/L			10/12/20 13:27	1
Sulfate	63	1.0	0.38 mg/L			10/12/20 13:27	1
<del>_</del>							

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Arsenic	<0.00031	·	0.0010	0.00031	mg/L		10/13/20 09:41	10/21/20 21:00	
Barium	0.16		0.010	0.0016	mg/L		10/13/20 09:41	10/21/20 21:00	
Beryllium	<0.00018		0.0025	0.00018	mg/L		10/13/20 09:41	10/21/20 21:00	
Boron	0.47		0.080	0.039	mg/L		10/13/20 09:41	10/21/20 21:00	
Cadmium	<0.00022		0.0025	0.00022	mg/L		10/13/20 09:41	10/21/20 21:00	
Calcium	72		0.50	0.13	mg/L		10/13/20 09:41	10/21/20 21:00	
Chromium	<0.0015		0.0020	0.0015	mg/L		10/13/20 09:41	10/21/20 21:00	
Cobalt	0.0047		0.0025	0.00013	mg/L		10/13/20 09:41	10/21/20 21:00	
Lead	<0.00013		0.0010	0.00013	mg/L		10/13/20 09:41	10/21/20 21:00	
Lithium	0.039		0.0050	0.0034	mg/L		10/13/20 09:41	10/21/20 21:00	
Molybdenum	0.062		0.015	0.00061	mg/L		10/13/20 09:41	10/21/20 21:00	
Selenium	<0.0015		0.0050	0.0015	mg/L		10/13/20 09:41	10/21/20 21:00	

General Chemistry									
Analyte	Result Qu	ualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	290		10	10	mg/L			10/05/20 16:37	1

0.0010

0.00018 mg/L

Method: Field Sampling - Field	Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
рН	6.38				SU			10/01/20 00:00	1

1/15/2021 (Rev. 2)

10/13/20 09:41 10/21/20 21:00

Client: Southern Company Job ID: 180-111648-1

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARAMW-2** 

Date Collected: 10/01/20 15:12 Date Received: 10/02/20 09:00 Lab Sample ID: 180-111741-1

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.2		1.0	0.32	mg/L			10/12/20 12:25	1
Fluoride	0.098	J	0.10	0.026	mg/L			10/12/20 12:25	1
Sulfate	270		5.0	1.9	mg/L			10/13/20 07:56	5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0085		0.0010	0.00031	mg/L		10/13/20 09:41	10/21/20 21:03	-
Barium	0.075		0.010	0.0016	mg/L		10/13/20 09:41	10/21/20 21:03	•
Beryllium	<0.00018		0.0025	0.00018	mg/L		10/13/20 09:41	10/21/20 21:03	•
Boron	0.95		0.080	0.039	mg/L		10/13/20 09:41	10/21/20 21:03	
Cadmium	<0.00022		0.0025	0.00022	mg/L		10/13/20 09:41	10/21/20 21:03	•
Calcium	91		0.50	0.13	mg/L		10/13/20 09:41	10/21/20 21:03	
Chromium	<0.0015		0.0020	0.0015	mg/L		10/13/20 09:41	10/21/20 21:03	
Cobalt	0.0036		0.0025	0.00013	mg/L		10/13/20 09:41	10/21/20 21:03	
Lead	<0.00013		0.0010	0.00013	mg/L		10/13/20 09:41	10/21/20 21:03	
Lithium	0.019		0.0050	0.0034	mg/L		10/13/20 09:41	10/21/20 21:03	
Molybdenum	<0.00061		0.015	0.00061	mg/L		10/13/20 09:41	10/21/20 21:03	•
Selenium	<0.0015		0.0050	0.0015	mg/L		10/13/20 09:41	10/21/20 21:03	•
Silver	<0.00018		0.0010	0.00018	mg/L		10/13/20 09:41	10/21/20 21:03	· · · · · · · · ·

General Chemistry Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analvzed	Dil Fac
Total Dissolved Solids	530		10		mg/L			10/05/20 15:06	1

Method: Field Sampling - Field									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
рН	5.96				SU			10/01/20 15:12	1

5

7

9

10

12

13

Client: Southern Company Job ID: 180-111648-1

Project/Site: CCR - Plant Arkwright AP-2DAS

**Method: Field Sampling - Field Sampling** 

Result Qualifier

5.99

Analyte

pН

Client Sample ID: ARGWC-21

Date Collected: 10/01/20 16:08 Date Received: 10/02/20 09:00 Lab Sample ID: 180-111741-2

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.3		1.0	0.32	mg/L			10/12/20 12:46	1
Fluoride	0.098	J	0.10	0.026	mg/L			10/12/20 12:46	1
Sulfate	210		5.0	1.9	mg/L			10/13/20 08:17	5
Method: EPA 6020B - Meta	als (ICP/MS) - To	otal Recove	rable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		10/13/20 09:41	10/21/20 21:07	1
Barium	0.051		0.010	0.0016	mg/L		10/13/20 09:41	10/21/20 21:07	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		10/13/20 09:41	10/21/20 21:07	1
Boron	0.90		0.080	0.039	mg/L		10/13/20 09:41	10/21/20 21:07	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		10/13/20 09:41	10/21/20 21:07	1
Calcium	79		0.50	0.13	mg/L		10/13/20 09:41	10/21/20 21:07	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/13/20 09:41	10/21/20 21:07	1
Cobalt	0.00082	J	0.0025	0.00013	mg/L		10/13/20 09:41	10/21/20 21:07	1
Lead	< 0.00013		0.0010	0.00013	mg/L		10/13/20 09:41	10/21/20 21:07	1
Lithium	0.012		0.0050	0.0034	mg/L		10/13/20 09:41	10/21/20 21:07	1
Molybdenum	< 0.00061		0.015	0.00061	mg/L		10/13/20 09:41	10/21/20 21:07	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/13/20 09:41	10/21/20 21:07	1
Silver	<0.00018		0.0010	0.00018	mg/L		10/13/20 09:41	10/21/20 21:07	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	500		10	10	mg/L			10/05/20 15:06	1

RL

**MDL** Unit

SU

Eurofins TestAmerica, Pittsburgh

Analyzed

10/01/20 16:08

Prepared

Dil Fac

Job ID: 180-111648-1

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

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

MD MD

Lab Sample ID: MB 180-332371/38

**Matrix: Water** 

**Analysis Batch: 332371** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

	IVID	IVID							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			10/06/20 19:11	1
Fluoride	<0.026		0.10	0.026	mg/L			10/06/20 19:11	1
Sulfate	<0.38		1.0	0.38	mg/L			10/06/20 19:11	1

Lab Sample ID: MB 180-332371/6

**Matrix: Water** 

Analysis Batch: 332371

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

MB MB Result Qualifier Analyte RL MDL Unit Prepared Analyzed Dil Fac Chloride 1.0 0.32 mg/L 10/06/20 05:29 < 0.32 Fluoride <0.026 0.10 10/06/20 05:29 0.026 mg/L 10/06/20 05:29 Sulfate 1.0 0.38 mg/L < 0.38

Lab Sample ID: LCS 180-332371/37

**Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA** Analysis Batch: 332371

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	 50.0	48.4		mg/L		97	90 - 110	
Fluoride	2.50	2.38		mg/L		95	90 - 110	
Sulfate	50.0	47.0		mg/L		94	90 - 110	

Lab Sample ID: LCS 180-332371/5

**Matrix: Water** 

**Analysis Batch: 332371** 

	Spike	LCS	LCS			%Rec.	
Analyte	Added	Result	Qualifier	Unit	D %Rec	Limits	
Chloride	50.0	49.6		mg/L	99	90 - 110	
Fluoride	2.50	2.40		mg/L	96	90 - 110	
Sulfate	50.0	48.2		mg/L	96	90 - 110	

**Analysis Batch: 332371** 

Sunate	50.0	40.2	mg/L	96 90-110
Lab Sample ID: 180-111686-1 MS				Client Sample ID: ARGWA-20
Matrix: Water				Prep Type: Total/NA

	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Chloride	5.6		50.0	54.0		mg/L		97	90 - 110		_
Fluoride	0.032	J	2.50	2.49		mg/L		98	90 - 110		
Sulfate	15		50.0	62.8		mg/L		95	90 - 110		

Lab Sample ID: 180-111686-1 MSD

**Matrix: Water** 

Analysis Batch: 332371											
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	5.6		50.0	53.7		mg/L		96	90 - 110	1	20
Fluoride	0.032	J	2.50	2.47		mg/L		98	90 - 110	0	20
Sulfate	15		50.0	62.4		mg/L		95	90 - 110	1	20

Eurofins TestAmerica, Pittsburgh

**Client Sample ID: ARGWA-20** 

Prep Type: Total/NA

Job ID: 180-111648-1

10

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

Lab Sample ID: MB 180-333015/6

Lab Sample ID: LCS 180-333015/5

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

**Client Sample ID: Method Blank** 

**Matrix: Water** 

**Analysis Batch: 333015** 

Prep Type: Total/NA

MB MB

Analyte	Result	Qualifier	RL	MDL	Unit	D	)	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L				10/12/20 06:06	1
Fluoride	<0.026		0.10	0.026	mg/L				10/12/20 06:06	1

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 333015** 

•		Spike	LCS	LCS				%Rec.	
Analyte		Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride		50.0	49.3		mg/L		99	90 - 110	
Fluoride		2.50	2.36		mg/L		95	90 - 110	

Lab Sample ID: 180-111740-3 MS **Client Sample ID: DUP-02** Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 333015

•	Sample S	Sample	Spike	MS	MS				%Rec.
Analyte	Result (	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Chloride	3.8		50.0	56.1		mg/L		105	90 - 110
Fluoride	0.32		2.50	2.93		mg/L		105	90 - 110
Sulfate	63		50.0	112		mg/L		97	90 - 110

Lab Sample ID: 180-111740-3 MSD **Client Sample ID: DUP-02 Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 333015** 

_	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	3.8		50.0	57.1		mg/L		107	90 - 110	2	20
Fluoride	0.32		2.50	2.97		mg/L		106	90 - 110	1	20
Sulfate	63		50.0	114		mg/L		101	90 - 110	2	20

Lab Sample ID: MB 180-333147/6 **Client Sample ID: Method Blank** Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 333147** 

-	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.38		1.0	0.38	mg/L			10/13/20 05:08	1

Lab Sample ID: LCS 180-333147/5 **Client Sample ID: Lab Control Sample** Prep Type: Total/NA

**Matrix: Water** 

Analysia Databy 222447

Analysis batch: 555147								
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Sulfate		47.0		ma/l	_	94	90 _ 110	

Eurofins TestAmerica, Pittsburgh

Project/Site: CCR - Plant Arkwright AP-2DAS

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

Lab Sample ID: MB 180-333113/1-A

**Matrix: Water** 

Analysis Batch: 334462

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

**Prep Batch: 333113** 

Job ID: 180-111648-1

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00031		0.0010	0.00031	mg/L		10/12/20 15:58	10/22/20 14:08	1
Barium	<0.0016		0.010	0.0016	mg/L		10/12/20 15:58	10/22/20 14:08	1
Beryllium	<0.00018		0.0025	0.00018	mg/L		10/12/20 15:58	10/22/20 14:08	1
Boron	<0.039		0.080	0.039	mg/L		10/12/20 15:58	10/22/20 14:08	1
Cadmium	<0.00022		0.0025	0.00022	mg/L		10/12/20 15:58	10/22/20 14:08	1
Calcium	<0.13		0.50	0.13	mg/L		10/12/20 15:58	10/22/20 14:08	1
Chromium	<0.0015		0.0020	0.0015	mg/L		10/12/20 15:58	10/22/20 14:08	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		10/12/20 15:58	10/22/20 14:08	1
Lead	<0.00013		0.0010	0.00013	mg/L		10/12/20 15:58	10/22/20 14:08	1
Lithium	<0.0034		0.0050	0.0034	mg/L		10/12/20 15:58	10/22/20 14:08	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		10/12/20 15:58	10/22/20 14:08	1
Selenium	<0.0015		0.0050	0.0015	mg/L		10/12/20 15:58	10/22/20 14:08	1
Silver	<0.00018		0.0010	0.00018	mg/L		10/12/20 15:58	10/22/20 14:08	1

Lab Sample ID: LCS 180-333113/2-A

**Matrix: Water** 

Analysis Batch: 334462

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

Prep Batch: 333113

Analysis Batch: 334462	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Arsenic	1.00	1.02		mg/L		102	80 - 120
Barium	1.00	0.998		mg/L		100	80 - 120
Beryllium	0.500	0.516		mg/L		103	80 - 120
Boron	1.25	1.11		mg/L		89	80 - 120
Cadmium	0.500	0.522		mg/L		104	80 - 120
Calcium	25.0	27.6		mg/L		110	80 - 120
Chromium	0.500	0.502		mg/L		100	80 - 120
Cobalt	0.500	0.502		mg/L		100	80 - 120
Lead	0.500	0.505		mg/L		101	80 - 120
Lithium	0.500	0.489		mg/L		98	80 - 120
Molybdenum	0.500	0.525		mg/L		105	80 - 120
Selenium	1.00	1.05		mg/L		105	80 - 120
Silver	0.250	0.251		mg/L		101	80 - 120

Lab Sample ID: MB 180-333214/1-A

**Matrix: Water** 

**Analysis Batch: 334271** 

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

Prep Batch: 333214

ME	B MB						
Analyte Result	t Qualifier RL	. MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic <0.00031	0.0010	0.00031	mg/L		10/13/20 09:41	10/21/20 19:59	1
Barium <0.0016	0.010	0.0016	mg/L		10/13/20 09:41	10/21/20 19:59	1
Beryllium <0.00018	0.0025	0.00018	mg/L		10/13/20 09:41	10/21/20 19:59	1
Boron <0.039	0.080	0.039	mg/L		10/13/20 09:41	10/21/20 19:59	1
Cadmium <0.00022	0.0025	0.00022	mg/L		10/13/20 09:41	10/21/20 19:59	1
Calcium <0.13	0.50	0.13	mg/L		10/13/20 09:41	10/21/20 19:59	1
Chromium <0.0015	0.0020	0.0015	mg/L		10/13/20 09:41	10/21/20 19:59	1
Cobalt <0.00013	0.0025	0.00013	mg/L		10/13/20 09:41	10/21/20 19:59	1
Lead <0.00013	0.0010	0.00013	mg/L		10/13/20 09:41	10/21/20 19:59	1
Lithium <0.0034	0.0050	0.0034	mg/L		10/13/20 09:41	10/21/20 19:59	1
Molybdenum <0.00061	0.015	0.00061	mg/L		10/13/20 09:41	10/21/20 19:59	1

Eurofins TestAmerica, Pittsburgh

Page 24 of 42

Project/Site: CCR - Plant Arkwright AP-2DAS

Lab Sample ID: MB 180-333214/1-A

Lab Sample ID: LCS 180-333214/2-A

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

**Matrix: Water** 

**Matrix: Water** 

Analysis Batch: 334271

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

**Prep Batch: 333214** 

Job ID: 180-111648-1

MB	MB
	_

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<0.0015		0.0050	0.0015	mg/L		10/13/20 09:41	10/21/20 19:59	1
Silver	<0.00018		0.0010	0.00018	mg/L		10/13/20 09:41	10/21/20 19:59	1

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

10

Pren Batch: 333214

Analysis Batch: 334271							Prep Batch: 33321
	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Arsenic	1.00	1.06		mg/L		106	80 - 120
Barium	1.00	1.06		mg/L		106	80 - 120
Beryllium	0.500	0.531		mg/L		106	80 - 120
Boron	1.25	1.34		mg/L		107	80 - 120
Cadmium	0.500	0.522		mg/L		104	80 - 120
Chromium	0.500	0.524		mg/L		105	80 - 120
Cobalt	0.500	0.524		mg/L		105	80 - 120
Lead	0.500	0.526		mg/L		105	80 - 120
Lithium	0.500	0.509		mg/L		102	80 - 120
Molybdenum	0.500	0.530		mg/L		106	80 - 120
Selenium	1.00	1.04		mg/L		104	80 - 120
Silver	0.250	0.257		mg/L		103	80 - 120

Lab Sample ID: LCS 180-333214/2-A

**Matrix: Water** 

**Analysis Batch: 334457** 

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

Prep Batch: 333214

%Rec.

LCS LCS Spike Analyte Added Result Qualifier Unit Limits %Rec Calcium 25.0 27.7 mg/L 111 80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-333418/1-A

**Matrix: Water** 

Analysis Batch: 333677

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

Prep Batch: 333418

MB MB

Analyte Result Qualifier **MDL** Unit Prepared Analyzed Mercury < 0.00013 0.00020 0.00013 mg/L 10/14/20 13:01 10/15/20 19:12

Lab Sample ID: LCS 180-333418/2-A

**Matrix: Water** 

**Analysis Batch: 333677** 

mg/L

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

Prep Batch: 333418

%Rec.

Limits

Analyte Mercury

Spike Added 0.00250

0.00234

LCS LCS

Result Qualifier Unit %Rec

80 - 120

Eurofins TestAmerica, Pittsburgh

Project/Site: CCR - Plant Arkwright AP-2DAS

Job ID: 180-111648-1

Prep Type: Total/NA

Prep Type: Total/NA

80 - 120

Client Sample ID: ARAMW-1

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

**Prep Type: Total/NA** 

85

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

Lab Sample ID: MB 180-331996/2 Client Sample ID: Method Blank

**Matrix: Water** 

Analysis Batch: 331996

MB MB

Result Qualifier RL **MDL** Unit Analyzed Dil Fac Analyte Prepared 10 10/01/20 12:36 **Total Dissolved Solids** <10 10 mg/L

Lab Sample ID: LCS 180-331996/1 Client Sample ID: Lab Control Sample Prep Type: Total/NA

**Matrix: Water** 

**Total Dissolved Solids** 

**Analysis Batch: 331996** 

Spike LCS LCS %Rec. Added Result Qualifier Unit D %Rec Limits

714

Lab Sample ID: MB 180-332159/2 **Client Sample ID: Method Blank** 

606

mg/L

**Matrix: Water** 

**Analysis Batch: 332159** 

MB MB

Result Qualifier RL **MDL** Unit Analyte Prepared Analyzed Dil Fac Total Dissolved Solids <del><</del>10 10 10 mg/L 10/02/20 14:35

Lab Sample ID: LCS 180-332159/1 **Client Sample ID: Lab Control Sample Prep Type: Total/NA** 

**Matrix: Water** 

**Analysis Batch: 332159** 

Spike LCS LCS %Rec. Added Analyte Result Qualifier Unit D %Rec Limits Total Dissolved Solids 80 - 120 714 742 mg/L 104

Lab Sample ID: 180-111686-4 DU

**Matrix: Water** 

Analysis Batch: 332159

DU DU RPD Sample Sample Result Qualifier Result Qualifier Analyte Unit Limit Total Dissolved Solids 520 516 mg/L 0.4

Lab Sample ID: MB 180-332329/2

**Matrix: Water** 

**Analysis Batch: 332329** 

MB MB

**MDL** Unit Analyte Result Qualifier RL Analyzed Dil Fac Prepared 10 10 mg/L 10/05/20 15:06 Total Dissolved Solids <10

**Client Sample ID: Lab Control Sample** Lab Sample ID: LCS 180-332329/1

**Matrix: Water** 

**Analysis Batch: 332329** Spike LCS LCS

%Rec. Added Result Qualifier Limits Unit D %Rec Total Dissolved Solids 357 336 mg/L 94 80 - 120

Lab Sample ID: MB 180-332342/2

**Matrix: Water** 

**Analysis Batch: 332342** 

MB MB RL MDL Unit Analyte Result Qualifier Prepared Analyzed Dil Fac **Total Dissolved Solids** 10 10/05/20 16:37 <10 10 mg/L

Eurofins TestAmerica, Pittsburgh

**Client Sample ID: Method Blank** 

10

# **QC Sample Results**

Client: Southern Company Job ID: 180-111648-1

Project/Site: CCR - Plant Arkwright AP-2DAS

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

Lab Sample ID: LCS 180-332342/1 **Client Sample ID: Lab Control Sample** Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 332342** LCS LCS Spike

Added Analyte Result Qualifier Unit D %Rec Limits Total Dissolved Solids 357 318 mg/L 89 80 - 120

**Client Sample ID: DUP-02** Lab Sample ID: 180-111740-3 DU

**Matrix: Water** Prep Type: Total/NA

Analysis Batch: 332342

RPD Sample Sample DU DU Result Qualifier Result Qualifier Unit D RPD Limit

**Total Dissolved Solids** 290 310 8 10 mg/L

%Rec.

10

Project/Site: CCR - Plant Arkwright AP-2DAS

## HPLC/IC

#### **Analysis Batch: 332371**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111648-1	ARGWA-19	Total/NA	Water	EPA 300.0 R2.1	
180-111686-1	ARGWA-20	Total/NA	Water	EPA 300.0 R2.1	
180-111686-2	EB-02	Total/NA	Water	EPA 300.0 R2.1	
180-111686-3	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-111686-3	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-111686-4	ARAMW-1	Total/NA	Water	EPA 300.0 R2.1	
180-111686-4	ARAMW-1	Total/NA	Water	EPA 300.0 R2.1	
MB 180-332371/38	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
MB 180-332371/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-332371/37	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-332371/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-111686-1 MS	ARGWA-20	Total/NA	Water	EPA 300.0 R2.1	
180-111686-1 MSD	ARGWA-20	Total/NA	Water	EPA 300.0 R2.1	

#### **Analysis Batch: 333015**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111740-1	FB-02	Total/NA	Water	EPA 300.0 R2.1	
180-111740-2	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
180-111740-3	DUP-02	Total/NA	Water	EPA 300.0 R2.1	
180-111741-1	ARAMW-2	Total/NA	Water	EPA 300.0 R2.1	
180-111741-2	ARGWC-21	Total/NA	Water	EPA 300.0 R2.1	
MB 180-333015/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-333015/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-111740-3 MS	DUP-02	Total/NA	Water	EPA 300.0 R2.1	
180-111740-3 MSD	DUP-02	Total/NA	Water	EPA 300.0 R2.1	

#### **Analysis Batch: 333147**

Lab Sample ID 180-111741-1	Client Sample ID ARAMW-2	Prep Type Total/NA	Matrix Water	Method EPA 300.0 R2.1	Prep Batch
180-111741-2	ARGWC-21	Total/NA	Water	EPA 300.0 R2.1	
MB 180-333147/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-333147/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

#### Metals

#### Prep Batch: 333113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111648-1	ARGWA-19	Total Recoverable	Water	3005A	
MB 180-333113/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-333113/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

#### **Prep Batch: 333214**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111686-1	ARGWA-20	Total Recoverable	Water	3005A	
180-111686-2	EB-02	Total Recoverable	Water	3005A	
180-111686-3	ARGWC-22	Total Recoverable	Water	3005A	
180-111686-4	ARAMW-1	Total Recoverable	Water	3005A	
180-111740-1	FB-02	Total Recoverable	Water	3005A	
180-111740-2	ARGWC-23	Total Recoverable	Water	3005A	
180-111740-3	DUP-02	Total Recoverable	Water	3005A	
180-111741-1	ARAMW-2	Total Recoverable	Water	3005A	

Eurofins TestAmerica, Pittsburgh

Page 28 of 42

Job ID: 180-111648-1

Job ID: 180-111648-1 Project/Site: CCR - Plant Arkwright AP-2DAS

# **Metals (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111741-2	ARGWC-21	Total Recoverable	Water	3005A	
MB 180-333214/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-333214/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

#### **Prep Batch: 333418**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111740-1	FB-02	Total/NA	Water	7470A	
180-111740-2	ARGWC-23	Total/NA	Water	7470A	
MB 180-333418/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-333418/2-A	Lab Control Sample	Total/NA	Water	7470A	

#### **Analysis Batch: 333677**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111740-1	FB-02	Total/NA	Water	EPA 7470A	333418
180-111740-2	ARGWC-23	Total/NA	Water	EPA 7470A	333418
MB 180-333418/1-A	Method Blank	Total/NA	Water	EPA 7470A	333418
LCS 180-333418/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	333418

#### **Analysis Batch: 334271**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111686-1	ARGWA-20	Total Recoverable	Water	EPA 6020B	333214
180-111686-2	EB-02	Total Recoverable	Water	EPA 6020B	333214
180-111686-3	ARGWC-22	Total Recoverable	Water	EPA 6020B	333214
180-111686-4	ARAMW-1	Total Recoverable	Water	EPA 6020B	333214
180-111740-1	FB-02	Total Recoverable	Water	EPA 6020B	333214
180-111740-2	ARGWC-23	Total Recoverable	Water	EPA 6020B	333214
180-111740-3	DUP-02	Total Recoverable	Water	EPA 6020B	333214
180-111741-1	ARAMW-2	Total Recoverable	Water	EPA 6020B	333214
180-111741-2	ARGWC-21	Total Recoverable	Water	EPA 6020B	333214
MB 180-333214/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	333214
LCS 180-333214/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	333214

#### **Analysis Batch: 334457**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-333214/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	333214

#### **Analysis Batch: 334462**

Lab Sample ID 180-111648-1	Client Sample ID ARGWA-19	Prep Type  Total Recoverable	Matrix Water	Method EPA 6020B	Prep Batch 333113
MB 180-333113/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	333113
LCS 180-333113/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	333113

## **General Chemistry**

#### **Analysis Batch: 331996**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111648-1	ARGWA-19	Total/NA	Water	SM 2540C	
MB 180-331996/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-331996/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Eurofins TestAmerica, Pittsburgh

# **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

**General Chemistry** 

#### **Analysis Batch: 332159**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111686-1	ARGWA-20	Total/NA	Water	SM 2540C	
180-111686-2	EB-02	Total/NA	Water	SM 2540C	
180-111686-3	ARGWC-22	Total/NA	Water	SM 2540C	
180-111686-4	ARAMW-1	Total/NA	Water	SM 2540C	
MB 180-332159/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-332159/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-111686-4 DU	ARAMW-1	Total/NA	Water	SM 2540C	

#### **Analysis Batch: 332329**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111740-1	FB-02	Total/NA	Water	SM 2540C	
180-111740-2	ARGWC-23	Total/NA	Water	SM 2540C	
180-111741-1	ARAMW-2	Total/NA	Water	SM 2540C	
180-111741-2	ARGWC-21	Total/NA	Water	SM 2540C	
MB 180-332329/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-332329/1	Lab Control Sample	Total/NA	Water	SM 2540C	

#### **Analysis Batch: 332342**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111740-3	DUP-02	Total/NA	Water	SM 2540C	
MB 180-332342/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-332342/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-111740-3 DU	DUP-02	Total/NA	Water	SM 2540C	

#### Field Service / Mobile Lab

#### **Analysis Batch: 333127**

Lab Sample ID 180-111740-2	Client Sample ID  ARGWC-23	Prep Type Total/NA	Matrix Water	Method Field Sampling	Prep Batch
180-111740-3	DUP-02	Total/NA	Water	Field Sampling	
180-111741-1	ARAMW-2	Total/NA	Water	Field Sampling	
180-111741-2	ARGWC-21	Total/NA	Water	Field Sampling	

#### **Analysis Batch: 333128**

Lab Sample ID 180-111686-1	Client Sample ID ARGWA-20	Prep Type Total/NA	Matrix Water	Method Field Sampling	Prep Batch
180-111686-3	ARGWC-22	Total/NA	Water	Field Sampling	
180-111686-4	ARAMW-1	Total/NA	Water	Field Sampling	

#### **Analysis Batch: 333130**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111648-1	ARGWA-19	Total/NA	Water	Field Sampling	

Eurofins TestAmerica, Pittsburgh

Job ID: 180-111648-1

N - Nene O - Ashao2 P - Na2O4S Q - Na2SQ3 R - Na2SQ4 S - H2SO4 T - TSP Dodecahydrah U - Acetone V - MCAA W - pH 4-5 Z - other (specity) Special Instructions/Note: Months Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)
Return To Client Sisposal By Lab Archive For Month COC No. 180-64149-11995.1 244- ATLANTA G - Amehlor H - Ascorbic Acid C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH Page: Page 1 of 3 I - loe J - DI Water K - EDTA Archive For Total Number of containers My waln parentine, Method of Shipment Analysis Requested Cooler Temperature(s) 3C and Other Remarks Special Instructions/QC Requirements X 180-111648 Chain of Custody Lab PM: Brown, Shali E-Mail. Shali Brown@Eurofinset.com 540C\_Calcd - Total Dissolved Solids Received by: Perform MS/MSD (Yes or No) Wood G=grab) er-haue, A-Au-)
Preservation Code: Matrix Radiologica/ Type (C=comp, G=grab) Sample 0 1745 Sample 9/29/20 1525 Time Standar TAT Requested (days): Unknown DHOWER 9/29/20/ Date/Time GPC11084570 Sample Date Project #. 18020201 SSOW#: Poison B Skin Irritant Possible Hazard Identification

Mon-Hazard — Flammable Skin Irrit
Deliverable Requested: I. III, IV, Other (specify) Custody Seal No Phone: 412-963-7058 Fax: 412-963-2468 241 Ralph McGill Blvd SE B10185 ARGWA-19 Herry JAbraham@southernco.com Empty Kit Relinquished by Custody Seals Intact: Client Information Sample Identification CCR - Plant Arkwright A Yes A No Company: Southern Company Reinquished by Joju Abraham inquished by. State, Zip. GA, 30308 Atlanta Georgia

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

13

N - None
O - AsNaO2
P - Na2O4S
Q - Na2SQ3
R - Na2S203
S - H2SQ4
T - TSP Dodecalydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify) Special Instructions/Note: Months Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Spisposal By Lab Archive For Month 0H=6.16 PH=5.65 0H=58 COC No: 180-64149-11995.3 reservation Codes: 180-111686 Chain of Custody Page Not & A - HCL B - NaOH C - Zn Aostale D - Nintc Acid E - NaHSO4 F - MeOH Archive For Total Number of containers Chain of Custody Recadd 4- ATLANTA Aethod of Shipment Analysis Requested Cooler Temperature(s) °C and Other Remarks Special Instructions/QC Requirements XXXX XXXXX Yaron - Mercury XXXXX Lab PM: Brown, Shali E-Mai: Shali Brown@Eurofinset.com ceived by: eceived by Received by Preservation Code: Company 33 Sompany 3 Radiologica/ Type (C=comp, G=grab) Sample 0 0 O 0 1815 1220 1400 9/30/20 1128 1556 Sample Unknown D Howard TAT Requested (days) 9/30/20 PO.ft. GPC11064570 Due Date Requeste Sample Date Project #: 18020201 SSOW#: Sate/Time Poison B Skin frritant Eurofins TestAmerica, Pittsburgh Deliverable Requested: I, II, III, IV, Other (specify) ARGWA-20 E8-02 ARGWC-22 Custody Seal No. Phone: 412-963-7058 Fax: 412-963-2468 ARAMW-Mon-Hazard Flammable Address: 241 Ralph McGill Blvd SE B10185 Possible Hazard Identification JAbraham@southernco.com 301 Alpha Drive RIDC Park Empty Kit Relinquished by Custody Seals Intact: Δ Yes Δ No Client Information Pittsburgh, PA 15238 Sample Identification CCR - Plant Arkwright Company: Southern Company James rished by: Joju Abraham nquished by: State, Zip. GA, 30308 Atlanta

	Eurofins TestAmerica, Pittsburgh 301 Alpha Drive RIDC Park Pittsburgh, PA 15238 Phone: 412-963-7058 Fax 412-963-2468	Chain	of Cus	Chain of Custody Record	scord	Š	44	A	Y	244- ATLANTAurofins		Environment Testing America
	Client Information	Sampler D Howard	~	Lab PN Browr	Lab PM: Brown, Shali			Carrier Tracking No(s)	oking No(s):	COC No: 180-6414	COC No: 180-64149-11995.2	
	Clearl Contact Joju Abraham	Phone:		E-Mail. Shail.	E-Mail: Shaii.Brown@Eurofinset.com	ofinset.com				Page.	1	
	Company: Southern Company					<b>▼</b>	nalysis	Analysis Requested		Job #:		
	Address. 241 Raiph McGill Blvd SE B10185	Due Date Requested:			300					Preserva	8	
	City. Atlanta	3,5								B-NaOH C-ZhAbe		None AsNaO2
	Shale, Zip: GA, 30308					_				D - Nitric Acid E - NaHSO4		P - Na2O4S Q - Na2SO3
	Phone:	PO#: GPC11084570				llu8 ab				G - Amchi	70	NaZSZO3 H2SQ4 TSP Dodecahudrate
	Emai JAbraham@southernco.com	WO#:			(oN	phoul					2	Acetone
	Project Name: CCR - Plant Arkwright	Project #: 18020201			556 88 OF	apiroli	228			K-EDTA L-EDA		pH 4-5 other (specify)
	She. Georgia	SSOWE			muibs	чо - а				of cor		
	Samula Hawification	Sample Date Time	- 50	Matrix (www.aster, Smooth, Owwasteroll,	MiSM mnohe A- assagate A - assagate	00_08GFM_28 00_08GFM_28	R - 8526.9_056 (nuoreM - A016			TedmuM laso	-	i de la la la la la la la la la la la la la
D	Odligie recturing and inc	(	Preserva	tion Code:	o X	z z	2				Decidi Instru	opecial instructions/note:
200	FB-62	10/1/20 0935		3	×	×	×			~		
32	ARGWG-23	_	O	3	-	×	×			H	=6.38	
of 4	Dup-02	1	S	Z	×	×				HO	= 6,38	
2												
						+						
									180-1117	180-111740 Chain of Custody	atody.	
						+						
	Possible Hazard Identification  Non-Hazard	Lloknown	Radiological		Sample D	isposal ( )	fee may	be assessed	if samples a	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month.	er than 1 mo	onth)
	1				Special In	Special Instructions/QC Requirements	C Requir	ements:				
	Empty Kit Relinquished by:	Date:	*		Time:			Metho	Method of Shipment			
1/15	Relinquished by Games Howard	10/1/20/13	820	Company	A Received by	Sep.	7		Date/Time:	12 20 9	30	Company M. M.
/201		Date/Time.		Company	Received by	od by:			Date/Time		S	Company
 21 /E	г	Date/Time:		Company	Received by	ed by.			Date/Time		S	Company
201	Custody Seals Intact: Custody Seal No.:				Cooler	Cooler Temperature(s) °C and Other Remarks	s) °C and O	her Remarks.				
,											MA	P100/91/10 -

1:

Eurofins TestAmerica, Pittsburgh 301 Alpha Drive RIDC Park Pittsburgh, PA 15238 Phone 412-963-7058 Fax 412-963-2468	Chain of (	Sustody R	ecord 24	4- ATL	hain of Custody Record 244- ATLANTA eurofins	Environment Testing Anterica
Client Information	Samoler Howar &	Lab PM Brown	Lab PM: Brown, Shali	Carrier Tracking No(s)	ng No(s): COC No: 180-64149-11995.	995.3
Client Contact Joju Abraham	Phone	E-Mail Shali.	E-Mait Shaii.Brown@Eurolinset.com	om	Page Seft	
Company: Southern Company				Analysis Requested	# qop	
Address: 241 Ralph McGill Blvd SE 810185	Due Date Requested:				Preservation Codes:	odes:
City. Alfanta	TAT Requested (days):				B - NaCH C - Zn Acetate	N - None O - AsNaO2
State, Z.p. GA, 30308			-		D - Nitric Acid E - NaHSOM	P - Na204S Q - Na2SO3
Phone:	PO# GPC11064570		iavlis 4	spi	G - Amchlor H - Ascorbic Acid	R - Na2S203 S - H2SO4 T - TSP Dodecahydrate
Email. JAbraham@southernco.com	WO #.		(oN	los ba		U - Acetone V - MCAA.
Project Name: CCR - Plant Arkwright	Project #: 18020201		922 932 932	_		W - pH 4-5 Z - other (specity)
Site: Georgia	SSOW#.		mulbe	unipe;	of col	
Sample Identification	Sample Date Time Gam	Sample Matrix Type (virtuality) Sample (Cincomp, correstate)	ield Filtered 3 9erform MSJM 1316_Ra226 - R 100_ORGFM_21	4008 - Mercur 1320 R328 - R	TedmuM lato	Constitution of the second Mississe
Compression and the control of the c	X	Preservation Code.	Z	5		mstructions/Note:
ARAMW-2	10/1/20 1512 0	N O	V		30H=5.96	9.
ARGWC-21			×	×	5= HG	99.
					180-111741 Chain of Custody	
		-				
Possible Hazard Identification  Non-Hazard Planmable Skin Initiant Po	Poison B Unknown Radiological	oaical	Sample Disposal	(A fee may be assessed if	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)  Return To Client  Spissosal By Lab  Month	1 7 month)
			Special Instruction	Special Instructions/QC Requirements:		
Empty Kit Relinquished by:	Date:		Time:	Method	Method of Shipment.	
Relinquished to James L. Hower	10/1/26 / 182	O Wood	A Received by	M	0900 20 gw	Company of
		Company	Received by:		Date/Time	Company
	Date/Time:	Company	Received by:		Data/Time	Company
Custody Seals Intact: Custody Seal No.:  A Yes A No			Cooler Temperati	Cooler Temperature(s) °C and Other Remarks:		

Page 35 of 42





L





12 13



121 9394 5690 PRIORITY OVERNIGHT 15238 PA-US PIT



DEP T:

PITTSBURGH PA 15238

Part # 156297g435, PROBE SKP 08/21

**EUROFINS TEST AMERICA** 

301 ALPHA DR

RIDC PARK

TO SAMPLE RECEIVING

KENNESAW, GA 30144 UNITED STATES US

SHIP DATE: 010CT20 ACTMGT: 47.65 LB CAD: 6994493/SSFE2121 DIMS: 24x13x14 IN

DRIGIN ID: MCNA (770) 421-3382 PANIEL HOLMARD AMEC (MODD E+1S) 1075 BIG SHANTY RD NH STE 100

BILL THIRD PARTY

FRI - 02 0CT 10:30A PRIORITY OVERNIGHT

S S

Uncorrected temp

NA AGCA

Thermometer ID

15238

Initials pT-WI-SR-001 effective 11/8/18

12

180-111741 Waybill

Job Number: 180-111648-1

Login Number: 111648

 ${\bf List\ Source:\ Eurofins\ TestAmerica,\ Pittsburgh}$ 

List Number: 1

Creator: Watson, Debbie

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

Client: Southern Company Job Number: 180-111648-1

Login Number: 111686 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Watson, Debbie

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

Job Number: 180-111648-1

Login Number: 111740

List Number: 1 Creator: Say, Thomas C List Source: Eurofins TestAmerica, Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey neter.</td <td>True</td> <td></td>	True	
Γhe 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 ampered 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	
s the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is 6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

List Source: Eurofins TestAmerica, Pittsburgh

Job Number: 180-111648-1

Login Number: 111741 List Number: 1

Creator: Say, Thomas C

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



# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-111648-2

Client Project/Site: CCR - Plant Arkwright AP-2DAS

For:

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

Attn: Joju Abraham

Authorized for release by: 11/18/2020 7:50:42 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

Review your project results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

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

PA Lab ID: 02-00416

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	5
Certification Summary	6
Sample Summary	7
Method Summary	8
Lab Chronicle	9
Client Sample Results	13
QC Sample Results	23
QC Association Summary	25
Chain of Custody	26
Receint Checklists	38

6

8

9

10

12

1:

#### **Case Narrative**

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

Job ID: 180-111648-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-111648-2

#### Comments

No additional comments.

#### Receipt

The samples were received on 9/30/2020 9:00 AM, 10/1/2020 9:00 AM and 10/2/2020 9:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 2.0° C, 2.4° C, 2.7° C and 3.6° C.

#### **RAD**

Methods 903.0, 9315: Ra-226 prep batch 160-484743:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

ARGWA-19 (180-111648-1), ARGWA-20 (180-111686-1), EB-02 (180-111686-2), ARGWC-22 (180-111686-3), ARAMW-1 (180-111686-4), (LCS 160-484743/1-A) and (MB 160-484743/24-A)

Methods 903.0, 9315: Radium-226 prep batch 160-485335:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

FB-02 (180-111740-1), ARGWC-23 (180-111740-2), DUP-02 (180-111740-3), ARGWC-21 (180-111741-2), (LCS 160-485335/1-A) and (MB 160-485335/22-A)

Method 9315: Radium-226 prep batch 160-485335:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. ARAMW-2 (180-111741-1)

Methods 904.0, 9320: Radium-228 prep batch 160-484744:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

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

ARGWA-19 (180-111648-1), ARGWA-20 (180-111686-1), ARGWC-22 (180-111686-3), ARAMW-1 (180-111686-4), (LCS 160-484744/1-A) and (MB 160-484744/24-A)

Method 9320: Radium-228 prep batch 160-484744:

The following sample has a yttrium carrier recovery (126%) above the upper QC limit (110%). The barium carrier recovery is within limits and the sample result is below the MDC and RL. The results are reported with this narrative. EB-02 (180-111686-2)

Method 9320: Radium-228 prep batch 160-484744:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date. EB-02 (180-111686-2)

Methods 904.0, 9320: Radium-228 prep batch 160-485338:

Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative. Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.FB-02 (180-111740-1), ARGWC-23 (180-111740-2), DUP-02 (180-111740-3), ARAMW-2 (180-111741-1), ARGWC-21 (180-111741-2), (LCS 160-485338/1-A) and (MB 160-485338/22-A)

Method PrecSep\_0: Radium 228 prep batch 160-484744

3

Job ID: 180-111648-2

4

5

6

Q

9

1 1

12

1.

#### **Case Narrative**

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

Job ID: 180-111648-2

#### Job ID: 180-111648-2 (Continued)

#### Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

The Yttrium carrier recovery is outside the upper control limit (110%) for the following sample: EB-02 (180-111686-2). The sample did not appear to have a larger yttrium pellet than that of the QC but weighed up outside the limit.

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

## **Definitions/Glossary**

Client: Southern Company Job ID: 180-111648-2

Project/Site: CCR - Plant Arkwright AP-2DAS

#### **Qualifiers**

R	a	d

Qualifier Description

U Result is less than the sample detection limit.

X Carrier is outside acceptance limits.

#### **Glossary**

Abbreviation These commonly used abbreviations may or n	ay not be present in this report.
---	-----------------------------------

Example 2 Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

4

5

6

10

11

12

13

# **Accreditation/Certification Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

Job ID: 180-111648-2

# Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	20-001	05-06-22
ANAB	Dept. of Defense ELAP	L2305	04-06-22
ANAB	Dept. of Energy	L2305.01	04-06-22
ANAB	ISO/IEC 17025	L2305	04-06-22
Arizona	State	AZ0813	12-08-20
California	Los Angeles County Sanitation Districts	10259	06-30-21
California	State	2886	06-30-21
Connecticut	State	PH-0241	03-31-21
Florida	NELAP	E87689	06-30-21
HI - RadChem Recognition	State	n/a	06-30-21
Illinois	NELAP	004553	11-30-20
lowa	State	373	12-01-20
Kentucky (DW)	State	KY90125	12-31-20
Louisiana	NELAP	04080	06-30-21
Louisiana (DW)	State	LA011	12-31-20
Maryland	State	310	09-30-21
MI - RadChem Recognition	State	9005	06-30-21
Missouri	State	780	06-30-22
Nevada	State	MO000542020-1	07-31-21
New Jersey	NELAP	MO002	06-30-21
New York	NELAP	11616	04-01-21
North Dakota	State	R-207	06-30-21
NRC	NRC	24-24817-01	12-31-22
Oklahoma	State	9997	08-31-21
Oregon	NELAP	4157	09-01-21
Pennsylvania	NELAP	68-00540	02-28-21
South Carolina	State	85002001	06-30-21
Texas	NELAP	T104704193-19-13	07-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	US Federal Programs	P330-17-00028	03-11-23
Utah	NELAP	MO000542019-11	07-31-21
Virginia	NELAP	10310	06-14-21
Washington	State	C592	08-30-21
West Virginia DEP	State	381	10-31-21

-4

J

Ω

9

10

10

11:

# **Sample Summary**

Client: Southern Company Project/Site: CCR - Plant Arkwright AP-2DAS

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-111648-1	ARGWA-19	Water	09/29/20 15:25	09/30/20 09:00	
180-111686-1	ARGWA-20	Water	09/30/20 11:28	10/01/20 09:00	
180-111686-2	EB-02	Water	09/30/20 12:20	10/01/20 09:00	
180-111686-3	ARGWC-22	Water	09/30/20 14:00	10/01/20 09:00	
180-111686-4	ARAMW-1	Water	09/30/20 15:56	10/01/20 09:00	
180-111740-1	FB-02	Water	10/01/20 09:35	10/02/20 09:00	
180-111740-2	ARGWC-23	Water	10/01/20 11:58	10/02/20 09:00	
180-111740-3	DUP-02	Water	10/01/20 00:00	10/02/20 09:00	
180-111741-1	ARAMW-2	Water	10/01/20 15:12	10/02/20 09:00	
180-111741-2	ARGWC-21	Water	10/01/20 16:08	10/02/20 09:00	

Job ID: 180-111648-2

# **Method Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

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

#### **Protocol References:**

None = None

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

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

#### **Laboratory References:**

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

Job ID: 180-111648-2

3

4

5

Q

10

13

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARGWA-19** Lab Sample ID: 180-111648-1

Date Collected: 09/29/20 15:25 Date Received: 09/30/20 09:00

**Matrix: Water** 

Job ID: 180-111648-2

Batch Dil Initial Batch Batch Final Prepared Method Number or Analyzed **Prep Type** Type Run **Factor Amount** Amount **Analyst** Lab Total/NA PrecSep-21 484743 10/06/20 11:14 AVB TAL SL Prep 999.04 mL 1.0 g Total/NA 487030 TAL SL 9315 10/28/20 12:51 SCB Analysis 1 Instrument ID: GFPCRED Total/NA Prep PrecSep\_0 999.04 mL 1.0 g 484744 10/06/20 11:57 AVB TAL SL Total/NA Analysis 9320 1 485907 10/15/20 12:55 FLC TAL SL Instrument ID: GFPCBLUE Total/NA Analysis Ra226\_Ra228 487751 11/02/20 19:07 SCB TAL SL Instrument ID: NOEQUIP

Client Sample ID: ARGWA-20 Lab Sample ID: 180-111686-1

Date Collected: 09/30/20 11:28 **Matrix: Water** 

Date Received: 10/01/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.06 mL	1.0 g	484743	10/06/20 11:14	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCRED		1			487030	10/28/20 12:52	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.06 mL	1.0 g	484744	10/06/20 11:57	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 at ID: GFPCBLUE		1		-	485907	10/15/20 12:56	FLC	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228		1			487751	11/02/20 19:07	SCB	TAL SL

Client Sample ID: EB-02 Lab Sample ID: 180-111686-2 Date Collected: 09/30/20 12:20 **Matrix: Water** 

Date Received: 10/01/20 09:00

Batch Batch Dil Initial Final **Batch** Prepared Method Amount **Amount** Number or Analyzed **Prep Type** Type Run **Factor Analyst** Lab Total/NA PrecSep-21 484743 10/06/20 11:14 AVB TAL SL Prep 1000.04 mL 1.0 g Total/NA 9315 10/28/20 12:52 SCB TAL SL Analysis 487030 Instrument ID: GFPCRED PrecSep\_0 Total/NA 1000.04 mL 1.0 g 484744 10/06/20 11:57 AVB TAL SL Prep Total/NA Analysis 9320 485907 10/15/20 12:56 FLC TAL SL Instrument ID: GFPCBLUE Total/NA Analysis Ra226 Ra228 11/02/20 19:07 SCB 487751 TAL SL Instrument ID: NOEQUIP

Client Sample ID: ARGWC-22 Lab Sample ID: 180-111686-3

Date Collected: 09/30/20 14:00 Date Received: 10/01/20 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.27 mL	1.0 g	484743	10/06/20 11:14		TAL SL
Total/NA	Analysis	9315		1			487030	10/28/20 12:52	SCB	TAL SL
	Instrumer	nt ID: GFPCRED								

Eurofins TestAmerica, Pittsburgh

Page 9 of 45

**Matrix: Water** 

11/18/2020

Project/Site: CCR - Plant Arkwright AP-2DAS

Client Sample ID: ARGWC-22

Date Collected: 09/30/20 14:00 Date Received: 10/01/20 09:00

Client: Southern Company

Lab Sample ID: 180-111686-3

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			999.27 mL	1.0 g	484744	10/06/20 11:57	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			485907	10/15/20 12:56	FLC	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 nt ID: NOEQUIP		1			487751	11/02/20 19:07	SCB	TAL SL

Lab Sample ID: 180-111686-4 Client Sample ID: ARAMW-1 **Matrix: Water** 

Date Collected: 09/30/20 15:56 Date Received: 10/01/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.87 mL	1.0 g	484743	10/06/20 11:14	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 at ID: GFPCRED		1			487030	10/28/20 12:52	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.87 mL	1.0 g	484744	10/06/20 11:57	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			485907	10/15/20 12:56	FLC	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 nt ID: NOEQUIP		1			487751	11/02/20 19:07	SCB	TAL SL

Lab Sample ID: 180-111740-1 **Client Sample ID: FB-02 Matrix: Water** 

Date Collected: 10/01/20 09:35 Date Received: 10/02/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.23 mL	1.0 g	485335	10/13/20 08:06	AVB	TAL SL
Total/NA	Analysis Instrumen	9315 t ID: GFPCRED		1			488215	11/04/20 10:26	SCB	TAL SL
Total/NA	Prep	PrecSep_0			999.23 mL	1.0 g	485338	10/13/20 08:31	AVB	TAL SL
Total/NA	Analysis Instrumen	9320 t ID: GFPCBLUE		1			487365	10/30/20 11:47	FLC	TAL SL
Total/NA	Analysis	Ra226_Ra228		1			489469	11/18/20 16:56	CAH	TAL SL

Client Sample ID: ARGWC-23 Lab Sample ID: 180-111740-2

Date Collected: 10/01/20 11:58 Date Received: 10/02/20 09:00

	Batch	Batch	Run	Dil	Initial Amount	Final	Batch Number	Prepared		
Prep Type	Type	Method		Factor		Amount		or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			998.99 mL	1.0 g	485335	10/13/20 08:06	AVB	TAL SL
Total/NA	Analysis	9315		1			488215	11/04/20 10:26	SCB	TAL SL
	Instrumen	t ID: GFPCRED								
Total/NA	Prep	PrecSep_0			998.99 mL	1.0 g	485338	10/13/20 08:31	AVB	TAL SL
Total/NA	Analysis	9320		1			487365	10/30/20 11:47	FLC	TAL SL
	Instrumen	t ID: GFPCBLUE								

Eurofins TestAmerica, Pittsburgh

Page 10 of 45

**Matrix: Water** 

Project/Site: CCR - Plant Arkwright AP-2DAS

Client Sample ID: ARGWC-23

Date Collected: 10/01/20 11:58 Date Received: 10/02/20 09:00 Lab Sample ID: 180-111740-2

**Matrix: Water** 

Job ID: 180-111648-2

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1			489469	11/18/20 16:56	CAH	TAL SL

**Client Sample ID: DUP-02** Lab Sample ID: 180-111740-3 Date Collected: 10/01/20 00:00 **Matrix: Water** 

Date Received: 10/02/20 09:00

Bron Tuno	Batch	Batch Method	Dun	Dil	Initial Amount	Final	Batch Number	Prepared	Analyst	Lab
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.11 mL	1.0 g	485335	10/13/20 08:06	AVB	TAL SL
Total/NA	Analysis	9315		1			488215	11/04/20 10:27	SCB	TAL SL
	Instrumer	nt ID: GFPCRED								
Total/NA	Prep	PrecSep_0			1000.11 mL	1.0 g	485338	10/13/20 08:31	AVB	TAL SL
Total/NA	Analysis	9320		1			487365	10/30/20 11:47	FLC	TAL SL
	Instrumer	nt ID: GFPCBLUE								
Total/NA	Analysis	Ra226_Ra228		1			489469	11/18/20 16:56	CAH	TAL SL
	Instrumer	nt ID: NOEQUIP								

Lab Sample ID: 180-111741-1 **Client Sample ID: ARAMW-2** 

Date Collected: 10/01/20 15:12 Date Received: 10/02/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.73 mL	1.0 g	485335	10/13/20 08:06	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 nt ID: GFPCRED		1			488523	11/08/20 21:13	SCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.73 mL	1.0 g	485338	10/13/20 08:31	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 nt ID: GFPCBLUE		1			487365	10/30/20 11:47	FLC	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228		1			489469	11/18/20 16:56	CAH	TAL SL

**Client Sample ID: ARGWC-21** Lab Sample ID: 180-111741-2

Date Collected: 10/01/20 16:08 Date Received: 10/02/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.20 mL	1.0 g	485335	10/13/20 08:06	AVB	TAL SL
Total/NA	Analysis Instrumer	9315 at ID: GFPCRED		1			488215	11/04/20 10:28	SCB	TAL SL
Total/NA	Prep	PrecSep_0			1000.20 mL	1.0 g	485338	10/13/20 08:31	AVB	TAL SL
Total/NA	Analysis Instrumer	9320 at ID: GFPCBLUE		1			487365	10/30/20 11:48	FLC	TAL SL
Total/NA	Analysis Instrumer	Ra226_Ra228 at ID: NOEQUIP		1			489469	11/18/20 16:56	CAH	TAL SL

**Laboratory References:** 

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

Eurofins TestAmerica, Pittsburgh

Page 11 of 45

**Matrix: Water** 

**Matrix: Water** 

#### **Lab Chronicle**

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

Job ID: 180-111648-2

#### **Analyst References:**

Lab: TAL SL

Batch Type: Prep

AVB = Amber Bleem

Batch Type: Analysis

CAH = Chris Hough

FLC = Fernando Cruz

SCB = Sarah Bernsen

-6

4

5

6

8

9

. .

1.6

1:

Client: Southern Company

Count

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARGWA-19** 

Date Collected: 09/29/20 15:25 Date Received: 09/30/20 09:00 Lab Sample ID: 180-111648-1

**Matrix: Water** 

Job ID: 180-111648-2

Method: 9315 - Radium-226 (GF	PC)

		Uncert.	Uncert.						
Analyte	Result Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.337	0.113	0.117	1.00	0.120	pCi/L	10/06/20 11:14	10/28/20 12:51	1

Total

 Carrier
 %Yield Ba Carrier
 Qualifier Limits
 Limits
 Prepared 10/06/20 11:14
 Analyzed 10/28/20 12:51
 Dil Fac 10/06/20 11:14
 10/28/20 12:51
 1

Method: 9320 - Radium-228 (GFPC)

Method: 9320 -	Radium-228 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0351	U	0.275	0.275	1.00	0.487	pCi/L	10/06/20 11:57	10/15/20 12:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					10/06/20 11:57	10/15/20 12:55	1
Y Carrier	77.8		40 - 110					10/06/20 11:57	10/15/20 12:55	1

Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	0.372	U	0.297	0.299	5.00	0.487	pCi/L	<u> </u>	11/02/20 19:07	1

+ 228

Eurofins TestAmerica, Pittsburgh

11/18/2020

Client: Southern Company Job ID: 180-111648-2

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARGWA-20** 

Lab Sample ID: 180-111686-1 Date Collected: 09/30/20 11:28

**Matrix: Water** 

Date Received: 10/01/20 09:00

Method: 9315 - R	adium-226 (	GFPC)								
Amalista		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.267		0.0949	0.0979	1.00	0.0894	pCi/L	10/06/20 11:14	10/28/20 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		40 - 110					10/06/20 11:14	10/28/20 12:52	1

Method: 9320 - I	Radium-228 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.413	U	0.304	0.306	1.00	0.475	pCi/L	10/06/20 11:57	10/15/20 12:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	87.3		40 - 110					10/06/20 11:57	10/15/20 12:56	1
Y Carrier	77.4		40 - 110					10/06/20 11:57	10/15/20 12:56	1

Method: Ra226_Ra	228 - Con	nbined Rad	dium-226 a	nd Radium	1-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.679		0.318	0.321	5.00	0.475	pCi/L		11/02/20 19:07	1

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

Client Sample ID: EB-02 Lab Sample ID: 180-111686-2

Date Collected: 09/30/20 12:20 Matrix: Water Date Received: 10/01/20 09:00

Method: 9315 - Ra	dium-226 (	GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0245	U	0.0499	0.0500	1.00	0.0917	pCi/L	10/06/20 11:14	10/28/20 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.6		40 - 110					10/06/20 11:14	10/28/20 12:52	1

Method: 9320 -	Radium-228 (	GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.00198	U	0.218	0.218	1.00	0.388	pCi/L	10/06/20 11:57	10/15/20 12:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	74.6		40 - 110					10/06/20 11:57	10/15/20 12:56	1
Y Carrier	126	Χ	40 - 110					10/06/20 11:57	10/15/20 12:56	1

Method: Ra226_Ra2	28 - Con	nbined Rad	dium-226 a	nd Radium	n- <b>22</b> 8					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0264	U	0.224	0.224	5.00	0.388	pCi/L		11/02/20 19:07	1

Job ID: 180-111648-2

9

10

12

1

Client: Southern Company Job ID: 180-111648-2

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARGWC-22** 

Date Collected: 09/30/20 14:00 Date Received: 10/01/20 09:00 Lab Sample ID: 180-111686-3

Matrix: Water

Method: 9315 - Rad	lium-226 (	(GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.180		0.0877	0.0892	1.00	0.0970	pCi/L	10/06/20 11:14	10/28/20 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.9		40 - 110					10/06/20 11:14	10/28/20 12:52	1

Method: 9320 - I	Radium-228 (	(GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.421	U	0.357	0.359	1.00	0.568	pCi/L	10/06/20 11:57	10/15/20 12:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	71.9		40 - 110					10/06/20 11:57	10/15/20 12:56	1
Y Carrier	76.3		40 - 110					10/06/20 11:57	10/15/20 12:56	1

Method: Ra226 Ra	228 - Con	nbined Rad	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.602		0.368	0.370	5.00	0.568	pCi/L		11/02/20 19:07	1

Client: Southern Company Job ID: 180-111648-2

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARAMW-1** 

Date Collected: 09/30/20 15:56 Date Received: 10/01/20 09:00 Lab Sample ID: 180-111686-4

**Matrix: Water** 

Method: 9315 - Rad	dium-226 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0784	U	0.0628	0.0632	1.00	0.0896	pCi/L	10/06/20 11:14	10/28/20 12:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.9		40 - 110					10/06/20 11:14	10/28/20 12:52	1

Method: 9320 - I	Radium-228 (	(GFPC)								
Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analvzed	Dil Fac
Radium-228	0.170		0.273	0.274	1.00	0.462		10/06/20 11:57	10/15/20 12:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	84.9		40 - 110					10/06/20 11:57	10/15/20 12:56	1
Y Carrier	77.0		40 - 110					10/06/20 11:57	10/15/20 12:56	1

Method: Ra226_Ra2	28 - Con	nbined Rad	dium-226 a	nd Radium	<b>-228</b>					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.249	U	0.280	0.281	5.00	0.462	pCi/L		11/02/20 19:07	1

Client: Southern Company Job ID: 180-111648-2

Project/Site: CCR - Plant Arkwright AP-2DAS

Client Sample ID: FB-02 Lab Sample ID: 180-111740-1

Date Collected: 10/01/20 09:35

Date Received: 10/02/20 09:00

Matrix: Water

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0846	U	0.0734	0.0738	1.00	0.108	pCi/L	10/13/20 08:06	11/04/20 10:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.9		40 - 110					10/13/20 08:06	11/04/20 10:26	1

Method: 9320 - F	Radium-228 (	(GFPC)	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.747		0.309	0.316	1.00	0.429	pCi/L	10/13/20 08:31	10/30/20 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.9		40 - 110					10/13/20 08:31	10/30/20 11:47	1
Y Carrier	74.0		40 - 110					10/13/20 08:31	10/30/20 11:47	1

Method: Ra226 Ra	228 - Con	bined Rad	dium-226 a	nd Radiun	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.832		0.318	0.325	5.00	0.429	pCi/L		11/18/20 16:56	1

2

3

5

6

8

9

11

Client: Southern Company Job ID: 180-111648-2

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARGWC-23** 

Lab Sample ID: 180-111740-2 Date Collected: 10/01/20 11:58

**Matrix: Water** 

Date	Received:	10/02/20	09:00	

Method: 9315 - Ra	adium-226 (	GFPC)								
			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.228		0.107	0.109	1.00	0.123	pCi/L	10/13/20 08:06	11/04/20 10:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.2		40 - 110					10/13/20 08:06	11/04/20 10:26	1

Method: 9320 - F	Radium-228 (	(GFPC)								
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.521		0.293	0.297	1.00	0.441	pCi/L	10/13/20 08:31	10/30/20 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.2		40 - 110					10/13/20 08:31	10/30/20 11:47	1
Y Carrier	77.4		40 - 110					10/13/20 08:31	10/30/20 11:47	1

Method: Ra226_Ra	228 - Con	bined Rad	dium-226 a	nd Radium	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.749		0.312	0.316	5.00	0.441	pCi/L		11/18/20 16:56	1

Client: Southern Company Job ID: 180-111648-2

Project/Site: CCR - Plant Arkwright AP-2DAS

Client Sample ID: DUP-02 Lab Sample ID: 180-111740-3

Date Collected: 10/01/20 00:00 **Matrix: Water** 

Date Received: 10/02/20 09:00

Method: 9315 - Ra	dium-226 (	GFPC)								
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.122	U	0.0920	0.0926	1.00	0.132	pCi/L	10/13/20 08:06	11/04/20 10:27	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.8		40 - 110					10/13/20 08:06	11/04/20 10:27	1

Method: 9320 - I	Radium-228 (	(GFPC)								
		,	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.216	U	0.291	0.292	1.00	0.485	pCi/L	10/13/20 08:31	10/30/20 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.8		40 - 110					10/13/20 08:31	10/30/20 11:47	1
Y Carrier	72.9		40 - 110					10/13/20 08:31	10/30/20 11:47	1

Method: Ra226_Ra2	28 - Con	bined Rad	dium-226 a	nd Radium	n-228					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.338	U	0.305	0.306	5.00	0.485	pCi/L		11/18/20 16:56	1

Client: Southern Company Job ID: 180-111648-2

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARAMW-2** 

Lab Sample ID: 180-111741-1

**Matrix: Water** 

Date Collected: 10/01/20 15:12 Date Received: 10/02/20 09:00

Method: 9315 - R	adium-226 (	GFPC)								
		•	Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.172		0.0950	0.0963	1.00	0.125	pCi/L	10/13/20 08:06	11/08/20 21:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					10/13/20 08:06	11/08/20 21:13	1

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.69		0.491	0.550	1.00	0.542	pCi/L	10/13/20 08:31	10/30/20 11:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.4		40 - 110					10/13/20 08:31	10/30/20 11:47	1
Y Carrier	77.0		40 - 110					10/13/20 08:31	10/30/20 11:47	1

Method: Ra226_Ra	228 - Con	nbined Rad	dium-226 a	nd Radiun	1-228					
_			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.86		0.500	0.558	5.00	0.542	pCi/L		11/18/20 16:56	1

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

**Client Sample ID: ARGWC-21** 

Date Collected: 10/01/20 16:08 Date Received: 10/02/20 09:00 **Lab Sample ID: 180-111741-2** 

**Matrix: Water** 

Job ID: 180-111648-2

Motho	1. Q21E _	Radium-226	(CEDC)
MECHO	ı. 9313 -	Naululli-220	(GEFG)

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0439	U	0.0782	0.0783	1.00	0.138	pCi/L	10/13/20 08:06	11/04/20 10:28	1
Carrier Ba Carrier	<b>%Yield</b> 83.1	Qualifier	Limits 40 - 110					Prepared 10/13/20 08:06	Analyzed 11/04/20 10:28	Dil Fac

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

			Count Uncert.	Total Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.452	U	0.327	0.329	1.00	0.509	pCi/L	10/13/20 08:31	10/30/20 11:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	83.1		40 - 110					10/13/20 08:31	10/30/20 11:48	1
Y Carrier	73.6		40 - 110					10/13/20 08:31	10/30/20 11:48	1

#### Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Methou. Nazzo_Naz	20 - CUII	ibilieu Kai	ululli-220 a	iiu Nauiuiii	-220					
			Count	Total						
			Uncert.	Uncert.						
Analyte	Result	Qualifier	(2σ+/-)	(2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226	0.496	U	0.336	0.338	5.00	0.509	pCi/L		11/18/20 16:56	1

+ 228

6

8

9

11

12

1

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-484743/24-A

Lab Sample ID: LCS 160-484743/1-A

**Matrix: Water** 

**Matrix: Water** 

Analysis Batch: 487030

Client Sample ID: Method Blank

Prep Type: Total/NA

Job ID: 180-111648-2

**Prep Batch: 484743** 

MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Analyzed Dil Fac Radium-226 0.1797 0.0967 0.0981 1.00 0.112 pCi/L 10/06/20 11:14 10/28/20 14:42

Total

Count

Count

MB

MR MR

Carrier %Yield Qualifier Limits Prepared Analyzed Dil Fac Ba Carrier 82.2 40 - 110 10/06/20 11:14 10/28/20 14:42

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

**Prep Batch: 484743** 

Total LCS LCS %Rec. **Spike** Uncert. Analyte Added Result Qual  $(2\sigma + / -)$ RL %Rec Limits MDC Unit Radium-226 15.1 14.45 1.49 1.00 0.118 pCi/L 96 75 - 125

LCS LCS

Analysis Batch: 487030

Carrier %Yield Qualifier Limits Ba Carrier 85.2 40 - 110

Lab Sample ID: MB 160-485335/22-A Client Sample ID: Method Blank

**Matrix: Water** 

**Analysis Batch: 488215** 

Prep Type: Total/NA **Prep Batch: 485335** 

Uncert. MB MB Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ **MDC** Unit Prepared Dil Fac RL Analyzed Radium-226 Ū 0.0606 0.0606 1.00 10/13/20 08:06 11/04/20 12:24 0.01934 0.116 pCi/L

Total

Dil Fac Carrier %Yield Qualifier Limits Prepared Analyzed 10/13/20 08:06 11/04/20 12:24 Ba Carrier 89.6 40 - 110

Lab Sample ID: LCS 160-485335/1-A

**Matrix: Water** 

Radium-226

**Analysis Batch: 488215** 

**Client Sample ID: Lab Control Sample** 

85

Total

0.120 pCi/L

1.00

Spike LCS LCS Uncert. %Rec. Analyte Added Result Qual  $(2\sigma + / -)$ RL **MDC** Unit %Rec Limits

LCS LCS

Carrier %Yield Qualifier Limits Ba Carrier 84.6 40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-484744/24-A

9.598

11.3

**Client Sample ID: Method Blank Matrix: Water** Prep Type: Total/NA Analysis Batch: 485729 Prep Batch: 484744

1.05

Total Count MB MB Uncert. Uncert. Result Qualifier Analyte  $(2\sigma + / -)$  $(2\sigma + / -)$ RL **MDC** Unit Prepared Dil Fac Analyzed Radium-228 0.1025 U 0.357 0.357 1.00 0.624 pCi/L 10/06/20 11:57 10/15/20 12:51

Eurofins TestAmerica, Pittsburgh

11/18/2020

Page 23 of 45

10

Prep Type: Total/NA **Prep Batch: 485335** 

75 - 125

Client: Southern Company

Project/Site: CCR - Plant Arkwright AP-2DAS

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

Mctiloa. Jozo - Itaaiaiii-z	20 (01 1 0)	(Sontinuca)
МВ	MB	
Corrier 0/ Viold	Ouglifier	Limita

Prepared Dil Fac Analyzed Carrier %Yield Qualifier Limits Ba Carrier 40 - 110 10/06/20 11:57 10/15/20 12:51 82 2 40 - 110 10/06/20 11:57 10/15/20 12:51 Y Carrier 79.3

Lab Sample ID: LCS 160-484744/1-A **Matrix: Water** 

**Analysis Batch: 485907** 

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

Prep Batch: 484744

Job ID: 180-111648-2

				iotai					
	Spike	LCS	LCS	Uncert.				%Rec.	
Analyte	Added	Result	Qual	(2σ+/-)	RL	MDC Unit	%Rec	Limits	
Radium-228	10.3	10.33		1.33	1.00	0.594 pCi/L	100	75 - 125	

LCS LCS Carrier %Yield Qualifier Limits Ba Carrier 85.2 40 - 110 80.0 40 - 110 Y Carrier

Lab Sample ID: MB 160-485338/22-A

**Matrix: Water** 

Analysis Batch: 487365

**Client Sample ID: Method Blank** 

Prep Type: Total/NA Prep Batch: 485338

Count Total MB MB Uncert. Uncert. Analyte Result Qualifier  $(2\sigma + / -)$  $(2\sigma + / -)$ **MDC** Unit RL Prepared Analyzed Dil Fac Radium-228 0.1071 U 0.271 0.272 1.00 0.469 pCi/L 10/13/20 08:31 10/30/20 11:50

MB MB Dil Fac Carrier **%Yield Qualifier** Limits Prepared Analyzed Ba Carrier 89.6 40 - 110 10/13/20 08:31 10/30/20 11:50 78.5 40 - 110 10/13/20 08:31 10/30/20 11:50 Y Carrier

Lab Sample ID: LCS 160-485338/1-A

**Matrix: Water** 

Analysis Batch: 487365

**Client Sample ID: Lab Control Sample** 

**Prep Batch: 485338** 

Total **Spike** LCS LCS Uncert. %Rec. Added  $(2\sigma + / -)$ RL **MDC** Unit Limits **Analyte** Result Qual %Rec Radium-228 75 - 125 7.69 8.484 1.07 1.00 0.497 pCi/L 110

LCS LCS Carrier %Yield Qualifier Limits 40 - 110 Ba Carrier 84.6 Y Carrier 77.8 40 - 110

Prep Type: Total/NA

# **QC Association Summary**

Client: Southern Company Project/Site: CCR - Plant Arkwright AP-2DAS

**Prep Batch: 484743** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111648-1	ARGWA-19	Total/NA	Water	PrecSep-21	
180-111686-1	ARGWA-20	Total/NA	Water	PrecSep-21	
180-111686-2	EB-02	Total/NA	Water	PrecSep-21	
180-111686-3	ARGWC-22	Total/NA	Water	PrecSep-21	
180-111686-4	ARAMW-1	Total/NA	Water	PrecSep-21	
MB 160-484743/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-484743/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

**Prep Batch: 484744** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111648-1	ARGWA-19	Total/NA	Water	PrecSep_0	
180-111686-1	ARGWA-20	Total/NA	Water	PrecSep_0	
180-111686-2	EB-02	Total/NA	Water	PrecSep_0	
180-111686-3	ARGWC-22	Total/NA	Water	PrecSep_0	
180-111686-4	ARAMW-1	Total/NA	Water	PrecSep_0	
MB 160-484744/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-484744/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

**Prep Batch: 485335** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111740-1	FB-02	Total/NA	Water	PrecSep-21	
180-111740-2	ARGWC-23	Total/NA	Water	PrecSep-21	
180-111740-3	DUP-02	Total/NA	Water	PrecSep-21	
180-111741-1	ARAMW-2	Total/NA	Water	PrecSep-21	
180-111741-2	ARGWC-21	Total/NA	Water	PrecSep-21	
MB 160-485335/22-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-485335/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

**Prep Batch: 485338** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-111740-1	FB-02	Total/NA	Water	PrecSep_0	<u> </u>
180-111740-2	ARGWC-23	Total/NA	Water	PrecSep_0	
180-111740-3	DUP-02	Total/NA	Water	PrecSep_0	
180-111741-1	ARAMW-2	Total/NA	Water	PrecSep_0	
180-111741-2	ARGWC-21	Total/NA	Water	PrecSep_0	
MB 160-485338/22-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-485338/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

Job ID: 180-111648-2

Eurofins TestAmerica, Pittsburgh

N - Nene O - Ashao2 P - Na2O4S Q - Na2SQ3 R - Na2SQ4 S - H2SO4 T - TSP Dodecahydrah U - Acetone V - MCAA W - pH 4-5 Z - other (specity) Special Instructions/Note: Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)
Return To Client Sisposal By Lab Archive For Month COC No. 180-64149-11995.1 244- ATLANTA G - Amehlor H - Ascorbic Acid Page: Page 1 of 3 C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH I · loe J · DI Water K · EDTA Archive For Total Number of containers My walny Deserting Method of Shipment Analysis Requested Cooler Temperature(s) 3C and Other Remarks Special Instructions/QC Requirements X 180-111648 Chain of Custody Lab PM: Brown, Shali E-Mail Shali Brown@Eurofinset.com Received by: Perform MS/MSD (Yes or No) Wood G=grab) er-haue, A-Au-)
Preservation Code: Matrix Radiologica/ Type (C=comp, G=grab) Sample 0 1745 Sample 9/29/20 1525 Time Standar TAT Requested (days): Unknown DHOWER 9/29/20/ Date/Time GPC11084570 Sample Date Project #. 18020201 SSOW#: Poison B Skin Irritant Possible Hazard Identification

Mon-Hazard — Flammable Skin Irrit
Deliverable Requested: I. III, IV, Other (specify) Custody Seal No Phone: 412-963-7058 Fax: 412-963-2468 241 Ralph McGill Blvd SE B10185 ARGWA-19 Howard JAbraham@southernco.com Empty Kit Relinquished by Custody Seals Intact Client Information Sample Identification CCR - Plant Arkwright Company: Southern Company Reinquished by Joju Abraham nquished by. State, Zip. GA, 30308 Atlanta

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

N - None
O - AsNaC2
P - Na2O4S
Q - Na2SQ3
R - Na2S2Q3
S - H2SQ4
T - TSP Dodecatydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify) Special Instructions/Note: Months Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Spisposal By Lab Archive For Month 0H=6.16 PH=5.65 0H=58 COC No: 180-64149-11995.3 reservation Codes: 180-111686 Chain of Custody Page Not & A - HCL B - NaOH C - Zn Aostale D - Nintc Acid E - NaHSO4 F - MeOH Archive For Total Number of containers Chain of Custody Recadd 4- ATLANTA Aethod of Shipment Analysis Requested Cooler Temperature(s) °C and Other Remarks Special Instructions/QC Requirements: XXXX XXXXX Yaron - Mercury XXXXX Lab PM: Brown, Shali E-Mai: Shali Brown@Eurofinset.com ceived by: (eceived by Received by Preservation Code: Sompany 33 Sompany 3 Radiologica/ Type (C=comp, G=grab) Sample 0 0 O 0 1815 1220 1400 9/30/20 1128 1556 Sample D Howard Unknown TAT Requested (days) 9/30/20 PO.ft. GPC11064570 **Due Date Requeste** Sample Date Project #: 18020201 SSOW#: Sate/Time Poison B Skin frritant Eurofins TestAmerica, Pittsburgh Deliverable Requested: I, II, III, IV, Other (specify) ARGWA-20 E8-02 ARGWC-22 Custody Seal No. Phone: 412-963-7058 Fax: 412-963-2468 ARAMW-Mon-Hazard Flammable Address: 241 Ralph McGill Blvd SE B10185 Possible Hazard Identification JAbraham@southernoo.com 301 Alpha Drive RIDC Park Empty Kit Relinquished by Custody Seals Intact: A Yes A No Client Information Pittsburgh, PA 15238 Sample Identification CCR - Plant Arkwright Company: Southern Company Dome nauished by: Joju Abraham oquished by: State, Zip. GA, 30308 Atlanta

Eurofins TestAmerica, Pittsburgh 301 Alpha Drive RIDC Park Pittsburgh, PA 15238 Phone, 412-963-7058 Fax 412-963-2468	0	Chain of Custody Record	Custo	dy Rec	ord	5	14-	ATI	244- ATLANTAurofins	Aurofins	Environment Testing America
Client Information	Sampler D Hou	Sara		Lab PM. Brown, S	hali			Camer Tracking No(s)	g No(s):	COC No. 180-64149-11995	35.2
Client Contact Joju Abraham	Phone:			E-Mail: Shail.Bro	E-Mail: Shail.Brown@Eurofinset.com	nset.com				Page. 2 ef 3	
Company: Southern Company				-		Ā	nalysis R	Analysis Requested		Job #:	
Address. 241 Ralph McGill Blvd SE B10185	Due Date Requested	dard		3990						Preservation Codes:	des:
Chy. Atlanta	TAT Requested (da	ys):				_		_		B - NaOH C - Zn Acetate	M - Mone N - None O - AsNaO2
State, Zip: GA, 30308					(	ate				D - Nitric Acid E - NaHSO4	P - Na2O4S Q - Na2SO3
Phone:	PO#: GPC11084570			(0	avils 4					G - Amchlor H - Asocrbic Acid	S - H2SO4 T - TSP Dodecahydrate
Emait JAbraham@southernco.com	WO#:								S.		U - Acetone V - MCAA
Project Name: CCR - Plant Arkwright	Project #: 18020201				556	_	328		ənistr		W - pH 4-5 Z - other (specify)
Site. Georgia	SSGW#.				wnipe;				100 100	Other:	
	o de la companya de l	Sample (C	Sample Type (C=comp,	benetliii blei	915_Ra226 - R 0208 - Custon	640C_Calcd - 00_ORGFM_2	A - 8526.P_058		TedmuM lato		
Sample identification	Sample Date	1	- 100	×	6 0	100	2		1X		opecial instructions/note:
FR-62	10/1/20	0935 (	(3)	3	1	×	×				
A RGWG-23		1	0	3	-	×	1		3.0	0H=6.38	18
Du	>		0	3	×	×			9	HO	6,38
			+		+	+	+				
			+	+	+	$\pm$	+				
		l				L					
			$\parallel$						180-111740 Chain of Custody	ain of Custody	
			+			+		+		-	
ant	Poison B Linknown		Radiotopical		Sample Dis	sposal (A	fee may b	e assessed if s	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	ned longer than 1	f month)
		1	5		Special Instructions/QC Requirements	ructions/C	C Requirer	nents:			9
Empty Kit Relinquished by:		Date:		Time:				Methodic	Method of Shipment		
Relinquished by Camel Howard	Date/Time: 10/1/20	118	20 02	Wood	Received by	1	7		Date/Time: / 1/2	20 900	W. Judy
Relinquished by:	-		Š	npany	Received by	p)c			Date/Time:		Company
	Date/Time:		CO	Company	Received by	p)c			Date/Time:		Company
Custody Seals Intact: Custody Seal No.:					Cooler Te	mperature(	Cooler Temperature(s) °C and Other Remarks	ar Remarks:			
					$\frac{1}{1}$						Vac 01/16/2010

Ver: 01/16/2019

12 13

N - None
O - AsNaO2
P - Na2C04S
Q - Na2SO3
R - Na2SA03
S - H2SQ4
T - TSP Dodecahydrate **Environment Testing** Special Instructions/Note: COMPANY S Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Spisposal By Lab North COC No: 180-64149-11995.3 30H=5,99 Preservation Codes Chain of Custody Record 244- ATLANTA eurofins 30H=5.96 Page 8-eff Zn Acetate Nitric Acid NaHSO4 180-111741 Chain of Custody 3 - Archive For Total Number of containers Date vime 0 2 23 Method of Shipment Analysis Requested ooler Temperature(s) °C and Other Remarks Special Instructions/QC Requirements: × 7470A - Mercury × Lab PM. Brown, Shali E-Mat Shali, Brown@Eurolinset.com × 540C\_Calcd - Total Dissolved Solids eceived by (of no set) GZMIZM mnohe ime Field Filtered Sample (Yes or No) Wood Type (wwwster, style) (C=Comp, correstation, G=grab) Int-Though A-A/A) Matrix Preservation Code €. 3 Radiological Sample 820 0 0 Sample 1608 10/1/20 1512 D HOWGE Date: Unknown 10/1/20 PO#: GPC11064570 Sample Date Project #: 18020201 ate/Time: Poison B Skin Irritant Eurofins TestAmerica, Pittsburgh Deliverable Requested: I, II, III, IV, Other (specify) ARAMW-2 ARGWC-21 Custody Seal No. Phone: 412-963-7058 Fax: 412-963-2468 241 Ralph McGill Blvd SE B10185 Won-Hazard Flammable ossible Hazard Identification JAbraham@southernco.com 301 Alpha Drive RIDC Park Empty Kit Relinquished by Custody Seals Intact: Client Information Sample Identification Pittsburgh, PA 15238 CCR - Plant Arkwright Company: Southern Company Joju Abraham nquished by: State, Zip: GA, 30308 Atlanta Georgia







Ш





12 13



121 9394 5690 PRIORITY OVERNIGHT 15238 PA-US PIT Uncorrected temp 2.0 °C Initials PT-VM-SR-001 effective 11/8/18

CF

Part # 156297g435, PROBE SKP 08/21

**EUROFINS TEST AMERICA** 

301 ALPHA DR

RIDC PARK

TO SAMPLE RECEIVING

KENNESAW, GA 30144 UNITED STATES US

SHIP DATE: 010CT20 ACTMGT: 47.65 LB CAD: 6994493/SSFE2121 DIMS: 24x13x14 IN

DRIGIN ID: MCNA (770) 421-3382 PANIEL HOLMARD AMEC (MODD E+1S) 1075 BIG SHANTY RD NH STE 100

BILL THIRD PARTY

DEP T:

PITTSBURGH PA 15238

FRI - 02 OCT 10:30A PRIORITY OVERNIGHT

S S Uncorrected temp

NA AGCA

15238

Initials Thermometer ID

pT-WI-SR-001 effective 11/8/18

180-111741 Waybill

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pitsburgh, PA 15238 Phone: 412-963-7058 Fax: 412-963-2468

Client Information (Sub Contract Lab)				Brov	Brown, Shall				The second secon	Salar B		180-413498.1		_
Client Contact	Phone:			E-Ma	E	-			State of Origin:	Al-		Page:		T-
Shippingreceving				Sha	Shail. Brown@Eurolinset.com	Eurofin	set com		Georgia			Page 1 of 1		7
TestAmerica Laboratories, Inc.					Accreditation	ons Redo	Accreditations Required (See note).	No.				180-111648-2		
Address: 13715 Rider Trail North. ,	Due Date Requested: 10/12/2020	Đ					A	Analysis Requested	nested			Preservation Codes	des:	$\overline{}$
City. Earth City	TAT Requested (days)	1,75]:			Arp							B - NaOH	M - Mexand N - None	
State, Zp. MO, 63045					c)-51	ATT A SOU	pue 9					D - Nitric Acid E - NaHSO4	P - Na2045 Q - Na2SO3	
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO#.						rzy-win					G - Amchlor H - Accorded Acid	R - Na2S203 S - H2S04	
Enail	WO B.				(0)	900	ibaA b				5	1 - toe J - DI Water	U - Acetone V - MCAA	
Project Name: CCR - Plant Arkwright	Project #. 18020201				62 OL W	6.061.13	anidmo				nenist	_	W - pH 4-5 Z - other (specify)	
Site: Arkwright	\$SOW#;				v) as	01.71.278	DCI C				oo to	Other:		
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Wearster, Seadild, Oreentable), ST-Throse, Arche)	Field Filtered 8 Perform MS/M 9315_Ra226/Pre	9350 Ra228/Pre decay	Raziem-228 Radium-228				Total Number		Special Instructions/Note:	
ACTION OF THE PROPERTY OF THE	X	X		Preservation Code:							X		V	_
ARGWA-19 (180-111648-1)	02/52/50	15:25		Water	É	>	>				1			7
		Eastern				<del>+ + +</del>								
						H								
										1				
														_
Note: Since iaboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratory are sample shower than the laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica alterition immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.	stAmerica places the ownershi Is/matrix being analyzed, the si urrent to date, return the signer	of method, a imples must b i Chain of Cus	nalyte & accred e shipped back tody attesting to	tation complia to the Eurofins said complica	TestAmerica TestAmerica nce to Eurofi	s laborati ns TestA	ory or other in imerica.	ies. This samp structions will b	e shipment is f e provided. An	onwarded un y changes t	der chain- o accrediat	of-custody. If the labor on status should be b	of method, analyte & accreditation compliance upon out subcentract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently indicate the shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Chain of Custody attesting to said complicance to Eurofins TestAmerica.	
Possible Hazard Identification					Samp	le Disp	osal ( A f	se may be a	ssessed if	saldmes	are retair	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)	month)	$\overline{}$
Unconfirmed Demonstrated III III Notice Consults		0				Return	Return To Client	ן ב	Disposal By Lab	ab.	Arc	Archive For	Months	
Deliverable Requested: I, II, IV, Other (specify)	Primary Deirverable Kank: 2	able Kank:	7		Specia	al Instru	actions/QC	Special Instructions/QC Requirements						_
Empty Kit Relinquished by:		Date:			Time:				Method	Method of Shipment				_
Relinquished by:	DateTime;   0   1   3	15a	2	FONDY		Received by		Feder	1000	Date/Time			Company	$\overline{}$
Reinquistred by Feb.Cz	Date/Time:			Company	R.	Received by		Rel		Date/Time	2/30	22:60	ETASTL	
Refriquished by:	Date/Time:			Company	S.	Received by	0	-		Date/Tim	3		Company	_
Custody Seals Intact: Custody Seal No.:					S	oler Tem	perature(s) "	Cooler Temperature(s) "C and Other Remarks:	narks:					_
					1	l							Ves-61:16:2019	7

						١						
Client Information (Sub Contract Lab)	Sampler:			Brown	Lab PM. Brown, Shali			0	Carrier Tracking No(s)	No(s):	COC No: 180-413708.1	
Client Contact: Shipping/Receiving	Phone:			Sha	E-Mail: Shail. Brown@Eurofinset.com	Eurofins	et.com		State of Origin: Georgia		Page 1 of 1	
Company: TestAmerica Laboratories, Inc.					Accreditation	ons Require	Accreditations Required (See note):	),			Job #: 180-111686-1	
Address: 13715 Rider Trail North, ,	Due Date Requested: 10/13/2020						Ani	Analysis Requested	ested		Preservation Codes:	
Ohy. Earth City	TAT Requested (days)	*			Arp	300					B - NaOH C - Zn Acetate	N - None O - AsNaO2
State, Zpc MO, 63045					0)-51	Tan Mari	0.51				D - Neric Acid E - NaHSO4	P - Na2045 Q - Na2503
314-298-8566(Tel) 314-298-8757(Fax)	PO #:						- 57 ×				G - America	R - Na2S203 S - H2SO4
Tabl.	WO #:				(0)	w SS8				_	1- Ice J- Di Water	U - Acetone V - MCAA
Project Name. CCR - Plant Arkwright	Project #. 18020201				N 10 SE	uibea (					9700 m. N.S.	W - pH 4-5 Z - other (specify)
Site: Arkwright	SSOW#:				A) as	-dego					of con	
Sample Identification - Client ID (Lab ID)	Sample Date	Sample	Sample Type (C=comp, G=grab)	Matrix (Wrester, Sreek, Oversteick,	Field Filtered S Perform MS/M 9315_Rs226/Pro	9320 B#SS8Ibve 9350 B#SS8Ibve 96cay	8SS-mulibe.R				Total Number	Special Instructions/Note:
	X	1	1 90	Preservation Code:	X							
ARGWA-20 (180-111686-1)	9/30/20	11:28 Fastern		Water		×	×				+	
EB-02 (180-111686-2)	9/30/20	12:20 Fastern		Water		×	×				-	
ARGWC-22 (180-111686-3)	9/30/20	14:00 Eastern		Water	_	×	×				+-	
ARAMW-1 (180-111686-4)	9/30/20	15:56 Eastern		Water	^	×	×				+	
Note: Since Laboratiory accreditations are subject to change, Eurofins TresMmerica places the ownership maintain accreditation in the State of Origin fisted above for analysis/sests/imatrix being analyzed, the sail TestAmerica adention immediately. If all requested accreditations are current to date, return the signed	merca places the ownership or latrix being analyzed, the sam int to date, return the signed C	f method, and ples must be t hain of Custor	llyte & accrec shipped back dy attesting to	diation compli	ance upon ou a TestAmeric ance to Eurol	f subcontra a laborator ins TestAm	ict laborator y or other in	es. This sample structions will be	shipment is forw provided. Any c	varded under ch	of method, analyte & accreditation compliance upon out subcontract laborationles. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently motes must be shipped back to the Eurofine TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofine. Chain of Custody attesting to said complicance to Eurofine TestAmerica.	boratory does not curr s brought to Eurofins
Possible Hazard Identification Unconfirmed					Samp	Return 7	le Disposal ( A fe Return To Client	e may be ass	assessed if sam Disposal By Lab	mples are re	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)  Return To Client Disposal By Lab Mor	1 1 month)
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	le Rank: 2			Speci	al Instruc	tions/QC	Special Instructions/QC Requirements	12			
Empty Kit Relinquished by:	a	Date:			Time:				Method of Shipment	Shipment		
reinquished by Matthew Jack	10/2/20 I	2007		AL S	H.d	Received by:	The	Fedex		Date/Time:		Company
Militarished by: 0 Fed 8%	Date/Time			Company	a a	Received by	1	By		10/3/20	0 (11:00	ETAST2
	Date: Inne			Company	2	sceived by				Date/Time:		Company
Custody Seals Intact: Custody Seal No.:					S	xoler Temp	erature(s) "C	Cooler Temperature(s) "C and Other Remarks	rks:			

Chemistry Lab   Princis   Drown Shall   Chemistry Lab   Princis   Drown Shall   Chemistry Lab   Chemistry La	FTIONE: 412-303-7030 FBX: 412-303-2408													
Control   Cont	Client Information (Sub Contract Lab)	Sampler			Brov	ht: vn, Shali				Carrier Tr.	scking Nots	4	COC No: 180-414270.1	146
1017   102   102   102   103	Client Contact: Shipping/Receiving	Phone			E-Ma Sha	L.Brown@	Eurofins	et.com		State of C Georgia	riger		Page 1 of 1	
17/15   500cm   Trail North	Company: TestAmerica Laboratories, Inc.					Accreditation	ons Requir	ed (See not	10				Job #: 180-111740-2	
200   200	Address: 13715 Rider Trail North,	Due Date Requested: 11/3/2020						An	alysis R	duestec	_		Preservation Codes:	codes:
15   15   15   15   15   15   15   15	Oily: Sarin, Zip:	TAT Requested (days)	u.			Yeb 15 -	po						B - NACH B - NACH C - Zn Acetate D - Nerc Acid	M - Hexane N - None O - AsNaO2 P - Na2O4S
1-1-250-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0	MO, 63045 Phone:	₩04				(3449)	922.0	0.077-11					F - MeOH G - Amchlor	0 - Na2SO3 R - Na2S2O3 S - H2SO4
Sample   General National Propert   Propert	514-220-0500(16) 514-200-073(FaX)	WO B.		ľ		- (		nines					H - Ascorbic Acid I - Ice	1 T-TSP Dodecahyd U-Acetone
COR- Part Akverght   Storye	Project Name:	Project #				ON 10	35/9/50							V - MCAA W - pH 4-5
Sample Identification - Clear ID (Lab ID) Sample Date  Sample Date  Sample Date  Sample Date  Time  Grand Martix  Time  Grand Martix  ARGWC-23 (180-111740-1)  DUP-02 (180-111740-1)  DUP-02 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Time  Time  Grand Martix  ARGWC-23 (180-111740-1)  Time  Ti	CCR - Plant Arkwright	18020201				SOA	100	en un o						Z - other (specify)
Sample Identification - Client ID (Lab ID) Sample Date Time Graphs Instruction and the control of the control o	Sites: Arkwright	SSOME	Ī			) asw	0.00	10.11					_	
FB-02 (180-111740-1)  ARGWC-23 (180-111740-2)  ARGWC-23 (180-111740-2)  DUP-02 (180-111740-2)  DUP-02 (180-111740-2)  DUP-02 (180-111740-2)  DUP-02 (180-111740-2)  DUP-03 (180-111740-	Sample Identification - Client ID (Lab ID)				Matrix (Wester, Sessible, Ownerhood, Infrase, Ande)	Rettorm MS/N	3320_R&228/Pr							Special Instructions (Motor
FB-02 (180-111740-1) ARGWC-23 (180-111740-2) ARGWC-23		X	1	1060	ion Code:	$\times$								
ARGWC-23 (180-111740-2)  10/1/20  Eastern  Water  X X X X X X X X X X X X X X X X X X X	FB-02 (180-111740-1)		09:35		Water	Ê	-	×					-	
DUP-02 (180-11740-3)  DUP-02 (180-11740-3)  DUP-02 (180-11740-3)  Note: Since islocated by correlations are subject to charge. Euroffer, Test/merica places the coverance of Chain of Charlos and Institution of C	ARGWC.23 (180-111740-2)		11:58 astern		Water		-	×					1	
Note: Since shorters are subject to charge. Euroffer TestAmerica places the ownership of method, analyse & accreditation accreditations are subject to charge. Euroffer TestAmerica places the ownership of method, analyse & accreditation to the subject to charge. Euroffer TestAmerica places to the supplied to the subject to charge. Euroffer TestAmerica places to the supplied to the subject to charge the subject to the supplied to the subject to the subject to the supplied to the subject to the subj	DUP-02 (180-111740-3)		Eastern		Water	Î	-	×	F				-	
Hotel Since is blooms are subject to change, Eurofin's TestAmerica places the coverable of method, analyse & accretiosion compliance upon out subcornted absolutions. This sample shows the change are controlled in the State of Origin issisted above for analyses the coverable of method, the simple of the compliance upon out subcornted absolutions. This sample shows the control of the complete of t														
Note: Since is bocatory accreditations are subject to change, Eurefic TestAmerica places the connection of method, analytes & accreditation compliance sponsor for analytes because the care of change of changes and the care of changes and the changes are retained form.    Petroposis II. III. IV. Other (specify)														
Note: Since laboratory accreditations are subject to charge, Eurefins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample enhances a laboratory or other instructions will be provided. Any changes to accreditation in the State of Origin listed ablove for analysablests/marter being analysed. The samples must be shipped tack to the Eurefins TestAmerica alternation immediately. If all requested accreditations are current to date, return the signed Chain of Custody aftership to the Eurefins TestAmerica.  Possible Hazard Identification Unconfirmed Unconfirmed Deliverable Requested: I. II. III. IV. Other (specify) Primary Deliverable Rank: 2 Special Instructions/OC Requirements:    Date:														
Note: Since laboratory accreditations are subject to change. Eurofines Testylmentics places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody maintain accreditations in the State of Origin island above for analytic bestshimative being analyted best to the Eurofins Testylmencia.  Possible Hazard Identification Unconfirmed  Deliverable Requested: I.I.II. IV. Other (specify)  Primary Deliverable Rank: 2  Reinquished by:  Reinquish							7	1	1					
Note: Since laboratory accreditations are subject to change, Eurofins Test/America places the ownership of method, analyze & accreditation complains accreditations are subject to change. Eurofins Test/America alternations of the State of Origin is listed above for analyze hosts/matrix being analyzed, the samples the symple black to the Eurofins Test/America alternitions of the control of the samples are current to date, return the signed Chain of Custody attesting to said completes. Test/America alternitication  Possible Hazard Identification  Prossible H							1	1						
Arch (Specify) Primary Deliverable Rank: 2 Sample Disposal (A fee may be assessed if samples are retained and in the specific of Shipment:    Date:   Date:   Time:     Time:	Note: Since laboratory accreditations are subject to change. Eurofins Tests marrian accreditation in the State of Origin listed above for analysis/hests/. TestAmerica attention immediately. If all requested accreditations are curt	America places the ownership of matrix being analyzed, the samp rent to date, return the signed Ch	method, ana les must be s ain of Custoo	lyte & accred hipped back ly attesting to	tation complia to the Eurofins said complica	nce upon ou TestAmeric nce to Eurof	t subcontra a laborator ns TestAn	act laborator ry or other in nerica.	les. This sar structions wi	uple shipmen be provided	t is forward. Any chang	ed under char ges to accred	n-of-custody. If the tal	boratory does not current a brought to Eurofins
HI. IV. Other (specify) Primary Deliverable Rank: 2 Special Instructions/OC Requirements:    Date:	Possible Hazard Identification					Samp	le Dispo	osal (A f	se may be	assessed	if sampl	es are ret	ained longer than	1 month)
ED EX Date: Company Received by: FED EX Date: Date: Time: Company Received by: FED EX Date: Date: Time: Company Received by: Company Received by: Date: Time: Date	Dinconnent Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable	e Rank: 2			Speci	Return al Instruk	ro Client	Requirem	Disposal ants:	3y Lab		rchive For	Months
FED EX Date/Time:  Date/Time:  Date/Time:  Company Received by:  FED EX Date/Time:  Company Received by:  Company Received by:  Company Received by:  Company Received by:  Date/Time:  ate/Time: Date/Date/Date/Date/Date/Date/Date/Date/	Empty Kit Relinquished by:	Da	ite:			Time:	ı			Meth	od of Shipn	nent		
FED EX Desertime: Company Received by: Control	Reinquisted by:	5			(MCM)	1	ceived by:		E	1	Date	Time		Company
Date/Time: Company Received by:	-				ошрану	-	ALL	MAY	18	N. C	N Date	A Part	A BUSHOOF CALLETY	THE CH
	Reimquished by:	Date/Time:			Company	R	ceived by:			~		Time:		
	00					S	oler Temp	erature(s) "C	and Other	emarks				

Eurofins TestAmerica, Pittsburgh

Pittsburgh, PA 15238 Phone: 412-963-7058 Fax: 412-963-2468

Client Information (Sub Contract Lab)	Sampler			Brown,	Brown, Shali			3	Carrier Tracking No(s):	No(s):	180-41	COC No: 180-414270.1
Client Contact	Phone:			E-Mail:				35	State of Origin:		Page.	
Shipping/Receiving				Shall.	Shall.Brown@Eurofinset.com	Eurofins	et.com		Georgia		Page	Page 1 of 1
Company: TestAmerica Laboratories, Inc.				<	conditation	ns Requir	Accreditations Required (See note)	al.			Job #: 180-1	Job #: 180-111741-2
Address: 13715 Rider Trail North,	Due Date Requested: 11/3/2020						Ana	Analysis Requested	ested		Prese	opo
City Earth City State Zor	TAT Requested (days):				Kep LZ - (	pur					A-HCL B-NaC C-Zn D-Nm	Acetate c Acid
Prove. 314-298-8566(Tel) 314-298-8757(Fax)	PO#;	l				922-uun					F - MeCH G - Amchior	COH R-Na2S203
Email	WOR.			- N 30	(0)						_	Vater
Project Name: CCR - Plant Arkwright	Project #: 18020201			30,70	88 OF N						_	
Site: Arkwright	SSOW#.			lowe 5	A) as	ACC. Yes					oo too	
Sample Identification - Client ID (Lab ID)	Sample Date TI	Sample (C)	Sample Type (C=comp, o-G=grab) street	Matrix (weater, Sender, Owestender,	Field Filtered 5 Perform MS/M 9315_Ra226/Pre	6350 69558/b/e 6350 69558/b/e gecay	852-muibeA				Total Number	Special Instructions/Note:
	X	1	100									
ARAMW-2 (180-111741-1)	10/1/20 15	15:12 astem		Water	×	×	×				-	
ARGWC-21 (180-111741-2)	10/1/20	16:08	_	Water	×	×	×				•	
		-										
		+										
		1	1									
		1	1	1		1						
					=							
Note: Since laboratory acceditations are subject to change. Eurofirs TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontact laboratories. This sample shipmed tunder chain-of-custody. If the laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.	America places the ownership of me matrix being analyzed, the samples ent to date, return the signed Chain	ethod, analyti must be ship of Custody a	of method, analyte & accreditation compliance upon out subcontract lab moles must be shipped back to the Eurofins Test/menca laboratory or or Chain of Custody attesting to said complicance to Eurofins Test/menca.	n compliance e Eurofins Te s complicance	s upon out stAmerica e to Eurofin	Subcortes laborator is TestAm	ket laboratori y or other ins verca.	rs. This sample s tructions will be p	hipment is for rovided. Any o	varded under hanges to ac	chain-of-custody preditation status	of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently nities must be shipped back to the Eurofins TestAmenca laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Chain of Custody attesting to said complicance to Eurofins TestAmenca.
Possible Hazard Identification					Sampl	e Dispo	sal (A fe	se ag kem a	essed if sa	mples are	retained long	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed						Return 7	Return To Client	Disp	Disposal By Lab		Archive For	r Months
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	tank: 2			Specia	Instruc	tions/QC	Special Instructions/QC Requirements				
Empty Kit Relinquished by:	Date:			T	Time:				Method of Shipment	Shipment		
Reinquished by.	DateTime: /	150	Com	Company Company	-	Received by:		FEDEX		Date/Time:	100	Company
Reimquished by: FED EX	Date/Time		Company	pany		Je Land	M	(CANINA	www	LOGIJANEG	90	Main mind on
1 1	DateTime:		Company	yany	No.	Jing Day	3	7	5	Date/Time:		Company
Custody Seals Intact: Custody Seal No.:					Coo	ier Tempi	orature(s) "C	Cooler Temperature(s) "C and Other Remarks:	is,			
					+	1						OLD TO LEAD ON

Client: Southern Company Job Number: 180-111648-2

Login Number: 111648 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Watson, Debbie

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

Client: Southern Company Job Number: 180-111648-2

Login Number: 111648

List Source: Eurofins TestAmerica, St. Louis List Number: 2 List Creation: 10/03/20 12:56 PM

Creator: Boyd, Jacob C

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

Client: Southern Company

Job Number: 180-111648-2

Login Number: 111686

List Number: 1 Creator: Watson, Debbie List Source: Eurofins TestAmerica, Pittsburgh

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

Eurofins TestAmerica, Pittsburgh

Client: Southern Company Job Number: 180-111648-2

Login Number: 111686 List Number: 2 List Source: Eurofins TestAmerica, St. Louis

List Creation: 10/03/20 06:58 PM

Creator: Boyd, Jacob C

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

Client: Southern Company

Job Number: 180-111648-2

Login Number: 111740

List Number: 1

Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

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

Client: Southern Company Job Number: 180-111648-2

Login Number: 111740

List Source: Eurofins TestAmerica, St. Louis

List Number: 2

List Creation: 10/08/20 06:57 PM

Creator: Korrinhizer, Micha L

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

Client: Southern Company

Job Number: 180-111648-2

Login Number: 111741

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Say, Thomas C

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

Client: Southern Company Job Number: 180-111648-2

Login Number: 111741

List Source: Eurofins TestAmerica, St. Louis

List Number: 2

List Creation: 10/08/20 06:57 PM

Creator: Korrinhizer, Micha L

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

d Jankos Perene			Por Color Do	VSEC TO C		Pata (GWs)
Site Name	Plant	Ackins	ight AP2	Meisolifelo	CONTRACTOR OF STREET	
	Sample	Sample	Bullion	Equipment	l i	Date: 9/29/20-10/1/20
Well ID	Date	Time	Field Blank		Field Dup.	Additional C
ARGWA-19	9/29/20	1525			Heid Bup.	Additional Comments
ARGWA-20	9/30/20	1128			-	
EB-02	9/30/20	1220	-	EB-02		E . R. L. F. 1 . 1 . 1 . 1
ARGWC-22	9/30/20	1400		200		Equip Blank of tubing used with peristaltie pump
	9/30/20					
FB-02	10/1/20	0935	FB-02			Field Blank For Ash Pond 2 samples
ARGWC-23	10/1/20	1158				I ISTO DIENR TOF 113h FOND & Samples
	10/1/20				ARGW/-23	Duplicate of ARGWC-23 (PUP-02)
<u>ARAMW-2</u>	10/1/20	1312			71.15 - 270	Dupriesse of Michigan (BUT-02)
ARGWC-21	10/1/20	1608				
<del></del>						
	<u> </u>					
	: 					
	<del></del>					
	·					
	·					
0.1122						
Additional o	comments :	Equip B	lank EB-	02 was c	lected fr	and the HDPE tubing used with the peristaltic ASTM Type I/II RICCA Brand Lot # staken using ASTM Type I dejonized water
Dump,	ubing	上。十井12	759-05.	Reagent	water use	ASTM Type I/II RICCAB-and Lot#
4 003C	18, EX	2 8/2021	Field	Blank FI	3-02 was	staken using ASTM Type I deionized water
(7732-	18-5). F	field Bi	ank for	Hsh Pon	12.	7 //

. Ş.

` .

Date: 9/22/20	
Time: / 0 05	
Propared By: Danle	Howard
Checked By:	

Wood. Project No. 6122201429 Pine Sonde ID: 25467

Pine Handset ID: 51/369323

Battery Voltage %: 100

CALI	BRATION PRIC	R TO SAMPLING	}	
DISSOLVED OXYGEN (DO)				VALUE
Was DO membrane changed?	YesNo	Date:	Time:	
Current Air Temperature °C (meter reading):				19.7
Current Barometric Pressure (from Weather				
Channel or NOAA.gov, which is corrected to				
sea level):				
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. H	g x 25.4 = mm Hg; s	subtract 2.54 mm Hg for ever	у
enter into YSI DO calibration:	100 ft. above sea	level: 565/100 x 2.	54 = 14.4 mm Hg	759.1
Theoretical DO (mg/L) from DO table based				
on current temperature and elevation corrected				
pressure;				
DO concentration before Calibration (mg/L):	Depending on :	meter version, this	may not be available.	*
DO concentration after Calibration (mg/L):				194 8.60 8.1
% Recovery (actual/theory x 100)	Range is 90 to	110% Recovery		94,1
DO Charge (DO ch):	Acceptable Ran	ige is 25 to 75		
DO Gain (should be between -0.7 and 1.5):	Exit Calibratio	n menu and go to	Advanced/Cal Constants	1.0628
Note:				
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over from p	oH standards (i.e. pH bu	ffers are conductive)]	
Calibration standard used (mS/cm)	L0+0	GEH38 .	5/21	1.413
Temperature (°C)				20,4
Reading before Calibration (mS/cm)				1,394
Reading AFTER Calibration (mS/cm)				1.413
Conductivity Cell Constant (unitless):				1.0(7.3
Note: Be sure conductivity celt is submerged and free of hubb	oles (gently tap sonde	on table)		
pH				
pH 7.0 value before calibration:	Lot	16D808 1	4/22	7,84
pH 7.0 value after calibration:			21,200	7,02
pH 7.0 mV (range is -50 to +50 mV):				-50,3
pH 10 value before calibration:	[	060851	4/22	10.68
pH 10 value after calibration:			21.500	10.04
pH 10 mV (range is -130 to -230 mV):				-220,6
pH 4.0 value before calibration:	Fat	OGEHHI	イングン	4.97
pH 4.0 value after calibration:			2139	4.00
pH 4.0 mV (range is 130 to 230 mV):			**************************************	121.5
Note: Span between ph 4 and 7, and 7 and 10 should be betw	een 165 to 180 mV			
OXIDATION/REDUCTION POTENTIAL (	ORP)			
Calibration Temperature (°C):				19.4
Theoretical Calibration standard (mV)	0.231+0.0013(2	$(5-T) \times 1000 = mV$	(T is Temperature °C)	236
Reading before calibration (mV):				195,2
Reading after calibration (mV):				236
Note: mV theory will change with temperature	so calculate ba	sed on your curren	t temp.	
TURBIDITY Note: Lens wiper should be parked 180				
2 ONTU Turbidity Standard Lot A0013	Exp 4/2	Before C	al; After Cal;	119.9
100NTU Turbidity Standard トッナ月0031	Exa 5/2)	Before C		101
800 NTU Turbidity Standard Lot 14002;	8 ExaM121	Before C		793
16 NTU Turbidity Check STD Lot Acc	129 Exp 41	Before C		974
NTU Turbidity Check STD	7 "	Before C		<del></del>
CALIBRATION SUCCESSFUL?			- 11441	
		· · · · · · · · · · · · · · · · · · ·		

Date: 9-79-20
Time: -240
Prepared By: EVER GUILLEN
Checked By:

PinerSonde ID: 6/3229	
Pine Handset ID:	
Battery Voltage %: 100	

DISSOLVED OXYGEN (DO)					The state of the s	VALUE
Was DO membrane changed?	Yes	No a	Date:	Time:		
Current Air Temperature °C (meter reading):			A PARTY OF THE PROPERTY OF THE			22.50
Current Barometric Pressure (from Weather		<del>(</del>				· · · · · · · · · · · · · · · · · · ·
Channel or NOAA.gov, which is corrected to	٠.					
sea level):						
Elevation Corrected Barometric Pressure to	Ex.: 30.0	2 in. Hg x 25.4	i = mm Hg; sub	tract 2.54 m	m Hg for every	A 100 CONTRACTOR NO.
enter into YSI DO calibration:	100 ft. ab	ove sea level:	565/100 x 2.54	= 14.4 mm F	(g	749.Z
Theoretical DO (mg/L) from DO table based						
on current temperature and elevation corrected						
oressure:		d Theirne man no no ment & transmission.		THE SALE OF SALE		
OO concentration before Calibration (mg/L):	Dependir	ig on ineter v	version, this m	ay not be av	ailable.	857
OO concentration after Calibration (mg/L):						9.03
% Recovery (actual/theory x 100)		90 to 110%]				-
DO Charge (DO ch):		le Range is 2				
OO Gain (should be between -0.7 and 1.5):	Exit Cali	bration menu	and go to Ac	lvanced/Ca	Constants	
Note:						
CONDUCTIVITY [Note: Calibrate before pH to a	void carry-ove	a trom pH standa	uds (i.e. pH buffe	rs are conductiv	e)] -	
Calibration standard used (mS/cm)						1,413
emperature (°C)				7110		22.7
teading before Calibration (mS/cm)						1,432
leading AFTER Calibration (mS/cm)					-	1.913
Conductivity Cell Constant (unitless):						
lote: Be sure conductivity cell is submerged and free of bub	bles (gently ta	ip sonde on table	)			·
oH						T
H 7.0 value before calibration:					+.1	6.919
H 7.0 value after calibration:						7,02
H 7.0 mV (range is -50 to +50 mV):		tions de anixe de autor de	**************************************			5.6
pl 10 value before calibration:			10000			9,76
pH 10 value after calibration:						10.04
pH 10 mV (range is -130 to -230 mV):		Name of color or cance of				-165.1
H 4.0 value before calibration:						3,52
H 4.0 value after calibration:						4,00
H 4.0 mV (range is 130 to 230 mV):						2059
ote: Span between ph 4 and 7, and 7 and 10 should be betw DXIDATION/REDUCTION POTENTIAL (		10 mV				
alibration Temperature (°C):						21,2
heoretical Calibration standard (mV)	0.231+0.0	0013(2 <b>5</b> -T) x	1000 = inV	(T is Temp	erature °C)	228
eading before calibration (mV):			146 m			232,1
cading after calibration (mV):		ESAP PER PET PERSON APPENDICTOR OF STREET				234,0
ote: mV theory will change with temperature	, so calcul	ate based on	your current t	emp.		- eti a- aran aran aran Sancria Sansas
URBIDITY Note: Leus wiper should be parked 18						
NTU Turbidity Standard			Before Cal:	9.56	After Cal:	9,92
NTU Turbidity Standard			Before Cal:	_	After Cal:	19.97
00 NTU Turbidity Standard			Before Cal:	,	After Cal:	99,0
NTU Turbidity Check STD			Before Cal:		After Cal:	729
NTU Turbidity Check STD			Before Cal:	•	After Cal:	10,0

Date: 9-30	<u>~20</u>	
Time: 800		1
Prepared By:	EVER	GUILLER
Checked By:		

Pine Sonde ID:_	613229
Pine Handset ID	):
Battery Voltage	%: 100

DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	Yes No Date: Time:	
Current Air Temperature °C (meter reading):		15.30
Current Barometric Pressure (from Weather		
Channel or NOAA.gov, which is corrected to		•
sea level):		
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for every	
enter into YSI DO calibration:	100 ft, above sea level: $565/100 \times 2.54 = 14.4 \text{ mm Hg}$	754,2
Theoretical DO (mg/L) from DO table based		
on current temperature and elevation corrected		
oressure:		
DO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	10.32
DO concentration after Calibration (mg/L):		9,07
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	,
DO Charge (DO ch):	Acceptable Range is 25 to 75	_
OO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	-
Note:		
CONDUCTIVITY [Note: Calibrate before pH to av	roid carry-over from pH standards (i.e. pH buffers are conductive)]	
Calibration standard used (mS/cm)		(1413
Temperature (°C)	<u> </u>	16.8
Reading before Calibration (mS/cm)		1,481
Reading AFTER Calibration (mS/cm)		1,413
<del>-</del>		,,,,,,,
Conductivity Cell Constant (unitless):		lane.
Conductivity Cell Constant (unitless): Note: Be sure conductivity cell is submerged and free of bubb	bles (gently tan sonde on table)	-
Note: Be sure conductivity cell is submerged and free of bubb	bles (gently tap sonde on table)	
Note: Be sure conductivity cell is submerged and free of bubb H		F 7 4 2
Note: Be sure conductivity cell is submerged and free of bubbeh.  H 7.0 value before calibration:	bles (gently tap sonde on table)  6.97	
Note: Be sure conductivity cell is submerged and free of bubben H 7.0 value before calibration:  H 7.0 value after calibration:		7,02
Note: Be sure conductivity cell is submerged and free of bubbest of the part o		7.02 5.0
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration:  H 7.0 value after calibration:  H 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:		7,02 5,0 10,08
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration:  OH 7.0 value after calibration:  OH 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:  pH 10 value after calibration:		7,02 5,12 10.08 9,73
otc: Be sure conductivity cell is submerged and free of bubble H 7.0 value before calibration: H 7.0 value after calibration: H 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV):		7,02 5,0 10,08 9,73 -166.7
Note: Be sure conductivity cell is submerged and free of bubbest by the submerged and		7,02 5,0 10,08 9,73 -166.7 4,20
H 7.0 value before calibration: H 7.0 value after calibration: H 7.0 mV (range is -50 to +50 mV): pH 10 value after calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): H 4.0 value after calibration:		7.02 5.0 10.08 9.73 -166.7 4,20 4,00
Note: Be sure conductivity cell is submerged and free of bubbest of the first part o	6.92	7,02 5,0 10,08 9,73 -166.7 4,20
Note: Be sure conductivity cell is submerged and free of bubbe.  HH 7.0 value before calibration:  HH 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:  pH 10 value after calibration:  pH 10 mV (range is -130 to -230 mV):  HH 4.0 value before calibration:  HH 4.0 value after calibration:  HH 4.0 mV (range is 130 to 230 mV):  Ote: Span between ph 4 and 7, and 7 and 10 should be between	6,92 6,92 cen 165 to 180 mV	7.02 5.10 10.08 9.73 -166.7 4,20 4,00
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration:  H 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:  pH 10 value after calibration:  pH 10 mV (range is -130 to -230 mV):  H 4.0 value before calibration:  H 4.0 value after calibration:  H 4.0 mV (range is 130 to 230 mV):  ote: Span between ph 4 and 7, and 7 and 10 should be between the state of the state	6,92 6,92 cen 165 to 180 mV	7.02 5.10 10.08 9.73 -166.7 4,20 4,80 170.8
Note: Be sure conductivity cell is submerged and free of bubble  H 7.0 value before calibration: H 7.0 value after calibration: H 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): H 4.0 value before calibration: H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the state of	6,97.  cen 165 to 180 mV  ORP)	7.02 5.12 10.08 9.73 -166.7 4,20 4,80 170.8
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration: H 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): H 4.0 value before calibration: H 4.0 value before calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the calibration Temperature (°C): heoretical Calibration standard (mV)	6,92 6,92 cen 165 to 180 mV	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration:  H 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:  pH 10 value after calibration:  pH 10 mV (range is -130 to -230 mV):  H 4.0 value before calibration:  H 4.0 value after calibration:  H 4.0 mV (range is 130 to 230 mV):  ote: Span between ph 4 and 7, and 7 and 10 should be between the calibration Temperature (°C):  calibration Temperature (°C):  cheoretical Calibration standard (mV)  leading before calibration (mV):	6,97.  cen 165 to 180 mV  ORP)	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8 16,0 228 191,6
Hote: Be sure conductivity cell is submerged and free of bubble H 7.0 value before calibration: H 7.0 value after calibration: H 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 mV (range is -130 to -230 mV): H 4.0 value before calibration: H 4.0 value before calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the submatrice of the calibration of the calibration of the calibration of the calibration of the calibration of the calibration of the calibration of the calibration of the calibration (mV): deading after calibration (mV):	Cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8
Note: Be sure conductivity cell is submerged and free of bubbe.  HH 7.0 value before calibration: HH 7.0 value after calibration: HH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 mV (range is -130 to -230 mV): HH 4.0 value before calibration: HH 4.0 value after calibration: HH 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the state of the state of the calibration Temperature (°C): heoretical Calibration standard (mV) leading before calibration (mV): leading after calibration (mV): leading after calibration (mV):	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8
Interest of the sum of	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.  0 degrees from the optics.	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8 16,0 228 191,6
Interest of the sure conductivity cell is submerged and free of bubble of the part of the	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  s, so calculate based on your current temp.  0 degrees from the optics.  Before Cal: 10, 0 After Cal;	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8 16,0 228 191,6
Interest of the sure conductivity cell is submerged and free of bubble of the transfer of the	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.  degrees from the optics.  Before Cal: 10, 0 After Cal: Before Cal: 18, 8 After Cal:	7,02 5,0 10,08 9,73 -166.7 4,20 4,80 170.8 170.8 18,0 228 191,6
Note: Be sure conductivity cell is submerged and free of bubbe of the two parts of the two	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  s, so calculate based on your current temp.  0 degrees from the optics.  Before Cal: 10, 0 After Cal;	7,02 5,0 10,08 9,73 -1,66.7 4,20 4,80 170.8 170.8 191.6 228 191.6 228
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration:  OH 7.0 value after calibration:  OH 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:  pH 10 mV (range is -130 to -230 mV):  OH 4.0 value before calibration:  OH 4.0 value before calibration:  OH 4.0 value after calibration:  OH 4.0 mV (range is 130 to 230 mV):  Note: Span between ph 4 and 7, and 7 and 10 should be between the calibration of the control of the calibration of the calibration of the calibration of the calibration of the calibration femperature (°C):  Theoretical Calibration standard (mV):  Reading before calibration (mV):  Reading after calibration (mV):  Note: mV theory will change with temperature.  OURBIDITY Note: Lens wiper should be parked 180 of the calibration of the	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.  degrees from the optics.  Before Cal: 10, 0 After Cal: Before Cal: 18, 8 After Cal:	5 12 10.08 9173 -166.7 4,20 4,00 170.8 170.8 191,6 228 191,6 228
Note: Be sure conductivity cell is submerged and free of bubbe of the two persons of the	Con 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  3, so calculate based on your current temp.  O degrees from the optics.  Before Cal: 10.0 After Cal: Before Cal: 10.0 After Cal: Before Cal: 10.2 After Cal:	7,02 5,0 10.08 9,73 -166.7 4,20 4,00 170.8 170.8 191.6 228 191.6 228 191.6 10.0 18.1 101

Date: 10-1-20
Time: 800
Prepared By: EVER GUILLEN
Checked Ry

Pine Sonde ID: 613229
Pine Handset ID:
Battery Voltage %: 100

CALIF	BRATION PRIOR TO SAMPLING	
DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	Yes No Date: Time;	
Current Air Temperature °C (meter reading):		15.6
Current Barometric Pressure (from Weather		
Channel or NOAA.gov, which is corrected to		
sea level):		
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for every	
enter into YSI DO calibration:	100 ft. above sea level: 565/100 x 2.54 = 14.4 mm Hg	7541
Theoretical DO (mg/L) from DO table based		
on current temperature and elevation corrected		
pressure:		
DO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	9.84
DO concentration after Calibration (mg/L):		8,99
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	
DO Charge (DO ch):	Acceptable Range is 25 to 75	
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	
Note:		
	oid carry-over from pH standards (i.e. pH buffers are conductive)]	
Calibration standard used (mS/cm)		11413
Temperature (°C)		16.1
Reading before Calibration (mS/cm)		1.43
Reading AFTER Calibration (mS/cm)		1.413
Conductivity Cell Constant (unitless):		e7843
Note: Be sure conductivity cell is submerged and free of bubl	oles (gently tap sonde on table)	
$_{ m pH}$		
pH 7.0 value before calibration:	•	6.91
pH 7.0 value after calibration:		7,02
pH 7.0 mV (range is -50 to +50 mV):		5,2
pH 10 value before calibration:		9,74
pH 10 value after calibration:		10.08
pH 10 mV (range is -130 to -230 mV);		-167,0
pH 4.0 value before calibration:		4,22
pH 4.0 value after calibration:		4,00
pH 4.0 mV (range is 130 to 230 mV):		169,1
Note: Span between ph 4 and 7, and 7 and 10 should be between		
OXIDATION/REDUCTION POTENTIAL (	ORP)	
Calibration Temperature (°C);		16,7
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$ (T is Temperature °C)	228
Reading before calibration (mV):		237,7
Reading after calibration (mV):		240
Note: mV theory will change with temperature	, so calculate based on your current temp.	a the second second second second
TURBIDITY Note: Lens wiper should be purked 180	degrees from the optics.	
NTU Turbidity Standard	Before Cal: 10,9 After Cal;	9,96
NTUTurbidity Standard	Before Cal: 22,0 After Cal:	20,0
NTU Turbidity Standard	Before Cal: 99.5 After Cal:	99,4
NTU Turbidity Check STD	Before Cal: 791 After Cal:	801
NTU Turbidity Check STD	Before Cal: 9.96 After Cal:	9.97
CALIBRATION SUCCESSFUL?		VES
C. ALLENANCE I DO COLUMN VIII		YCZ

Date:_9	129	120		
Time: O	805	)		Λ
Prepared.	Ву:	Janel	How	ard
Checked	By:			

DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	Yes No Date: Time:	- The second School of the sec
Current Air Temperature °C (meter reading):	NAME OF THE PARTY	123,4
Current Barometric Pressure (from Weather		- Annual of the Control of the Contr
Channel or NOAA.gov, which is corrected to		
sea level):		<u> </u>
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. Hg x $25.4 = mm$ Hg; subtract $2.54$ mm Hg for every	
enter into YSI DO calibration:	100 ft. above sca level: 565/100 x 2.54 = 14.4 mm Hg	749,6
Theoretical DO (mg/L) from DO table based		4
on current temperature and elevation corrected	. "	
oressure:		- Transport ( ) (See College) ( ) (Transport ( )
OO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	
OO concentration after Calibration (mg/L):		17.76
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	92.4
OO Charge (DO ch):	Acceptable Range is 25 to 75	
OO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	
kote:		
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over from pH standards (i.e. pH buffers are conductive)]	
Calibration standard used (mS/cm)	Lot 1915 0155	L. 413
emperature (°C)	<b>,</b>	24,3
Reading before Calibration (mS/cm)		1.413
Reading AFTER Calibration (mS/cm)		1.413
Conductivity Cell Constant (unitless):		0,999
lote: Be sure conductivity cell is submerged and free of bubb	oles (gently tap sonde on table)	
)H		
H 7.0 value before calibration:	Lit 19340057 / 8/2021	17.09
H 7.0 value after calibration:	Lit 19340057 / 8/2021 25.0°C	7.00
H 7.0 mV (range is -50 to +50 mV):		1-3.5
pH 10 value before calibration:	Lot 19320102 / 8/2021	9,99
pH 10 value after calibration:	25,100	10.00
pH 10 mV (range is -130 to -230 mV):		776.8
H 4.0 value before calibration:	20010025 / 8/2021	4.13
H 4.0 value after calibration:	2450	21.00
H 4.0 mV (range is 130 to 230 mV):		170.
ote: Span between ph 4 and 7, and 7 and 10 should be between	een 165 to 180 mV	tur frageling Kristness
DXIDATION/REDUCTION POTENTIAL (	ORP)	
Calibration Temperature (°C):	Lot 19460167 18/2021	124.0
heoretical Calibration standard (mV)	0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)	230
leading before calibration (mV):		223.4
eading after calibration (mV):		230
ote: mV theory will change with temperature	so calculate based on your current temp.	CONTRACTOR AND ADDRESS OF THE PARTY.
URBIDITY Note: Lens wiper should be parked 180		,
NTU Turbidity Standard	Before Cal: After Cal:	1710
NTU Turbidity Standard	Before Cal: After Cal:	900
OO NTU Turbidity Standard Lat ANIS		
NTU Turbidity Check STD.	Before Cal: After Cal:	1-900
NTU Turbidity Check STD	Before Cal: After Cal:  Before Cal: After Cal:	
	inconstant tall.	а .

Date: 9/2930/20
Time: 0810
Prepared By: Daniel Howard
Checked By:

Wood. Project No. 6122201429 Pine Sonde ID:
Pine Handset ID: 541114
Battery Voltage %: 90

	BRATION PI	NOR TO S	AMPLING			
DISSOLVED OXYGEN (DO)						VALUE
Was DO membrane changed?	Yes	No_/	Date:	Time:		
Current Air Temperature °C (meter reading):		·	······································			133
Current Barometric Pressure (from Weather						
Channel or NOAA.gov, which is corrected to						i
sea level):						
Elevation Corrected Barometric Pressure to					ım Hg for every	/ <b></b>
enter into YSI DO calibration:	100 ft. above	sea level: 5	665/100 x 2.5	4 = 14.4 mm l	Hg	7.54.4
Theoretical DO (mg/L) from DO table based						
on current temperature and elevation corrected						1
pressure:	T. 11	·			14 1 1	
DO concentration before Calibration (mg/L):	Depending	on meter ve	ersion, this	may not be a	vailable.	
DO concentration after Calibration (mg/L):		44007				9,39
% Recovery (actual/theory x 100)	Range is 90		<u> </u>			904
DO Charge (DO ch):	Acceptable					· ·
DO Gain (should be between -0.7 and 1.5):	Exit Calibra	ition menu	and go to $\Lambda$	dvanced/Cal	Constants	1,1060
Note:	·					
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over fr				ve)]	
Calibration standard used (mS/cm)		Lot 1	<u>915015-</u>	<u>ა</u>		1,413
Γemperature (°C)						12.6
Reading before Calibration (mS/cm)						1.428
Reading AFTER Calibration (mS/cm)						1.413
Conductivity Cell Constant (unitless):						0.9893
Note: Be sure conductivity cell is submerged and free of bubl	oles (gently tap s	onde on table)			-	
oH						
oH 7.0 value before calibration:	Lo	1 1934	10057	18/2021 14.71		7.11
oH 7.0 value after calibration:			,	14.7	C	7.06
oH 7.0 mV (range is -50 to +50 mV):						-6.4
pH 10 value before calibration:		of 10	1320102			990
pH 10 value after calibration:		,, , , , · · ·	7.7.		14,6°C	10.08
pH 10 mV (range is -130 to -230 mV):						7776
oH 4.0 value before calibration:	[	770	010025	18/2		4.30
oH 4.0 value after calibration:					15,000	4,00
H 4.0 mV (range is 130 to 230 mV):						16504
Note: Span between ph 4 and 7, and 7 and 10 should be betw	een 165 to 180 n	ηV				_ <u></u>
OXIDATION/REDUCTION POTENTIAL (	ORP)					
Calibration Temperature (°C):	Lo	+ 1946	0167/	8/21		14.9
heoretical Calibration standard (mV)	<u>L_o</u> 0.231+0.001	3(25-T) x	1000 = mV	(T is Temp	perature °C)	242
Reading before calibration (mV):						233.2
						242
		***********				
Reading after calibration (mV):	. so calculate	based on y	our current	temp.		1 10
Reading after calibration (mV): Note: mV theory will change with temperature			our current	temp.		1 10 100
Reading after calibration (mV):  Note: mV theory will change with temperature  TURBIDITY Note: Lens wiper should be parked 180					After Cal	
Reading after calibration (mV): Note: mV theory will change with temperature TURBIDITY Note: Leus wiper should be parked 186 NTU Turbidity Standard			Before Ca	1:	After Cal;	19,4
Reading after calibration (mV):  Note: mV theory will change with temperature  TURBIDITY Note: Lens wiper should be parked 180  NTU Turbidity Standard  ON NTU Turbidity Standard	degrees from		Before Ca Before Ca	1: 1:	After Cal:	19,4
Reading after calibration (mV):  Note: mV theory will change with temperature TURBIDITY Note: Lens wiper should be parked 180    NTU Turbidity Standard   degrees from		Before Ca Before Ca Before Ca	1: 1: 1:	After Cal: After Cal:	19.4 102 808	
Reading after calibration (mV):  Note: mV theory will change with temperature FURBIDITY Note: Leus wiper should be parked 180  NTU Turbidity Standard  O NTU Turbidity Standard	degrees from		Before Ca Before Ca	1: 1: 1: 1:	After Cal:	19.4

Date: 10/1/23	
Time: 0800	1
Prepared By: Dane Howard	
Checked By:	

DISSOLVED OXYGEN (DO)

Was DO membrane changed?

sca level):

CONTINUES

Wood. Project No. 6122201429 Pine Sonde ID: Pine Handset ID: .54 Battery Voltage %:\_

VALUE

CALIBRATION PRIOR TO SAMPLING Yes Date: Time: Current Air Temperature °C (meter reading): Current Barometric Pressure (from Weather Channel or NOAA.gov, which is corrected to

Elevation Corrected Barometric Pressure to Ex.: 30.02 in. Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for every 754.3 enter into YSI DO calibration; 100 ft. above sea level: 565/100 x 2.54 = 14.4 mm Hg Theoretical DO (mg/L) from DO table based on current temperature and elevation corrected pressure: DO concentration before Calibration (mg/L): Depending on meter version, this may not be available. DO concentration after Calibration (mg/L):

% Recovery (actual/theory x 100) Range is 90 to 110% Recovery DO Charge (DO ch): Acceptable Range is 25 to 75 DO Gain (should be between -0.7 and 1.5): Exit Calibration menu and go to Advanced/Cal Constants

Note:

Calibration standard used (mS/cm)	Lot 19150155	11.413
Temperature (°C)		13,4
Reading before Calibration (mS/cm)		1,415
Reading AFTER Calibration (mS/cm)		1.413
Conductivity Cell Constant (unitless):		0,9984

Note: Be sure conductivity cell is submerged and free of bubbles (gently tap sonde on table)

pH	·	
pH 7.0 value before calibration:	Lot 19340057 / 8/2021	17.10
pH 7.0 value after calibration:	17.4° C	7.02
pH 7.0 mV (range is -50 to +50 mV):		-6.1
pH 10 value before calibration:	Lot 19320102 1 8/21	10.4
pH 10 value after calibration:	17.600	10.04
pH 10 mV (range is -130 to -230 mV):		778.8
pH 4.0 value before calibration:	Lot 20010025 / 8/21	4.25
pH 4.0 value after calibration:	17.81	4.00
pH 4.0 mV (range is 130 to 230 mV):		166.6

Note: Span between ph 4 and 7, and 7 and 10 should be between 165 to 180 mV

OXIDATION/REDUCTION POTENTIAL	(ORP)		
Calibration Temperature (°C):	Lot 19460167	18/21	17.6
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$	(T is Temperature °C)	239
Reading before calibration (mV):			230.E
Reading after calibration (mV):			239

Note: mV theory will change with temperature, so calculate based on your current temp.

<u>O</u> NTU Turbidity Standard	Before Cal:	After Cal: 2	3.2
<u>00</u> NTU Turbidity Standard	Before Cal:	After Cal: 1	05
NTU Turbidity Standard Lot A815.5	Before Cal:	After Cal:	30⊀
NTU Turbidity Check STD	Before Cal:	After Cal:	50
NTU Turbidity Check STD	Before Cal:	After Cal:	). ()

9.95

Date: 9/29/20 Time: 06:15
Prepared By: A Short DT; S
Checked By: MA

Wood. Project No. 6122201429

SMARTRALL MP Pine Sonde ID: 642533

Pine Handset ID: NA (Tablet)

Battery Voltage %: 100

Hach 21000 SIN 16110C053543

DISSOLVED OXYGEN (DO)	JICATI	ONTR	OKTO	SAMPLING			VALUE	]
Was DO membrane changed?	Yes		No_K	Date:	Time:_			1
Current Air Temperature °C (meter reading):							22.749	]
Current Barometric Pressure (from Weather								1
Channel or NOAA.gov, which is corrected to								
sea level):				<u> </u>				
Elevation Corrected Barometric Pressure to						4 mm Hg for every	-3.9.	
enter into YSI DO calibration;	100 ft.	above s	sea level:	565/100 x 2.	54 = 14.4  m	m Hg	٠٠١.	1
Theoretical DO (mg/L) from DO table based								4.5.
on current temperature and elevation corrected								7/29/
pressure:  DO concentration before Calibration (mg/L):	<u> </u>	11	<del></del>		. •		* . 6	I '
DO concentration after Calibration (mg/L):	Deper	iding o	n meter v	ersion, this	may not be	available.	8 48 29	
% Recovery (actual/theory x 100)	-	. 00	4400/3				8.49	100%
DO Charge (DO ch):			to 110% I					
L	·		lange is 2					
DO Gain (should be between -0.7 and 1.5):	Exit (	Jalibrat	ion menu	and go to	Advanced/C	Cal Constants		]
Note:	11			1 // TE1	·			1
CONDUCTIVITY [Note: Calibrate before pH to ave Calibration standard used (mS/cm)					· · · · · · · · · · · · · · · · · · ·		4 3 4.	 
Temperature (°C)	1	# 19	15015	5 %	Exp. NA	•	1,413	1
Reading before Calibration (mS/cm)						***************************************	23.55	
							1.464	ļ
Reading AFTER Calibration (mS/cm)				*****			1.413	
Conductivity Cell Constant (unitless):	<u> </u>						4	
Note: Be sure conductivity cell is submerged and free of bub	oles (gent	lly tap soi	nde on table					1
pH 7.0 value before calibration:	1 . 7	/ I (A	7160	1	رت. ورساس		Tanan and	1000
pH 7.0 value after calibration:	Co4:	A (7	3400	<u>5 7</u>	12,500.	08/21	7.04	23.8
<u>-</u>							200	1
pH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration:			<b>-</b> /				-2.4	ļ
	104	# 19	52010	32	PXP·C	38/2(	10.01	23.8
pH 10 value after calibration:	<b></b>				`		10.00	ł
pH 10 mV (range is -130 to -230 mV):		۔ ہے۔					-178.3	
pH 4.0 value before calibration:	Lot	A 21	00100	25	Exp. 0	8/21	4.01	23.2
pII 4.0 value after calibration:			*****		•		4,00	l
pH 4.0 mV (range is 130 to 230 mV):	<u> </u>						1727	
Note: Span between ph 4 and 7, and 7 and 10 should be betw OXIDATION/REDUCTION POTENTIAL (		180 m		8 mlr) =	No.		<i>F</i> [	1
Calibration Temperature (°C):	Lot		460		Exp. 0:	8121	23.20	
Theoretical Calibration standard (mV)				1000 = mV		mperature °C)		
Reading before calibration (mV):			<u> </u>		<u> </u>		225.1	
Reading after calibration (mV):							ZZ-8	
Note: mV theory will change with temperature	so cal	culate l	pased on	vour curren	t temp.		200	ı
TURBIDITY Note: Lens wiper should be parked 180	) degree	s from th	te optics.	,	· · · · · · · · · · · · · · · · · · ·			
TO NTU Turbidity Standard Lol # NA		Ear	·	Before C	al: 70.0	After Cal:	Z0.0	
100 NTU Turbidity Standard Lot # NA		Ezp	NN	Before C		After Cal:	101	
800 NTU Turbidity Standard Loft NA			NA		al: 797	After Cal:	805	
10 NTU Turbidity Check STD Lot # Ao		B.V.	11/21	Before C	•	After Cal:	10.5	
NTU Turbidity Check STD	_	. 9	•	Before C		After Cal:	10.5	
CALIBRATION SUCCESSFUL?				201010 0		rinoi Car,		

SMARTROLL MP Pine Sonde ID: 642533 Pine Handset ID: \_\_\_\_\_\_\_\_ Battery Voltage %: 100
Hach 21000 S/N (6(100053543

Date: 9/30/2020 Time: 07:30 Prepared By: A. SHOREDAS Checked By: NA

CALIBRATION PRIOR TO SAMPLING
-------------------------------

DISSOLVED OXYGEN (DO)							VALUE	
Was DO membrane changed?	Yes	No	×	Date:	Time:			
Current Air Temperature °C (meter reading):							ナナヤー	16
Current Barometric Pressure (from Weather							67 11	
Channel or NOAA.gov, which is corrected to							-92mmH	\$
sea level):								
Elevation Corrected Barometric Pressure to						mm Hg for every		
enter into YSI DO calibration:	100 ft. ab	ove sea l	level: 50	55/100 x 2.	54 ≃ 14.4 mm	Hg		
Theoretical DO (mg/L) from DO table based								
on current temperature and elevation corrected	ļ							
pressure:	ļ							
DO concentration before Calibration (mg/L):	Dependi	ng on m	neter ver	rsion, this	may not be	available.	10.4	100
DO concentration after Calibration (mg/L):					*****		9.42	100.
% Recovery (actual/theory x 100)	Range is							ļ
DO Charge (DO ch):	Acceptal							
DO Gain (should be between -0.7 and 1.5):	Exit Cal	ibration	menu a	nd go to	Advanced/Ca	al Constants		
Note:								-
CONDUCTIVITY [Note: Calibrate before pH to av					ffers are conduct	tive)]		
Calibration standard used (mS/cm)	Cot #	± 1915	5015	5	Far. NE	].	1.413	a
Γemperature (°C)							12.8	9/
Reading before Calibration (mS/cm)							1389Z	1.4
Reading AFTER Calibration (mS/cm)							1413	ר ו
Conductivity Cell Constant (unitless):								ĺ
Note: Be sure conductivity cell is submerged and free of bubl	oles (gently t	tap sonde c	on table)	.,	,		<u> </u>	•
pH						· .		1
pH 7.0 value before calibration;	LotH	1932	4005	` <del>`</del> }	Exp. 08	121	7.66	
pH 7.0 value after calibration:			1 -				7.00	
pH 7.0 mV (range is -50 to +50 mV):							-3.7	1
pH 10 value before calibration:	Lot#	1932	0107	7	5.cp 08/	721	9.92	
pH 10 value after calibration:	3 2 7 30			-	7.00		10.00	
pH 10 mV (range is -130 to -230 mV):							-177.5	9
of I 4.0 value before calibration:	Lof#	2001	10005	<sub>[</sub>	ar 08/2		4.56	ľ
oH 4.0 value after calibration:	LOTA	2.00	<u>00//5</u>	1	-y. 00/.	<u> </u>	4.00	
oH 4.0 mV (range is 130 to 230 mV):							175.3	
Note: Span between ph 4 and 7, and 7 and 10 should be betw	cen 165 to 1	80 mV	<del></del>					
OXIDATION/REDUCTION POTENTIAL (		*	776	mV)				}
Calibration Temperature (°C):	Lol H	1946			Ex0.08/	1-2 1	15.89	
Theoretical Calibration standard (mV)	, , , ,			$\frac{T}{000} = m$		perature °C)	12.X	
Reading before calibration (mV):	0.2331.0.	0013(20	J 1 / K 1		(1 15 1011	iperature c)	239.0	ļ
Reading after calibration (mV):			<del></del>		······································			
	1	1 . 1			····		228.0	
Note: mV theory will change with temperature TURBIDITY Note: Lens wiper should be parked 180				our curren	t temp.			
5 4 3 TOTA O 1 1 () - C - C - C - C - C - C - C - C - C -				D C C	. ما	40 01		
NTU Turbidity Standard Loff WA	المخط	PNA		Before C		After Cal:	<u> 20:3-</u>	14.7
100 NTU Turbidity Standard Loft NA 800 NTU Turbidity Standard Loft NA	t= all	A/A	L	Before C		After Cal:	99.1	
500 NIU lurbidity Standard Lot # NA	o pac	<u> </u>		Before C		After Cal:	793	
LA STORT OF LIVE OF A SOURCE & CAS A LOS.		H	19 /	13 ( (	20.02	After Cal:	1 1 1 1 1	
10 NIU Turbidity Check SID LOFA AVV	-6 F	E249. 11	401	Before C			10.5	
NTU Turbidity Check STD Loit 402. NTU Turbidity Check STD CALIBRATION SUCCESSFUL?		- 342. ((	1/41	Before C		After Cal:	[0.2	

Date: 09/34/2020 Time: 07:40 Prepared By: A.SHOLEDITS

Checked By: NA

#### Wood. Project No. 6122201429

SMARTROLLMP
Pine Sonde ID: <u>64253'3</u>
Pine Handset ID: <u>NA</u>
Battery Voltage %: 100
Hach 2100@S/N 16110c053543

DISSOLVED OXYGEN (DO)	SKATION	N PRIOR TO	SAMPLIN	<u>'</u>		VALUE	7
Was DO membrane changed?	Yes	No 💢	Date:	Time:		YALUE	1
Current Air Temperature °C (meter reading):	1 62	NO IX.	Date	1 fine:		1	1
Current Barometric Pressure (from Weather						·	┨
Channel or NOAA.gov, which is corrected to						-8.4 mm	He
sea level):						Gretari	]
Elevation Corrected Barometric Pressure to	Ex : 30 (	02 in Hg x 25	4 = mm Ho	subtract 2 54	mm Hg for every		ł
enter into YSI DO calibration:		_		2,54 ≔ 14,4 mm		ł	
Theoretical DO (mg/L) from DO table based							1
on current temperature and elevation corrected							1
pressure:							
DO concentration before Calibration (mg/L):	Dependi	ing on meter	version, thi	is may not be	availab <b>l</b> e.	9.16	یږ
DO concentration after Calibration (mg/L):	1		,,			9 34	10
% Recovery (actual/theory x 100)	Range is	s 90 to 110%	Recovery			1 100	1
DO Charge (DO ch):		ble Range is					1
DO Gain (should be between -0.7 and 1.5):				Advanced/Ca	al Constants		1
Note:	1 232						1
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-ov	er from pH stan	dards (i.e, pH b	uffers are conduct	tive)]		1
Calibration standard used (mS/cm)		£ 1915 01		Bug NA		1.413	1
Temperature (°C)	<i></i>	<u>~ 1 /1 ;5 0 (</u>	<u> </u>	7=343. 70 %	V.	14,26	1
Reading before Calibration (mS/cm)		• • • • • • • • • • • • • • • • • • • •		<del>,</del>		1.402	ł
Reading AFTER Calibration (mS/cm)						1.416	1
Conductivity Cell Constant (unitless):						-	1
Note: Be sure conductivity cell is submerged and free of bubl	oles (gently t	tap sonde on tab	le)				I
pH							1
pH 7.0 value before calibration:	601 H	193400	57	For 08	121	7.07	1
pH 7.0 value after calibration:		<del></del>	.** - [			7.00	1
pH 7.0 mV (range is -50 to +50 mV):				1-17-11		401	f
pH 10 value before calibration:	Lof #	193201	0.3	Exp 08/		9.94	18
pH 10 value after calibration:	, ,,,,		- Lat	7		10.00	`
pH 10 mV (range is -130 to -230 mV):						-178.4	1
pH 4.0 value before calibration:	Lot #	200 100	25	Exp 08/	121	4.02	17
pH 4.0 value after calibration:			<u> </u>	1		4.00	
pH 4.0 mV (range is 130 to 230 mV):						168-7	i
Note: Span between ph 4 and 7, and 7 and 10 should be betw	een 165 to 1	80 mV				· · · ·	
OXIDATION/REDUCTION POTENTIAL (	ORP) /g	std 22	8 ml)				
Calibration Temperature (°C):	201H	194601	67	Pap 08/1	21	18.17	1
Theoretical Calibration standard (mV)	0.231+0.	.0013(25-T)	x 1000 = m	V (I is Tem	nperature °C)	~	
Reading before calibration (mV):					, , , , , , , , , , , , , , , , , , ,	223.6	1
Reading after calibration (mV):			<del></del>	· · · · · · · · · · · · · · · · · · ·		728	1
Note: mV theory will change with temperature	, so calcu	late based or	your curre	nt temp.			•
TURBIDITY Note: Lens wiper should be parked 18							ŀ
Zo NTU Turbidity Standard Luft NA	[Enp	MA	Before (	Cal: 20.4	After Cal:	19.9	
100 NTU Turbidity Standard Lot # NA	קינד	NA		Cal: (03	After Cal:	48	
NTU Turbidity Standard Lot # NA 800 NTU Turbidity Standard 20+# NA	એત્લ	NA		Cal: 8/11	After Cal:	775	
10 NTU Turbidity Check STD Lot # A0	226 E	xp.11/21		Cal: 10,5	After Cal:	9.79	
		•		•			I
NTU Turbidity Check STD			Before (	Cal:	After Cal:	i	Í

Date: 9-79-20
Time: -240
Prepared By: EVER GUILLEN
Checked By:

PinerSonde ID: 6/3229	
Pine Handset ID:	
Battery Voltage %: 100	

DISSOLVED OXYGEN (DO)					The state of the s	VALUE
Was DO membrane changed?	Yes	No a	Date:	Time:		
Current Air Temperature °C (meter reading):			A PARTY OF THE PROPERTY OF THE			22.50
Current Barometric Pressure (from Weather		<del>(</del>				· · · · · · · · · · · · · · · · · · ·
Channel or NOAA.gov, which is corrected to	٠.					
sea level):						
Elevation Corrected Barometric Pressure to	Ex.: 30.0	2 in. Hg x 25.4	i = mm Hg; sub	tract 2.54 m	m Hg for every	A 100 CO. CO. CO. CO. CO. CO. CO. CO. CO. CO.
enter into YSI DO calibration:	100 ft. ab	ove sea level:	565/100 x 2.54	= 14.4 mm F	(g	749.Z
Theoretical DO (mg/L) from DO table based						
on current temperature and elevation corrected						
oressure:		d Theirne man no no ment & transmission.		THE SALE OF SALE		
OO concentration before Calibration (mg/L):	Dependir	ig on ineter v	version, this m	ay not be av	ailable.	857
OO concentration after Calibration (mg/L):						9.03
% Recovery (actual/theory x 100)		90 to 110%]				-
DO Charge (DO ch):		le Range is 2				
OO Gain (should be between -0.7 and 1.5):	Exit Cali	bration menu	and go to Ac	lvanced/Ca	Constants	
Note:						
CONDUCTIVITY [Note: Calibrate before pH to a	void carry-ove	er from pH standa	uds (i.e. pH buffe	rs are conductiv	e)] -	
Calibration standard used (mS/cm)						1,413
emperature (°C)				7110		22.7
leading before Calibration (mS/cm)						1,432
leading AFTER Calibration (mS/cm)					-	1.913
Conductivity Cell Constant (unitless):						
lote: Be sure conductivity cell is submerged and free of bub	bles (gently ta	ip sonde on table	)			·
oH						T
H 7.0 value before calibration:					+.1	6.919
H 7.0 value after calibration:						7,02
H 7.0 mV (range is -50 to +50 mV):		tions are areas of access of	**************************************			5.6
pl 10 value before calibration:			10000			9,76
pH 10 value after calibration:						10.04
pH 10 mV (range is -130 to -230 mV):		Name of color or cance of				-165.1
H 4.0 value before calibration:						3,52
H 4.0 value after calibration:						4,00
H 4.0 mV (range is 130 to 230 mV):						2059
ote: Span between ph 4 and 7, and 7 and 10 should be betw DXIDATION/REDUCTION POTENTIAL (		10 mV				
alibration Temperature (°C):						21,2
heoretical Calibration standard (mV)	0.231+0.0	0013(2 <b>5</b> -T) x	1000 = inV	(T is Temp	erature °C)	228
eading before calibration (mV):			146 m			232,1
cading after calibration (mV):		ESAP PER PET PERSON APPENDICATE STORY				234,0
ote: mV theory will change with temperature	, so calcul	ate based on	your current t	emp.		- eti a- aran aran aran Sancria Sansas
URBIDITY Note: Leus wiper should be parked 18						
NTU Turbidity Standard			Before Cal:	9.56	After Cal:	9,92
NTU Turbidity Standard			Before Cal:	_	After Cal:	19.97
00 NTU Turbidity Standard			Before Cal:	,	After Cal:	99,0
NTU Turbidity Check STD			Before Cal:		After Cal:	729
NTU Turbidity Check STD			Before Cal:	•	After Cal:	10,0

Date: 9-30	<u>~20</u>	
Time: 800		1
Prepared By:	EVER	GUILLER
Checked By:		

Pine Sonde ID:_	613229
Pine Handset ID	):
Battery Voltage	%: 100

DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	Yes No Date: Time:	
Current Air Temperature °C (meter reading):		15.30
Current Barometric Pressure (from Weather		
Channel or NOAA.gov, which is corrected to		•
sea level):		
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for every	
enter into YSI DO calibration:	100 ft, above sea level: $565/100 \times 2.54 = 14.4 \text{ mm Hg}$	754,2
Theoretical DO (mg/L) from DO table based		
on current temperature and elevation corrected		
oressure:		
DO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	10.32
DO concentration after Calibration (mg/L):		9,07
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	,
DO Charge (DO ch):	Acceptable Range is 25 to 75	_
OO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	-
Note:		
CONDUCTIVITY [Note: Calibrate before pH to av	roid carry-over from pH standards (i.e. pH buffers are conductive)]	
Calibration standard used (mS/cm)		(1413
Temperature (°C)	<u> </u>	16.8
Reading before Calibration (mS/cm)		1,481
Reading AFTER Calibration (mS/cm)		1,413
<del>-</del>		,,,,,,,
Conductivity Cell Constant (unitless):		lane.
Conductivity Cell Constant (unitless): Note: Be sure conductivity cell is submerged and free of bubb	bles (gently tan sonde on table)	-
Note: Be sure conductivity cell is submerged and free of bubb	bles (gently tap sonde on table)	
Note: Be sure conductivity cell is submerged and free of bubb H		F 7 4 2
Note: Be sure conductivity cell is submerged and free of bubbeh.  H 7.0 value before calibration:	bles (gently tap sonde on table)  6.97	
Note: Be sure conductivity cell is submerged and free of bubben H 7.0 value before calibration:  H 7.0 value after calibration:		7,02
Note: Be sure conductivity cell is submerged and free of bubbest of the part o		7.02 5.0
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration:  H 7.0 value after calibration:  H 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:		7,02 5,0 10,08
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration:  OH 7.0 value after calibration:  OH 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:  pH 10 value after calibration:		7,02 5,12 10.08 9,73
otc: Be sure conductivity cell is submerged and free of bubble H 7.0 value before calibration: H 7.0 value after calibration: H 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV):		7,02 5,0 10,08 9,73 -166.7
Note: Be sure conductivity cell is submerged and free of bubbest by the submerged and		7,02 5,0 10,08 9,73 -166.7 4,20
H 7.0 value before calibration: H 7.0 value after calibration: H 7.0 mV (range is -50 to +50 mV): pH 10 value after calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): H 4.0 value after calibration:		7.02 5.0 10.08 9.73 -166.7 4,20 4,00
Note: Be sure conductivity cell is submerged and free of bubbest of the first part o	6.92	7,02 5,0 10,08 9,73 -166.7 4,20
Note: Be sure conductivity cell is submerged and free of bubbe.  HH 7.0 value before calibration:  HH 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:  pH 10 value after calibration:  pH 10 mV (range is -130 to -230 mV):  HH 4.0 value before calibration:  HH 4.0 value after calibration:  HH 4.0 mV (range is 130 to 230 mV):  Ote: Span between ph 4 and 7, and 7 and 10 should be between	6,92 6,92 cen 165 to 180 mV	7.02 5.10 10.08 9.73 -166.7 4,20 4,00
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration:  H 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:  pH 10 value after calibration:  pH 10 mV (range is -130 to -230 mV):  H 4.0 value before calibration:  H 4.0 value after calibration:  H 4.0 mV (range is 130 to 230 mV):  ote: Span between ph 4 and 7, and 7 and 10 should be between the state of the state	6,92 6,92 cen 165 to 180 mV	7.02 5.10 10.08 9.73 -166.7 4,20 4,80 170.8
Note: Be sure conductivity cell is submerged and free of bubble  H 7.0 value before calibration: H 7.0 value after calibration: H 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): H 4.0 value before calibration: H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the state of	6,97.  cen 165 to 180 mV  ORP)	7.02 5.12 10.08 9.73 -166.7 4,20 4,80 170.8
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration: H 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): H 4.0 value before calibration: H 4.0 value before calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the calibration Temperature (°C): heoretical Calibration standard (mV)	6,92 6,92 cen 165 to 180 mV	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration:  H 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:  pH 10 value after calibration:  pH 10 mV (range is -130 to -230 mV):  H 4.0 value before calibration:  H 4.0 value after calibration:  H 4.0 mV (range is 130 to 230 mV):  ote: Span between ph 4 and 7, and 7 and 10 should be between the calibration Temperature (°C):  calibration Temperature (°C):  cheoretical Calibration standard (mV)  leading before calibration (mV):	6,97.  cen 165 to 180 mV  ORP)	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8 16,0 228 191,6
Hote: Be sure conductivity cell is submerged and free of bubble H 7.0 value before calibration: H 7.0 value after calibration: H 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 mV (range is -130 to -230 mV): H 4.0 value before calibration: H 4.0 value before calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the submatrice of the calibration of the calibration of the calibration of the calibration of the calibration of the calibration of the calibration of the calibration of the calibration (mV): deading after calibration (mV):	Cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8
Note: Be sure conductivity cell is submerged and free of bubbe.  HH 7.0 value before calibration: HH 7.0 value after calibration: HH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 mV (range is -130 to -230 mV): HH 4.0 value before calibration: HH 4.0 value after calibration: HH 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the state of the state of the calibration Temperature (°C): heoretical Calibration standard (mV) leading before calibration (mV): leading after calibration (mV): leading after calibration (mV):	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8
Interest of the sum of	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.  0 degrees from the optics.	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8 16,0 228 191,6
Interest of the sure conductivity cell is submerged and free of bubble of the part of the	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  s, so calculate based on your current temp.  0 degrees from the optics.  Before Cal: 10, 0 After Cal;	7,02 5,0 10,08 9,73 -166.7 4,20 4,00 170.8 16,0 228 191,6
Interest of the sure conductivity cell is submerged and free of bubble of the transfer of the	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.  degrees from the optics.  Before Cal: 10, 0 After Cal: Before Cal: 18, 8 After Cal:	7,02 5,0 10,08 9,73 -166.7 4,20 4,80 170.8 170.8 18,0 228 191,6
Note: Be sure conductivity cell is submerged and free of bubbe of the two parts of the two	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  s, so calculate based on your current temp.  0 degrees from the optics.  Before Cal: 10, 0 After Cal;	7,02 5,0 10,08 9,73 -1,66.7 4,20 4,80 170.8 170.8 191.6 228 191.6 228
Note: Be sure conductivity cell is submerged and free of bubbe.  H 7.0 value before calibration:  OH 7.0 value after calibration:  OH 7.0 mV (range is -50 to +50 mV):  pH 10 value before calibration:  pH 10 mV (range is -130 to -230 mV):  OH 4.0 value before calibration:  OH 4.0 value before calibration:  OH 4.0 value after calibration:  OH 4.0 mV (range is 130 to 230 mV):  Note: Span between ph 4 and 7, and 7 and 10 should be between the calibration of the control of the calibration of the calibration of the calibration of the calibration of the calibration femperature (°C):  Theoretical Calibration standard (mV):  Reading before calibration (mV):  Reading after calibration (mV):  Note: mV theory will change with temperature.  OURBIDITY Note: Lens wiper should be parked 180 of the calibration of the	cen 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.  degrees from the optics.  Before Cal: 10, 0 After Cal: Before Cal: 18, 8 After Cal:	5 12 10.08 9173 -166.7 4,20 4,00 170.8 170.8 191,6 228 191,6 228
Note: Be sure conductivity cell is submerged and free of bubbe of the two persons of the	Con 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  3, so calculate based on your current temp.  O degrees from the optics.  Before Cal: 10.0 After Cal: Before Cal: 10.0 After Cal: Before Cal: 10.2 After Cal:	7,02 5,0 10.08 9,73 -166.7 4,20 4,00 170.8 170.8 191.6 228 191.6 228 191.6 10.0 18.1 101

Date: 10-1-20
Time: 800
Prepared By: EVER GUILLEN
Checked Ry

Pine Sonde ID: 613229
Pine Handset ID:
Battery Voltage %: 100

CALIF	BRATION PRIOR TO SAMPLING	
DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	Yes No Date: Time;	
Current Air Temperature °C (meter reading):		15.6
Current Barometric Pressure (from Weather		
Channel or NOAA.gov, which is corrected to		
sea level):		
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for every	
enter into YSI DO calibration:	100 ft. above sea level: 565/100 x 2.54 = 14.4 mm Hg	7541
Theoretical DO (mg/L) from DO table based		
on current temperature and elevation corrected		
pressure:		
DO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	9.84
DO concentration after Calibration (mg/L):		8,99
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	
DO Charge (DO ch):	Acceptable Range is 25 to 75	
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	
Note:		
	oid carry-over from pH standards (i.e. pH buffers are conductive)]	
Calibration standard used (mS/cm)		11413
Temperature (°C)		16.1
Reading before Calibration (mS/cm)		1.43
Reading AFTER Calibration (mS/cm)		1.413
Conductivity Cell Constant (unitless):		e7843
Note: Be sure conductivity cell is submerged and free of bubl	oles (gently tap sonde on table)	
$_{ m pH}$		
pH 7.0 value before calibration:	•	6.91
pH 7.0 value after calibration:		7,02
pH 7.0 mV (range is -50 to +50 mV):		5,2
pH 10 value before calibration:		9,74
pH 10 value after calibration:		10.08
pH 10 mV (range is -130 to -230 mV);		-167,0
pH 4.0 value before calibration:		4,22
pH 4.0 value after calibration:		4,00
pH 4.0 mV (range is 130 to 230 mV):		169,1
Note: Span between ph 4 and 7, and 7 and 10 should be between		
OXIDATION/REDUCTION POTENTIAL (	ORP)	
Calibration Temperature (°C);		16,7
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$ (T is Temperature °C)	228
Reading before calibration (mV):		237,7
Reading after calibration (mV):		240
Note: mV theory will change with temperature	, so calculate based on your current temp.	a the second second second second
TURBIDITY Note: Lens wiper should be purked 180	degrees from the optics.	
NTU Turbidity Standard	Before Cal: 10,9 After Cal;	9,96
NTUTurbidity Standard	Before Cal: 22,0 After Cal:	20,0
NTU Turbidity Standard	Before Cal: 99.5 After Cal:	99,4
NTU Turbidity Check STD	Before Cal: 791 After Cal:	801
NTU Turbidity Check STD	Before Cal: 9.96 After Cal:	9.97
CALIBRATION SUCCESSFUL?		VES
C. ALLENANCE I DO COLUMN VIII		YCZ

Date:_9	129	120		
Time: O	805	)		Λ
Prepared.	Ву:	Janel	How	ard
Checked	By:			

DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	Yes No Date: Time:	- The second School of the sec
Current Air Temperature °C (meter reading):	NAME OF THE PARTY	123,4
Current Barometric Pressure (from Weather		- Annual of the Control of the Contr
Channel or NOAA.gov, which is corrected to		
sea level):		<u> </u>
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. Hg x $25.4 = mm$ Hg; subtract $2.54$ mm Hg for every	
enter into YSI DO calibration:	100 ft. above sca level: 565/100 x 2.54 = 14.4 mm Hg	749,6
Theoretical DO (mg/L) from DO table based		4
on current temperature and elevation corrected	. "	
oressure:		- Transport ( ) (See College) ( ) (Transport ( )
OO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	
OO concentration after Calibration (mg/L):		17.76
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	92.4
OO Charge (DO ch):	Acceptable Range is 25 to 75	
OO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	
kote:		
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over from pH standards (i.e. pH buffers are conductive)]	
Calibration standard used (mS/cm)	Lot 1915 0155	L. 413
emperature (°C)	· ·	24,3
Reading before Calibration (mS/cm)		1.413
Reading AFTER Calibration (mS/cm)		1.413
Conductivity Cell Constant (unitless):		0,999
lote: Be sure conductivity cell is submerged and free of bubb	oles (gently tap sonde on table)	
)H		
H 7.0 value before calibration:	Lit 19340057 / 8/2021	17.09
H 7.0 value after calibration:	Lit 19340057 / 8/2021 25.0°C	7.00
H 7.0 mV (range is -50 to +50 mV):		1-3.5
pH 10 value before calibration:	Lot 19320102 / 8/2021	9,99
pH 10 value after calibration:	25,100	10.00
pH 10 mV (range is -130 to -230 mV):		776.8
H 4.0 value before calibration:	20010025 / 8/2021	4.13
H 4.0 value after calibration:	2450	21.00
H 4.0 mV (range is 130 to 230 mV):		170.
ote: Span between ph 4 and 7, and 7 and 10 should be between	een 165 to 180 mV	tur frageling Kristness
DXIDATION/REDUCTION POTENTIAL (	ORP)	
Calibration Temperature (°C):	Lot 19460167 18/2021	124.0
heoretical Calibration standard (mV)	0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)	230
leading before calibration (mV):		223.4
eading after calibration (mV):		230
ote: mV theory will change with temperature	so calculate based on your current temp.	CONTRACTOR AND ADDRESS OF THE PARTY.
URBIDITY Note: Lens wiper should be parked 180		,
NTU Turbidity Standard	Before Cal: After Cal:	1710
NTU Turbidity Standard	Before Cal: After Cal:	900
OO NTU Turbidity Standard Lat ANIS		
NTU Turbidity Check STD.	Before Cal: After Cal:	1-900
NTU Turbidity Check STD	Before Cal: After Cal:  Before Cal: After Cal:	
	inconstant tall.	а .

Date: 9/2930/20
Time: 0810
Prepared By: Daniel Howard
Checked By:

Wood. Project No. 6122201429 Pine Sonde ID:
Pine Handset ID: 541114
Battery Voltage %: 90

	BRATION PI	NOR TO S	AMPLING			
DISSOLVED OXYGEN (DO)						VALUE
Was DO membrane changed?	Yes	No_/	Date:	Time:		
Current Air Temperature °C (meter reading):		·	······································			133
Current Barometric Pressure (from Weather						
Channel or NOAA.gov, which is corrected to						i
sea level):						
Elevation Corrected Barometric Pressure to					ım Hg for every	/ <b></b>
enter into YSI DO calibration:	100 ft. above	sea level: 5	665/100 x 2.5	4 = 14.4 mm l	Hg	7.54.4
Theoretical DO (mg/L) from DO table based						
on current temperature and elevation corrected						1
pressure:	T. 11	·			14 1 1	
DO concentration before Calibration (mg/L):	Depending	on meter ve	ersion, this	may not be a	vailable.	
DO concentration after Calibration (mg/L):		44007				9,39
% Recovery (actual/theory x 100)	Range is 90		<u> </u>			904
DO Charge (DO ch):	Acceptable					· ·
DO Gain (should be between -0.7 and 1.5):	Exit Calibra	ition menu	and go to $\Lambda$	dvanced/Cal	Constants	1,1060
Note:	·					
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over fr				ve)]	
Calibration standard used (mS/cm)		Lot 1	<u>915015-</u>	<u>ა</u>		1,413
Γemperature (°C)						12.6
Reading before Calibration (mS/cm)						1.428
Reading AFTER Calibration (mS/cm)						1.413
Conductivity Cell Constant (unitless):						0.9893
Note: Be sure conductivity cell is submerged and free of bubl	oles (gently tap s	onde on table)			-	
oH						
oH 7.0 value before calibration:	Lo	1 1934	10057	18/2021 14.71		7.11
oH 7.0 value after calibration:			,	14.7	C	7.06
oH 7.0 mV (range is -50 to +50 mV):						-6.4
pH 10 value before calibration:		of 10	1320102			990
pH 10 value after calibration:		,, , , , · · ·	7.7.		14,6°C	10.08
pH 10 mV (range is -130 to -230 mV):						7776
oH 4.0 value before calibration:	[	770	010025	18/2		4.30
oH 4.0 value after calibration:					15,000	4,00
H 4.0 mV (range is 130 to 230 mV):						16504
Note: Span between ph 4 and 7, and 7 and 10 should be betw	een 165 to 180 n	ηV				_ <u></u>
OXIDATION/REDUCTION POTENTIAL (	ORP)					
Calibration Temperature (°C):	Lo	+ 1946	0167/	8/21		14.9
heoretical Calibration standard (mV)	<u>L_o</u> 0.231+0.001	3(25-T) x	1000 = mV	(T is Temp	perature °C)	242
Reading before calibration (mV):						233.2
						242
		***********				
Reading after calibration (mV):	. so calculate	based on y	our current	temp.		1 10
Reading after calibration (mV): Note: mV theory will change with temperature			our current	temp.		1 10 100
Reading after calibration (mV):  Note: mV theory will change with temperature  TURBIDITY Note: Lens wiper should be parked 180					After Cal	
Reading after calibration (mV): Note: mV theory will change with temperature TURBIDITY Note: Leus wiper should be parked 186 NTU Turbidity Standard			Before Ca	1:	After Cal;	19,4
Reading after calibration (mV):  Note: mV theory will change with temperature  TURBIDITY Note: Lens wiper should be parked 180  NTU Turbidity Standard  ON NTU Turbidity Standard	degrees from		Before Ca Before Ca	1: 1:	After Cal:	19,4
Reading after calibration (mV):  Note: mV theory will change with temperature TURBIDITY Note: Lens wiper should be parked 180    NTU Turbidity Standard   degrees from		Before Ca Before Ca Before Ca	1: 1: 1:	After Cal: After Cal:	19.4 102 808	
Reading after calibration (mV):  Note: mV theory will change with temperature FURBIDITY Note: Leus wiper should be parked 180  NTU Turbidity Standard  O NTU Turbidity Standard	degrees from		Before Ca Before Ca	1: 1: 1: 1:	After Cal:	19.4

Date: 10/1/23	
Time: 0800	1
Prepared By: Dane Howard	
Checked By:	

DISSOLVED OXYGEN (DO)

Was DO membrane changed?

sca level):

CONTINUES

Wood. Project No. 6122201429 Pine Sonde ID: Pine Handset ID: .54 Battery Voltage %:\_

VALUE

CALIBRATION PRIOR TO SAMPLING Yes Date: Time: Current Air Temperature °C (meter reading): Current Barometric Pressure (from Weather Channel or NOAA.gov, which is corrected to

Elevation Corrected Barometric Pressure to Ex.: 30.02 in. Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for every 754.3 enter into YSI DO calibration; 100 ft. above sea level: 565/100 x 2.54 = 14.4 mm Hg Theoretical DO (mg/L) from DO table based on current temperature and elevation corrected pressure: DO concentration before Calibration (mg/L): Depending on meter version, this may not be available. DO concentration after Calibration (mg/L):

% Recovery (actual/theory x 100) Range is 90 to 110% Recovery DO Charge (DO ch): Acceptable Range is 25 to 75 DO Gain (should be between -0.7 and 1.5): Exit Calibration menu and go to Advanced/Cal Constants

Note:

Calibration standard used (mS/cm)	Lot 19150155	11.413
Temperature (°C)		13,4
Reading before Calibration (mS/cm)		1,415
Reading AFTER Calibration (mS/cm)		1.413
Conductivity Cell Constant (unitless):		0,9984

Note: Be sure conductivity cell is submerged and free of bubbles (gently tap sonde on table)

pH	·	
pH 7.0 value before calibration:	Lot 19340057 / 8/2021	17.10
pH 7.0 value after calibration:	17.4° C	7.02
pH 7.0 mV (range is -50 to +50 mV):		-6.1
pH 10 value before calibration:	Lot 19320102 1 8/21	10.4
pH 10 value after calibration:	17.600	10.04
pH 10 mV (range is -130 to -230 mV):		778.8
pH 4.0 value before calibration:	Lot 20010025 / 8/21	4.25
pH 4.0 value after calibration:	17.81	4.00
pH 4.0 mV (range is 130 to 230 mV):		166.6

Note: Span between ph 4 and 7, and 7 and 10 should be between 165 to 180 mV

OXIDATION/REDUCTION POTENTIAL	(ORP)		
Calibration Temperature (°C):	Lot 19460167	18/21	17.6
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$	(T is Temperature °C)	239
Reading before calibration (mV):			230.E
Reading after calibration (mV):			239

Note: mV theory will change with temperature, so calculate based on your current temp.

<u>O</u> NTU Turbidity Standard	Before Cal:	After Cal: 2	3.2
<u>00</u> NTU Turbidity Standard	Before Cal:	After Cal: 1	05
NTU Turbidity Standard Lot A815.5	Before Cal:	After Cal:	30⊀
NTU Turbidity Check STD	Before Cal:	After Cal:	50
NTU Turbidity Check STD	Before Cal:	After Cal:	). ()

9.95

Date: 9/29/20 Time: 06:15
Prepared By: A Short DT; S
Checked By: MA

Wood. Project No. 6122201429

SMARTRALL MP Pine Sonde ID: 642533

Pine Handset ID: NA (Tablet)

Battery Voltage %: 100

Hach 21000 SIN 16110C053543

DISSOLVED OXYGEN (DO)	JICATI	ONTR	OKTO	SAMPLING			VALUE	]
Was DO membrane changed?	Yes		No_K	Date:	Time:_			1
Current Air Temperature °C (meter reading):							22.749	]
Current Barometric Pressure (from Weather								1
Channel or NOAA.gov, which is corrected to								
sea level):				<u> </u>				
Elevation Corrected Barometric Pressure to						4 mm Hg for every	-3.9.	
enter into YSI DO calibration;	100 ft.	above s	sea level:	565/100 x 2.	54 = 14.4  m	m Hg	-2.[	1
Theoretical DO (mg/L) from DO table based								4.5.
on current temperature and elevation corrected								7/29/
pressure:  DO concentration before Calibration (mg/L):	<u> </u>	11	<del></del>		. •		* . 6	I '
DO concentration after Calibration (mg/L):	Deper	iding o	n meter v	ersion, this	may not be	available.	8 48 29	
% Recovery (actual/theory x 100)	-	. 00	440073				8.49	100%
DO Charge (DO ch):			to 110% I					
L	·		lange is 2					
DO Gain (should be between -0.7 and 1.5):	Exit C	Jalibrat	ion menu	and go to	Advanced/C	Cal Constants		]
Note:	11			1 // TE1	·			1
CONDUCTIVITY [Note: Calibrate before pH to ave Calibration standard used (mS/cm)					· · · · · · · · · · · · · · · · · · ·		4 3 4.	 
Temperature (°C)	1	# 19	15015	5 %	Exp. NA	•	1,413	1
Reading before Calibration (mS/cm)						***************************************	23.55	
							1.464	ļ
Reading AFTER Calibration (mS/cm)				*****			1.413	
Conductivity Cell Constant (unitless):	<u> </u>						4	
Note: Be sure conductivity cell is submerged and free of bub	oles (gent	lly tap soi	nde on table					1
pH 7.0 value before calibration:	1 . 7	/ I (A	7160	1	رت. ورساس		Tanan and	1000
pH 7.0 value after calibration:	Co4:	A (7	3400	<u>5 7</u>	12,500.	08/21	7.04	23.8
<u>-</u>							200	1
pH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration:			<b>-</b> /				-2.4	ļ
	104	# 19	52010	32	PXP·C	38/2(	10.01	23.8
pH 10 value after calibration:	<b></b>				`		10.00	ł
pH 10 mV (range is -130 to -230 mV):		۔ ہے۔					-178.3	
pH 4.0 value before calibration:	Lot	A 21	00100	25	Exp. 0	8/21	4.01	23.2
pII 4.0 value after calibration:			*****		•		4,00	l
pH 4.0 mV (range is 130 to 230 mV):	<u> </u>						1727	
Note: Span between ph 4 and 7, and 7 and 10 should be betw OXIDATION/REDUCTION POTENTIAL (		180 m		8 mlr) =	No.		<i>F</i> [	1
Calibration Temperature (°C):	Lot		460		Exp. 0:	8121	23.20	
Theoretical Calibration standard (mV)				1000 = mV		mperature °C)		
Reading before calibration (mV):			<u> </u>		<u> </u>		225.1	
Reading after calibration (mV):							ZZ-8	
Note: mV theory will change with temperature	so cal	culate l	pased on	vour curren	t temp.		200	ı
TURBIDITY Note: Lens wiper should be parked 180	) degree	s from th	te optics.	,	· · · · · · · · · · · · · · · · · · ·			
TO NTU Turbidity Standard Lol # NA		Ear	·	Before C	al: 70.0	After Cal:	Z0.0	
100 NTU Turbidity Standard Lot # NA		Ezp	NN	Before C		After Cal:	101	
800 NTU Turbidity Standard Loft NA			NA		al: 797	After Cal:	805	
10 NTU Turbidity Check STD Lot # Ao		B.V.	11/21	Before C	•	After Cal:	10.5	
NTU Turbidity Check STD	_	. 9	•	Before C		After Cal:	10.5	
CALIBRATION SUCCESSFUL?				201010 0		rinoi Car,		

SMARTROLL MP Pine Sonde ID: 642533 Pine Handset ID: \_\_\_\_\_\_\_\_ Battery Voltage %: 100
Hach 21000 S/N (6(100053543

Date: 9/30/2020 Time: 07:30 Prepared By: A. SHOREDAS Checked By: NA

CALIBRATION PRIOR TO SAMPLING
-------------------------------

DISSOLVED OXYGEN (DO)							VALUE	
Was DO membrane changed?	Yes	No	×	Date:	Time:			
Current Air Temperature °C (meter reading):							ナナヤー	16
Current Barometric Pressure (from Weather							67 11	
Channel or NOAA.gov, which is corrected to							-92mmH	\$
sea level):								
Elevation Corrected Barometric Pressure to						mm Hg for every		
enter into YSI DO calibration:	100 ft. ab	ove sea l	level: 50	55/100 x 2.	54 ≃ 14.4 mm	Hg		
Theoretical DO (mg/L) from DO table based								
on current temperature and elevation corrected	ļ							
pressure:	ļ							
DO concentration before Calibration (mg/L):	Dependi	ng on m	neter ver	rsion, this	may not be	available.	10.4	100
DO concentration after Calibration (mg/L):					*****		9.42	100.
% Recovery (actual/theory x 100)	Range is							ļ
DO Charge (DO ch):	Acceptal							
DO Gain (should be between -0.7 and 1.5):	Exit Cal	ibration	menu a	nd go to	Advanced/Ca	al Constants		
Note:								-
CONDUCTIVITY [Note: Calibrate before pH to av					ffers are conduct	tive)]		
Calibration standard used (mS/cm)	Cot #	± 1915	5015	5	Far. NE	].	1.413	a
Γemperature (°C)							12.8	9/
Reading before Calibration (mS/cm)							1389Z	1.4
Reading AFTER Calibration (mS/cm)							1413	ר ו
Conductivity Cell Constant (unitless):								ĺ
Note: Be sure conductivity cell is submerged and free of bubl	oles (gently t	tap sonde c	on table)	.,	,		<u> </u>	•
pH						· .		1
pH 7.0 value before calibration;	LotH	1932	4005	` <del>`</del> }	Exp. 08	121	7.66	
pH 7.0 value after calibration:			1				7.00	
pH 7.0 mV (range is -50 to +50 mV):							-3.7	1
pH 10 value before calibration:	Lot#	1932	0107	7	5.cp 08/	721	9.92	
pH 10 value after calibration:	3 2 7 30			-	7.00		10.00	
pH 10 mV (range is -130 to -230 mV):							-177.5	9
of I 4.0 value before calibration:	Lof#	2001	10005	<sub>[</sub>	ar 08/2	-	4.56	ľ
oH 4.0 value after calibration:	LOTA	2.00	<u>00//5</u>	1	-y. 00/.	<u> </u>	4.00	
oH 4.0 mV (range is 130 to 230 mV):							175.3	
Note: Span between ph 4 and 7, and 7 and 10 should be betw	cen 165 to 1	80 mV	<del></del>					
OXIDATION/REDUCTION POTENTIAL (		*	776	mV)				}
Calibration Temperature (°C):	Lol H	1946			Ex0.08/	1-2 1	15.89	
Theoretical Calibration standard (mV)	, , , ,			$\frac{T}{000} = m$		perature °C)	12.X	
Reading before calibration (mV):	0.2331.0.	0013(20	J 1 / K 1		(1 15 1011	iperature c)	239.0	ļ
Reading after calibration (mV):			<del></del>		······································			
	1	1 . 1	1		····		228.0	
Note: mV theory will change with temperature TURBIDITY Note: Lens wiper should be parked 180				our curren	t temp.			
5 4 3 TOTA O 1 1 () - C - C - C - C - C - C - C - C - C -				D C C	. ما	40 01		
NTU Turbidity Standard Loff WA	المخط	PNA		Before C		After Cal:	<u> 20:3-</u>	14.7
100 NTU Turbidity Standard Loft NA 800 NTU Turbidity Standard Loft NA	t= all	A/A	L	Before C		After Cal:	99.1	
500 NIU lurbidity Standard Lot # NA	o pac	<u> </u>		Before C		After Cal:	793	
LA STORT OF LIVE OF A SOURCE & CAS A LOS.		H	19 /	13 ( (	20.02	After Cal:	1 1 1 1 1	
10 NIU Turbidity Check SID LOFA AVV	-6 F	E249. 11	401	Before C			10.5	
NTU Turbidity Check STD Loit 402. NTU Turbidity Check STD CALIBRATION SUCCESSFUL?		- 342. ((	1/41	Before C		After Cal:	[0.2	

Date: 09/34/2020 Time: 07:40 Prepared By: A.SHOLEDITS

Checked By: NA

#### Wood. Project No. 6122201429

SMARTROLLMP
Pine Sonde ID: <u>64253'3</u>
Pine Handset ID: <u>NA</u>
Battery Voltage %: 100
Hach 2100@S/N 16110c053543

DISSOLVED OXYGEN (DO)	SKATION	N PRIOR TO	SAMPLIN	<u>'</u>		VALUE	7
Was DO membrane changed?	Yes	No 💢	Date:	Time:		YALUE	1
Current Air Temperature °C (meter reading):	1 62	NO IA.	Date	1 fine:		1	1
Current Barometric Pressure (from Weather						·	┨
Channel or NOAA.gov, which is corrected to						-8.4 mm	He
sea level):						Gretari	]
Elevation Corrected Barometric Pressure to	Ex : 30 (	02 in Hg x 25	4 = mm Ho	subtract 2 54	mm Hg for every		ł
enter into YSI DO calibration:		_		2,54 ≔ 14,4 mm		ł	
Theoretical DO (mg/L) from DO table based							1
on current temperature and elevation corrected							1
pressure:							
DO concentration before Calibration (mg/L):	Dependi	ing on meter	version, thi	is may not be	availab <b>l</b> e.	9.16	یږ
DO concentration after Calibration (mg/L):	1		,,			9 34	10
% Recovery (actual/theory x 100)	Range is	s 90 to 110%	Recovery			1 100	1
DO Charge (DO ch):		ble Range is					1
DO Gain (should be between -0.7 and 1.5):				Advanced/Ca	al Constants		1
Note:	1 232						1
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-ov	er from pH stan	dards (i.e, pH b	uffers are conduct	tive)]		1
Calibration standard used (mS/cm)		£ 1915 01		Bug NA		1.413	1
Temperature (°C)	<i></i>	<u>~ 1 /1 ;5 0 (</u>	<u> </u>	7=343. 70 %	V.	14,26	1
Reading before Calibration (mS/cm)		• • • • • • • • • • • • • • • • • • • •		<del>,</del>		1.402	ł
Reading AFTER Calibration (mS/cm)						1.416	1
Conductivity Cell Constant (unitless):						-	1
Note: Be sure conductivity cell is submerged and free of bubl	oles (gently t	tap sonde on tab	le)				I
pH							1
pH 7.0 value before calibration:	601 H	193400	57	For 08	121	7.07	1
pH 7.0 value after calibration:		<del></del>	.** - [			7.00	1
pH 7.0 mV (range is -50 to +50 mV):				1-17-11		401	f
pH 10 value before calibration:	Lof #	193201	0.3	Exp 08/		9.94	18
pH 10 value after calibration:	, ,,,,		- Lat	7		10.00	`
pH 10 mV (range is -130 to -230 mV):						-178.4	1
pH 4.0 value before calibration:	Lot #	200 100	25	Exp 08/	121	4.02	17
pH 4.0 value after calibration:			<u> </u>	1		4.00	
pH 4.0 mV (range is 130 to 230 mV):						168-7	i
Note: Span between ph 4 and 7, and 7 and 10 should be betw	een 165 to 1	80 mV				· · · ·	
OXIDATION/REDUCTION POTENTIAL (	ORP) /g	std 22	8 ml)				
Calibration Temperature (°C):	201H	194601	67	Pap 08/1	21	18.17	1
Theoretical Calibration standard (mV)	0.231+0.	.0013(25-T)	x 1000 = m	V (I is Tem	nperature °C)	~	
Reading before calibration (mV):						223.6	1
Reading after calibration (mV):			<del></del>	· · · · · · · · · · · · · · · · · · ·		728	1
Note: mV theory will change with temperature	, so calcu	late based or	your curre	nt temp.			•
TURBIDITY Note: Lens wiper should be parked 18							ŀ
Zo NTU Turbidity Standard Luft NA	[Enp	MA	Before (	Cal: 20.4	After Cal:	19.9	
100 NTU Turbidity Standard Lot # NA	קינד	NA		Cal: (03	After Cal:	48	
NTU Turbidity Standard Lot # NA 800 NTU Turbidity Standard 20+# NA	એત્લ	NA		Cal: 8/11	After Cal:	775	
10 NTU Turbidity Check STD Lot # A0	226 E	xp.11/21		Cal: 10,5	After Cal:	9.79	
		•		•			I
NTU Turbidity Check STD			Before (	Cal:	After Cal:	i	Í

Date: 2020-09-22 15:54:27

Project Information:

Operator Name Daniel Howard
Company Name Wood E&IS
Project Name Plant Arkwright AP2 CCR

Site Name ARGWC-22

Latitude O° 0' 0"

Longitude O° 0' 0"

Sonde SN 369323

Turbidity Make/Model Hach 2100Q

Pump Information:

Pump Model/Type Peristaltic
Tubing Type HDPE
Tubing Diameter .17 in
Tubing Length 27.8 ft

Pump placement from TOC

22.8 ft

Well Information:

Well IDARGWC-22Well diameter2 inWell Total Depth27.77 ftScreen Length10 ftDepth to Water13.03 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2140832 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 0.02 in
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS/	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	15:30:45	600.03	20.01	5.78	1538.02	1.41	13.29	0.18	5.04
Last 5	15:35:45	900.02	19.89	5.78	1545.14	1.35	13.29	0.16	2.02
Last 5	15:40:45	1200.03	19.75	5.78	1539.72	1.19	13.31	0.14	0.58
Last 5	15:45:45	1500.02	19.61	5.77	1537.47	1.10	13.31	0.14	0.55
Last 5	15:50:45	1800.02	19.56	5.77	1536.29	0.74	13.31	0.13	0.05
Variance 0			-0.14	0.00	-5.42			-0.01	-1.44
Variance 1			-0.13	-0.00	-2.25			-0.01	-0.03
Variance 2			-0.05	-0.00	-1.18			-0.00	-0.50

Notes

ARGWC-22 sample time 1552

Date: 2020-09-22 17:24:06

Peristaltic

HDPE

.17 in

28.1 ft

Project Information:

Operator Name

Daniel Howard

Pump Information:

Pump Model/Type

Company Name Wood E&IS Tubing Type
Project Name Plant Arkwright AP2 CCR Tubing Diameter
Site Name ARGWC-23 Tubing Length

Site Name ARGWC-23
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 369323

Turbidity Make/Model Hach 2100Q Pump placement from TOC 23.1 ft

Well Information: Pumping Information:

Final Pumping Rate 100 mL/min Well ID ARGWC-23 Well diameter Total System Volume 0.2154222 L 2 in Calculated Sample Rate Well Total Depth 28.11 ft 300 sec Stabilization Drawdown Screen Length 10 ft 0.2 in Depth to Water 11.76 ft **Total Volume Pumped** 3.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	16:59:54	900.13	21.84	6.28	482.29	6.68	12.91	0.39	104.04
Last 5	17:04:54	1200.13	21.73	6.28	481.44	5.68	12.97	0.28	104.22
Last 5	17:09:54	1500.13	21.71	6.28	481.55	4.39	12.97	0.32	101.18
Last 5	17:14:54	1800.13	21.84	6.29	482.31	3.36	12.93	0.35	100.02
Last 5	17:19:54	2100.13	21.82	6.29	482.74	3.53	12.91	0.33	97.30
Variance 0			-0.03	0.00	0.11			0.05	-3.04
Variance 1			0.14	0.00	0.76			0.03	-1.17
Variance 2			-0.03	0.00	0.44			-0.03	-2.71

Notes: DUP-01 also collected

ARGWC-23 sample time 1722

Date: 2020-09-30 15:56:32

Pump Information:

Pump Model/Type

Tubing Diameter

Tubing Length

**Tubing Type** 

**Project Information:** 

Operator Name Daniel Howard Company Name Wood E&IS

Project Name Plant Arkwright CCR AP2
Site Name ARAMW-1

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 541714

Turbidity Make/Model Hach 2100Q

Pump placement from TOC

40.3 ft

HDPE

.17 in

45.3 ft

Peristaltic pump

Well Information:

Well IDARAMW-1Well diameter2 inWell Total Depth45.32 ftScreen Length10 ftDepth to Water13.39 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.682193 L
Calculated Sample Rate 300 sec
Stabilization Drawdown
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	15:34:24	600.03	20.59	6.21	780.10	0.68	13.76	0.16	105.54
Last 5	15:39:24	900.03	20.50	6.22	780.53	1.78	13.76	0.16	105.53
Last 5	15:44:24	1200.00	20.52	6.19	775.81	1.12	13.76	0.18	108.70
Last 5	15:49:24	1500.02	20.46	6.18	769.31	0.42	13.76	0.17	107.72
Last 5	15:54:24	1800.02	20.41	6.16	768.24	0.09	13.76	0.17	109.28
Variance 0			0.02	-0.03	-4.72			0.02	3.18
Variance 1			-0.06	-0.01	-6.50			-0.00	-0.99
Variance 2			-0.05	-0.02	-1.07			0.00	1.56

Notes

ARAMW-1 sample time 1556

Date: 2020-10-01 15:13:03

Project Information:

Pump Information:
I Howard Pump Model/Type

Operator Name Daniel Howard
Company Name Wood E&IS
Project Name Plant Arkwright CCR AP2

Pump Model/Type Alexis Peristaltic pump
Tubing Type HDPE
Tubing Diameter .17 in
Tubing Length 24.9 ft

Site Name ARAMW-2
Latitude 0° 0' 0"

0, 0, 0,

Sonde SN 541714 Turbidity Make/Model Hach 2100Q

Pump placement from TOC 19.8 ft

Well Information:

Longitude

Well ID

rmation: Pumping Information: ARAMW-2 Final Pumping Rate

Well diameter 2 in
Well Total Depth 24.84 ft
Screen Length 10 ft
Depth to Water 13.58 ft

Final Pumping Rate 200 mL/min
Total System Volume 0.5911392 L
Calculated Sample Rate 300 sec
Stabilization Drawdown
Total Volume Pumped 15 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	14:49:21	3300.00	23.04	5.98	686.00	7.17	13.68	0.30	99.18
Last 5	14:54:21	3600.00	23.00	5.98	685.98	6.83	13.68	0.27	99.42
Last 5	14:59:21	3900.03	22.94	5.97	709.23	5.17	13.68	0.30	99.33
Last 5	15:04:21	4200.01	22.96	5.97	721.53	4.64	13.68	0.29	98.28
Last 5	15:09:21	4499.98	22.87	5.96	711.48	4.04	13.68	0.26	98.14
Variance 0			-0.07	-0.01	23.26			0.03	-0.09
Variance 1			0.02	0.00	12.29			-0.01	-1.05
Variance 2			-0.09	-0.01	-10.05			-0.03	-0.14

Notes

ARAMW-2 sample time 1512

Date: 2020-09-29 15:27:14

Project Information:

Daniel Howard

Pump Model/Type Tubing Type QED Micropurge dedicated

Company Name Project Name Site Name

Operator Name

Wood E&IS
Plant Arkwright CCR AP2

Tubing Type
Tubing Diameter

Pump Information:

HDPE .25 in

Latitude

0° 0' 0"

ARGWA-19

Tubing Diamete Tubing Length

.25 in 52.8 ft

Longitude Sonde SN

541714

Hach 2100Q

Pump placement from TOC

47.74 ft

Well Information:

Turbidity Make/Model

Well ID
Well diameter
Well Total Depth
Screen Length
Depth to Water

ARGWA-19 2 in 52.74 ft 10 ft

26.6 ft

Pumping Information:

Final Pumping Rate
Total System Volume
Calculated Sample Rate
Stabilization Drawdown
Total Volume Pumped

200 mL/min 0.9896642 L

300 sec 0 in 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	15:03:49	600.02	19.44	5.84	169.59	1.00	26.62	3.08	103.23
Last 5	15:08:49	900.02	19.48	5.84	168.58	0.78	26.61	3.08	104.61
Last 5	15:13:49	1200.02	19.58	5.82	167.64	0.23	26.61	3.08	106.00
Last 5	15:18:49	1500.01	19.43	5.83	166.70	0.20	26.61	3.10	107.16
Last 5	15:23:49	1800.01	19.48	5.83	166.77	0.18	26.61	3.12	108.19
Variance 0			0.10	-0.01	-0.94			0.00	1.40
Variance 1			-0.14	0.01	-0.94			0.02	1.15
Variance 2			0.05	-0.00	0.06			0.02	1.03

Notes

ARGWA-19 sample time 1525

Date: 2020-09-30 11:30:45

Project Information:

Operator Name

Company Name

Project Name

Daniel Howard Wood E&IS

Plant Arkwright CCR AP2

Site Name ARGWA-20
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714

Turbidity Make/Model Hach 2100Q

Well Information:

Well ID ARGWA-20
Well diameter 2 in
Well Total Depth 37.7 ft
Screen Length 10 ft
Depth to Water 14.24 ft

Pump Information:

Pump Model/Type QED Micropurge dedicated Tubing Type HDPE Tubing Diameter .25 in

Tubing Diameter .25 in Tubing Length 37.7 ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.843908 L
Calculated Sample Rate 300 sec
Stabilization Drawdown
Total Volume Pumped 4.75 L

32.7 ft

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	S/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilizatio	n		+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	11:06:42	600.02	18.05	5.64	130.13	7.27	14.38	5.54	66.89
Last 5	11:11:42	900.02	18.10	5.64	130.17	4.23	14.38	5.57	67.80
Last 5	11:16:42	1200.02	18.14	5.65	130.23	4.37	14.38	5.59	68.95
Last 5	11:21:42	1500.01	18.17	5.64	130.22	3.60	14.38	5.56	70.68
Last 5	11:26:42	1800.01	18.22	5.65	130.37	4.66	14.38	5.55	72.36
Variance 0			0.04	0.00	0.06			0.02	1.15
Variance 1			0.02	-0.01	-0.02			-0.03	1.73
Variance 2			0.06	0.00	0.15			-0.01	1.68

Notes

ARGWA-20 sample time 1128

Date: 2020-10-01 16:09:15

Project Information:

Daniel Howard Wood E&IS

Pump Information: Pump Model/Type QED Micropurge dedicated

Operator Name Company Name Project Name

Plant Arkwright CCR AP2

HDPE **Tubing Type** Tubing Diameter .25 in Tubing Length 27 ft

Site Name ARGWC-21 0° 0' 0" Latitude 0° 0' 0" Longitude Sonde SN

541714

Turbidity Make/Model

Hach 2100Q Pump placement from TOC

22 ft

Well Information:

Well ID Well diameter Well Total Depth Screen Length Depth to Water

ARGWC-21 2 in 26.98 ft 10 ft 14.12 ft

**Pumping Information:** 

Final Pumping Rate 200 mL/min Total System Volume 0.7406238 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	·		/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	15:46:50	900.03	20.72	6.00	699.66	7.91	14.48	0.24	109.57
Last 5	15:51:50	1200.02	20.65	6.00	697.92	4.86	14.48	0.20	110.58
Last 5	15:56:50	1500.02	20.61	5.99	697.71	3.17	14.48	0.19	111.70
Last 5	16:01:50	1800.02	20.59	6.00	697.15	3.13	14.48	0.18	112.43
Last 5	16:06:50	2100.01	20.55	5.99	697.05	2.39	14.48	0.17	113.37
Variance 0			-0.04	-0.00	-0.21			-0.01	1.13
Variance 1			-0.02	0.00	-0.55			-0.01	0.72
Variance 2			-0.04	-0.00	-0.10			-0.01	0.94

Notes

ARGWC-21 sample time 1608.

Date: 2020-09-30 14:00:16

**Project Information:** 

Operator Name Daniel Howard Company Name Wood E&IS

Project Name Plant Arkwright CCR AP2 Site Name ARGWC-22

Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 541714

Turbidity Make/Model Hach 2100Q

Well Information:

Well ID ARGWC-22
Well diameter 2 in
Well Total Depth 27.74 ft
Screen Length 10 ft
Depth to Water 13.67 ft

Pump Information:

Pump Model/Type Peristaltic pump

22.8 ft

Tubing TypeHDPETubing Diameter.17 inTubing Length27.8 ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.6040831 L
Calculated Sample Rate 300 sec
Stabilization Drawdown
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	13:37:07	600.02	20.06	5.75	1504.99	1.35	13.97	0.21	93.17
Last 5	13:42:07	900.02	20.01	5.76	1493.79	1.21	13.97	0.18	93.62
Last 5	13:47:07	1200.02	19.94	5.78	1479.67	1.10	13.97	0.17	93.79
Last 5	13:52:07	1500.01	19.96	5.80	1457.39	1.05	13.97	0.16	93.08
Last 5	13:57:07	1800.01	19.90	5.81	1447.27	0.80	13.97	0.16	92.81
Variance 0			-0.07	0.02	-14.12			-0.00	0.18
Variance 1			0.01	0.02	-22.28			-0.01	-0.71
Variance 2			-0.06	0.01	-10.13			-0.00	-0.27

Notes

ARGWC-22 sample time 1400

Date: 2020-10-01 12:00:51

Project Information:

Operator Name Daniel Howard Company Name Wood E&IS

Project Name Plant Arkwright CCR AP2
Site Name ARGWC-23

 Latitude
 0° 0' 0"

 Longitude
 0° 0' 0"

 Sonde SN
 541714

Turbidity Make/Model Hach 2100Q

Pump Information:

Pump Model/Type Peristaltic pump

23 ft

Tubing Type HDPE
Tubing Diameter .17 in
Tubing Length 28.1 ft

Pump placement from TOC

Well Information:

Well IDARGWC-23Well diameter2 inWell Total Depth28.08 ftScreen Length10 ftDepth to Water12.1 ft

Pumping Information:

Final Pumping Rate 100 mL/min
Total System Volume 0.6054222 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 0.3 in
Total Volume Pumped 4.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	11:35:26	1500.02	24.91	6.39	476.93	2.56	12.84	0.41	88.84
Last 5	11:40:26	1800.01	25.04	6.39	477.76	2.02	12.89	0.35	90.72
Last 5	11:45:26	2100.01	25.21	6.39	477.41	2.09	12.93	0.32	92.67
Last 5	11:50:26	2400.01	25.45	6.38	477.18	2.08	12.95	0.32	94.56
Last 5	11:55:26	2700.01	25.62	6.38	476.38	2.20	12.97	0.31	95.52
Variance 0			0.18	-0.00	-0.35			-0.03	1.95
Variance 1			0.24	-0.01	-0.23			-0.01	1.89
Variance 2			0.17	0.00	-0.80			-0.01	0.95

#### Notes

ARGWC-23 sample time 1158. DUP-02 also collected.

Site Name Plant ARKWRIGHT Permit Number Well ID KAMW-Date yes no n/a 1 Location/Identification Is the well visible and accessible? а Is the well properly identified with the correct well ID? Ь Is the well in a high traffic area and does the well require С protection from traffic? Is the drainage around the well acceptable? (no standing water, d nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а secured? b Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole? С Is the annular space between casings clear of debris and water, d or filled with pea gravel/sand? Is the well locked and is the lock in good condition? е 3 Surface pad Is the well pad in good condition (not cracked or broken)? а Is the well pad sloped away from the protective casing? Ь Is the well pad in complete contact with the protective casing? C ď Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? е 4 Internal casing Does the cap prevent entry of foreign material into the well? a is the casing free of kinks or bends, or any obstructions from b foreign objects (such as bailers)? is the well properly vented for equilibration of air pressure? C Is the survey point clearly marked on the inner casing? d Is the depth of the well consistent with the original well log? е Is the casing stable? (or does the pvc move easily when touched f or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: Does well recharge adequately when purged? а N/A b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A Does the well require redevelopment (low flow, turbid)? C N/A 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements? 7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Name nit Number ID	Plant ARKWRIGHT	<del></del>		
עוו	Gloslo	<del>-</del>		
	1/28/20	- yes	no	n/a
1 Location	<u>(Identification</u>	,00	110	IIIa
a	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require			
	protection from traffic?		/	
d	Is the drainage around the well acceptable? (no standing water,			
	nor is well located in obvious drainage flow path)			
			AR	
2 Protectiv				
a	Is the protective casing free from apparent damage and able to be secured?	) 		
b	Is the casing free of degradation or deterioration?			·
С	Does the casing have a functioning weep hole?			
d	is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?	<u> </u>		
е	Is the well locked and is the lock in good condition?			
3 Surface	nad			
a <u>ounace r</u>	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?	<del></del>		****
C	Is the well pad in complete contact with the protective casing?	<del></del>		,
d	Is the well pad in complete contact with the ground surface and			
u	stable? (not undermined by erosion, animal burrows, and does not	<b>!</b>		
	move when stepped on)			
e	Is the pad surface clean (not covered with sediment or debris)?		<del></del>	
	,		-	
4 <u>Internal c</u>				
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from	_		
	foreign objects (such as bailers)?			
C	Is the well properly vented for equilibration of air pressure?			1
d	Is the survey point clearly marked on the inner casing?			
e	Is the depth of the well consistent with the original well log?			<u>N/A</u>
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)			
5 Sampling	: Groundwater Wells Only:			
a	Does well recharge adequately when purged?			N/A
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			N/A
С	Does the well require redevelopment (low flow, turbid)?			N/A
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	_		
	requirements?	1		Property
7 Compative	actions as peopled, by date:		_	
LACOTTECTIVE	e actions as needed, by date:			

Signature and Seal of PE/PG responsible for inspection

Name	Plant ARKWRIGHT		ř	
it Number		 		
ID	ARGWA-19			
	9/28/20	<b>-</b>		,
1 Location	/Identification	yes	no	n/a
·	Is the well visible and accessible?	. /		
a	Is the well properly identified with the correct well ID?	<u></u>		
b	Is the well in a high traffic area and does the well require			
С	protection from traffic?			
d	Is the drainage around the well acceptable? (no standing water,			
u	nor is well located in obvious drainage flow path)	V		
2 Protectiv	e Casing			
a a	<ul> <li>Is the protective casing free from apparent damage and able to be</li> </ul>			
a	secured?			
b	Is the casing free of degradation or deterioration?	<del></del>		
c	Does the casing have a functioning weep hole?	<del>_</del>		
d	Is the annular space between casings clear of debris and water,			
M	or filled with pea gravel/sand?	./		
е	Is the well locked and is the lock in good condition?			
3 <u>Surface</u>				
a	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?	<u> </u>		
C	Is the well pad in complete contact with the protective casing?			
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not	/		
•	move when stepped on) Is the pad surface clean (not covered with sediment or debris)?			
е	is the pad surface clear (not covered with sediment or depris)?			
4 <u>Internal c</u>				
a	Does the cap prevent entry of foreign material into the well?			
p	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?			
C	Is the well properly vented for equilibration of air pressure?			
d	Is the survey point clearly marked on the inner casing?			
e	Is the depth of the well consistent with the original well log?			<u>N/A</u>
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)	. /		
	couplings in construction)			
	: Groundwater Wells Only:			
a	Does well recharge adequately when purged?			<u>N/A</u>
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			N/A
С	Does the well require redevelopment (low flow, turbid)?	<del></del> ,		N/A
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory	/		
	requirements?		···	
7 Corrective	e actions as needed, by date:	<del></del>		

Signature and Seal of PE/PG responsible for inspection

A RC W A - 2 to	ite Name ermit Number	Plant ARKWRIGHT	_		
1 Location/ident/fication a Is the well visible and accessible? b Is the well properly identified with the correct well ID? c Is the well in a high traffic area and does the well require protection from traffic? d Is the drainage around the well acceptable? (no standing water, nor's well located in obvious drainage flow path)  2 Protective Casing a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition?  3 Surface pad a Is the well locked and is the lock in good condition?  Is the well pad in complete contact with the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvo move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only; a Does well recharge adequately when purged? b If declicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwat		9/20/20			•
1 Location/identification a Is the well visible and accessible? b Is the well properly identified with the correct well ID? c Is the well in a high traffic area and does the well require protection from traffic? d Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)  2 Protective Casing a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well pad in good condition (not cracked or broken)? b Is the well pad in good condition (not cracked or broken)? b Is the well pad sloped away from the protective casing? c Is the well pad in complete contact with the protent surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? Is the depth of the well consistent with the original well log? Is the desing stable? (or does the pore nowe easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?			- yes	no	n/a
b Is the well properly identified with the correct well ID? c Is the well in a high traffic area and does the well require protection from traffic? d Is the drainage around the well acceptable? (no standing water, nor is well located in obvlous drainage flow path)  2 Protective Casing a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well pad in good condition (not cracked or broken)? b Is the well pad sloped away from the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the protective casing? d Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as ballers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? c Is the well properly vented for equilibration of air pressure? d Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A b If dedicated sampling equipment installed, is it in good condition appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	1 Location/	<u>Identification</u>	,		
c Is the well in a high traffic area and does the well require protection from traffic?  d Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)  2 Protective Casing a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition?  3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad in good condition (not cracked or broken)? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	а		<u> </u>		
protection from traffic?  d is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)  2 Protective Casing a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition?  3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad in complete contact with the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	b				
d is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)  2 Protective Casing a Is the protective casing free from apparent damage and able to be secured?  b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well pad in good condition (not cracked or broken)? b Is the well pad in good condition (not cracked or broken)? b Is the well pad in complete contact with the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the protective casing? d Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the easing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the easing stable? (or does the pve move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If decloated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	С				
nor is well located in obvious drainage flow path)  2 Protective Casing a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition?  3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad in complete contact with the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as ballers)? c Is the well property vented for equilibration of air pressure? d Is the exurvey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction location appropriate to 1) achieve the objectives of the Groundwater Monltoring Program and 2) comply with the applicable regulatory requirements?	٦	•			-
2 Protective Casing a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between easings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition?  3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad is complete contact with the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	a				
a Is the protective casing free from apparent damage and able to be secured? b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition?  3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad in complete contact with the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? Is the depth of the well consistent with the original well log? Is the casing stable? (or does the pve move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Samplina: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A  C Does the well require redevelopment (low flow, turbid)?  N/A  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		- · · · ·		***************************************	
secured?  b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition?  3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad sloped away from the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well property vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?  C Does the well require redevelopment (low flow, turbid)?  N/A  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?					
b Is the casing free of degradation or deterioration? c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition?  3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad sloped away from the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	а		/		
c Does the casing have a functioning weep hole? d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand? e Is the well locked and is the lock in good condition?  3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad sloped away from the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as ballers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	b				<del></del>
d Is the annular space between casings clear of debris and water, or filled with pea gravel/sand?  e Is the well locked and is the lock in good condition?  3 Surface pad  a Is the well pad in good condition (not cracked or broken)?  b Is the well pad sloped away from the protective casing?  c Is the well pad in complete contact with the protective casing?  d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on)  e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing  a Does the cap prevent entry of foreign material into the well?  b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?  c Is the well properly vented for equilibration of air pressure?  d Is the survey point clearly marked on the inner casing?  e Is the depth of the well consistent with the original well log?  f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only:  a Does well recharge adequately when purged?  b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?  c Does the well require redevelopment (low flow, turbid)?  N/A  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?				<del></del>	
or filled with pea gravel/sand? Is the well locked and is the lock in good condition?  3 Surface pad a Is the well pad in good condition (not cracked or broken)? b Is the well pad in complete contact with the protective casing? c Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If declicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?			<u>-v</u>		
a Is the well pad in good condition (not cracked or broken)? b Is the well pad in good condition (not cracked or broken)? b Is the well pad sloped away from the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	<u>.</u>	•	/		
ls the well pad in good condition (not cracked or broken)? b Is the well pad sloped away from the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monttoring Program and 2) comply with the applicable regulatory requirements?	е				
ls the well pad in good condition (not cracked or broken)? b Is the well pad sloped away from the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monttoring Program and 2) comply with the applicable regulatory requirements?	3 Surface n	ad			-
b Is the well pad sloped away from the protective casing? c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?			$\overline{}$		•
c Is the well pad in complete contact with the protective casing? d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		, ,	<del></del>		
d Is the well pad in complete contact with the ground surface and stable? (not undermined by erosion, animal burrows, and does not move when stepped on) e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? N/A C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?			<del></del>	***************************************	
stable? (not undermined by erosion, animal burrows, and does not move when stepped on)  e	d				<del></del>
e Is the pad surface clean (not covered with sediment or debris)?  4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		· · · · · · · · · · · · · · · · · · ·			
4 Internal casing a Does the cap prevent entry of foreign material into the well? b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)? c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		move when stepped on)			
Does the cap prevent entry of foreign material into the well?  b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?  c Is the well properly vented for equilibration of air pressure?  d Is the survey point clearly marked on the inner casing?  e Is the depth of the well consistent with the original well log?  f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only:  a Does well recharge adequately when purged?  b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?  C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	e	Is the pad surface clean (not covered with sediment or debris)?	乙		
Does the cap prevent entry of foreign material into the well?  b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?  c Is the well properly vented for equilibration of air pressure?  d Is the survey point clearly marked on the inner casing?  e Is the depth of the well consistent with the original well log?  f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only:  a Does well recharge adequately when purged?  b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?  C Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	4 Internal c	asing			
b Is the casing free of kinks or bends, or any obstructions from foreign objects (such as bailers)?  c Is the well properly vented for equilibration of air pressure? d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?					
foreign objects (such as bailers)?  c	b	the contract of the contract o			
d Is the survey point clearly marked on the inner casing? e Is the depth of the well consistent with the original well log? f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		foreign objects (such as bailers)?			
e Is the depth of the well consistent with the original well log?  f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only:  a Does well recharge adequately when purged?  b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?  c Does the well require redevelopment (low flow, turbid)?  N/A  N/A  Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	С	Is the well properly vented for equilibration of air pressure?	1		<u> </u>
f Is the casing stable? (or does the pvc move easily when touched or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	d				
or can it be taken apart by hand due to lack of grout or use of slip couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?					N/A
couplings in construction)  5 Sampling: Groundwater Wells Only: a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	f				
5 Sampling: Groundwater Wells Only:  a Does well recharge adequately when purged?  b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?  c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		• • •			
a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		couplings in construction)	<b>_</b>	<del></del>	
a Does well recharge adequately when purged? b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility? c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	5 Sampling:	Groundwater Wells Only:			
b If dedicated sampling equipment installed, is it in good condition and specified in the approved groundwater plan for the facility?  c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?					N/A
c Does the well require redevelopment (low flow, turbid)?  6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?	b				
6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?		and specified in the approved groundwater plan for the facility?			N/A
appropriate to 1) achieve the objectives of the Groundwater  Monitoring Program and 2) comply with the applicable regulatory requirements?	С	Does the well require redevelopment (low flow, turbid)?			
appropriate to 1) achieve the objectives of the Groundwater  Monitoring Program and 2) comply with the applicable regulatory requirements?	6 Based on	your professional judgement, is the well construction / location			
Monitoring Program and 2) comply with the applicable regulatory requirements?					
requirements?		- · · · · · · · · · · · · · · · · · · ·			
7 Corrective actions as needed, by date:			_1/		
Confective actions as needed, by date.	7 Corrective	actions as needed, by date:			
	Conective	actions as necueu, by uate.			

Signature and Seal of PE/PG responsible for inspection

	<b>Groundwater Monitoring Well Integrity Form</b>			
Site Name	Plant ARKWRIGHT			
Permit Number		_		
Well ID	ARGWC-21	<del>-</del>		
Date	9/28/20	_		,
1 Location/	Identification	yes	no	n/a
a	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?	<del></del>		VIII. 11.11.
С	Is the well in a high traffic area and does the well require			
	protection from traffic?			
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)	~		
2 Protective	e Casing			
a	Is the protective casing free from apparent damage and able to be secured?			
b	Is the casing free of degradation or deterioration?	<del></del>		•
Č	Does the casing have a functioning weep hole?	<del>-1/-</del>		
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?	$\overline{Z}$		
3 <u>Surface p</u>	ad	-		
a	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			
С	Is the well pad in complete contact with the protective casing?	1		
d	Is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does no			
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal ca	asing	_		
а	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?			
C	Is the well properly vented for equilibration of air pressure?			<u> </u>
d	Is the survey point clearly marked on the inner casing?			
e f	Is the depth of the well consistent with the original well log? Is the casing stable? (or does the pvc move easily when touched			N/A
I	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	$\checkmark$		
E Camaniin	Chausa de cata a Malla Cultur			
	Groundwater Wells Only:  Does well recharge adequately when purged?			NI/A
a b	If dedicated sampling equipment installed, is it in good condition			<u>N/A</u>
b	and specified in the approved groundwater plan for the facility?			N/A
С	Does the well require redevelopment (low flow, turbid)?			- N/A
b Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater  Monitoring Program and 2) comply with the applicable regulatory			
	requirements?	1		
	responsitionals			

Signature and Seal of PE/PG responsible for inspection

7 Corrective actions as needed, by date:

Groundwater Monitoring Well Integrity Form Site Name Plant ARKWRIGHT Permit Number Well ID Date n/a no 1 Location/Identification Is the well visible and accessible? а Is the well properly identified with the correct well ID? b Is the well in a high traffic area and does the well require C protection from traffic? Is the drainage around the well acceptable? (no standing water, d nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а secured? b Is the casing free of degradation or deterioration? Does the casing have a functioning weep hole? C is the annular space between casings clear of debris and water, d or filled with pea gravel/sand? Is the well locked and is the lock in good condition? е 3 Surface pad Is the well pad in good condition (not cracked or broken)? а Is the well pad sloped away from the protective casing? b Is the well pad in complete contact with the protective casing? С is the well pad in complete contact with the ground surface and d stable? (not undermined by erosion, animal burrows, and does not move when stepped on) is the pad surface clean (not covered with sediment or debris)? е 4 Internal casing Does the cap prevent entry of foreign material into the well? а Is the casing free of kinks or bends, or any obstructions from b foreign objects (such as bailers)? C Is the well properly vented for equilibration of air pressure? Is the survey point clearly marked on the inner casing? d Is the depth of the well consistent with the original well log? е N/A Is the casing stable? (or does the pvc move easily when touched f or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: Does well recharge adequately when purged? а N/A If dedicated sampling equipment installed, is it in good condition b and specified in the approved groundwater plan for the facility? N/A Does the well require redevelopment (low flow, turbid)? С N/A 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements?

Signature and Seal of PE/PG responsible for inspection

7 Corrective actions as needed, by date:

Site Name Plan
Permit Number
Well ID
Date

Plant ARKWRIGHT	
ARCW (-23	
9/18/20	

	1/0/0/0/		~~	n/-
1	1 Location/Identification	yes	no	n/a
•	a Is the well visible and accessible?	/		
	b Is the well properly identified with the correct well II	n? -		
	c Is the well in a high traffic area and does the well re			
	protection from traffic?	oquilo	/	
	d is the drainage around the well acceptable? (no sta	anding water		
	nor is well located in obvious drainage flow path)	anding water,		
	The to well located in obvious draininge new path)			-
2	2 Protective Casing			
	a Is the protective casing free from apparent damage	e and able to be		
	secured?	✓		
	b Is the casing free of degradation or deterioration?			
	c Does the casing have a functioning weep hole?			
	d Is the annular space between casings clear of debi	ris and water,		
	or filled with pea gravel/sand?			
	e Is the well locked and is the lock in good condition?	?		
		· · · · · · · · · · · · · · · · · · ·		
3	3 <u>Surface pad</u>			
	a Is the well pad in good condition (not cracked or br	oken)?		
	b Is the well pad sloped away from the protective cas			
	c Is the well pad in complete contact with the protecti	ive casing?		
	d Is the well pad in complete contact with the ground	surface and		
	stable? (not undermined by erosion, animal burrow	s, and does not		
	move when stepped on)	1/		
	e Is the pad surface clean (not covered with sedimen	nt or debris)?	<del> </del>	
		, <u></u>		
4	f Internal casing			
	a Does the cap prevent entry of foreign material into	_ <del></del> _		
	b Is the casing free of kinks or bends, or any obstruc	tions from		
	foreign objects (such as bailers)?			
	c Is the well properly vented for equilibration of air pro			
	d Is the survey point clearly marked on the inner casi			
	e Is the depth of the well consistent with the original v			<u>N/A</u>
	f Is the casing stable? (or does the pvc move easily			
	or can it be taken apart by hand due to lack of grou	t or use of slip		
	couplings in construction)			
5	Sampling: Groundwater Wells Only:			
		<del></del>		NI/A
				<u>N/A</u>
	b If dedicated sampling equipment installed, is it in go			N 1 / 6
	and specified in the approved groundwater plan for			<u>N/A</u>
	c Does the well require redevelopment (low flow, turb	······································		<u>N/A</u>
'n	Based on your professional judgement, is the well construction	n / location		
_	appropriate to 1) achieve the objectives of the Grou			
	Monitoring Program and 2) comply with the applical			
	requirements?	ole regulatory		
	requirements:			
7	Corrective actions as needed, by date:			
	, , , , , , , , , , , , , , , , , , ,			
•	Control Contro			

Signature and Seal of PE/PG responsible for inspection

Name	Plant ARKWRIGHT			
it Number		_		
ID	DAJP-I	-		
	9/28/20	_		
1   0001100	(Identification	yes	no	n/a
	<u>/Identification</u> Is the well visible and accessible?			
a b	Is the well properly identified with the correct well ID?	<u></u>	Martin	
C	Is the well in a high traffic area and does the well require	<u> </u>		
C	protection from traffic?			
d	Is the drainage around the well acceptable? (no standing water,			
u	nor is well located in obvious drainage flow path)	/		
2 Protectiv	raina Casina			
a	Is the protective casing free from apparent damage and able to be			
a	secured?			./
b	Is the casing free of degradation or deterioration?		<del></del>	<del>-</del>
c	Does the casing have a functioning weep hole?			
ď	Is the annular space between casings clear of debris and water,			<u> </u>
~	or filled with pea gravel/sand?			4/
е	Is the well locked and is the lock in good condition?			
3 Surface	nad.			
a <u>Surrace</u> j	<u>চন্দ্র</u> is the well pad in good condition (not cracked or broken)?			/
a b	Is the well pad sloped away from the protective casing?			
C	Is the well pad in complete contact with the protective casing?		<del></del>	
d	Is the well pad in complete contact with the ground surface and			<u>~</u>
u	stable? (not undermined by erosion, animal burrows, and does not			
	move when stepped on)			/
е	Is the pad surface clean (not covered with sediment or debris)?			<del>-</del>
4 Internal o	esina			
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from			
b	foreign objects (such as bailers)?	,		
С	Is the well properly vented for equilibration of air pressure?			
ď	Is the survey point clearly marked on the inner casing?			
e	Is the depth of the well consistent with the original well log?	<u> </u>		N/A
f	Is the casing stable? (or does the pvc move easily when touched			14//1
·	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	./		
- · ·				
	: Groundwater Wells Only:			
a	Does well recharge adequately when purged?			<u>N/A</u>
b	If dedicated sampling equipment installed, is it in good condition			N1/ 5
-	and specified in the approved groundwater plan for the facility?			N/A
С	Does the well require redevelopment (low flow, turbid)?	<del></del>		N/A
6 Based on	your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?	<del></del> ,		
7 Corrective	e actions as needed, by date:	<del></del>		

Signature and Seal of PE/PG responsible for inspection

Name	Plant ARKWRIGHT			
it Number		_		
ID	D A < P-2	_		
	9/28/20			
		yes	no	n/a
1 Location	/Identification	,		
а	Is the well visible and accessible?	<u> </u>		
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require protection from traffic?		/	
d	Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path)			
2 Protectiv	e Časing			
a	Is the protective casing free from apparent damage and able to be	<del></del>		
_	secured?			<u> </u>
b	Is the casing free of degradation or deterioration?			
C	Does the casing have a functioning weep hole?			
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?			
е	Is the well locked and is the lock in good condition?		<del></del>	
3 <u>Surface r</u>				
а	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			<u> </u>
С	Is the well pad in complete contact with the protective casing?			
d	is the well pad in complete contact with the ground surface and			
	stable? (not undermined by erosion, animal burrows, and does not	i •		
	move when stepped on)			
е	Is the pad surface clean (not covered with sediment or debris)?			1/
4 <u>Internal c</u>	asing			
a	Does the cap prevent entry of foreign material into the well?			
ь	Is the casing free of kinks or bends, or any obstructions from			
	foreign objects (such as bailers)?	<b>_</b>		
С	Is the well properly vented for equilibration of air pressure?	<u> </u>		
d	Is the survey point clearly marked on the inner casing?			
e	Is the depth of the well consistent with the original well log?			N/A
f	Is the casing stable? (or does the pvc move easily when touched			
•	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	<b>_</b>		
F 0 "				
	: Groundwater Wells Only:			A1/2
a	Does well recharge adequately when purged?	<del></del>		<u>N/A</u>
b	If dedicated sampling equipment installed, is it in good condition			N1/2
_	and specified in the approved groundwater plan for the facility?			N/A
С	Does the well require redevelopment (low flow, turbid)?			N/A
6 Based on	your professional judgement, is the well construction / location			-
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?			
7.00	a gations as recorded by detail			
/ Corrective	e actions as needed, by date:			•

Signature and Seal of PE/PG responsible for inspection

# **Groundwater Monitoring Well Integrity Form**

Site Name Plant ARKWRIGHT Permit Number Well ID Date yes no n/a 1 Location/Identification Is the well visible and accessible? а Is the well properly identified with the correct well ID? b Is the well in a high traffic area and does the well require С protection from traffic? d Is the drainage around the well acceptable? (no standing water, nor is well located in obvious drainage flow path) 2 Protective Casing Is the protective casing free from apparent damage and able to be а Is the casing free of degradation or deterioration? b Does the casing have a functioning weep hole? С Is the annular space between casings clear of debris and water, d or filled with pea gravel/sand? Is the well locked and is the lock in good condition? e 3 Surface pad Is the well pad in good condition (not cracked or broken)? а Is the well pad sloped away from the protective casing? Ь Is the well pad in complete contact with the protective casing? С Is the well pad in complete contact with the ground surface and d stable? (not undermined by erosion, animal burrows, and does not move when stepped on) Is the pad surface clean (not covered with sediment or debris)? е 4 Internal casing Does the cap prevent entry of foreign material into the well? а Is the casing free of kinks or bends, or any obstructions from b foreign objects (such as bailers)? Is the well properly vented for equilibration of air pressure? С Is the survey point clearly marked on the inner casing? d Is the depth of the well consistent with the original well log? e Is the casing stable? (or does the pvc move easily when touched f or can it be taken apart by hand due to lack of grout or use of slip couplings in construction) 5 Sampling: Groundwater Wells Only: а Does well recharge adequately when purged? N/A If dedicated sampling equipment installed, is it in good condition b and specified in the approved groundwater plan for the facility? N/A Does the well require redevelopment (low flow, turbid)? С N/A 6 Based on your professional judgement, is the well construction / location appropriate to 1) achieve the objectives of the Groundwater Monitoring Program and 2) comply with the applicable regulatory requirements? 7 Corrective actions as needed, by date:

Signature and Seal of PE/PG responsible for inspection

Daniel L Howard

# **Groundwater Monitoring Well Integrity Form**

Name	Plant ARKWRIGHT	_		
it Number				
ID	D A S S - 3	<del></del>		
	9/28/20	-		
		yes	no	n/a
1 Location	<u>/Identification</u>	,		
а	Is the well visible and accessible?			
b	Is the well properly identified with the correct well ID?			
С	Is the well in a high traffic area and does the well require			
	protection from traffic?			
d	Is the drainage around the well acceptable? (no standing water,			
	nor is well located in obvious drainage flow path)	1		
2 Protectiv	re Casing			
a <u>1100000</u>	Is the protective casing free from apparent damage and able to be			
u	secured?			
b	Is the casing free of degradation or deterioration?		-	<del>-</del>
С	Does the casing have a functioning weep hole?			1/
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?			1/
е	Is the well locked and is the lock in good condition?			1
3 C				
3 <u>Surface</u>	<u>oad</u> Is the well pad in good condition (not cracked or broken)?	<del></del>		1
a	Is the well pad sloped away from the protective casing?			<u> </u>
b	Is the well pad in complete contact with the protective casing?	-		44
C	·			
d	Is the well pad in complete contact with the ground surface and			
-	stable? (not undermined by erosion, animal burrows, and does not	•		/
е	move when stepped on) Is the pad surface clean (not covered with sediment or debris)?			<del></del>
C	to the pad sarract steam (not served with coalment of destroy.			<u></u>
4 <u>Internal c</u>				
а	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from	,		
	foreign objects (such as bailers)?			
С	Is the well properly vented for equilibration of air pressure?			
d	is the survey point clearly marked on the inner casing?	<u> </u>		
е	Is the depth of the well consistent with the original well log?			<u>N/A</u>
f	Is the casing stable? (or does the pvc move easily when touched			
	or can it be taken apart by hand due to lack of grout or use of slip	,		
	couplings in construction)	<u> </u>		
5 Sampling	ı: Groundwater Wells Only:			
a	Does well recharge adequately when purged?			N/A
b	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			N/A
С	Does the well require redevelopment (low flow, turbid)?			N/A
6 D	wour professional judgement in the well construction (In a time			
o based or	your professional judgement, is the well construction / location	_1/_		
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?			
7 Corrective	e actions as needed, by date:	<del></del>		
. 50,,000	- managed and transmit at a market			

Signature and Seal of PE/PG responsible for inspection

Daniel Howard

# **Groundwater Monitoring Well Integrity Form**

lame	Plant ARKWRIGHT			
it Number		_		
ID	DH33-H			
	9/28/20	- 1100	20	
1 Location	n/Identification	yes	no	n/a
a	Is the well visible and accessible?	1		
b	Is the well properly identified with the correct well ID?			
C	Is the well in a high traffic area and does the well require			
· ·	protection from traffic?		/	
d	Is the drainage around the well acceptable? (no standing water,		<u> </u>	
-	nor is well located in obvious drainage flow path)			
2 Protecti	ve Casing			
a <u>. , o to o tr</u>	Is the protective casing free from apparent damage and able to be	<del></del>		
	secured?			1/
b	Is the casing free of degradation or deterioration?			
С	Does the casing have a functioning weep hole?	<u></u>		1
d	Is the annular space between casings clear of debris and water,			
	or filled with pea gravel/sand?			1
е	Is the well locked and is the lock in good condition?			
3 Surface	pad			
a	Is the well pad in good condition (not cracked or broken)?			
b	Is the well pad sloped away from the protective casing?			<del></del>
c	Is the well pad in complete contact with the protective casing?			<del></del>
d	Is the well pad in complete contact with the ground surface and			
~	stable? (not undermined by erosion, animal burrows, and does not	ŀ		
	move when stepped on)	-		
е	Is the pad surface clean (not covered with sediment or debris)?			
4 Internal	casing			
a	Does the cap prevent entry of foreign material into the well?			
b	Is the casing free of kinks or bends, or any obstructions from	<del></del>		
D	foreign objects (such as bailers)?	./		
С	Is the well properly vented for equilibration of air pressure?			
ď	Is the survey point clearly marked on the inner casing?			
e	Is the depth of the well consistent with the original well log?			N/A
f	Is the casing stable? (or does the pvc move easily when touched			- 177.1
•	or can it be taken apart by hand due to lack of grout or use of slip			
	couplings in construction)	<b>_</b>		
_	, c		-	
5 <u>Samplin</u>	g: Groundwater Wells Only:			
а	Does well recharge adequately when purged?			<u>N/A</u>
b -	If dedicated sampling equipment installed, is it in good condition			
	and specified in the approved groundwater plan for the facility?			<u>N/A</u>
С	Does the well require redevelopment (low flow, turbid)?	***************************************		<u>N/A</u>
6 Based or	n your professional judgement, is the well construction / location			
	appropriate to 1) achieve the objectives of the Groundwater			
	Monitoring Program and 2) comply with the applicable regulatory			
	requirements?			
7.0	ve actions as needed, by date:			•
/ CORRECTIV				

Signature and Seal of PE/PG responsible for inspection

Daniel Howard



Data Evaluation Narrative
Project: Plant Arkwright Second Semiannual Event
Wood Project Number: 6122201429.2003.\*\*\*\*

Site: Ash Pond No. 2 - Former Plant Arkwright, Georgia

**Matrix: Groundwater** 

**Eurofins TestAmerica SDG No: 180-111648-1** 

# Introduction

A data quality evaluation (DQE) was performed on the laboratory data reported for the Second Semiannual groundwater sampling event conducted at Ash Pond No. 2 (Dry Ash Stockpile) at the former Plant Arkwright, located in Arkwright, Georgia in September/October 2020 for Southern Company Services (SCS). The samples were collected and analyzed per the protocols presented in the *Draft Former Plant Arkwright Field Sampling Plan* (FSP) (SCS, 2016) and in accordance with the monitoring requirements of §§ 257.90. through 257.95 as referenced in the Georgia Environmental Protection Division (EPD) Rules 391-3-4-10(6)(a)-(c) and 391-3-4-.14. GA EPD rule 391-3-4-.10(6)(a) incorporates by reference the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) § 257 Subpart D.

The following sections provide summary discussions of the required data qualifications for the analytical methods for samples collected. A Level II DQE validation was performed on the samples analyzed by the fixed-based laboratory within these sample delivery groups (SDGs). A Level II DQE consists of review of the following criteria: sample integrity, holding times, method blanks, laboratory control samples (LCSs), matrix spikes/matrix spike duplicate (MS/MSD) recoveries and relative percent differences (RPDs), post digestion spikes (PDS), where applicable, laboratory and field duplicate RPDs, field and/or equipment blanks, and reporting limits. Additionally, the data summary tables generated from the electronic data deliverable (EDD) were compared to the laboratory hardcopy data report to verify that the EDD and laboratory data report agree.

The data were reviewed using the laboratory's precision and accuracy limits, the method requirements, and the SCS Field Sampling Plan (FSP) (SCS, 2016). DQE data qualifications were applied, if necessary, using the procedures in USEPA Region IV Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy (USEPA, 2011) and the National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2017), as guidance, and professional judgment using the following qualifiers:

<b>Qualifier</b>	<u>Usable Data</u>
J	The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. SCS
	Definition: Value J indicates the substance was detected at such low levels that the precision of
	the laboratory instruments could not produce as reliable of a value. Therefore, the value displayed (value J) is qualified by the laboratory as estimated.
UJ	The analyte was analyzed for but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and
	may be inaccurate or imprecise.

SDG No: 180-111648-1 Page 1 of 14



<b>Qualifier</b>	<u>Usable Data (continued)</u>
U	Analyte was analyzed for but was not detected above the level of the reported sample
	reporting/method detection limit. Note: SCS does not use the "U" flag except when reporting
	results for radium that are detected below the Minimum Detection Concentration (MDC).
U*	This analyte should be considered "not-detected" because it was detected in an associated
	blank at a similar level.
0 1:0	
<u>Qualifier</u>	<u>Unusable Data</u>
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample
	and meet QC criteria. The presence or absence of the analyte cannot be confirmed.
UR	The analyte was analyzed for but was not detected above the level of the reported sample
	reporting or method detection; however, the data are unusable. The sample results are
	rejected due to serious deficiencies in the ability to analyze the sample and meet quality
	control criteria. The analyte may or may not be present in the sample.

The analytical results for the samples reported in this SDG are usable with the qualifications discussed in this narrative. A summary of the data with associated qualifiers is presented in **Table 1**.

## **Deliverables**

The data package as submitted to Wood Environment & Infrastructure Solutions, Inc. (Wood) is complete to perform a Level II DQE for USEPA Methods SW6020B, SW7470A, EPA 300.0 R2.1, and SM 2540C.

### **Sample Integrity**

The groundwater samples were submitted to Eurofins TestAmerica in Pittsburgh, Pennsylvania (TAL PIT) and analyzed for CCR Appendix III and detected Appendix IV metals, plus silver, by Method SW6020B and mercury by Method SW7470A, anions (chloride, fluoride, and sulfate) by Method 300.0 R2.1, and total dissolved solids (TDS) by Method SM 2540C. The samples were also analyzed for radium-226 and 228 combined by Methods SW9315 and SW9320. The radium analyses were performed at Eurofins TAL St. Louis, Missouri laboratory (TAL SL) and reported in SDG 180-111648-2. The DQE for the radium analyses is presented separately.

Based on the information provided on the Chain-of-Custody (COC) forms, the field samples arrived at the laboratory intact and within the temperature range and preservation requirements. Completed COC documents are included in the data package.

## **Sample Identification**

This SDG contains the following groundwater and/or quality control (QC) samples:

Sample ID	Sample Date	DQE Level	Sample ID	Sample Date	DQE Level
Ash Pond No. 2					
ARGWA-19	09/29/20	II	ARGWC-21	10/01/20	II
ARGWA-20	09/30/20	II			
ARGWC-22	09/30/20	II	<b>QC Samples</b>		
ARAMW-1	09/30/20	II	EB-02	09/30/20	II
ARGWC-23	10/01/20	II	FB-02	10/01/20	II
ARAMW-2	10/01/20	II	DUP-02	10/01/20	II

SDG No: 180-111648-1 Page 2 of 14



These samples were collected from the Ash Pond No. 2 monitoring wells listed above between September 29 and October 1, 2020. Each of the sample IDs above were amended with a sample date code (-mmddyy) by Wood to create unique IDs in the database. Sample DUP-2 is a field duplicate of ARGWC-23. Sample EB-02 is an equipment blank, and sample FB-02 is a field blank. The equipment blank sample associations are listed below:

<u>Equipment Blank</u> <u>Associated Samples</u>

EB-02 (peristaltic pump) ARAMW-1, ARAMW-2, ARGWC-22, ARGWC-23, DUP-2

The analytical results for the metals, anions, and TDS data are usable with the qualifications discussed in this narrative. A summary of the data quality is presented below.

#### Metals (SW6020B/7470A)

The samples were submitted to TAL PIT for CCR Appendix III and detected Appendix IV metals, plus silver (Ag), by Method SW6020B and mercury by SW7470A. The CCR Appendix III metals are boron (B) and calcium (Ca). The *detected* CCR Appendix IV metals are: arsenic (As), barium (Ba), beryllium (Be), chromium (Cr), cobalt (Co), lead (Pb), lithium (Li), mercury (Hg), molybdenum (Mo), and selenium (Se). Each of the Level II components were within QC limits except for field blank contamination.

### **Holding Times**

The sample analyses were performed within the 6-month and 28-day (for mercury) analysis holding times.

#### Method Blanks

The method blanks associated with the samples analyzed within this SDG did not contain reportable concentrations of metals or mercury.

#### <u>Laboratory Control Sample (LCS)</u>

Percent recoveries for target analytes were within quality control limits in the LCSs.

#### Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Batch MS/MSD analyses for metals were not performed on project samples collected from Ash Pond No. 2 and were not provided in the laboratory report. An MS/MSD was performed on a sample from Ash Pond No. 3 and reported in SDG 180-111645-1, and the recoveries and RPDs were within QC limits.

# Post Digestion Spike (PDS)

A PDS analysis was not available for review.

#### Field Duplicate Precision

One field duplicate/sample pair (DUP-02/ARGWC-23) was collected with this SDG, and the RPDs were within QC limits for results greater than or equal to five times the reporting limit.

SDG No: 180-111648-1 Page 3 of 14



# Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

Field accuracy was measured through the collection of equipment/rinsate blanks and field blanks. Equipment rinsate blanks are collected to monitor the decontamination process on non-dedicated sampling equipment. Field blanks are collected to assess the water used to decontaminate the equipment and the containers into which samples are placed. Equipment blank EB-02 did not contain metals, and field blank FB-02 reported boron above the RL. Results less than ten times the blank are considered not detected as a possible field artifact: **Reason Code: BF** 

Action: The B results for ARAMW-1, ARAMW-2, ARGWA-20, ARAWC-21, ARGWC-23, and DUP-2 were qualified as not detected due to blank contamination and flagged "U\*".

## **Reporting Limits**

The laboratory RLs met the SCS project RLs and were below the screening values for samples submitted for the analysis of metals by USEPA Methods SW6020B and SW7470A. The laboratory RL was elevated where dilutions were required to place the constituent within the calibration range. None of the samples in this SDG required dilution.

Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated and flagged "J" by the laboratory. The "J" qualifier is maintained by the data validator.

#### <u>Total and Dissolved Metals Comparison</u>

If total and dissolved metals samples were collected, comparison of the total and dissolved results can aid in the representativeness of the total metals value verses the metals that may be associated with suspended solids and metals actually dissolved within the water column. There were no dissolved metals collected from the wells at Ash Pond No. 2.

#### Anions (EPA 300.0 R2.1)

The samples were submitted to TAL PIT for anions (chloride, fluoride, and sulfate) by Method 300.0 R2.1. Each of the Level II components were within the QC limits.

# **Holding Times**

The sample analyses were performed within the 28-day analysis holding time.

#### Method Blanks

The method blank associated with the samples analyzed in this SDG contained no reportable detections of anions.

### **Laboratory Control Sample (LCS)**

Percent recoveries for target analytes were within quality control limits in the LCS.

SDG No: 180-111648-1 Page 4 of 14



# Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Batch MS/MSDs for anions (fluoride) were performed on Ash Pond No. 2 samples ARGWA-20 and DUP-02, and the recoveries and RPD were within QC limits.

### Field Duplicate Precision

One field duplicate/sample pair (DUP-2/ARGWC-23) was collected with this SDG, and the RPDs were within QC limits.

# Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

The equipment blank sample (EB-02) and field blank sample (FB-02) did not contain reportable concentrations of anions.

# **Reporting Limits**

The laboratory RLs met the SCS project RLs and were below the screening values for samples submitted for the analysis of anions by USEPA Method 300 R2.1. One sample required a dilution for sulfate resulting in elevated RLs. The following sample dilution was performed:

<u>Sample</u>	<u>Anion</u>	<b>Dilution</b>
ARGWC-22	sulfate	10x
ARAMW-1	sulfate	5x
ARAMW-2	sulfate	5x
ARGWC-21	sulfate	5x

Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated and flagged "J" by the laboratory. The "J" qualifier is maintained by the data validator.

#### TDS (SM 2540C)

The samples were submitted to TAL PIT for TDS by Method SM 2540C. Each of the Level II components were within the QC limits.

#### **Holding Times**

The sample analyses were performed within the 7-day analysis holding time.

#### Method Blanks

The method blank did not contain reportable levels of TDS.

# <u>Laboratory Control Sample (LCS)</u>

Percent recoveries for target analytes were within quality control limits in the LCS.

SDG No: 180-111648-1 Page 5 of 14



### Field Duplicate Precision

One field duplicate/sample pair in this SDG (DUP-2/ARGWC-23) was analyzed for TDS, and the RPD was within QC limits.

# **Laboratory Duplicate Precision**

A laboratory duplicate was analyzed on project sample ARAMW-1 and DUP-02 and the RPDs were within QC limits.

# Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

The equipment blank sample (EB-02) and field blank sample (FB-02) did not contain TDS.

# **Reporting Limits**

The laboratory RL met the SCS project RL and was below the screening value of 500 mg/L for samples submitted for the analysis of TDS by Method SM 2540C and no samples required dilutions; therefore, RLs were met for this project. Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated and flagged "J" by the laboratory, however there were none in this SDG.

### **Overall Site Evaluation and Professional Judgment Flagging Changes**

The chemical data included in this SDG was validated in general accordance with the guidelines contained in the project work plan and validation SOPs. Professional judgment was not used to modify flags for results reported in samples presented in this SDG.

#### **Completeness**

A total of 7 wells, along with the required QC samples, were sampled and analyzed during the 2020 Second Semiannual event at Ash Pond No. 2 according to the FSP. The 7 well locations along with field duplicate, field blank, and equipment blank samples were reported in this SDG and were sampled and analyzed as scoped.

Therefore, both field and analytical completeness calculated for this SDG was 100%.

SDG No: 180-111648-1 Page 6 of 14



#### References

SCS, 2016, Draft Field Sampling Plan – Former Plant Arkwright, Georgia Power Company, Earth Science and Environmental Engineering Technical Services, Southern Company Services, Inc. (SCS), August 17, 2016. Permit modification to include the Appendix III and IV sampling requirements; approval of modified permit and FSP pending.

USEPA, 2011. Region 4, Science and Ecosystem Support Division, Quality Assurance Section, MTSB, Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy, Revision 2.0; September 2011.

USEPA, 2017. National Office of Superfund Remediation and Technology Innovation, National Functional Guidelines for Inorganic Superfund Methods Data Review, Revision 0.0; January 2017.

Prepared by/Date: <u>JAH 11/12/2020</u> Checked by/Date: <u>DWK 11/13/2020</u>

SDG No: 180-111648-1 Page 7 of 14



# TABLE 1 SUMMARY OF DATA QUALIFIERS

SDG No: 180-111648-1 Page 8 of 14

# TABLE 1 SUMMARY OF DATA QUALIFIERS SAMPLE DELIVERY GROUP 180-111648-1

SAMPLING DATES: September 29-30 and October 1, 2020 Plant Arkwright Ash Pond No. 2 - Second Semiannual Event

Field Sample ID	Location ID	Type	SDG	Method	Parameter Name	Lab Result	Lab Qual	Val Qual	Reason Codes	Units
ARAMW-1	ARAMW-1	N	180-111648-1	6020B	boron	0.98		U*	BF	mg/L
ARAMW-1	ARAMW-1	N	180-111648-1	6020B	cobalt	0.001	J	J		mg/L
ARAMW-1	ARAMW-1	N	180-111648-1	6020B	molybdenum	0.0054	J	J		mg/L
ARAMW-2	ARAMW-2	N	180-111648-1	300.0 R2.1	fluoride	0.0980	J	J		mg/L
ARAMW-2	ARAMW-2	N	180-111648-1	6020B	boron	0.95		U*	BF	mg/L
ARGWA-19	ARGWA-20	N	180-111648-1	300.0 R2.1	fluoride	0.051	J	J		mg/L
ARGWA-19	ARGWA-20	N	180-111648-1	6020B	lithium	0.0041	J	J		mg/L
ARGWA-20	ARGWA-20	N	180-111648-1	300.0 R2.1	fluoride	0.032	J	J		mg/L
ARGWA-20	ARGWA-20	N	180-111648-1	6020B	beryllium	0.00019	J	J		mg/L
ARGWA-20	ARGWA-20	N	180-111648-1	6020B	boron	0.083		U*	BF	mg/L
ARGWA-20	ARGWA-20	N	180-111648-1	6020B	cobalt	0.00031	J	J		mg/L
ARGWA-20	ARGWA-20	N	180-111648-1	6020B	lead	0.00022	J	J		mg/L
ARGWA-20	ARGWA-20	N	180-111648-1	6020B	selenium	0.0016	J	J		mg/L
ARGWC-21	ARGWC-21	N	180-111648-1	300.0 R2.1	fluoride	0.098	J	J		mg/L
ARGWC-21	ARGWC-21	N	180-111648-1	6020B	boron	0.9		U*	BF	mg/L
ARGWC-21	ARGWC-21	N	180-111648-1	6020B	cobalt	0.00082	J	J		mg/L
ARGWC-22	ARGWC-22	N	180-111648-1	300.0 R2.1	fluoride	0.045	J	J		mg/L
ARGWC-23	ARGWC-23	N	180-111648-1	6020B	boron	0.49		U*	BF	mg/L
DUP-02-100120	ARGWC-23	FD	180-111648-1	6020B	boron	0.47		U*	BF	mg/L

#### Notes:

Metals results are total metals unless otherwise noted.

#### **Laboratory Qualifiers:**

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

#### Reason Codes:

BF = Field blank contamination. The result should be considered "not-detected".

-- = No Reason Code assigned for values detected between the method detection limit (MDL) and the reporting limit (RL); estimated quantitation.

#### **Validation Qualifiers:**

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only. The associated numerical value is the approximate concentration of the analyte in the sample.

U\* = This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.

Prepared by/Date: <u>JAH 11/12/20</u> Checked by/Date: <u>DWK 11/13/20</u>



# **DQE CHECKLISTS**

SDG No: 180-111648-1 Page 9 of 14



#### **LEVEL II DATA QUALITY VALIDATION RECORD**

**Project:** Plant Arkwright AP2 CCR Second Semiannual Event

**Project No:** 6122201429.2003.\*\*\*\*

Method: Metals and Mercury by SW6020B/SW7470 Laboratory and Lot: TAL PIT SDG: 180-111648-1

Reviewer/Date: J. Hartness 11/12/2020 Senior Reviewer/Date: D. Knaub 11/13/20

YES NO NA COMMENTS

Hg analyzed on FB-02, ARGWC-23

Case Narrative and COC Completeness Review

OK

Sample Preservation and cooler temperature met (HNO₃ to pH<2)

OK, 2.0, 2.4, 2.7, 3.6°C

Holding times met (180 days; Hg = 28 days)

Coll: 09/29/20, 09/30/20, 10/01/20

Prep: metals – 10/12/20, 10/13/20 Anal: metals – 10/21/20, 10/22/20 Hg – 10/15/20

X QC Blanks Review

Method Blanks:

p. 24 MB 180-3331132/1-A = ND

p. 24 MB 180-333214/1-A = ND

Hq:

p. 25 MB 180-333418/1-A Hg = ND

Equipment Blanks: (non-dedicated equip.)

EB-02 (peristaltic) = ND Field Blanks: (DI water)

FB-02 B = 0.11 mg/L x10 = 1.1 mg/L

Flag assoc. results "U\*": Reason Code: BF ARAMW-1, ARAMW-2, ARGWA-20,

ARAWC-21, ARGWC-23, DUP-2

Laboratory Control Sample (LCS) recovery within limits

(Metals 80-120%, Hg = 80-120%)

p. 24 LCS 180-333113/2-A metals = All OK

p. 25 LCS 180-333214/2-A metals = All OK

<u>Hg:</u>

p. 25 LCS 180-333418/1-A Hg = 94%

SDG No: 180-111648-1 Page 10 of 14



Metals and Mercury by SW6020B/SW7470A (cont.)

Mo Hg

YES NO NA

**COMMENTS** 

Χ

# **Lab Duplicate - Field Duplicate precision goals met (20%) Results in ma/l**

Results III IIIg/L					
metal	ARGWC-23	DUP-2-0820	RPD/Diff	RL	
Ва	0.17	0.16	6%		
В	0.49 U*	0.47 U*	4.2%		
Ca	73	72	1.4%		
Co	0.0052	0.0047	10%		
Li	0.04	0.039	2.5%		

All RPDs/Diff OK

0.064

< 0.00013

Matrix Spike recoveries and RPDs within limits (75-125%, RPD 20)
No MS/MSDs submitted with this SDG – see 180-111645-1

0.062

NA

3.2%

- Total metals vs dissolved metals within limits (RPD < 20% or diff. < RL)

  No samples were analyzed for dissolved metals in AP2
- EDD Data Verification vs. Hardcopy (10% samples for each SDG)

SDG No: 180-111648-1 Page 11 of 14



#### **LEVEL II DATA QUALITY VALIDATION RECORD**

**Project:** Plant Arkwright AP2 CCR Second Semiannual Event

Project No: 6122201429.2003.\*\*\*\*

Method: Anions (chloride, fluoride, and sulfate) by E300.0 R2.1

Laboratory and Lot: TAL PIT SDG: 180-111648-1

Reviewer/Date: J. Hartness 11/12/2020 Senior Reviewer/Date: D. Knaub 11/13/20

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK

Sample Preservation and cooler temperature met (Cool to 6°C)

OK, 2.0, 2.4, 2.7, 3.6°C

Holding times met (Cl, SO₄, F – 28 days)

Coll: 09/29/20, 09/30/20, 10/01/20

Anal: 10/06/10, 10/12/20

**QC Blanks Review** 

X

Method Blanks:

p. 22 MB 180-332371/38 = ND

p. 22 MB 180-332371/6 = ND

p. 23 MB 180-333015/6 Cl, F = ND

p. 23 MB 180-333147/6  $SO_4 = ND$ 

**Equipment Blanks**:

EB-02 = ND

Field Blanks:

FB-02 = ND

Laboratory Control Sample (LCS) recovery within limits (90-110%)

p. 22 LCS 180-332371/37 = All recoveries ok

p. 22 LCS 180-332371/5 = All recoveries ok

p. 23 LCS 180-333015/5 Cl, F = All recoveries ok

p. 23 LCS 180-333147/5  $SO_4$  = All recoveries ok

Lab Duplicate - Field Duplicate precision goals met (20%)

Results in mg/L

anion	ARGWC-23	DUP-2-100120	RPD
Cl	3.8	3.8	0.0%
F	0.32	0.32	0.0%
SO <sub>4</sub>	64	63	1.6%

All OK

SDG No: 180-111648-1 Page 12 of 14



# Anions (chloride, fluoride, and sulfate) by E300.0 R2.1 (cont.)

YES NO NA COMMENTS

Matrix Spike recoveries and RPDs within limits (lab %Rec limits, RPD = 20)

p. 22 ARGWA-20 – all recoveries and RPDs okp. 23 DUP-02 – all recoveries and RPDs ok

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

<u>Sample</u>	<u>Anion</u>	<u>Dilution</u>
ARGWC-22	sulfate	10x
ARAMW-1	sulfate	5x
ARAMW-2	sulfate	5x
ARGWC-21	sulfate	5x

SDG No: 180-111648-1 Page 13 of 14



#### **LEVEL II DATA QUALITY VALIDATION RECORD**

**Project:** Plant Arkwright AP2 CCR Second Semiannual Event

Project No: 6122201429.2003.\*\*\*\*

Method: <u>Total Dissolved Solids (TDS) by SM 2540C</u> Laboratory and Lot: <u>TAL PIT SDG</u>: 180-111648-1

Reviewer/Date: J. Hartness 11/12/2020 Senior Reviewer/Date: D. Knaub 11/13/20

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK

Sample Preservation and cooler temperature met (Cool to 6°C)

OK, 2.0, 2.4, 2.7, 3.6°C

Holding times met (7 days)

Coll: 09/29/20, 09/30/20, 10/01/20 Anal: 10/01/20, 10/02/20, 10/05/20

QC Blanks Review

Χ

Method Blanks

p. 25 MB 180-331996/2 TDS = ND p. 26 MB 180-332159/2 TDS = ND p. 26 MB 180-332329/2 TDS = ND p. 26 MB 180-332342/2 TDS = ND

**Equipment Blanks:** 

EB-02 TDS = ND

Field Blanks:

FB-02 TDS = ND

Laboratory Control Sample (LCS) recovery within lab limits (80-120%)

p. 25 LCS 180-331996/1 TDS = 85% - OK p. 26 LCS 180-332159/1 TDS = 104% - OK

p. 26 LCS 180-332329/1 TDS = 94% - OK

p. 26 LCS 180-332342/1 TDS = 89% - OK

Lab Duplicate - Field Duplicate precision goals met (20%)

Results in mg/L

anion	ARGWC-23	DUP-2-100120	RPD
TDS	290	290	0.0%

p. 26 Lab dup on: ARAMW-1 RPD = 0.4

DUP-02 RPD = 8

Matrix Spike recoveries and RPDs within limits (if applicable)

MS/MSD not applicable for TDS

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

SDG No: 180-111648-1 Page 14 of 14



Data Evaluation Narrative
Project: Plant Arkwright Second Semiannual Event
Wood Project Number: 6122201429.2003.\*\*\*\*

Site: Ash Pond No. 2 – Former Plant Arkwright, Georgia

**Matrix: Groundwater** 

**Eurofins TestAmerica SDG No: 180-111648-2 (Radium)** 

# Introduction

A data quality evaluation (DQE) was performed on the laboratory data reported for the Second Semiannual groundwater sampling event conducted at Ash Pond No. 2 (Dry Ash Stockpile) at the former Plant Arkwright, located in Arkwright, Georgia in September/October 2020 for Southern Company Services (SCS). The samples were collected and analyzed per the protocols presented in the *Draft Former Plant Arkwright Field Sampling Plan* (FSP) (SCS, 2016) and in accordance with the monitoring requirements of §§ 257.90 through 257.95 as referenced in the Georgia Environmental Protection Division (EPD) Rules 391-3-4-.10(6)(a)-(c) and 391-3-4-.14. GA EPD rule 391-3-4-.10(6)(a) incorporates by reference the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) § 257 Subpart D.

The following sections provide summary discussions of the required data qualifications for the analytical methods for samples collected. A Level II DQE validation was performed on the samples analyzed by the fixed-based laboratory within these sample delivery groups (SDGs). A Level II DQE consists of review of the following criteria: sample integrity, holding times, method blanks, laboratory control samples (LCSs), matrix spikes/matrix spike duplicate (MS/MSD) recoveries and relative percent differences (RPDs), post digestion spikes (PDS), where applicable, laboratory and field duplicate RPDs, field and/or equipment blanks, and reporting limits. Additionally, the data summary tables generated from the electronic data deliverable (EDD) were compared to the laboratory hardcopy data report to verify that the EDD and laboratory data report agree.

The data were reviewed using the laboratory's precision and accuracy limits, the method requirements, and the SCS Field Sampling Plan (FSP) (SCS, 2016). DQE data qualifications were applied, if necessary, using the procedures in USEPA Region IV Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy (USEPA, 2011) and the National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2017), as guidance, and professional judgment using the following qualifiers:

<u>Qualifier</u>	<u>Usable Data</u>
J	The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. SCS
	Definition: Value J indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce as reliable of a value. Therefore, the value displayed (value J) is qualified by the laboratory as estimated.
UJ	The analyte was analyzed for but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.

SDG No: 180-111648-2 (Radium) Page 1 of 9



<u>Qualifier</u>	<u>Usable Data (continued)</u>
U	Analyte was analyzed for but was not detected above the level of the reported sample
U*	reporting/method detection limit. Note: SCS does not use the "U" flag except when reporting results for radium that are detected below the Minimum Detection Concentration (MDC). This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.
<b>Qualifier</b>	<u>Unusable Data</u>
D	
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample
ĸ	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet QC criteria. The presence or absence of the analyte cannot be confirmed.
UR	and meet QC criteria. The presence or absence of the analyte cannot be confirmed.  The analyte was analyzed for but was not detected above the level of the reported sample
	and meet QC criteria. The presence or absence of the analyte cannot be confirmed.  The analyte was analyzed for but was not detected above the level of the reported sample reporting or method detection; however, the data are unusable. The sample results are
	and meet QC criteria. The presence or absence of the analyte cannot be confirmed.  The analyte was analyzed for but was not detected above the level of the reported sample

The analytical results for the samples reported in this SDG are usable with the qualifications discussed in this narrative. A summary of the data with associated qualifiers is presented in **Table 1**.

## **Deliverables**

The data package as submitted to Wood Environment & Infrastructure Solutions, Inc. (Wood) is complete to perform a Level II DQE for USEPA Methods 9315 and 9320.

### **Sample Integrity**

The groundwater samples were submitted to Eurofins TestAmerica laboratory located in St. Louis, Missouri (TAL SL) via the Pittsburgh, Pennsylvania location and analyzed for radium-226 and 228 combined by Methods SW9315 and SW9320. As requested by SCS, the radium data was reported separately from the other CCR Appendix III and IV parameters (reported in SDG 180-111648-1).

Based on the information provided on the Chain-of-Custody (COC) forms, the field samples arrived at the laboratory intact and within the temperature range and preservation requirements. Completed COC documents are included in the data package.

# **Sample Identification**

This SDG contains the following groundwater and quality control (QC) samples:

Sample ID	Sample Date	<b>DQE Level</b>	Sample ID	Sample Date	<b>DQE Level</b>
Ash Pond No. 2					
ARGWA-19	09/29/20	II	ARGWC-21	10/01/20	II
ARGWA-20	09/30/20	II			
ARGWC-22	09/30/20	II	<b>QC Samples</b>		
ARAMW-1	09/30/20	II	EB-02	09/30/20	II
ARGWC-23	10/01/20	II	FB-02	10/01/20	II
ARAMW-2	10/01/20	II	DUP-02	10/01/20	II

SDG No: 180-111648-2 (Radium) Page 2 of 9



These samples were collected from the Ash Pond No. 2 monitoring wells listed above between September 29 and October 1, 2020. Each of the sample IDs above were amended with a sample date code (-mmddyy) by Wood to create unique IDs in the database. Sample DUP-02 is a field duplicate of ARGWC-23. Sample EB-02 is an equipment blank, and sample FB-02 is a field blank. The equipment blank sample associations are listed below:

<u>Equipment Blank</u> <u>Associated Samples</u>

EB-02 (peristaltic pump) ARAMW-1, ARAMW-2, ARGWC-22, ARGWC-23, DUP-02

The analytical results for the radium data are usable with the qualifications discussed in this narrative. A summary of the data quality is presented below.

#### Radium (SW9315/SW9320)

The samples were submitted to TAL SL for radium-226, radium-228 and total radium by Methods SW9315 and SW9320. Total radium was measured by calculation. Each of the Level II components were within laboratory QC limits except for method blank contamination and LCS recoveries.

### **Holding Times**

The sample analyses were performed within the 6 months analysis holding times.

#### Method Blanks

The laboratory method blanks did not contain reportable concentrations of radium-228 above the minimum detected concentration (MDC) indicating no interference from the analytical systems. One of the method blanks contained radium-226 above the MDC, and any result less than the two-sigma (2 $\sigma$ ) normalized absolute difference (NAD) limit of 2.58 are considered "not detected" as possible lab artifacts: **Reason Code: BL** 

Action: The radium-226 and/or total radium results for samples ARGWA-19, ARGWA-20, ARGWC-22 were qualified as not detected and flagged "U\*".

## **Laboratory Control Sample (LCS)**

Percent recoveries for target analytes were within quality control limits.

# **Laboratory Duplicate Precision**

Laboratory duplicate analyses were performed via the analysis of LCSDs. The relative error ratios (RERs) between the LCS and LCSDs were within QC limits.

### Field Duplicate Precision

One field duplicate pair (ARGWC-23/DUP-02) was submitted and the RER could not be calculated because the results in one or both samples were less than the MDCs.

SDG No: 180-111648-2 (Radium) Page 3 of 9



# Sampling Accuracy (Equipment Blanks, Field Blanks)

Field accuracy was measured through the collection of equipment/rinsate blanks and field blanks. Equipment rinsate blanks are collected to monitor the decontamination process on non-dedicated sampling equipment. Field blanks are collected to assess the water used to decontaminate the equipment and the containers into which samples are placed. The equipment blank (EB-02) did not contain radium-226 or radium-228 above the MDC. The field blank (FB-02) contained radium-228 above the MDC, and any result less than the two-sigma (2 $\sigma$ ) normalized absolute difference (NAD) limit of 2.58 are considered "not detected" as possible field artifacts: **Reason Code: BF** 

Action: The radium-228 and total radium results for sample ARGWC-23 were qualified as not detected and flagged "U\*".

#### Carrier and Tracer Yield Recoveries

The carrier and tracer yield recoveries for the samples and QC were within the QC limits of 40% to 110% with the exception of Yttrium recovery in sample EB-02 for radium-228. Yttrium recovered above the QC limits indicating a possible high bias. High bias affects positive results only.

Action: No qualification was necessary because radium-228 was not detected in sample EB-02.

# Reporting Limits/Minimum Detectable Concentrations

The RLs (MDCs) met the SCS project RLs and were below the screening level of 5 pCi/L for samples submitted for the analysis of radium-226 and radium-228 by Methods SW9315 and SW9320.

Sample results in which the values were reported at concentrations below the MDC were flagged "U" and considered not detected.

#### Total and Dissolved Radium Comparison

If total and dissolved radium samples were collected, comparison of the total and dissolved results can aid in the representativeness of the total radium value verses the radium that may be associated with suspended solids and radium actually dissolved within the water column. The dissolved radium results should be less than or equal to the total radium concentration for positive results greater than 5 times the RL. No total and dissolved samples were collected and reported in this SDG.

## **Overall Site Evaluation and Professional Judgment Flagging Changes**

The chemical data included in this SDG was validated in general accordance with the guidelines contained in the project work plan and validation SOPs. Professional judgment was not used to modify flags for results reported in samples presented in this SDG.

SDG No: 180-111648-2 (Radium) Page 4 of 9



# **Completeness**

A total of 7 wells, along with the required QC samples, were sampled and analyzed during the September/October 2020 event in Ash Pond No. 2 according to the FSP. The 7 well locations along with field duplicate, equipment blank, and field blank samples were reported in this SDG and were sampled and analyzed as scoped.

Therefore, both field and analytical completeness calculated for this SDG was 100%.

#### References

SCS, 2016, Draft Field Sampling Plan – Former Plant Arkwright, Georgia Power Company, Earth Science and Environmental Engineering Technical Services, Southern Company Services, Inc. (SCS), August 17, 2016. Permit modification to include the Appendix III and IV sampling requirements; approval of modified permit and FSP pending.

USEPA, 2011. Region 4, Science and Ecosystem Support Division, Quality Assurance Section, MTSB, Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy, Revision 2.0; September 2011.

USEPA, 2017. National Office of Superfund Remediation and Technology Innovation, National Functional Guidelines for Inorganic Superfund Methods Data Review, Revision 0.0; January 2017.

Prepared by/Date: <u>JAH 12/16/2020</u> Checked by/Date: <u>DWK 12/17/2020</u>

SDG No: 180-111648-2 (Radium) Page 5 of 9



# TABLE 1 SUMMARY OF DATA QUALIFIERS

SDG No: 180-111648-2 (Radium) Page 6 of 9

# TABLE 1

#### **SUMMARY OF DATA QUALIFIERS**

#### SAMPLE DELIVERY GROUP: 180-111648-2

# SAMPLING DATES: September 29 through October 1, 2020

Plant Arkwright Ash Pond No. 2 - Second Semiannual Event

Field Sample ID	Location ID	Type	SDG	Method	Parameter Name	Lab Result	Lab Qual	Val Qual	Reason Codes	Units
ARGWA-19	ARGWA-19	N	180-111648-2	9315	radium-226	0.337		U*	BL	pCi/L
ARGWA-20	ARGWA-20	N	180-111648-2	9315	radium-226	0.267		U*	BL	pCi/L
ARGWA-20	ARGWA-20	N	180-111648-2	9315 + 9320	total radium	0.679		U*	BL	pCi/L
ARGWC-22	ARGWC-22	N	180-111648-2	9315	radium-226	0.18		U*	BL	pCi/L
ARGWC-22	ARGWC-22	N	180-111648-2	9315 + 9320	total radium	0.602		U*	BL	pCi/L
ARGWC-23	ARGWC-23	N	180-111648-2	9320	radium-228	0.521		U*	BF	pCi/L
ARGWC-23	ARGWC-23	N	180-111648-2	9315 + 9320	total radium	0.749		U*	BF	pCi/L

#### Notes:

#### Reason Codes:

BF = Field blank contamination. The result should be considered "not-detected".

BL = Laboratory blank contamination. The result should be considered "not-detected".

#### Validation Qualifiers:

U\* = This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.

Prepared by/Date: JAH 12/16/20 Checked by/Date: DWK 12/17/20



# **DQE CHECKLISTS**

SDG No: 180-111648-2 (Radium) Page 7 of 9



# **LEVEL II DATA QUALITY VALIDATION RECORD**

**Project:** Plant Arkwright CCR 2<sup>nd</sup> Semiannual Event

Project No: 6122201429.2003.\*\*\*\*

Method: Radium-226, Radium-228 and Combined Radium by Methods 9315 and 9320

Laboratory and Lot: TAL PIT SDG: 180-111648-2

Reviewer/Date: J. Hartness 12/16/2020 Senior Reviewer/Date: D. Knaub 12/17/2020

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK – Samples anal. @ TAL-St. Louis

Sample Preservation and cooler temperature met (HNO₃ to pH<2)

OK, 2.0, 2.4, 2.7, and 3.6° C.

Holding times met (180 days)

Collected: 09/29/20-10/01/20

Ra-226: prep: 10/06/20, 10/13/20;

anal: 10/28/20, 11/04/20, 11/08/20

Ra 228: prep: 10/06/20, 10/13/20;

anal: 10/15/20, 10/30/20

Ra, combined: anal: 11/02/20, 11/18/20

QC Blanks Review (net blank value < MDC)

Ra-226

p. 23 MB 160-48743/24-A Ra-226=0.1797 pCi/L

(assoc. samples: EB-02, ARGWA-19, ARGWA-20, ARGWC-22, ARAMW-1)

Assoc. results < NAD  $2\sigma$  (2.58) flagged "U\*"

**Reason code: BL** ARGWA-19, ARGWA-20, ARGWC-22

p. 23 MB 160-485335/22-A Ra-226 < MDC

Ra-228

p. 23 MB 160-484744/24-A Ra-228 < MDC p. 24 MB 160-485338/22-A Ra-228 < MDC

Equipment Blanks: (non-dedicated equip.)

EB-02 - All < MDC

<u>Field Blanks:</u> (DI water) FB-02 - Ra-228 = 0.747 pCi/L

Assoc. results < NAD  $2\sigma$  (2.58) flagged "U\*"

**Reason code: BF** ARGWC-23

SDG No: 180-111648-2 (Radium) Page 8 of 9



<u>YES</u>	<u>NO</u>	<u>NA</u>				<u>COMMENTS</u>
			(75-125%; I Ra-226 p. 23 LCS 16 p. 23 LCS 16 Ra-228 p. 24 LCS/16	Control Sample RPD = RER (2σ = 0-484743/1-A = R 0-485335/1-A = R 60-484744/1-A = R 0-485338/1-A = R	Ra-226 = 96% Ra-226 = 85% Ra-228 = 100%	ithin lab limits
		$\boxtimes$	every 10 sa Field Duplico Ra-226 Ra-226 Ra, total	mples (RPD = R ate: ARGWC-23 = 0.228 0.521 0.749	RER (2σ) <3) = DUP-02-100120 <0.132 <0.485	RER diff = 0.096-Ok, <rl(1.0) diff = 0.036-Ok, <rl(1.0) diff = 0.264-Ok, <rl(5.0)< td=""></rl(5.0)<></rl(1.0) </rl(1.0) 
			Carrier/Trac Ra-228 (Car EB-02 (Ra-2 Flag positiv	rrier Ba, Tracer: 28) Yttrium = <mark>12</mark>	<b>6</b> %	r: Ba);
×			EDD Data V	erification vs. H	Hardcopy (10% sar	mples for each SDG)

SDG No: 180-111648-2 (Radium) Page 9 of 9



# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-113158-1

Client Project/Site: CCR - Arkwright Surfacewater

For:

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

Attn: Joju Abraham

Authorized for release by: 11/18/2020 9:17:33 AM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

Review your project results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

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

PA Lab ID: 02-00416

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	4
Certification Summary	
Sample Summary	6
Method Summary	7
Lab Chronicle	8
Client Sample Results	10
QC Sample Results	13
QC Association Summary	16
Chain of Custody	18
Receipt Chacklists	20

4

**5** 

7

9

10

12

13

# **Case Narrative**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-113158-1

Job ID: 180-113158-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-113158-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 11/4/2020 9:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.8° C.

#### GC Semi VOA

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

#### Metals

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

#### **General Chemistry**

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

# **Definitions/Glossary**

Client: Southern Company Job ID: 180-113158-1

Project/Site: CCR - Arkwright Surfacewater

## **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.

**General Chemistry** 

Qualifier Description

HF Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

**Glossary** 

Abbreviation These commonly used abbreviations may or may not be present in this report.

Eisted under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

G

9

10

12

13

# **Accreditation/Certification Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-113158-1

# Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	<b>Expiration Date</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

- -

-

6

9

10

12

13

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

Eurofins TestAmerica, Pittsburgh

# **Sample Summary**

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-113158-1	BC-0.8	Water	11/03/20 12:38	11/04/20 09:00	
180-113158-2	BC-0.5.5	Water	11/03/20 11:24	11/04/20 09:00	
180-113158-3	BC-BR	Water	11/03/20 11:49	11/04/20 09:00	

Job ID: 180-113158-1

# **Method Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 9040C	pH	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
SM2320 B	Alkalinity, Total	SM18	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT

#### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

# **Laboratory References:**

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

Job ID: 180-113158-1

3

4

£

7

8

3

10

15

13

# **Lab Chronicle**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.8 Lab Sample ID: 180-113158-1

Date Collected: 11/03/20 12:38 Date Received: 11/04/20 09:00

**Matrix: Water** 

Job ID: 180-113158-1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 nt ID: INTEGRION		1			336722	11/11/20 18:17	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	336278	11/07/20 08:11	KHM	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B at ID: A		1			337118	11/13/20 20:09	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C at ID: NOEQUIP		1			336783	11/11/20 23:38	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C at ID: NOEQUIP		1	100 mL	100 mL	336451	11/09/20 17:15	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B at ID: PCTITRATOR		1			336113	11/05/20 18:39	AVS	TAL PIT

Client Sample ID: BC-0.5.5 Lab Sample ID: 180-113158-2

Date Collected: 11/03/20 11:24 **Matrix: Water** Date Received: 11/04/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1 t ID: CHIC2100A		1			336638	11/11/20 13:41	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	336278	11/07/20 08:11	KHM	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			337118	11/13/20 20:18	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: PCTITRATOR		1			336799	11/11/20 19:53	РМН	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	336451	11/09/20 17:15	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			336113	11/05/20 18:45	AVS	TAL PIT

**Client Sample ID: BC-BR** Lab Sample ID: 180-113158-3 Date Collected: 11/03/20 11:49 **Matrix: Water** 

Date Received: 11/04/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHIC2100A		1			336638	11/11/20 13:58	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	336278	11/07/20 08:11	KHM	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			337118	11/13/20 20:21	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: PCTITRATOR		1			336799	11/11/20 22:00	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	336451	11/09/20 17:15	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B		1			336113	11/05/20 18:50	AVS	TAL PIT

Eurofins TestAmerica, Pittsburgh

Page 8 of 20

11/18/2020

# **Lab Chronicle**

Client: Southern Company

Job ID: 180-113158-1 Project/Site: CCR - Arkwright Surfacewater

## **Laboratory References:**

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

### **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

KHM = Kyle Mucroski

Batch Type: Analysis

AVS = Abbey Smith

GRB = Gabriel Berghe

MJH = Matthew Hartman

PMH = Paloma Hoelzle

RSK = Robert Kurtz

SAT = Stephen Tallam

Client: Southern Company Project/Site: CCR - Arkwright Surfacewater Job ID: 180-113158-1

Lab Sample ID: 180-113158-1 Client Sample ID: BC-0.8

Date Collected: 11/03/20 12:38 Date Received: 11/04/20 09:00

	 . • •			
	Ma	trix:	Water	

Method: EPA 300.0 R2.1 - Anio									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.5		1.0	0.32	mg/L			11/11/20 18:17	1
Fluoride	0.066	J	0.10	0.044	mg/L			11/11/20 18:17	1
Sulfate	3.8		1.0	0.38	mg/L			11/11/20 18:17	1

Method: EPA 6020B - Metals (ICP/MS) - Total Recoverable											
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac				
Cobalt	0.00042 J	0.0025	0.00013 mg/L		11/07/20 08:11	11/13/20 20:09	1				

General Chemistry						_	_		
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.1	0.1	SU			11/11/20 23:38	1
Total Dissolved Solids	84		10	10	mg/L			11/09/20 17:15	1
Total Alkalinity as CaCO3 to pH 4.5	55		5.0	5.0	mg/L			11/05/20 18:39	1
Bicarbonate Alkalinity as CaCO3	55		5.0	5.0	mg/L			11/05/20 18:39	1

Client: Southern Company Job ID: 180-113158-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.5.5 Lab Sample ID: 180-113158-2

Date Collected: 11/03/20 11:24 Matrix: Water Date Received: 11/04/20 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.2		1.0	0.32	mg/L			11/11/20 13:41	1
Fluoride	0.050	J	0.10	0.044	mg/L			11/11/20 13:41	1
Sulfate	6.1		1.0	0.38	mg/L			11/11/20 13:41	1
Method: EPA 6020B - Metals (IC	P/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00047	J	0.0025	0.00013	mg/L		11/07/20 08:11	11/13/20 20:18	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			11/11/20 19:53	1
<b>Total Dissolved Solids</b>	88		10	10	mg/L			11/09/20 17:15	1
Total Alkalinity as CaCO3 to pH 4.5	55		5.0	5.0	mg/L			11/05/20 18:45	1
Bicarbonate Alkalinity as CaCO3	55		5.0	5 O	mg/L			11/05/20 18:45	

Client: Southern Company

Job ID: 180-113158-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-BR Lab Sample ID: 180-113158-3

Date Collected: 11/03/20 11:49
Date Received: 11/04/20 09:00

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.3		1.0	0.32	mg/L			11/11/20 13:58	1
Fluoride	<0.044		0.10	0.044	mg/L			11/11/20 13:58	1
Sulfate	6.2		1.0	0.38	mg/L			11/11/20 13:58	1
Method: EPA 6020B Analyte	- Metals (ICP/MS) - To Result	otal Recove Qualifier	rable RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
		J	0.0025	0.00013	ma/l		11/07/20 08:11	11/13/20 20:21	

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			11/11/20 22:00	1
Total Dissolved Solids	85		10	10	mg/L			11/09/20 17:15	1
Total Alkalinity as CaCO3 to pH 4.5	55		5.0	5.0	mg/L			11/05/20 18:50	1
Bicarbonate Alkalinity as CaCO3	55		5.0	5.0	mg/L			11/05/20 18:50	1

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-113158-1

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

Lab Sample ID: MB 180-336638/6

**Matrix: Water** 

**Analysis Batch: 336638** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

MB MB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Chloride < 0.32 1.0 0.32 mg/L 11/11/20 05:54 0.044 mg/L Fluoride < 0.044 0.10 11/11/20 05:54 Sulfate 1.0 0.38 mg/L 11/11/20 05:54 < 0.38

Lab Sample ID: LCS 180-336638/5

**Matrix: Water** 

**Analysis Batch: 336638** 

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

Spike LCS LCS %Rec. Limits Analyte Added Result Qualifier Unit D %Rec Chloride 50.0 50.9 mg/L 102 90 - 110 Fluoride 2.50 2.49 mg/L 99 90 - 110 Sulfate 50.0 90 - 110 50.0 mg/L 100

Lab Sample ID: MB 180-336722/6

**Matrix: Water** 

**Analysis Batch: 336722** 

Client Sample ID: Method Blank

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Type: Total/NA

	IVIB	MR							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			11/11/20 12:23	1
Fluoride	<0.044		0.10	0.044	mg/L			11/11/20 12:23	1
Sulfate	<0.38		1.0	0.38	mg/L			11/11/20 12:23	1

Lab Sample ID: LCS 180-336722/5

**Matrix: Water** 

Analysis Batch: 336722

/ maryolo Batom ocor 22								
_	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	50.0	51.8		mg/L		104	90 - 110	
Fluoride	2.50	2.52		mg/L		101	90 - 110	
Sulfate	50.0	51.1		mg/L		102	90 - 110	

Lab Sample ID: 180-113158-1 MS

Matrix: Water

	Analysis Batch: 336722									Fieb is	pe. Iotal/NA
l	,	Sample	Sample	Spike	MS	MS				%Rec.	
l	Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
l	Chloride	9.5		50.0	60.1		mg/L		101	90 - 110	

**Matrix: Water** 

**Analysis Batch: 336722** 

Lab Sample ID: 180-1131	58-1 MSD				Clie	nt Sample ID:	BC-0.8
Sulfate	3.8	50.0	54.5	mg/L	101	90 - 110	
Fluoride	0.066 J	2.50	2.52	mg/L	98	90 - 110	

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	9.5		50.0	61.0		mg/L		103	90 - 110	2	20
Fluoride	0.066	J	2.50	2.60		mg/L		101	90 - 110	3	20
Sulfate	3.8		50.0	55.3		mg/L		103	90 - 110	1	20

Eurofins TestAmerica, Pittsburgh

Page 13 of 20

Client Sample ID: BC-0.8 Prep Type: Total/NA

11/18/2020

10

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-113158-1

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

Lab Sample ID: MB 180-336278/1-A

**Matrix: Water** 

**Analysis Batch: 337118** 

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

**Prep Batch: 336278** 

MB MB

Result Qualifier RL **MDL** Unit Analyzed Dil Fac Analyte Prepared 0.0025 11/07/20 08:11 11/13/20 19:41 Cobalt <0.00013 0.00013 mg/L

Lab Sample ID: LCS 180-336278/2-A **Matrix: Water** 

**Analysis Batch: 337118** 

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

**Client Sample ID: Lab Control Sample** 

**Client Sample ID: Lab Control Sample** 

Client Sample ID: Lab Control Sample

**Prep Batch: 336278** %Rec.

Prep Type: Total/NA

**Prep Type: Total/NA** 

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

Spike LCS LCS Added Result Qualifier Unit D %Rec Limits Analyte Cobalt 0.500 0.504 mg/L 101 80 - 120 Calcium 25.0 28.6 mg/L 114 80 - 1201.25 mg/L Boron 1.21 97 80 - 120

Method: EPA 9040C - pH

Lab Sample ID: LCS 180-336783/1

**Matrix: Water** 

Analysis Batch: 336783

Spike LCS LCS %Rec. Added Result Qualifier Limits Analyte Unit D %Rec 7.00 SU 100 99 - 101 рΗ 7.0

Lab Sample ID: LCS 180-336799/29

**Matrix: Water** 

**Analysis Batch: 336799** 

LCS LCS %Rec. Spike Added Analyte Result Qualifier D %Rec Limits Unit рΗ 7.00 7.0 SU 100 99 - 101

Lab Sample ID: LCS 180-336799/3

**Matrix: Water** 

**Analysis Batch: 336799** 

Spike LCS LCS %Rec. Added **Analyte** Result Qualifier Unit D %Rec Limits 7.00 SU 99 - 101 7.0 100

Lab Sample ID: 180-113158-3 DU

**Matrix: Water** 

**Analysis Batch: 336799** 

Client Sample ID: BC-BR

DU DU RPD Sample Sample Analyte Result Qualifier Result Qualifier Unit D **RPD** Limit 7.4 HF pН 7.5 SU 0.5

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

Lab Sample ID: MB 180-336451/2

**Matrix: Water** 

Analysis Batch: 336451

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed <10 10 10 mg/L 11/09/20 17:15 **Total Dissolved Solids** 

Eurofins TestAmerica, Pittsburgh

**Client Sample ID: Method Blank** 

# **QC Sample Results**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-113158-1

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

Lab Sample ID: LCS 180-336451/1

Matrix: Water

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

Analysis Batch: 336451

AnalyteAdded<br/>Total Dissolved SolidsResult<br/>714Qualifier<br/>700Unit<br/>mg/LD<br/>MRec<br/>Unit<br/>mg/L%Rec<br/>D<br/>98

%Rec.

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-336113/53

**Matrix: Water** 

**Analysis Batch: 336113** 

Client Sample ID: Method Blank

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Type: Total/NA

MB MB Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac 5.0 5.0 mg/L Total Alkalinity as CaCO3 to pH 4.5 <5.0 11/05/20 16:59 1 5.0 mg/L Bicarbonate Alkalinity as CaCO3 <5.0 5.0 11/05/20 16:59

Lab Sample ID: LCS 180-336113/52

**Matrix: Water** 

Analysis Batch: 336113

Alialysis Datch. 330113								
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Total Alkalinity as CaCO3 to pH	250	236		mg/L	_	95	90 - 110	 

4.5

5

4

6

7

\_

10

# **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

HPLC/IC

**Analysis Batch: 336638** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-2	BC-0.5.5	Total/NA	Water	EPA 300.0 R2.1	
180-113158-3	BC-BR	Total/NA	Water	EPA 300.0 R2.1	
MB 180-336638/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-336638/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

**Analysis Batch: 336722** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total/NA	Water	EPA 300.0 R2.1	
MB 180-336722/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-336722/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-113158-1 MS	BC-0.8	Total/NA	Water	EPA 300.0 R2.1	
180-113158-1 MSD	BC-0.8	Total/NA	Water	EPA 300.0 R2.1	

**Metals** 

**Prep Batch: 336278** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total Recoverable	Water	3005A	
180-113158-2	BC-0.5.5	Total Recoverable	Water	3005A	
180-113158-3	BC-BR	Total Recoverable	Water	3005A	
MB 180-336278/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-336278/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

**Analysis Batch: 337118** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total Recoverable	Water	EPA 6020B	336278
180-113158-2	BC-0.5.5	Total Recoverable	Water	EPA 6020B	336278
180-113158-3	BC-BR	Total Recoverable	Water	EPA 6020B	336278
MB 180-336278/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	336278
LCS 180-336278/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	336278

**General Chemistry** 

**Analysis Batch: 336113** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total/NA	Water	SM2320 B	
180-113158-2	BC-0.5.5	Total/NA	Water	SM2320 B	
180-113158-3	BC-BR	Total/NA	Water	SM2320 B	
MB 180-336113/53	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-336113/52	Lab Control Sample	Total/NA	Water	SM2320 B	

**Analysis Batch: 336451** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total/NA	Water	SM 2540C	
180-113158-2	BC-0.5.5	Total/NA	Water	SM 2540C	
180-113158-3	BC-BR	Total/NA	Water	SM 2540C	
MB 180-336451/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-336451/1	Lab Control Sample	Total/NA	Water	SM 2540C	

**Analysis Batch: 336783** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total/NA	Water	EPA 9040C	

Eurofins TestAmerica, Pittsburgh

Page 16 of 20

Job ID: 180-113158-1

11/18/2020

# **QC Association Summary**

Client: Southern Company

Job ID: 180-113158-1

Project/Site: CCR - Arkwright Surfacewater

# **General Chemistry (Continued)**

# **Analysis Batch: 336783 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-336783/1	Lab Control Sample	Total/NA	Water	EPA 9040C	

# **Analysis Batch: 336799**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-2	BC-0.5.5	Total/NA	Water	EPA 9040C	- <u> </u>
180-113158-3	BC-BR	Total/NA	Water	EPA 9040C	
LCS 180-336799/29	Lab Control Sample	Total/NA	Water	EPA 9040C	
LCS 180-336799/3	Lab Control Sample	Total/NA	Water	EPA 9040C	
180-113158-3 DU	BC-BR	Total/NA	Water	EPA 9040C	

1

3

Λ

5

\_

8

11

1:

# Chain of Custody Record

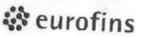
Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pitsburgh, PA 15238 Phone: 412-963-7058 Fax: 412-963-2488

244- ATLANTA

	Sampler	١.		Lab PM		-	13			arrier Tracking No(s);		COC No:		
Client Information	KAGO	JOHNSON	2005	Lanie	-demy-A	5	125	ひかい	I			180-6538	180-65384-13119.1	
Clent Contact Warren Johnson	678-48	15	8968	Jerry Jerry	Spine	@Euro	A PAIC CARG	200	7 6 10			Page: Page:1 of 1	of 1	
Company ARCADIS U.S., Inc.								- Pu	analysis Regu	Requested		# gor		
Address 2839 Paces Ferry Road SE Suite 900	Due Date Requested	:pa				$\vdash$	L	129			F	Preservat	n Cod	
City. Atlanta	TAT Requested (days	ays):						****				B - NaOH C - Zn Acetaba	3	xane ne vac2
State, Zip. GA, 30339		7	DAY			J		200	0		_	D - Nitric Aci	р	P - Na2045 Q - Na2503
Phone 404-952-1615(Tel)	Porti	Series A	2606	(-				543	_			G - Amchior H - Ascorbio	Acid	SO4 SO4 Dodacahufrata
Email: warren johnson@arcadis.com	WO#				(oN		207-111	ew,	(ALC				200	
Project Name: Georgia Power CCR	Project #: 18023144				JO 88		IBMO.	1769	Al-M-					W - pH 4-5 Z - other (specify)
SIR PLANT ARKLURIENT	*WOSS				Y) asi			500				of con		
-	Sample Date	Sample	Sample Type (C=comp, G=grab)	Matrix (Wwwater, Swold, Owasteloli, Owasteloli,	Field Filtered Perform MS/M	5020B - Metals 2320B, 9040C,	Se40C_Calcd -	- <u>80500</u>				Total Number	Special Instructions Note:	. ore More
	V	X	4 (6)		X	-	-	-					1	
36-0.8	11/3/20	1238	9	Water		~	×	×				35,28	8-/11,72,55	83,45,50,"W
BC-0,5.5	11/3/20	1124	3	Water		×	×	×			-	32,28	14"4	-83 42,00"W
Bc-BR	11/3/20	1149	.5	Water		×	×					32, 22,	12"N	1-83041 59"W
				Water			_							
				Water										
				Water										
										180-113158 Chain of Custody	Chain	of Custody		
						+	-	$\exists$		=	7			
Possible Hazard Identification					San	O e Jo	ispos	- I A fee	marchass	sessed if samole	S are ref	fained longer	then I mont	7
Non-Hazard Flammable Skin Imtant Poison B	usan B Unknown	╙	Radiologica!		ш	Retu	or m	Client	No.	Return To Client Disposal By Lab Archive For Mont		rchive For	Mo	Months
Deliverable Requested: I, II, III, IV, Other (specify)					Spe	cial Ins	structio	ns/QC	Special Instructions/QC Requirements	.00				
Empty Kit Relinquished by:		Date:			ime:		Н			Method of Shipment	ent			
Reinquished by	11/03/20 20	[] oz	00	Area 1	y	Sec.	18	10	Say	(C)3	120	27	3 oh 1	F.A.
Reinquigned by (1/872e)	Date/Time:	18,00		Company		Seperve		3	de	Clark	7/2/	000	2	X
Custridu Copie Idiade   Custodu Copi No													4	
						Cooler	Tempera	ture(s) °C	Dooler Temperature(s) °C and Other Rema	narks.				
													Ver. (	Ver. 01/16/2019



# **Environment Testing** TestAmerica

ORIGIN ID:LIYA (678) 966-9891 GEORGE TAYLOR EUROFINS TESTAMERICA 6500 MCDONDUGH DRIVE SUITE C-10 NORCROSS, GA 30093 UNITED STATES US

SHIP DATE: 03NDV20 ACTWGT: 23.00 LB CAD: 859116/CAFE3406

BILL RECIPIENT

10 SAMPLE RECIEVING **EUROFINS TESTAMERICA PITTSBURGH** 301 ALPHA DR. RIDC PARK PITTSBURGH PA 15238

(412) 963-7068 REF: ARCADIS PLT ARTW

11**0-1**13158 Waybill 180-113158 Waybill





TRK# 1516 9325 7929

WED - 04 NOV 10:30A PRIORITY OVERNIGHT

NA AGCA

15238 PIT'

ncorrected temp ermometer ID





Client: Southern Company

Job Number: 180-113158-1

Login Number: 113158 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Say, Thomas C

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

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-114167-1

Client Project/Site: CCR - Plant Arkwright

### For:

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

Attn: Joju Abraham



Authorized for release by: 12/15/2020 6:57:15 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

Client: Southern Company Project/Site: CCR - Plant Arkwright Laboratory Job ID: 180-114167-1

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	4
Certification Summary	5
Sample Summary	6
Method Summary	7
Lab Chronicle	8
Client Sample Results	9
QC Sample Results	10
QC Association Summary	13
Chain of Custody	15
Receipt Chacklists	16

- /

5

7

Ö

10

11

1:

# **Case Narrative**

Client: Southern Company

Job ID: 180-114167-1 Project/Site: CCR - Plant Arkwright

Job ID: 180-114167-1

Laboratory: Eurofins TestAmerica, Pittsburgh

**Narrative** 

Job Narrative 180-114167-1

### Comments

No additional comments.

### Receipt

The sample was received on 12/1/2020 10:00 AM; the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

### GC Semi VOA

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

### Metals

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

### Field Service / Mobile Lab

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

### **General Chemistry**

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

# **Definitions/Glossary**

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

### **Qualifiers**

Qualifier Qualifier Description

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

**Metals** 

Qualifier Qualifier Description

B Compound was found in the blank and sample.

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

**Glossary** 

Abbreviation These commonly used abbreviations may or may not be present in this report.

Eisted under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

.

Λ

7

8

46

11

12

# **Accreditation/Certification Summary**

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

# Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	<b>Identification Number</b>	<b>Expiration Date</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

# **Sample Summary**

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

Lab Sample ID Client Sample ID Matrix Collected Received Asset ID 180-114167-1 <u>11/30/20 15:30</u> <u>12/01/20 10:00</u> ARAMW-7 Water

Job ID: 180-114167-1

# **Method Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Method **Method Description** Protocol Laboratory TAL PIT EPA 300.0 R2.1 Anions, Ion Chromatgraphy EPA **EPA 6020B** Metals (ICP/MS) SW846 **TAL PIT** Sulfide, Acid soluble and Insoluble (Titrimetric) EPA 9034 SW846 TAL PIT SM 2540C Solids, Total Dissolved (TDS) SM TAL PIT SM2320 B Alkalinity, Total SM18 TAL PIT Field Sampling EPA Field Sampling TAL PIT 3005A Preparation, Total Recoverable or Dissolved Metals SW846 TAL PIT 9030B Sulfide, Distillation (Acid Soluble and Insoluble) SW846 **TAL PIT** 

### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

### **Laboratory References:**

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

2

3

0

7

1 N

11

12

1

12/15/2020

# **Lab Chronicle**

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARAMW-7 Lab Sample ID: 180-114167-1

Date Collected: 11/30/20 15:30 Matrix: Water Date Received: 12/01/20 10:00

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: INTEGRION		1			338905	12/01/20 13:19	SAT	TAL PIT
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: INTEGRION		10			338905	12/01/20 13:40	SAT	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	339223	12/02/20 14:15	TJO	TAL PIT
Dissolved	Analysis Instrumen	EPA 6020B at ID: A		1			339557	12/04/20 16:44	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	339223	12/02/20 14:15	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B at ID: A		1			339557	12/04/20 16:40	RSK	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	339220	12/02/20 13:30	CMR	TAL PIT
Total/NA	Analysis Instrumen	EPA 9034 at ID: NOEQUIP		1			339592	12/02/20 15:30	CMR	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C at ID: NOEQUIP		1	100 mL	100 mL	339384	12/03/20 17:39	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B at ID: PCTITRATOR		1			339186	12/02/20 10:39	AVS	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling at ID: NOEQUIP		1			340395	11/30/20 15:30	AGJ	TAL PIT

### Laboratory References:

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

### **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

CMR = Carl Reagle

TJO = Tyler Oliver

Batch Type: Analysis

AGJ = Andy Johnson

AVS = Abbey Smith

CMR = Carl Reagle

GRB = Gabriel Berghe

RSK = Robert Kurtz

SAT = Stephen Tallam

Eurofins TestAmerica, Pittsburgh

3

4

6

8

9

11

12

Ц

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-7** 

Lab Sample ID: 180-114167-1

Date Collected: 11/30/20 15:30 **Matrix: Water** 

Method: EPA 300.0 R2.1 - Anion Analyte	•	r <mark>omatgrap</mark> h Qualifier	i <b>y</b> RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.3		1.0	0.32	mg/L			12/01/20 13:19	1
Fluoride	0.044	J	0.10	0.044	mg/L			12/01/20 13:19	1
Nitrate as N	< 0.023		0.10	0.023	mg/L			12/01/20 13:19	1
Nitrite as N	<0.029		0.050	0.029	mg/L			12/01/20 13:19	1
Sulfate	990		10		mg/L			12/01/20 13:40	10
Method: EPA 6020B - Metals (IC	P/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.1		0.080	0.039	mg/L		12/02/20 14:15	12/04/20 16:40	1
Calcium	260		0.50	0.13	mg/L		12/02/20 14:15	12/04/20 16:40	1
Cobalt	0.028		0.0025	0.00013	mg/L		12/02/20 14:15	12/04/20 16:40	1
Lithium	0.061		0.0050	0.0034	mg/L		12/02/20 14:15	12/04/20 16:40	1
Magnesium	74		0.50	0.083	mg/L		12/02/20 14:15	12/04/20 16:40	1
Molybdenum	0.0012	J	0.015	0.00061	mg/L		12/02/20 14:15	12/04/20 16:40	1
Potassium	13		0.50	0.16	mg/L		12/02/20 14:15	12/04/20 16:40	1
Sodium	27	В	0.50	0.35	mg/L		12/02/20 14:15	12/04/20 16:40	1
Method: EPA 6020B - Metals (IC	P/MS) - D	issolved							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	17	В	0.050	0.020	mg/L		12/02/20 14:15	12/04/20 16:44	1
Manganese	11		0.0050	0.00087	mg/L		12/02/20 14:15	12/04/20 16:44	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1		3.0	2.1	mg/L		12/02/20 13:30	12/02/20 15:30	1
Total Dissolved Solids	1600		10	10	mg/L			12/03/20 17:39	1
Total Alkalinity as CaCO3 to pH 4.5	120		5.0	5.0	mg/L			12/02/20 10:39	1
Bicarbonate Alkalinity as CaCO3	120		5.0	5.0	mg/L			12/02/20 10:39	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/02/20 10:39	1
Method: Field Sampling - Field S	Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
analy to		•					•	•	

12/15/2020

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-114167-1

# Method: EPA 300.0 R2.1 - Anions, Ion Chromatgraphy

Lab Sample ID: MB 180-338905/6

**Matrix: Water** 

Analysis Batch: 338905

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

MB M	IB						
Result Q	ualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<0.32	1.0	0.32	mg/L			12/01/20 06:47	1
<0.044	0.10	0.044	mg/L			12/01/20 06:47	1
<0.023	0.10	0.023	mg/L			12/01/20 06:47	1
<0.029	0.050	0.029	mg/L			12/01/20 06:47	1
<0.38	1.0	0.38	mg/L			12/01/20 06:47	1
	Result  <0.32 <0.044 <0.023 <0.029	<0.32	Result         Qualifier         RL         MDL           <0.32	Result         Qualifier         RL         MDL         Unit           <0.32	Result         Qualifier         RL         MDL         Unit         D           <0.32	Result         Qualifier         RL         MDL unit         D mg/L           <0.32	Result          Qualifier         RL         MDL unit         D mg/L         Prepared         Analyzed           <0.32

Lab Sample ID: LCS 180-338905/5

**Matrix: Water** 

Analysis Batch: 338905

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	50.0	51.1		mg/L		102	90 - 110	
Fluoride	2.50	2.31		mg/L		92	90 - 110	
Nitrate as N	2.50	2.47		mg/L		99	90 - 110	
Nitrite as N	2.50	2.71		mg/L		108	90 - 110	
Sulfate	50.0	51.2		mg/L		102	90 - 110	

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

Lab Sample ID: MB 180-339223/1-A

**Matrix: Water** 

Analysis Batch: 339557

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

Prep Batch: 339223

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		12/02/20 14:15	12/04/20 12:08	1
Iron	0.0349	J	0.050	0.020	mg/L		12/02/20 14:15	12/04/20 12:08	1
Calcium	<0.13		0.50	0.13	mg/L		12/02/20 14:15	12/04/20 12:08	1
Manganese	<0.00087		0.0050	0.00087	mg/L		12/02/20 14:15	12/04/20 12:08	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		12/02/20 14:15	12/04/20 12:08	1
Lithium	<0.0034		0.0050	0.0034	mg/L		12/02/20 14:15	12/04/20 12:08	1
Magnesium	<0.083		0.50	0.083	mg/L		12/02/20 14:15	12/04/20 12:08	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		12/02/20 14:15	12/04/20 12:08	1
Potassium	<0.16		0.50	0.16	mg/L		12/02/20 14:15	12/04/20 12:08	1
Sodium	0.449	J	0.50	0.35	mg/L		12/02/20 14:15	12/04/20 12:08	1

Lab Sample ID: LCS 180-339223/2-A

**Matrix: Water** 

Analysis Batch: 339557

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

**Prep Batch: 339223** 

-	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Boron	1.25	1.04		mg/L		83	80 - 120	
Iron	5.00	5.13		mg/L		103	80 - 120	
Calcium	25.0	26.9		mg/L		108	80 - 120	
Manganese	0.500	0.482		mg/L		96	80 - 120	
Cobalt	0.500	0.498		mg/L		100	80 - 120	
Lithium	0.500	0.489		mg/L		98	80 - 120	
Magnesium	25.0	25.4		mg/L		102	80 - 120	
Molybdenum	0.500	0.501		mg/L		100	80 - 120	
Potassium	25.0	25.4		mg/L		101	80 - 120	

Eurofins TestAmerica, Pittsburgh

Page 10 of 16

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: LCS 180-339223/2-A **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total Recoverable Analysis Batch: 339557 Prep Batch: 339223** 

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit %Rec Limits Sodium 25.0 24 9 mg/L 99 80 - 120

Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 180-339220/1-A Client Sample ID: Method Blank Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 339592** Prep Batch: 339220

MB MB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed 2.1 mg/L Sulfide <2 1 3.0 12/02/20 13:30 12/02/20 15:21

Lab Sample ID: LCS 180-339220/2-A **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 339592 Prep Batch: 339220 LCS LCS Spike %Rec.

Added Analyte Result Qualifier Unit %Rec Limits 85 - 115 Sulfide 14.8 13.0 mg/L 88

Lab Sample ID: 180-114167-1 MS Client Sample ID: ARAMW-7

**Matrix: Water** 

Prep Type: Total/NA **Analysis Batch: 339592 Prep Batch: 339220** Sample Sample Spike MS MS %Rec.

Added %Rec Analyte Result Qualifier Result Qualifier Unit Limits Sulfide <2.1 14.8 11.1 mg/L 75 75 - 125

Lab Sample ID: 180-114167-1 MSD Client Sample ID: ARAMW-7

**Matrix: Water** 

Prep Type: Total/NA **Analysis Batch: 339592 Prep Batch: 339220** 

MSD MSD Sample Sample Spike %Rec. **RPD** Result Qualifier Added Analyte Result Qualifier Unit %Rec Limits RPD Limit Sulfide <2.1 14.8 11.5 mg/L 78 75 - 125 20

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

Lab Sample ID: MB 180-339384/2 **Client Sample ID: Method Blank** Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 339384** 

MB MB RL Result Qualifier **MDL** Unit Analyte Prepared Analyzed Dil Fac **Total Dissolved Solids** 10 10 mg/L 12/03/20 17:39 <10

Lab Sample ID: LCS 180-339384/1 Client Sample ID: Lab Control Sample **Prep Type: Total/NA** 

**Matrix: Water Analysis Batch: 339384** 

Spike LCS LCS %Rec.

%Rec Analyte Added Result Qualifier Unit Limits Total Dissolved Solids 624 600 96 80 - 120 mg/L

12/15/2020

# **QC Sample Results**

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-339186/5 Client Sample ID: Method Blank

**Matrix: Water** 

Analysis Batch: 339186

•	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.0		5.0	5.0	mg/L			12/02/20 08:37	1
Bicarbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/02/20 08:37	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/02/20 08:37	1

Lab Sample ID: LCS 180-339186/4 **Client Sample ID: Lab Control Sample Prep Type: Total/NA** 

**Matrix: Water** 

**Analysis Batch: 339186** 

LCS LCS Spike %Rec. Added Result Qualifier Unit Analyte D %Rec Limits 250 232 Total Alkalinity as CaCO3 to pH mg/L 93 90 - 110

4.5

**Prep Type: Total/NA** 

# **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-114167-1

# HPLC/IC

# Analysis Batch: 338905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114167-1	ARAMW-7	Total/NA	Water	EPA 300.0 R2.1	
180-114167-1	ARAMW-7	Total/NA	Water	EPA 300.0 R2.1	
MB 180-338905/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-338905/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

### Metals

# **Prep Batch: 339223**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114167-1	ARAMW-7	Dissolved	Water	3005A	
180-114167-1	ARAMW-7	Total Recoverable	Water	3005A	
MB 180-339223/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-339223/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

## **Analysis Batch: 339557**

<b>Lab Sample ID</b> 180-114167-1	Client Sample ID ARAMW-7	Prep Type Dissolved	Matrix Water	Method EPA 6020B	<b>Prep Batch</b> 339223
180-114167-1	ARAMW-7	Total Recoverable	Water	EPA 6020B	339223
MB 180-339223/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	339223
LCS 180-339223/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	339223

# **General Chemistry**

# **Analysis Batch: 339186**

Lab Sample ID 180-114167-1	Client Sample ID ARAMW-7	Prep Type Total/NA	Matrix Water	Method SM2320 B	Prep Batch
MB 180-339186/5	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-339186/4	Lab Control Sample	Total/NA	Water	SM2320 B	

# **Prep Batch: 339220**

Lab Sample ID 180-114167-1	Client Sample ID ARAMW-7	Prep Type Total/NA	Matrix Water	Method 9030B	Prep Batch
MB 180-339220/1-A	Method Blank	Total/NA	Water	9030B	
LCS 180-339220/2-A	Lab Control Sample	Total/NA	Water	9030B	
180-114167-1 MS	ARAMW-7	Total/NA	Water	9030B	
180-114167-1 MSD	ARAMW-7	Total/NA	Water	9030B	

# Analysis Batch: 339384

Lab Sample ID 180-114167-1	Client Sample ID  ARAMW-7	Prep Type Total/NA	Matrix Water	Method SM 2540C	Prep Batch
MB 180-339384/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-339384/1	Lab Control Sample	Total/NA	Water	SM 2540C	

# **Analysis Batch: 339592**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114167-1	ARAMW-7	Total/NA	Water	EPA 9034	339220
MB 180-339220/1-A	Method Blank	Total/NA	Water	EPA 9034	339220
LCS 180-339220/2-A	Lab Control Sample	Total/NA	Water	EPA 9034	339220
180-114167-1 MS	ARAMW-7	Total/NA	Water	EPA 9034	339220
180-114167-1 MSD	ARAMW-7	Total/NA	Water	EPA 9034	339220

Eurofins TestAmerica, Pittsburgh

Page 13 of 16

6

3

4

6

Я

11

12

1:

-

# **QC Association Summary**

Job ID: 180-114167-1

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

# Field Service / Mobile Lab

Analysis Batch: 340395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114167-1	ARAMW-7	Total/NA	Water	Field Sampling	

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

244- ATLANTA

N - Norne
O - Ashaboo
O - Ashaboo
O - Nasooa
O - Nasooa
S - Nasooa
F - Nasooa
F - Nasooa
N - Nasooa
N - Actione
V - McAA
V - MCAA
V - PH 4-5
Z - other (specify) Special Instructions/Note: Eno. F Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Spisposal By Lab Archive For Month 1000 180-114167 Chain of Custody Total Number of containers (2/1/2) Analysis Requested oler Temperature(s) °C and Other Remarks: Special Instructions/QC Requirements yd beviede 300.0RGFM.28D-C1,F50.4,NQ,INO Lab PM.
Brown, Shali
E-Mark
Shali brown@ Wood Preservation Code Matrix ≥ Type (C=comp, G=grab) Radiological Sample Baniel Howard 0 1745 1530 Sample Unknown 11/36/20 Sample Date 11/30/20 Project #. 18020201 Paison B Skin Irritant eliverable Requested: I, II, III, IV, Other (specify Custody Seal No. Pittsburgh, PA 15238 Phone (412) 963-7058 Fax (412) 963-2468 Flammable | Possible Hazard Identification Frank House Empty Kit Relinquished by 241 Ralph McGill Blvd SE Custody Seals Intact. Client Information Sample Identification Project Name: CCR - Plant Arkwright 404-508-7116(Tel) SCS Contacts SCS Contacts quished by. State, Zp. GA, 30308 GA Power Allanta

Client: Southern Company

Job Number: 180-114167-1

Login Number: 114167

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Say, Thomas C

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

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-114253-1

Client Project/Site: CCR - Plant Arkwright

### For:

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

Attn: Joju Abraham

Authorized for release by: 12/15/2020 7:03:37 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

Client: Southern Company Project/Site: CCR - Plant Arkwright Laboratory Job ID: 180-114253-1

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	4
Certification Summary	5
Sample Summary	6
Method Summary	7
Lab Chronicle	8
Client Sample Results	9
QC Sample Results	10
QC Association Summary	13
Chain of Custody	15
Receipt Checklists	16

Δ

**O** 

9

10

12

# **Case Narrative**

Client: Southern Company

Job ID: 180-114253-1 Project/Site: CCR - Plant Arkwright

Job ID: 180-114253-1

Laboratory: Eurofins TestAmerica, Pittsburgh

**Narrative** 

Job Narrative 180-114253-1

### Comments

No additional comments.

### Receipt

The sample was received on 12/2/2020 10:30 AM; the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.1° C.

### GC Semi VOA

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

### Metals

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

### Field Service / Mobile Lab

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

### **General Chemistry**

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

# **Definitions/Glossary**

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

### **Qualifiers**

M	eta	Is

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 con	nmonly use	ed abbro	eviation	ıs may	or may	not be	present i	n this	report.	

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

6

Q

9

10

11

12

# **Accreditation/Certification Summary**

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

# Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	<b>Expiration Date</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

Eurofins TestAmerica, Pittsburgh

# **Sample Summary**

Client: Southern Company

180-114253-1

Project/Site: CCR - Plant Arkwright

ARAMW-8

Lab Sample ID Client Sample ID Matrix Collected Received Asset ID

Water

<u>12/01/20 10:05</u> <u>12/02/20 10:30</u>

Job ID: 180-114253-1

3

4

6

8

9

10

40

# **Method Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Method **Method Description** Protocol Laboratory TAL PIT EPA 300.0 R2.1 Anions, Ion Chromatgraphy EPA **TAL PIT EPA 6020B** Metals (ICP/MS) SW846 Sulfide, Acid soluble and Insoluble (Titrimetric) EPA 9034 SW846 TAL PIT SM 2540C Solids, Total Dissolved (TDS) SM TAL PIT SM2320 B Alkalinity, Total SM18 TAL PIT Field Sampling EPA Field Sampling TAL PIT 3005A Preparation, Total Recoverable or Dissolved Metals SW846 TAL PIT 9030B Sulfide, Distillation (Acid Soluble and Insoluble) SW846 **TAL PIT** 

### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

### **Laboratory References:**

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

Job ID: 180-114253-1

Л

7

8

9

. .

4 6

# **Lab Chronicle**

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARAMW-8 Lab Sample ID: 180-114253-1

Date Collected: 12/01/20 10:05

Date Received: 12/02/20 10:30

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 Instrument	EPA 300.0 R2.1 t ID: CHIC2100A		1			339255	12/03/20 12:34	SAT	TAL PIT
Total/NA	Analysis Instrument	EPA 300.0 R2.1 ID: INTEGRION		1			339100	12/02/20 23:10	SAT	TAL PIT
Dissolved Dissolved	Prep Analysis Instrument	3005A EPA 6020B t ID: A		1	50 mL	50 mL	339431 339788	12/04/20 07:38 12/05/20 15:51		TAL PIT TAL PIT
Total Recoverable Total Recoverable	Prep Analysis Instrument	3005A EPA 6020B ID: A		1	50 mL	50 mL	339431 339788	12/04/20 07:38 12/05/20 15:47		TAL PIT TAL PIT
Total/NA Total/NA	Prep Analysis Instrument	9030B EPA 9034 ID: NOEQUIP		1	50 mL	50 mL	339874 340074	12/08/20 12:30 12/08/20 14:53		TAL PIT TAL PIT
Total/NA	Analysis Instrument	SM 2540C ID: NOEQUIP		1	100 mL	100 mL	339351	12/03/20 11:40	GRB	TAL PIT
Total/NA	Analysis Instrument	SM2320 B ID: PCTITRATOR		1			339624	12/04/20 15:57	AVS	TAL PIT
Total/NA	Analysis Instrument	Field Sampling		1			340575	12/01/20 10:05	AGJ	TAL PIT

### Laboratory References:

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

### **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

CMR = Carl Reagle

KHM = Kyle Mucroski

Batch Type: Analysis

AGJ = Andy Johnson

AVS = Abbey Smith

CMR = Carl Reagle

GRB = Gabriel Berghe

RSK = Robert Kurtz

SAT = Stephen Tallam

3

5

7

9

4 4

12

# **Client Sample Results**

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-8** 

Lab Sample ID: 180-114253-1 Date Collected: 12/01/20 10:05

**Matrix: Water** 

Date Received: 12/02/20 10:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12		1.0	0.32	mg/L			12/02/20 23:10	1
Fluoride	0.14		0.10	0.044	mg/L			12/03/20 12:34	1
Nitrate as N	< 0.023		0.10	0.023	mg/L			12/02/20 23:10	1
Nitrite as N	0.28		0.050	0.029	mg/L			12/02/20 23:10	1
Sulfate	120		1.0	0.38	mg/L			12/02/20 23:10	1
Method: EPA 6020B - Metals (IC	P/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.40		0.080	0.039	mg/L		12/04/20 07:38	12/05/20 15:47	1
Calcium	81		0.50	0.13	mg/L		12/04/20 07:38	12/05/20 15:47	1
Cobalt	0.0054		0.0025	0.00013	mg/L		12/04/20 07:38	12/05/20 15:47	1
Lithium	0.0044	J	0.0050	0.0034	mg/L		12/04/20 07:38	12/05/20 15:47	1
Magnesium	25		0.50	0.083	mg/L		12/04/20 07:38	12/05/20 15:47	1
Molybdenum	0.056		0.015	0.00061	mg/L		12/04/20 07:38	12/05/20 15:47	1
Potassium	7.0		0.50	0.16	mg/L		12/04/20 07:38	12/05/20 15:47	1
Sodium	22		0.50	0.35	mg/L		12/04/20 07:38	12/05/20 15:47	1
Method: EPA 6020B - Metals (IC	P/MS) - D	issolved							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.8		0.050	0.020	mg/L		12/04/20 07:38	12/05/20 15:51	1
Manganese	2.9		0.0050	0.00087	mg/L		12/04/20 07:38	12/05/20 15:51	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1		3.0	2.1	mg/L		12/08/20 12:30	12/08/20 14:53	1
Total Dissolved Solids	420		10	10	mg/L			12/03/20 11:40	1
Total Alkalinity as CaCO3 to pH 4.5	220		5.0	5.0	mg/L			12/04/20 15:57	1
Bicarbonate Alkalinity as CaCO3	220		5.0	5.0	mg/L			12/04/20 15:57	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/04/20 15:57	1
Method: Field Sampling - Field S	Sampling								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
					SU			12/01/20 10:05	

Job ID: 180-114253-1

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

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatgraphy

Lab Sample ID: MB 180-339100/36

**Matrix: Water** 

**Analysis Batch: 339100** 

Prep Type: Total/NA MB MB

**Client Sample ID: Method Blank** 

Client Sample ID: Method Blank

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Type: Total/NA

١.	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Chloride	<0.32		1.0	0.32	mg/L			12/02/20 19:20	1
	Nitrate as N	<0.023		0.10	0.023	mg/L			12/02/20 19:20	1
	Nitrite as N	<0.029		0.050	0.029	mg/L			12/02/20 19:20	1
	Sulfate	<0.38		1.0	0.38	mg/L			12/02/20 19:20	1

Lab Sample ID: LCS 180-339100/35

Client Sample ID: Lab Control Sample **Matrix: Water Prep Type: Total/NA Analysis Batch: 339100** Snika LCS LCS %Rac

_

Lab Sample ID: MB 180-339255/6

**Matrix: Water** 

**Analysis Batch: 339255** 

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.044		0.10	0.044	mg/L			12/03/20 09:23	1

Lab Sample ID: LCS 180-339255/5

**Matrix: Water** 

**Analysis Batch: 339255** 

_										
		Spike	LCS	LCS				%Rec.		
	Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits		
	Fluoride	 2.50	2.41		mg/L		96	90 - 110		

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

**Lab Samp** 

Matrix: Wa

**Analysis B** 

ole ID: MB 180-339431/1-A	Client Sample ID: Method Blank
ater at the state of the state	Prep Type: Total Recoverable
Batch: 339788	Prep Batch: 339431

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		12/04/20 07:38	12/05/20 14:29	1
Iron	<0.020		0.050	0.020	mg/L		12/04/20 07:38	12/05/20 14:29	1
Calcium	<0.13		0.50	0.13	mg/L		12/04/20 07:38	12/05/20 14:29	1
Manganese	<0.00087		0.0050	0.00087	mg/L		12/04/20 07:38	12/05/20 14:29	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		12/04/20 07:38	12/05/20 14:29	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		12/04/20 07:38	12/05/20 14:29	1
Magnesium	<0.083		0.50	0.083	mg/L		12/04/20 07:38	12/05/20 14:29	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		12/04/20 07:38	12/05/20 14:29	1
Potassium	<0.16		0.50	0.16	mg/L		12/04/20 07:38	12/05/20 14:29	1
Sodium	<0.35		0.50	0.35	mg/L		12/04/20 07:38	12/05/20 14:29	1

Eurofins TestAmerica, Pittsburgh

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: LCS 180-339431/2-A

**Matrix: Water** 

Analysis Ratch: 339788

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

Analysis Batch: 339788							Prep Batch: 339431
	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Boron	1.25	1.15		mg/L		92	80 - 120
Iron	5.00	4.99		mg/L		100	80 - 120
Calcium	25.0	28.9		mg/L		116	80 - 120
Manganese	0.500	0.499		mg/L		100	80 - 120
Cobalt	0.500	0.465		mg/L		93	80 - 120
Lithium	0.500	0.490		mg/L		98	80 - 120
Magnesium	25.0	24.6		mg/L		98	80 - 120
Molybdenum	0.500	0.493		mg/L		99	80 - 120
Potassium	25.0	24.3		mg/L		97	80 - 120
Sodium	25.0	25.3		mg/L		101	80 - 120

Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 180-339874/1-A

**Matrix: Water** 

Analysis Batch: 340074

**Client Sample ID: Method Blank** 

**Client Sample ID: Lab Control Sample** 

**Client Sample ID: Method Blank** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 339874

MB MB RL**MDL** Unit Analyte Result Qualifier Prepared Analyzed Dil Fac 3.0 12/08/20 12:30 12/08/20 14:14 Sulfide <2.1 2.1 mg/L

Lab Sample ID: LCS 180-339874/2-A **Matrix: Water** 

Analysis Batch: 340074

40014		
		Spike
		Added
		14.6

LCS LCS

Result Qualifier Unit

D %Rec

Prep Batch: 339874 %Rec. Limits

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

12.9 85 - 115 mg/L

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

Lab Sample ID: MB 180-339351/2

**Matrix: Water** 

Analyte

Sulfide

Analysis Batch: 339351

MB MB

RL **MDL** Unit Analyte Result Qualifier **Prepared** Analyzed Dil Fac **Total Dissolved Solids** <10 10 10 mg/L 12/03/20 11:40

Lab Sample ID: LCS 180-339351/1

**Matrix: Water** 

**Analysis Batch: 339351** 

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Total Dissolved Solids	624	618		mg/L		99	80 - 120	

Eurofins TestAmerica, Pittsburgh

# **QC Sample Results**

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-339624/29 Client Sample ID: Method Blank

**Matrix: Water** 

Analysis Batch: 339624

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.0		5.0	5.0	mg/L			12/04/20 14:34	1
Bicarbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/04/20 14:34	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/04/20 14:34	1

Lab Sample ID: LCS 180-339624/28 **Client Sample ID: Lab Control Sample Prep Type: Total/NA** 

**Matrix: Water** 

Analysis Batch: 339624

LCS LCS Spike %Rec. Added Analyte Result Qualifier Unit D %Rec Limits 250 228 Total Alkalinity as CaCO3 to pH mg/L 91 90 - 110

4.5

**Prep Type: Total/NA** 

# **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

## HPLC/IC

#### Analysis Batch: 339100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Total/NA	Water	EPA 300.0 R2.1	
MB 180-339100/36	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-339100/35	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

## **Analysis Batch: 339255**

Lab Sample 180-114253		Prep Type Total/NA	Matrix Water	Method EPA 300.0 R2.1	Prep Batch
MB 180-339	9255/6 Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-33	39255/5 Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

#### **Metals**

#### **Prep Batch: 339431**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Dissolved	Water	3005A	
180-114253-1	ARAMW-8	Total Recoverable	Water	3005A	
MB 180-339431/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-339431/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

#### **Analysis Batch: 339788**

<b>Lab Sample ID</b> 180-114253-1	Client Sample ID ARAMW-8	Prep Type Dissolved	Matrix Water	Method EPA 6020B	<b>Prep Batch</b> 339431
180-114253-1	ARAMW-8	Total Recoverable	Water	EPA 6020B	339431
MB 180-339431/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	339431
LCS 180-339431/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	339431

# **General Chemistry**

#### **Analysis Batch: 339351**

Lab Sample ID 180-114253-1	Client Sample ID ARAMW-8	Prep Type Total/NA	Matrix Water	Method SM 2540C	Prep Batch
MB 180-339351/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-339351/1	Lab Control Sample	Total/NA	Water	SM 2540C	

#### Analysis Batch: 339624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1 MB 180-339624/29	ARAMW-8 Method Blank	Total/NA Total/NA	Water Water	SM2320 B SM2320 B	
LCS 180-339624/28	Lab Control Sample	Total/NA	Water	SM2320 B	

#### **Prep Batch: 339874**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Total/NA	Water	9030B	<u> </u>
MB 180-339874/1-A	Method Blank	Total/NA	Water	9030B	
LCS 180-339874/2-A	Lab Control Sample	Total/NA	Water	9030B	

#### **Analysis Batch: 340074**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Total/NA	Water	EPA 9034	339874
MB 180-339874/1-A	Method Blank	Total/NA	Water	EPA 9034	339874
LCS 180-339874/2-A	Lab Control Sample	Total/NA	Water	EPA 9034	339874

Eurofins TestAmerica, Pittsburgh

12/15/2020

Page 13 of 16

Job ID: 180-114253-1

# **QC Association Summary**

Job ID: 180-114253-1

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

# Field Service / Mobile Lab

**Analysis Batch: 340575** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Total/NA	Water	Field Sampling	

SE Due Due De Requested (Gaya):  TAT Requested (Gaya):  PO #  NO #  NO #  NO #  NO #  NO #  NO #  NO #  NO #  Sample Date   Type   Greensy   Greensy   Greensy   Greensy    Iffication   Flammable   Date   Date    Summable   Date   Date    Custody Seal No:  Custody Seal No:  Custody Seal No:	()	Sampler	Lab PM:	Carrier Tracking No. sir.	20C No.
The properties   The	Umormanon	Danie Howard	Didwn, Shall		
	onacia	PTISTIG	orown@eurolinset.		) age
The Proposition of the Proposi	Y. Ner		Analys	is Requested	# qoi
Martin   M	Jiph McGill Blvd SE	1	w.Ş		Š
10   10   10   10   10   10   10   10		TAT Requested (days):	8		
10   10   10   10   10   10   10   10	ψ 3308		081		
1   1   1   1   1   1   1   1   1   1	06-7116(Tel)	Post	'°N'		3
Sample Date   Time   Sample   Watrix   Sample   Watrix   Sample   Watrix   Sample   Watrix   Sample	Contacts	WOR	(u)	\$	0
Control   Sample Date   Sample   Sample Date   Sample Da	Name. Plant Arkwright	Project #. 18020201	C. C. C. C. C. C. C. C. C. C. C. C. C. C	nonist	
Complete   Complete	jia	*WOSS	35 (C) (C) (C) (S) (B) (C)		Other
AMW - 8   12/1/2 o 1005 G   W   X   X   X   X   X   X   X   X   X	le Identification	Sample (C=comp, Time G=grab)	Matrix  Stronger Stro		Snorial Instructions/Mote.
A M W = 8   12/1/2 0   120.5   C W   Y   X X X X X X     S P H = 7.05		Preserva	ation Code XX N N N N		- December 11 and 12 an
Indigentification   Sample Disposal (A fee may be assessed if Samples are retained longer than 1 m   Sample Disposal (A fee may be assessed if Samples are retained longer than 1 m   Special Instructions/OC Requirements.   Special Instructions/O			X X X X X		1
To disontification  To disontification  To disontification  To disontification  To disontification  Sample Disposal (A fee may be assessed if samples are retained longer than 1 mm appealsed 1. II. III. N. Other (specify)  Second 1. III. N. Other (specify)  Date:  Time:  Second 2 Second 1 Samples are retained longer than 1 mm appealsed 1. II. III. N. Other (specify)  Date:  Time:  Time:  Date:  Time:  Date:  ate: D					
rd Identification  rd Campain Company  guested: I.I. III, IV. Other (specify)  Sample Disposal (A fee may be assessed if samples are retained longer than 1 m. Special Instructions/OC Requirements:    Poster					
Sample Disposal ( A fee may be assessed if samples are retained longer than 1 m				180-114253 Cha	n of Custody
Sample Disposal (A fee may be assessed if samples are retained longer than 1 m quested: 1. II. III. IV. Other (specify)    Page of Planneble   Skin Irritant   Polson B   Unknown   Padiological   Special Instructions/QC Requirements:   Special Instructions/QC Requirements:   Itime:   Time:   Ti	17 - 11 11 11				
Appearance of the company and	0	Unknown		by be assessed if samples are retain	d longer than 1 month) e ForMonths
Above 8    Date:   Table   Tab	social various and a second (Specify)		Special Instructions/QC Re	quirements:	
Nove State   Custody Seal No.:   Contract	Kit Kelinguished by:	Date:	Time:	Method of Shipment:	
als Intact: Custody Seal No.: Company Received by. Cooler Temperature(s) *C and Other Remarks:	shed by	1/20/	×	.3	
Custody Seal No.:	shed by	Date/Time		Date/Time	Company
			Cooler Temperature(s) "C ar	d Other Remarks:	

244- ATLANTA

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

Pittsburgh, PA 15238 Phone (412) 963-7058 Fax (412) 963-2468

Client: Southern Company

Job Number: 180-114253-1

Login Number: 114253

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Say, Thomas C

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

ito Name		<u>.</u>	orgia Por	wer Site S	amoline D	aita ( <u>GW.)</u>
ite Name	Plant	Arkwr	ight	AP2 +	<u>AP3                                    </u>	Date: 11/30/20-12/1/20
	Sample	Sample		Equipment		
Well ID	Date	Time	Field Blank	Blank	Field Dup.	Additional Comments
HMW-I	11/30/20					
		1005				
		1140	FB-01	les es e		Field Blank For Ash Ponds 2+3
		1155		EB-01	 	Field Blank For Ash Ponds 2+3 Equip Blank of tubing used with peristaltic pump
	12/1/20	1352		·		
)ur-/	12/1/20				ARGWA-24	Duplicate of ARGWA-24 (DUP-1)
		<del></del>				
				· · · · · · · · · · · · · · · · · · ·		
			· · · · · · · · · · · · · · · · · · ·			
-	: <u>-</u>			<del></del>		
	<del></del>					
		<del></del>			·	
					1	
<del></del>			,			
dditional d	omments :	E	72)	- D. Al	- 11 1	11 h 11 h 12 h 12 h 13 h 13 h 13 h 13 h
المان حالما	14.00	Faus	Diank !	# 17750	s collecti	ed From the HDPE tubing used with the inized water used ASTM Type I water ank FB-01 was taken using ASTM Type I Floation.
00+2	ACTM	NKIO!	sing hat	1 / 1212-	Co. Hele	MIZERWATET USER HOLM TYPE I WATER
Dia 1		100196	to DECIT!	Cations 1	rield bi	ENK FO-01 was taken using MSTM Types
5 10A	zea wa	IET MEE	Tro HO	I'M NOIL	u speci	tication +

Date:_	11/30/20 1240	_
Time:_	1240	
Prepare	ed By: <u>bay</u>	riel Howard
Check		~

Wood. Project No. 6122201429

Pine Sonde ID:	
Pine Handset ID:	112733
Battery Voltage %:	85

DISSOLVED OXYGEN (DO)					a Vijes i S	VALUE
Was DO membrane changed?	Yes_	No_V	Date:	Time:		
Current Air Temperature °C (meter reading):						10.5
Current Barometric Pressure (from Weather						
Channel or NOAA.gov, which is corrected to						
sea level):						
Elevation Corrected Barometric Pressure to					mm Hg for every	
enter into YSI DO calibration:	100 ft, ab	ove sea level: 5	565/100 x 2.5	4 = 14.4  mm	n Hg	750.0
Theoretical DO (mg/L) from DO table based	ĺ					
on current temperature and elevation corrected						
pressure:					********	<u> </u>
OO concentration before Calibration (mg/L):	Dependi	ng on meter v	ersion, this	may not be	available.	
OO concentration after Calibration (mg/L):						9.97
% Recovery (actual/theory x 100)		90 to 110% F				90.6
OO Charge (DO ch):		ole Range is 2.		<u> </u>		
OO Gain (should be between -0.7 and 1.5):	Exit Cal	ibration menu	and go to A	dvanced/C	al Constants	1,1057
lote:						
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-ov	er from pH standa	rds (i.e. pH buf	fers are conduc	etive)]	
Calibration standard used (mS/cm)		Lot	#19410	200		1.413
「emperature (°C)			. , .			14,4
Reading before Calibration (mS/cm)						1,434
Reading AFTER Calibration (mS/cm)						1,413
Conductivity Cell Constant (unitless):						0.985
lote: Be sure conductivity cell is submerged and free of bubb	bles (gently t	ap sonde on table)				
H e e e e e e e e e e e e e e e e e e e	nn sylv	e processor in the state of the state of		talik talah sa	i station in the second second	· · · · · · · · · · · · · · · · · · ·
H 7.0 value before calibration:	Lat	1934005	7 8	1/21		7.13
H 7.0 value after calibration:				7	7.0	7,02
H 7.0 mV (range is -50 to +50 mV):				•	<del>, , _</del>	7,7
pH 10 value before calibration:	7	+ 1932	0102	8/21		9.97
pH 10 value after calibration:		<u> </u>	· / · · ·	*/-	15.9	10.08
pH 10 mV (range is -130 to -230 mV):	i				1-077	777 4
H 4.0 value before calibration:		20010	12 <u>-5</u>	8/21	·	4.35
H 4.0 value after calibration:		X 0 0 0 0	<u>, , , , , , , , , , , , , , , , , , , </u>	<del> </del>	14,7	4.00
H 4.0 mV (range is 130 to 230 mV):		·	•		<u> </u>	1625
ote: Span between ph 4 and 7, and 7 and 10 should be between	een 165 to 1	80 mV				
OXIDATION/REDUCTION POTENTIAL (			Partition	Îridy, a	1 17 Trigography	· · · · · · · · · · · · · · · · · · ·
Calibration Temperature (°C):	Lo	+ 1946	1167	8/21		1141.6
heoretical Calibration standard (mV)		0013(25-T) x	1000 = mV	V . '	nperature °C)	142
leading before calibration (mV):						241.0
leading after calibration (mV):						243,
lote: mV theory will change with temperature	so calcui	ate based on v	our current	temn		W 1-31
URBIDITY Note: Leus wiper should be parked 180			your ourront	tomp.	\$ 2 × 3	
ONTU Turbidity Standard	a	·	Before Ca	1.	After Cal;	19.8
0 0 NTU Turbidity Standard			Before Ca		After Cal:	
On NTU Turbidity Standard Lot A815	5		Before Ca			102
NTU Turbidity Check STD	-				After Cal:	805
NTU Turbidity Check STD  NTU Turbidity Check STD			Before Ca Before Ca		After Cal: After Cal:	9.55
			Helote ( 'a	117	ATION ( all	

Date: 12/1/20	Wood.	Pine Sonde ID:	
Time: 0535	Project No. 6122201429	Pine Handset ID: 5/	<u> 273.3 —</u>
Prepared By: Daniel Howard		Battery Voltage %:	85
Checked By:			
	BRATION PRIOR TO SAMPLING		
DISSOLVED OXYGEN (DO)			VALUE
Was DO membrane changed?	Yes No Date:	Time:	
Current Air Temperature °C (meter reading):			23,6
Current Barometric Pressure (from Weather		100 to 100 km/m	
Channel or NOAA.gov, which is corrected to			
sca level):			
Elevation Corrected Barometric Pressure to	Ex.: $30.02$ in. Hg x $25.4 = mm$ Hg; sub	tract 2.54 mm Hg for every	
enter into YSI DO calibration:	100 ft. above sea level; 565/100 x 2.54		7.54.0
Theoretical DO (mg/L) from DO table based			
on current temperature and elevation corrected			i i
pressure:			
DO concentration before Calibration (mg/L):	Depending on meter version, this m	ay not be available.	
DO concentration after Calibration (mg/L):			7.78
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	******	92.5
DO Charge (DO ch):	Acceptable Range is 25 to 75		
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Ad	vanced/Cal Constants	1.0819
Note:			1,,00,1
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over from pH standards (i.e. pH buffer	s are conductive)]	
Calibration standard used (mS/cm)	Lot# 194102	n 6	1.413
Temperature (°C)	1.		23.2
Reading before Calibration (mS/cm)			1.300
Reading AFTER Calibration (mS/cm)			1.413
Conductivity Cell Constant (unitless):			1.0239
Note: Be sure conductivity cell is submerged and free of bub	bles (gently tap sonde on table)	· · · · · · · · · · · · · · · · · · ·	1,0,0,
Н		The second secon	4 1 ·
oH 7.0 value before calibration:	Lot 19340057	8/21	7.14
oH 7.0 value after calibration:		22,70	7.00
oII 7.0 mV (range is -50 to +50 mV):			8.5
pH 10 value before calibration:	Lot 19320102 8	121	10.05
pH 10 value after calibration:	1 -0, 1, 1, 3, 5, 6, 7, 7, 7	21.9°C	10.04
pH 10 mV (range is -130 to -230 mV):		<u></u>	-182,2
oH 4.0 value before calibration:	Lot 20010025	8/21	4.23
oH 4.0 value after calibration:	201201-	22.1°C	4,00
oH 4.0 mV (range is 130 to 230 mV):		2210	165.3
Note: Span between ph 4 and 7, and 7 and 10 should be betw	een 165 to 180 mV	W	760.0
OXIDATION/REDUCTION POTENTIAL (			3 11 ×
Calibration Temperature (°C):	Lat lake cales	8/21	22.3
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$	(T is Temperature °C)	233
Reading before calibration (mV):			227,3
Reading after calibration (mV):			233.0

Before Cal:

Before Cal:

Before Cal:

Before Cal:

Before Cal:

After Cal:

After Cal:

After Cal:

After Cal:

After Cal:

Note: mV theory will change with temperature, so calculate based on your current temp.

TURBIDITY Note: Lens wiper should be parked 180 degrees from the optics.

20 NTU Turbidity Standard

100 NTU Turbidity Standard

11) NTU Turbidity Check STD

CALIBRATION SUCCESSFUL?

NTU Turbidity Check STD

NTU Turbidity Standard Lot A8155

Product Name: Low-Flow System

Date: 2020-11-30 15:32:07

Project Information:

Operator Name Daniel Howard
Company Name Wood E&IS
Project Name Plant Arkwright CCR AP 2

Site Name ARAMW-7
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 512733

Turbidity Make/Model Hach 2100Q

Well Information:

Well IDARAMW-7Well diameter2 inWell Total Depth50.82 ftScreen Length10 ftDepth to Water12.17 ft

Pump Information:

Pump Model/Type Peristaltic
Tubing Type HDPE
Tubing Diameter .17 in
Tubing Length 51 ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.3176346 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 0 in
Total Volume Pumped 5 L

45.8 ft

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	15:07:46	900.02	15.27	6.00	1778.79	5.66	12.44	0.21	-43.32
Last 5	15:12:46	1200.02	15.48	6.00	1780.04	5.87	12.44	0.20	-45.57
Last 5	15:17:46	1500.02	15.37	6.00	1763.81	5.03	12.44	0.19	-45.55
Last 5	15:22:47	1801.03	15.41	6.00	1770.99	4.51	12.44	0.18	-47.37
Last 5	15:27:47	2101.03	15.42	6.00	1768.80	4.61	12.44	0.18	-43.75
Variance 0			-0.11	0.00	-16.23			-0.01	0.01
Variance 1			0.04	0.00	7.17			-0.01	-1.82
Variance 2			0.01	0.00	-2.19			-0.00	3.62

Notes

ARAMW-7 sample time 1530.

**Grab Samples** 

Product Name: Low-Flow System

Date: 2020-12-01 10:08:02

Peristaltic

Project Information: Pump Information:
Operator Name Daniel Howard Pump Model/Type

Company NameWood E&ISTubing TypeHDPEProject NamePlant Arkwright CCR AP 2Tubing Diameter.17 inSite NameARAMW-8Tubing Length49.6 ft

Site Name ARAMW-8
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 512733

Turbidity Make/Model Hach 2100Q Pump placement from TOC 44.6 ft

Well Information: Pumping Information:

Final Pumping Rate 100 mL/min Well ID ARAMW-8 Well diameter Total System Volume 0.3113858 L 2 in Calculated Sample Rate Well Total Depth 49.61 ft 300 sec Stabilization Drawdown Screen Length 10 ft 0.31 in Depth to Water 10.92 ft **Total Volume Pumped** 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	09:42:36	900.03	11.20	7.00	718.40	3.24	12.30	0.40	-97.29
Last 5	09:47:36	1200.03	11.14	7.03	701.59	3.50	12.49	0.40	-92.28
Last 5	09:52:36	1500.03	11.11	7.04	718.46	3.85	12.65	0.37	-93.05
Last 5	09:57:36	1800.03	11.06	7.04	717.49	3.50	12.83	0.36	-95.66
Last 5	10:02:36	2100.03	11.63	7.05	709.33	3.53	12.96	0.48	-87.72
Variance 0			-0.04	0.01	16.87			-0.03	-0.77
Variance 1			-0.05	0.01	-0.97			-0.01	-2.60
Variance 2			0.57	0.01	-8.16			0.12	7.94

Notes

ARAMW-8 sample time 1005

**Grab Samples** 



**Data Evaluation Narrative** 

**Project: Plant Arkwright AP2 Background and Delineation Sampling** 

Wood Project Number: 6122201429.2003.\*\*\*\*

Site: Ash Pond No. 2 Dry Ash Stockpile - Former Plant Arkwright, Georgia

**Matrix: Groundwater** 

Eurofins TestAmerica SDG Nos: 180-114167-1, 180-114253-1

#### Introduction

A data quality evaluation (DQE) was performed on the laboratory data reported for the Background and Delineation sampling event conducted at Ash Pond No. 2 Dry Ash Stockpile at the former Plant Arkwright, located in Arkwright, Georgia in November and December 2020 for Southern Company Services (SCS). The samples were collected and analyzed per the protocols presented in the *Draft Former Plant Arkwright Field Sampling Plan* (FSP) (SCS, 2016) and in accordance with the monitoring requirements of §§ 257.90 through 257.95 as referenced in the Georgia Environmental Protection Division (EPD) Rules 391-3-4-.10(6)(a)-(c) and 391-3-4-.14. GA EPD rule 391-3-4-.10(6)(a) incorporates by reference the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) § 257 Subpart D.

The following sections provide summary discussions of the required data qualifications for the analytical methods for samples collected. A Level II DQE validation was performed on the samples analyzed by the fixed-based laboratory within these sample delivery groups (SDGs). A Level II DQE consists of review of the following criteria: sample integrity, holding times, method blanks, laboratory control samples (LCSs), matrix spikes/matrix spike duplicate (MS/MSD) recoveries and relative percent differences (RPDs), post digestion spikes (PDS), where applicable, laboratory and field duplicate RPDs, field and/or equipment blanks, and reporting limits (RLs). Additionally, the data summary tables generated from the electronic data deliverable (EDD) were compared to the laboratory hardcopy data report to verify that the EDD and laboratory data report agree.

The data were reviewed using the laboratory's precision and accuracy limits, the method requirements, and the SCS Field Sampling Plan (FSP) (SCS, 2016). DQE data qualifications were applied, if necessary, using the procedures in United States Environmental Protection Agency (USEPA) Region IV Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy (USEPA, 2011) and the National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2017), as guidance, and professional judgment using the following qualifiers:

<b>Qualifier</b>	<u>Usable Data</u>							
J	The analyte was positively identified but the result is an estimated quantity. The associated							
	numerical value is the approximate concentration of the analyte in the sample. SCS							
	Definition: Value J indicates the substance was detected at such low levels that the precision of							
	the laboratory instruments could not produce as reliable of a value. Therefore, the value							
	displayed (value J) is qualified by the laboratory as estimated.							
UJ	The analyte was analyzed for but was not detected above the level of the reported sample							
	reporting/method detection limit. The reported method detection limit (MDL) is							
	approximate and may be inaccurate or imprecise.							

SDG Nos: 180-114167-1, 180-114253-1 Page 1 of 15



Qualifier Usable Data (continued)

U Analyte was analyzed for but was not detected above the level of the reported sample reporting/method detection limit. Note: SCS does not use the "U" flag except when reporting

results for radium that are detected below the Minimum Detection Concentration (MDC).

U\* This analyte should be considered "not-detected" because it was detected in an associated

blank at a similar level.

Qualifier Unusable Data

R The sample results are rejected due to serious deficiencies in the ability to analyze the sample

and meet quality control (QC) criteria. The presence or absence of the analyte cannot be

confirmed.

UR The analyte was analyzed for but was not detected above the level of the reported sample

reporting or method detection; however, the data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality

control criteria. The analyte may or may not be present in the sample.

The analytical results for the samples reported in this SDG are usable with the qualifications discussed in this narrative. A summary of the data with associated qualifiers is presented in **Table 1**.

#### **Deliverables**

The data package as submitted to Wood Environment & Infrastructure Solutions, Inc. (Wood) is complete to perform a Level II DQE for USEPA Methods SW6020B, EPA 300.0, SM 2320B, SW9034 and SM2540C.

#### **Sample Integrity**

The groundwater samples were submitted to Eurofins TestAmerica in Pittsburgh, Pennsylvania (TAL PIT) and analyzed for specific total and/or dissolved metals (including Appendix III and select Appendix IV) by Method SW6020B, anions (chloride, fluoride, nitrate, nitrite, and sulfate) by Method 300.0 R2.1, alkalinity (total, bicarbonate and carbonate as CaCO<sub>3</sub>) by Method SM 2320B, sulfide by SW9034 and total dissolved solids by SM2540C.

Based on the information provided on the Chain-of-Custody (COC) forms, the field samples arrived at the laboratory intact, within temperature range, and properly preserved. Completed COC documents are included in the data package.

#### **Sample Identification**

This SDG contains the following groundwater and/or QC samples:

Sample ID	Sample Date	DQE Level
ARAMW-7	11/30/20	II
ARAMW-8	12/01/20	II

These samples were collected from the newly installed Ash Pond No. 2 monitoring wells listed above on November 30 and December 1, 2020. The field and equipment blanks associated with this event include FB-01-120120 and EB-01-062420 (reported in SDG 180-114251-1).

SDG Nos: 180-114167-1, 180-114253-1 Page 2 of 15



#### Metals (SW6020B)

The samples were submitted to TAL PIT for total CCR Appendix III metals, select total Appendix IV metals, and total or dissolved geochemical metals by Methods SW6020B. The CCR Appendix III metals are: boron (B) and calcium (Ca). The geochemical metals are: total magnesium (Mg), potassium (K), and sodium (Na), and dissolved iron (Fe) and manganese (Mn). The select Appendix IV metals are: cobalt (Co), and lithium (Li). Each of the Level II components were within QC limits except for method, field blank contamination.

#### **Holding Times**

The sample analyses were performed within the 6-month analysis holding time.

#### Method Blanks

One of the method blanks in SDG 180-114167-1 contained iron and sodium between the MDL and the RL, and associated results less than 10 times the method blank are considered "not detected" as a possible laboratory artifact.

Action: No qualification was necessary because the associated iron and sodium results were greater than 10 times the blank value.

#### **Laboratory Control Sample (LCS)**

Percent recoveries for target analytes were within quality control limits in the LCS.

#### Matrix Spike/Matrix Spike Duplicate (MS/MSD)

An MS/MSD analysis was not performed on any sample in this SDG.

#### Post Digestion Spike (PDS)

A PDS analysis was not available for review.

#### Field Duplicate Precision

No field duplicates were collected at Ash Pond No. 2.

#### Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

Field accuracy was measured through the collection of one equipment/rinsate blank and one field blank. Equipment rinsate blanks are collected to monitor the decontamination process on non-dedicated sampling equipment. Field blanks are collected to assess the water used to decontaminate the equipment and the containers into which samples are placed. One field blank (FB-01-120120) and one equipment blank (EB-01-120120) are associated with this sampling event. The field blank sample was reported with detections of boron and thallium at estimated concentrations between the MDL and RL. Results less than 10 times the field blank are considered "not detected" as a possible field artifact. **Reason Code: BF:** 

Action: The boron result for sample ARAMW-8 was qualified as not detected and flagged "U\*". Thallium was not analyzed for the samples in this SDG.

SDG Nos: 180-114167-1, 180-114253-1 Page 3 of 15



#### **Reporting Limits**

The laboratory RLs met the SCS project RLs and were below the screening values for samples submitted for the analysis of metals by USEPA Method SW6020B. The laboratory RL was elevated where dilutions were required to place the constituent within the calibration range. None of the samples in this SDG required dilution.

Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated and flagged "J" by the laboratory. The "J" qualifier is maintained by the data validator.

#### Total and Dissolved Metals Comparison

If total and dissolved metals samples were collected, comparison of the total and dissolved results can aid in the representativeness of the total metals value verses the metals that may be associated with suspended solids and metals actually dissolved within the water column. The dissolved metals results should be less than or equal to the total metals concentration for positive results greater than 5 times the RL. Although dissolved iron and manganese were collected and analyzed, total analyses were not scoped; therefore, no comparison was performed.

#### Anions (EPA 300.0 R2.1)

The samples were submitted to TAL PIT for anions (chloride, fluoride, nitrate, nitrite, and sulfate) by Method 300.0 R2.1. Each of the Level II components were within the QC limits.

#### **Holding Times**

The sample analyses were performed within the 48-hour and 28 day holding times.

#### **Method Blanks**

The method blank associated with the samples analyzed in this SDG contained no reportable detections of anions.

#### Laboratory Control Sample (LCS)

Percent recoveries for target analytes were within quality control limits in the LCS.

## Matrix Spike/Matrix Spike Duplicate (MS/MSD)

An MS/MSD analysis was not performed on any sample in this SDG.

#### Field Duplicate Precision

No field duplicates were collected at Ash Pond No. 2.

#### Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

The field blanks and equipment blank samples did not contain reportable detections of anions.

SDG Nos: 180-114167-1, 180-114253-1 Page 4 of 15



#### **Reporting Limits**

The laboratory RLs met the SCS project RLs and were below the screening values for samples submitted for the analysis of anions by USEPA Method 300 R2.1. No sample dilutions were required. Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated and flagged "J" by the laboratory. The "J" qualifier is maintained by the data validator.

#### Alkalinity (SM 2320B)

Samples were submitted to TAL PIT for alkalinity (total, carbonate, and bicarbonate) by Method SM 2320B to help determine aquifer characteristics. Each of the Level II components were within laboratory QC limits.

#### **Holding Times**

The sample analyses were performed within the 14-day analysis holding time.

#### Method Blanks

The laboratory method blanks did not contain reportable concentrations of alkalinity.

#### Laboratory Control Sample (LCS)

Percent recoveries for target analytes were within quality control limits in the LCS.

#### Field Duplicate Precision

No field duplicates were collected at Ash Pond No. 2.

#### Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

The field blanks and equipment blank samples did not contain reportable detections of alkalinity.

#### **Reporting Limits**

The laboratory RLs met the SCS project RLs for samples submitted for the analysis of alkalinity by Method SM 2230B. Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated; however, no alkalinity results were reported between the MDL and RL in this SDG.

#### Sulfide (SW9034)

Samples were submitted to TAL PIT for sulfide by Method SW9034 to help determine aquifer characteristics. Each of the Level II components were within laboratory QC limits.

#### **Holding Times**

The sample analyses were performed within the 7-day analysis holding time.

SDG Nos: 180-114167-1, 180-114253-1 Page 5 of 15



#### Method Blanks

The laboratory method blanks did not contain reportable concentrations of sulfide.

**Laboratory Control Sample (LCS)** 

Percent recoveries for target analytes were within quality control limits in the LCS.

Field Duplicate Precision

No field duplicates were collected at Ash Pond No. 2.

Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

The field blanks and equipment blank samples did not contain reportable detections of sulfide.

#### **Reporting Limits**

The laboratory RLs were met for samples submitted for the analysis of sulfide by Method SW9034 and no samples required dilutions. Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated; however, no sulfide results were reported between the MDL and RL in this SDG.

#### **Overall Site Evaluation and Professional Judgment Flagging Changes**

The chemical data included in this SDG was validated in general accordance with the guidelines contained in the project work plan and validation SOPs. No professional judgment was used to modify flags for results reported in samples presented in this SDG.

#### **Completeness**

A total of 2 wells in Ash Pond No. 2, along with the required QC samples, were sampled and analyzed during the November and December 2020 event in Ash Pond No. 2 according to the Scope of Work provided for the background and delineation sampling. Of the 2 wells scoped to be sampled, one well was reported in two separate SDGs and were sampled and analyzed as scoped.

Completeness of the field sampling activities were assessed in terms of the actual number and type of sample results received from the field and laboratory, as compared with the planned number and type of sample results. All samples planned were collected which meets a field completeness of 100%.

Analytical completeness of data is a measure of the number of valid project-specific data results obtained in comparison to the total number of data results projected to achieve project DQOs. Valid data are defined as data that meet the project-specific DQOs. No data were qualified as unusable which equals a completeness of 100%, which exceeds the 90 percent goal for field and laboratory data expected for this project.

SDG Nos: 180-114167-1, 180-114253-1 Page 6 of 15



#### References

SCS, 2016, Draft Field Sampling Plan – Former Plant Arkwright, Georgia Power Company, Earth Science and Environmental Engineering Technical Services, Southern Company Services, Inc. (SCS), August 17, 2016. Permit modification to include the Appendix III and IV sampling requirements; approval of modified permit and FSP pending.

USEPA, 2011. Region 4, Science and Ecosystem Support Division, Quality Assurance Section, MTSB, Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy, Revision 2.0; September 2011.

USEPA, 2017. National Office of Superfund Remediation and Technology Innovation, National Functional Guidelines for Inorganic Superfund Methods Data Review, Revision 0.0; January 2017.

Prepared by/Date: <u>DLH 01/14/21</u> Checked by/Date: <u>DWK 01/27/21</u>

SDG Nos: 180-114167-1, 180-114253-1 Page 7 of 15



# TABLE 1 SUMMARY OF DATA QUALIFIERS

SDG Nos: 180-114167-1, 180-114253-1 Page 8 of 15

#### TABLE 1

#### **SUMMARY OF DATA QUALIFIERS**

#### SAMPLE DELIVERY GROUPS: 180-114167-1 and 180-114253-1

SAMPLING DATES: November 30 - December 1, 2020

Plant Arkwright Ash Pond No. 2 Background and Delineation Sampling

Field Sample ID	Location ID	Type	SDG	Method	Parameter Name	Lab Result	Lab Qual	Val Qual	Reason Codes	Units
ARAMW-7	ARAMW-7	N	180-114167-1	300.0	fluoride	0.044	J	J		mg/L
ARAMW-7	ARAMW-7	N	180-114167-1	6020B	molybdenum	0.0012	J	J		mg/L
ARAMW-8	ARAMW-8	N	180-114253-1	6020B	boron	0.4		U*	BF	mg/L
ARAMW-8	ARAMW-8	N	180-114253-1	6020B	lithium	0.0044	J	J		mg/L

#### Notes:

#### **Laboratory Qualifiers:**

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

#### **Reason Codes:**

BF = Field blank contamination. The result should be considered "not-detected".

-- = No Reason Code assigned for values detected between the method detection limit (MDL) and the reporting limit (RL); estimated quantitation.

#### **Validation Qualifiers:**

J = The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U\* = This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.

Prepared by/Date: <u>DLH 01/15/21</u> Checked by/Date: <u>DWK 01/27/21</u>



# **DQE CHECKLISTS**

SDG Nos: 180-114167-1, 180-114253-1 Page 9 of 15



**Project:** Plant Arkwright Background and Delineation

**Project No:** 6122201429.2003.\*\*\*\* **Method:** Metals by SW6020B

Χ

**Laboratory and Lot:** <u>TAL PIT SDGs:</u> 180-114167-1, 180-114253-1

Reviewer/Date: D. Howard 01/14/21 Senior Reviewer/Date: D. Knaub 01/27/21

Anal for: B, Ca, Co, Li, Mg, Mo, K, Na, diss. Fe, and diss Mn

<u>NO</u> NA **COMMENTS Case Narrative and COC Completeness Review** OK X Sample Preservation and cooler temperature met (HNO₃ to pH<2) Ok, Temp = 2.1°C, SDG 180-114167-1 Ok, Temp =  $4.1^{\circ}$ C, SDG 180-114253-1 Χ Holding times met (180 days) Coll: 11/30/20, SDG 180-114167-1 Prep: Total and Diss. metals – 12/02/20 Anal: Total and Diss. metals – 12/04/20 Coll: 12/01/20, SDG 180-114253-1 Prep: Total and Diss. metals – 12/04/20 Anal: Total and Diss. metals – 12/05/20 Χ **OC Blanks Review** Method Blanks: SDG 180-114167-1 p. 10 MB 180-339223/1-A = Fe - 0.0349 J x 10 = 0.349, Na - 0.449 J x 10 = 4.49 mg/L Flag results < 10x blank "U": No flag, assoc. result > 10x SDG 180-114253-1 p. 10 MB 180-339431/1-A = All ND Field Blanks: SDG: 180-114251-1 FB-01: B= 0.044 J x 10 = 0.44 mg/L, TI= 0.00019 J x 10 = 0.0019 mg/L Flag results < 10x blank "U": B - ARAMW-8 (Tl not anal for in assoc. samples) Equipment Blank: SDG: 180-114251-1 EB-01 = All NDX **Laboratory Control Sample (LCS) recovery within limits** (Metals 80-120%, Hg = 80-120%) SDG 180-114167-1 p. 10 LCS 180-339223/2-A = All OK SDG 180-114253-1 p. 11 LCS 180-339431/2-A = All OK

SDG Nos: 180-114167-1, 180-114253-1 Page 10 of 15

No lab or field duplicate in this SDG

Lab Duplicate - Field Duplicate precision goals met (20%)



# Method: Metals by SW6020B (cont) YES NO NA COMMENTS Image: Matrix Spike recoveries and RPDs within limits (75-125%, RPD 20) No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MSDs in this SDG for metals Image: No

SDG Nos: 180-114167-1, 180-114253-1 Page 11 of 15



**Project:** Plant Arkwright Background and Delineation

**Project No:** 6122201429.2003.\*\*\*\*

Method: Anions (chloride, fluoride, nitrate, nitrite, and sulfate) by E300.0 R2.1

**Laboratory and Lot:** <u>TAL PIT SDGs: 180-114167-1, 180-114253-1</u>

**Reviewer/Date:** <u>D. Howard 01/14/21</u> **Senior Reviewer/Date:** <u>D. Knaub 01/27/21</u>

<u>YES</u>	<u>NO</u>	<u>NA</u>	COMMENTS
			Case Narrative and COC Completeness Review OK
			Sample Preservation and cooler temperature met (Cool to 6°C) Ok, Temp = 2.1°C, SDG 180-114167-1 Ok, Temp = 4.1°C, SDG 180-114253-1
			Holding times met (NO <sub>2</sub> , NO <sub>3</sub> – 48 hrs; Cl, SO <sub>4</sub> , F – 28 days) Coll: 11/30/20 (SDG 180-114167-1) Anal: Cl, F NO <sub>2</sub> , NO <sub>3</sub> , SO <sub>4</sub> : 12/02/20 (SDG 180-114167-1)
			Coll: 12/01/20 (SDG 180-114253-1) Anal: Cl, NO <sub>2</sub> , NO <sub>3</sub> , SO <sub>4</sub> : 12/01/20 (SDG 180-114253-1) Anal: F: 12/03/20
X			QC Blanks Review  Method Blanks:  p. 10 MB 180-338905/6 = All ND (SDG 114167-1)  p. 10 MB 180-339100/36, All ND = ND, MB 180-339255/6, F = ND
			Field Blanks: SDG 180-114251-1 FB-01 = ND Equipment Blank: SDG 180-114251-1 EB-01 = ND
			Laboratory Control Sample (LCS) recovery within limits (90-110%) p. 10 LCS 180-338905/5 = All %rec OK (SDG 180-114167-1) p. 10 LCS 180-339100/5 = All %rec OK, LCS 180-339255/5, F = 96% -OK
		X	Lab Duplicate - Field Duplicate precision goals met (20%) No lab or field duplicate in this SDG
			Matrix Spike recoveries and RPDs within limits (lab %Rec limits, RPD = 20) No MS/MSDs were analyzed in this SDG
×			EDD Data Verification vs. Hardcopy (10% samples for each SDG) 100% of results were checked

SDG Nos: 180-114167-1, 180-114253-1 Page 12 of 15



**Project:** Plant Arkwright Background and Delineation

Project No: 6122201429.2003.\*\*\*\*

Method: <u>Total, Bicarbonate and Carbonate Alkalinity by SM 2320B</u> Laboratory and Lot: <u>TAL PIT SDGs: 180-114167-1, 180-114253-1</u>

**Reviewer/Date:** D. Howard 01/14/21 **Senior Reviewer/Date:** D. Knaub 01/27/21

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK

Sample Preservation and cooler temperature met (Cool to 6°C)

Ok, Temp = 2.1°C, SDG 180-114167-1 Ok, Temp = 4.1°C, SDG 180-114253-1

Holding times met (14 days)

Coll: 11/30/20 (SDG 180-114167-1) Anal: 12/02/20 (SDG 180-114167-1)

Coll: 12/01/20 (SDG 180-114253-1) Anal: 12/04/20 (SDG 180-114253-1)

QC Blanks Review

**Method Blanks** 

p. 12 MB 180-339186/5 = ND (SDG 180-114167-1) p. 12 MB 180-339624/29 = ND (SDG 180-114253-1)

Field Blanks: SDG 180-114251-1

FB-01 = ND

Equipment Blank: SDG 180-114251-1

EB-01= ND

Laboratory Control Sample (LCS) recovery within lab limits (80-120%)

p. 12 LCS 180-339186/4= 93% - OK (SDG 180-114251-1) p. 17 LCS 180-339624/4 = 91% - OK (SDG 180-114253-1)

Lab Duplicate - Field Duplicate precision goals met (20%)

No lab or field duplicate in this SDG

Matrix Spike recoveries and RPDs within limits (if applicable)

MS/MSD not applicable for alkalinity

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

100% of results were checked

SDG Nos: 180-114167-1, 180-114253-1 Page 13 of 15



**Project:** Plant Arkwright Background and Delineation

**Project No:** 6122201429.2003.\*\*\*\* **Method:** Sulfide by SW9034

**Laboratory and Lot:** <u>TAL PIT SDGs:</u> 180-114167-1, 180-114253-1

**Reviewer/Date:** D. Howard 01/14/21 **Senior Reviewer/Date:** D. Knaub 01/27/21

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK

Sample Preservation and cooler temperature met (Cool to 6°C)

Ok, Temp = 2.1°C, SDG 180-114167-1 Ok, Temp = 4.1°C, SDG 180-114253-1

Holding times met (7 days)

Coll: 11/30/20 (SDG180-114167-1) Prep: 12/02/20 Anal: 12/02/20

Coll: 12/01/20 (SDG180-114253-1) Prep: 12/08/20 Anal: 12/08/20

**QC Blanks Review** 

**Method Blanks** 

p. 17 MB 180-320115/1-A= ND

p. 11 MB 180339874/1-A= ND (SDG 180-114253-1)

Field Blanks: SDG 180114251-1

FB-01: ND

Equipment Blank: SDG 180-114251-1

EB-01: ND

Laboratory Control Sample (LCS) recovery within lab limits (80-120%)

p. 17 LCS 180-320115/2-A = 89% - OK

p. 11 LCS 180-339874/2-A = 88% - OK (SDG 180-114253-1)

Lab Duplicate - Field Duplicate precision goals met (20%)

No lab or field duplicate in this SDG

Matrix Spike recoveries and RPDs within limits (if applicable)

180-114167-1 MS/MSD =75/78, RPD = 3 - OK (SDG 180-114167-1)

No MS/MSDs were analyzed in SDG 180-114253-1

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

100% of results were checked

SDG Nos: 180-114167-1, 180-114253-1 Page 14 of 15



**Project:** Plant Arkwright Background and Delineation

Project No: 6122201429.2003.\*\*\*\*

Method: Total Dissolved Solids (TDS) by SM2540C

Laboratory and Lot: TAL PIT SDGs: 180-114167-1, 180-114253-1

**Reviewer/Date:** D. Howard 01/14/21 **Senior Reviewer/Date:** D. Knaub 01/27/21

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK

Sample Preservation and cooler temperature met (Cool to 6°C)

Ok, Temp = 2.1°C, SDG 180-114167-1 Ok, Temp = 4.1°C, SDG 180-114253-1

Holding times met (7 days)

Coll: 11/30/20, SDG 180-114167-1

Anal: 12/03/20

Coll: 12/01/20, SDG 180-114253-1

Anal: 12/03/20

QC Blanks Review

**Method Blanks** 

p. 11 MB 180-339384/2 = ND (SDG 180-114167-1) p. 11 MB 180-339351/2 = ND (SDG 180-114167-1)

Field and equipment blank were not analyzed for TDS

Laboratory Control Sample (LCS) recovery within lab limits (80-120%)

p. 11 LCS 180-339384/1 = 96% - OK (SDG 180-114167-1) p. 11 LCS 180-339351/1 = 99% - OK (SDG 180-114253-1)

Lab Duplicate - Field Duplicate precision goals met (20%)

No lab or field duplicate in this SDG

Matrix Spike recoveries and RPDs within limits (if applicable)

MS/MSD not applicable to TDS

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

100% of results were checked

SDG Nos: 180-114167-1, 180-114253-1 Page 15 of 15

#### **RELATIVE PERCENT DIFFERENCE (RPD) CALCULATIONS**

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

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

Where:

RPD = Relative Percent Difference (%)

Conc1 = Higher concentration of the sample or field duplicate

Conc2 = Lower concentration of the sample or field duplicate

The RPD calculations are provided in the RPD Calculations table for detected concentrations above the PQL for wells and corresponding duplicates for the August, September/October 2020, and December 2020 sampling events. Other constituents were below the PQL. For an RPD to be representative of the process, the concentrations have to be five times the PQL in accordance with US EPA guidance on inorganic data review, (US EPA August 2014). The RPD values of concentrations five times the PQL ranged within the allowable 20% RPD indicating good sampling precision.

#### **RELATIVE PERCENT DIFFERENCE (RPD) CALCULATIONS**

Ash Pond #3								
Parameter	Concentration 1							
8/19/2019	DUP-1	ARGWC-10	RPD					
Barium	0.034	0.034	0%					
Chromium	0.0051	0.0049	4%					
Parameter	Concentration 1   Concentration 2							
9/29/2020	DUP-1	ARGWC-17	RPD					
Calcium	13	12	8%					
Chloride	3.5	3.4	3%					
Sulfate	69	66	4%					
TDS	140	140	0%					
Barium	0.058	0.056	4%					
Cobalt	0.027	0.027	0%					

Parameter	Concentration 1	Concentration 2	
12/01/2020	DUP-1	ARGWA-24	RPD
Chloride	12	12	0%
Sulfate	7.3	7.5	3%
Calcium	13	13	0%
Barium	0.037	0.038	3%
Cobalt	0.0055	0.0058	5%
TDS	110	120	9%
	Ash Pond	#2	
Parameter	Concentration 1	Concentration 2	
8/20/2020	DUP-2	ARGWC-23	RPD
Boron	0.40	0.44	10%
Calcium	68	69	1%
Chloride	3.9	3.9	0%
Fluoride	0.19	0.19	0%
Sulfate	70	69	1%
TDS	310	310	0%
Barium	0.16	0.16	0%
Lithium	0.035	0.036	3%
Molybdenum	0.061	0.061	0%
Parameter	Concentration 1	Concentration 2	
10/1/2020	DUP-2	ARGWC-23	RPD
Boron	0.47	0.49	4%
Calcium	72	73	1%
Chloride	3.8	3.8	0%
Fluoride	0.32	0.32	0%
Sulfate	63	64	2%
TDS	290	290	0%
Barium	0.16	0.17	6%
Cobalt	0.0047	0.0052	10%
Lithium	0.039	0.040	3%
Molybdenum	0.062	0.064	3%

concentrations in mg/L

Prepared by: NJM 12/17/2020
Checked by: RNQ 2/16/2021



# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-117154-1

Client Project/Site: CCR - Arkwright Surfacewater

For:

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

Attn: Joju Abraham

Authorized for release by: 2/19/2021 2:59:43 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

Client: Southern Company Project/Site: CCR - Arkwright Surfacewater Laboratory Job ID: 180-117154-1

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	
Certification Summary	5
Sample Summary	
Method Summary	7
Lab Chronicle	8
Client Sample Results	12
QC Sample Results	21
QC Association Summary	24
Chain of Custody	26
Receint Checklists	29

2

4

5

\_\_\_\_\_

9

10

12

1:

#### **Case Narrative**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-117154-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-117154-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 2/12/2021 8:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.2° C, 2.3° C and 3.2° C.

#### **Receipt Exceptions**

The container label for the 250ML container for the following sample did not match the information listed on the Chain-of-Custody (COC): BC-0.1 (180-117154-9). The container labels list a sample id of BC-0.4, while the COC lists BC-0.1. The id on the COC was used.

There are no sample collection dates or times listed on the labels. BT-1.6 (180-117154-1), BT-1.0 (180-117154-2), BC-0.8 (180-117154-3), BC-0.5.7 (180-117154-4), BC-0.5.6 (180-117154-5), BC-0.5.5 (180-117154-6), BC-BR (180-117154-7), BC-0.3 (180-117154-8) and BC-0.1 (180-117154-9)

#### GC Semi VOA

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

#### Metals

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

#### **General Chemistry**

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

Job ID: 180-117154-1

3

А

J

6

9

10

12

1,

## **Definitions/Glossary**

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

#### **Qualifiers**

**HPLC/IC** 

Qualifier **Qualifier Description** 

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** 

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

**General Chemistry** 

Qualifier **Qualifier Description** 

HF Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

**Glossary** 

Abbreviation These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery CFL Contains Free Liquid CFU Colony Forming Unit CNF Contains No Free Liquid

**DER** Duplicate Error Ratio (normalized absolute difference)

Dil Fac **Dilution Factor** 

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

**EDL** Estimated Detection Limit (Dioxin) LOD Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit ML Minimum Level (Dioxin) MPN Most Probable Number MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

**PQL Practical Quantitation Limit** 

**PRES** Presumptive QC **Quality Control** 

**RER** Relative Error Ratio (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry) RL

Relative Percent Difference, a measure of the relative difference between two points **RPD** 

**TFF** Toxicity Equivalent Factor (Dioxin) **TEQ** Toxicity Equivalent Quotient (Dioxin)

**TNTC** Too Numerous To Count

Eurofins TestAmerica, Pittsburgh

Page 4 of 29

2/19/2021

# **Accreditation/Certification Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-117154-1

# Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	<b>Expiration Date</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	02-21-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-22
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-21
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20 *
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-22
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-21
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	01-31-22
Wisconsin	State	998027800	08-31-21

-

9

10

10

13

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

Eurofins TestAmerica, Pittsburgh

# **Sample Summary**

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset
180-117154-1	BT-1.6	Water	02/10/21 09:56	02/12/21 08:45	
180-117154-2	BT-1.0	Water	02/10/21 10:37	02/12/21 08:45	
180-117154-3	BC-0.8	Water	02/10/21 11:07	02/12/21 08:45	
180-117154-4	BC-0.5.7	Water	02/10/21 11:56	02/12/21 08:45	
180-117154-5	BC-0.5.6	Water	02/10/21 12:10	02/12/21 08:45	
180-117154-6	BC-0.5.5	Water	02/10/21 12:34	02/12/21 08:45	
180-117154-7	BC-BR	Water	02/10/21 12:56	02/12/21 08:45	
180-117154-8	BC-0.3	Water	02/10/21 15:49	02/12/21 08:45	
180-117154-9	BC-0.1	Water	02/10/21 14:06	02/12/21 08:45	

Job ID: 180-117154-1

# **Method Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 9040C	pH	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
SM2320 B	Alkalinity, Total	SM18	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT

#### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

#### **Laboratory References:**

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

Job ID: 180-117154-1

## **Lab Chronicle**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BT-1.6 Lab Sample ID: 180-117154-1

Date Collected: 02/10/21 09:56 Date Received: 02/12/21 08:45

**Matrix: Water** 

Job ID: 180-117154-1

Prep Type Total/NA	Batch Type Analysis Instrumen	Batch Method EPA 300.0 R2.1 t ID: INTEGRION	Run	Factor 1	Initial Amount 1 mL	Final Amount 1.0 mL	Batch Number 346485	Prepared or Analyzed 02/13/21 16:27	Analyst SAT	Lab TAL PIT
Total Recoverable Total Recoverable	Prep Analysis Instrumen	3005A EPA 6020B t ID: A		1	50 mL	50 mL	346673 346915	02/16/21 10:18 02/17/21 20:39		TAL PIT TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:31	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 20:48	REI	TAL PIT

**Client Sample ID: BT-1.0** Lab Sample ID: 180-117154-2

Date Collected: 02/10/21 10:37 **Matrix: Water** Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 17:29	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 20:50	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:33	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 20:56	REI	TAL PI

Client Sample ID: BC-0.8 Lab Sample ID: 180-117154-3 Date Collected: 02/10/21 11:07 **Matrix: Water** 

Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 17:50	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 20:54	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:34	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 21:05	REI	TAL PIT

Eurofins TestAmerica, Pittsburgh

Page 8 of 29 2/19/2021

## **Lab Chronicle**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.5.7 Lab Sample ID: 180-117154-4

Date Collected: 02/10/21 11:56 **Matrix: Water** 

Date Received: 02/12/21 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1	1 mL	1.0 mL	346485	02/13/21 18:11		TAL PIT
Total Recoverable Total Recoverable	Prep Analysis Instrumen	3005A EPA 6020B t ID: A		1	50 mL	50 mL	346673 346915	02/16/21 10:18 02/17/21 20:57		TAL PIT TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:35	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 21:13	REI	TAL PIT

Client Sample ID: BC-0.5.6 Lab Sample ID: 180-117154-5

Date Collected: 02/10/21 12:10 **Matrix: Water** Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 18:32	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 21:01	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:36	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 21:22	REI	TAL PIT

Client Sample ID: BC-0.5.5 Lab Sample ID: 180-117154-6 Date Collected: 02/10/21 12:34 **Matrix: Water** 

Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 18:53	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 21:05	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:37	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346849	02/17/21 13:17	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 21:31	REI	TAL PIT

Eurofins TestAmerica, Pittsburgh

Page 9 of 29 2/19/2021

Job ID: 180-117154-1

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Instrument ID: PCTITRATOR

**Client Sample ID: BC-BR** Lab Sample ID: 180-117154-7 **Matrix: Water** 

Date Collected: 02/10/21 12:56 Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 nt ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 19:14	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B nt ID: A		1			346915	02/17/21 21:08	RSK	TAL PIT
Total/NA	Analysis Instrumer	EPA 9040C nt ID: NOEQUIP		1			346717	02/16/21 14:38	PMH	TAL PIT
Total/NA	Analysis Instrumer	SM 2540C nt ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis	SM2320 B		1			346651	02/13/21 21:39	REI	TAL PIT

Lab Sample ID: 180-117154-8 Client Sample ID: BC-0.3

Date Collected: 02/10/21 15:49 **Matrix: Water** Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 19:35	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 21:12	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:39	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 22:35	REI	TAL PIT

Client Sample ID: BC-0.1 Lab Sample ID: 180-117154-9 Date Collected: 02/10/21 14:06 **Matrix: Water** 

Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 20:37	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 21:15	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:40	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 22:52	REI	TAL PIT

Eurofins TestAmerica, Pittsburgh

Page 10 of 29

Job ID: 180-117154-1

### **Lab Chronicle**

Client: Southern Company

Job ID: 180-117154-1 Project/Site: CCR - Arkwright Surfacewater

#### **Laboratory References:**

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

#### **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

TJO = Tyler Oliver

Batch Type: Analysis

GRB = Gabriel Berghe

PMH = Paloma Hoelzle

REI = Rachel Innocenzi

RSK = Robert Kurtz

SAT = Stephen Tallam

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BT-1.6

Lab Sample ID: 180-117154-1 Date Collected: 02/10/21 09:56 **Matrix: Water** 

Date Received: 02/12/21 08:45

1	Method: EPA 300.0 R2.1 - Anio	ns, Ion Chr	omatograp	hy						
1	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
(	Chloride	6.3		1.0	0.71	mg/L			02/13/21 16:27	1
1	Fluoride	0.050	J	0.10	0.026	mg/L			02/13/21 16:27	1
Ŀ	Sulfate	3.2		1.0	0.76	mg/L			02/13/21 16:27	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 20:39	1
Calcium	7.6		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 20:39	1
Cobalt	0.00028	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 20:39	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 20:39	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 20:39	1
Sodium	5.3		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 20:39	1
Potassium	1.7		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 20:39	1
Magnesium	4.7		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 20:39	1

General Chemistry									
Analyte	Result (	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1	0.1	SU			02/16/21 14:31	1
Total Dissolved Solids	67		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	43		5.0	5.0	mg/L			02/13/21 20:48	1
Bicarbonate Alkalinity as CaCO3	43		5.0	5.0	mg/L			02/13/21 20:48	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Lab Sample ID: 180-117154-2 Client Sample ID: BT-1.0 Date Collected: 02/10/21 10:37

**Matrix: Water** 

Date Received: 02/12/21 08:45

Method: EPA 300.0 R	2.1 - Anions, Ion Chro	matography						
Analyte	Result C	Qualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.8	1.0	0.71	mg/L			02/13/21 17:29	1
Fluoride	0.051 J	0.10	0.026	mg/L			02/13/21 17:29	1
Sulfate	41	1.0	0.76	mg/L			02/13/21 17:29	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.089		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 20:50	1
Calcium	12		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 20:50	1
Cobalt	0.0013	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 20:50	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 20:50	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 20:50	1
Sodium	6.9		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 20:50	1
Potassium	1.8		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 20:50	1
Magnesium	9.3		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 20:50	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1	0.1	SU			02/16/21 14:33	1
Total Dissolved Solids	120		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	42		5.0	5.0	mg/L			02/13/21 20:56	1
Bicarbonate Alkalinity as CaCO3	42		5.0	5.0	mg/L			02/13/21 20:56	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.8

Lab Sample ID: 180-117154-3 Date Collected: 02/10/21 11:07

**Matrix: Water** Date Received: 02/12/21 08:45

Analyte	Result C	Qualifier RI	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.0	1.0	0.71	mg/L			02/13/21 17:50	1
Fluoride	0.050 J	J 0.10	0.026	mg/L			02/13/21 17:50	1
Sulfate	32	1.0	0.76	mg/L			02/13/21 17:50	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.27		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 20:54	1
Calcium	15		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 20:54	1
Cobalt	0.0019	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 20:54	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 20:54	1
Molybdenum	< 0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 20:54	1
Sodium	9.3		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 20:54	1
Potassium	1.6		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 20:54	1
Magnesium	8.0		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 20:54	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1	0.1	SU			02/16/21 14:34	1
Total Dissolved Solids	130		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	43		5.0	5.0	mg/L			02/13/21 21:05	1
Bicarbonate Alkalinity as CaCO3	43		5.0	5.0	mg/L			02/13/21 21:05	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.5.7

Lab Sample ID: 180-117154-4

**Matrix: Water** 

Date Collected: 02/10/21 11:56 Date Received: 02/12/21 08:45

Method: EPA 300.0 R2.1	- Anions, Ion Chromatograp	ohy						
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.5	1.0	0.71	mg/L			02/13/21 18:11	1
Fluoride	0.055 J	0.10	0.026	mg/L			02/13/21 18:11	1
Sulfate	6.4	1.0	0.76	mg/L			02/13/21 18:11	1
<del>_</del>								

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.047	J	0.080	0.039	mg/L		02/16/21 10:18	02/17/21 20:57	1
Calcium	8.4		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 20:57	1
Cobalt	0.00056	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 20:57	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 20:57	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 20:57	1
Sodium	8.2		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 20:57	1
Potassium	1.9		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 20:57	1
Magnesium	4.2		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 20:57	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1	0.1	SU			02/16/21 14:35	1
Total Dissolved Solids	85		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	44		5.0	5.0	mg/L			02/13/21 21:13	1
Bicarbonate Alkalinity as CaCO3	44		5.0	5.0	mg/L			02/13/21 21:13	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.5.6

Lab Sample ID: 180-117154-5 Date Collected: 02/10/21 12:10 Date Received: 02/12/21 08:45

**Matrix: Water** 

Method: EPA 300.0 R2.1 - A	Anions, Ion Chr	omatograp	hy						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.6		1.0	0.71	mg/L			02/13/21 18:32	1
Fluoride	0.055	J	0.10	0.026	mg/L			02/13/21 18:32	1
Sulfate	6.7		1.0	0.76	mg/L			02/13/21 18:32	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 21:01	1
Calcium	8.7		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 21:01	1
Cobalt	0.00057	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 21:01	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 21:01	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 21:01	1
Sodium	8.4		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 21:01	1
Potassium	1.9		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 21:01	1
Magnesium	4.3		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 21:01	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			02/16/21 14:36	1
Total Dissolved Solids	96		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	43		5.0	5.0	mg/L			02/13/21 21:22	1
Bicarbonate Alkalinity as CaCO3	43		5.0	5.0	mg/L			02/13/21 21:22	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.5.5

Lab Sample ID: 180-117154-6 Date Collected: 02/10/21 12:34

**Matrix: Water** 

Date Received: 02/12/21 08:45

Method: EPA 300.0 R	2.1 - Anions, Ion Chr	omatograph	าง						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.7		1.0	0.71	mg/L			02/13/21 18:53	1
Fluoride	0.062	J	0.10	0.026	mg/L			02/13/21 18:53	1
Sulfate	6.8		1.0	0.76	mg/L			02/13/21 18:53	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 21:05	1
Calcium	8.1		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 21:05	1
Cobalt	0.00050	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 21:05	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 21:05	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 21:05	1
Sodium	8.1		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 21:05	1
Potassium	1.8		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 21:05	1
Magnesium	4.2		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 21:05	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			02/16/21 14:37	1
Total Dissolved Solids	76		10	10	mg/L			02/17/21 13:17	1
Total Alkalinity as CaCO3 to pH 4.5	44		5.0	5.0	mg/L			02/13/21 21:31	1
Bicarbonate Alkalinity as CaCO3	44		5.0	5.0	mg/L			02/13/21 21:31	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

**Client Sample ID: BC-BR** 

Lab Sample ID: 180-117154-7 Date Collected: 02/10/21 12:56

**Matrix: Water** 

Date Received: 02/12/21 08:45

Method: EPA 300.0 R2.1 - Anic	ons, Ion Chrom	atography						
Analyte	Result Qua	alifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.6	1.0	0.71	mg/L			02/13/21 19:14	1
Fluoride	0.056 J	0.10	0.026	mg/L			02/13/21 19:14	1
Sulfate	6.7	1.0	0.76	mg/L			02/13/21 19:14	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 21:08	1
Calcium	9.0		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 21:08	1
Cobalt	0.00052	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 21:08	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 21:08	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 21:08	1
Sodium	8.6		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 21:08	1
Potassium	1.9		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 21:08	1
Magnesium	4.4		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 21:08	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			02/16/21 14:38	1
Total Dissolved Solids	88		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	43		5.0	5.0	mg/L			02/13/21 21:39	1
Bicarbonate Alkalinity as CaCO3	43		5.0	5.0	mg/L			02/13/21 21:39	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.3 Lab Sample ID: 180-117154-8 Date Collected: 02/10/21 15:49

**Matrix: Water** 

Date Received: 02/12/21 08:45

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.0	1.0	0.71	mg/L			02/13/21 19:35	1
Fluoride	0.051 J	0.10	0.026	mg/L			02/13/21 19:35	1
Sulfate	6.5	1.0	0.76	mg/L			02/13/21 19:35	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 21:12	1
Calcium	8.6		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 21:12	1
Cobalt	0.00050	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 21:12	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 21:12	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 21:12	1
Sodium	8.4		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 21:12	1
Potassium	1.9		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 21:12	1
Magnesium	4.3		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 21:12	1

General Chemistry Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analvzed	Dil Fac
pH	7.5		0.1		SU	— <u> </u>		02/16/21 14:39	1
Total Dissolved Solids	98		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	44		5.0	5.0	mg/L			02/13/21 22:35	1
Bicarbonate Alkalinity as CaCO3	44		5.0	5.0	mg/L			02/13/21 22:35	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

**Bicarbonate Alkalinity as CaCO3** 

Client Sample ID: BC-0.1 Lab Sample ID: 180-117154-9

Date Collected: 02/10/21 14:06 **Matrix: Water** Date Received: 02/12/21 08:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.7		1.0	0.71	mg/L			02/13/21 20:37	1
Fluoride	0.056	J	0.10	0.026	mg/L			02/13/21 20:37	1
Sulfate	6.9		1.0	0.76	mg/L			02/13/21 20:37	1
Method: EPA 6020B - Metals (IC	P/MS) - To	otal Recove	rable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 21:15	1
Calcium	8.3		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 21:15	1
Cobalt	0.00057	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 21:15	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 21:15	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 21:15	1
Sodium	8.2		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 21:15	1
Potassium	1.9		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 21:15	1
Magnesium	4.2		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 21:15	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.5	HF	0.1	0.1	SU			02/16/21 14:40	1
Total Dissolved Solids	92		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	43		5.0	5.0	mg/L			02/13/21 22:52	1

5.0

5.0 mg/L

43

02/13/21 22:52

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-117154-1

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

Lab Sample ID: MB 180-346485/6

**Matrix: Water** 

**Analysis Batch: 346485** 

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

MB MB

Analyte	Result Qualifier	RL	MDL Unit	D Prepared	Analyzed	Dil Fac
Chloride	<0.71	1.0	0.71 mg/L		02/13/21 07:55	1
Fluoride	<0.026	0.10	0.026 mg/L		02/13/21 07:55	1
Sulfate	<0.76	1.0	0.76 mg/L		02/13/21 07:55	1

Lab Sample ID: LCS 180-346485/5

**Matrix: Water** 

Analysis Batch: 346485

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

Spike LCS LCS %Rec. Result Qualifier Unit Limits Analyte Added D %Rec Chloride 50.0 90 - 110 51.4 mg/L 103 Fluoride 2.50 2.49 mg/L 100 90 - 110 Sulfate 50.0 mg/L 90 - 110 50.5 101

Lab Sample ID: 180-117154-1 MS

Client Sample ID: BT-1.6 **Matrix: Water** Prep Type: Total/NA Analysis Batch: 346485

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	6.3		50.0	57.9		mg/L		103	90 - 110	
Fluoride	0.050	J	2.50	2.54		mg/L		99	90 - 110	
Sulfate	3.2		50.0	54.4		mg/L		102	90 - 110	

Lab Sample ID: 180-117154-1 MSD

**Matrix: Water** 

Analysis Batch: 346485	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	6.3		50.0	57.0		mg/L		102	90 - 110	1	20
Fluoride	0.050	J	2.50	2.50		mg/L		98	90 - 110	1	20
Sulfate	3.2		50.0	53.5		mg/L		101	90 - 110	2	20

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

Lab Sample ID: MB 180-346673/1-A

**Matrix: Water** 

**Analysis Batch: 346915** 

**Client Sample ID: Method Blank Prep Type: Total Recoverable Prep Batch: 346673** 

Client Sample ID: BT-1.6

Prep Type: Total/NA

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 19:52	1
Calcium	<0.13		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 19:52	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 19:52	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 19:52	1
Molybdenum	< 0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 19:52	1
Sodium	<0.35		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 19:52	1
Potassium	<0.16		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 19:52	1
Magnesium	<0.083		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 19:52	1

Eurofins TestAmerica, Pittsburgh

Page 21 of 29

10

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

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

Lab Sample ID: LCS 180-346673/2-A **Matrix: Water** 

Analysis Batch: 346915

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

**Prep Batch: 346673** 

•	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Boron	1.25	1.22		mg/L		98	80 - 120	
Calcium	25.0	26.8		mg/L		107	80 - 120	
Cobalt	0.500	0.487		mg/L		97	80 - 120	
Lithium	0.500	0.489		mg/L		98	80 - 120	
Molybdenum	0.500	0.512		mg/L		102	80 - 120	
Sodium	25.0	24.9		mg/L		100	80 - 120	
Potassium	25.0	25.2		mg/L		101	80 - 120	
Magnesium	25.0	26.2		mg/L		105	80 - 120	

Method: EPA 9040C - pH

Lab Sample ID: LCS 180-346717/1

**Matrix: Water** 

**Analysis Batch: 346717** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Spike LCS LCS %Rec. Added Analyte Result Qualifier D %Rec Limits Unit SU рΗ 7.00 7.0 100 99 - 101

Lab Sample ID: 180-117154-1 DU

**Matrix: Water** 

Analysis Ratch: 346717

Client Sample ID: BT-1.6 Prep Type: Total/NA

Allalysis Dalcii. 3407 17									
	Sample	Sample	DU	DU					RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D		RPD	Limit
pH	7.1	HF	7.1		SU		 	0.3	2

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

Lab Sample ID: MB 180-346820/2

**Matrix: Water** 

**Analysis Batch: 346820** 

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

MB MB Analyte RL MDL Unit Result Qualifier D Prepared Analyzed Dil Fac Total Dissolved Solids <10 10 10 mg/L 02/17/21 10:34

Lab Sample ID: LCS 180-346820/1

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

**Matrix: Water** 

Analysis Batch: 346820

	;	Spike	LCS	LCS				%Rec.
Analyte	А	dded	Result	Qualifier	Unit	D	%Rec	Limits
Total Dissolved Solids		457	420		mg/L	_	92	80 - 120

Lab Sample ID: MB 180-346849/2

**Matrix: Water** 

Client Sample ID: Method Blank

Prep Type: Total/NA

2/19/2021

Analysis Batch: 346849

MB MB

Result Qualifier RL **MDL** Unit Prepared Analyzed Total Dissolved Solids <10 10 10 mg/L 02/17/21 13:17

Eurofins TestAmerica, Pittsburgh

Page 22 of 29

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-117154-1

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

Lab Sample ID: LCS 180-346849/1

**Matrix: Water** 

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

10

Analysis Batch: 346849

Spike LCS LCS %Rec. Added Result Qualifier %Rec Limits Analyte Unit **Total Dissolved Solids** 457 438 mg/L 96 80 - 120

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-346651/52 Client Sample ID: Method Blank

**Matrix: Water** 

Analysis Batch: 346651

Prep Type: Total/NA

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac 5.0 Total Alkalinity as CaCO3 to pH 4.5 <5.0 5.0 mg/L 02/13/21 18:48 Bicarbonate Alkalinity as CaCO3 <5.0 5.0 02/13/21 18:48 5.0 mg/L

Lab Sample ID: MB 180-346651/76 Client Sample ID: Method Blank Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 346651

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Total Alkalinity as CaCO3 to pH 4.5 <5.0 5.0 5.0 mg/L 02/13/21 22:26 Bicarbonate Alkalinity as CaCO3 <5.0 5.0 02/13/21 22:26 5.0 mg/L

Lab Sample ID: LCS 180-346651/51 **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA** 

**Analysis Batch: 346651** 

LCS LCS Spike %Rec. Added Analyte Result Qualifier Limits Unit %Rec Total Alkalinity as CaCO3 to pH 250 268 mg/L 107 90 - 110

Lab Sample ID: LCS 180-346651/75

**Matrix: Water** 

**Analysis Batch: 346651** 

LCS LCS Spike %Rec. Added Result Qualifier Unit D %Rec Limits Total Alkalinity as CaCO3 to pH 250 257 mg/L 103 90 - 110

Lab Sample ID: 180-117154-8 DU Client Sample ID: BC-0.3

**Matrix: Water** 

4.5

Analysis Batch: 346651

Alialysis Dalcii. 34003 i									
-	Sample	Sample	DU	DU					RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	R	PD	Limit
Total Alkalinity as CaCO3 to pH	44		45.1		mg/L			3	20
4.5									
Bicarbonate Alkalinity as CaCO3	44		45.1		mg/L			3	20

Eurofins TestAmerica, Pittsburgh

2/19/2021

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Type: Total/NA

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

# HPLC/IC

### **Analysis Batch: 346485**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total/NA	Water	EPA 300.0 R2.1	
180-117154-2	BT-1.0	Total/NA	Water	EPA 300.0 R2.1	
180-117154-3	BC-0.8	Total/NA	Water	EPA 300.0 R2.1	
180-117154-4	BC-0.5.7	Total/NA	Water	EPA 300.0 R2.1	
180-117154-5	BC-0.5.6	Total/NA	Water	EPA 300.0 R2.1	
180-117154-6	BC-0.5.5	Total/NA	Water	EPA 300.0 R2.1	
180-117154-7	BC-BR	Total/NA	Water	EPA 300.0 R2.1	
180-117154-8	BC-0.3	Total/NA	Water	EPA 300.0 R2.1	
180-117154-9	BC-0.1	Total/NA	Water	EPA 300.0 R2.1	
MB 180-346485/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-346485/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-117154-1 MS	BT-1.6	Total/NA	Water	EPA 300.0 R2.1	
180-117154-1 MSD	BT-1.6	Total/NA	Water	EPA 300.0 R2.1	

### Metals

### **Prep Batch: 346673**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total Recoverable	Water	3005A	
180-117154-2	BT-1.0	Total Recoverable	Water	3005A	
180-117154-3	BC-0.8	Total Recoverable	Water	3005A	
180-117154-4	BC-0.5.7	Total Recoverable	Water	3005A	
180-117154-5	BC-0.5.6	Total Recoverable	Water	3005A	
180-117154-6	BC-0.5.5	Total Recoverable	Water	3005A	
180-117154-7	BC-BR	Total Recoverable	Water	3005A	
180-117154-8	BC-0.3	Total Recoverable	Water	3005A	
180-117154-9	BC-0.1	Total Recoverable	Water	3005A	
MB 180-346673/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-346673/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

### **Analysis Batch: 346915**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total Recoverable	Water	EPA 6020B	346673
180-117154-2	BT-1.0	Total Recoverable	Water	EPA 6020B	346673
180-117154-3	BC-0.8	Total Recoverable	Water	EPA 6020B	346673
180-117154-4	BC-0.5.7	Total Recoverable	Water	EPA 6020B	346673
180-117154-5	BC-0.5.6	Total Recoverable	Water	EPA 6020B	346673
180-117154-6	BC-0.5.5	Total Recoverable	Water	EPA 6020B	346673
180-117154-7	BC-BR	Total Recoverable	Water	EPA 6020B	346673
180-117154-8	BC-0.3	Total Recoverable	Water	EPA 6020B	346673
180-117154-9	BC-0.1	Total Recoverable	Water	EPA 6020B	346673
MB 180-346673/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	346673
LCS 180-346673/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	346673

# **General Chemistry**

### **Analysis Batch: 346651**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total/NA	Water	SM2320 B	
180-117154-2	BT-1.0	Total/NA	Water	SM2320 B	
180-117154-3	BC-0.8	Total/NA	Water	SM2320 B	
180-117154-4	BC-0.5.7	Total/NA	Water	SM2320 B	

Eurofins TestAmerica, Pittsburgh

\_\_\_\_

Job ID: 180-117154-1

3

4

6

8

9

11

L

# **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-117154-1

# **General Chemistry (Continued)**

### **Analysis Batch: 346651 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-5	BC-0.5.6	Total/NA	Water	SM2320 B	
180-117154-6	BC-0.5.5	Total/NA	Water	SM2320 B	
180-117154-7	BC-BR	Total/NA	Water	SM2320 B	
180-117154-8	BC-0.3	Total/NA	Water	SM2320 B	
180-117154-9	BC-0.1	Total/NA	Water	SM2320 B	
MB 180-346651/52	Method Blank	Total/NA	Water	SM2320 B	
MB 180-346651/76	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-346651/51	Lab Control Sample	Total/NA	Water	SM2320 B	
LCS 180-346651/75	Lab Control Sample	Total/NA	Water	SM2320 B	
180-117154-8 DU	BC-0.3	Total/NA	Water	SM2320 B	

### **Analysis Batch: 346717**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total/NA	Water	EPA 9040C	
180-117154-2	BT-1.0	Total/NA	Water	EPA 9040C	
180-117154-3	BC-0.8	Total/NA	Water	EPA 9040C	
180-117154-4	BC-0.5.7	Total/NA	Water	EPA 9040C	
180-117154-5	BC-0.5.6	Total/NA	Water	EPA 9040C	
180-117154-6	BC-0.5.5	Total/NA	Water	EPA 9040C	
180-117154-7	BC-BR	Total/NA	Water	EPA 9040C	
180-117154-8	BC-0.3	Total/NA	Water	EPA 9040C	
180-117154-9	BC-0.1	Total/NA	Water	EPA 9040C	
LCS 180-346717/1	Lab Control Sample	Total/NA	Water	EPA 9040C	
180-117154-1 DU	BT-1.6	Total/NA	Water	EPA 9040C	

### **Analysis Batch: 346820**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total/NA	Water	SM 2540C	
180-117154-2	BT-1.0	Total/NA	Water	SM 2540C	
180-117154-3	BC-0.8	Total/NA	Water	SM 2540C	
180-117154-4	BC-0.5.7	Total/NA	Water	SM 2540C	
180-117154-5	BC-0.5.6	Total/NA	Water	SM 2540C	
180-117154-7	BC-BR	Total/NA	Water	SM 2540C	
180-117154-8	BC-0.3	Total/NA	Water	SM 2540C	
180-117154-9	BC-0.1	Total/NA	Water	SM 2540C	
MB 180-346820/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-346820/1	Lab Control Sample	Total/NA	Water	SM 2540C	

## Analysis Batch: 346849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-6	BC-0.5.5	Total/NA	Water	SM 2540C	
MB 180-346849/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-346849/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Eurofins TestAmerica, Pittsburgh









Environmen\* TestA-





Part # 159469-434 RIT2 EXP 11/21 ...

200

RT97

ORIGIN ID:LIYA (678) 966-9991
GEORGE TAYLOR
EUROFINS TESTING AMERICA ATL SC
6215 REGENCY PARKWAY NW
SUITE 900
NORCROSS, GA 30071
UNITED STATES US

DATE: 11FEB21 ...(WGT: 65.40 LB CAD: 859116/CAFE3406

BILL RECIPIENT

SAMPLE RECIEVING **EUROFINS TESTAMERICA PITTSBURGH** 301 ALPHA DR. RIDC PARK PITTSBURGH PA 15238



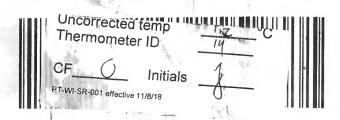


1 of 3 TRK# 1516 9328 1073

FRI - 12 FEB 4:30P STANDARD OVERNIGHT

NA AGCA

15238 PIT PA-US



Client: Southern Company

Job Number: 180-117154-1

Login Number: 117154

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Watson, Debbie

Creator. Watson, Debbie		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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.	False	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

2020 Semi-Annual Groundwater Monitoring and Corrective Action Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

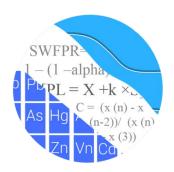
# **APPENDIX C**

**STATISTICAL ANALYSES** 

# GROUNDWATER STATS CONSULTING

February 23, 2021

Southern Company Services Attn: Mr. Joju Abraham 241 Ralph McGill Blvd NE, Bin 10160 Atlanta, Georgia 30308-3374



Re: Plant Arkwright Ash Pond 2/Dry Ash Stockpile September/October 2020 Statistical Analysis 1<sup>st</sup> Semi-Annual Sample Event

Dear Mr. Abraham,

Groundwater Stats Consulting, formerly the statistical consulting division of Sanitas Technologies, is pleased to provide the September/October 2020 1<sup>st</sup> Semi-Annual Groundwater statistical analysis of monitoring data for Georgia Power Company's Plant Arkwright Ash Pond 2/Dry Ash Stockpile. The analysis complies with the Georgia Environmental Protection Division Rules for Solid Waste Management Chapter 391-3-4-.10 and follows the United States Environmental Protection Agency (USEPA) Unified Guidance (2009).

Semi-annual sampling is conducted for USEPA's CCR Appendix III and IV, parameters in addition to Appendix I parameters in accordance with the Georgia Department of Natural Resources, Environmental Protection Division groundwater monitoring regulations. The monitoring well network, as provided by Southern Company Services, consists of the following:

Upgradient wells: ARGWA-19 and ARGWA-20

o **Downgradient wells:** ARGWC-21, ARGWC-22, and ARGWC-23

Delineation wells: ARAMW-1 and ARAMW-2

When a minimum of 4 samples is available, delineation wells are evaluated using confidence intervals for the Appendix IV constituents. Wells ARGWC-22 and ARGWC-23 were installed in late 2019 and are currently in their background data collection period.

Data were sent electronically to Groundwater Stats Consulting, and the statistical analysis was reviewed by Dr. Jim Loftis, Civil & Environmental Engineering professor emeritus at Colorado State University and Senior Advisor to Groundwater Stats Consulting (GSC).

The CCR program consists of the following constituents:

- o **Georgia Appendix I:** arsenic, barium, cadmium, lead, selenium, and silver
- o **CCR Appendix III:** boron, calcium, chloride, fluoride, pH, sulfate, and TDS
- o **CCR Appendix IV:** antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, combined radium 226 + 228, fluoride, lithium, lead, mercury, molybdenum, selenium, and thallium

Data for Appendix III constituents were analyzed using prediction limits; data for Appendix I constituents were analyzed using prediction limits and confidence intervals; and data for Appendix IV metals were analyzed using confidence intervals. Note that when there are no detections present in downgradient wells for a given constituent, statistical analyses are not required. Summaries of well/constituent pairs with 100% nondetects since 2016 for all constituents follow this letter. Additionally, when Appendix IV constituents are not detected during a scheduled Scan event, no statistical analyses are required during the semi-annual sample event. During the annual Scan event conducted in August 2020, antimony, cadmium, mercury, and thallium were not detected, and therefore, were not required to be sampled during the September/October 2020 event. While no statistical analyses were required, data for these parameters were plotted on the time series graphs and box plots. Antimony, cadmium, mercury, and thallium were sampled during the September/October 2020 sampling event at newer wells (ARGWC-22 and ARGWC-23) because these wells are currently in the background data collection period.

For all constituents, a substitution of the most recent reporting limit is used for nondetect data. For calculating prediction limits, the substitution is performed for individual wells and may differ across wells. This generally gives the most conservative limit in each case and in the time series plots, a single reporting limit substitution is used across all wells for a given parameter since the wells are plotted as a group. In the case of cobalt, due to varying reporting limits in individual wells; a reporting limit of 0.0025 mg/L was substituted across all respective wells, which is consistent with historical reporting limits.

Time series plots for all well/constituent pairs are provided and are particularly useful for screening parameters detected in downgradient wells which require statistical analyses (Figure A). Time series were also used to screen data during this analysis in newer wells ARGWC-22 and ARGWC-23 and no adjustments were required to any of those records. Additionally, a separate section of box plots is included for all constituents at upgradient

and downgradient wells (Figure B). The time series plots are used to initially screen for suspected outliers and trends, while the box plots provide visual representation of variation within individual wells and between all wells. Values in background which have been flagged as outliers may be seen in a lighter font and as a disconnected symbol on the graphs. A summary of flagged outliers follows this report (Figure C).

Based on the previous screening described below, data at all wells for constituents detected in downgradient wells were evaluated for the following: 1) outliers; 2) trends; 3) most appropriate statistical method based on site characteristics of groundwater data upgradient of the facility; and 4) eligibility of downgradient wells when intrawell statistical methods are recommended. Power curves are provided to demonstrate that the selected statistical methods for the parameters listed above comply with the USEPA Unified Guidance and the Georgia Environmental Protection Division Rules for Solid Waste Management Chapter 391-3-4-.10. The EPA suggests the selected statistical method should provide at least 55% power at 3 standard deviations or at least 80% power at 4 standard deviations. Power curves were based on the following:

## **Georgia EPD Appendix I Constituents:**

- Semi-Annual Sampling
- Interwell Prediction Limits with 1-of-2 resample plan (all parameters)
- # Constituents: 4 (cadmium was not detected during the August 2020 Scan event and selenium was 100% non-detect in downgradient wells)
- # Downgradient wells: 3

# **CCR Appendix III Constituents:**

- Semi-Annual Sampling
- Interwell Prediction Limits with 1-of-2 resample plan (all parameters)
- # Constituents: 7
- # Downgradient wells: 3

The distribution of data is tested using the Shapiro-Wilk/Shapiro-Francia test for normality. Parametric prediction limits (or tolerance limits or confidence intervals, as applicable) are utilized when the screened historical data follow a normal or transformed-normal distribution. When data cannot be normalized or the majority of data are nondetects, a nonparametric test is utilized. While the false positive rate associated with parametric limits is based on an annual 10% (5% per semi-annual event) as recommend by the EPA Unified Guidance (2009), the false positive rate associated with the nonparametric limits is dependent upon the available background sample size, number

of future comparisons, and verification resample plan. The following approaches are used for handling nondetects (USEPA, 2009).

- No statistical analyses are required on wells and analytes containing 100% nondetects (USEPA Unified Guidance, 2009, Chapter 6).
- When data contain <15% nondetects in background, simple substitution of onehalf the reporting limit is utilized in the statistical analysis. The reporting limit utilized for nondetects is the practical quantification limit (PQL) as reported by the laboratory.
- When data contain between 15-50% nondetects, the Kaplan-Meier nondetect adjustment is applied to the background data. This technique adjusts the mean and standard deviation of the historical concentrations to account for concentrations below the reporting limit.
- Nonparametric prediction limits are used on data containing greater than 50% nondetects.

Natural systems continuously evolve due to physical changes made to the environment. Examples include capping a landfill, paving areas near a well, or lining a drainage channel to prevent erosion. Periodic updating of background statistical limits is necessary to accommodate these types of changes. In the interwell case, prediction limits are updated with upgradient well data during each event after careful screening for any new outliers. In some cases, the earlier portion of data are deselected prior to construction of limits to provide sensitive limits that will rapidly detect changes in groundwater quality. Even though the data are excluded from the calculation, the values will continue to be reported and shown in tables and graphs.

## **Summary of Background Screening – Conducted in 2019**

# **Outlier and Trend Testing**

Time series plots were used to identify suspected outliers, or extreme values that would result in limits that are not representative of the current background data population. Suspected outliers at wells ARGWA-19, ARGWA-20, and ARGWC-21 for Appendix I, Appendix III, and Appendix IV parameters were formally tested using Tukey's box plot method and, when identified, flagged in the computer database with "o" and deselected prior to construction of statistical limits. Outliers were flagged in downgradient wells, though there are no intrawell statistical analyses in the current report. This improves the estimate of downgradient confidence intervals and provides for possible future application of intrawell statistics. As noted below, current values that could result in exceedances were not flagged.

A summary of flagged values is included in Figure C. When the most recent values are identified as outliers, those values are not flagged in the database at this that time (except in cases where they would cause background limits to be elevated) as they may represent a possible exceedance in a downgradient well or a possible trend in an upgradient well. If future values (resampling in the case of an exceedance) do not remain at similar concentrations, these values will be flagged as outliers and deselected. Several low values exist in the data sets and appear on the graphs as possible low outliers relative to the laboratory's Practical Quantitation Limit. However, these values are observed trace values (i.e. measurements reported by the laboratory between the Method Detection Limit and the Practical Quantitation Limit) and, therefore, were not flagged as outliers. Due to changing reporting limits, when nondetects are replaced with the most recent reporting limit, previously flagged "J" values (or estimated values) are sometimes flagged as outliers if they are much higher than current reporting limits.

Additionally, when any values are flagged in the database as outliers, they are plotted in a disconnected and lighter symbol on the time series graph. The accompanying data pages display the flagged value in a lighter font as well. A substitution of the most recent reporting limit was applied when varying detection limits existed in data.

No obvious seasonal patterns were observed on the time series plots for any of the detected data; therefore, no deseasonalizing adjustments were made to the data. When seasonal patterns are observed, data may be deseasonalized so that the resulting limits will correctly account for the seasonality as a predictable pattern rather than random variation or a release.

While trends may be identified by visual inspection, a quantification of the trend and its significance is needed. The Sen's Slope/Mann Kendall trend test was used to evaluate all data at wells ARGWA-19, ARGWA-20, and ARGWC-21 to identify statistically significant increasing or decreasing trends. In the absence of suspected contamination, significant trending data are typically not included as part of the background data used for construction of prediction limits. This step serves to eliminate the trend and, thus, reduce variation in background. When statistically significant decreasing trends are present, all available data are evaluated to determine whether earlier concentration levels are significantly different than current reported concentrations and will be deselected as necessary. When any records of data are truncated for the reasons above, a summary report will be provided to show the date ranges used in construction of the statistical limits.

The results of the trend analyses were included with the previous screenings and showed a few statistically significant trends, both increasing and decreasing. No adjustments to

the background period were made because the overall changes were relatively small. Since intrawell tests are not used in this current analysis, the background levels are not affected by trends in downgradient wells. Trends in downgradient wells are monitored, however, for possible application of intrawell methods in the future and because of their effect on confidence intervals.

## Appendix III - Determination of Spatial Variation

The Analysis of Variance (ANOVA) was used to statistically evaluate differences in average concentrations among upgradient wells, which assists in identifying the most appropriate statistical approach. Interwell tests, which compare downgradient well data to statistical limits constructed from pooled upgradient well data, are appropriate when average concentrations are similar across upgradient wells. Intrawell tests, which compare compliance data from a single well to screened historical data within the same well, are appropriate when upgradient wells exhibit spatial variation; when statistical limits constructed from upgradient wells are not representative of the current background data population; and when downgradient water quality is unimpacted compared to upgradient water quality for the same parameter.

The ANOVA identified significant differences among upgradient well data for several constituents. While data were further tested for intrawell eligibility during the screening, interwell methods will be used for all Appendix I and Appendix III constituents in accordance with Georgia EPD requirements.

# Statistical Limits Appendix I Metals & Appendix III Parameters – September/October 2020

All Appendix I metals and Appendix III parameters are analyzed using interwell prediction limits. Data were re-assessed for potential outliers during this analysis. For selenium, a value of 0.0043 mg/L was unflagged in well ARGWA-19 for being below the reporting limit of 0.005 mg/L, An updated summary of flagged outliers follows this report (Figure C).

Interwell prediction limits, combined with a 1-of-2 resample plan, were constructed using all historical upgradient well data through October 2020 for Appendix I metals and Appendix III constituents (Figures D & E, respectively). As mentioned above, wells with 100% non-detects did not require statistical analyses. Interwell prediction limits pool upgradient well data to establish a background limit for an individual constituent. The most recent sample from each downgradient well is compared to the background limit to determine whether there are statistically significant increases (SSIs).

In the event of an initial exceedance of compliance well data, the 1-of-2 resample plan allows for collection of one additional sample to determine whether the initial exceedance is confirmed. When a resample confirms the initial exceedance, a statistically significant increase is identified and further research would be required to identify the cause of the exceedance (i.e. impact from the site, natural variation, or an off-site source). If the resample falls within the statistical limit, the initial exceedance is considered to be a false positive result; therefore, no exceedance is noted, and no further action is necessary. If no resample is collected, the original result is considered a confirmed exceedance. Summary tables and graphical results for the Appendix I metals and Appendix III constituents interwell prediction limits follow this letter. The following exceedances were noted for Appendix I and Appendix III well/constituent pairs:

## Appendix I:

• Barium: ARGWC-23

## Appendix III:

Boron: ARGWC-21, ARGWC-22, and ARGWC-23
 Calcium: ARGWC-21, ARGWC-22, and ARGWC-23

Fluoride: ARGWC-23pH: ARGWC-23

Sulfate: ARGWC-21, ARGWC-22, and ARGWC-23
 TDS ARGWC-21, ARGWC-22, and ARGWC-23

When prediction limit exceedances are identified in downgradient wells, data are further evaluated using the Sen's Slope/Mann Kendall trend test to determine whether concentrations are statistically increasing, decreasing, or stable (Figure F). Upgradient well data are included in the trend analyses for all parameters found to exceed their prediction limit in downgradient wells to identify whether similar patterns exist upgradient of the site. Upgradient trends are an indication of natural variability in groundwater quality unrelated to practices at the site. Both a summary and graphical display of the trend test results follows this letter. Statistically significant trends were identified for the following well/constituent pairs:

## Increasing:

Boron: ARGWA-20 (upgradient) and ARGWC-21

Calcium: ARGWC-21Sulfate: ARGWC-21TDS: ARGWC-21

## Decreasing:

• Sulfate: ARGWA-19 (upgradient)

# Statistical Analysis of Appendix I Metals & Appendix IV Parameters – September/October 2020

For Appendix I metals and Appendix IV parameters, confidence intervals for each downgradient well/constituent were compared against corresponding Ground Water Protection Standards (GWPS). GWPS were developed as described below. Downgradient and delineation well/constituent pairs that have 100% ND or trace values below the reporting limits do not require analysis. Data from all wells for Appendix I and IV parameters are reassessed for outliers during each analysis. No new values were flagged, and a summary of previously flagged outliers follows this report (Figure C).

First, interwell tolerance limits were used to calculate site-specific background limits from all available pooled upgradient well data through October 2020 for Appendix I metals and Appendix IV constituents (Figure G). Parametric tolerance limits are used when data follow a normal or transformed-normal distribution. When data contained greater than 50% nondetects or did not follow a normal or transformed-normal distribution, non-parametric tolerance limits were used. The background limits were then used when determining the groundwater protection standard (GWPS) under Georgia EPD Rule 391-3-4-.10(6)(a). Georgia EPD has not incorporated the updated GWPS into the current Georgia EPD Rules for Solid Waste Management 391-3-4-.10(6)(a); therefore, for sites regulated under Georgia EPD Rules, the GWPS is:

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

Following the above Georgia EPD Rule requirements, GWPS were established for statistical comparison of Appendix I metals and Appendix IV constituents for the September/October 2020 sample event for the state rules (Figure H). To complete the statistical comparison to GWPS, confidence intervals were constructed for each of the Appendix I metals and Appendix IV constituents in accordance with the state requirements in each downgradient well and only delineation well with a minimum of 4 samples (Figure I). The Sanitas software was used to calculate the tolerance limits and the confidence intervals. Those confidence intervals were compared to the GWPS established using the Georgia EPD Rules 391-3-4-.10(6)(a). Only when the entire confidence interval is above a GWPS is the downgradient well/constituent pair considered to exceed its respective standard. If there is an exceedance of the GWPS, a statistically significant level

(SSL) exceedance is identified. For state confidence intervals, exceedances were identified for the following well/constituent pairs:

Cobalt: ARGWC-22Lithium: ARGWC-23Molybdenum: ARGWC-23

Note that the summary table indicates the confidence interval exceeded for well ARGWC-21; however, the upper and lower confidence interval limits for silver in well ARGWC-21 match the GWPS and there are no reported detections above the reporting limit at this well. Therefore, this confidence interval is not above the GWPS. Additionally, the lower confidence limit for lithium at well ARAMW-2 is parametric and computes as negative (due to the standard deviation and sample size), but, of course, may be regarded as zero.

Thank you for the opportunity to assist you in the statistical analysis of groundwater quality for Plant Arkwright Ash Pond 2/Dry Ash Stockpile. If you have any questions or comments, please feel free to contact us.

For Groundwater Stats Consulting,

Andrew Collins

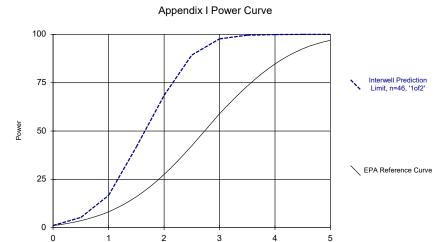
Project Manager

Kristina Rayner

**Groundwater Statistician** 

Kristina Rayner

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

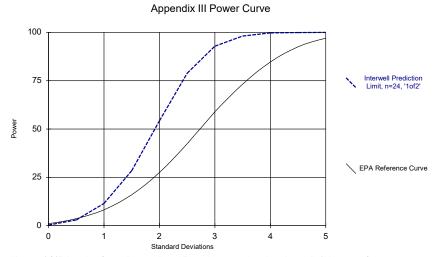


Kappa = 1.568, based on 3 compliance wells and 4 constituents, evaluated semi-annually (this report reflects annual total).

Standard Deviations

Analysis Run 12/4/2020 12:40 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG



Kappa = 1.845, based on 3 compliance wells and 7 constituents, evaluated semi-annually (this report reflects annual total).

Analysis Run 12/4/2020 12:40 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

# 100% Non-Detects: Appendix I

Analysis Run 12/2/2020 4:39 PM View: Appendix I
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Antimony (mg/L) ARGWA-19, ARGWA-20, ARGWC-21, ARGWC-22, ARGWC-23

Beryllium (mg/L) ARGWA-19, ARGWC-21

Cadmium (mg/L) ARGWA-20, ARGWC-21, ARGWC-22, ARGWC-23

Chromium (mg/L) ARGWC-23

Mercury (mg/L) ARGWC-22, ARGWC-23

Molybdenum (mg/L) ARGWA-20, ARGWC-21

Selenium (mg/L) ARGWC-21, ARGWC-22, ARGWC-23

Silver (mg/L) ARGWC-22, ARGWC-23

Thallium (mg/L) ARGWA-19, ARGWA-20, ARGWC-21 Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

### 100% Non-Detects: Appendix I & IV

Analysis Run 12/3/2020 9:14 AM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Antimony (mg/L) ARAMW-1, ARAMW-2, ARGWC-21, ARGWC-22, ARGWC-23

Arsenic (mg/L) ARAMW-1

Beryllium (mg/L)

ARAMW-1, ARAMW-2, ARGWC-21

Cadmium (mg/L)

ARAMW-1, ARAMW-2, ARGWC-21, ARGWC-22, ARGWC-23

Chromium (mg/L)

ARAMW-1, ARAMW-2, ARGWC-23

Lead (mg/L)

ARAMW-1, ARAMW-2

Mercury (mg/L)

ARAMW-1, ARAMW-2, ARGWC-22, ARGWC-23

Molybdenum (mg/L)

ARGWC-21

Selenium (mg/L)

ARAMW-1, ARAMW-2, ARGWC-21, ARGWC-22, ARGWC-23

Silver (mg/L

ARAMW-1, ARAMW-2, ARGWC-22, ARGWC-23

Thallium (mg/L)

ARAMW-1, ARAMW-2, ARGWC-21

# Appendix I - Interwell Prediction Limits - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/4/2020, 12:31 PM

 Constituent
 Well
 Upper Lim.Lower Lim.Date
 Observ.
 Sig. Bg N Bg Mean
 Std. Dev.
 %NDs ND Adj.
 Transform Alpha
 Method

 Barium (mg/L)
 ARGWC-23
 0.1 n/a
 10/1/2020
 0.17
 Yes 56 n/a
 n/a
 0 n/a
 n/a
 0.000614
 NP Inter (normality) 1 of 2

# Appendix I - Interwell Prediction Limits - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/4/2020, 12:31 PM

Constituent	Well	Upper Li	m.Lower Lii	m.Date	Observ.	Sig	. <u>Bg</u>	N Bg Mean	Std. Dev.	%NDs	ND Adj.	Transfor	m <u>Alpha</u>	Method
Arsenic (mg/L)	ARGWC-21	0.0015	n/a	10/1/2020	0.001ND	No	56	n/a	n/a	83.93	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Arsenic (mg/L)	ARGWC-22	0.0015	n/a	9/30/2020	0.001ND	No	56	n/a	n/a	83.93	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Arsenic (mg/L)	ARGWC-23	0.0015	n/a	10/1/2020	0.001ND	No	56	n/a	n/a	83.93	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Barium (mg/L)	ARGWC-21	0.1	n/a	10/1/2020	0.051	No	56	n/a	n/a	0	n/a	n/a	0.000614	NP Inter (normality) 1 of 2
Barium (mg/L)	ARGWC-22	0.1	n/a	9/30/2020	0.033	No	56	n/a	n/a	0	n/a	n/a	0.000614	NP Inter (normality) 1 of 2
Barium (mg/L)	ARGWC-23	0.1	n/a	10/1/2020	0.17	Ye	s 56	n/a	n/a	0	n/a	n/a	0.000614	NP Inter (normality) 1 of 2
Lead (mg/L)	ARGWC-21	0.001	n/a	10/1/2020	0.001ND	No	56	n/a	n/a	87.5	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Lead (mg/L)	ARGWC-22	0.001	n/a	9/30/2020	0.001ND	No	56	n/a	n/a	87.5	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Lead (mg/L)	ARGWC-23	0.001	n/a	10/1/2020	0.001ND	No	56	n/a	n/a	87.5	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Silver (mg/L)	ARGWC-21	0.001	n/a	10/1/2020	0.001ND	No	46	n/a	n/a	89.13	n/a	n/a	0.0009064	NP Inter (NDs) 1 of 2

# Appendix III - Interwell Prediction Limits - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/3/2020, 8:47 AM

Constituent	Well	Upper Lin	n.Lower Li	m.Date	Observ.	Sig. Bg	N Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	m <u>Alpha</u>	Method
Boron (mg/L)	ARGWC-21	0.0814	n/a	10/1/2020	0.9	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Boron (mg/L)	ARGWC-22	0.0814	n/a	9/30/2020	2.9	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Boron (mg/L)	ARGWC-23	0.0814	n/a	10/1/2020	0.49	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-21	14.75	n/a	10/1/2020	79	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-22	14.75	n/a	9/30/2020	200	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-23	14.75	n/a	10/1/2020	73	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Fluoride (mg/L)	ARGWC-23	0.14	n/a	10/1/2020	0.32	Yes 30	n/a	n/a	56.67	n/a	n/a	0.00197	NP Inter (NDs) 1 of 2
pH (SU)	ARGWC-23	6.099	5.418	10/1/2020	6.38	Yes 29	5.759	0.1888	0	None	No	0.001253	Param Inter 1 of 2
Sulfate (mg/L)	ARGWC-21	21	n/a	10/1/2020	210	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-22	21	n/a	9/30/2020	650	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-23	21	n/a	10/1/2020	64	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-21	152.3	n/a	10/1/2020	500	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-22	152.3	n/a	9/30/2020	1200	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-23	152.3	n/a	10/1/2020	290	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2

# Appendix III - Interwell Prediction Limits - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/3/2020, 8:47 AM

Constituent	Well	Upper Li	m.Lower Li	m.Date	Observ.	Sig. Bg	N Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	n Alpha	Method
Boron (mg/L)	ARGWC-21	0.0814	n/a	10/1/2020	0.9	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Boron (mg/L)	ARGWC-22	0.0814	n/a	9/30/2020	2.9	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Boron (mg/L)	ARGWC-23	0.0814	n/a	10/1/2020	0.49	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-21	14.75	n/a	10/1/2020	79	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-22	14.75	n/a	9/30/2020	200	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-23	14.75	n/a	10/1/2020	73	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Chloride (mg/L)	ARGWC-21	16.2	n/a	10/1/2020	4.3	No 52	n/a	n/a	0	n/a	n/a	0.0007028	NP Inter (normality) 1 of 2
Chloride (mg/L)	ARGWC-22	16.2	n/a	9/30/2020	8	No 52	n/a	n/a	0	n/a	n/a	0.0007028	NP Inter (normality) 1 of 2
Chloride (mg/L)	ARGWC-23	16.2	n/a	10/1/2020	3.8	No 52	n/a	n/a	0	n/a	n/a	0.0007028	NP Inter (normality) 1 of 2
Fluoride (mg/L)	ARGWC-21	0.14	n/a	10/1/2020	0.098J	No 30	n/a	n/a	56.67	n/a	n/a	0.00197	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	ARGWC-22	0.14	n/a	9/30/2020	0.045J	No 30	n/a	n/a	56.67	n/a	n/a	0.00197	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	ARGWC-23	0.14	n/a	10/1/2020	0.32	Yes 30	n/a	n/a	56.67	n/a	n/a	0.00197	NP Inter (NDs) 1 of 2
pH (SU)	ARGWC-21	6.099	5.418	10/1/2020	5.99	No 29	5.759	0.1888	0	None	No	0.001253	Param Inter 1 of 2
pH (SU)	ARGWC-22	6.099	5.418	9/30/2020	5.81	No 29	5.759	0.1888	0	None	No	0.001253	Param Inter 1 of 2
pH (SU)	ARGWC-23	6.099	5.418	10/1/2020	6.38	Yes 29	5.759	0.1888	0	None	No	0.001253	Param Inter 1 of 2
Sulfate (mg/L)	ARGWC-21	21	n/a	10/1/2020	210	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-22	21	n/a	9/30/2020	650	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-23	21	n/a	10/1/2020	64	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-21	152.3	n/a	10/1/2020	500	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-22	152.3	n/a	9/30/2020	1200	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-23	152.3	n/a	10/1/2020	290	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2

# Trend Tests - Prediction Limit Exceedances - Signifiicant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/3/2020, 8:58 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	Method
Boron (mg/L)	ARGWA-20 (bg)	0.01103	49	43	Yes	13	23.08	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWC-21	0.0653	56	43	Yes	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	ARGWC-21	7.356	68	43	Yes	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	ARGWA-19 (bg)	-0.4042	-195	-118	Yes	26	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	ARGWC-21	5.193	222	118	Yes	26	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	ARGWC-21	32.77	49	38	Yes	12	0	n/a	n/a	0.01	NP

### Trend Tests - Prediction Limit Exceedances - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/3/2020, 8:58 AM Constituent Calc. Critical Sig. N <u>%NDs</u> <u>Normality</u> <u>Xform</u> <u>Alpha</u> Method Barium (mg/L) ARGWA-19 (bg) -0.0001383 -20 -131 No 28 0 0.01 NP n/a n/a Barium (mg/L) ARGWA-20 (bg) 0.0006017 96 131 No 28 0 n/a n/a 0.01 NP Barium (mg/L) ARGWC-23 0.09419 25 10 0 0.01 NP 30 No n/a n/a Boron (mg/L) ARGWA-19 (bg) 0.006347 29 43 No 13 38.46 0.01 NP Boron (mg/L) ARGWA-20 (bg) 0.01103 49 43 Yes 13 NP 23.08 0.01 n/a n/a Boron (mg/L) ARGWC-21 0.0653 56 43 13 0 0.01 NP ARGWC-22 NP Boron (mg/L) -0.1722 -8 -34 11 0 0.01 No n/a n/a Boron (mg/L) ARGWC-23 0.1197 32 34 No 0 0.01 NP ARGWA-19 (bg) 0.6973 0 NP Calcium (mg/L) 37 43 No 13 n/a n/a 0.01 Calcium (mg/L) ARGWA-20 (bg) 0.3086 32 No 13 0 n/a 0.01 NP Calcium (mg/L) ARGWC-21 7.356 43 13 0 0.01 NΡ 68 Yes n/a n/a Calcium (mg/L) ARGWC-22 6 34 11 0 0.01 NP ARGWC-23 0 NP Calcium (mg/L) 10.81 21 34 11 0.01 No n/a n/a Fluoride (mg/L) ARGWA-19 (bg) -0.00711 -24 15 46.67 n/a 0.01 NP ARGWA-20 (bg) 0 Fluoride (mg/L) -22 -53 No 15 66 67 n/a n/a 0.01 NP Fluoride (mg/L) ARGWC-23 0.2012 31 No 11 0 0.01 NP n/a n/a 0.01741 ARGWA-19 (bg) pH (SU) 11 48 No 14 0 n/a n/a 0.01 NP NP pH (SU) ARGWA-20 (bg) 0.01693 16 53 15 0 0.01 No n/a n/a pH (SU) ARGWC-23 -0.1559 -23 -34 No 11 0 n/a 0.01 NP Sulfate (mg/L) ARGWA-19 (bg) -0.4042 -195 -118 Yes 26 0 n/a n/a 0.01 NP Sulfate (mg/L) ARGWA-20 (bg) -0.1319 -76 -111 No 25 0 n/a n/a 0.01 NP ARGWC-21 NP 5.193 118 0 Sulfate (mg/L) 222 Yes 26 n/a n/a 0.01 Sulfate (mg/L) ARGWC-22 35.61 4 34 No 11 0 0.01 NP ARGWC-23 0 0.01 NP Sulfate (mg/L) 18.25 14 34 No 11 n/a n/a Total Dissolved Solids (mg/L) ARGWA-19 (bg) 1.991 8 38 No 12 0 n/a 0.01 NP Total Dissolved Solids (mg/L) ARGWA-20 (bg) -2.229 -15 -38 No 12 0 0.01 NP n/a n/a Total Dissolved Solids (mg/L) ARGWC-21 32.77 49 38 12 0 0.01 ΝP Yes n/a n/a Total Dissolved Solids (mg/L) ARGWC-22 0 -3 0 NP -30 10 0.01 No n/a n/a Total Dissolved Solids (mg/L) ARGWC-23 0 -4 -30 10 0 0.01 NP

# Upper Tolerance Limit Summary Table

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/3/2020, 9:06 AM <u>Alpha</u> Constituent Upper Lim. Lower Lim. Sig. Bg N Bg Mean Std. Dev. %NDs ND Adj. Method 0.002 n/a 20 100 0.3585 NP Inter(NDs) Antimony (mg/L) n/a n/a n/a n/a n/a 0.05656 NP Inter(NDs) Arsenic (mg/L) 0.0015 n/a n/a 56 n/a n/a 83.93 n/a n/a Barium (mg/L) 0.1 n/a 56 n/a 0 n/a 0.05656 NP Inter(normality) n/a n/a n/a NP Inter(NDs) Beryllium (mg/L) 0.0025 n/a 22 90.91 0.3235 Cadmium (mg/L) 0.06267 NP Inter(NDs) 0.0025 n/a n/a 54 n/a n/a 98.15 n/a n/a Chromium (mg/L) 0.0078 n/a 26 n/a n/a 19.23 n/a 0.2635 NP Inter(normality) Cobalt (mg/L) 0.2378 NP Inter(NDs) 0.0025 n/a 28 n/a n/a 67.86 n/a n/a n/a Combined Radium 226 + 228 (pCi/L) 1.341 n/a 26 0.5896 0.3297 0 None No 0.05 0.2146 Fluoride (mg/L) 56.67 NP Inter(NDs) 0.14 n/a n/a 30 n/a n/a n/a n/a Lead (mg/L) 0.001 n/a 56 87.5 0.05656 NP Inter(NDs) Lithium (mg/L) 0.2378 NP Inter(normality) 0.013 n/a 28 42.86 n/a n/a n/a n/a n/a Mercury (mg/L) 0.0002 n/a 20 90 0.3585 NP Inter(NDs) 0.292 NP Inter(NDs) Molybdenum (mg/L) 0.015 n/a n/a 24 n/a n/a 95.83 n/a n/a Selenium (mg/L) 0.005 n/a 0.06267 NP Inter(NDs) Silver (mg/L) 0.09447 NP Inter(NDs) 0.001 n/a n/a 46 n/a n/a 89.13 n/a n/a Thallium (mg/L) 0.001 n/a 20 100 n/a 0.3585 NP Inter(NDs)

PLANT ARKWRIGHT LF #2 GWPS												
Constituent Name	MCL	Background Limit	State GWPS									
Antimony, Total (mg/L)	0.006	0.002	0.006									
Arsenic, Total (mg/L)	0.01	0.0015	0.01									
Barium, Total (mg/L)	2	0.1	2									
Beryllium, Total (mg/L)	0.004	0.0025	0.004									
Cadmium, Total (mg/L)	0.005	0.0025	0.005									
Chromium, Total (mg/L)	0.1	0.0078	0.1									
Cobalt, Total (mg/L)		0.0025	0.0025									
Combined Radium, Total (pCi/L)	5	1.3	5									
Fluoride, Total (mg/L)	4	0.14	4									
Lead, Total (mg/L)		0.001	0.001									
Lithium, Total (mg/L)		0.013	0.013									
Mercury, Total (mg/L)	0.002	0.0002	0.002									
Molybdenum, Total (mg/L)		0.015	0.015									
Selenium, Total (mg/L)	0.05	0.005	0.05									
Silver, Total (mg/L)		0.001	0.001									
Thallium, Total (mg/L)	0.002	0.001	0.002									

<sup>\*</sup>MCL = Maximum Contaminant Level

<sup>\*</sup>GWPS = Groundwater Protection Standard

# Confidence Intervals Summary - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/4/2020, 12:37 PM

Constituent	Well	Upper Lim.	Lower Lim.	Complianc	e Sig. N	<u>Mean</u>	Std. Dev.	%ND	s ND Adj.	Transform	n <u>Alpha</u>	Method
Cobalt (mg/L)	ARGWC-22	0.01257	0.004289	0.0025	Yes 11	0.008427	0.004965	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-23	0.04047	0.01986	0.013	Yes 11	0.03016	0.01236	0	None	No	0.01	Param.
Molybdenum (mg/L)	ARGWC-23	0.05901	0.02639	0.015	Yes 10	0.0427	0.01828	0	None	No	0.01	Param.
Silver (mg/L)	ARGWC-21	0.001	0.001	0.001	Yes 10	0.000943	0.0001802	90	None	No	0.011	NP (NDs)

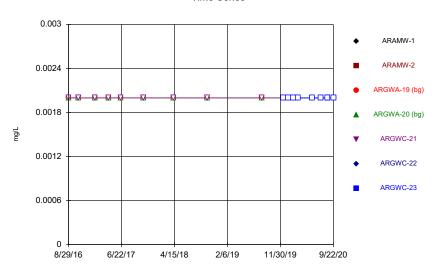
# Confidence Intervals Summary - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/4/2020, 12:37 PM

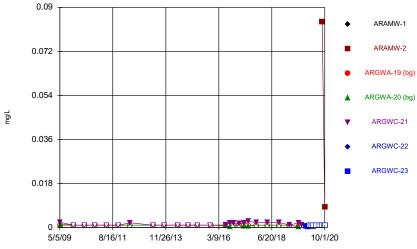
		Ü		. ,		Ü						
Constituent	Well	Upper Lim.	Lower Lim.	Compliance	<u>Sig. N</u>	Mean	Std. Dev.	%NDs	ND Adj.	Transform	<u>Alpha</u>	Method
Arsenic (mg/L)	ARGWC-21	0.002038	0.001234	0.01	No 15	0.001636	0.0005931	13.33	None	No	0.01	Param.
Arsenic (mg/L)	ARGWC-22	0.001	0.0004	0.01	No 10	0.000844	0.0002618	70	None	No	0.011	NP (NDs)
Arsenic (mg/L)	ARGWC-23	0.001	0.00075	0.01	No 10	0.000917	0.0001915	80	None	No	0.011	NP (NDs)
Barium (mg/L)	ARGWC-21	0.1188	0.08617	2	No 15	0.1003	0.02777	0	None	x^2	0.01	Param.
Barium (mg/L)	ARGWC-22	0.06139	0.03581	2	No 10	0.0486	0.01433	0	None	No	0.01	Param.
Barium (mg/L)	ARGWC-23	0.1716	0.103	2	No 10	0.1347	0.04572	0	None	x^2	0.01	Param.
Beryllium (mg/L)	ARGWC-22	0.0025	0.00018	0.004	No 9	0.001273	0.001168	44.44	None	No	0.002	NP (normality)
Beryllium (mg/L)	ARGWC-23	0.0025	0.00033	0.004	No 9	0.002259	0.0007233	88.89	None	No	0.002	NP (NDs)
Chromium (mg/L)	ARGWC-21	0.002	0.0017	0.1	No 13	0.001977	0.00008321	92.31	None	No	0.01	NP (NDs)
Chromium (mg/L)	ARGWC-22	0.002	0.002	0.1	No 10	0.00228	0.0008854	90	None	No	0.011	NP (NDs)
Cobalt (mg/L)	ARGWC-21	0.001952	0.0013	0.0025	No 14	0.00158	0.000523	0	None	x^2	0.01	Param.
Cobalt (mg/L)	ARGWC-22	0.01257	0.004289	0.0025	Yes 11	0.008427	0.004965	0	None	No	0.01	Param.
Cobalt (mg/L)	ARGWC-23	0.003322	0.001055	0.0025	No 11	0.002188	0.00136	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-21	0.8862	0.5093	5	No 13	0.6978	0.2534	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-22	0.7936	0.2782	5	No 10	0.5359	0.2888	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-23	0.612	0.08116	5	No 10	0.3466	0.2975	0	None	No	0.01	Param.
Fluoride (mg/L)	ARGWC-21	0.12	0.065	4	No 15	0.1286	0.1259	0	None	No	0.01	NP (normality)
Fluoride (mg/L)	ARGWC-22	0.0609	0.04043	4	No 11	0.05055	0.01166	18.18	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	ARGWC-23	0.2819	0.1561	4	No 11	0.219	0.07547	0	None	No	0.01	Param.
Lead (mg/L)	ARGWC-21	0.001	0.00026	0.001	No 15	0.000894	0.0002805	86.67	None	No	0.01	NP (NDs)
Lead (mg/L)	ARGWC-22	0.001	0.00022	0.001	No 10	0.000836	0.0003463	80	None	No	0.011	NP (NDs)
Lead (mg/L)	ARGWC-23	0.001	0.00026	0.001	No 10	0.000844	0.0003294	80	None	No	0.011	NP (NDs)
Lithium (mg/L)	ARAMW-1	0.01091	0.005644	0.013	No 4	0.008275	0.001159	0	None	No	0.01	Param.
Lithium (mg/L)	ARAMW-2	0.1122	-0.03272	0.013	No 4	0.03975	0.03192	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-21	0.01208	0.008752	0.013	No 14	0.01041	0.002347	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-22	0.02553	0.01176	0.013	No 11	0.01865	0.00826	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-23	0.04047	0.01986	0.013	Yes 11	0.03016	0.01236	0	None	No	0.01	Param.
Molybdenum (mg/L)	ARGWC-22	0.015	0.00093	0.015	No 10	0.00946	0.007158	60	None	No	0.011	NP (NDs)
Molybdenum (mg/L)	ARGWC-23	0.05901	0.02639	0.015	Yes 10	0.0427	0.01828	0	None	No	0.01	Param.
Silver (mg/L)	ARGWC-21	0.001	0.001	0.001	Yes 10	0.000943	0.0001802	90	None	No	0.011	NP (NDs)

# FIGURE A.



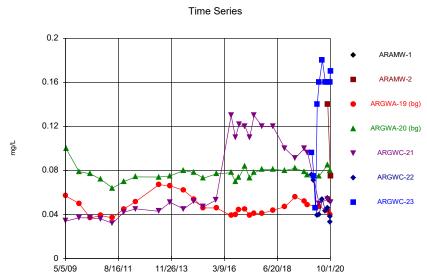


Constituent: Antimony Analysis Run 12/4/2020 12:46 PM Plant Arkwright Client: Southern Company Data: Arkwright No 2



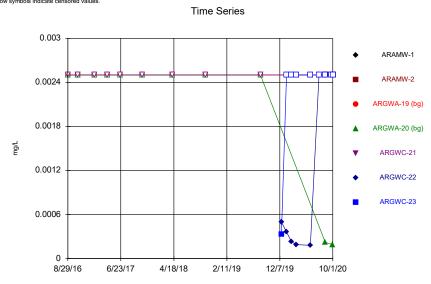
Constituent: Arsenic Analysis Run 12/4/2020 12:46 PM Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

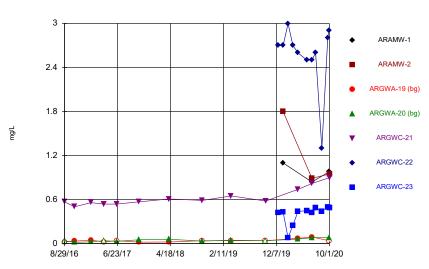


Constituent: Barium Analysis Run 12/4/2020 12:46 PM Plant Arkwright Client: Southern Company Data: Arkwright No 2

#### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG Hollow symbols indicate censored values.

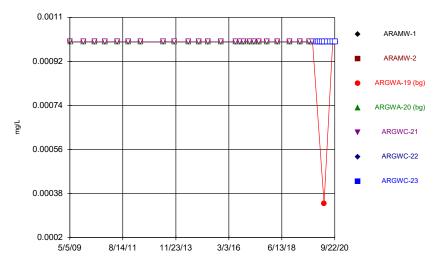


Constituent: Beryllium Analysis Run 12/4/2020 12:46 PM Plant Arkwright Client: Southern Company Data: Arkwright No 2



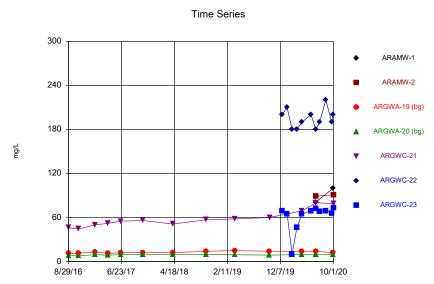
Constituent: Boron Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Time Series



Constituent: Cadmium Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

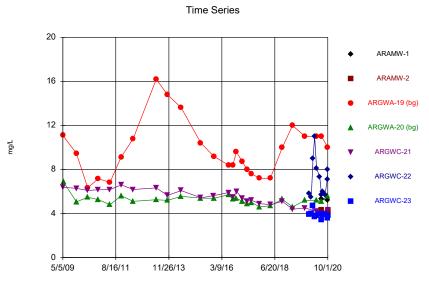
#### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG



Constituent: Calcium Analysis Run 12/4/2020 12:46 PM

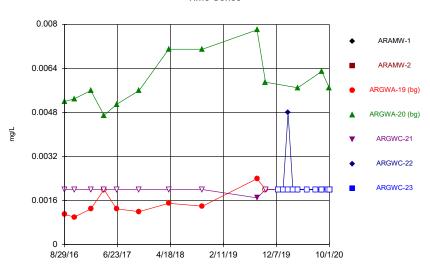
Plant Arkwright Client: Southern Company Data: Arkwright No 2

#### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

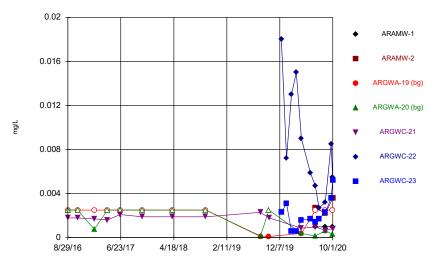


Constituent: Chloride Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2



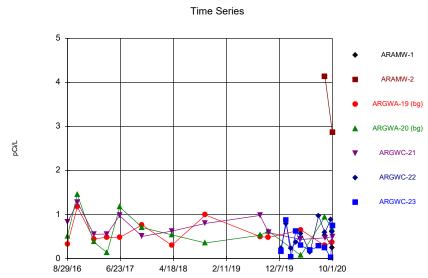


Constituent: Chromium Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2



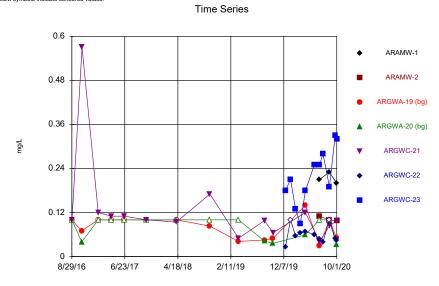
Constituent: Cobalt Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Sanitas<sup>™</sup> v.9.6.27 Groundwater Stats Consulting. UG



Constituent: Combined Radium 226 + 228 Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

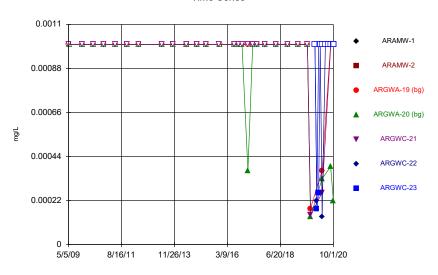
### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG Hollow symbols indicate censored values.



Constituent: Fluoride Analysis Run 12/4/2020 12:46 PM

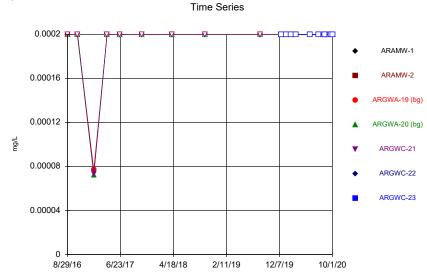
Plant Arkwright Client: Southern Company Data: Arkwright No 2





Constituent: Lead Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

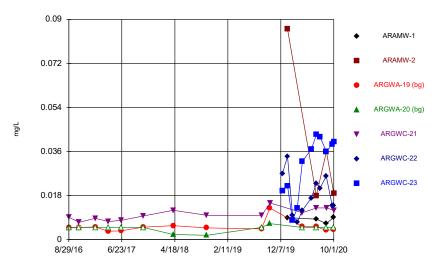
### $\mbox{Sanitas}^{\mbox{\tiny IN}} \mbox{ v.9.6.27 Groundwater Stats Consulting. UG} \\ \mbox{Hollow symbols indicate censored values.}$



Constituent: Mercury Analysis Run 12/4/2020 12:46 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

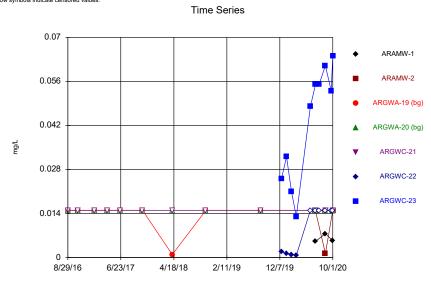
### Time Series



Constituent: Lithium Analysis Run 12/4/2020 12:46 PM

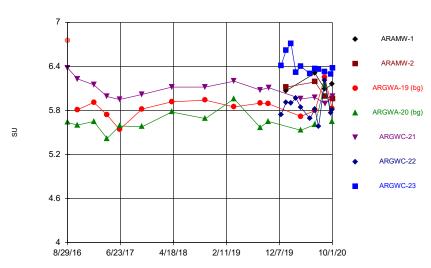
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG Hollow symbols indicate censored values.



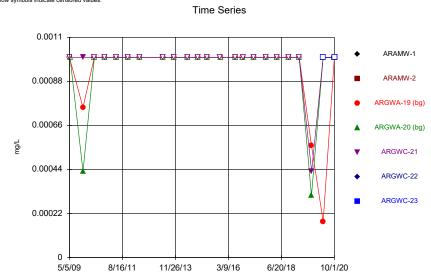
Constituent: Molybdenum Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2





Constituent: pH Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

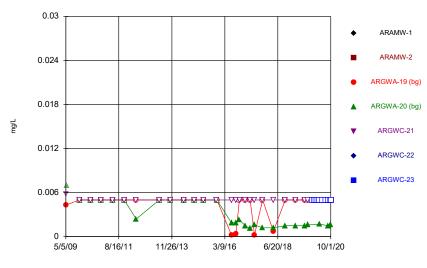
### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG Hollow symbols indicate censored values.



Constituent: Silver Analysis Run 12/4/2020 12:46 PM

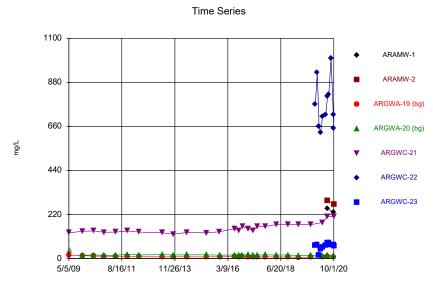
Plant Arkwright Client: Southern Company Data: Arkwright No 2

### Time Series



Constituent: Selenium Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

#### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

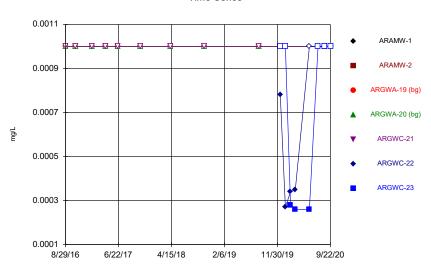


Constituent: Sulfate Analysis Run 12/4/2020 12:46 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG Hollow symbols indicate censored values.

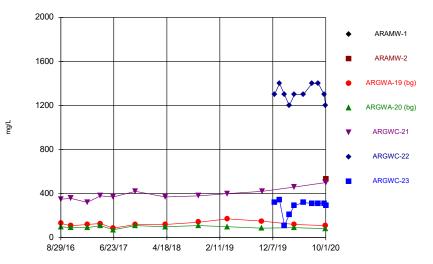
Time Series



Constituent: Thallium Analysis Run 12/4/2020 12:46 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG





Constituent: Total Dissolved Solids Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Constituent: Antimony (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			<0.002	<0.002			
8/30/2016					<0.002		
10/24/2016			<0.002	<0.002			
10/26/2016					<0.002		
1/25/2017			<0.002	<0.002	<0.002		
4/10/2017			<0.002	<0.002	<0.002		
6/19/2017			<0.002		<0.002		
6/20/2017				<0.002			
10/24/2017			<0.002	<0.002	<0.002		
4/9/2018				<0.002			
4/10/2018			<0.002		<0.002		
10/16/2018			<0.002	<0.002	<0.002		
8/20/2019			<0.002	<0.002	<0.002		
12/16/2019						<0.002	<0.002
1/14/2020						<0.002	<0.002
2/11/2020						<0.002	<0.002
3/9/2020						<0.002	<0.002
5/27/2020						<0.002	<0.002
7/15/2020						<0.002	<0.002
8/19/2020			<0.002	<0.002		<0.002	
8/20/2020	<0.002	<0.002					<0.002
8/21/2020					<0.002		
9/22/2020						<0.002	<0.002

Constituent: Arsenic (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009			<0.001				
5/14/2009					0.0022		
5/15/2009				0.0015			
12/5/2009			<0.001	<0.001	<0.001		
6/1/2010			<0.001	<0.001			
6/2/2010					<0.001		
11/11/2010			<0.001	<0.001	<0.001		
5/17/2011			<0.001	<0.001	<0.001		
11/8/2011			<0.001	<0.001	<0.001		
5/16/2012			<0.001	<0.001	0.002 (J)		
5/14/2013			<0.001	<0.001	<0.001		
11/5/2013			<0.001	<0.001	<0.001		
6/9/2014			<0.001	<0.001	<0.001		
11/18/2014				<0.001	<0.001		
11/19/2014			<0.001				
4/14/2015			<0.001	<0.001	<0.001		
10/29/2015					<0.001		
11/4/2015			<0.001	<0.001			
6/22/2016			<0.001	0.00084 (J)			
6/23/2016					0.0011 (J)		
8/29/2016			<0.001	0.00049 (J)			
8/30/2016					0.002		
10/24/2016			<0.001	<0.001			
10/26/2016					0.0019 (J)		
1/25/2017			<0.001	<0.001	0.0017		
4/10/2017			<0.001	0.00056 (J)	0.002		
6/19/2017			<0.001	.,	0.0026		
6/20/2017				0.00068 (J)			
10/24/2017			<0.001	<0.001	0.0021		
4/9/2018				<0.001			
4/10/2018			<0.001		0.0022		
10/16/2018			<0.001	<0.001	0.0021		
3/26/2019			<0.001				
3/27/2019			0.001	<0.001	0.0011 (J)		
8/20/2019			0.00036 (J)	0.00047 (J)	0.002		
10/7/2019			<0.001	<0.001	0.002		
10/8/2019			-0.001	-0.001	0.0012 (J)		
12/16/2019					0.0012 (0)	0.00066 (J)	0.00075 (J)
1/14/2020						0.00038 (J)	0.00042 (J)
2/11/2020						0.0004 (J)	<0.001
3/9/2020						<0.001	<0.001
4/6/2020				0.00042 (J)		<b>~0.001</b>	0.001
4/7/2020			0.0006 (J)	0.00042 (3)	0.00054 (J)	<0.001	<0.001
5/27/2020			0.0000 (3)		0.00034 (3)	<0.001	
							<0.001
7/15/2020			<0.001	<0.001		<0.001	<0.001
8/19/2020	-0.001	0.004	<0.001	<0.001		<0.001	10.001
8/20/2020	<0.001	0.084			-0.001		<0.001
8/21/2020					<0.001	-0.001	40.001
9/22/2020			<0.001			<0.001	<0.001
9/29/2020	-0.001		<0.001	-0.004		-0.001	
9/30/2020	<0.001	0.0005		<0.001	-0.004	<0.001	10.004
10/1/2020		0.0085			<0.001		<0.001

Constituent: Barium (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009			0.057				
5/14/2009					0.034		
5/15/2009				0.1			
12/5/2009			0.05	0.079	0.037		
6/1/2010			0.037	0.077			
6/2/2010					0.037		
11/11/2010			0.039	0.072	0.036		
5/17/2011			0.037	0.064	0.032		
11/8/2011			0.045	0.07	0.042		
5/16/2012			0.0518	0.0741	0.0451		
5/14/2013			0.067	0.074	0.043		
11/5/2013			0.066	0.075	0.051		
6/9/2014			0.062	0.08	0.045		
11/18/2014				0.078	0.052		
11/19/2014			0.054				
4/14/2015			0.046	0.073	0.047		
10/29/2015					0.053		
11/4/2015			0.046	0.077			
6/22/2016			0.039	0.078			
6/23/2016			0.000	0.070	0.13		
8/29/2016			0.04	0.07	0.10		
8/30/2016			0.04	0.07	0.11		
10/24/2016			0.0444	0.0738	0.11		
10/26/2016			0.0444	0.0736	0.122		
1/25/2017			0.045	0.084	0.122		
4/10/2017			0.039	0.073	0.11		
6/19/2017			0.041	0.079	0.13		
6/20/2017			0.044	0.078	0.10		
10/24/2017			0.041	0.081	0.12		
4/9/2018			0.044	0.081	0.10		
4/10/2018			0.044		0.12		
10/16/2018			0.047	0.08	0.1		
3/26/2019			0.056				
3/27/2019				0.082	0.091		
8/20/2019			0.052	0.079	0.1		
10/7/2019			0.049	0.076			
10/8/2019					0.096		
12/16/2019						0.076	0.096
1/14/2020						0.071	0.075
2/11/2020						0.046	0.046
3/9/2020						0.039	0.14
4/6/2020				0.075			
4/7/2020			0.047		0.05	0.04	0.16
5/27/2020						0.054	0.18
7/15/2020						0.043	0.16
8/19/2020			0.044	0.085		0.046	
8/20/2020	0.055	0.14					0.16
8/21/2020					0.054		
9/22/2020						0.038	0.16
9/29/2020			0.04				
9/30/2020	0.052			0.08		0.033	
10/1/2020		0.075			0.051		0.17

Constituent: Beryllium (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			<0.0025	<0.0025			
8/30/2016					<0.0025		
10/24/2016			<0.0025	<0.0025			
10/26/2016					<0.0025		
1/25/2017			<0.0025	<0.0025	<0.0025		
4/10/2017			<0.0025	<0.0025	<0.0025		
6/19/2017			<0.0025		<0.0025		
6/20/2017				<0.0025			
10/24/2017			<0.0025	<0.0025	<0.0025		
4/9/2018				<0.0025			
4/10/2018			<0.0025		<0.0025		
10/16/2018			<0.0025	<0.0025	<0.0025		
8/20/2019			<0.0025	<0.0025	<0.0025		
12/16/2019						0.0005 (J)	0.00033 (J)
1/14/2020						0.00036 (J)	<0.0025
2/11/2020						0.00023	<0.0025
3/9/2020						0.00019	<0.0025
5/27/2020						0.00018 (J)	<0.0025
7/15/2020						<0.0025	<0.0025
8/19/2020			<0.0025	0.00022 (J)		<0.0025	
8/20/2020	<0.0025	<0.0025					<0.0025
8/21/2020					<0.0025		
9/22/2020						<0.0025	<0.0025
9/29/2020			<0.0025				
9/30/2020	<0.0025			0.00019 (J)		<0.0025	
10/1/2020		<0.0025			<0.0025		<0.0025

Constituent: Boron (mg/L) Analysis Run 12/4/2020 12:47 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			0.024 (J)	<0.08			
8/30/2016					0.57		
10/24/2016			0.0339 (J)	0.0194 (J)			
10/26/2016					0.502		
1/25/2017			0.048 (J)	0.026 (J)	0.56		
4/10/2017			0.022 (J)	<0.08	0.54		
6/19/2017			<0.08		0.54		
6/20/2017				0.032 (J)			
10/24/2017			0.021 (J)	0.054	0.57		
4/9/2018				0.06			
4/10/2018			0.022 (J)		0.61		
10/16/2018			<0.08	0.036 (J)	0.59		
3/26/2019			<0.08				
3/27/2019				0.046 (J)	0.65		
10/7/2019			<0.08	<0.08			
10/8/2019					0.58		
12/16/2019						2.7	0.42
1/14/2020	1.1	1.8				2.7	0.43
2/11/2020						3	0.079 (J)
3/9/2020						2.7	0.25
4/6/2020				0.063 (J)			
4/7/2020			0.072 (J)		0.74	2.6	0.44
5/27/2020						2.5	0.45
6/24/2020	0.84	0.89				2.5	
6/25/2020			0.091	0.081	0.82		0.42
7/15/2020						2.6	0.49
8/19/2020						1.3	
8/20/2020							0.44
9/22/2020						2.8	0.5
9/29/2020			<0.08				
9/30/2020	0.98			0.083		2.9	
10/1/2020		0.95			0.9		0.49

Constituent: Cadmium (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009			<0.001				
5/14/2009					<0.001		
5/15/2009				<0.001			
12/5/2009			<0.001	<0.001	<0.001		
6/1/2010			<0.001	<0.001			
6/2/2010					<0.001		
11/11/2010			<0.001	<0.001	<0.001		
5/17/2011			<0.001	<0.001	<0.001		
11/8/2011			<0.001	<0.001	<0.001		
5/16/2012			<0.001	<0.001	<0.001		
5/14/2013			<0.001	<0.001	<0.001		
11/5/2013			<0.001	<0.001	<0.001		
6/9/2014			<0.001	<0.001	<0.001		
11/18/2014				<0.001	<0.001		
11/19/2014			<0.001				
4/14/2015			<0.001	<0.001	<0.001		
10/29/2015					<0.001		
11/4/2015			<0.001	<0.001			
6/22/2016			<0.001	<0.001			
6/23/2016					<0.001		
8/29/2016			<0.001	<0.001			
8/30/2016					<0.001		
10/24/2016			<0.001	<0.001			
10/26/2016					<0.001		
1/25/2017			<0.001	<0.001	<0.001		
4/10/2017			<0.001	<0.001	<0.001		
6/19/2017			<0.001		<0.001		
6/20/2017				<0.001			
10/24/2017			<0.001	<0.001	<0.001		
4/9/2018				<0.001			
4/10/2018			<0.001		<0.001		
10/16/2018			<0.001	<0.001	<0.001		
3/26/2019			<0.001				
3/27/2019				<0.001	<0.001		
8/20/2019			<0.001	<0.001	<0.001		
10/7/2019			<0.001	<0.001			
10/8/2019					<0.001		
12/16/2019						<0.001	<0.001
1/14/2020						<0.001	<0.001
2/11/2020						<0.001	<0.001
3/9/2020						<0.001	<0.001
4/6/2020				<0.001			
4/7/2020			0.00034 (J)		<0.001	<0.001	<0.001
5/27/2020			.,			<0.001	<0.001
7/15/2020						<0.001	<0.001
8/19/2020			<0.001	<0.001		<0.001	
8/20/2020	<0.001	<0.001					<0.001
8/21/2020					<0.001		
9/22/2020						<0.001	<0.001

Constituent: Calcium (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			11	8.3			
8/30/2016					46		
10/24/2016			11.5	7.66			
10/26/2016					44.3		
1/25/2017			13	9.4	50		
4/10/2017			11	8.6	52		
6/19/2017			12		55		
6/20/2017				9.4			
10/24/2017			12	9.9	56		
4/9/2018				9.9			
4/10/2018			12		51		
10/16/2018			14	9.8	57		
3/26/2019			15				
3/27/2019				9.2	58		
10/7/2019			14	8.9			
10/8/2019					60		
12/16/2019						200	69
1/14/2020						210	65
2/11/2020						180	10
3/9/2020						180	46
4/6/2020				9.5			
4/7/2020			14		69	190	65
5/27/2020						200	69
6/24/2020	81	89				180	
6/25/2020			14	9.6	80		72
7/15/2020						190	68
8/19/2020						220	
8/20/2020							69
9/22/2020						190	66
9/29/2020			12				
9/30/2020	100			9.9		200	
10/1/2020		91			79		73

Constituent: Chloride (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009			11.1				
5/14/2009					6.38		
5/15/2009				6.86			
12/5/2009			9.46	5.06	6.28		
6/1/2010			6.32	5.47			
6/2/2010					6.1		
11/11/2010			7.16	5.26	6.1461		
5/17/2011			6.84	4.8	6.17		
11/8/2011			9.13	5.62	6.6		
5/16/2012			10.8	5.1	6.18		
5/14/2013			16.2	5.25	6.32		
11/5/2013			14.8	5.19	5.65		
6/9/2014			13.6	5.55	6.08		
4/14/2015			10.4	5.39	5.43		
10/29/2015					5.62		
11/4/2015			9.19	5.38			
6/22/2016			8.4	5.7			
6/23/2016					5.9		
8/29/2016			8.4	5.3			
8/30/2016					5.5		
10/24/2016			9.6	5.4			
10/26/2016					6		
1/25/2017			8.7	5.1	5.4		
4/10/2017			8	4.9	5.1		
6/19/2017			7.6		5.2		
6/20/2017			7.0	5	0.2		
10/24/2017			7.2	4.6	4.9		
4/9/2018			7.2	4.7	4.5		
4/10/2018			7.2	7.7	4.8		
10/16/2018			10	5.3	5.1		
3/26/2019			12	5.5	5.1		
3/27/2019			12	4.6	4.4		
10/7/2019			11	5.2	4.4		
			11	5.2	4.5		
10/8/2019 12/16/2019					4.5	F 0	2.0
						5.8	3.9
1/14/2020						5.5	4
2/11/2020						9	4.7
3/9/2020				F 2		11	3.7
4/6/2020			44	5.2	4.0	0.1	2.0
4/7/2020			11		4.2	8.1	3.8
5/27/2020	5.0	4.0				7.3	4
6/24/2020	5.3	4.3	44	F.4	2.7	5.7	2.4
6/25/2020			11	5.1	3.7		3.4
7/15/2020						6	3.9
8/19/2020						5.7	
8/20/2020							3.9
9/22/2020						7.1	3.6
9/29/2020			10				
9/30/2020	5.2			5.6		8	
10/1/2020		4.2			4.3		3.8

Constituent: Chromium (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			0.0011 (J)	0.0052			
8/30/2016					<0.002		
10/24/2016			0.001 (J)	0.0053 (J)			
10/26/2016					<0.002		
1/25/2017			0.0013 (J)	0.0056	<0.002		
4/10/2017			<0.002	0.0047	<0.002		
6/19/2017			0.0013 (J)		<0.002		
6/20/2017				0.0051			
10/24/2017			0.0012 (J)	0.0056	<0.002		
4/9/2018				0.0071			
4/10/2018			0.0015 (J)		<0.002		
10/16/2018			0.0014 (J)	0.0071	<0.002		
8/20/2019			0.0024	0.0078	0.0017 (J)		
10/7/2019			<0.002	0.0059			
10/8/2019					<0.002		
12/16/2019						<0.002	<0.002
1/14/2020						<0.002	<0.002
2/11/2020						0.0048	<0.002
3/9/2020						<0.002	<0.002
4/6/2020				0.0057			
4/7/2020			<0.002		<0.002	<0.002	<0.002
5/27/2020						<0.002	<0.002
7/15/2020						<0.002	<0.002
8/19/2020			<0.002	0.0063		<0.002	
8/20/2020	<0.002	<0.002					<0.002
8/21/2020					<0.002		
9/22/2020						<0.002	<0.002
9/29/2020			<0.002				
9/30/2020	<0.002			0.0057		<0.002	
10/1/2020		<0.002			<0.002		<0.002

Constituent: Cobalt (mg/L) Analysis Run 12/4/2020 12:47 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			<0.0025	<0.0025			
8/30/2016					0.0018 (J)		
10/24/2016			<0.0025	<0.0025			
10/26/2016					0.0018 (J)		
1/25/2017			<0.0025	0.00076 (J)	0.0017 (J)		
4/10/2017			<0.0025	<0.0025	0.0016 (J)		
6/19/2017			<0.0025		0.0021 (J)		
6/20/2017				<0.0025			
10/24/2017			<0.0025	<0.0025	0.0019 (J)		
4/9/2018				<0.0025			
4/10/2018			<0.0025		0.0019 (J)		
10/16/2018			<0.0025	<0.0025	0.0019 (J)		
8/20/2019			0.00011 (J)	0.00015 (J)	0.0023		
10/7/2019			0.00011 (J)	<0.0025			
10/8/2019					0.0018		
12/16/2019						0.018	0.0023
1/14/2020						0.0072	0.0031
2/11/2020						0.013	0.00056
3/9/2020						0.015	0.00061 (J)
4/6/2020				0.00039 (J)			
4/7/2020			0.00038 (J)		0.00087	0.009	0.0016
5/27/2020						0.0059	0.0017 (J)
6/24/2020	0.00097 (J)	0.0027				0.0047	
6/25/2020			<0.0025	0.00015 (J)	0.00097 (J)		0.0014 (J)
7/15/2020						0.0027	0.0017 (J)
8/19/2020			<0.0025	0.00064 (J)		0.0032	
8/20/2020	0.001 (J)	0.0022 (J)					0.0023 (J)
8/21/2020					0.00066 (J)		
9/22/2020						0.0085	0.0036
9/29/2020			<0.0025				
9/30/2020	0.001 (J)			0.00031 (J)		0.0055	
10/1/2020		0.0036			0.00082 (J)		0.0052

Constituent: Combined Radium 226 + 228 (pCi/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			0.324 (U)	0.508 (U)			
8/30/2016					0.832		
10/24/2016			1.17 (U)	1.46			
10/26/2016					1.27		
1/25/2017			0.443 (U)	0.377 (U)	0.549		
4/10/2017			0.483	0.132 (U)	0.556		
6/19/2017			0.478		0.976		
6/20/2017				1.17			
10/24/2017			0.764	0.704	0.504		
4/9/2018				0.539			
4/10/2018			0.3 (U)		0.621		
10/16/2018			0.991	0.354 (U)	0.796		
8/20/2019			0.498	0.53	0.978		
10/7/2019			0.476 (U)	0.621 (U)			
10/8/2019					0.588		
12/16/2019						0.229 (U)	0.166 (U)
1/14/2020						0.783	0.869
2/11/2020						0.229 (U)	0.0291 (U)
3/9/2020						0.365	0.626
4/6/2020				0.072 (U)			
4/7/2020			0.651		0.433 (U)	0.567	0.296 (U)
5/27/2020						0.143 (U)	0.192 (U)
7/15/2020						0.97	0.279 (U)
8/19/2020			0.294 (U)	0.94		0.587 (U)	
8/20/2020	0.527	4.13					0.242 (U)
8/21/2020					0.472		
9/22/2020						0.884	0.0177 (U)
9/29/2020			0.372 (U)				
9/30/2020	0.249 (U)			0.679		0.602	
10/1/2020		2.86			0.496 (U)		0.749

Constituent: Fluoride (mg/L) Analysis Run 12/4/2020 12:47 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

·	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			<0.1	<0.1			
8/30/2016					0.099 (J)		
10/24/2016			0.07 (J)	0.04 (J)			
10/26/2016					0.57		
1/25/2017			<0.1	<0.1	0.12 (J)		
4/10/2017			<0.1	<0.1	0.11 (J)		
6/19/2017			<0.1		0.11 (J)		
6/20/2017				<0.1			
10/24/2017			<0.1	<0.1	0.1 (J)		
4/9/2018				<0.1			
4/10/2018			<0.1		0.094 (J)		
10/16/2018			0.083 (J)	<0.1	0.17 (J)		
3/26/2019			0.041 (J)				
3/27/2019				<0.1	0.05 (J)		
8/20/2019			0.045 (J)	0.042 (J)	0.098 (J)		
10/7/2019			0.049 (J)	0.036 (J)			
10/8/2019					0.065 (J)		
12/16/2019						0.026 (J)	0.18 (J)
1/14/2020						<0.1	0.21
2/11/2020						0.056	0.13
3/9/2020						0.064 (J)	0.089 (J)
4/6/2020				0.059 (J)			
4/7/2020			0.14		0.12	0.068 (J)	0.18
5/27/2020						0.06 (J)	0.25
6/24/2020	0.21	0.11				0.048 (J)	
6/25/2020			0.03 (J)	<0.1	0.041 (J)		0.25
7/15/2020						0.04 (J)	0.28
8/19/2020			<0.1	<0.1		<0.1	
8/20/2020	0.23	<0.1					0.19
8/21/2020					0.084 (J)		
9/22/2020						0.049 (J)	0.33
9/29/2020			0.051 (J)				
9/30/2020	0.2			0.032 (J)		0.045 (J)	
10/1/2020		0.098 (J)			0.098 (J)		0.32

Constituent: Lead (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009			<0.001				
5/14/2009					<0.001		
5/15/2009				<0.001			
12/5/2009			<0.001	<0.001	<0.001		
6/1/2010			<0.001	<0.001			
6/2/2010					<0.001		
11/11/2010			<0.001	<0.001	<0.001		
5/17/2011			<0.001	<0.001	<0.001		
11/8/2011			<0.001	<0.001	<0.001		
5/16/2012			<0.001	<0.001	<0.001		
5/14/2013			<0.001	<0.001	<0.001		
11/5/2013			<0.001	<0.001	<0.001		
6/9/2014			<0.001	<0.001	<0.001		
11/18/2014				<0.001	<0.001		
11/19/2014			<0.001				
4/14/2015			<0.001	<0.001	<0.001		
10/29/2015					<0.001		
11/4/2015			<0.001	<0.001			
6/22/2016			<0.001	<0.001			
6/23/2016			-0.001	-0.001	<0.001		
8/29/2016			<0.001	<0.001	-0.001		
8/30/2016			-0.001	-0.001	<0.001		
10/24/2016			<0.001	<0.001	<b>10.001</b>		
10/24/2016			<b>~</b> 0.001	<b>\0.001</b>	<0.001		
1/25/2017			<0.001	0.00037 (J)	<0.001		
4/10/2017			<0.001	<0.001	<0.001		
6/19/2017			<0.001	-0.001	<0.001		
6/20/2017				<0.001	.0.004		
10/24/2017			<0.001	<0.001	<0.001		
4/9/2018				<0.001			
4/10/2018			<0.001		<0.001		
10/16/2018			<0.001	<0.001	<0.001		
3/26/2019			<0.001				
3/27/2019				<0.001	<0.001		
8/20/2019			<0.001	<0.001	<0.001		
10/7/2019			0.00018 (J)	0.00014 (J)			
10/8/2019					0.00015 (J)		
12/16/2019						<0.001	<0.001
1/14/2020						0.00022 (J)	0.00018 (J)
2/11/2020						<0.001	0.00026 (J)
3/9/2020						<0.001	<0.001
4/6/2020				0.00033 (J)			
4/7/2020			0.00037 (J)		0.00026 (J)	0.00014 (J)	<0.001
5/27/2020						<0.001	<0.001
7/15/2020						<0.001	<0.001
8/19/2020			<0.001	0.00039 (J)		<0.001	
8/20/2020	<0.001	<0.001					<0.001
8/21/2020					<0.001		
9/22/2020						<0.001	<0.001
9/29/2020			<0.001				
9/30/2020	<0.001			0.00022 (J)		<0.001	
10/1/2020		<0.001			<0.001		<0.001

Constituent: Lithium (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
		0.0048 (J)	<0.005			
				0.0092		
		<0.005	<0.005			
				0.0071 (J)		
		0.0052	<0.005	0.0087		
		0.0034 (J)	<0.005	0.0074		
		0.0036 (J)		0.0079		
			<0.005			
		0.0051	<0.005	0.0097		
			0.0021 (J)			
		0.0057		0.012		
		0.0048 (J)	0.0018 (J)	0.01		
		0.0044 (J)	<0.005	0.0098		
		0.013	0.0066			
				0.015		
					0.027	0.02
0.009	0.086				0.034	0.022
					0.01	0.0078
					0.0071	0.013
			<0.005			
		0.0053		0.011	0.012	0.032
					0.017	0.037
0.0084	0.018				0.023	
		0.0053	<0.005	0.013		0.043
					0.021	0.042
		0.0038 (J)	<0.005		0.026	
0.0066	0.036					0.036
				0.013		
					0.014	0.039
		0.0041 (J)				
0.0091			<0.005		0.014	
	0.019			0.012		0.04
	0.009 0.0084 0.0066	0.009       0.086         0.0084       0.018         0.0066       0.036         0.0091	0.0048 (J) <a href="https://doi.org/10.0051">-0.0052</a> 0.0034 (J) 0.0036 (J) 0.0051 0.0057 0.0048 (J) 0.0044 (J) 0.0013 0.0044 (J) 0.013 0.0053 0.0066 0.036 0.0038 (J) 0.0038 (J) 0.0041 (J) 0.0091	0.0048 (J) <0.005 <0.005 <0.005 <0.0052 <0.0005 0.0034 (J) <0.0005 0.0036 (J) <0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0005 0.0001 0.00044 (J) 0.0018 (J) 0.0044 (J) <0.005 0.013 0.0066  0.0084 0.0084 0.018 0.0053 <0.0053 <0.0005 0.0005 0.0005 0.00084 0.00066  0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00084 0.00085 0.00086	0.0048 (J) < 0.005	

Constituent: Mercury (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			<0.0002	<0.0002			
8/30/2016					<0.0002		
10/24/2016			<0.0002	<0.0002			
10/26/2016					<0.0002		
1/25/2017			7.7E-05 (J)	7.2E-05 (J)	7.3E-05 (J)		
4/10/2017			<0.0002	<0.0002	<0.0002		
6/19/2017			<0.0002		<0.0002		
6/20/2017				<0.0002			
10/24/2017			<0.0002	<0.0002	<0.0002		
4/9/2018				<0.0002			
4/10/2018			<0.0002		<0.0002		
10/16/2018			<0.0002	<0.0002	<0.0002		
8/20/2019			<0.0002	<0.0002	<0.0002		
12/16/2019						<0.0002	<0.0002
1/14/2020						<0.0002	<0.0002
2/11/2020						<0.0002	<0.0002
3/9/2020						<0.0002	<0.0002
5/27/2020						<0.0002	<0.0002
7/15/2020						<0.0002	<0.0002
8/19/2020			<0.0002	<0.0002		<0.0002	
8/20/2020	<0.0002	<0.0002					<0.0002
8/21/2020					<0.0002		
9/22/2020						<0.0002	<0.0002
10/1/2020							<0.0002

Constituent: Molybdenum (mg/L) Analysis Run 12/4/2020 12:47 PM Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			<0.015	<0.015			
8/30/2016					<0.015		
10/24/2016			<0.015	<0.015			
10/26/2016					<0.015		
1/25/2017			<0.015	<0.015	<0.015		
4/10/2017			<0.015	<0.015	<0.015		
6/19/2017			<0.015		<0.015		
6/20/2017				<0.015			
10/24/2017			<0.015	<0.015	<0.015		
4/9/2018				<0.015			
4/10/2018			0.00096 (J)		<0.015		
10/16/2018			<0.015	<0.015	<0.015		
8/20/2019			<0.015	<0.015	<0.015		
12/16/2019						0.0018 (J)	0.025
1/14/2020						0.0012 (J)	0.032
2/11/2020						0.00093	0.021
3/9/2020						0.00067	0.013 (J)
5/27/2020						<0.015	0.048
6/24/2020	0.0051 (J)	<0.015				<0.015	
6/25/2020			<0.015	<0.015	<0.015		0.055
7/15/2020						<0.015	0.055
8/19/2020			<0.015	<0.015		<0.015	
8/20/2020	0.0076 (J)	0.0013 (J)					0.061
8/21/2020					<0.015		
9/22/2020						<0.015	0.053
9/29/2020			<0.015				
9/30/2020	0.0054 (J)			<0.015		<0.015	
10/1/2020		<0.015			<0.015		0.064

Constituent: pH (SU) Analysis Run 12/4/2020 12:47 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			6.75 (o)	5.64			
8/30/2016					6.38		
10/24/2016			5.81	5.6			
10/26/2016					6.23		
1/25/2017			5.91	5.65	6.15		
4/10/2017			5.74	5.42	5.99		
6/19/2017			5.54		5.95		
6/20/2017				5.59			
10/24/2017			5.82	5.58	6.02		
4/9/2018				5.78			
4/10/2018			5.92		6.12		
10/16/2018			5.94	5.69	6.12		
3/26/2019			5.85				
3/27/2019				5.96	6.2		
8/20/2019			5.9	5.57	6.08		
10/7/2019			5.89	5.65			
10/8/2019					6.11		
12/16/2019						5.74	6.41
1/14/2020	6.07	6.12				5.91	6.62
2/11/2020						5.9	6.71
3/9/2020						5.97	6.32
4/6/2020				5.53			
4/7/2020			5.72		5.96	5.84	6.4
5/27/2020						5.69	6.3
6/24/2020	6.31	6.19				5.82	
6/25/2020			5.8	5.61	5.98		6.37
7/15/2020						5.58	6.36
8/19/2020			6.25	6.16		6.21	
8/20/2020	6.09	5.99					6.33
8/21/2020					5.89		
9/22/2020						5.77	6.29
9/29/2020			5.83				
9/30/2020	6.16			5.65		5.81	
10/1/2020		5.96			5.99		6.38

Constituent: Selenium (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009			0.0043				
5/14/2009					0.0058 (o)		
5/15/2009				0.007 (o)			
12/5/2009			<0.005	<0.005	<0.005		
6/1/2010			<0.005	<0.005			
6/2/2010					<0.005		
11/11/2010			<0.005	<0.005	<0.005		
5/17/2011			<0.005	<0.005	<0.005		
11/8/2011			<0.005	<0.005	<0.005		
5/16/2012			<0.005	0.0024 (J)	<0.005		
5/14/2013			<0.005	<0.005	<0.005		
11/5/2013			<0.005	<0.005	<0.005		
6/9/2014			<0.005	<0.005	<0.005		
11/18/2014				<0.005	<0.005		
11/19/2014			<0.005				
4/14/2015			<0.005	<0.005	<0.005		
10/29/2015					<0.005		
11/4/2015			<0.005	<0.005			
6/22/2016			0.00025 (J)	0.0019			
6/23/2016					<0.005		
8/29/2016			0.0004 (J)	0.0019			
8/30/2016					<0.005		
10/24/2016			<0.005	0.0023 (J)			
10/26/2016					<0.005		
1/25/2017			<0.005	0.0015	<0.005		
4/10/2017			<0.005	0.0011 (J)	<0.005		
6/19/2017			0.00025 (J)		<0.005		
6/20/2017				0.0016			
10/24/2017			<0.005	0.0012 (J)	<0.005		
4/9/2018				0.0012 (J)			
4/10/2018			0.00074 (J)	(3)	<0.005		
10/16/2018			<0.005	0.0015	<0.005		
3/26/2019			<0.005				
3/27/2019				0.0015	<0.005		
8/20/2019			<0.005	0.0015 (J)	<0.005		
10/7/2019			<0.005	0.0016 (J)	0.000		
10/8/2019			-0.000	0.0010 (0)	<0.005		
12/16/2019					10.000	<0.005	<0.005
1/14/2020						<0.005	<0.005
2/11/2020						<0.005	<0.005
3/9/2020						<0.005	<0.005
4/6/2020				0.0017 (J)		<0.005	V0.005
4/7/2020			<0.005	0.0017 (3)	<0.005	<0.005	<0.005
			<0.005		<0.005		
5/27/2020						<0.005	<0.005
7/15/2020			<0.00E	0.0015 / 1)		<0.005	<0.005
8/19/2020	-0.005	-0.005	<0.005	0.0015 (J)		<0.005	10.005
8/20/2020	<0.005	<0.005			.0.005		<0.005
8/21/2020					<0.005	.0.005	0.005
9/22/2020						<0.005	<0.005
9/29/2020			<0.005				
9/30/2020	<0.005			0.0016 (J)		<0.005	
10/1/2020		<0.005			<0.005		<0.005

Constituent: Silver (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009			<0.001				
5/14/2009					<0.001		
5/15/2009				<0.001			
12/5/2009			0.00075	0.00043	0.001		
6/1/2010			<0.001	<0.001			
6/2/2010					<0.001		
11/11/2010			<0.001	<0.001	<0.001		
5/17/2011			<0.001	<0.001	<0.001		
11/8/2011			<0.001	<0.001	<0.001		
5/16/2012			<0.001	<0.001	<0.001		
5/14/2013			<0.001	<0.001	<0.001		
11/5/2013			<0.001	<0.001	<0.001		
6/9/2014			<0.001	<0.001	<0.001		
11/18/2014				<0.001	<0.001		
11/19/2014			<0.001				
4/14/2015			<0.001	<0.001	<0.001		
10/29/2015					<0.001		
11/4/2015			<0.001	<0.001			
6/22/2016			<0.001	<0.001			
6/23/2016					<0.001		
10/24/2016			<0.001	<0.001			
10/26/2016					<0.001		
4/10/2017			<0.001	<0.001	<0.001		
10/24/2017			<0.001	<0.001	<0.001		
4/9/2018				<0.001			
4/10/2018			<0.001		<0.001		
10/16/2018			<0.001	<0.001	<0.001		
3/26/2019			<0.001				
3/27/2019				<0.001	<0.001		
10/7/2019			0.00056 (J)	0.00031 (J)			
10/8/2019					0.00043 (J)		
4/6/2020				<0.001			
4/7/2020			0.00018 (J)		<0.001	<0.001	<0.001
9/29/2020			<0.001				
9/30/2020	<0.001			<0.001		<0.001	
10/1/2020		<0.001			<0.001		<0.001

Constituent: Sulfate (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
5/5/2009			15.9				
5/14/2009					129		
5/15/2009				41.3 (o)			
12/5/2009			15.1	16.2	136		
6/1/2010			12.7	18.2			
6/2/2010					138		
11/11/2010			11.5	16.5	131.49		
5/17/2011			11.2	16	132		
11/8/2011			11.3	21	138		
5/16/2012			9.38	17.7	132		
5/14/2013			8.74	19.5	129		
11/5/2013			9.12	18.3	122		
6/9/2014			8.61	18.6	131		
4/14/2015			8.45	18.8	128		
10/29/2015					134		
11/4/2015			9.01	17.4			
6/22/2016			9.3	18			
6/23/2016				-	150		
8/29/2016			8.7	18			
8/30/2016					140		
10/24/2016			9.3	18			
10/26/2016			0.0	10	160		
1/25/2017			8.8	19	150		
4/10/2017			7.8	16	140		
6/19/2017			8.6	10	160		
6/20/2017			0.0	18	100		
10/24/2017			9.1	19	160		
4/9/2018			9.1	18	100		
			7.0	10	170		
4/10/2018			7.9	10	170		
10/16/2018			8.2	18	170		
3/26/2019			6.1	45	170		
3/27/2019				15	170		
10/7/2019			7.4	17			
10/8/2019					170		
12/16/2019						770	66
1/14/2020						930	68
2/11/2020						660	18
3/9/2020						630	49
4/6/2020				15			
4/7/2020			8.4		180	710	58
5/27/2020						720	65
6/24/2020	250	290				810	
6/25/2020			9.8	16	210		77
7/15/2020						820	78
8/19/2020						1000	
8/20/2020							69
9/22/2020						720	68
9/29/2020			8.4				
9/30/2020	230			15		650	
10/1/2020		270			210		64

Constituent: Thallium (mg/L) Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

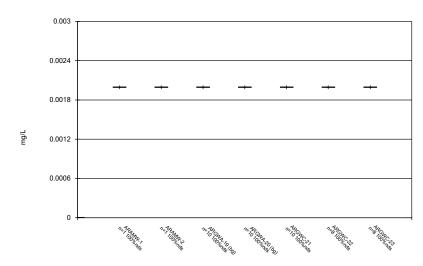
	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			<0.001	<0.001			
8/30/2016					<0.001		
10/24/2016			<0.001	<0.001			
10/26/2016					<0.001		
1/25/2017			<0.001	<0.001	<0.001		
4/10/2017			<0.001	<0.001	<0.001		
6/19/2017			<0.001		<0.001		
6/20/2017				<0.001			
10/24/2017			<0.001	<0.001	<0.001		
4/9/2018				<0.001			
4/10/2018			<0.001		<0.001		
10/16/2018			<0.001	<0.001	<0.001		
8/20/2019			<0.001	<0.001	<0.001		
12/16/2019						0.00078 (J)	<0.001
1/14/2020						0.00027 (J)	<0.001
2/11/2020						0.00034	0.00028 (J)
3/9/2020						0.00035 (J)	0.00026 (J)
5/27/2020						<0.001	0.00026 (J)
7/15/2020						<0.001	<0.001
8/19/2020			<0.001	<0.001		<0.001	
8/20/2020	<0.001	<0.001					<0.001
8/21/2020					<0.001		
9/22/2020						<0.001	<0.001

Constituent: Total Dissolved Solids (mg/L) Analysis Run 12/4/2020 12:47 PM Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARAMW-1	ARAMW-2	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016			130	100			
8/30/2016					350		
10/24/2016			108	91			
10/26/2016					357		
1/25/2017			120	90	320		
4/10/2017			128 (D)	110	380		
6/19/2017			86		370		
6/20/2017				72			
10/24/2017			120	110	420		
4/9/2018				100			
4/10/2018			120		370		
10/16/2018			140	110	380		
3/26/2019			170				
3/27/2019				100	400		
10/7/2019			150	87			
10/8/2019					420		
12/16/2019						1300	320
1/14/2020						1400	340
2/11/2020						1300	110
3/9/2020						1200	210
4/6/2020				90			
4/7/2020			120		460	1300	290
5/27/2020						1300	320
7/15/2020						1400	310
8/19/2020						1400	
8/20/2020							310
9/22/2020						1300	310
9/29/2020			110				
9/30/2020	520			82		1200	
10/1/2020		530			500		290

# FIGURE B.

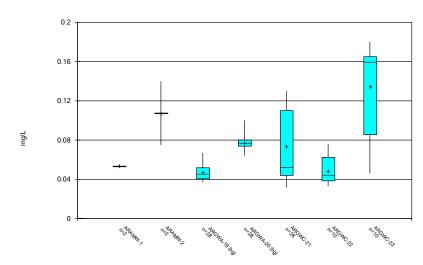
Box & Whiskers Plot



Constituent: Antimony Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

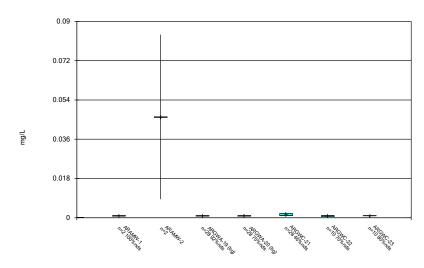
Box & Whiskers Plot



Constituent: Barium Analysis Run 12/4/2020 12:47 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Box & Whiskers Plot

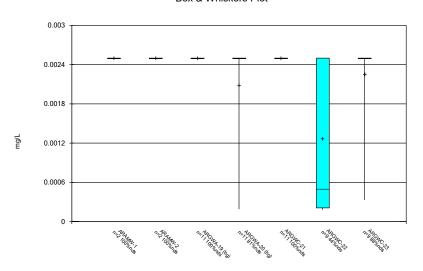


Constituent: Arsenic Analysis Run 12/4/2020 12:47 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

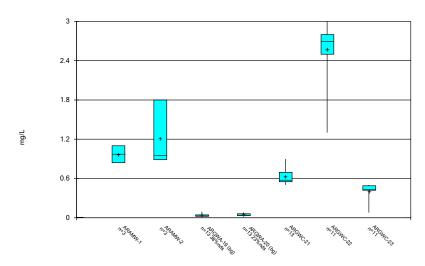
Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Beryllium Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

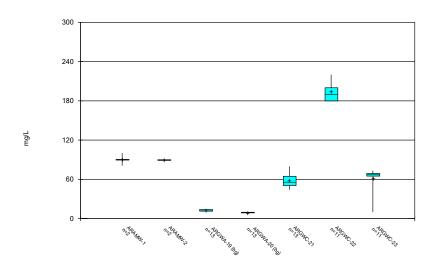
Box & Whiskers Plot



Constituent: Boron Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas<sup>™</sup> v.9.6.27 Groundwater Stats Consulting. UG

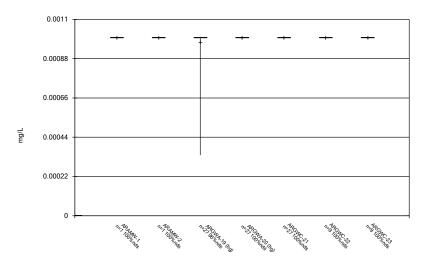
Box & Whiskers Plot



Constituent: Calcium Analysis Run 12/4/2020 12:47 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

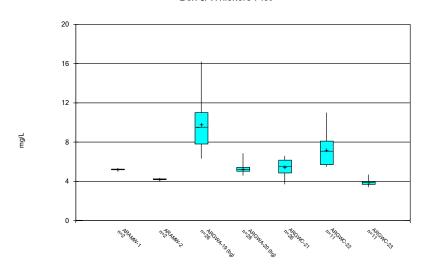
Box & Whiskers Plot



Constituent: Cadmium Analysis Run 12/4/2020 12:47 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

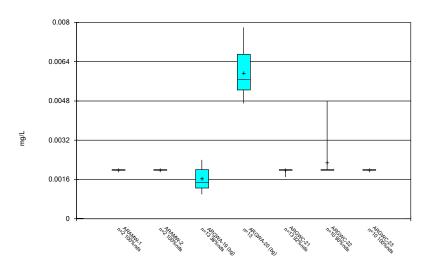
Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Chloride Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

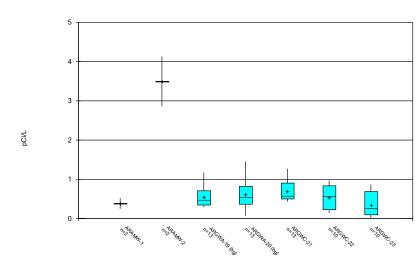
Box & Whiskers Plot



Constituent: Chromium Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

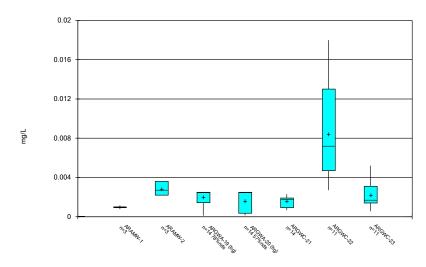
Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Combined Radium 226 + 228 Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

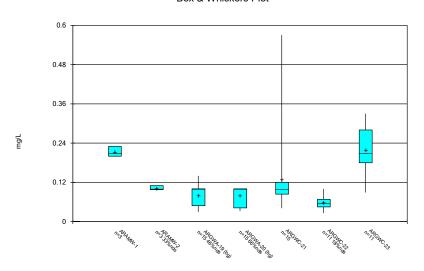
Box & Whiskers Plot



Constituent: Cobalt Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

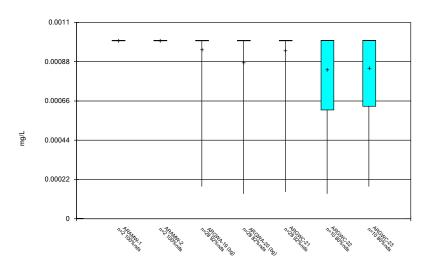
Box & Whiskers Plot



Constituent: Fluoride Analysis Run 12/4/2020 12:48 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Box & Whiskers Plot



Constituent: Lead Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Box & Whiskers Plot

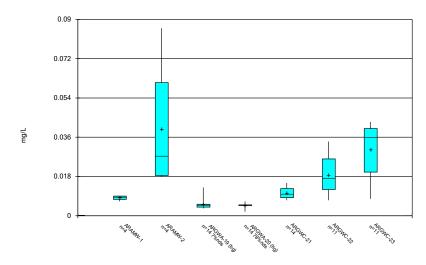
Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

0.00012 0.00012 0.00008 0.00004

Constituent: Mercury Analysis Run 12/4/2020 12:48 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

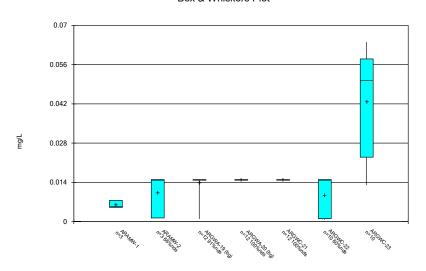
Box & Whiskers Plot



Constituent: Lithium Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

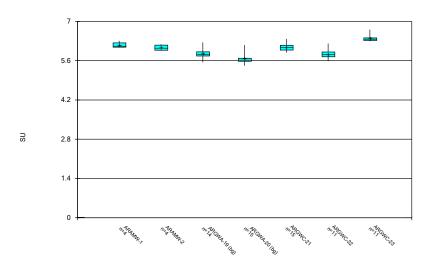
Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Molybdenum Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

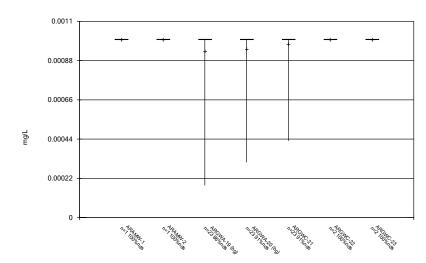
Box & Whiskers Plot



Constituent: pH Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

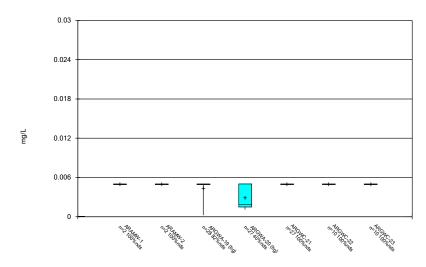
Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Silver Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

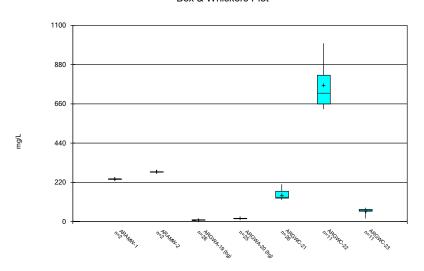
Box & Whiskers Plot



Constituent: Selenium Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

Box & Whiskers Plot

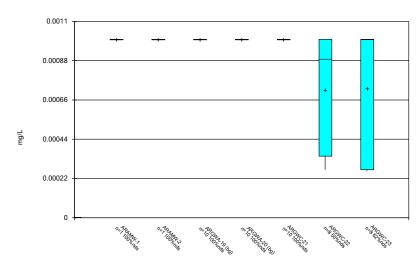


Constituent: Sulfate Analysis Run 12/4/2020 12:48 PM

Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

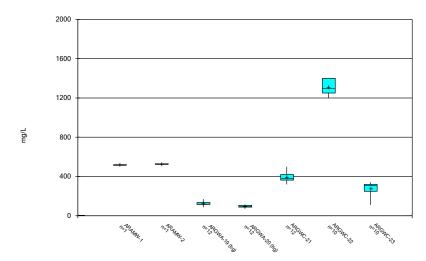
#### Box & Whiskers Plot



Constituent: Thallium Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

Box & Whiskers Plot



Constituent: Total Dissolved Solids Analysis Run 12/4/2020 12:48 PM
Plant Arkwright Client: Southern Company Data: Arkwright No 2

# FIGURE C.

# **Outlier Summary**

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/4/2020, 12:49 PM

ARGWA-19 pH (SU)

ARGWA-20 Selenium (mg/L)

ARGWA-20 Sulfate (mg/L)

ARGWA-20 Sulfate (mg/L)

5/14/2009 0.0058 (o)

5/15/2009 0.007 (o) 41.3 (o)

8/29/2016 6.75 (o)

# FIGURE D.

# Appendix I - Interwell Prediction Limits - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/4/2020, 12:31 PM

 Constituent
 Well
 Upper Lim.Lower Lim.Date
 Observ.
 Sig. Bg N Bg Mean
 Std. Dev.
 %NDs ND Adj.
 Transform Alpha
 Method

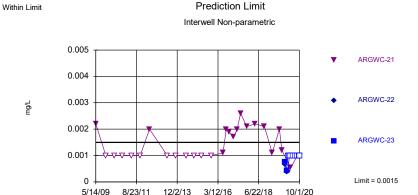
 Barium (mg/L)
 ARGWC-23
 0.1 n/a
 10/1/2020
 0.17
 Yes 56 n/a
 n/a
 0 n/a
 n/a
 0.000614
 NP Inter (normality) 1 of 2

# Appendix I - Interwell Prediction Limits - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/4/2020, 12:31 PM

Constituent	Well	Upper Li	m.Lower Lii	m.Date	Observ.	Sig	. <u>Bg</u> l	N Bg Mean	Std. Dev.	%NDs	ND Adj.	Transfor	m <u>Alpha</u>	Method
Arsenic (mg/L)	ARGWC-21	0.0015	n/a	10/1/2020	0.001ND	No	56	n/a	n/a	83.93	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Arsenic (mg/L)	ARGWC-22	0.0015	n/a	9/30/2020	0.001ND	No	56	n/a	n/a	83.93	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Arsenic (mg/L)	ARGWC-23	0.0015	n/a	10/1/2020	0.001ND	No	56	n/a	n/a	83.93	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Barium (mg/L)	ARGWC-21	0.1	n/a	10/1/2020	0.051	No	56	n/a	n/a	0	n/a	n/a	0.000614	NP Inter (normality) 1 of 2
Barium (mg/L)	ARGWC-22	0.1	n/a	9/30/2020	0.033	No	56	n/a	n/a	0	n/a	n/a	0.000614	NP Inter (normality) 1 of 2
Barium (mg/L)	ARGWC-23	0.1	n/a	10/1/2020	0.17	Ye	s 56	n/a	n/a	0	n/a	n/a	0.000614	NP Inter (normality) 1 of 2
Lead (mg/L)	ARGWC-21	0.001	n/a	10/1/2020	0.001ND	No	56	n/a	n/a	87.5	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Lead (mg/L)	ARGWC-22	0.001	n/a	9/30/2020	0.001ND	No	56	n/a	n/a	87.5	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Lead (mg/L)	ARGWC-23	0.001	n/a	10/1/2020	0.001ND	No	56	n/a	n/a	87.5	n/a	n/a	0.000614	NP Inter (NDs) 1 of 2
Silver (mg/L)	ARGWC-21	0.001	n/a	10/1/2020	0.001ND	No	46	n/a	n/a	89.13	n/a	n/a	0.0009064	NP Inter (NDs) 1 of 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG Hollow symbols indicate censored values.

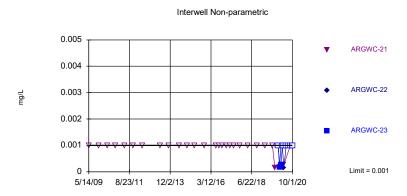


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 56 background values. 83.93% NDs. Annual per-constituent alpha = 0.003678. Individual comparison alpha = 0.000614 (1 of 2). Comparing 3 points to limit.

Constituent: Arsenic Analysis Run 12/4/2020 12:30 PM View: Appendix I
Plant Arkwright Client: Southern Company Data: Arkwright No 2

**Prediction Limit** 

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG Hollow symbols indicate censored values. Within Limit



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 56 background values. 87.5% NDs. Annual per-constituent alpha = 0.003678. Individual comparison alpha = 0.000614 (1 of 2). Comparing 3 points to limit.

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

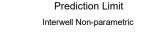


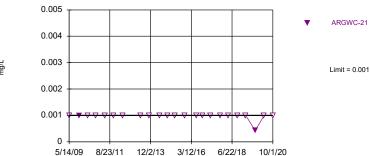


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 56 background values. Annual per-constituent alpha = 0.003678. Individual comparison alpha = 0.003678. Individual comparison alpha = 0.003678. Individual comparison alpha = 0.003678. Individual comparison alpha = 0.003678. Individual comparison alpha = 0.003678. Individual comparison alpha = 0.003678. Individual comparison alpha = 0.003678.

Constituent: Barium Analysis Run 12/4/2020 12:30 PM View: Appendix I
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG Hollow symbols indicate censored values. Within Limit





Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 46 background values. 89.13% NDs. Annual per-constituent alpha = 0.005426. Individual comparison alpha = 0.0099064 (1 of 2). Assumes 2 future values.

Constituent: Arsenic (mg/L) Analysis Run 12/4/2020 12:31 PM View: Appendix I

Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-23	ARGWC-22	
5/5/2009	<0.001					
5/14/2009		0.0022				
5/15/2009			0.0015			
12/5/2009	<0.001	<0.001	<0.001			
6/1/2010	<0.001		<0.001			
6/2/2010		<0.001				
11/11/2010	<0.001	<0.001	<0.001			
5/17/2011	<0.001	<0.001	<0.001			
11/8/2011	<0.001	<0.001	<0.001			
5/16/2012	<0.001	0.002 (J)	<0.001			
5/14/2013	<0.001	<0.001	<0.001			
11/5/2013	<0.001	<0.001	<0.001			
6/9/2014	<0.001	<0.001	<0.001			
11/18/2014		<0.001	<0.001			
11/19/2014	<0.001					
4/14/2015	<0.001	<0.001	<0.001			
10/29/2015		<0.001				
11/4/2015	<0.001		<0.001			
6/22/2016	<0.001		0.00084 (J)			
6/23/2016		0.0011 (J)	V-7			
8/29/2016	<0.001	. ,	0.00049 (J)			
8/30/2016		0.002	` '			
10/24/2016	<0.001		<0.001			
10/26/2016		0.0019 (J)				
1/25/2017	<0.001	0.0017	<0.001			
4/10/2017	<0.001	0.002	0.00056 (J)			
6/19/2017	<0.001	0.0026	\-/			
6/20/2017			0.00068 (J)			
10/24/2017	<0.001	0.0021	<0.001			
4/9/2018			<0.001			
4/10/2018	<0.001	0.0022				
10/16/2018	<0.001	0.0021	<0.001			
3/26/2019	<0.001					
3/27/2019		0.0011 (J)	<0.001			
8/20/2019	0.00036 (J)	0.002	0.00047 (J)			
10/7/2019	<0.001		<0.001			
10/8/2019		0.0012 (J)				
12/16/2019		(-/		0.00075 (J)	0.00066 (J)	
1/14/2020				0.00042 (J)	0.00038 (J)	
2/11/2020				<0.001	0.0004 (J)	
3/9/2020				<0.001	<0.001	
4/6/2020			0.00042 (J)			
4/7/2020	0.0006 (J)	0.00054 (J)	(0)	<0.001	<0.001	
5/27/2020	5.5550 (0)	3.00007 (0)		<0.001	<0.001	
7/15/2020				<0.001	<0.001	
8/19/2020	<0.001		<0.001	3.00.	<0.001	
8/20/2020	3.001		0.001	<0.001	5.001	
8/21/2020		<0.001		-0.001		
9/22/2020		\$0.00 I		<0.001	<0.001	
9/29/2020	<0.001			-U.UU I	50.00 I	
9/30/2020	~U.UU I		<0.001		<0.001	
10/1/2020		<0.001	~U.UU1	<0.001	~U.UU I	
10/1/2020		100.00		100.00		

Constituent: Barium (mg/L) Analysis Run 12/4/2020 12:31 PM View: Appendix I

Plant Arkwright Client: Southern Company Data: Arkwright No 2

		ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-23	ARGWC-22
5/5/200	09	0.057				
5/14/20	009		0.034			
5/15/20	009			0.1		
12/5/20		0.05	0.037	0.079		
6/1/201		0.037		0.077		
6/2/201			0.037			
11/11/2		0.039	0.036	0.072		
5/17/20		0.037	0.032	0.064		
11/8/20		0.045	0.032	0.004		
5/16/20		0.043	0.042	0.0741		
5/14/20		0.067	0.043	0.074		
11/5/20		0.066	0.051	0.075		
6/9/201		0.062	0.045	0.08		
11/18/2			0.052	0.078		
11/19/2		0.054				
4/14/20		0.046	0.047	0.073		
10/29/2			0.053			
11/4/20	015	0.046		0.077		
6/22/20	016	0.039		0.078		
6/23/20	016		0.13			
8/29/20	016	0.04		0.07		
8/30/20	016		0.11			
10/24/2	2016	0.0444		0.0738		
10/26/2	2016		0.122			
1/25/20	017	0.045	0.12	0.084		
4/10/20	017	0.039	0.11	0.073		
6/19/20	017	0.041	0.13			
6/20/20				0.078		
10/24/2		0.041	0.12	0.081		
4/9/201				0.081		
4/10/20		0.044	0.12			
10/16/2		0.047	0.12	0.08		
3/26/20		0.056	J.,	0.00		
3/27/20		3.000	0.091	0.082		
8/20/20		0.052	0.091	0.082		
			J. I			
10/7/20		0.049	0.006	0.076		
10/8/20			0.096		0.006	0.076
12/16/2					0.096	0.076
1/14/20					0.075	0.071
2/11/20					0.046	0.046
3/9/202					0.14	0.039
4/6/202				0.075		
4/7/202		0.047	0.05		0.16	0.04
5/27/20					0.18	0.054
7/15/20	020				0.16	0.043
8/19/20	020	0.044		0.085		0.046
8/20/20	020				0.16	
8/21/20	020		0.054			
9/22/20	020				0.16	0.038
9/29/20	020	0.04				
9/30/20	020			0.08		0.033
10/1/20			0.051		0.17	

Constituent: Lead (mg/L) Analysis Run 12/4/2020 12:31 PM View: Appendix I Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-23	ARGWC-22
5/5/2009	<0.001		. 3/		
5/14/2009		<0.001			
5/15/2009			<0.001		
12/5/2009	<0.001	<0.001	<0.001		
6/1/2010	<0.001		<0.001		
6/2/2010	0.001	<0.001	0.001		
11/11/2010	<0.001	<0.001	<0.001		
5/17/2011	<0.001	<0.001	<0.001		
11/8/2011			<0.001		
	<0.001	<0.001			
5/16/2012	<0.001	<0.001	<0.001		
5/14/2013	<0.001	<0.001	<0.001		
11/5/2013	<0.001	<0.001	<0.001		
6/9/2014	<0.001	<0.001	<0.001		
11/18/2014		<0.001	<0.001		
11/19/2014	<0.001				
4/14/2015	<0.001	<0.001	<0.001		
10/29/2015		<0.001			
11/4/2015	<0.001		<0.001		
6/22/2016	<0.001		<0.001		
6/23/2016		<0.001			
8/29/2016	<0.001		<0.001		
8/30/2016		<0.001			
10/24/2016	<0.001		<0.001		
10/26/2016		<0.001			
1/25/2017	<0.001	<0.001	0.00037 (J)		
4/10/2017	<0.001	<0.001	<0.001		
6/19/2017	<0.001	<0.001			
6/20/2017			<0.001		
10/24/2017	<0.001	<0.001	<0.001		
4/9/2018			<0.001		
4/10/2018	<0.001	<0.001			
10/16/2018	<0.001	<0.001	<0.001		
3/26/2019	<0.001				
3/27/2019	0.001	<0.001	<0.001		
8/20/2019	<0.001	<0.001	<0.001		
10/7/2019	0.0001 0.00018 (J)	~0.001	0.0001 0.00014 (J)		
	0.00010 (J)	0.00015 / 1\	0.00014 (J)		
10/8/2019		0.00015 (J)		<0.001	<0.001
12/16/2019					<0.001
1/14/2020				0.00018 (J)	0.00022 (J)
2/11/2020				0.00026 (J)	<0.001
3/9/2020				<0.001	<0.001
4/6/2020			0.00033 (J)		
4/7/2020	0.00037 (J)	0.00026 (J)		<0.001	0.00014 (J)
5/27/2020				<0.001	<0.001
7/15/2020				<0.001	<0.001
8/19/2020	<0.001		0.00039 (J)		<0.001
8/20/2020				<0.001	
8/21/2020		<0.001			
9/22/2020				<0.001	<0.001
9/29/2020	<0.001				
9/30/2020			0.00022 (J)		<0.001
10/1/2020		<0.001		<0.001	

Constituent: Silver (mg/L) Analysis Run 12/4/2020 12:31 PM View: Appendix I
Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)
5/5/2009	<0.001		
5/14/2009		<0.001	
5/15/2009			<0.001
12/5/2009	0.00075	0.001	0.00043
6/1/2010	<0.001		<0.001
6/2/2010		<0.001	
11/11/2010	<0.001	<0.001	<0.001
5/17/2011	<0.001	<0.001	<0.001
11/8/2011	<0.001	<0.001	<0.001
5/16/2012	<0.001	<0.001	<0.001
5/14/2013	<0.001	<0.001	<0.001
11/5/2013	<0.001	<0.001	<0.001
6/9/2014	<0.001	<0.001	<0.001
11/18/2014		<0.001	<0.001
11/19/2014	<0.001		
4/14/2015	<0.001	<0.001	<0.001
10/29/2015		<0.001	
11/4/2015	<0.001		<0.001
6/22/2016	<0.001		<0.001
6/23/2016		<0.001	
10/24/2016	<0.001		<0.001
10/26/2016		<0.001	
4/10/2017	<0.001	<0.001	<0.001
10/24/2017	<0.001	<0.001	<0.001
4/9/2018			<0.001
4/10/2018	<0.001	<0.001	
10/16/2018	<0.001	<0.001	<0.001
3/26/2019	<0.001		
3/27/2019		<0.001	<0.001
10/7/2019	0.00056 (J)		0.00031 (J)
10/8/2019		0.00043 (J)	
4/6/2020			<0.001
4/7/2020	0.00018 (J)	<0.001	
9/29/2020	<0.001		
9/30/2020			<0.001
10/1/2020		<0.001	

# FIGURE E.

# Appendix III - Interwell Prediction Limits - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/3/2020, 8:47 AM

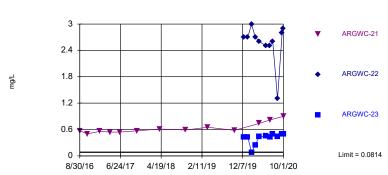
Constituent	Well	Upper Lin	n.Lower Li	m.Date	Observ.	Sig. Bg	N Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	m <u>Alpha</u>	Method
Boron (mg/L)	ARGWC-21	0.0814	n/a	10/1/2020	0.9	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Boron (mg/L)	ARGWC-22	0.0814	n/a	9/30/2020	2.9	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Boron (mg/L)	ARGWC-23	0.0814	n/a	10/1/2020	0.49	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-21	14.75	n/a	10/1/2020	79	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-22	14.75	n/a	9/30/2020	200	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-23	14.75	n/a	10/1/2020	73	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Fluoride (mg/L)	ARGWC-23	0.14	n/a	10/1/2020	0.32	Yes 30	n/a	n/a	56.67	n/a	n/a	0.00197	NP Inter (NDs) 1 of 2
pH (SU)	ARGWC-23	6.099	5.418	10/1/2020	6.38	Yes 29	5.759	0.1888	0	None	No	0.001253	Param Inter 1 of 2
Sulfate (mg/L)	ARGWC-21	21	n/a	10/1/2020	210	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-22	21	n/a	9/30/2020	650	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-23	21	n/a	10/1/2020	64	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-21	152.3	n/a	10/1/2020	500	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-22	152.3	n/a	9/30/2020	1200	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-23	152.3	n/a	10/1/2020	290	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2

# Appendix III - Interwell Prediction Limits - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/3/2020, 8:47 AM

Constituent	Well	Upper Li	m.Lower Li	m.Date	Observ.	Sig. Bg	N Bg Mean	Std. Dev.	%NDs	ND Adj.	Transform	n Alpha	Method
Boron (mg/L)	ARGWC-21	0.0814	n/a	10/1/2020	0.9	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Boron (mg/L)	ARGWC-22	0.0814	n/a	9/30/2020	2.9	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Boron (mg/L)	ARGWC-23	0.0814	n/a	10/1/2020	0.49	Yes 26	0.04196	0.0216	30.77	Kaplan-Meier	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-21	14.75	n/a	10/1/2020	79	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-22	14.75	n/a	9/30/2020	200	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Calcium (mg/L)	ARGWC-23	14.75	n/a	10/1/2020	73	Yes 26	10.98	2.064	0	None	No	0.002505	Param Inter 1 of 2
Chloride (mg/L)	ARGWC-21	16.2	n/a	10/1/2020	4.3	No 52	n/a	n/a	0	n/a	n/a	0.0007028	NP Inter (normality) 1 of 2
Chloride (mg/L)	ARGWC-22	16.2	n/a	9/30/2020	8	No 52	n/a	n/a	0	n/a	n/a	0.0007028	NP Inter (normality) 1 of 2
Chloride (mg/L)	ARGWC-23	16.2	n/a	10/1/2020	3.8	No 52	n/a	n/a	0	n/a	n/a	0.0007028	NP Inter (normality) 1 of 2
Fluoride (mg/L)	ARGWC-21	0.14	n/a	10/1/2020	0.098J	No 30	n/a	n/a	56.67	n/a	n/a	0.00197	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	ARGWC-22	0.14	n/a	9/30/2020	0.045J	No 30	n/a	n/a	56.67	n/a	n/a	0.00197	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	ARGWC-23	0.14	n/a	10/1/2020	0.32	Yes 30	n/a	n/a	56.67	n/a	n/a	0.00197	NP Inter (NDs) 1 of 2
pH (SU)	ARGWC-21	6.099	5.418	10/1/2020	5.99	No 29	5.759	0.1888	0	None	No	0.001253	Param Inter 1 of 2
pH (SU)	ARGWC-22	6.099	5.418	9/30/2020	5.81	No 29	5.759	0.1888	0	None	No	0.001253	Param Inter 1 of 2
pH (SU)	ARGWC-23	6.099	5.418	10/1/2020	6.38	Yes 29	5.759	0.1888	0	None	No	0.001253	Param Inter 1 of 2
Sulfate (mg/L)	ARGWC-21	21	n/a	10/1/2020	210	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-22	21	n/a	9/30/2020	650	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Sulfate (mg/L)	ARGWC-23	21	n/a	10/1/2020	64	Yes 51	n/a	n/a	0	n/a	n/a	0.000725	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-21	152.3	n/a	10/1/2020	500	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-22	152.3	n/a	9/30/2020	1200	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	ARGWC-23	152.3	n/a	10/1/2020	290	Yes 24	110.2	22.86	0	None	No	0.002505	Param Inter 1 of 2

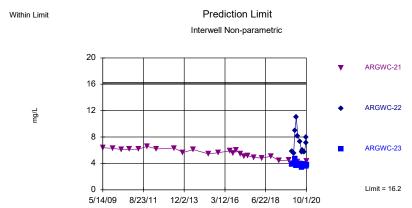
Exceeds Limit: ARGWC-21, ARGWC-22, ARGWC-23 Prediction Limit
Interwell Parametric



Background Data Summary (after Kaplan-Meier Adjustment): Mean=0.04196, Std. Dev.=0.0216, n=26, 30.77% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8925, critical = 0.891. Kappa = 1.826 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.002505. Comparing 3 points to limit.

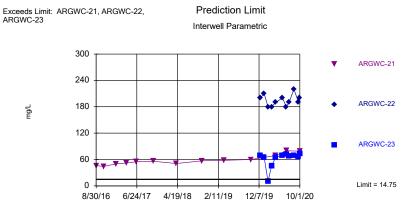
Constituent: Boron Analysis Run 12/3/2020 8:45 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 52 background values. Annual per-constituent alpha = 0.004209. Individual comparison alpha = 0.0007028 (1 of 2). Comparing 3 points to limit.

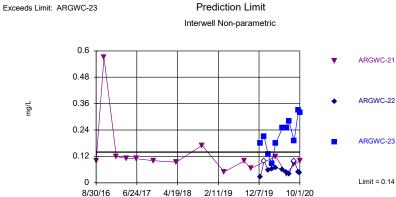
Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG



Background Data Summary: Mean=10.98, Std. Dev=2.064, n=26. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.933, critical = 0.891. Kappa = 1.826 (e7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.002505. Comparing 3 points to limit.

Constituent: Calcium Analysis Run 12/3/2020 8:45 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

 ${\it Sanitas^{\rm TM}} \ v. 9.6.27 \ {\it Groundwater} \ {\it Stats} \ {\it Consulting.} \ {\it UG} \\ {\it Hollow} \ {\it symbols} \ {\it indicate} \ {\it censored} \ {\it values}.$ 

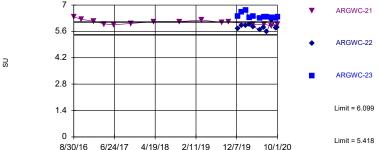


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 30 background values. 56.67% NDs. Annual per-constituent alpha = 0.01176. Individual comparison alpha = 0.00197 (1 of 2). Comparing 3 points to limit.

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

Exceeds Limits: ARGWC-23 Prediction Limit

Interwell Parametric



Background Data Summary: Mean=5.759, Std. Dev=0.1888, n=29. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9564, critical = 0.898. Kappa = 1.802 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001253. Comparing 3 points to limit.

Constituent: pH Analysis Run 12/3/2020 8:45 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

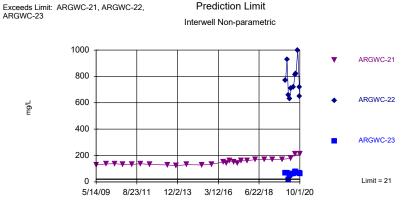
Exceeds Limit ARGWC-21, ARGWC-22, Prediction Limit Interwell Parametric

2000
1600
1200
ARGWC-21
ARGWC-21
ARGWC-22
ARGWC-22
Limit = 152.3

Background Data Summary: Mean=110.2, Std. Dev.=22.86, n=24. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9569, critical = 0.884. Kappa = 1.845 (c=7, w=3, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.002505. Comparing 3 points to limit.

Constituent: Total Dissolved Solids Analysis Run 12/3/2020 8:45 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 51 background values. Annual per-constituent alpha = 0.004342. Individual comparison alpha = 0.000725 (1 of 2). Comparing 3 points to limit.

Constituent: Sulfate Analysis Run 12/3/2020 8:45 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

Constituent: Boron (mg/L) Analysis Run 12/3/2020 8:47 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

				•	
	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	0.024 (J)	<0.08			
8/30/2016			0.57		
10/24/2016	0.0339 (J)	0.0194 (J)			
10/26/2016			0.502		
1/25/2017	0.048 (J)	0.026 (J)	0.56		
4/10/2017	0.022 (J)	<0.08	0.54		
6/19/2017	<0.08		0.54		
6/20/2017		0.032 (J)			
10/24/2017	0.021 (J)	0.054	0.57		
4/9/2018		0.06			
4/10/2018	0.022 (J)		0.61		
10/16/2018	<0.08	0.036 (J)	0.59		
3/26/2019	<0.08				
3/27/2019		0.046 (J)	0.65		
10/7/2019	<0.08	<0.08			
10/8/2019			0.58		
12/16/2019				2.7	0.42
1/14/2020				2.7	0.43
2/11/2020				3	0.079 (J)
3/9/2020				2.7	0.25
4/6/2020		0.063 (J)			
4/7/2020	0.072 (J)		0.74	2.6	0.44
5/27/2020				2.5	0.45
6/24/2020				2.5	
6/25/2020	0.091	0.081	0.82		0.42
7/15/2020				2.6	0.49
8/19/2020				1.3	
8/20/2020					0.44
9/22/2020				2.8	0.5
9/29/2020	<0.08				
9/30/2020		0.083		2.9	
10/1/2020			0.9		0.49

Constituent: Calcium (mg/L) Analysis Run 12/3/2020 8:47 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

·	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23
8/29/2016	11	8.3			
8/30/2016			46		
10/24/2016	11.5	7.66			
10/26/2016			44.3		
1/25/2017	13	9.4	50		
4/10/2017	11	8.6	52		
6/19/2017	12		55		
6/20/2017		9.4			
10/24/2017	12	9.9	56		
4/9/2018		9.9			
4/10/2018	12		51		
10/16/2018	14	9.8	57		
3/26/2019	15				
3/27/2019		9.2	58		
10/7/2019	14	8.9			
10/8/2019			60		
12/16/2019				200	69
1/14/2020				210	65
2/11/2020				180	10
3/9/2020				180	46
4/6/2020		9.5			
4/7/2020	14		69	190	65
5/27/2020				200	69
6/24/2020				180	
6/25/2020	14	9.6	80		72
7/15/2020				190	68
8/19/2020				220	
8/20/2020					69
9/22/2020				190	66
9/29/2020	12				
9/30/2020		9.9		200	
10/1/2020			79		73

Constituent: Chloride (mg/L) Analysis Run 12/3/2020 8:47 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

					,
	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-22	ARGWC-23
5/5/2009	11.1				
5/14/2009		6.38			
5/15/2009			6.86		
12/5/2009	9.46	6.28	5.06		
6/1/2010	6.32		5.47		
6/2/2010		6.1			
11/11/2010	7.16	6.1461	5.26		
5/17/2011	6.84	6.17	4.8		
11/8/2011	9.13	6.6	5.62		
5/16/2012	10.8	6.18	5.1		
5/14/2013	16.2	6.32	5.25		
11/5/2013	14.8	5.65	5.19		
6/9/2014	13.6	6.08	5.55		
4/14/2015	10.4	5.43	5.39		
10/29/2015		5.62			
11/4/2015	9.19		5.38		
6/22/2016	8.4		5.7		
6/23/2016		5.9			
8/29/2016	8.4		5.3		
8/30/2016	***	5.5			
10/24/2016	9.6	5.0	5.4		
	3.0	c	J. <del>4</del>		
10/26/2016	0.7	6	F.4		
1/25/2017	8.7	5.4	5.1		
4/10/2017	8	5.1	4.9		
6/19/2017	7.6	5.2			
6/20/2017			5		
10/24/2017	7.2	4.9	4.6		
4/9/2018			4.7		
4/10/2018	7.2	4.8			
10/16/2018	10	5.1	5.3		
3/26/2019	12				
3/27/2019		4.4	4.6		
10/7/2019	11		5.2		
10/7/2019	* *	4.5	J.L		
		4.5		E 0	2.0
12/16/2019				5.8	3.9
1/14/2020				5.5	4
2/11/2020				9	4.7
3/9/2020				11	3.7
4/6/2020			5.2		
4/7/2020	11	4.2		8.1	3.8
5/27/2020				7.3	4
6/24/2020				5.7	
6/25/2020	11	3.7	5.1		3.4
7/15/2020				6	3.9
8/19/2020				5.7	
8/20/2020					3.9
9/22/2020				7.1	3.6
	10			7.1	5.0
9/29/2020	10		F.C	0	
9/30/2020			5.6	8	
10/1/2020		4.3			3.8

Constituent: Fluoride (mg/L) Analysis Run 12/3/2020 8:47 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

Tality attention to Control Company Data. Antimigrative 2										
	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-22	ARGWC-23					
8/29/2016	<0.1	<0.1								
8/30/2016			0.099 (J)							
10/24/2016	0.07 (J)	0.04 (J)								
10/26/2016			0.57							
1/25/2017	<0.1	<0.1	0.12 (J)							
4/10/2017	<0.1	<0.1	0.11 (J)							
6/19/2017	<0.1		0.11 (J)							
6/20/2017		<0.1								
10/24/2017	<0.1	<0.1	0.1 (J)							
4/9/2018		<0.1								
4/10/2018	<0.1		0.094 (J)							
10/16/2018	0.083 (J)	<0.1	0.17 (J)							
3/26/2019	0.041 (J)									
3/27/2019		<0.1	0.05 (J)							
8/20/2019	0.045 (J)	0.042 (J)	0.098 (J)							
10/7/2019	0.049 (J)	0.036 (J)								
10/8/2019			0.065 (J)							
12/16/2019				0.026 (J)	0.18 (J)					
1/14/2020				<0.1	0.21					
2/11/2020				0.056	0.13					
3/9/2020				0.064 (J)	0.089 (J)					
4/6/2020		0.059 (J)								
4/7/2020	0.14		0.12	0.068 (J)	0.18					
5/27/2020				0.06 (J)	0.25					
6/24/2020				0.048 (J)						
6/25/2020	0.03 (J)	<0.1	0.041 (J)		0.25					
7/15/2020				0.04 (J)	0.28					
8/19/2020	<0.1	<0.1		<0.1						
8/20/2020					0.19					
8/21/2020			0.084 (J)							
9/22/2020				0.049 (J)	0.33					
9/29/2020	0.051 (J)									
9/30/2020		0.032 (J)		0.045 (J)						
10/1/2020			0.098 (J)		0.32					

Constituent: pH (SU) Analysis Run 12/3/2020 8:47 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

	ARGWA-20 (bg)	ARGWC-21	ARGWA-19 (bg)	ARGWC-22	ARGWC-23
8/29/2016	5.64		6.75 (o)		
8/30/2016		6.38			
10/24/2016	5.6		5.81		
10/26/2016		6.23			
1/25/2017	5.65	6.15	5.91		
4/10/2017	5.42	5.99	5.74		
6/19/2017		5.95	5.54		
6/20/2017	5.59				
10/24/2017	5.58	6.02	5.82		
4/9/2018	5.78				
4/10/2018		6.12	5.92		
10/16/2018	5.69	6.12	5.94		
3/26/2019			5.85		
3/27/2019	5.96	6.2			
8/20/2019	5.57	6.08	5.9		
10/7/2019	5.65	00	5.89		
10/8/2019	5.50	6.11	5.55		
12/16/2019		5.71		5.74	6.41
1/14/2020				5.91	6.62
2/11/2020				5.9	6.71
3/9/2020				5.97	6.32
4/6/2020	E E2			5.37	0.32
	5.53	E 06	5.72	E 94	6.4
4/7/2020 5/27/2020		5.96	5.72	5.84 5.60	6.4
				5.69	6.3
6/24/2020	E 61	E 08	F 0	5.82	6.27
6/25/2020	5.61	5.98	5.8	F F0	6.37
7/15/2020	0.40		0.05	5.58	6.36
8/19/2020	6.16		6.25	6.21	
8/20/2020					6.33
8/21/2020		5.89			
9/22/2020				5.77	6.29
9/29/2020			5.83		
9/30/2020	5.65			5.81	
10/1/2020		5.99			6.38

Constituent: Sulfate (mg/L) Analysis Run 12/3/2020 8:47 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2

			Plant Ar	kwright Client: 50	utnern Company	Data: Arkwright No 2
	ARGWA-19 (bg)	ARGWC-21	ARGWA-20 (bg)	ARGWC-22	ARGWC-23	
5/5/2009	15.9					
5/14/2009		129				
5/15/2009			41.3 (o)			
12/5/2009	15.1	136	16.2			
6/1/2010	12.7		18.2			
6/2/2010		138				
11/11/2010	11.5	131.49	16.5			
5/17/2011	11.2	132	16			
11/8/2011	11.3	138	21			
5/16/2012	9.38	132	17.7			
5/14/2013	8.74	129	19.5			
11/5/2013	9.12	122	18.3			
6/9/2014	8.61	131	18.6			
4/14/2015	8.45	128	18.8			
10/29/2015		134				
11/4/2015	9.01		17.4			
6/22/2016	9.3		18			
6/23/2016		150				
8/29/2016	8.7	.00	18			
8/30/2016	0.7	140	.0			
10/24/2016	9.3		18			
10/26/2016	0.0	160	10			
1/25/2017	8.8	150	19			
4/10/2017	7.8	140	16			
6/19/2017	8.6	160	10			
6/20/2017	0.0	100	18			
10/24/2017	9.1	160	19			
	9.1	100				
4/9/2018	7.0	170	18			
4/10/2018	7.9	170	10			
10/16/2018	8.2	170	18			
3/26/2019	6.1					
3/27/2019		170	15			
10/7/2019	7.4		17			
10/8/2019		170				
12/16/2019				770	66	
1/14/2020				930	68	
2/11/2020				660	18	
3/9/2020				630	49	
4/6/2020			15			
4/7/2020	8.4	180		710	58	
5/27/2020				720	65	
6/24/2020				810		
6/25/2020	9.8	210	16		77	
7/15/2020				820	78	
8/19/2020				1000		
8/20/2020					69	
9/22/2020				720	68	
9/29/2020	8.4					
9/30/2020			15	650		
10/1/2020		210			64	

 $\label{local_constituent: Total Dissolved Solids (mg/L)} Constituent: Total Dissolved Solids (mg/L) Analysis Run 12/3/2020 8:47 AM View: Appendix III - Interwell Plant Arkwright Client: Southern Company Data: Arkwright No 2$ 

	ARGWA-19 (bg)	ARGWA-20 (bg)	ARGWC-21	ARGWC-23	ARGWC-22
8/29/2016	130	100			
8/30/2016			350		
10/24/2016	108	91			
10/26/2016			357		
1/25/2017	120	90	320		
4/10/2017	128 (D)	110	380		
6/19/2017	86		370		
6/20/2017		72			
10/24/2017	120	110	420		
4/9/2018		100			
4/10/2018	120		370		
10/16/2018	140	110	380		
3/26/2019	170				
3/27/2019		100	400		
10/7/2019	150	87			
10/8/2019			420		
12/16/2019				320	1300
1/14/2020				340	1400
2/11/2020				110	1300
3/9/2020				210	1200
4/6/2020		90			
4/7/2020	120		460	290	1300
5/27/2020				320	1300
7/15/2020				310	1400
8/19/2020					1400
8/20/2020				310	
9/22/2020				310	1300
9/29/2020	110				
9/30/2020		82			1200
10/1/2020			500	290	

# FIGURE F.

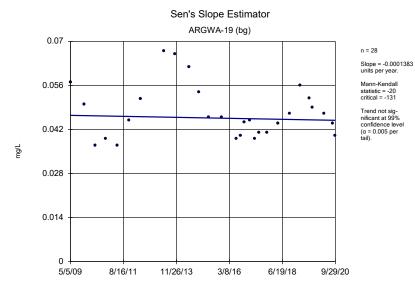
# Trend Tests - Prediction Limit Exceedances - Signifiicant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/3/2020, 8:58 AM

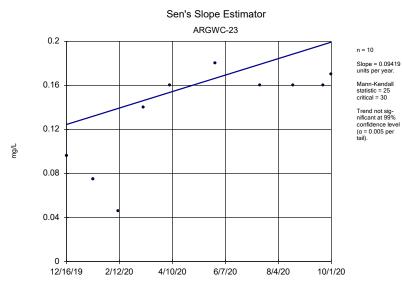
Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	<u>Xform</u>	<u>Alpha</u>	Method
Boron (mg/L)	ARGWA-20 (bg)	0.01103	49	43	Yes	13	23.08	n/a	n/a	0.01	NP
Boron (mg/L)	ARGWC-21	0.0653	56	43	Yes	13	0	n/a	n/a	0.01	NP
Calcium (mg/L)	ARGWC-21	7.356	68	43	Yes	13	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	ARGWA-19 (bg)	-0.4042	-195	-118	Yes	26	0	n/a	n/a	0.01	NP
Sulfate (mg/L)	ARGWC-21	5.193	222	118	Yes	26	0	n/a	n/a	0.01	NP
Total Dissolved Solids (mg/L)	ARGWC-21	32.77	49	38	Yes	12	0	n/a	n/a	0.01	NP

#### Trend Tests - Prediction Limit Exceedances - All Results

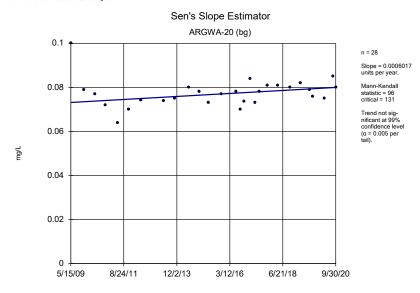
Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/3/2020, 8:58 AM Constituent Calc. Critical Sig. N <u>%NDs</u> <u>Normality</u> <u>Xform</u> <u>Alpha</u> Method Barium (mg/L) ARGWA-19 (bg) -0.0001383 -20 -131 No 28 0 0.01 NP n/a n/a Barium (mg/L) ARGWA-20 (bg) 0.0006017 96 131 No 28 0 n/a n/a 0.01 NP Barium (mg/L) ARGWC-23 0.09419 25 10 0 0.01 NP 30 No n/a n/a Boron (mg/L) ARGWA-19 (bg) 0.006347 29 43 No 13 38.46 0.01 NP Boron (mg/L) ARGWA-20 (bg) 0.01103 49 43 Yes 13 NP 23.08 0.01 n/a n/a Boron (mg/L) ARGWC-21 0.0653 56 43 13 0 0.01 NP ARGWC-22 NP Boron (mg/L) -0.1722 -8 -34 11 0 0.01 No n/a n/a Boron (mg/L) ARGWC-23 0.1197 32 34 No 0 0.01 NP ARGWA-19 (bg) 0.6973 0 NP Calcium (mg/L) 37 43 No 13 n/a n/a 0.01 Calcium (mg/L) ARGWA-20 (bg) 0.3086 32 No 13 0 n/a 0.01 NP Calcium (mg/L) ARGWC-21 7.356 43 13 0 0.01 NΡ 68 Yes n/a n/a Calcium (mg/L) ARGWC-22 6 34 11 0 0.01 NP ARGWC-23 0 NP Calcium (mg/L) 10.81 21 34 11 0.01 No n/a n/a Fluoride (mg/L) ARGWA-19 (bg) -0.00711 -24 15 46.67 n/a 0.01 NP ARGWA-20 (bg) 0 Fluoride (mg/L) -22 -53 No 15 66 67 n/a n/a 0.01 NP Fluoride (mg/L) ARGWC-23 0.2012 31 No 11 0 0.01 NP n/a n/a 0.01741 ARGWA-19 (bg) pH (SU) 11 48 No 14 0 n/a n/a 0.01 NP NP pH (SU) ARGWA-20 (bg) 0.01693 16 53 15 0 0.01 No n/a n/a pH (SU) ARGWC-23 -0.1559 -23 -34 No 11 0 n/a 0.01 NP Sulfate (mg/L) ARGWA-19 (bg) -0.4042 -195 -118 Yes 26 0 n/a n/a 0.01 NP Sulfate (mg/L) ARGWA-20 (bg) -0.1319 -76 -111 No 25 0 n/a n/a 0.01 NP ARGWC-21 NP 5.193 118 0 Sulfate (mg/L) 222 Yes 26 n/a n/a 0.01 Sulfate (mg/L) ARGWC-22 35.61 4 34 No 11 0 0.01 NP ARGWC-23 0 0.01 NP Sulfate (mg/L) 18.25 14 34 No 11 n/a n/a Total Dissolved Solids (mg/L) ARGWA-19 (bg) 1.991 8 38 No 12 0 n/a 0.01 NP Total Dissolved Solids (mg/L) ARGWA-20 (bg) -2.229 -15 -38 No 12 0 0.01 NP n/a n/a Total Dissolved Solids (mg/L) ARGWC-21 32.77 49 38 12 0 0.01 ΝP Yes n/a n/a Total Dissolved Solids (mg/L) ARGWC-22 0 -3 0 NP -30 10 0.01 No n/a n/a Total Dissolved Solids (mg/L) ARGWC-23 0 -4 -30 10 0 0.01 NP



Constituent: Barium Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

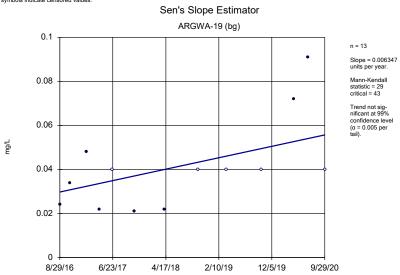


Constituent: Barium Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

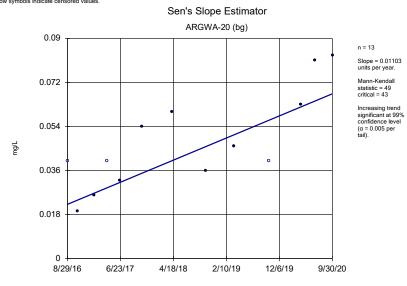


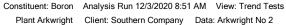
Constituent: Barium Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

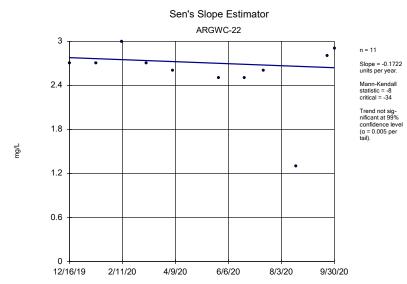
#### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG Hollow symbols indicate censored values.



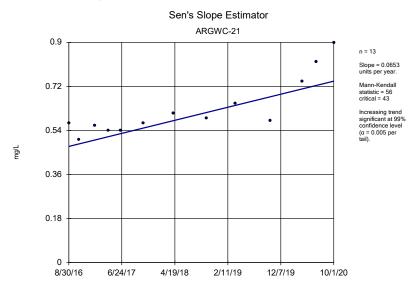
Constituent: Boron Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2





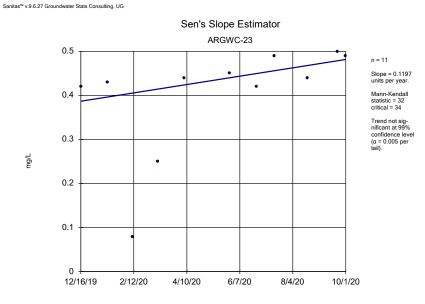


Constituent: Boron Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

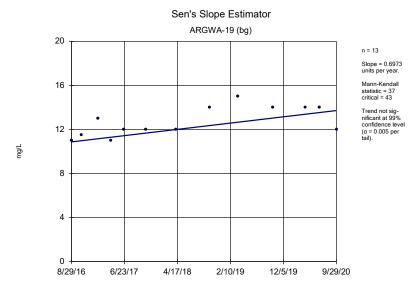


Constituent: Boron Analysis Run 12/3/2020 8:51 AM View: Trend Tests

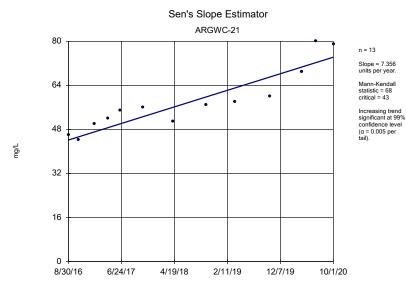
Plant Arkwright Client: Southern Company Data: Arkwright No 2



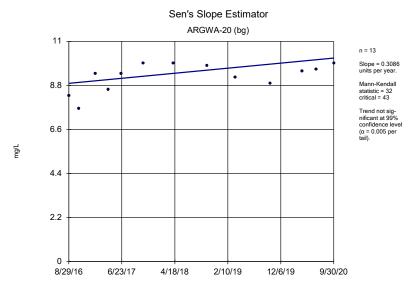
Constituent: Boron Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



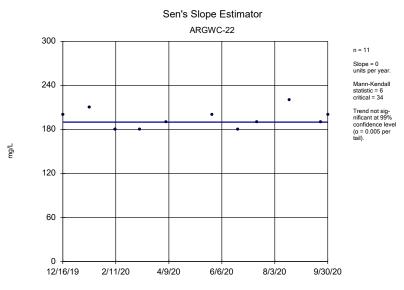
Constituent: Calcium Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



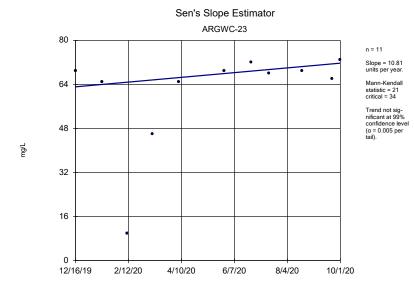
Constituent: Calcium Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



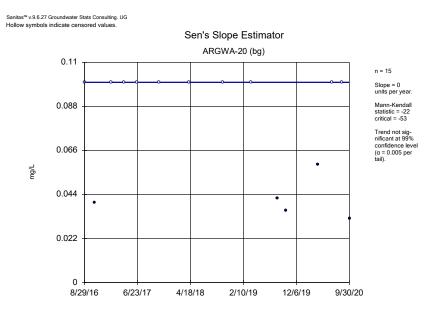
Constituent: Calcium Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



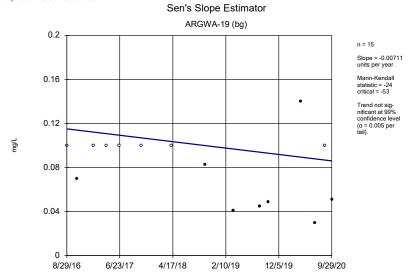
Constituent: Calcium Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



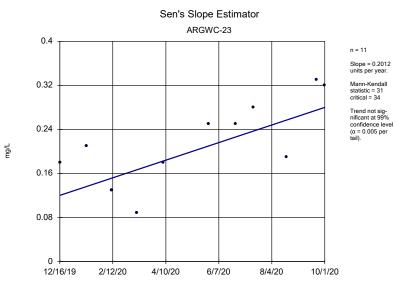
Constituent: Calcium Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



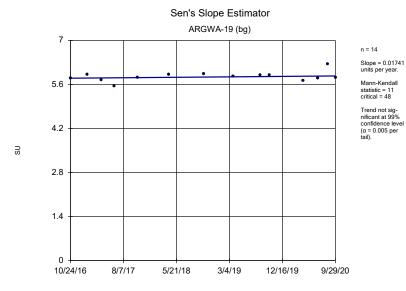
Constituent: Fluoride Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



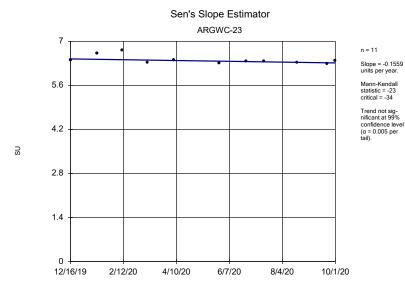
Constituent: Fluoride Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



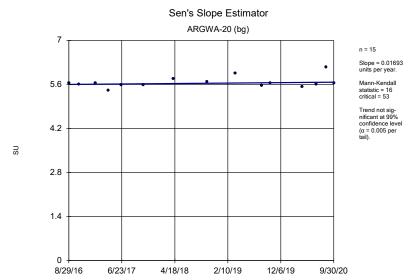
Constituent: Fluoride Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



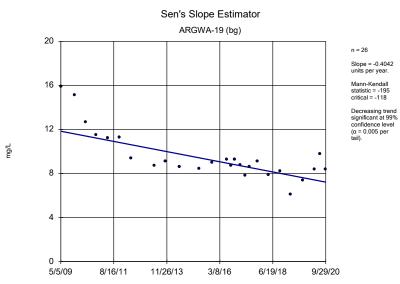
Constituent: pH Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



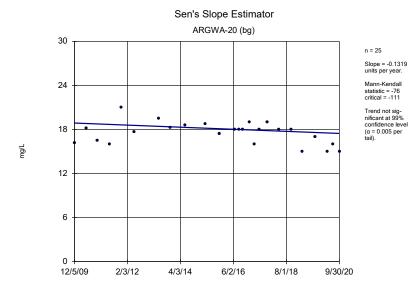
Constituent: pH Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



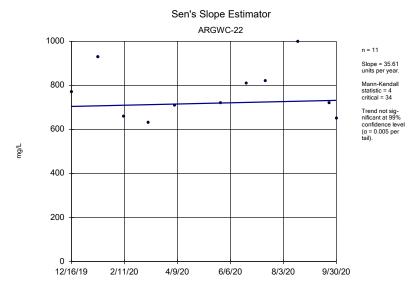
Constituent: pH Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



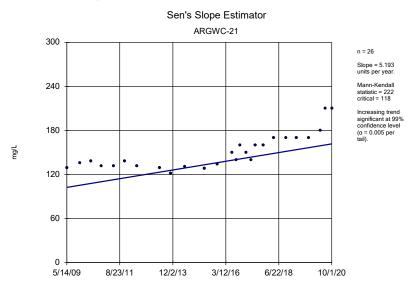
Constituent: Sulfate Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



Constituent: Sulfate Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

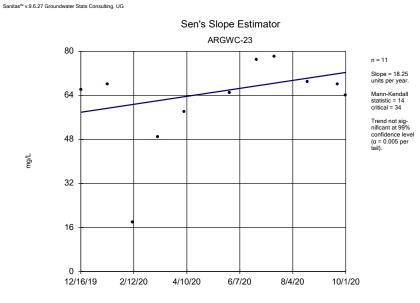


Constituent: Sulfate Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

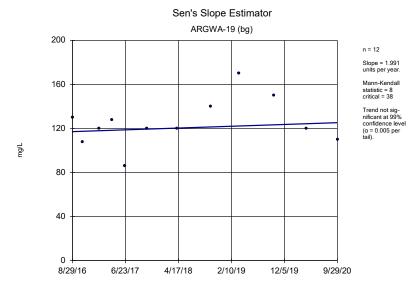


Constituent: Sulfate Analysis Run 12/3/2020 8:51 AM View: Trend Tests

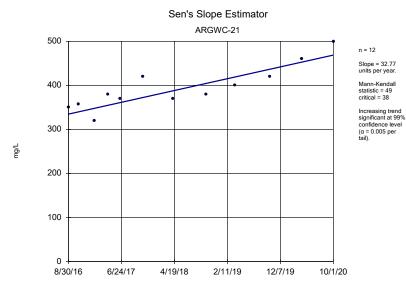
Plant Arkwright Client: Southern Company Data: Arkwright No 2



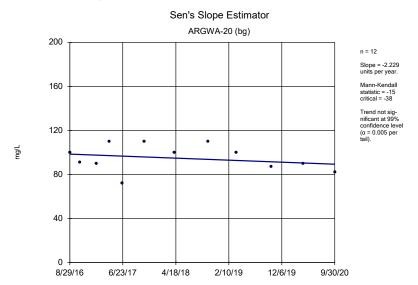
Constituent: Sulfate Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



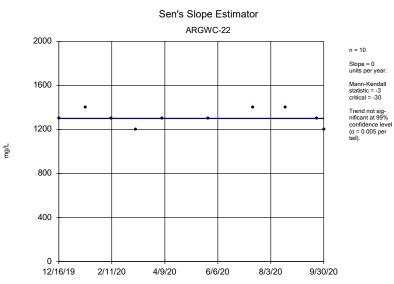
Constituent: Total Dissolved Solids Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



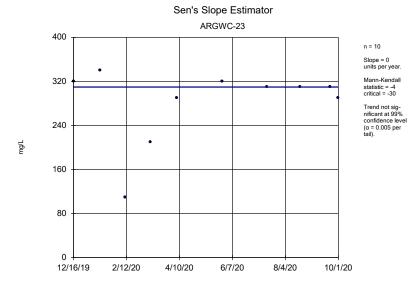
Constituent: Total Dissolved Solids Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



Constituent: Total Dissolved Solids Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



Constituent: Total Dissolved Solids Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2



Constituent: Total Dissolved Solids Analysis Run 12/3/2020 8:51 AM View: Trend Tests
Plant Arkwright Client: Southern Company Data: Arkwright No 2

# FIGURE G.

# Upper Tolerance Limit Summary Table

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/3/2020, 9:06 AM <u>Alpha</u> Constituent Upper Lim. Lower Lim. Sig. Bg N Bg Mean Std. Dev. %NDs ND Adj. Method 0.002 n/a 20 100 0.3585 NP Inter(NDs) Antimony (mg/L) n/a n/a n/a n/a n/a 0.05656 NP Inter(NDs) Arsenic (mg/L) 0.0015 n/a n/a 56 n/a n/a 83.93 n/a n/a Barium (mg/L) 0.1 n/a 56 n/a 0 n/a 0.05656 NP Inter(normality) n/a n/a n/a NP Inter(NDs) Beryllium (mg/L) 0.0025 n/a 22 90.91 0.3235 Cadmium (mg/L) 0.06267 NP Inter(NDs) 0.0025 n/a n/a 54 n/a n/a 98.15 n/a n/a Chromium (mg/L) 0.0078 n/a 26 n/a n/a 19.23 n/a 0.2635 NP Inter(normality) Cobalt (mg/L) 0.2378 NP Inter(NDs) 0.0025 n/a 28 n/a n/a 67.86 n/a n/a n/a Combined Radium 226 + 228 (pCi/L) 1.341 n/a 26 0.5896 0.3297 0 None No 0.05 0.2146 Fluoride (mg/L) 56.67 NP Inter(NDs) 0.14 n/a n/a 30 n/a n/a n/a n/a Lead (mg/L) 0.001 n/a 56 87.5 0.05656 NP Inter(NDs) Lithium (mg/L) 0.2378 NP Inter(normality) 0.013 n/a 28 42.86 n/a n/a n/a n/a n/a Mercury (mg/L) 0.0002 n/a 20 90 0.3585 NP Inter(NDs) 0.292 NP Inter(NDs) Molybdenum (mg/L) 0.015 n/a n/a 24 n/a n/a 95.83 n/a n/a Selenium (mg/L) 0.005 n/a 0.06267 NP Inter(NDs) Silver (mg/L) 0.09447 NP Inter(NDs) 0.001 n/a n/a 46 n/a n/a 89.13 n/a n/a Thallium (mg/L) 0.001 n/a 20 100 n/a 0.3585 NP Inter(NDs)

# FIGURE H.

PLANT ARKWRIGHT LF #2 GWPS						
Constituent Name	MCL	Background Limit	State GWPS			
Antimony, Total (mg/L)	0.006	0.002	0.006			
Arsenic, Total (mg/L)	0.01	0.0015	0.01			
Barium, Total (mg/L)	2	0.1	2			
Beryllium, Total (mg/L)	0.004	0.0025	0.004			
Cadmium, Total (mg/L)	0.005	0.0025	0.005			
Chromium, Total (mg/L)	0.1	0.0078	0.1			
Cobalt, Total (mg/L)		0.0025	0.0025			
Combined Radium, Total (pCi/L)	5	1.3	5			
Fluoride, Total (mg/L)	4	0.14	4			
Lead, Total (mg/L)		0.001	0.001			
Lithium, Total (mg/L)		0.013	0.013			
Mercury, Total (mg/L)	0.002	0.0002	0.002			
Molybdenum, Total (mg/L)		0.015	0.015			
Selenium, Total (mg/L)	0.05	0.005	0.05			
Silver, Total (mg/L)		0.001	0.001			
Thallium, Total (mg/L)	0.002	0.001	0.002			

<sup>\*</sup>MCL = Maximum Contaminant Level

<sup>\*</sup>GWPS = Groundwater Protection Standard

# FIGURE I.

# Confidence Intervals Summary - Significant Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/4/2020, 12:37 PM

Constituent	Well	Upper Lim.	Lower Lim.	Complianc	e <u>Sig. N</u>	<u>Mean</u>	Std. Dev.	%ND	s ND Adj.	Transform	n <u>Alpha</u>	Method
Cobalt (mg/L)	ARGWC-22	0.01257	0.004289	0.0025	Yes 11	0.008427	0.004965	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-23	0.04047	0.01986	0.013	Yes 11	0.03016	0.01236	0	None	No	0.01	Param.
Molybdenum (mg/L)	ARGWC-23	0.05901	0.02639	0.015	Yes 10	0.0427	0.01828	0	None	No	0.01	Param.
Silver (mg/L)	ARGWC-21	0.001	0.001	0.001	Yes 10	0.000943	0.0001802	90	None	No	0.011	NP (NDs)

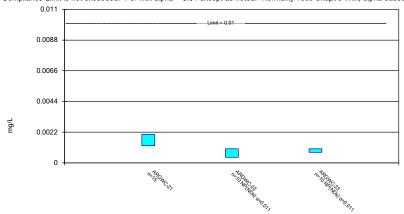
# Confidence Intervals Summary - All Results

Plant Arkwright Client: Southern Company Data: Arkwright No 2 Printed 12/4/2020, 12:37 PM

		Ü		. ,		Ü						
Constituent	Well	Upper Lim.	Lower Lim.	Compliance	<u>Sig. N</u>	Mean	Std. Dev.	%NDs	ND Adj.	Transforn	<u>Alpha</u>	Method
Arsenic (mg/L)	ARGWC-21	0.002038	0.001234	0.01	No 15	0.001636	0.0005931	13.33	None	No	0.01	Param.
Arsenic (mg/L)	ARGWC-22	0.001	0.0004	0.01	No 10	0.000844	0.0002618	70	None	No	0.011	NP (NDs)
Arsenic (mg/L)	ARGWC-23	0.001	0.00075	0.01	No 10	0.000917	0.0001915	80	None	No	0.011	NP (NDs)
Barium (mg/L)	ARGWC-21	0.1188	0.08617	2	No 15	0.1003	0.02777	0	None	x^2	0.01	Param.
Barium (mg/L)	ARGWC-22	0.06139	0.03581	2	No 10	0.0486	0.01433	0	None	No	0.01	Param.
Barium (mg/L)	ARGWC-23	0.1716	0.103	2	No 10	0.1347	0.04572	0	None	x^2	0.01	Param.
Beryllium (mg/L)	ARGWC-22	0.0025	0.00018	0.004	No 9	0.001273	0.001168	44.44	None	No	0.002	NP (normality)
Beryllium (mg/L)	ARGWC-23	0.0025	0.00033	0.004	No 9	0.002259	0.0007233	88.89	None	No	0.002	NP (NDs)
Chromium (mg/L)	ARGWC-21	0.002	0.0017	0.1	No 13	0.001977	0.00008321	92.31	None	No	0.01	NP (NDs)
Chromium (mg/L)	ARGWC-22	0.002	0.002	0.1	No 10	0.00228	0.0008854	90	None	No	0.011	NP (NDs)
Cobalt (mg/L)	ARGWC-21	0.001952	0.0013	0.0025	No 14	0.00158	0.000523	0	None	x^2	0.01	Param.
Cobalt (mg/L)	ARGWC-22	0.01257	0.004289	0.0025	Yes 11	0.008427	0.004965	0	None	No	0.01	Param.
Cobalt (mg/L)	ARGWC-23	0.003322	0.001055	0.0025	No 11	0.002188	0.00136	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-21	0.8862	0.5093	5	No 13	0.6978	0.2534	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-22	0.7936	0.2782	5	No 10	0.5359	0.2888	0	None	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	ARGWC-23	0.612	0.08116	5	No 10	0.3466	0.2975	0	None	No	0.01	Param.
Fluoride (mg/L)	ARGWC-21	0.12	0.065	4	No 15	0.1286	0.1259	0	None	No	0.01	NP (normality)
Fluoride (mg/L)	ARGWC-22	0.0609	0.04043	4	No 11	0.05055	0.01166	18.18	Kaplan-Meier	No	0.01	Param.
Fluoride (mg/L)	ARGWC-23	0.2819	0.1561	4	No 11	0.219	0.07547	0	None	No	0.01	Param.
Lead (mg/L)	ARGWC-21	0.001	0.00026	0.001	No 15	0.000894	0.0002805	86.67	None	No	0.01	NP (NDs)
Lead (mg/L)	ARGWC-22	0.001	0.00022	0.001	No 10	0.000836	0.0003463	80	None	No	0.011	NP (NDs)
Lead (mg/L)	ARGWC-23	0.001	0.00026	0.001	No 10	0.000844	0.0003294	80	None	No	0.011	NP (NDs)
Lithium (mg/L)	ARAMW-1	0.01091	0.005644	0.013	No 4	0.008275	0.001159	0	None	No	0.01	Param.
Lithium (mg/L)	ARAMW-2	0.1122	-0.03272	0.013	No 4	0.03975	0.03192	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-21	0.01208	0.008752	0.013	No 14	0.01041	0.002347	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-22	0.02553	0.01176	0.013	No 11	0.01865	0.00826	0	None	No	0.01	Param.
Lithium (mg/L)	ARGWC-23	0.04047	0.01986	0.013	Yes 11	0.03016	0.01236	0	None	No	0.01	Param.
Molybdenum (mg/L)	ARGWC-22	0.015	0.00093	0.015	No 10	0.00946	0.007158	60	None	No	0.011	NP (NDs)
Molybdenum (mg/L)	ARGWC-23	0.05901	0.02639	0.015	Yes 10	0.0427	0.01828	0	None	No	0.01	Param.
Silver (mg/L)	ARGWC-21	0.001	0.001	0.001	Yes 10	0.000943	0.0001802	90	None	No	0.011	NP (NDs)

#### Parametric and Non-Parametric (NP) Confidence Interval

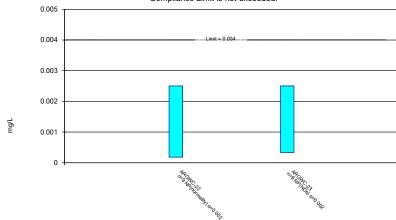
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 12/4/2020 12:34 PM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

#### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

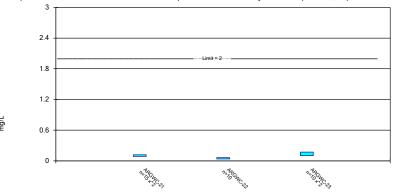
# Non-Parametric Confidence Interval Compliance Limit is not exceeded.



Constituent: Beryllium Analysis Run 12/4/2020 12:34 PM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

#### Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

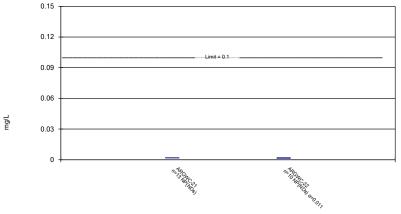


Constituent: Barium Analysis Run 12/4/2020 12:34 PM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

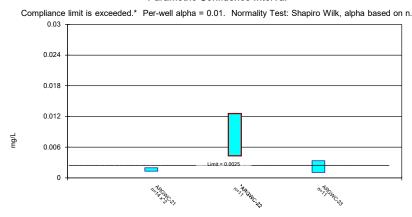
#### Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

#### Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



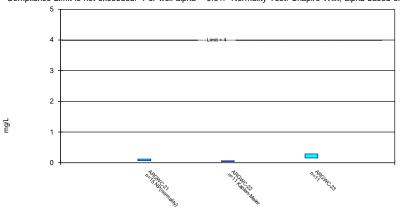
#### Parametric Confidence Interval



Constituent: Cobalt Analysis Run 12/4/2020 12:34 PM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

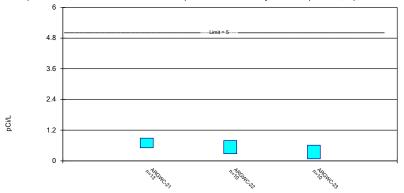
# Parametric and Non-Parametric (NP) Confidence Interval Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride Analysis Run 12/4/2020 12:34 PM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

#### Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



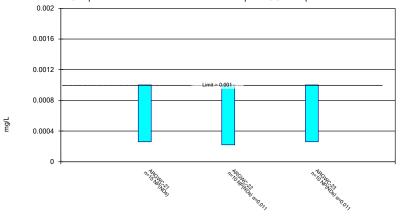
Constituent: Combined Radium 226 + 228 Analysis Run 12/4/2020 12:34 PM View: Appendix I & IV

Plant Arkwright Client: Southern Company Data: Arkwright No 2

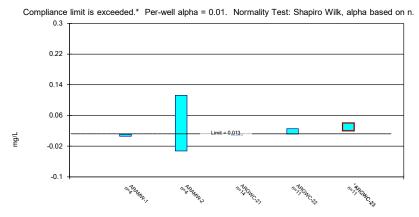
Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

#### Non-Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted.



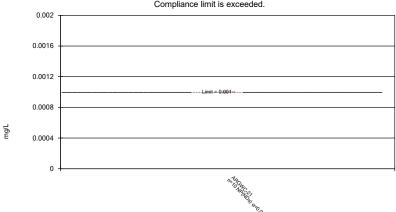
#### Parametric Confidence Interval



Constituent: Lithium Analysis Run 12/4/2020 12:34 PM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

# Non-Parametric Confidence Interval Compliance limit is exceeded.

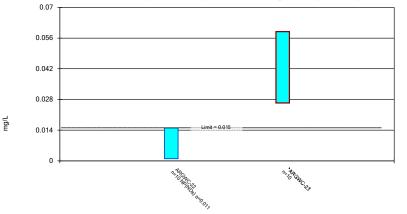


Constituent: Silver Analysis Run 12/4/2020 12:34 PM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

Sanitas™ v.9.6.27 Groundwater Stats Consulting. UG

#### Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Molybdenum Analysis Run 12/4/2020 12:34 PM View: Appendix I & IV
Plant Arkwright Client: Southern Company Data: Arkwright No 2

2020 Semi-Annual Groundwater Monitoring and Corrective Action Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

# **APPENDIX D**

SEMI-ANNUAL REMEDY SELECTION AND DESIGN PROGRESS REPORT



# **Semi-Annual Remedy Selection and Design Progress Report**

**Georgia Power Company – Plant Arkwright** 

Ash Pond 2 Dry Ash Stockpile Project No.: 6122201429

Prepared for:



Atlanta, Georgia

### CERTIFICATION STATEMENT

This Semi-Annual Remedy Selection and Design Progress Report, Georgia Power Company – Plant Arkwright, Ash Pond 2 Dry Ash Stockpile (AP-2 DAS), has been prepared in accordance with the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10(6)(a).

Gregory J. Wrenn, P.E.

Project Manager

GEORGIA A GEORGESTERCO AT NO. 0255655 PROFESSIONAL Z CARGARET RE-

2/26/2021

Rhonda N. Quinn, P.G.

Senior Geologist

Date



# **Table of Contents**

1.0	INTRODUCTION	1
1.1	Purpose	1
1.2	Site Background and Overview of Ash Pond Closure	2
1.3	Regulatory Program Status and Nature and Extent	3
2.0	SUMMARY OF WORK COMPLETED	5
3.0	SUMMARY OF RESULTS	6
3.1	Groundwater Analysis	6
3.2	Delineation Piezometer Groundwater Analysis	6
3.3	Updated Conceptual Site Model	7
4.0	UPDATED EVALUATION OF CORRECTIVE MEASURES	9
4.1	Geochemical Approaches (In-Situ Injection)	9
4.2	Hydraulic Containment (Pump and Treat)	9
4.3	Monitored Natural Attenuation	10
4.4	Permeable Reactive Barriers	11
4.5	Phytoremediation	11
4.6	Subsurface Vertical Barrier Walls	12
4.7	Summary of Corrective Measures Evaluated	13
5.0	PLANNED ACTIVITIES & ANTICIPATED SCHEDULE	14
6.0	REFERENCES	16

# **List of Tables**

Table 1	Evaluation of Remedial Technologies
Table 2	Summary of Monitoring Network Well and Piezometer Construction and
	Groundwater Elevations
Table 3	Water Quality Analytical Summary
Table 4	Proposed ACM Supplementary Data Analyses and Collection Tasks for First Semi-Annual Period 2021

# **List of Figures**

Figure 1	Site Location Map
Figure 2	Monitoring Network Well Location Map
Figure 3	Potentiometric Surface – September 2020
Figure 4	Isoconcentration Map for Cobalt Ash Pond 2 – September/October 2020
Figure 5	Isoconcentration Map for Lithium Ash Pond 2 – September/October 2020
Figure 6	Isoconcentration Map for Molybdenum Ash Pond 2 – September/October 2020
Figure 7A	Stiff Diagram – Background Compliance Wells
Figure 7B	Stiff Diagram – Downgradient Compliance Wells
Figure 7C	Stiff Diagram – Delineation Piezometers
Figure 7D	Stiff Diagram Comparison

# **List of Appendices**

Appendix A Field Sampling Logs and Analytical Data Reports for June and November/December 2020, and February 2021





#### **LIST OF ACROYMNS**

ACM Assessment of Corrective Measures

AP-2 DAS Ash Pond 2 Dry Ash Stockpile
CCR Coal Combustion Residuals
CFR Code of Federal Regulations
COC Constituent of Concern
CSM Conceptual Site Model

EPD Environmental Protection Division

ft feet

ft bgs feet below ground surface

GA EPD Georgia Environmental Protection Division

GPC Georgia Power Company

GWPS Groundwater Protection Standard ISS In-Situ Solidification/Stabilization

ISCO In-Situ Chemical Oxidation ISCR In-Situ Chemical Reduction

ITRC Interstate Technology & Regulatory Council

mg/L milligrams per liter

MNA Monitored Natural Attenuation O&M Operations and Maintenance

P&T Pump and Treat

PRB Permeable Reactive Barrier
SSI Statistically Significant Increase
SSL Statistically Significant Level

US EPA United States Environmental Protection Agency

ZVI Zero Valent Iron



wood.

#### 1.0 INTRODUCTION

# 1.1 Purpose

This Semi-Annual Remedy Selection and Design Progress Report (the semi-annual progress report) was prepared for Georgia Power Company (Georgia Power) Plant Arkwright Ash Pond 2 Dry Ash Stockpile (AP-2 DAS) (Site) in accordance with the Georgia Environmental Protection Division (EPD) Rules for Solid Waste Management 391-3-4-.10(6)(a). Pursuant to GA EPD Rule 391-3-4-.10(6)(a), Georgia Power initiated Assessment of Corrective Measures (ACM) for AP-2 DAS when a statistically significant level (SSL) of lithium in well ARGWC-21 was identified in the October 2019 semi-annual groundwater data. New background data obtained in April 2020 was used to update the lithium Groundwater Protection Standard (GWPS) and there was no longer a lithium SSL in well ARGWC-21. Statistical analysis of the April 2020 semi-annual groundwater data identified a cobalt SSL, exceeding the state GWPS, in well ARGWC-22. A Notice of ACM was submitted to the GA EPD July 9, 2020 following the identification of the cobalt SSL. Subsequently, Georgia Power completed an ACM Report on December 4, 2020 for the cobalt SSL in well ARGWC-22. Statistical analysis of the October 2020 semi-annual groundwater data identified a cobalt SSL in well ARGWC-22 along with lithium and molybdenum SSLs in well ARGWC-23. The SSLs for cobalt and molybdenum are horizontally delineated by surface water samples from Beaverdam Creek, while the vertical delineation for cobalt and molybdenum are ongoing. The SSL for lithium is horizontally delineated by surface water samples from Beaverdam Creek and vertically delineated onsite by piezometer ARAMW-8.

In addition to the ACM investigation, Georgia Power conducted a human health and ecological risk evaluation to evaluate the cobalt SSLs in well ARGWC-22. The results indicated concentrations of cobalt detected in groundwater at AP-2 DAS are not expected to pose a risk to human health or the environment (Wood, 2020a). Surface water samples were collected February 10, 2021 from Beaverdam Creek. Cobalt concentrations in the surface water samples were below the cobalt GWPS and lithium and molybdenum were not detected. The risk assessment will be updated in August to include lithium and molybdenum.

The purpose of this semi-annual progress report is to document the process of selecting corrective measure(s) for groundwater as provided in the *Assessment of Corrective Measures Report, Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile* (Wood, 2020a) (ACM Report) in December 2020. This process is typically iterative and may be composed of multiple steps to analyze the effectiveness of corrective measures to improve groundwater quality. Once potential corrective measures are identified, they are further evaluated using the criteria outlined in GA EPD Rule 391-3-4-.10(6)(a). Additional details are provided within the ACM Report and the cited state regulations. Pursuant to GA EPD Rule 391-3-4-.10(6)(a), semi-

Project No.: 6122201429 | 2/26/2021

Page 1 of 16



annual progress reports will be included as an appendix to the routine semi-annual groundwater monitoring and corrective action reports to document the efforts of evaluating and progressing towards selecting a groundwater corrective measure. As discussed in the ACM Report, the following corrective measures are potentially feasible for use at AP-2 DAS. A comparative screening of the corrective measures is provided in **Table 1: Evaluation of Remedial Technologies**.

- 1. Geochemical Manipulation (In-Situ Injection)
- 2. Hydraulic Containment (Pump and Treat)
- 3. Monitored Natural Attenuation (MNA)
- 4. Permeable Reactive Barrier (PRB)
- 5. Phytoremediation
- 6. Subsurface Vertical Barrier Walls

Georgia Power proactively initiated adaptive site management as outlined in the ACM Report (Wood, 2020a) to support the groundwater remedy selection process and address potential changes in Site conditions as appropriate. The adaptive site management approach will take existing Site conditions, including natural attenuation mechanisms into account. Characterization activities to evaluate attenuation mechanisms at the Site include collection of data necessary to progressively evaluate the existing and long-term effectiveness of these processes in the aquifer and reduce uncertainty for decision making at each screening step as listed in the US EPA guidelines for MNA (USEPA, 2015) summarized below.

- Tier I: Constituent concentrations & plume stability
- Tier II: Constituent attenuation mechanisms
- Tier III: Aquifer capacity and stability
- Tier IV: Performance monitoring

## 1.2 Site Background and Overview of Ash Pond Closure

Plant Arkwright is located in Bibb County, Georgia approximately 6 miles northwest of the city of Macon (**Figure 1: Site Location Map**). AP-2 DAS was in operation in the 1950s. Soil was placed over AP-2 DAS as a closure measure and was estimated to be closed in-place in the late 1970s to early 1980s. Georgia Power officially closed the AP-2 DAS in 2010 with Georgia EPD's

Project No.: 6122201429 | 2/26/2021

Page 2 of 16



approval and in accordance with the solid waste landfill regulations specified by GA EPD Rule 391-3-4, in effect at the time of its closure. The CCR unit referred to as AP-2 DAS is defined as an inactive CCR Landfill per GA EPD Rule 391-3-4-.10(2)(a)(3).

Georgia Power has elected to remove the CCR material from AP-2 DAS Landfill. The CCR will be excavated from the AP-2 DAS Landfill area and then transported and disposed of in a permitted facility that has been approved to accept CCR or sold to an ash marketer for beneficial reuse. The AP-2 DAS Landfill area will be regraded and vegetated after CCR removal. The closure of AP-2 DAS by the removal of CCR provides significant source control that reduces the potential for migration of CCR constituents to groundwater. Corrective measures discussed in this ACM are being evaluated to address constituents detected at statistically significant levels (SSLs) in compliance monitoring network wells at the waste boundary.

# 1.3 Regulatory Program Status and Nature and Extent

Pursuant to GA EPD Rule 391-3-4-.10(6)(a), Georgia Power initiated an ACM for the AP-2 DAS in July 2020 for an SSL of cobalt exceeding the state GWPS. The ACM Report was subsequently prepared for AP-2 DAS cobalt SSL in well ARGWC-22 and submitted to EPD in December 2020. The compliance monitoring well network is shown in **Figure 2: Monitoring Network Well Location Map**. Based on recent statistical analysis of the October 2020 groundwater data, the following compliance wells and constituent pairs exhibited SSLs:

Cobalt: ARGWC-22

Lithium: ARGWC-23

Molybdenum: ARGWC-23

Two delineation piezometers (ARAMW-7 and ARAMW-8) were installed to vertically characterize the groundwater quality and delineate SSLs. The locations of the additional piezometers are shown in **Figure 2** and well construction details are provided in **Table 2: Summary of Monitoring Network Well and Piezometer Construction and Groundwater Elevations**. Supporting details and documents (e.g., boring logs, well construction tables) have been previously submitted with the ACM Report or as separate well installation reports. A potentiometric surface map illustrating the September 2020 groundwater elevations collected during the September/October 2020 semi-annual groundwater monitoring event are provided on **Figure 3: Potentiometric Surface – September 2020**.

Based on the groundwater data reported in the 2020 Semi-Annual Groundwater Monitoring and Corrective Action Report (Wood, 2021), the SSL of cobalt identified in compliance well ARGWC-

Project No.: 6122201429 | 2/26/2021

Page 3 of 16



22 is horizontally delineated to below the state GWPS (0.0025 mg/L) by surface water samples collected on February 10, 2021 from Beaverdam Creek downstream of AP-2 DAS as depicted in Figure 4: Isoconcentration Map for Cobalt Ash Pond 2 – September/October 2020. However, vertical delineation of cobalt (0.028 mg/L) at ARGWC-22 has not been accomplished following the first sampling of newly installed delineation piezometer ARAMW-7. Surface water samples collected on February 10, 2021 from Beaverdam Creek indicate horizontal delineation of GWPS exceedances for lithium and molybdenum at well location ARGWC-23 has been achieved as shown in Figure 5: Isoconcentration Map for Lithium Ash Pond 2 – September/October 2020 and Figure 6: Isoconcentration Map for Molybdenum Ash Pond 2 – September/October 2020. The analytical data for the groundwater sample collected from ARAMW-8 indicate that vertical delineation was accomplished for lithium (0.0044 mg/L) but was not accomplished for molybdenum (0.056 mg/L).

Pursuant to GA EPD Rule 391-3-4-.10(6)(a), Georgia Power continues to monitor the groundwater at AP-2 DAS in accordance with the assessment monitoring program while ACM efforts are implemented to evaluate potential corrective measures to address SSLs of cobalt, lithium, and molybdenum in select AP-2 DAS monitoring wells.

Project No.: 6122201429 | 2/26/2021 Page 4 of 16



### 2.0 SUMMARY OF WORK COMPLETED

The following summarizes the field investigations and data evaluations completed since the issuance of the *2020 Annual Groundwater Monitoring and Corrective Action Report* in July 2020 (Wood, 2020b) in support of delineating Appendix IV SSLs and evaluation of the corrective measures presented in the ACM Report. The two routine assessment monitoring events conducted in August and September/October 2020 are discussed in the *2020 Semi-Annual Groundwater Monitoring and Corrective Action Report* (Wood, 2021).

- June 2020: Analytical data was assessed from groundwater samples collected in June 2020 from monitoring wells and delineation piezometers at the AP-2 DAS. The samples were collected in support of evaluating the geochemical composition of the groundwater relative to potential sources located within the AP-2 DAS. Samples were analyzed for boron, cobalt, lithium, and molybdenum, as well as major cations and anions.
- September/October 2020: Routine semi-annual groundwater samples were collected from the five compliance wells and the two existing delineation piezometers. The samples were analyzed for the complete suite of Appendix III parameters and for those Appendix IV parameters detected during the August 2020 assessment constituent screening event. The results are presented in the 2020 Semi-Annual Groundwater Monitoring and Corrective Action Report.
- November 2020: Two delineation piezometers, namely, ARAMW-7 and ARAMW-8, were installed to vertically delineate GWPS exceedances of cobalt at compliance well location ARGWC-22 and lithium and molybdenum at well location ARGWC-23. These delineation piezometers ARAMW-7 and ARAWM-8 are located adjacent wells ARGWC-22 and ARGWC-23, respectively, and were installed to depths of 48 and 47 ft below ground surface (bgs), respectively. These delineation piezometers were completely screened within the bedrock aquifer with competent bedrock encountered at depths of 36.5 bgs at well location ARAMW-7 and 35.0 bgs at ARAMW-8.
- December 1, 2020: Non-routine groundwater samples were collected from newly installed delineation piezometers ARAMW-7 and ARAMW-8. The samples were analyzed for the complete suite of Appendix III parameters and for cobalt, lithium, and molybdenum as well as major cations and anions in support of evaluating the geochemical composition vertically in the shallow fractured bedrock. These delineation piezometers will be routinely sampled as part of the assessment monitoring well network at the Site in future sampling events. The second sample collected from these two delineation wells was collected during the first semi-annual sampling event of 2021 which was completed on February 11, 2021.

Project No.: 6122201429 | 2/26/2021

Page 5 of 16



### 3.0 SUMMARY OF RESULTS

The following presents the results of work outlined in Section 2.

## 3.1 Groundwater Analysis

**Table 3: Water Quality Analytical Summary** summarizes the analytical data collected in June, November/December 2020 from the AP-2 DAS from the compliance wells and delineation piezometers and the November 2020 and February 2021 surface water samples from Beaverdam Creek. **Figure 2** depicts the locations of the monitoring well network at AP-2 DAS. The laboratory reports for the locations sampled in June, November/December 2020 and February 2021 are provided in **Appendix A: Field Sampling Logs and Analytical Data Reports for June and November/December 2020, and February 2021**.

The major ion compositions of groundwater were used to construct Stiff diagrams, which are among the most common tools for assessing geochemical similarities and differences between aqueous samples. Laboratory data, which are normally reported in mg/L, are converted to milliequivalents per liter (meq/L) when plotted on Stiff diagram. Geochemical fingerprinting is a useful tool to identify potential origins of water samples as well as mixing of liquids along a common flow path. The Stiff diagrams are presented as **Figures 7A** through **7D: Stiff Diagrams**. In summary:

- The background wells indicate a calcium-bicarbonate type groundwater at the upgradient edge of the AP-2 DAS.
- Compliance wells for the AP-2 DAS area are mixed and include calcium-bicarbonate and calcium-sulfate water types.
- Delineation piezometers are calcium-sulfate water types
- There are differences in groundwater geochemical composition between upgradient and downgradient groundwaters.

The Stiff diagrams indicates a calcium-sulfate signature for waters in compliance wells ARGWC-21, ARGWC-22, and ARGWC-23 which is stronger than the signatures in delineation piezometers ARAMW-1 and ARAMW-2. The strongest signature is in compliance well ARGWC-22.

# 3.2 Delineation Piezometer Groundwater Analysis

Vertical delineation piezometers ARAMW-7 and ARAMW-8 were sampled on November 30 and December 1, 2020, respectively, using low flow sampling methods. The samples were analyzed in the same manner as indicated in Section 2.2. The analytical data from the sample collected at ARAMW-7 (vertical delineation piezometer for ARGWC-22) indicate cobalt concentrations (0.028 mg/L) was higher than the most recent cobalt concentration observed at compliance well

Project No.: 6122201429 | 2/26/2021

Page 6 of 16



ARGWC-22 (0.0055 mg/L in September 2020). Vertical delineation effort for cobalt at ARGWC-22 will continue with additional sampling events to statistically evaluate the delineation data. After evaluation of additional data, the installation of a deeper vertical extent well will be considered.

Analytical results for vertical delineation piezometer ARAMW-8 indicate that lithium concentrations (0.0044 mg/L) are below the state GWPS (0.013 mg/L), thus vertically delineating the GWPS exceedance for lithium at compliance well ARGWC-23. Molybdenum concentrations observed at ARAMW-8 (0.056 mg/L), however, are above the state GWPS (0.015 mg/L) for molybdenum. Delineation piezometer ARAMW-8 will continue to be monitored to better evaluate the vertical delineation for molybdenum at well ARGWC-23. These delineation piezometers were first sampled in December 2020 and were sampled again in February 2021 with the receipt of data expected in late February to early March 2021. After evaluation of additional data, the installation of a deeper vertical extent wells will be considered.

# 3.3 Updated Conceptual Site Model

Following the collection and assessment of the additional data described in Sections 3.1 and 3.2, the conceptual site model for the AP-2 DAS unit has been updated accordingly. The update was to delineate SSLs identified during the October 2020 semi-annual event and to evaluate the geochemical profile to be used for evaluating the feasibility of monitored natural attenuation (MNA). The additional data indicated:

- Groundwater level monitoring data collected in 2020 and February 2021 from the Site
  monitoring wells, and delineation piezometers show stable water level trends, and the
  potentiometric maps reflect groundwater generally flowing across AP-2 DAS toward the
  south toward Beaverdam Creek.
- Initial sampling data from the two vertical delineation piezometers (ARAMW-7 and ARAMW-8) in November and December 2020 indicates lithium is vertically delineated at the Site. Vertical delineations of cobalt and molybdenum are ongoing with additional data collection. Additional groundwater quality data is needed from these piezometers to better understand the vertical extent and planning for deeper vertical extent piezometers. Cobalt concentrations in surface water sample data collected from Beaverdam Creek in February 2021 were below the GWPS. Lithium and molybdenum were not detected in the February 2021 surface water samples. The Beaverdam Creek February 2021 surface water sample data were used to horizontally delineate the cobalt, lithium, and molybdenum SSLs.

Project No.: 6122201429 | 2/26/2021

Page 7 of 16

• As discussed in Section 3.1, heterogeneity exists in the geochemical profile of both upgradient and downgradient wells and piezometers. This may indicate different sources of the groundwater flowing through the water table aquifer which may be sourced dominantly from precipitation at some locations and from deeper bedrock at other locations. This heterogeneity of upgradient and downgradient wells and piezometers will be further assessed using additional major cation and anion analytical data collected in February 2021. This data will be evaluated with previous geochemical data to help characterize the groundwater geochemical profile and whether MNA is occurring at the Site.

Project No.: 6122201429 | 2/26/2021 Page 8 of 16



### 4.0 UPDATED EVALUATION OF CORRECTIVE MEASURES

Based on the data collected to date, the six potential corrective measures proposed have been retained and will continue to be evaluated as further site-specific data is collected.

## 4.1 Geochemical Approaches (In-Situ Injection)

In-situ injections of reagents are a remediation technology for inorganic constituents such as cobalt, lithium, and molybdenum. Cobalt and molybdenum can be precipitated and/or immobilized under different combinations of pH and redox conditions. Lithium, however, because of its low reactivity and high solubility is not amenable to precipitation or immobilization involving manipulation of pH and redox conditions, but lithium may be sorbed to aluminum and iron oxides as well as clay minerals. To understand the biogeochemical processes that would effectively immobilize target constituents in groundwater, site-specific bench-scale and pilot-scale treatability studies are needed to prepare an effective amendment to create the appropriate conditions for the precipitation and/or sorption of these constituents without mobilizing other naturally occurring constituents.

Air-sparging, in-situ chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility and/or toxicity of certain inorganic compounds. However, mixing and contact with the target constituents are necessary for these in-situ methods, and can be difficult in heterogeneous and fine-grained materials. In-situ injections may be considered a potentially viable corrective measure to address cobalt and other metals in groundwater at AP-2 DAS, especially in smaller, more localized areas. In-situ injection would likely need to be combined with an alternative technology to address lithium to provide a complete remedy for the former CCR Unit. This technology will be retained for further evaluation.

## 4.2 Hydraulic Containment (Pump and Treat)

Generally, hydraulic containment (or control) refers to the use of groundwater extraction to artificially induce a hydraulic gradient and capture or control the migration of impacted groundwater. Groundwater pump and treat (P&T), is often considered to be a viable remedial technology at many sites (US EPA, 1996). This approach uses extraction wells or trenches to capture groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water feature or sewer system, reinjection into the aquifer, or reuse at the Site. Groundwater P&T is often relatively slow as a means to restore groundwater quality over a long-term period, but can be effective as an interim measure, or combined with another measure, to provide hydraulic containment to limit constituent migration toward a potential receptor.

Project No.: 6122201429 | 2/26/2021

Page 9 of 16



Groundwater extraction for hydraulic control can often effectively address the variety of inorganic constituents encountered at CCR sites, including cobalt, lithium, and molybdenum. Extraction technologies may be more efficient for conservative species, such as lithium, which are not readily attenuated by other mechanisms (e.g., precipitation, adsorption). Therefore, P&T is a potentially viable corrective measure for cobalt, lithium, and molybdenum in groundwater at AP-2 DAS and will be retained for further evaluation.

#### 4.3 Monitored Natural Attenuation

The US EPA defines monitored natural attenuation (MNA) as the reliance on natural attenuation processes (within the context of a carefully controlled and monitored site cleanup approach) to achieve site-specific remediation objectives within a time frame that is reasonable compared to that offered by other more active methods. The natural attenuation processes that are at work in such a remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater (US EPA, 2015).

Attenuation mechanisms for inorganic constituents, such as cobalt, lithium, molybdenum, are either physical (e.g., dilution, dispersion, flushing, and related processes) or chemical (e.g., sorption or oxidation reduction reactions). Both molybdenum and cobalt undergo sorption to iron and manganese oxides and depending on specific redox conditions. Thus, chemical attenuation mechanisms through sorption reactions, discussed in more detail below, may be viable as a corrective measure for cobalt and molybdenum. Physical attenuation mechanisms such as dilution and dispersion may be appropriate as a polishing step. Lithium requires physical attenuation mechanisms instead of chemical attenuation mechanisms.

The US EPA uses four phases to establish whether MNA can be successfully implemented at a given site. The phases (or steps) include:

- 1. Demonstration that SSLs in groundwater are delineated and stable or decreasing.
- 2. Evaluation of the mechanisms and rates of attenuation.
- 3. Assessment if the capacity of the aquifer is sufficient to attenuate the mass of constituents in groundwater and that the immobilized constituents are stable and will not remobilize.
- 4. Design of a performance monitoring program based on the mechanisms of attenuation and including a decision framework for consideration of a contingent remedy tailored to site-specific conditions should MNA not perform adequately.

Project No.: 6122201429 | 2/26/2021 Page 10 of 16



A successful MNA approach requires a good understanding of hydrogeologic conditions and may require additional information and monitoring over an extended period of time. MNA is a relatively slow remedy to obtain site closure when used in isolation; as such, MNA is frequently used in combination with other remedies, including source control.

Physical and chemical MNA mechanisms for cobalt, lithium, and molybdenum including dilution, dispersion, and sorption can be operational without the potential for additional mass of constituents migrating to downgradient groundwater. Therefore, MNA is a potentially viable corrective measure for cobalt, lithium, and molybdenum in groundwater at AP-2 DAS and will be retained for further evaluation.

### 4.4 Permeable Reactive Barriers

Permeable reactive barriers (PRBs) can present a viable alternative for in-situ treatment of cobalt and molybdenum. PRBs typically involve the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through. The use of PRBs for cobalt and molybdenum has been tested (e.g., Ludwig et al., 2002; ITRC, 2011), but additional site-specific testing is needed to confirm the applicability of this technology to remove molybdenum from groundwater because testing has shown early breakthrough with reactive media (Morrison et al., 2006). Although laboratory studies with zeolites and clays have shown to sorb lithium, due to its low reactivity and lack of field testing, PRBs are not recommended for lithium remediation.

AP-2 DAS will be closed by removal of CCR material to a lined-landfill. Removal of the source material limits the use of PRB as a remedial alternative at the Site. Additionally, there is limited space available downgradient of wells where COCs exceed groundwater protection standards. For these reasons, a PRB is likely not implementable or effective and this corrective measure has been removed from consideration.

### 4.5 Phytoremediation

Phytoremediation is the use of plants to degrade, immobilize, or contain constituents in soil, groundwater, surface water, and sediments. Phytotechnologies include a variety of applications ranging from constructed wetlands, alternative landfill covers, tree plantations for hydraulic control, use of plants for slope stabilization, planted (riparian) buffers for nutrient management and sediment control, and the classical applications of constituent uptake and degradation. Phytoremediation has emerged as a viable alternative to more active environmental cleanup technologies, especially for large areas with relatively low levels of constituents in shallow soils or groundwater.

Project No.: 6122201429 | 2/26/2021

Page 11 of 16



The effectiveness of groundwater remediation using traditional phytoremediation approaches may be limited by compacted soil conditions that impede root penetration; or target groundwater that is too deep for root access. Given that downgradient groundwater wells at the Site that exhibited SSLs for cobalt, lithium, and molybdenum are screened to depths of up to 45 ft bgs, traditional plantings for phytoremediation are not expected to be successful. However, more recently, an engineered approach to phytoremediation, the *TreeWell®* system (which is a proprietary system developed by Applied Natural Sciences), has been shown to overcome these constraints (e.g., Gatliff et al., 2016).

By installing a cased "well" for tree planting using large diameter auger (LDA) technology, extraction of deeper groundwater zones (i.e., in excess of 50 ft bgs) can be achieved since the surface of the "well" is sealed and only groundwater from a targeted zone is allowed into the cased-off borehole. This type of system mirrors a traditional mechanical extraction system using the trees as pumps.

Also, the advantage of the system includes no above-ground water management needs and limited long-term operations and maintenance (O&M) requirements following the establishment of the tree system.

With the exception of the *TreeWell*® technology, phytoremediation technologies are not likely feasible at the AP-2 DAS unit due to the depth of SSLs. Although the *TreeWell*® technology can access SSLs at depth, the groundwater extraction rate needed to limit SSL migration needs to be further evaluated to determine if the capacity of the *TreeWell*® technology is applicable at AP-2 DAS. The limited physical space for installation of a phytoremediation system between AP-2 DAS and the adjacent surface water body (Beaverdam Creek) may cause the technology to be eliminated from consideration. Thus, phytoremediation may be technically feasible as a remedial technology for cobalt, lithium, and molybdenum; however, there is not enough site information currently available to decide to eliminate this technology from further evaluation and this technology will be retained until data indicates it is not a feasible technology.

#### 4.6 Subsurface Vertical Barrier Walls

Subsurface vertical barrier walls (sometimes referred to as slurry walls) have been used for seep control and groundwater cutoff at impoundments and waste disposal units for more than three decades. In general, barrier walls are designed to provide containment; localized treatment achieved through the sorption or chemical precipitation reactions from construction of the walls are incidental to the design objective. This approach involves placing barrier walls typically keyed into the bedrock frequently around the source area (or the downgradient limits of the source area), to prevent future migration of dissolved constituents in groundwater from beneath

Project No.: 6122201429 | 2/26/2021

Page 12 of 16



the source to downgradient areas or a lower confining unit. Using the installation of these low-permeability walls is similar to the methods described for PRBs above.

Groundwater pumping is required upgradient of the barrier wall to maintain an inward hydraulic gradient and avoid groundwater mounding behind the wall. The extracted groundwater would likely require treatment in an above-ground treatment system.

Similar to the use of a PRB at AP-2 DAS, the complete removal of CCR source material and a lack of space available downgradient of the groundwater monitoring wells where constituents of concern (COCs) exceed groundwater protection standards, subsurface vertical barrier walls have been removed from consideration.

#### 4.7 Summary of Corrective Measures Evaluated

Based on the data collected to date, four of the six potential corrective measures being evaluated for AP-2 DAS will be retained for further evaluation. Two potential corrective measure have been removed.

- Permeable Reactive Barrier (PRB) AP-2 DAS will be closed by removal of CCR material
  to a lined-landfill. Removal of the source material limits the use of PRB as a remedial
  alternative at the Site. Additionally, there is limited space available downgradient of
  wells where COCs exceed groundwater protection standards. For these reasons, PRB has
  been removed from consideration.
- Subsurface Vertical Barrier Walls Similar to the use of PRBs, the complete removal of the CCR source material and a lack space available downgradient of wells where COCs exceed groundwater protection standards, subsurface vertical barrier walls have been removed from consideration.

Given that groundwater conditions and/or statistical results continue to change and are likely to also be affected by closure and construction activities at AP-2 DAS, an adaptive site management approach will be used to address groundwater conditions as a consequence of closure activities. Continued groundwater monitoring and updates to the statistical analyses will further refine the conceptual site model (CSM) and allow for the continued evaluation of an appropriate groundwater corrective measure at the Site.

Project No.: 6122201429 | 2/26/2021 Page 13 of 16



#### 5.0 PLANNED ACTIVITIES & ANTICIPATED SCHEDULE

The proposed closure by removal approach provides a source control measure that reduces the potential for migration of CCR constituents to groundwater. During the pond closure by excavation and consolidation of CCR, temporary changes in site conditions may occur that must be considered as part of remedy selection. Georgia Power has initiated activities as outlined in the ACM Report (Wood, 2020a) to support the groundwater remedy selection process and address potential changes in site conditions as appropriate. The adaptive site management approach toward remedy selection may be adjusted over the Site's life cycle as new site information and technologies become available. To this end, Georgia Power will continue its data collection efforts as necessary in support of efforts to refine the CSM and to further evaluate the feasibility of each corrective measure proposed in the ACM Report. At this time, and as discussed in Section 4.0, four of the corrective measures outlined in the ACM Report (Wood, 2020a) are being retained for further evaluation. The four corrective measures which are being retained are as follows:

- Geochemical Approaches (In-Situ Injection)
- Hydraulic Containment (Pump and Treat)
- In-Situ Solidification/Stabilization (ISS)
- Monitored Natural Attenuation (MNA)

Supplementary data collection and evaluation activities proposed to be completed are presented on **Table 4: Proposed ACM Supplementary Data Analyses and Collection Tasks for First Semi-Annual Period 2021**, with the key elements summarized below. Additional data collection, analysis, and site-specific evaluation are necessary to refine the CSM and to further evaluate the feasibility of each corrective measure presented herein such that an appropriate groundwater corrective measure may be selected. Some of the data needed to refine the conceptual site model may be collected concurrent with routine groundwater monitoring events under the assessment monitoring program.

Additional data collection and analysis outside of routine groundwater monitoring events may include aquifer testing, geochemical modeling, material compatibility testing, bench scale studies, and pilot tests and may require an estimated one to two additional years to complete. Once sufficient data are available to arrive at a focused number of corrective measures or a combination of corrective measures that would provide an effective groundwater remedy, necessary steps will be taken to implement a remedy at the Site in accordance with GA EPD Rule 391-3-4.10.

Project No.: 6122201429 | 2/26/2021

Page 14 of 16



Supplementary data collection and evaluation activities proposed to be completed during the next semi-annual reporting period are presented in the **Table 4: Proposed ACM Supplementary Data Analyses and Collection Tasks for First Semi-Annual Period 2021** and summarized below.

- Collect and analyze samples for major anions and cations for all compliance wells and delineation piezometers during semi-annual sampling events.
- Statistical evaluation of analytical data at vertical delineation wells ARAMW-7 and ARAMW-8 upon completion of 4 sampling events.
- Evaluate a plume stability analysis using time-series charts and trend analysis using linear regression or non-parametric trend tests with available data to determine if the plume is stable at AP-2 DAS.
- Evaluate plausible ionic speciation of the contaminants by reviewing field parameters (pH, ORP, temperature, and specific conductance) collected during previous field events.
- Perform additional aquifer tests at compliance wells to refine the understanding of localized hydrogeologic conditions and to assist in evaluating contaminant migration rates.

Georgia Power will continue to prepare semi-annual progress reports to document AP-2 DAS conditions, results associated with additional data collection, and the progress in selecting and designing a groundwater remedy in accordance with GA EPD Rule 391-3-4.10(6)(a). Georgia Power will include future semi-annual progress reports in routine groundwater monitoring and corrective action reports.

Project No.: 6122201429 | 2/26/2021 Page 15 of 16



#### 6.0 REFERENCES

- Gatliff, E., Linton P., Riddle, D., and Thomas P., 2016, Phytoremediation of Soil and Groundwater.
- ITRC (Interstate Technology & Regulatory Council), 2011, Permeable Reactive Barrier:

  Technology Update, Washington D.C.: Interstate Technology & Regulatory Council, PRB:
  Technology Update Team.
- Ludwig R.D., McGregor R.G., & Blowes D.W., Benner S.G., Mountjoy K., 2002. A Permeable Reactive Barrier for Treatment of Heavy Metals. Ground water. 40. 59-66.
- Morrison, S. J., Mushovic, P. S., and Niesen, P. L., 2006, Early Breakthrough of Molybdenum and Uranium in a Permeable Reactive Barrier. Environmental Science and Technology Volume 40.
- US Environmental Protection Agency, 1996, Final Guidance: Presumptive Response Strategy and Ex-Situ Treatment Technologies for Contaminated Ground Water at CERCLA Sites, EPA 540/R-96/023, Office of Solid Wasted and Emergency Response Directive 9283.1-12, October 1996.
- US EPA, 2015. Use of Monitored Natural Attenuation for Inorganic Contaminants in Groundwater at Superfund Sites, U.S Environmental Protection Agency, Office of Solid Wasted and Emergency Response, Directive 9283.1-36. August
- Wood Environment & Infrastructure Solutions, Inc., 2020a. Assessment of Corrective Measures
  Report Georgia Power Company Plant Arkwright Ash Pond 2 Dry Ash Stockpile,
  December 2020.
- Wood Environment & Infrastructure Solutions, Inc., 2020b. 2020 Annual Groundwater

  Monitoring and Corrective Action Report Georgia Power Company Plant Arkwright AP-2

  DAS, July 31, 2020.
- Wood Environment & Infrastructure Solutions, Inc., 2021. 2020 Semi-Annual Groundwater Monitoring and Corrective Action Report – Georgia Power Company Plant Arkwright AP-2 Dry Ash Stockpile, February 26, 2021.

Project No.: 6122201429 | 2/26/2021

Page 16 of 16



Semi-Annual Remedy Selection and Design Progress Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

# **TABLES**

	Regulatory Citation for Criteria:	Georgia Rule 391-3	-410(6)(a)
Corrective Measure	Description	Performance	Reliability
Geochemical Approaches (In-Situ Injection)	Use of an injection well network, or other means of introducing reagents or air into the subsurface, to provide suitable reagents for either anaerobic or aerobic attenuation of Cobalt (Co) and molybdenum Mo. Under anaerobic conditions, Co would be attenuated within sparingly soluble sulfide minerals; this approach might also increase the attenuation of Mo. Because Lithium (Li) does not readily adsorb or precipitate, in-situ injections are likely not an effective remedial technology for Li. Under aerobic conditions, soluble iron or manganese and oxygen (either via air sparging or through a chemical oxidant) would be injected to promote the formation of iron or manganese (oxy-) hydroxides for subsequent sorption of Co (and potentially, Mo) onto these mineral phases. If sufficient iron is present in groundwater, the use of air sparging alone may be considered to precipitate iron (oxy-) hydroxides for sorption. Insitu chemical oxidation (ISCO) or in-situ chemical reduction (ISCR) can be used to chemically alter the redox environment in the subsurface to affect the mobility of certain inorganic compounds, including Co. However, the main attenuation mechanism for Co and Mo is sorption, which is more dependent on pH than redox.	The effective immobilization of Co has been shown under aerobic and anaerobic conditions; however, the anaerobic approach (involving the injection of an electron donor together with iron or manganese and sulfur) requires careful study and testing. While aerobic approaches are somewhat less complex, additional aquifer characterization is needed to further evaluate these options. It is currently not well understood whether molybdenum can be efficiently attenuated using in- situ redox manipulations due to slow reaction kinetics. Mo attenuation under both aerobic and anaerobic conditions needs to be further evaluated but is expected to occur. Mo is more strongly sorbed to aluminum oxides than other metal oxides, and it is generally less sorptive and more mobile compared to Co. It is not thought that lithium can be efficiently attenuated using in- situ redox manipulations because of Lithium's low reactivity. Lithium is generally less sorptive and more mobile compared to Co.	Reliability dependent on permeability of the subsurface and the amount and distribution of secondary iron or manganese (oxy-) hydroxides (for aerobic approach), or electron donors and soluble iron or manganese and sulfur that can be consistently distributed (for anaerobic approach). Reliable technology if injected materials can be distributed throughout the impacted aquifer. Benchand/or pilot-scale treatability testing programs are needed to understand the biogeochemical processes that would effectively reduce migration of Co and Mo in groundwater. In-Situ Injection would need to be used in conjunction with another technology to reduce migration of Lithium.
Pump and Treat (Hydraulic Containment)	Pump and Treat (P&T) refers to the use of groundwater extraction to induce a hydraulic gradient for hydraulic capture or control the migration of impacted groundwater. This approach uses extraction wells or trenches to capture groundwater, which may subsequently require above-ground treatment and permitted discharge to a receiving water feature, reinjection into the groundwater, or reuse (e.g., land application, CCR conditioning, etc.). It is applicable to a variable mix of inorganic constituents, including dissolved Co, Mo, and Li.	P&T is effective at providing hydraulic control, but it is unclear whether full groundwater remediation can be achieved without further understanding attenuation mechanisms at the Site. At the AP-2 Dry Ash Stockpile, implementation of the corrective measure is contingent on completing additional assessment activities (i.e. high-resolution site characterization, additional pump tests, flow modeling, and capture zone analysis). This is needed to refine the constituent distribution in the subsurface to target specific zones for pumping for improved mass recovery efficiency/ effectiveness and to further evaluate the potential remedy performance.	
Monitored Natural Attenuation (MNA)	MNA relies on natural attenuation processes to achieve site-specific remediation objectives within a reasonable time frame relative to more active methods. Under certain conditions (e.g., through sorption, mineral precipitation or oxidation- reduction reactions), MNA effectively reduces the dissolved concentrations of inorganic constituents in groundwater. Attenuation mechanisms for inorganic constituents at CCR sites, including cobalt (Co) molybdenum (Mo) and Lithium (Li) at AP-2 Dry Ash Stockpile, are either physical (e.g. dilution, dispersion, flushing, and related processes) or chemical (e.g., sorption or oxidation reduction reactions). The chemical attenuation processes include precipitation and sorption reactions such as adsorption on the surfaces of soil minerals, absorption into the matrix of soil minerals, or partitioning into organic matter. Further, oxidation-reduction (redox) reactions, via abiotic or biotic processes, can transform the valence states of some inorganic constituents to less soluble and thus less mobile forms. For Co and Mo, the main attenuation processes include sorption to iron and manganese oxides (Co and Mo), aluminum oxides (Mo), and formation of sparingly soluble sulfide minerals (Co). For Li, aluminum salts have shown promise for precipitating Li out of freshwater. Lithium's low reactivity and high solubility makes it difficult to chemically attenuate such that physical methods of dispersion and flushing are needed for attenuation.	Physical and chemical MNA mechanisms for Co, Mo, and Li, including dilution, dispersion, sorption, and oxidation reduction reactions can be effective at achieving groundwater protection standards (GWPS) within a reasonable time frame. Attenuation processes for Co and Mo may already be occurring at the site as evidenced by data from some wells. Source control will improve the mass balance such that the buffer capacity of the aquifer is unlikely to be exhausted, and the attenuation processes already at work for Co at AP-2 Dry Ash Stockpile will further enhance ongoing MNA. Lithium's low reactivity and high solubility makes it difficult to chemically attenuate such that physical methods of dispersion and flushing are needed for attenuation.	Reliable as long as the aquifer conditions that result in Co, Mo, and Li attenuation remain favorable and/or are being enhanced and sufficient attenuation capacity is present. MNA is reliable and can either be used as a stand-alone corrective measure for groundwater impacted by dissolved Co, Mo and/or Li, or in combination with a second technology, particularly for Li.
Permeable Reactive Barrier	Permeable reactive barrier (PRB) technology typically involves the installation of a permeable subsurface wall constructed with reactive media for the removal of constituents as groundwater passes through. Either ZVI-Carbon matrix or solid carbon (bio-barrier) are currently proposed for the concurrent removal of Co and Mo. The carbon could be composed of peat moss, mulch or another carbon source. Exact placement of the PRB is contingent on finalization of the nature and extent characterization. PRB walls are typically keyed into the bedrock. While the relatively shallow groundwater in the residuum and fractured bedrock is connected to the groundwater in more competent bedrock, the higher permeability/conductivity of the PRB is not expected to impede groundwater flow. PRBs can also be constructed as "funnel and gate" systems, where a barrier wall directs groundwater to a smaller "treatment gate" filled with reactive media.	removal/immobilization of these constituents. The approach is expected to achieve GWPS	require re-installation depending on the duration of the remedy. Additional
Phytoremediation / TreeWell®	Phytoremediation uses trees and other plants to degrade or immobilize constituents or achieve hydraulic control without the need for an above-ground water treatment system and infrastructure. Within the context of the AP-2 Dry Ash Stockpile, this corrective measure would likely use an engineered (proprietary) TreeWell® phytoremediation system along the point of compliance or downgradient edge of the impacted groundwater for hydraulic control. The system promotes root development to the targeted groundwater zone (depth), allowing for hydraulic control of impacted groundwater. In addition, immobilization of Co, Mo and Li within the root zone as well as incidental uptake of dissolved Co, Mo, and Li with groundwater is expected to occur concurrent with hydraulic control.	Once established (typically at the end of the third growing season), a TreeWell® system is effective for providing hydraulic containment of groundwater, and potential reduction of Co concentrations through immobilization and/or uptake and sequestration in the tree biomass; however, the main purpose is to provide hydraulic control. Given the site-specific hydrogeology and reported Co, Mo, and Li groundwater concentrations surrounding the AP-2 Dry Ash Stockpile, the approach is currently considered to be applicable in this setting. However, additional aquifer testing and/or groundwater flow modeling may be needed to confirm suitability for the area downgradient of the AP-2 Dry Ash Stockpile.	Engineered phytoremediation is a proven technology where hydrogeologic factors are taken into account (e.g., hydraulic conductivity, flow velocity, depth to impacted groundwater zone, etc.). This is considered an active remedial approach through the use of trees as the "pumps" driving the system. Careful design will be needed to select the proper species, which will include consideration of groundwater chemistry, plant uptake of constituents, and groundwater flow modeling to evaluate the required number and placement of TreeWell® units.

Page 1 of 4

	Regulatory Citation for Criteria:	Georgia Rule 391-3	-410(6)(a)
Corrective Measure	Description	Performance	Reliability
Subsurface Vertical Barrier Walls	This approach involves placing a barrier to groundwater flow in the subsurface, frequently around a source area, to prevent future migration of dissolved constituents in groundwater from beneath the source to downgradient areas. In general, barrier walls are designed to provide containment; localized treatment achieved through the sorption or chemical precipitation reactions from construction of the walls are incidental to the design objective. Barrier walls can also be used in downgradient applications; to limit discharge to a surface water feature or to reduce aquifer recharge from an adjacent surface water feature when groundwater extraction wells are placed near one. A variety of barrier materials can be used, including cement and/or bentonite slurries, geomembrane composite materials, or driven materials such as steel or vinyl sheet pile. Groundwater extraction from upgradient of the barrier is required to avoid groundwater mounding behind the barrier.	Barrier walls are a proven technology for seepage control and/or groundwater cutoff at impoundments. Slurry walls are limited by the depth of installation, which is approximately 90 ft bgs. However, site-specific geologic and technology-specific considerations may limit this depth to shallower installations. Within the context of AP-2 Dry Ash Stockpile, a barrier wall might be used in conjunction with a "funnel and gate" system for a PRB rather than a stand-alone technology. As such, groundwater with Co, Mo, and Li above GWPS could either be directed to "treatment gates" for passive treatment (in a PRB) or migration of impacted groundwater could be minimized via barrier wall installation. Additional treatment technology, beyond treatment for Cobalt, would be needed to treat Lithium in either extracted groundwater or in-situ. Additional subsurface investigations, aquifer testing, and compatibility testing with site- specific groundwater will be needed.	Generally reliable as a barrier to groundwater flow; however, treatment of downgradient groundwater is incidental and not the primary objective.

Page 2 of 4

	Georgia Rule 391-3-410(6)(a)	Georgia Rule 391-3-410(6)(a)	Georgia Rule 391-3-410(6)(a)
Corrective Measure	Ease of Implementation	Potential Impacts	Time Requirement to Begin/Complete
Geochemical Approaches (In-Situ Injection)	· · · · · · · · · · · · · · · · · · ·	Minimal impacts are expected if remedy works as designed, based on a thorough predesign investigation, geochemical modeling, and bench/pilot study results. Redox-altering processes have the potential to mobilize naturally-occurring constituents as an unintended consequence if not properly studied and implemented.	Installation of the injection network can be accomplished relatively quickly (1 to 2 months). However, a thorough pre-design investigation, geochemical modeling, and/or bench- and/or pilot-testing will be required to obtain design parameters prior to design and construction of the corrective measure, which may take up to 24 months. Once installed, the time required to achieve GWPS within the treatment area may be relatively quick but depends on the attenuation process kinetics of each targeted constituent. The time for complete distribution of the injected materials throughout the treatment area is also variable.
Pump and Treat (Hydraulic Containment)	Moderate. Proven approach, and supplemental installation of extraction wells/trenches is fairly straightforward. The extracted groundwater may potentially require an above-ground treatment system. A variety of sorption and precipitation approaches exist for ex-situ treatment of Co and Mo. Treatment of Lithium would require a different treatment technology than Co and Mo. Operation and maintenance (O&M) requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Moderate. The main potential impacts are related to the presence and operation of an onsite above-ground water treatment facility and related infrastructure to convey and treat extracted groundwater. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone. Also nearby surface water will need to be taken into account for hydraulic and geochemical impacts to pumping groundwater.	Installation of extraction wells and/or trenches can be accomplished relatively quickly (1 to 2 months). However, additional aquifer testing, system design and installation, and permit approval may be required, which may take up to 24 months. The initiation of the approach would be contingent on the start-up of the wastewater treatment infrastructure. Hydraulic containment can be achieved relatively quickly after startup of the extraction system, but uncertainty exists with respect to the time to achieve GWPS without additional data collection to better understand attenuation mechanisms for Co, Mo, and Li.
Monitored Natural Attenuation (MNA)	Reasonably implementable with respect to infrastructure, but moderate to complex with respect to documentation. Proven approach, but additional data are needed to show that the existing attenuation capacity is sufficient to meet site objectives within a reasonable timeframe. A monitoring well network already exists to implement future groundwater monitoring efforts.	None. MNA relies on the natural processes active in the aquifer matrix to reduce constituent concentrations without disturbing the surface or the subsurface.	The infrastructure to initiate MNA is already in place. Demonstrating attenuation mechanisms and capacity can be time-consuming and can take up to 24 months. MNA is expected to be successful within a reasonable time frame.
Permeable Reactive Barrier	Moderate to difficult. Trenching would be required to install a mix of reactive materials in the subsurface. Continuous trenching may be the most feasible construction method. Site-specific geology (i.e., partially weathered bedrock layer) poses a possible constructability challenge when attempting to key PRB material into competent bedrock. Installation methods and materials are readily available. Once installed, treatment will be passive and O&M requirements are minimal if replacement of the PRB is not necessary.	Minimal impacts are expected following the construction of the remedy. However, ZVI has the potential to create anaerobic conditions downgradient of the PRB wall that may mobilize redox-sensitive naturally-occurring constituents. These conditions need to be carefully monitored. Short-term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures.	Installation of a PRB can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, bench- and/or pilot- testing would be required to obtain design parameters prior to design and construction of the remedy, which may take up to 24 months. Once installed, the time to achieve GWPS downgradient of the PRB is anticipated to be relatively quick.
Phytoremediation / TreeWell®	Reasonably implementable to moderate. Engineered approach has been proven effective, and specific depth zones can be targeted. Trees are installed as "tree wells" in a large diameter boring to get the roots deep enough to intercept impacted groundwater flow paths. Area must be clear of above- and below- ground structures (i.e., power lines). The system, once established (approximately three growing seasons), is a self-maintaining, sustainable remedial system that has no external energy requirements and little maintenance (i.e., efforts normally associated with landscaping).	Minimal impacts are expected. In fact, there are several positive impacts expected, including enhanced aesthetics, wildlife habitat, and limited energy consumption.	The design phase will require some groundwater modeling for optimal placement of the TreeWell® units, which may take up to 6 months. Depending on the number of required units, the installation effort is expected to last several weeks.  Hydraulic capture/control is expected approximately three years after planting and system performance is expected to further improve over time.
Subsurface Vertical Barrier Walls	Moderate to difficult. Trenching will be required to fill in the various slurry mixes; alternatively, sheet pile installations can be accomplished without excavation of trenches. The application of barrier walls is limited by the depth of installation, which similar to PRBs, should be keyed into a low permeability layer such as a thick clay layer or bedrock. Installation methods and materials are readily available. Once installed, above-ground infrastructure to pump and treat groundwater will be required. O&M requirements are expected to include upkeep of infrastructure components (pumps, pipes, tanks, instrumentation and controls, above-ground treatment system) and handling of treatment residuals.	Minimal impacts are expected following the construction of the remedy. Short- term impacts during the construction of the remedy can be mitigated through appropriate planning and health and safety measures. Changes to groundwater flow patterns due to installation of the barrier wall are expected, which can affect other aspects of groundwater corrective action. Pumping activity may unintentionally alter the geochemistry within the hydraulic capture zone that may result in the mobilization of other constituents that may require treatment.	Installation of a barrier wall can be accomplished relatively quickly (6 to 12 months), depending on the final location and configuration. However, some design phase and additional aquifer and compatibility testing will be required, which may take up to 24 months. Once installed, preventing migration of constituents dissolved in groundwater is anticipated to be relatively quick. Since this approach does not treat the downgradient area of impacted groundwater but prevents migration from a source area, it will likely have to be maintained long- term and coupled with other approaches.

Page 3 of 4

	Georgia Rule	391-3-410(6)(a)		
Corrective Measure	Institutional Requirements	Other Environmental or Public Health Requirements	Relative Costs	Retention Evaluation
Geochemical Approaches (In-Situ Injection)	Deed restrictions may be necessary until in-situ treatment has achieved GWPS. An underground injection control (UIC) permit (for in-situ injections) would be required to implement this corrective measure. No other institutional requirements are expected at this time.	None expected at this point. Potential mobilization of redox- sensitive constituents exists during implementation of an anerobic attenuation approach. Following installation, the remedy is passive.	Medium (depending on expanse of injection network required and injectate volume required per derived design parameters)	Retained for further analysis; may be used as a stand- alone corrective measure or in conjunction with other potential groundwater corrective measures.
Pump and Treat (Hydraulic Containment)	Depending on the effluent management strategy, an NPDES permit may be required, or obtaining an underground injection control (UIC) permit may be needed if groundwater reinjection is chosen. In addition, deed restrictions may be required as long as groundwater conditions are above regulatory standards for unrestricted use.	Above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on remedy duration, complexity of above- ground treatment system, and volume of water processed)	Retained for further analysis; may be used as a stand- alone corrective measure or in conjunction with other potential groundwater corrective measures.
Monitored Natural Attenuation (MNA)	MNA may require the implementation of institutional controls, such as deed restrictions, to preclude potential exposure to groundwater within the footprint of impacted groundwater until GWPS are achieved.	Little to no physical disruption to remediation areas and no adverse construction- related impacts are expected on the surrounding community.	Low to medium	Retained for further analysis; may be used as a stand-alone corrective measure or in conjunction with other potential groundwater corrective measures.
Permeable Reactive Barrier	Deed restrictions may be necessary for groundwater areas upgradient of the PRB (if not installed along the waste boundary). No other institutional requirements are expected at this time.	None expected at this point. Following installation, the remedy is passive. However, certain treatment media (such as ZVI) have the potential to mobilize naturally-occurring constituents downgradient of the PRB.	Medium to high (for installation) - minimal O&M requirements if replacement is not necessary	Not retained for further analysis; limited space available downgradient of impacted wells; removal of the source material limits the use of PRBs as a remedial alternative.
Phytoremediation / TreeWell®	Deed restrictions may be necessary for groundwater areas upgradient of the TreeWell® system. No other institutional requirements are expected at this time.	None expected at this point. Innovative and green technology may be positively received by various stakeholders. Following installation, the remedy is passive and does not require external energy.	Medium (for installation) - minimal O&M requirements	Retained for further analysis; may be used as a stand-alone corrective measure or in conjunction with other potential groundwater corrective measures.
Subsurface Vertical Barrier Walls	Deed restrictions may be necessary for groundwater areas downgradient of the barrier wall until remedial goals are met. No other institutional requirements are expected at this time.	Due to the need for groundwater extraction associated with barrier walls, above-ground treatment components may need to be present for an extended period of time, generating residuals requiring management and disposal.	Medium to high (depending on length and depth of wall, remedy duration and complexity of above-ground treatment system)	Not retained for further analysis; limited space available downgradient of impacted wells; removal of the source material limits the use of subsurface vertical barrier walls as a remedial alternative.

February 2021

TABLE 2
SUMMARY OF MONITORING NETWORK WELL AND PIEZOMETER CONSTRUCTION AND GROUNDWATER ELEVATIONS

Well	Installation Date	Northing <sup>(1)</sup>	Easting <sup>(1)</sup>	Top of Casing Elevation (feet above MSL) <sup>(2)</sup> (Prior to June 2020 Resurvey)	Top of Casing Elevation (feet above MSL) <sup>(2)</sup> (June 2020 Resurvey) <sup>(3)</sup>	Ground Surface Elevation (feet above MSL) <sup>(2)</sup> (June 2020 Resurvey) <sup>(3)</sup>	Top of Screen Elevation (feet above MSL) <sup>(3)</sup>	Screen Bottom Elevation (feet above MSL) <sup>(3)</sup>	Screen Length (feet)	Log (feet below land	Total Well Depth Measured September 2020 (feet below TOC)	Groundwater Zone Screened	Location	Depth to Water (feet below TOC) 9/28/2020	Groundwater Elevation (feet above MSL) 9/28/2020
						M	Ionitoring Networ	k Compliance Well	s						
ARGWA-19	12/16/2008	1063774.45	2439488.71	343.48	343.30	339.86	300.18	290.18	10.00	49.98	44.55	Bedrock	Upgradient	26.60	316.70
ARGWA-20	12/4/2008	1063732.73	2439088.01	331.48	331.28	327.73	303.18	293.18	10.00	34.85	29.44	Overburden	Upgradient	14.24	317.04
ARGWC-21	12/2/2008	1062941.24	2439112.52	309.40	309.15	305.97	291.70	281.70	10.00	24.57	18.71	Overburden	Downgradient	14.12	295.03
ARGWC-22	11/19/2019	1063039.36	2438925.04	310.18	309.95	307.01	292.01	282.01	10.00	25.00	27.74	Overburden	Downgradient	13.67	296.28
ARGWC-23	11/20/2019	1062884.38	2439202.38	307.79	307.70	304.29	289.29	279.29	10.00	25.00	28.08	Overburden	Downgradient	12.10	295.60
							Delineation	Piezometers							
ARAMW-1	11/20/2019	1062938.38	2439120.01	308.67	308.51	305.07	271.07	261.07	10.00	44.00	45.32	Bedrock	Downgradient	13.39	295.12
ARAMW-2	11/20/2019	1062925.96	2439114.97	308.52	308.27	305.12	293.12	283.12	10.00	22.00	24.84	Overburden	Downgradient	13.58	294.69
ARAMW-7	11/14/2020	1063049.07	2438913.27	NA	309.81	307.13	269.30	259.30	10.00	48.00	50.82 <sup>(4)</sup>	Bedrock	Downgradient	Not Ins	talled <sup>(6)</sup>
ARAMW-8	11/13/2020	1062895.98	2439197.40	NA	307.36	304.53	268.10	258.10	10.00	47.00	49.61 <sup>(4)</sup>	Bedrock	Downgradient	Not Ins	talled <sup>(6)</sup>

#### Notes:

- 1. Horizontal locations referenced to Georgia State Plane West, North American Datum of (NAD) 1983 surveyed in June 2020.
- 2. MSL indicates feet above mean sea level and referenced to North American Vertical Datum of 1988
- 3. Elevations based on June 2020 survey.
- 4. Total well depths for piezometers ARAMW-7 and ARAMW-8 were measured November 13 and 14, 2020.
- 5. TOC indicates top of casing. NA indicates not applicable
- 6. ARAMW-7 and ARAMW-8 were installed in November 2020, thus was not measured in September 2020.

Prepared by: NJM 1/4/2021 Checked by: EIWP 2/10/2021

# TABLE 3 WATER QUALITY ANALYTICAL SUMMARY

										Groundwater A	nalytical Res	ults in mg/L								
	Sample	Total	Bicarbonate	Carbonate						Dissolved			Dissolved							Total
Well ID	Date	Alkalinity	Alkalinity as	Alkalinity as	Boron	Calcium	Chloride	Cobalt	Fluoride	Iron	Lithium	Magnesium	Manganese	Molybdenum	рΗ	Potassium	Sodium	Sulfate	Sulfide	Dissolved
	Date	as CaCO3	CaCO3	CaCO3						IIOII			ivianganese							Solids
ARAMW-1	6/24/2020	170	170	<5.0	0.84	81	5.3	0.00097 J	0.21	0.42	0.0084	34	0.41	0.0051 J	6.31	5.5	21	250	<2.1	NA
ARAMW-2	6/24/2020	130	130	<5.0	0.89	89	4.3	0.0027	0.11	9.7	0.018	36	1.0	<0.00061	6.19	6.9	20	290	<2.1	NA
ARAMW-7	11/30/2020	120	120	<5.0	2.1	260	6.3	0.028	0.044 J	17	0.061	74	11	0.0012 J	6.00	13	27	990	<2.1	1600
ARAMW-8	12/1/2020	220	220	<5.0	0.40	81	12	0.0054	0.14	1.8	0.0044 J	25	2.9	0.056	7.05	7.0	22	120	<2.1	420
ARGWA-19	6/25/2020	33	33	<5.0	0.091	14	11	< 0.00013	0.030 J	<0.020	0.0053	5.5	0.00089 J	<0.00061	5.80	2.6	13	9.8	<2.1	NA
ARGWA-20	6/25/2020	39	39	<5.0	0.081	9.6	5.1	0.00015 J	<0.026	<0.020	< 0.0034	4.9	0.0028 J	<0.00061	5.61	1.5	9.7	16	<2.1	NA
ARGWC-21	6/25/2020	140	140	<5.0	0.82	80	3.7	0.00097 J	0.041 J	1.0	0.013	37	0.36	<0.00061	5.98	6.1	19	210	<2.1	NA
ARGWC-22	6/24/2020	96	96	<5.0	2.5	180	5.7	0.0047	0.048 J	6.2	0.023	87	16	<0.00061	5.82	4.6	26	810	<2.1	NA
ARGWC-23	6/25/2020	160	160	<5.0	0.42	72	3.4	0.0014 J	0.25	<0.020	0.043	13	0.62	0.055	6.37	2.4	14	77	<2.1	NA
			•			•	•	•	S	urface Water	Analytical Res	sults in mg/L	•			•	•		•	

									3	urtace water i	anaiyticai ke	suits in mg/L								
Surface Water	Sample	Total	Bicarbonate	Carbonate						Dissolved			Dissolved							Total
Location ID on	Date	Alkalinity	Alkalinity as	Alkalinity as	Boron	Calcium	Chloride	Cobalt	Fluoride	Iron	Lithium	Magnesium	Manganese	Molybdenum	рН	Potassium	Sodium	Sulfate	Sulfide	Dissolved
Beaverdam Creek	Date	as CaCO3	CaCO3	CaCO3						iron			wanganese							Solids
BC-0.8	11/3/2020	55	55	NA	NA	NA	9.5	0.00042 J	0.066 J	NA	NA	NA	NA	NA	7.6	NA	NA	3.8	NA	84
BC-0.8	2/10/2021	43	43	NA	0.27	15	8.0	0.0019 J	0.050 J	NA	< 0.0034	8.0	NA	<0.00061	7.2	1.6	9.3	32	NA	130
BC-0.5.7	2/10/2021	44	44	NA	0.047 J	8.4	8.5	0.00056 J	0.055 J	NA	< 0.0034	4.2	NA	<0.00061	7.3	1.9	8.2	6.4	NA	85
BC-0.5.6	2/10/2021	43	43	NA	< 0.039	8.7	8.6	0.00057 J	0.055 J	NA	<0.0034	4.3	NA	<0.00061	7.4	1.9	8.4	6.7	NA	96
BC-0.5.5	11/3/2020	55	55	NA	NA	NA	9.2	0.00047 J	0.050 J	NA	NA	NA	NA	NA	7.4	NA	NA	6.1	NA	88
BC-0.5.5	2/10/2021	44	44	NA	< 0.039	8.1	8.7	0.00050 J	0.062 J	NA	<0.0034	4.2	NA	<0.00061	7.4	1.8	8.1	6.8	NA	76
BC-BR	11/3/2020	55	55	NA	NA	NA	9.3	0.00048 J	<0.044	NA	NA	NA	NA	NA	7.4	NA	NA	6.2	NA	85
BC-BR	2/10/2021	43	43	NA	< 0.039	9.0	8.6	0.00052 J	0.056 J	NA	< 0.0034	4.4	NA	<0.00061	7.4	1.9	8.6	6.7	NA	88
BC-0.3	2/10/2021	44	44	NA	< 0.039	8.6	8.0	0.00050 J	0.051 J	NA	<0.0034	4.3	NA	<0.00061	7.5	1.9	8.4	6.5	NA	98
BC-0.1	2/10/2021	43	43	NA	< 0.039	8.3	8.7	0.00057 J	0.056 J	NA	< 0.0034	4.2	NA	<0.00061	7.5	1.9	8.2	6.9	NA	92

#### Notes:

- 1. Results for metals, anions, and cations are reported in milligrams per liter (mg/L). pH values are in standard units (su)
- 2. < indicates the analyte was not detected above the analytical method detection limit (MDL).
- 3. (J) indicates the constituent was detected between the analytical method detection limit and laboratory reporting limit. The value followed by (J) is qualified by the laboratory as estimated.
- 4. CaCO3 is calcium carbonate
- 5. NA indicates constituent was not analyzed

# TABLE 4 PROPOSED ACM SUPPLEMENTARY DATA ANALYSES AND COLLECTION TASKS FOR FIRST SEMI-ANNUAL PERIOD 2021

Data Collection Event	Applicable CMs <sup>(1)</sup>	Applicability/Rationale	Field Component	Parameters of Interest (POI)	Analytical Lab Performing Analysis
Groundwater Sampling	3 and 4	Evaluation of:  (i) attenuation mechanisms and rates and aquifer capacity for attenuation  (ii) in-situ conditions to establish phytoremediation measures downgradient of the unit	Collect groundwater samples from existing well network currently sampled under the assessment monitoring program	In addition to routine App III/IV parameters: major cations (i.e., calcium, magnesium, sodium, and potassium) and anions (i.e., chloride, nitrate, nitrite, sulfate, and bicarbonate), sulfide, iron, manganese.	TestAmerica Laboratories, Inc. (Eurofins) of Pittsburgh, Pennsylvania
Plume Stability Analysis	1, 2, 3	Evaluate plume stability using time-series charts and trend analysis using linear regression or non-parametric trend tests.	Not Applicable (Desktop Study)	Determine plume stability to understand if the plume is growing, shrinking, or is stable at the AP-2 DAS unit.	No Lab data required
Slug Tests	1, 2, 4	Refine our understanding of hydrogeologic conditions within the anticipated treatment area. Slug test data will be used to further refine the conceptual site model and groundwater flow.	Conduct slug tests in both upgradient and downgradient wells.	Hydraulic conductivity and transmissivity	No lab data required
Determine Ionic Speciation of Contaminants	1 and 3	Evaluate field parameters (pH, ORP, temperature) to determine plausible ionic speciation of the contaminants, and evaluation ionic strength to guide assessment of adsorption potential.	Not Applicable (Desktop Study)	Mechanism and rate of attenuation	No lab data required

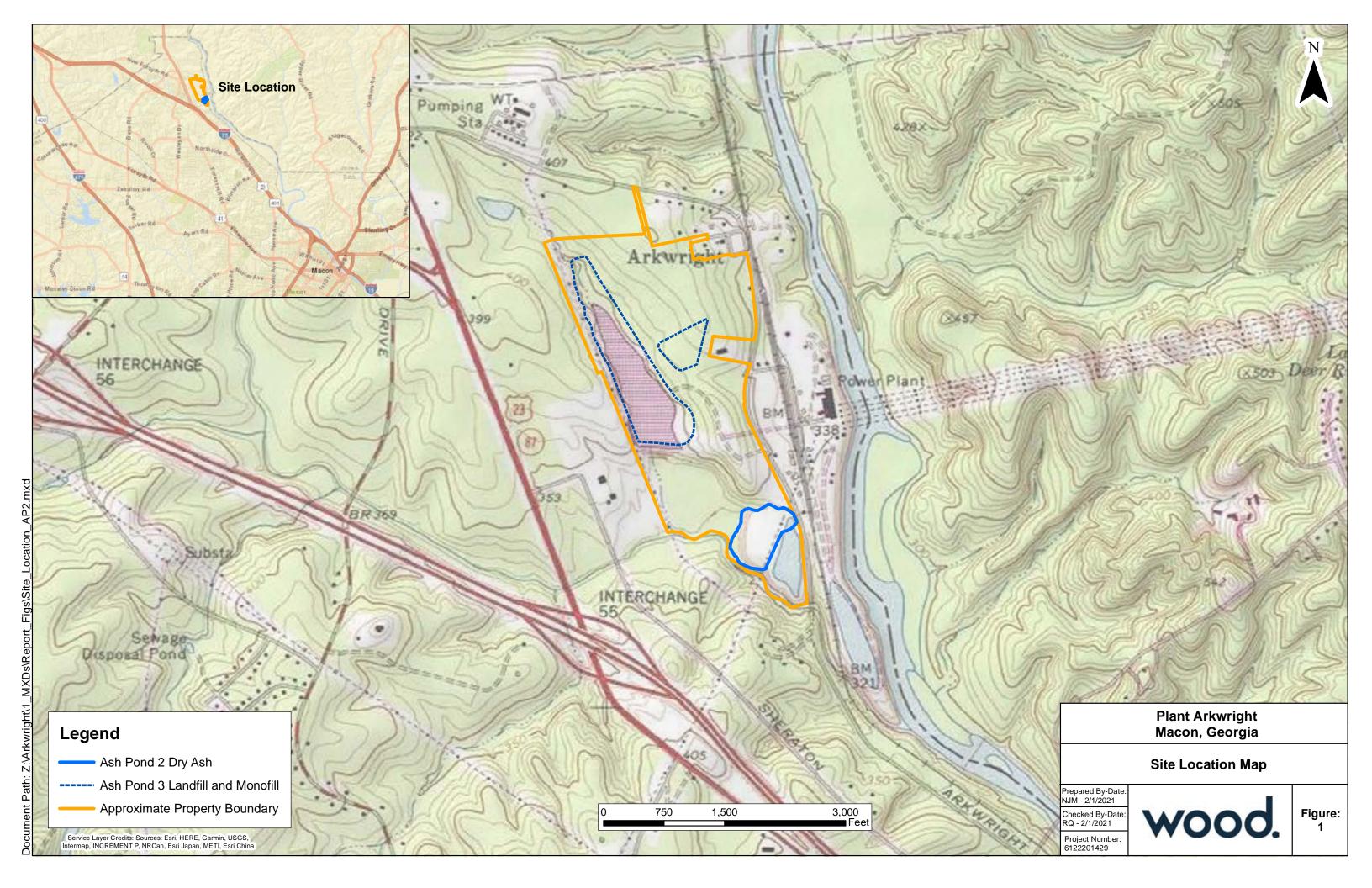
## Note:

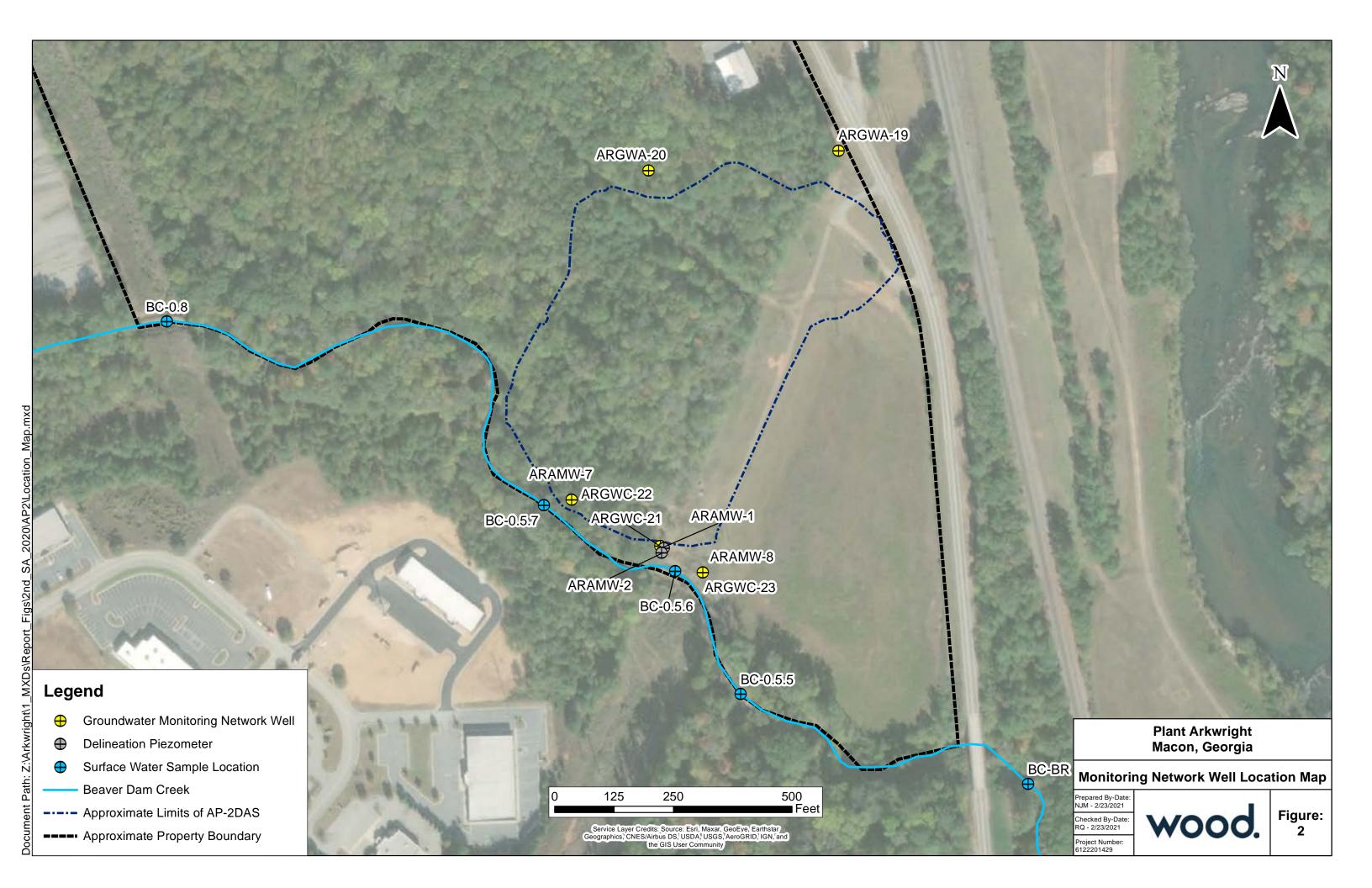
- (1) Corrective Measure (CM) Codes:
- 1 Geochemical Manipulation (In-Situ Injection
- 2 Hydraulic Containment and Dewatering (Pump and Treat)
- 3 Monitored Natural Attenuation (MNA)
- 4 Phytoremediation (TreeWells®)

1 of 1 February 2021

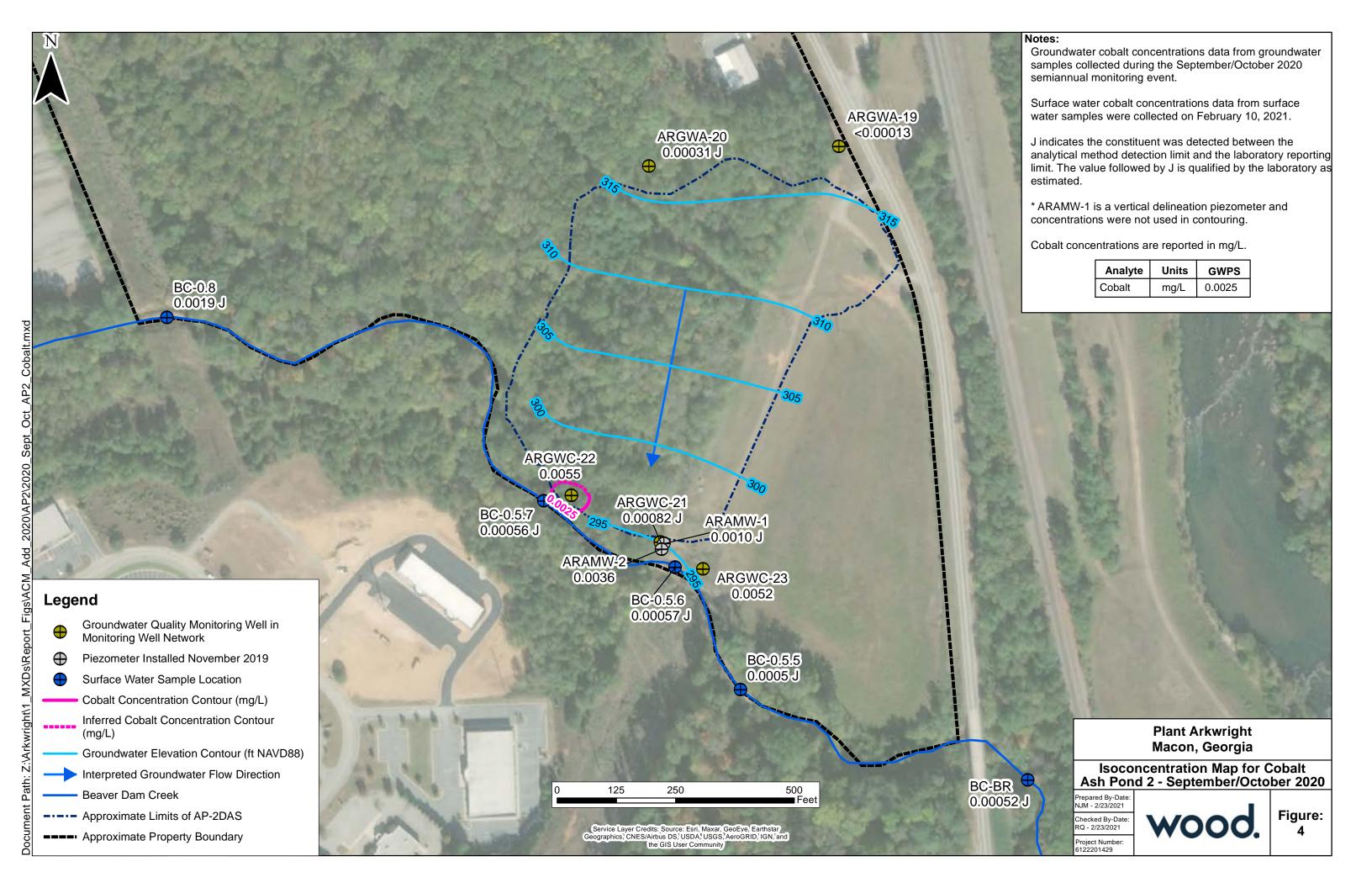
Semi-Annual Remedy Selection and Design Progress Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

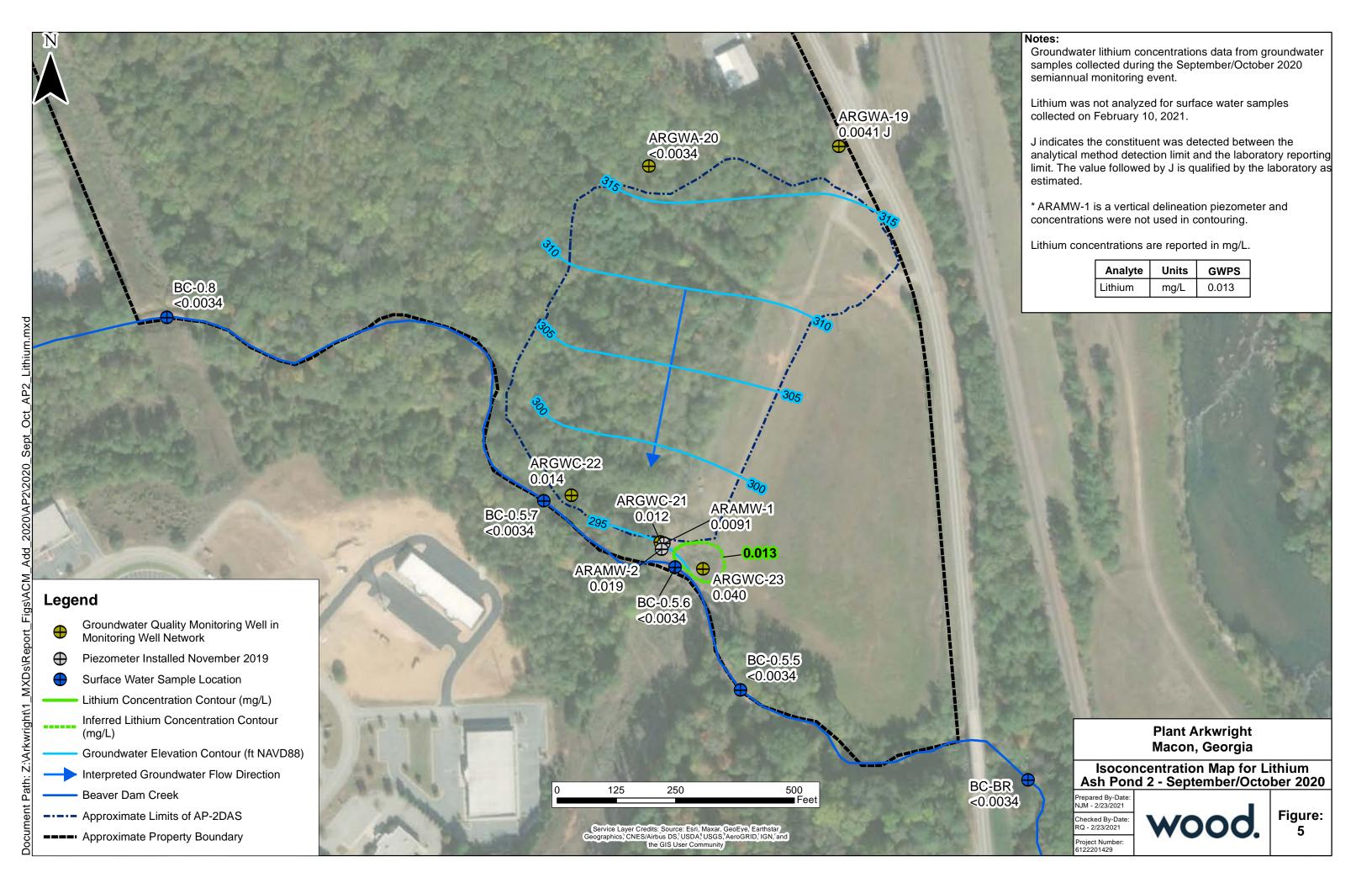
# **FIGURES**

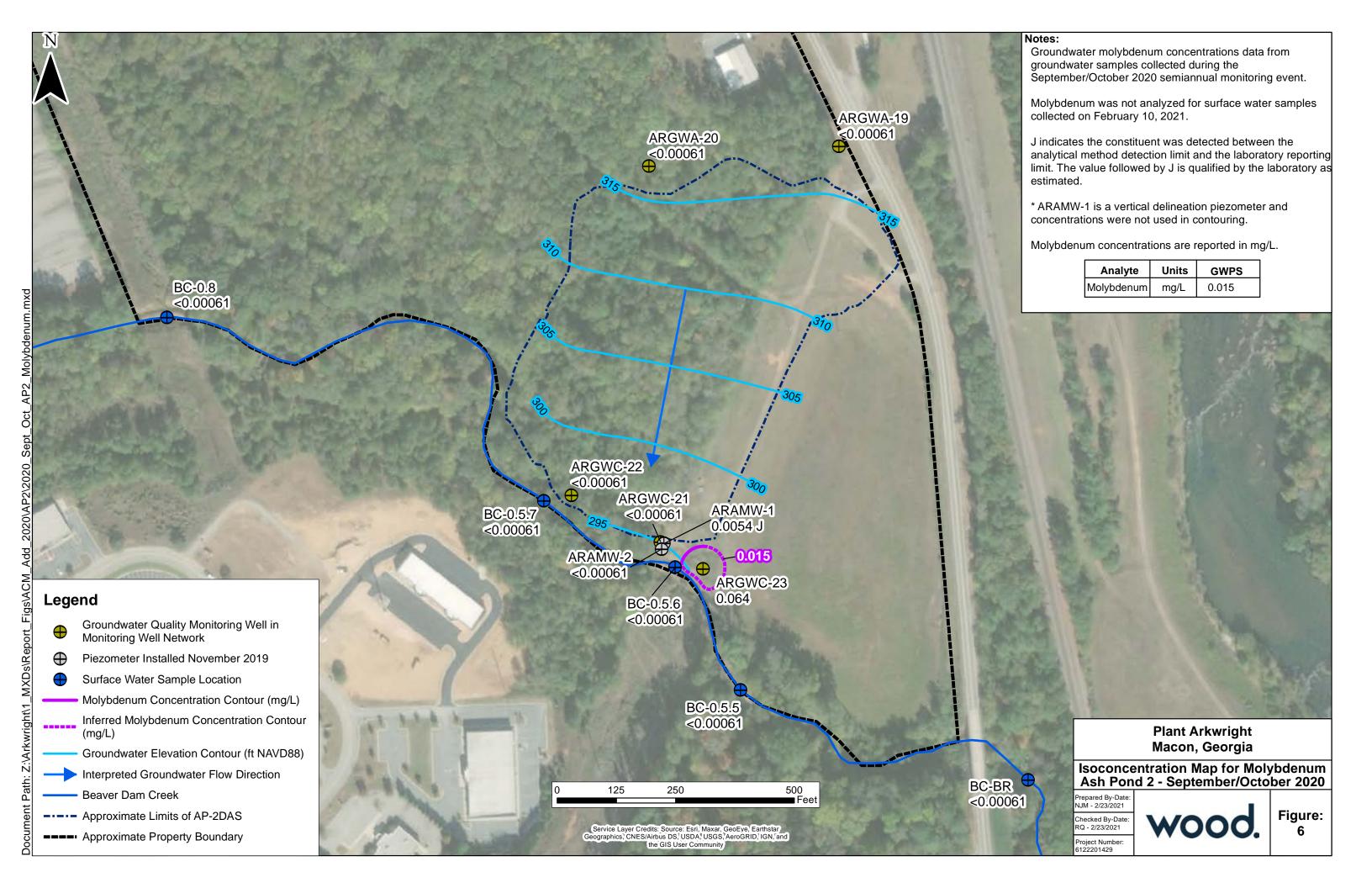


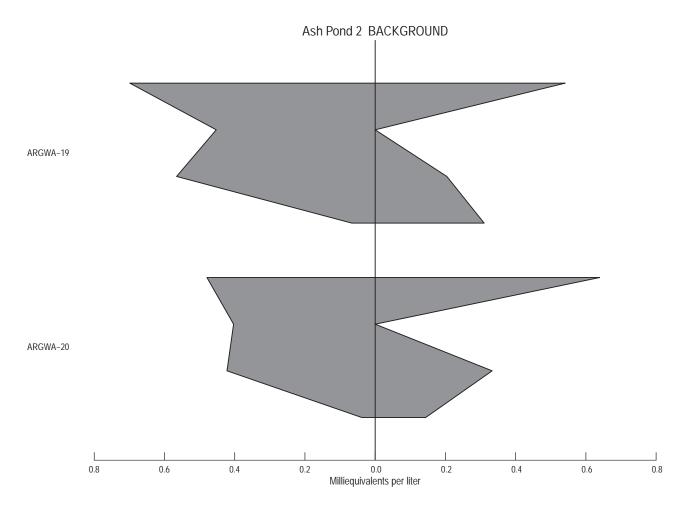




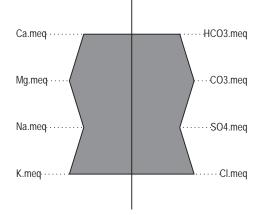












## Plant Arkwright Macon, Georgia

Stiff Diagram - Background Compliance Wells

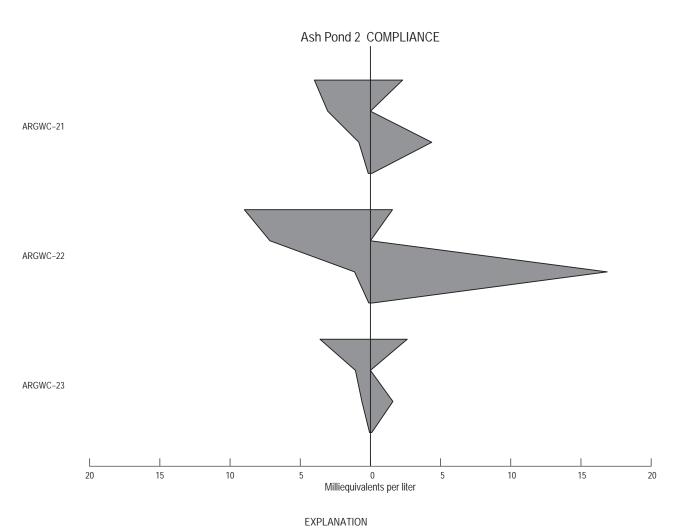
Prepared By-Date: NJM - 1/6/2021

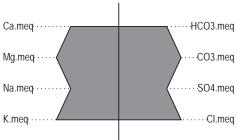
Checked By-Date: RQ - 1/6/2021

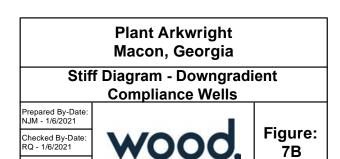
Project Number: 6122201429



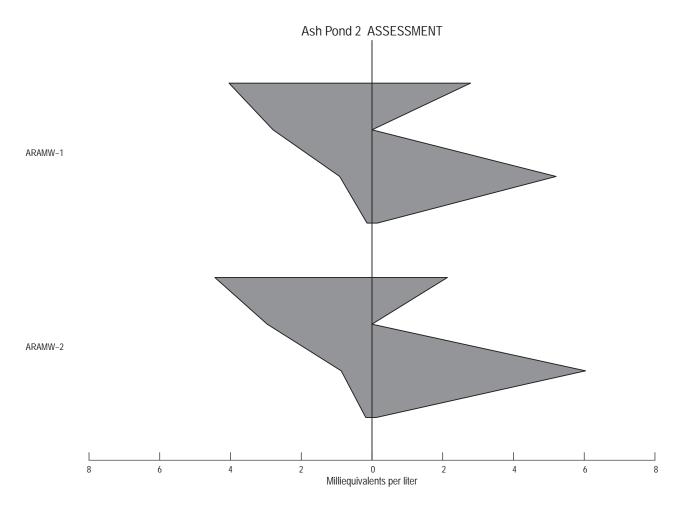
Figure: 7A



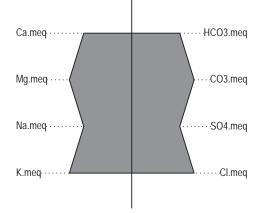




Project Number: 6122201429









Stiff Diagram - Delineation Piezometers

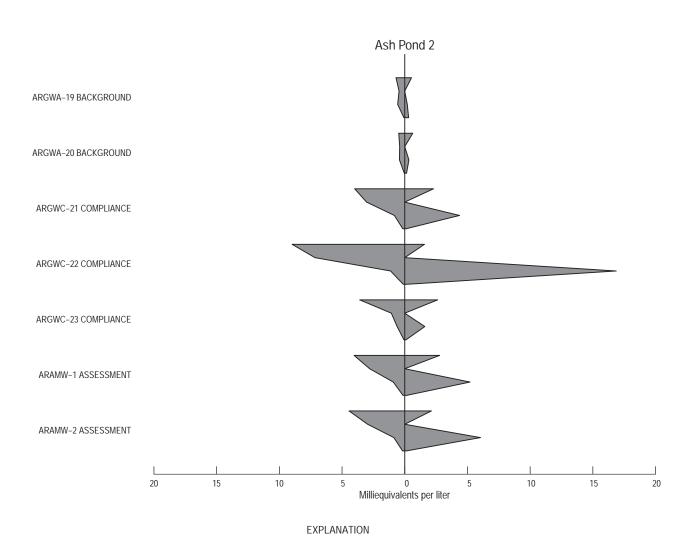
Prepared By-Date: NJM - 1/6/2021

Checked By-Date: RQ - 1/6/2021

Project Number: 6122201429



Figure: 7C



··· HCO3.meq

· CO3.meq

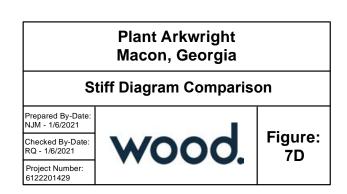
······ Cl.meq

SO4.meq

Ca.meq · · · · · Mg.meq · · · · ·

 $\text{Na.meq}\cdot \cdot \cdot \cdot \cdot$ 

K.meq · · · · ·



Semi-Annual Remedy Selection and Design Progress Report Georgia Power Company – Plant Arkwright Ash Pond 2 Dry Ash Stockpile

# APPENDIX A

FIELD SAMPLING LOGS AND ANALYTICAL DATA REPORTS FOR JUNE AND NOVEMBER/DECEMBER 2020 AND FEBRUARY 2021



# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-107491-1

Client Project/Site: Plant Arkwright AP3 Alternate Source

For:

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

Attn: Joju Abraham

Authorized for release by: 7/8/2020 3:56:14 PM

Shali Brown, Project Manager II (615)301-5031

shali.brown@testamericainc.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

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

PA Lab ID: 02-00416

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	4
Certification Summary	5
Sample Summary	6
Method Summary	7
Lab Chronicle	8
Client Sample Results	11
QC Sample Results	15
QC Association Summary	18
Chain of Custody	20
Receipt Chacklists	22

#### **Case Narrative**

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

Job ID: 180-107491-1

Laboratory: Eurofins TestAmerica, Pittsburgh

**Narrative** 

Job Narrative 180-107491-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 6/25/2020 9:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.8° C.

#### GC Semi VOA

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

#### Metals

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

#### Field Service / Mobile Lab

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

#### **General Chemistry**

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

•

Job ID: 180-107491-1

2

3

Δ

5

6

o

9

10

1 1

13

## **Definitions/Glossary**

Client: Southern Company Job ID: 180-107491-1

Project/Site: Plant Arkwright AP3 Alternate Source

#### **Qualifiers**

	. ^	-
HP	1 1 2/	
	-	$\cdot$

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** 

B Compound was found in the blank and sample.

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

**Glossary** 

Abbreviation These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

3

4

6

10

13

## **Accreditation/Certification Summary**

Client: Southern Company Job ID: 180-107491-1

Project/Site: Plant Arkwright AP3 Alternate Source

## **Laboratory: Eurofins TestAmerica, Pittsburgh**

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

Authority	Program	Identification Number	<b>Expiration Date</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-20 *
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	08-01-20
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	05-23-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

<sup>\*</sup> Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Pittsburgh

# **Sample Summary**

Client: Southern Company Project/Site: Plant Arkwright AP3 Alternate Source

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-107491-1	ARGWC-22	Water	06/24/20 10:05	06/25/20 09:00	
180-107491-2	DUP#2	Water	06/24/20 00:00	06/25/20 09:00	
180-107491-3	ARAMW-1	Water	06/24/20 12:45	06/25/20 09:00	
180-107491-4	ARAMW-2	Water	06/24/20 16:40	06/25/20 09:00	

Job ID: 180-107491-1

## **Method Summary**

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatgraphy	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL PIT
SM2320 B	Alkalinity, Total	SM18	TAL PIT
Field Sampling	Field Sampling	EPA	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	TAL PIT

#### **Protocol References:**

EPA = US Environmental Protection Agency

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

#### **Laboratory References:**

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

Job ID: 180-107491-1

#### **Lab Chronicle**

Client: Southern Company Job ID: 180-107491-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARGWC-22** 

Date Collected: 06/24/20 10:05 Date Received: 06/25/20 09:00 Lab Sample ID: 180-107491-1

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHIC2100A		1			319460	06/26/20 02:36	MJH	TAL PIT
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHIC2100A		10			319460	06/26/20 02:52	MJH	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	319682	06/26/20 08:36	TJO	TAL PIT
Dissolved	Analysis Instrumen	EPA 6020B t ID: NEMO		1			320364	07/02/20 08:55	RJR	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	319682	06/26/20 08:36	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: NEMO		1			320364	07/02/20 08:25	RJR	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	320115	07/01/20 06:00	CMR	TAL PIT
Total/NA	Analysis Instrumen	EPA 9034 t ID: NOEQUIP		1			320175	07/01/20 07:33	CMR	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			320796	07/07/20 10:05	AVS	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			320074	06/24/20 10:05	NJD	TAL PIT

Client Sample ID: DUP#2

Date Collected: 06/24/20 00:00

Lab Sample ID: 180-107491-2

Matrix: Water

Date Received: 06/25/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrument	EPA 300.0 R2.1 ID: CHIC2100A		1		_	319460	06/26/20 03:08	MJH	TAL PIT
Total/NA	Analysis Instrument	EPA 300.0 R2.1 ID: CHIC2100A		10			319460	06/26/20 03:23	MJH	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	319682	06/26/20 08:36	TJO	TAL PIT
Dissolved	Analysis Instrument	EPA 6020B ID: NEMO		1			320364	07/02/20 08:58	RJR	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	319682	06/26/20 08:36	TJO	TAL PIT
Total Recoverable	Analysis Instrument	EPA 6020B ID: NEMO		1			320364	07/02/20 08:28	RJR	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	320115	07/01/20 06:00	CMR	TAL PIT
Total/NA	Analysis Instrument	EPA 9034 ID: NOEQUIP		1			320175	07/01/20 07:34	CMR	TAL PIT
Total/NA	Analysis Instrument	SM2320 B		1			320796	07/07/20 10:11	AVS	TAL PIT

-0

3

5

7

9

10

12

7/8/2020

#### **Lab Chronicle**

Client: Southern Company Job ID: 180-107491-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARAMW-1** 

Lab Sample ID: 180-107491-3 Date Collected: 06/24/20 12:45

**Matrix: Water** 

Date Received: 06/25/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: CHIC2100A		1			319460	06/26/20 03:39	MJH	TAL PIT
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: CHICS2100B		5			319945	06/30/20 10:34	MJH	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	319682	06/26/20 08:36	TJO	TAL PIT
Dissolved	Analysis Instrumen	EPA 6020B nt ID: NEMO		1			320364	07/02/20 09:00	RJR	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	319682	06/26/20 08:36	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B nt ID: NEMO		1			320364	07/02/20 08:31	RJR	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	320115	07/01/20 06:00	CMR	TAL PIT
Total/NA	Analysis Instrumen	EPA 9034 nt ID: NOEQUIP		1			320175	07/01/20 07:36	CMR	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B at ID: PCTITRATOR		1			320519	06/30/20 15:12	AVS	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling		1			320074	06/24/20 12:45	NJD	TAL PIT

**Client Sample ID: ARAMW-2** 

Date Collected: 06/24/20 16:40 Date Received: 06/25/20 09:00

Lab Sample ID: 180-107491-4 **Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: CHIC2100A		1			319460	06/26/20 03:55	MJH	TAL PIT
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 at ID: CHICS2100B		5			319945	06/30/20 10:50	MJH	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	319684	06/26/20 08:47	TJO	TAL PIT
Dissolved	Analysis Instrumen	EPA 6020B at ID: A		1			320376	07/01/20 22:18	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	319684	06/26/20 08:47	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B at ID: A		1			320376	07/01/20 22:21	RSK	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	320115	07/01/20 06:00	CMR	TAL PIT
Total/NA	Analysis Instrumen	EPA 9034 at ID: NOEQUIP		1			320175	07/01/20 07:37	CMR	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B at ID: PCTITRATOR		1			320519	06/30/20 15:19	AVS	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling		1			320074	06/24/20 16:40	NJD	TAL PIT

#### **Laboratory References:**

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

Eurofins TestAmerica, Pittsburgh

Page 9 of 22

7/8/2020

### **Lab Chronicle**

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

**Analyst References:** 

Lab: TAL PIT

Batch Type: Prep

CMR = Carl Reagle

TJO = Tyler Oliver

Batch Type: Analysis

AVS = Abbey Smith

CMR = Carl Reagle

MJH = Matthew Hartman

NJD = Nicholas DiNardo

RJR = Ron Rosenbaum

RSK = Robert Kurtz

Job ID: 180-107491-1

3

Δ

\_\_

\_

b

8

9

10

13

## **Client Sample Results**

Client: Southern Company Job ID: 180-107491-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARGWC-22** 

Date Collected: 06/24/20 10:05

Lab Sample ID: 180-107491-1

Matrix: Water

Method: EPA 300.0 R2.1 - Anior Analyte		romatgraph Qualifier	iy RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.7		1.0	0.32	mg/L			06/26/20 02:36	
Fluoride	0.048	J	0.10	0.026	-			06/26/20 02:36	
Nitrate as N	< 0.023		0.10	0.023	mg/L			06/26/20 02:36	
Nitrite as N	<0.029		0.050	0.029	mg/L			06/26/20 02:36	
Sulfate	810		10	3.8	mg/L			06/26/20 02:52	10
Method: EPA 6020B - Metals (IC	P/MS) - T	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.5		0.080	0.039	mg/L		06/26/20 08:36	07/02/20 08:25	
Calcium	180		0.50	0.13	mg/L		06/26/20 08:36	07/02/20 08:25	
Cobalt	0.0047		0.0025	0.00013	mg/L		06/26/20 08:36	07/02/20 08:25	1
Lithium	0.023		0.0050	0.0034	mg/L		06/26/20 08:36	07/02/20 08:25	1
Magnesium	87		0.50	0.083	mg/L		06/26/20 08:36	07/02/20 08:25	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/26/20 08:36	07/02/20 08:25	1
Potassium	4.6		0.50	0.16	mg/L		06/26/20 08:36	07/02/20 08:25	1
Sodium	26		0.50	0.35	mg/L		06/26/20 08:36	07/02/20 08:25	1
Method: EPA 6020B - Metals (IC	P/MS) - D	issolved							
Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Iron	6.2		0.050	0.020	mg/L		06/26/20 08:36	07/02/20 08:55	1
Manganese	16		0.0050	0.00087	mg/L		06/26/20 08:36	07/02/20 08:55	1
General Chemistry									
Analyte		Qualifier	RL _		Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1		3.0	2.1	mg/L		07/01/20 06:00	07/01/20 07:33	1
Total Alkalinity as CaCO3 to pH 4.	96		5.0		mg/L			07/07/20 10:05	1
Bicarbonate Alkalinity as CaCO3	96		5.0		mg/L			07/07/20 10:05	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			07/07/20 10:05	1
Method: Field Sampling - Field						-	_		
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
рН	5.82				SU			06/24/20 10:05	

7/8/2020

## **Client Sample Results**

Client: Southern Company Job ID: 180-107491-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: DUP#2** 

Lab Sample ID: 180-107491-2 Date Collected: 06/24/20 00:00

**Matrix: Water** 

Date Received: 06/25/20 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.9		1.0	0.32	mg/L			06/26/20 03:08	1
Fluoride	0.045	J	0.10	0.026	mg/L			06/26/20 03:08	1
Nitrate as N	<0.023		0.10	0.023	mg/L			06/26/20 03:08	1
Nitrite as N	<0.029		0.050	0.029	mg/L			06/26/20 03:08	1
Sulfate	830		10	3.8	mg/L			06/26/20 03:23	10
Method: EPA 6020B -	Metals (ICP/MS) - T	otal Recove	erable						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.5		0.080	0.039	mg/L		06/26/20 08:36	07/02/20 08:28	1
Calcium	180		0.50	0.13	mg/L		06/26/20 08:36	07/02/20 08:28	1
Cobalt	0.0039		0.0025	0.00013	mg/L		06/26/20 08:36	07/02/20 08:28	1
Lithium	0.023		0.0050	0.0034	mg/L		06/26/20 08:36	07/02/20 08:28	1
Magnesium	83		0.50	0.083	mg/L		06/26/20 08:36	07/02/20 08:28	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/26/20 08:36	07/02/20 08:28	1
Potassium	4.4		0.50	0.16	mg/L		06/26/20 08:36	07/02/20 08:28	1
Sodium	25		0.50	0.35	mg/L		06/26/20 08:36	07/02/20 08:28	1
Method: EPA 6020B -	Metals (ICP/MS) - D	issolved							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	6.0		0.050	0.020	mg/L		06/26/20 08:36	07/02/20 08:58	1
Manganese	16		0.0050	0.00087	mg/L		06/26/20 08:36	07/02/20 08:58	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1		3.0	2.1	mg/L		07/01/20 06:00	07/01/20 07:34	1
Total Alkalinity as CaCO3 to pH 4.4	100		5.0	5.0	mg/L			07/07/20 10:11	1
Bicarbonate Alkalinity as CaCO3	100		5.0	5.0	mg/L			07/07/20 10:11	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			07/07/20 10:11	1

# **Client Sample Results**

Client: Southern Company Job ID: 180-107491-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARAMW-1** 

Date Collected: 06/24/20 12:45 Date Received: 06/25/20 09:00 Lab Sample ID: 180-107491-3

Matrix: Water

Method: EPA 300.0 R2 Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.3		1.0	0.32	mg/L			06/26/20 03:39	1
Fluoride	0.21		0.10	0.026	mg/L			06/26/20 03:39	1
Nitrate as N	<0.023		0.10	0.023	mg/L			06/26/20 03:39	1
Nitrite as N	0.042	J	0.050	0.029	mg/L			06/26/20 03:39	1
Sulfate	250		5.0	1.9	mg/L			06/30/20 10:34	5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.84		0.080	0.039	mg/L		06/26/20 08:36	07/02/20 08:31	1
Calcium	81		0.50	0.13	mg/L		06/26/20 08:36	07/02/20 08:31	1
Cobalt	0.00097	J	0.0025	0.00013	mg/L		06/26/20 08:36	07/02/20 08:31	1
Lithium	0.0084		0.0050	0.0034	mg/L		06/26/20 08:36	07/02/20 08:31	1
Magnesium	34		0.50	0.083	mg/L		06/26/20 08:36	07/02/20 08:31	1
Molybdenum	0.0051	J	0.015	0.00061	mg/L		06/26/20 08:36	07/02/20 08:31	1
Potassium	5.5		0.50	0.16	mg/L		06/26/20 08:36	07/02/20 08:31	1
Sodium	21		0.50	0.35	mg/L		06/26/20 08:36	07/02/20 08:31	1

Method: EPA 6020B - Metals (	ICP/MS) - D	issolved							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.42		0.050	0.020	mg/L		06/26/20 08:36	07/02/20 09:00	1
Manganese	0.41		0.0050	0.00087	mg/L		06/26/20 08:36	07/02/20 09:00	1

General Chemistry Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1	3.0	2.1	mg/L		07/01/20 06:00	07/01/20 07:36	1
Total Alkalinity as CaCO3 to pH 4.4	170	5.0	5.0	mg/L			06/30/20 15:12	1
Bicarbonate Alkalinity as CaCO3	170	5.0	5.0	mg/L			06/30/20 15:12	1
Carbonate Alkalinity as CaCO3	<5.0	5.0	5.0	mg/L			06/30/20 15:12	1

Method: Field Sampling - Field	l Sampling								
Analyte	Result C	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
рН	6.31				SU			06/24/20 12:45	1

7/8/2020

# **Client Sample Results**

Client: Southern Company Job ID: 180-107491-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARAMW-2** 

Date Collected: 06/24/20 16:40
Date Received: 06/25/20 09:00

Lab Sample ID: 180-107491-4

**Matrix: Water** 

Method: EPA 300.0 R2.1 - Anions Analyte		romatgraph Qualifier	ny RL	MDI	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.3	Qualifier	1.0		mg/L		Trepared	06/26/20 03:55	1
Fluoride	0.11		0.10	0.026	-			06/26/20 03:55	1
Nitrate as N	<0.023		0.10	0.023	-			06/26/20 03:55	1
Nitrite as N	0.033		0.050	0.029				06/26/20 03:55	· · · · · · · · · · · · · · · · · · ·
Sulfate	290	•	5.0		mg/L			06/30/20 10:50	5
Method: EPA 6020B - Metals (IC	P/MS) - T	otal Recove	erable						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.89		0.080	0.039	mg/L		06/26/20 08:47	07/01/20 22:21	1
Calcium	89		0.50	0.13	mg/L		06/26/20 08:47	07/01/20 22:21	1
Cobalt	0.0027		0.0025	0.00013	mg/L		06/26/20 08:47	07/01/20 22:21	1
Lithium	0.018		0.0050	0.0034	mg/L		06/26/20 08:47	07/01/20 22:21	1
Magnesium	36		0.50	0.083	mg/L		06/26/20 08:47	07/01/20 22:21	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/26/20 08:47	07/01/20 22:21	1
Potassium	6.9		0.50	0.16	mg/L		06/26/20 08:47	07/01/20 22:21	1
Sodium	20		0.50	0.35	mg/L		06/26/20 08:47	07/01/20 22:21	1
Method: EPA 6020B - Metals (IC									
Analyte		Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Iron	9.7	В	0.050	0.020	-		06/26/20 08:47	07/01/20 22:18	1
Manganese	1.0		0.0050	0.00087	mg/L		06/26/20 08:47	07/01/20 22:18	1
General Chemistry Analyte	Popult	Qualifier	RL	MDI	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1	Qualifier	3.0	2.1	mg/L		07/01/20 06:00	07/01/20 07:37	1
Total Alkalinity as CaCO3 to pH 4.	130		5.0 5.0		mg/L		01701720 00.00	06/30/20 15:19	1
	130		5.0		mg/L			06/30/20 15:19	1
Bicarbonate Alkalinity as CaCO3 Carbonate Alkalinity as CaCO3	<b>130</b> <5.0		5.0		mg/L mg/L			06/30/20 15:19	1
Method: Field Sampling - Field S									
Analyte	Paguilt	Qualifier	RL	MDL	llnit	D	Prepared	Analyzed	Dil Fac

7/8/2020

Client: Southern Company Job ID: 180-107491-1

Project/Site: Plant Arkwright AP3 Alternate Source

#### Method: EPA 300.0 R2.1 - Anions, Ion Chromatgraphy

Lab Sample ID: MB 180-319460/50

**Matrix: Water** 

Analysis Batch: 319460

**Client Sample ID: Method Blank** 

**Prep Type: Total/NA** 

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			06/25/20 19:12	1
Fluoride	<0.026		0.10	0.026	mg/L			06/25/20 19:12	1
Nitrate as N	<0.023		0.10	0.023	mg/L			06/25/20 19:12	1
Nitrite as N	<0.029		0.050	0.029	mg/L			06/25/20 19:12	1
Sulfate	<0.38		1.0	0.38	mg/L			06/25/20 19:12	1

Lab Sample ID: LCS 180-319460/49

**Matrix: Water** 

Analysis Batch: 319460

**Client Sample ID: Lab Control Sample** 

**Prep Type: Total/NA** 

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	50.0	55.2		mg/L		110	90 - 110	
Fluoride	2.50	2.70		mg/L		108	90 - 110	
Nitrate as N	2.50	2.65		mg/L		106	90 - 110	
Nitrite as N	2.50	2.59		mg/L		104	90 - 110	
Sulfate	50.0	52.3		mg/L		105	90 - 110	

Lab Sample ID: MB 180-319945/6

**Matrix: Water** 

Analysis Batch: 319945

MB MB

Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Sulfate <0.38 1.0 0.38 mg/L 06/30/20 05:56

Lab Sample ID: LCS 180-319945/5

**Matrix: Water** 

Analysis Batch: 319945

LCS LCS Spike %Rec. Analyte Added Result Qualifier Unit Limits D %Rec Sulfate 50.0 108 54.1 mg/L

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

Lab Sample ID: MB 180-319682/1-A

**Matrix: Water** 

Analysis Batch: 320364

**Client Sample ID: Method Blank Prep Type: Total Recoverable Prep Batch: 319682** 

, ,, c.c = a.co c=ccc .									
	MB	MB						-	
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		06/26/20 08:36	07/02/20 07:40	1
Iron	<0.020		0.050	0.020	mg/L		06/26/20 08:36	07/02/20 07:40	1
Calcium	<0.13		0.50	0.13	mg/L		06/26/20 08:36	07/02/20 07:40	1
Manganese	<0.00087		0.0050	0.00087	mg/L		06/26/20 08:36	07/02/20 07:40	1
Cobalt	< 0.00013		0.0025	0.00013	mg/L		06/26/20 08:36	07/02/20 07:40	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		06/26/20 08:36	07/02/20 07:40	1
Magnesium	<0.083		0.50	0.083	mg/L		06/26/20 08:36	07/02/20 07:40	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/26/20 08:36	07/02/20 07:40	1
Potassium	<0.16		0.50	0.16	mg/L		06/26/20 08:36	07/02/20 07:40	1
Sodium	<0.35		0.50	0.35	mg/L		06/26/20 08:36	07/02/20 07:40	1

Eurofins TestAmerica, Pittsburgh

Page 15 of 22

10

Prep Type: Total/NA

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

**Client Sample ID: Method Blank** 

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

Job ID: 180-107491-1

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

Lab Sample ID: LCS 180-319682/2-A

**Matrix: Water** 

Analysis Batch: 320364

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

**Prep Batch: 319682** 

•	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Boron	1.25	1.17		mg/L		93	80 - 120	_
Iron	5.00	5.29		mg/L		106	80 - 120	
Calcium	25.0	26.0		mg/L		104	80 - 120	
Manganese	1.00	0.983		mg/L		98	80 - 120	
Cobalt	1.00	1.03		mg/L		103	80 - 120	
Lithium	1.00	1.09		mg/L		109	80 - 120	
Magnesium	25.0	26.5		mg/L		106	80 - 120	
Molybdenum	1.00	1.04		mg/L		104	80 - 120	
Potassium	25.0	25.5		mg/L		102	80 - 120	
Sodium	25.0	25.4		mg/L		102	80 - 120	

Lab Sample ID: MB 180-319684/1-A

**Matrix: Water** 

**Analysis Batch: 320376** 

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

**Prep Batch: 319684** 

MB M	IB .						
Result Q	ualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<0.039	0.080	0.039	mg/L		06/26/20 08:47	07/01/20 22:00	1
0.0422 J	0.050	0.020	mg/L		06/26/20 08:47	07/01/20 22:00	1
<0.13	0.50	0.13	mg/L		06/26/20 08:47	07/01/20 22:00	1
<0.00013	0.00050	0.00013	mg/L		06/26/20 08:47	07/01/20 22:00	1
<0.0034	0.0050	0.0034	mg/L		06/26/20 08:47	07/01/20 22:00	1
<0.083	0.50	0.083	mg/L		06/26/20 08:47	07/01/20 22:00	1
<0.00061	0.0050	0.00061	mg/L		06/26/20 08:47	07/01/20 22:00	1
<0.16	0.50	0.16	mg/L		06/26/20 08:47	07/01/20 22:00	1
<0.35	0.50	0.35	mg/L		06/26/20 08:47	07/01/20 22:00	1
	Result Q <0.039 0.0422 J <0.13 <0.00013 <0.0034 <0.083 <0.00061 <0.16	<0.039	Result         Qualifier         RL         MDL           <0.039	Result         Qualifier         RL         MDL         Unit           <0.039	Result         Qualifier         RL         MDL         Unit         D           <0.039	Result         Qualifier         RL         MDL         Unit         D         Prepared           <0.039	Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed           <0.039

Lab Sample ID: MB 180-319684/1-A

**Matrix: Water** 

Analysis Batch: 320376

MB MB

Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac 06/26/20 08:47 07/02/20 00:55 Manganese 0.0050 0.00087 mg/L <0.00087

Lab Sample ID: LCS 180-319684/2-A

**Matrix: Water** 

Analysis Batch: 320456

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

**Client Sample ID: Method Blank** 

**Prep Type: Total Recoverable** 

Prep Batch: 319684

Prep Batch: 319684

	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Boron	1.25	1.13		mg/L		91	80 - 120
Iron	5.00	5.03		mg/L		101	80 - 120
Calcium	25.0	26.9		mg/L		108	80 - 120
Manganese	0.500	0.524		mg/L		105	80 - 120
Cobalt	0.500	0.504		mg/L		101	80 - 120
Lithium	0.500	0.503		mg/L		101	80 - 120
Magnesium	25.0	25.1		mg/L		101	80 - 120
Molybdenum	0.500	0.530		mg/L		106	80 - 120
Potassium	25.0	24.9		mg/L		100	80 - 120
Sodium	25.0	25.8		mg/L		103	80 - 120

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

Job ID: 180-107491-1

#### Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 180-320115/1-A

**Matrix: Water** 

**Analysis Batch: 320175** 

Client Sample ID: Method Blank

Prep Type: Total/NA

**Prep Batch: 320115** 

MB MB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Sulfide 3.0 2.1 mg/L 07/01/20 06:00 07/01/20 07:13 <2.1

Added

11.9

LCS LCS

10.5

Result Qualifier

Unit

mg/L

Lab Sample ID: LCS 180-320115/2-A

**Matrix: Water** 

Analyte

Sulfide

**Analysis Batch: 320175** 

Spike

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA **Prep Batch: 320115** 

%Rec.

85 - 115

D %Rec Limits

89

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-320519/5

**Matrix: Water** 

**Analysis Batch: 320519** 

Client Sample ID: Method Blank

Prep Type: Total/NA

MB MB **MDL** Unit Analyte Result Qualifier RL Prepared Analyzed Dil Fac Total Alkalinity as CaCO3 to pH 4.5 <5.0 5.0 5.0 mg/L 06/30/20 13:11 Bicarbonate Alkalinity as CaCO3 <5.0 5.0 5.0 mg/L 06/30/20 13:11 Carbonate Alkalinity as CaCO3 <5.0 5.0 5.0 mg/L 06/30/20 13:11

Lab Sample ID: LCS 180-320519/4

**Matrix: Water** 

**Analysis Batch: 320519** 

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit Limits D %Rec 250 233 mg/L 93 90 - 110 Total Alkalinity as CaCO3 to pH

Lab Sample ID: MB 180-320796/5

**Matrix: Water** 

**Analysis Batch: 320796** 

Client Sample ID: Method Blank

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Type: Total/NA

	IVID IVID							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.0	5.0	5.0	mg/L			07/07/20 08:32	1
Bicarbonate Alkalinity as CaCO3	<5.0	5.0	5.0	mg/L			07/07/20 08:32	1
Carbonate Alkalinity as CaCO3	<5.0	5.0	5.0	ma/l			07/07/20 08:32	1

Lab Sample ID: LCS 180-320796/4

**Matrix: Water** 

**Analysis Batch: 320796** 

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

Spike LCS LCS %Rec. Added Result Qualifier Analyte Unit %Rec Limits 250 235 94 90 - 110 Total Alkalinity as CaCO3 to pH mg/L

4.5

# **QC Association Summary**

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

## HPLC/IC

#### Analysis Batch: 319460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-1	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-107491-1	ARGWC-22	Total/NA	Water	EPA 300.0 R2.1	
180-107491-2	DUP#2	Total/NA	Water	EPA 300.0 R2.1	
180-107491-2	DUP#2	Total/NA	Water	EPA 300.0 R2.1	
180-107491-3	ARAMW-1	Total/NA	Water	EPA 300.0 R2.1	
180-107491-4	ARAMW-2	Total/NA	Water	EPA 300.0 R2.1	
MB 180-319460/50	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-319460/49	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

#### **Analysis Batch: 319945**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-3	ARAMW-1	Total/NA	Water	EPA 300.0 R2.1	
180-107491-4	ARAMW-2	Total/NA	Water	EPA 300.0 R2.1	
MB 180-319945/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-319945/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

#### **Metals**

#### **Prep Batch: 319682**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-1	ARGWC-22	Dissolved	Water	3005A	
180-107491-1	ARGWC-22	Total Recoverable	Water	3005A	
180-107491-2	DUP#2	Dissolved	Water	3005A	
180-107491-2	DUP#2	Total Recoverable	Water	3005A	
180-107491-3	ARAMW-1	Dissolved	Water	3005A	
180-107491-3	ARAMW-1	Total Recoverable	Water	3005A	
MB 180-319682/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-319682/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

#### **Prep Batch: 319684**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-4	ARAMW-2	Dissolved	Water	3005A	
180-107491-4	ARAMW-2	Total Recoverable	Water	3005A	
MB 180-319684/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-319684/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

#### Analysis Batch: 320364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-1	ARGWC-22	Dissolved	Water	EPA 6020B	319682
180-107491-1	ARGWC-22	Total Recoverable	Water	EPA 6020B	319682
180-107491-2	DUP#2	Dissolved	Water	EPA 6020B	319682
180-107491-2	DUP#2	Total Recoverable	Water	EPA 6020B	319682
180-107491-3	ARAMW-1	Dissolved	Water	EPA 6020B	319682
180-107491-3	ARAMW-1	Total Recoverable	Water	EPA 6020B	319682
MB 180-319682/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	319682
LCS 180-319682/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	319682

#### **Analysis Batch: 320376**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-4	ARAMW-2	Dissolved	Water	EPA 6020B	319684
180-107491-4	ARAMW-2	Total Recoverable	Water	EPA 6020B	319684

Eurofins TestAmerica, Pittsburgh

Page 18 of 22 7/8/2020

2

Job ID: 180-107491-1

Λ

5

7

Ö

10

11

12

# **QC Association Summary**

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

**Metals (Continued)** 

#### **Analysis Batch: 320376 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 180-319684/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	319684
MB 180-319684/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	319684

#### Analysis Batch: 320456

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-319684/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	319684

# **General Chemistry**

#### **Prep Batch: 320115**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-1	ARGWC-22	Total/NA	Water	9030B	
180-107491-2	DUP#2	Total/NA	Water	9030B	
180-107491-3	ARAMW-1	Total/NA	Water	9030B	
180-107491-4	ARAMW-2	Total/NA	Water	9030B	
MB 180-320115/1-A	Method Blank	Total/NA	Water	9030B	
LCS 180-320115/2-A	Lab Control Sample	Total/NA	Water	9030B	

#### **Analysis Batch: 320175**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-1	ARGWC-22	Total/NA	Water	EPA 9034	320115
180-107491-2	DUP#2	Total/NA	Water	EPA 9034	320115
180-107491-3	ARAMW-1	Total/NA	Water	EPA 9034	320115
180-107491-4	ARAMW-2	Total/NA	Water	EPA 9034	320115
MB 180-320115/1-A	Method Blank	Total/NA	Water	EPA 9034	320115
LCS 180-320115/2-A	Lab Control Sample	Total/NA	Water	EPA 9034	320115

#### Analysis Batch: 320519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-3	ARAMW-1	Total/NA	Water	SM2320 B	
180-107491-4	ARAMW-2	Total/NA	Water	SM2320 B	
MB 180-320519/5	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-320519/4	Lab Control Sample	Total/NA	Water	SM2320 B	

#### **Analysis Batch: 320796**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-1	ARGWC-22	Total/NA	Water	SM2320 B	
180-107491-2	DUP#2	Total/NA	Water	SM2320 B	
MB 180-320796/5	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-320796/4	Lab Control Sample	Total/NA	Water	SM2320 B	

#### Field Service / Mobile Lab

#### Analysis Batch: 320074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107491-1	ARGWC-22	Total/NA	Water	Field Sampling	
180-107491-3	ARAMW-1	Total/NA	Water	Field Sampling	
180-107491-4	ARAMW-2	Total/NA	Water	Field Sampling	

Eurofins TestAmerica, Pittsburgh

Page 19 of 22

Job ID: 180-107491-1

# Chain of Custody Record

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

seurofins Environment Testing America

Client Information	Sample Terrell	NVarKer	101	Brown, Shali	Shali			Carner Tracking No(s)	king No(s).	180-61590-12490.1	90.1
Client Contact Joju Abraham	Phone			shall br	own@te	E-Mail: shali.brown@testamericainc.com	inc.com			Page 1 of 3	
Company: Southern Company							Analysi	Analysis Requested		Job #	
Address	Due Date Requested:									Preservation Codes	des:
C41 Kalph McGill Bivd SE B10163	TAT Requested (days):	#):		T						A - HCL B - NaOH	M - Hexane N - None
State Zip GA, 30308						yd x	(S			D - Naric Acid E - NariSO4	P - Na204S Q - Na2SO3
РРюпе	PO#. SCS10382606			(0		eNgMe	QT) b94			G - Amchlor H - Ascorbic Acid	K - Na2S203 S - H2SO4 T - TSP Dodecahydrate
Emais JAbraham@southernco.com	WO#:			N 10 8			rlossiO				U - Acetone V - MCAA
Project Name: Pfant Arkwright AP3 Alternate Source	Project #: 18020201			9A) 9		_					Z - other (specify)
Sile: Georgia	SSOWE			dmeS	N) asi					of co	
Sample Identification	Sample Date	Sample (	Sample Type (C=comp, G=grab) 81	Matrix (Wowater (Wowater Comment) (Wowater Comme	Perform MS/M 23208, 300_0R	e0508 - (WOD) (	2540C_Calcd - 5			Total Number	Special Instructions/Note:
	V	X	1 00 1	on Code:	Ž	Q Q	-				
ARGWC-22	6/24/20 1005	1005	O	Water Y	×	×	×			4 pH= 5.8	32
DUP#2	, –	)	0	Water	×	×	×				
ARAMW-1		1245	0	Water Y	×	-				4 0H = 6.31	31
ARAMW-2	>	1640	S	Water	×	×				4 pH = 6,	6,19
				Water							
				Water					_		
				Water							
				Water							
				Water					180 102		
				Water					20-00	oc-107491 Chain of Custody	ópo
				Water							
Possible Hazard Identification    X Non-Hazard	Poison B Unknown		Radiological		Specia	e Dispos Return To	Sample Disposal ( A fee may be ass Return To Client Special Instructions/OC Requirements	A Disposal B	if samples are retu y Lab	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)  Return To Client	1 month) Months
(about a feet a					obodo		200	.			
Empty Kit Relinquished by:		Date:			ime:			Meth	Method of Shipment.		
Religioushed by	C/24/20	81/0	118	Company	Rec	Received by	1		Date Time:	20 qu	Company Dit
Relinquished by:	-	3	)	Company	Re	Received by:			Date/Time		Company
Relinquished by:	Date/Time:			Company	Z.	Received by:			Date/Time:		Company
Custody Seals Intact: Custody Seal No.:					Š	oler Temper	ature(s) °C and	Cooler Temperature(s) °C and Other Remarks:			
					1						Ver: 01/16/2019



PRIORITY OVERNIGHT

HU-

1 2 3

Client: Southern Company Job Number: 180-107491-1

Login Number: 107491 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1 Creator: Say, Thomas C

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

Page 22 of 22 7/8/2020



# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-107513-1 Client Project/Site: Plant Arkwright

For:

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

Attn: Joju Abraham

Authorized for release by: 7/6/2020 6:59:57 AM

Shali Brown, Project Manager II (615)301-5031

shali.brown@testamericainc.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

Client: Southern Company Project/Site: Plant Arkwright Laboratory Job ID: 180-107513-1

# **Table of Contents**

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Certification Summary	
Sample Summary	5
Method Summary	6
Lab Chronicle	7
Client Sample Results	9
QC Sample Results	11
QC Association Summary	12
Chain of Custody	13
Receint Checklists	15

Λ

5

7

0

1 1

## **Definitions/Glossary**

Client: Southern Company Job ID: 180-107513-1

Project/Site: Plant Arkwright

#### **Qualifiers**

#### **Metals**

Qualifier Qualifier Description

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

#### **Glossary**

Abbreviation	These commonly used abbreviations may or may not be present in this report.
~	Listed under the "D" column to designate that the result is reported an a dry weight has

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)
LOD Limit of Detection (DoD/DOE)
LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

5

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

0

Ω

9

11

# **Accreditation/Certification Summary**

Client: Southern Company

Job ID: 180-107513-1

Project/Site: Plant Arkwright

# Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-05-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	05-23-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

7/6/2020

2

3

4

6

Ω

9

10

11

# **Sample Summary**

Client: Southern Company Project/Site: Plant Arkwright

Job ID: 180-107513-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Ass
180-107513-1	ARGWC-22 10-12	Solid	06/23/20 10:00	06/25/20 09:00	
180-107513-2	ARGWC-23 9-11	Solid	06/23/20 10:00	06/25/20 09:00	
180-107513-3	ARAMW-1 5-6	Solid	06/23/20 10:00	06/25/20 09:00	
180-107513-4	ARAMW-2 7-9	Solid	06/23/20 10:00	06/25/20 09:00	
180-107513-5	ARAMW-3 20-22	Solid	06/23/20 10:00	06/25/20 09:00	
180-107513-6	ARAMW-4 23-25	Solid	06/23/20 10:00	06/25/20 09:00	
180-107513-7	ARAMW-6 8-10	Solid	06/23/20 10:00	06/25/20 09:00	

4

5

6

8

9

10

11

4.0

# **Method Summary**

Client: Southern Company Project/Site: Plant Arkwright

Job ID: 180-107513-1

Method	Method Description	Protocol	Laboratory
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
3050B	Preparation, Metals	SW846	TAL PIT

#### **Protocol References:**

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

#### **Laboratory References:**

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

4

5

6

8

9

Job ID: 180-107513-1

Client Sample ID: ARGWC-22 10-12

Date Collected: 06/23/20 10:00 Date Received: 06/25/20 09:00 Lab Sample ID: 180-107513-1

Matrix: Solid

Percent Solids: 80.0

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.24 g	100 mL	319743	06/26/20 14:29	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			320292	07/01/20 17:46	RJR	TAL PIT
	Instrumen	t ID: NEMO								

Client Sample ID: ARGWC-23 9-11

Date Collected: 06/23/20 10:00 Date Received: 06/25/20 09:00 Lab Sample ID: 180-107513-2

Matrix: Solid

Percent Solids: 96.1

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.01 g	100 mL	319743	06/26/20 14:29	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			320292	07/01/20 17:49	RJR	TAL PIT
	Instrumen	t ID: NEMO								

Client Sample ID: ARAMW-1 5-6

Date Collected: 06/23/20 10:00 Date Received: 06/25/20 09:00 Lab Sample ID: 180-107513-3

Matrix: Solid Percent Solids: 80.0

Batch Batch Dil Initial Final Batch Prepared Method Number **Prep Type** Type **Factor** Amount Amount or Analyzed Analyst Run Lab Prep Total/NA 3050B 319743 06/26/20 14:29 JL 1.62 g 100 mL TAL PIT Analysis 07/01/20 17:52 RJR Total/NA **EPA 6020B** 320292 TAL PIT 1 Instrument ID: NEMO

Client Sample ID: ARAMW-2 7-9

Date Collected: 06/23/20 10:00

Date Received: 06/25/20 09:00

Lab Sample ID: 180-107513-4

Matrix: Solid Percent Solids: 97.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.13 g	100 mL	319743	06/26/20 14:29	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			320292	07/01/20 17:54	RJR	TAL PIT
	Instrumer	nt ID: NEMO								

Client Sample ID: ARAMW-3 20-22

Date Collected: 06/23/20 10:00

Date Received: 06/25/20 09:00

Lab Sample ID: 180-107513-5

Matrix: Solid Percent Solids: 79.0

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.27 g	100 mL	319743	06/26/20 14:29	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			320292	07/01/20 17:57	RJR	TAL PIT
	Instrumer	nt ID: NEMO								

#### **Lab Chronicle**

Client: Southern Company Job ID: 180-107513-1

Project/Site: Plant Arkwright

Client Sample ID: ARAMW-4 23-25

Date Collected: 06/23/20 10:00 Date Received: 06/25/20 09:00 Lab Sample ID: 180-107513-6

Matrix: Solid

Percent Solids: 72.4

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.13 g	100 mL	319743	06/26/20 14:29	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			320292	07/01/20 18:00	RJR	TAL PIT
	Instrumen	t ID: NEMO								

Client Sample ID: ARAMW-6 8-10

Date Collected: 06/23/20 10:00 Date Received: 06/25/20 09:00 Lab Sample ID: 180-107513-7 Matrix: Solid Percent Solids: 82.7

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.10 g	100 mL	319743	06/26/20 14:29	JL	TAL PIT
Total/NA	Analysis	EPA 6020B		1			320292	07/01/20 18:08	RJR	TAL PIT
	Instrumer	nt ID: NEMO								

#### **Laboratory References:**

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

#### **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

JL = James Lyu

Batch Type: Analysis

RJR = Ron Rosenbaum

9

Job ID: 180-107513-1

Client: Southern Company Project/Site: Plant Arkwright

Client Sample ID: ARGWC-22 10-12

Lab Sample ID: 180-107513-1

Matrix: Solid

Percent Solids: 80.0

Date Collected: 06/23/20 10:00 Date Received: 06/25/20 09:00

Method: EPA 6020B - Me	etals (ICP/MS)								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	12		0.050	0.013	mg/Kg	<u> </u>	06/26/20 14:29	07/01/20 17:46	1
Molybdenum	0.27	J	0.50	0.16	mg/Kg	≎	06/26/20 14:29	07/01/20 17:46	1
Lithium	7.1		0.50	0.40	mg/Kg	≎	06/26/20 14:29	07/01/20 17:46	1

Client Sample ID: ARGWC-23 9-11

Lab Sample ID: 180-107513-2 Date Collected: 06/23/20 10:00 **Matrix: Solid** Date Received: 06/25/20 09:00 Percent Solids: 96.1

Method: EPA 6020B - Metals (ICP/MS) Analyte Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac Cobalt 0.052 0.013 mg/Kg □ 06/26/20 14:29 □ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 07/01/20 17:49
□ 17 0.17 mg/Kg © 06/26/20 14:29 07/01/20 17:49 Molybdenum 0.52 0.62 Lithium 0.52 0.41 mg/Kg © 06/26/20 14:29 07/01/20 17:49 15

Client Sample ID: ARAMW-1 5-6 Lab Sample ID: 180-107513-3

Date Collected: 06/23/20 10:00 **Matrix: Solid** Date Received: 06/25/20 09:00 Percent Solids: 80.0

Method: EPA 6020B - Metals	(ICP/MS)							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	1.3	0.039	0.010	mg/Kg	<u> </u>	06/26/20 14:29	07/01/20 17:52	1
Molybdenum	<0.13	0.39	0.13	mg/Kg	≎	06/26/20 14:29	07/01/20 17:52	1
Lithium	1.5	0.39	0.31	mg/Kg	₩	06/26/20 14:29	07/01/20 17:52	1

Client Sample ID: ARAMW-2 7-9 Lab Sample ID: 180-107513-4 Date Collected: 06/23/20 10:00 Matrix: Solid

Date Received: 06/25/20 09:00 Percent Solids: 97.4

Method: EPA 6020B - Metal	s (ICP/MS)							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	2.2	0.045	0.012	mg/Kg	<del></del>	06/26/20 14:29	07/01/20 17:54	1
Molybdenum	<0.15	0.45	0.15	mg/Kg	₩	06/26/20 14:29	07/01/20 17:54	1
Lithium	2.9	0.45	0.36	mg/Kg	₩	06/26/20 14:29	07/01/20 17:54	1

Client Sample ID: ARAMW-3 20-22 Lab Sample ID: 180-107513-5

Date Collected: 06/23/20 10:00 **Matrix: Solid** Date Received: 06/25/20 09:00 Percent Solids: 79.0

Method: EPA 6020B - Me	tals (ICP/MS)							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	5.6	0.050	0.013	mg/Kg	<del>\</del>	06/26/20 14:29	07/01/20 17:57	1
Molybdenum	<0.16	0.50	0.16	mg/Kg	₩	06/26/20 14:29	07/01/20 17:57	1
Lithium	7.3	0.50	0.40	mg/Kg	☼	06/26/20 14:29	07/01/20 17:57	1

Client Sample ID: ARAMW-4 23-25 Lab Sample ID: 180-107513-6

Date Collected: 06/23/20 10:00 Matrix: Solid Date Received: 06/25/20 09:00 Percent Solids: 72.4

Method: EPA 6020B - Metals	s (ICP/MS)								
Analyte	Result Q	ualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	5.7		0.061	0.016	mg/Kg	<del></del>	06/26/20 14:29	07/01/20 18:00	1
Molybdenum	0.23 J		0.61	0.20	mg/Kg	₽	06/26/20 14:29	07/01/20 18:00	1

Eurofins TestAmerica, Pittsburgh

Page 9 of 15 7/6/2020

# **Client Sample Results**

Client: Southern Company Job ID: 180-107513-1

Project/Site: Plant Arkwright

Client Sample ID: ARAMW-4 23-25 Lab Sample ID: 180-107513-6

Date Collected: 06/23/20 10:00 Matrix: Solid
Date Received: 06/25/20 09:00 Percent Solids: 72.4

Method: EPA 6020B - Metals (	ICP/MS) (Co	ntinued)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	1.4		0.61	0.49	mg/Kg	<del></del>	06/26/20 14:29	07/01/20 18:00	1

Client Sample ID: ARAMW-6 8-10

Lab Sample ID: 180-107513-7

Date Collected: 06/23/20 10:00 Matrix: Solid
Date Received: 06/25/20 09:00 Percent Solids: 82.7

Method: EPA 6020B - Me	tals (ICP/MS)							
Analyte	Result Qualific	er RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	14	0.055	0.014	mg/Kg	<del>\</del>	06/26/20 14:29	07/01/20 18:08	1
Molybdenum	0.21 J	0.55	0.18	mg/Kg	₩	06/26/20 14:29	07/01/20 18:08	1
Lithium	5.1	0.55	0.44	mg/Kg	≎	06/26/20 14:29	07/01/20 18:08	1

7/6/2020

# **QC Sample Results**

Client: Southern Company Job ID: 180-107513-1

Project/Site: Plant Arkwright

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

Lab Sample ID: MB 180-319743/1-A

**Matrix: Solid** 

**Analysis Batch: 320292** 

Client Sample ID: Method Blank

Prep Type: Total/NA

**Prep Batch: 319743** 

, , , , , , , , , , , , , , , , , , , ,	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.013		0.050	0.013	mg/Kg		06/26/20 14:29	07/01/20 16:53	1
Molybdenum	<0.16		0.50	0.16	mg/Kg		06/26/20 14:29	07/01/20 16:53	1
Lithium	<0.40		0.50	0.40	mg/Kg		06/26/20 14:29	07/01/20 16:53	1

Spike

Added

50.0

50.0

50.0

LCS LCS

Result Qualifier

Lab Sample ID: LCS 180-319743/2-A

**Matrix: Solid** 

Analyte

Cobalt

Lithium

Molybdenum

**Analysis Batch: 320292** 

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

%Rec. Limits

**Prep Batch: 319743** 

D %Rec

44.0 mg/Kg 88 80 - 120 46.9 mg/Kg 94 80 - 120 44.8 mg/Kg 90 80 - 120

Unit

# **QC Association Summary**

Client: Southern Company Project/Site: Plant Arkwright Job ID: 180-107513-1

#### Metals

#### **Prep Batch: 319743**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107513-1	ARGWC-22 10-12	Total/NA	Solid	3050B	
180-107513-2	ARGWC-23 9-11	Total/NA	Solid	3050B	
180-107513-3	ARAMW-1 5-6	Total/NA	Solid	3050B	
180-107513-4	ARAMW-2 7-9	Total/NA	Solid	3050B	
180-107513-5	ARAMW-3 20-22	Total/NA	Solid	3050B	
180-107513-6	ARAMW-4 23-25	Total/NA	Solid	3050B	
180-107513-7	ARAMW-6 8-10	Total/NA	Solid	3050B	
MB 180-319743/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 180-319743/2-A	Lab Control Sample	Total/NA	Solid	3050B	

## **Analysis Batch: 320292**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107513-1	ARGWC-22 10-12	Total/NA	Solid	EPA 6020B	319743
180-107513-2	ARGWC-23 9-11	Total/NA	Solid	EPA 6020B	319743
180-107513-3	ARAMW-1 5-6	Total/NA	Solid	EPA 6020B	319743
180-107513-4	ARAMW-2 7-9	Total/NA	Solid	EPA 6020B	319743
180-107513-5	ARAMW-3 20-22	Total/NA	Solid	EPA 6020B	319743
180-107513-6	ARAMW-4 23-25	Total/NA	Solid	EPA 6020B	319743
180-107513-7	ARAMW-6 8-10	Total/NA	Solid	EPA 6020B	319743
MB 180-319743/1-A	Method Blank	Total/NA	Solid	EPA 6020B	319743
LCS 180-319743/2-A	Lab Control Sample	Total/NA	Solid	EPA 6020B	319743

# Chain of Custody Record

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

Client Information	Sampler: Jeff Moure	250	Lab	Lab PM: Brown, Shali		Carrier Tracking No(s):	)(s):	COC No: 180-59746-11178.1	8.1
Diant Contacts SCS Contacts	Phone: 770 - 421-3400	3400	E-Mail: shali.	E-Mail: shali.brown@testamericainc.com	c.com			Page:	
Company: GA Power					Analysis Requested	luested		Job #:	
Address: 241 Ralph McGill Blvd SE	Due Date Requested:							Preservation Codes:	es:
City: Atlanta	TAT Requested (days):							B - NaOH C - Zn Acetate	M - Hexane N - None O - AsNaO2
State, Zip: GA, 30308									P - Na204S Q - Na2SO3
Phone: 404-506-7116(Tel)	PO#: SCS10382606			QU (0				or ic Acid	S - H2SO4 T - TSP Dodecatydrate
Email: SCS Contacts	WO#:			(on			S.I		U - Acetone V - MCAA
Project Name: CCR - Plant Arkwright	Project #: 18020201			_			enistn	L-EDA	w - pH 4-5 Z - other (specify)
Site: Georgia	:SSOW#:			A) ası			of co	Other:	
Simple Identification	Sample Date 1	Sample Type Type (C=comp,	Matrix e (www.ex. S=solid. mp, O=westeroit.	Field Fiftered			Total Number	Signatura	Special Instructions (Note:
ige	1	1	<b>1</b> (0)	X			X		
E4RGWC-22 10-12	6.23-200 16	1600 G	S Weter	Z					
# RGWC-23 9-11		_	Water						
ARAMW-1 5-6			Water						
ARAMV-2 7.9			Water						
4RAMW-3 20-22			Weter						
ARAMW-4 23.25			Water						
ARAMW-6 8-10	<i>&gt;</i>	7	V water						
			Water						
			Water			180-	180-107513 Chain of Custody	of Custody	
			Water			-	_		
			Water						
ant	Poison B Unknown	Radiological	gical	Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)  Return To Client Disposal By Lab Archive For Month	( A fee may be	assessed if san Disposal By Lab	nples are retain	etained longer than Archive For	1 month) Months
, III, IV, Other (specify)				Special Instructions/QC Requirements	s/QC Requireme	ints:			
Empty Kit Relinquished by:	Date:	e:		Time:		Method of Shipment.	hipment:		
Relinquished by:	Date/Time:		Company	Received by:	m		Date/Tipe: 25/2	20 900	Company C.W
20 kindrished by:	Date/Time:		Company	Received by:	,		Date/Time:		Company
OS/inquished by:	Date/Time:		Company	Received by:		J	Date/Time:		Company
					11 12	9	7	5	2 3



TRK# 8107 9699 7922

Uncorrected temp

18,9 °C

15238 PA-US PIT

וחט בא טוון ווטע בא בי טחו

PRIORITY OVERNIGHT

/95/2

Page 14 of 15

7/6/2020

Client: Southern Company

Job Number: 180-107513-1

Login Number: 107513

List Number: 1

Creator: Say, Thomas C

List Source: Eurofins TestAmerica, Pittsburgh

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

Eurofins TestAmerica, Pittsburgh

Page 15 of 15



# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-107562-1

Client Project/Site: Plant Arkwright AP3 Alternate Source

#### For:

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

Attn: Joju Abraham

Authorized for release by: 7/9/2020 1:13:03 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

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

PA Lab ID: 02-00416

Table of Contents	Ints     2       Section     3       Immary     4       Immary     5       Image: arr arr arr arr arr arr arr arr arr ar
Cover Page	1
Table of Contents	
Case Narrative	3
Definitions/Glossary	4
Certification Summary	5
Sample Summary	6
Method Summary	7
Lab Chronicle	8
Client Sample Results	11
QC Sample Results	16
QC Association Summary	20
Chain of Custody	22
Receipt Checklists	24

#### **Case Narrative**

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

Job ID: 180-107562-1

Laboratory: Eurofins TestAmerica, Pittsburgh

**Narrative** 

Job Narrative 180-107562-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 6/26/2020 9:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.4° C.

#### **Receipt Exceptions**

The containers provided for the following samples did not match the information listed on the Chain-of-Custody (COC): EB#2 (180-107562-1), ARGWC-23 (180-107562-2), ARGWC-21 (180-107562-3), ARGWA-19 (180-107562-4) and ARGWA-20 (180-107562-5). Nitric dissolved containers were provided, though the COC is not marked for filtered metals. The COC lists TDS analysis. however, no containers were provided. The client was contacted, and the lab was instructed to analyze for dissolved metals but that TDS is not required.

#### GC Semi VOA

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

#### Metals

Method 6020B: The post digestion spike % recovery for calcium, magnesium, and sodium associated with batch 180-320452 was outside of control limits. The associated sample is: EB#2 (180-107562-1).

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

#### Field Service / Mobile Lab

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

#### **General Chemistry**

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

Job ID: 180-107562-1

## **Definitions/Glossary**

Client: Southern Company Job ID: 180-107562-1

Project/Site: Plant Arkwright AP3 Alternate Source

#### Qualifiers

	_		_		_
ш	О		_	/1	_
п		_		"	

Qualifier Qualifier Description

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

**Metals** 

Qualifier Qualifier Description

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

#### **Glossary**

Abbreviation These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)
LOD Limit of Detection (DoD/DOE)
LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

Eurofins TestAmerica, Pittsburgh

Page 4 of 24

2

1

7

8

9

11

12

# **Accreditation/Certification Summary**

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

Job ID: 180-107562-1

# Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	<b>Expiration Da</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-20
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	08-01-20
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	01-01-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	05-23-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-15-20
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-20

5

7

ŏ

10

11

12

1,

# **Sample Summary**

Client: Southern Company Project/Site: Plant Arkwright AP3 Alternate Source

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-107562-1	EB#2	Water	06/25/20 09:10	06/26/20 09:00	
180-107562-2	ARGWC-23	Water	06/25/20 11:18	06/26/20 09:00	
180-107562-3	ARGWC-21	Water	06/25/20 13:15	06/26/20 09:00	
180-107562-4	ARGWA-19	Water	06/25/20 10:15	06/26/20 09:00	
180-107562-5	ARGWA-20	Water	06/25/20 12:30	06/26/20 09:00	

Job ID: 180-107562-1

# **Method Summary**

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatgraphy	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL PIT
SM2320 B	Alkalinity, Total	SM18	TAL PIT
Field Sampling	Field Sampling	EPA	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	TAL PIT

#### **Protocol References:**

EPA = US Environmental Protection Agency

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

#### **Laboratory References:**

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

Job ID: 180-107562-1

3

4

5

7

8

15

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

Lab Sample ID: 180-107562-1 Client Sample ID: EB#2

Date Collected: 06/25/20 09:10 Date Received: 06/26/20 09:00

**Matrix: Water** 

Job ID: 180-107562-1

Prep Type Total/NA	Batch Type Analysis Instrumen	Batch Method EPA 300.0 R2.1 t ID: CHICS2100B	Run	Factor 1	Initial Amount	Final Amount	Batch Number 319637	Prepared or Analyzed 06/26/20 17:29	Analyst MJH	Lab TAL PIT
Dissolved Dissolved	Prep Analysis Instrumen	3005A EPA 6020B t ID: DORY		1	50 mL	50 mL	319816 320452	06/27/20 13:54 07/02/20 21:43		TAL PIT TAL PIT
Total Recoverable Total Recoverable	Prep Analysis Instrumen	3005A EPA 6020B t ID: DORY		1	50 mL	50 mL	319816 320452	06/27/20 13:54 07/02/20 22:22		TAL PIT TAL PIT
Total/NA Total/NA	Prep Analysis Instrumen	9030B EPA 9034 t ID: NOEQUIP		1	50 mL	50 mL	320115 320175	07/01/20 06:00 07/01/20 07:42		TAL PIT TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			320519	06/30/20 16:58	AVS	TAL PIT

Client Sample ID: ARGWC-23

Date Collected: 06/25/20 11:18 Date Received: 06/26/20 09:00

Lab Sample ID: 180-107562-2

**Matrix: Water** 

Batch Batch Dil Initial Final Batch Prepared **Prep Type** Туре Method **Factor Amount** Number or Analyzed Run Amount Analyst Lab 319637 06/26/20 17:45 Total/NA Analysis EPA 300.0 R2.1 MJH TAL PIT Instrument ID: CHICS2100B Dissolved Prep 3005A 50 mL 50 mL 319816 06/27/20 13:54 JL TAL PIT Dissolved Analysis **EPA 6020B** 320452 07/02/20 22:01 RSK TAL PIT 1 Instrument ID: DORY Total Recoverable Prep 3005A 50 mL 50 mL 319816 06/27/20 13:54 JL TAL PIT Total Recoverable Analysis **EPA 6020B** 320452 07/02/20 22:25 RSK TAL PIT 1 Instrument ID: DORY Total/NA 9030B 50 mL 320115 07/01/20 06:00 CMR TAL PIT Prep 50 mL Total/NA Analysis EPA 9034 320175 07/01/20 07:43 CMR TAL PIT 1 Instrument ID: NOEQUIP Total/NA Analysis SM2320 B 06/30/20 17:05 AVS TAL PIT 320519 Instrument ID: PCTITRATOR Total/NA Analysis Field Sampling 320074 06/25/20 11:18 NJD TAL PIT Instrument ID: NOEQUIP

Client Sample ID: ARGWC-21

Date Collected: 06/25/20 13:15

Date Received: 06/26/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		10	1 mL	1.0 mL	320882	07/08/20 20:44	MJH	TAL PIT
	Instrumen	t ID: CHIC2100A								
Total/NA	Analysis	EPA 300.0 R2.1		1			319637	06/26/20 16:40	MJH	TAL PIT
	Instrumen	t ID: CHICS2100B								

Eurofins TestAmerica, Pittsburgh

Lab Sample ID: 180-107562-3

Page 8 of 24

**Matrix: Water** 

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARGWC-21** Lab Sample ID: 180-107562-3

Date Collected: 06/25/20 13:15 Date Received: 06/26/20 09:00

**Matrix: Water** 

Job ID: 180-107562-1

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			50 mL	50 mL	319816	06/27/20 13:54	JL	TAL PIT
Dissolved	Analysis	EPA 6020B		1			320452	07/02/20 22:04	RSK	TAL PIT
	Instrument	ID: DORY								
Total Recoverable	Prep	3005A			50 mL	50 mL	319816	06/27/20 13:54	JL	TAL PIT
Total Recoverable	Analysis	EPA 6020B		1			320452	07/02/20 22:29	RSK	TAL PIT
	Instrument	ID: DORY								
Total/NA	Prep	9030B			50 mL	50 mL	320115	07/01/20 06:00	CMR	TAL PIT
Total/NA	Analysis	EPA 9034		1			320175	07/01/20 07:45	CMR	TAL PIT
	Instrument	ID: NOEQUIP								
Total/NA	Analysis	SM2320 B		1			320519	06/30/20 17:24	AVS	TAL PIT
	Instrument	ID: PCTITRATOR								
Total/NA	Analysis	Field Sampling		1			320074	06/25/20 13:15	NJD	TAL PIT
	Instrument	ID: NOEQUIP								

**Client Sample ID: ARGWA-19** 

Date Collected: 06/25/20 10:15 Date Received: 06/26/20 09:00

Lab Sample ID: 180-107562-4

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHICS2100B		1			319637	06/26/20 16:56	MJH	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	319816	06/27/20 13:54	JL	TAL PIT
Dissolved	Analysis Instrumen	EPA 6020B t ID: DORY		1			320452	07/02/20 22:08	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	319816	06/27/20 13:54	JL	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: DORY		1			320452	07/02/20 22:32	RSK	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	320341	07/02/20 11:40	CMR	TAL PIT
Total/NA	Analysis Instrumen	EPA 9034 t ID: NOEQUIP		1			320374	07/02/20 13:00	CMR	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			320519	06/30/20 17:36	AVS	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			320074	06/25/20 10:15	NJD	TAL PIT

**Client Sample ID: ARGWA-20** 

Date Collected: 06/25/20 12:30 Date Received: 06/26/20 09:00

Lab Sample ID: 180-107562-5

**Matrix: Water** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1	-	1			319637	06/26/20 17:13	MJH	TAL PIT
	Instrumer	t ID: CHICS2100B								
Dissolved	Prep	3005A			50 mL	50 mL	319816	06/27/20 13:54	JL	TAL PIT
Dissolved	Analysis	EPA 6020B		1			320452	07/02/20 22:11	RSK	TAL PIT
	Instrumer	it ID: DORY								

Eurofins TestAmerica, Pittsburgh

Page 9 of 24

7/9/2020

#### **Lab Chronicle**

Client: Southern Company Job ID: 180-107562-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARGWA-20** 

Date Received: 06/26/20 09:00

Lab Sample ID: 180-107562-5 Date Collected: 06/25/20 12:30

**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	319816	06/27/20 13:54		TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: DORY		1			320452	07/02/20 22:36	RSK	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	320341	07/02/20 11:40	CMR	TAL PIT
Total/NA	Analysis Instrumen	EPA 9034 t ID: NOEQUIP		1			320374	07/02/20 13:05	CMR	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			320519	06/30/20 17:43	AVS	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			320074	06/25/20 12:30	NJD	TAL PIT

#### **Laboratory References:**

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

#### **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

CMR = Carl Reagle

JL = James Lyu

Batch Type: Analysis

AVS = Abbey Smith

CMR = Carl Reagle

MJH = Matthew Hartman

NJD = Nicholas DiNardo

RSK = Robert Kurtz

# **Client Sample Results**

Client: Southern Company Job ID: 180-107562-1

Project/Site: Plant Arkwright AP3 Alternate Source

Client Sample ID: EB#2

Lab Sample ID: 180-107562-1

**Matrix: Water** 

Date Collected: 06/25/20 09:10 Date Received: 06/26/20 09:00

Analyte	Result Qualifie	er RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32	1.0	0.32	mg/L			06/26/20 17:29	1
Fluoride	<0.026	0.10	0.026	mg/L			06/26/20 17:29	1
Nitrate as N	<0.023	0.10	0.023	mg/L			06/26/20 17:29	1
Nitrite as N	<0.029	0.050	0.029	mg/L			06/26/20 17:29	1
Sulfate	<0.38	1.0	0.38	mg/L			06/26/20 17:29	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		06/27/20 13:54	07/02/20 22:22	1
Calcium	<0.13		0.50	0.13	mg/L		06/27/20 13:54	07/02/20 22:22	1
Cobalt	0.00033	J	0.0025	0.00013	mg/L		06/27/20 13:54	07/02/20 22:22	1
Lithium	<0.0034		0.0050	0.0034	mg/L		06/27/20 13:54	07/02/20 22:22	1
Magnesium	<0.083		0.50	0.083	mg/L		06/27/20 13:54	07/02/20 22:22	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/27/20 13:54	07/02/20 22:22	1
Potassium	<0.16		0.50	0.16	mg/L		06/27/20 13:54	07/02/20 22:22	1
Sodium	< 0.35		0.50	0.35	mg/L		06/27/20 13:54	07/02/20 22:22	1

Method: EPA 6020B - Metals (	ICP/MS) - Dissolved							
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.020	0.050	0.020	mg/L		06/27/20 13:54	07/02/20 21:43	1
Manganese	<0.00087	0.0050	0.00087	mg/L		06/27/20 13:54	07/02/20 21:43	1

General Chemistry Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1	3.0	2.1	mg/L		07/01/20 06:00	07/01/20 07:42	1
Total Alkalinity as CaCO3 to pH 4.5	<5.0	5.0	5.0	mg/L			06/30/20 16:58	1
Bicarbonate Alkalinity as CaCO3	<5.0	5.0	5.0	mg/L			06/30/20 16:58	1
Carbonate Alkalinity as CaCO3	<5.0	5.0	5.0	mg/L			06/30/20 16:58	1

5

7

Q

10

12

Client: Southern Company Job ID: 180-107562-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARGWC-23** 

Date Collected: 06/25/20 11:18 Date Received: 06/26/20 09:00

Carbonate Alkalinity as CaCO3

Analyte

рН

**Method: Field Sampling - Field Sampling** 

<5.0

6.37

Result Qualifier

Lab Sample ID: 180-107562-2

**Matrix: Water** 

Method: EPA 300.0 R2.1 - Anion Analyte	•	romatgraph Qualifier	iy RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.4		1.0	0.32	mg/L			06/26/20 17:45	1
Fluoride	0.25		0.10	0.026	mg/L			06/26/20 17:45	1
Nitrate as N	1.8		0.10	0.023	mg/L			06/26/20 17:45	1
Nitrite as N	0.11		0.050	0.029	mg/L			06/26/20 17:45	1
Sulfate	77		1.0	0.38	mg/L			06/26/20 17:45	1
Method: EPA 6020B - Metals (IC	P/MS) - T	otal Recove	erable						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.42		0.080	0.039	mg/L		06/27/20 13:54	07/02/20 22:25	1
Calcium	72		0.50	0.13	mg/L		06/27/20 13:54	07/02/20 22:25	1
Cobalt	0.0014	J	0.0025	0.00013	mg/L		06/27/20 13:54	07/02/20 22:25	1
Lithium	0.043		0.0050	0.0034	mg/L		06/27/20 13:54	07/02/20 22:25	1
Magnesium	13		0.50	0.083	mg/L		06/27/20 13:54	07/02/20 22:25	1
Molybdenum	0.055		0.015	0.00061	mg/L		06/27/20 13:54	07/02/20 22:25	1
Potassium	2.4		0.50	0.16	mg/L		06/27/20 13:54	07/02/20 22:25	1
Sodium	14		0.50	0.35	mg/L		06/27/20 13:54	07/02/20 22:25	1
Method: EPA 6020B - Metals (IC	P/MS) - D	issolved							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.020		0.050	0.020	mg/L		06/27/20 13:54	07/02/20 22:01	1
Manganese	0.62		0.0050	0.00087	mg/L		06/27/20 13:54	07/02/20 22:01	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1		3.0	2.1	mg/L		07/01/20 06:00	07/01/20 07:43	1
Total Alkalinity as CaCO3 to pH 4.	160		5.0	5.0	mg/L			06/30/20 17:05	1
Bicarbonate Alkalinity as CaCO3	160		5.0	5.0	mg/L			06/30/20 17:05	1

5.0

RL

5.0 mg/L

**MDL** Unit

SU

7/9/2020

06/30/20 17:05

Analyzed

06/25/20 11:18

Dil Fac

Prepared

D

Client: Southern Company Job ID: 180-107562-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARGWC-21** 

Date Collected: 06/25/20 13:15 Date Received: 06/26/20 09:00

Molybdenum

**Potassium** 

**Sodium** 

Lab Sample ID: 180-107562-3

06/27/20 13:54 07/02/20 22:29

06/27/20 13:54 07/02/20 22:29

06/27/20 13:54 07/02/20 22:29

**Matrix: Water** 

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.7		1.0	0.32	mg/L			06/26/20 16:40	1
Fluoride	0.041	J	0.10	0.026	mg/L			06/26/20 16:40	1
Nitrate as N	<0.023		0.10	0.023	mg/L			06/26/20 16:40	1
Nitrite as N	<0.029		0.050	0.029	mg/L			06/26/20 16:40	1
Sulfate	210		10	3.8	mg/L			07/08/20 20:44	10
Method: FPA 6020B -	. Motals (ICP/MS) - T	otal Recove	arable						
	,					_			
Analyte	Result	otal Recove	RL	MDL		D	Prepared	Analyzed	Dil Fac
Analyte	,			<b>MDL</b> 0.039		<u>D</u>	Prepared 06/27/20 13:54		Dil Fac
Method: EPA 6020B - Analyte Boron Calcium	Result		RL	0.039		D	06/27/20 13:54		Dil Fac
Analyte Boron	Result 0.82	Qualifier	0.080	0.039	mg/L mg/L	D_	06/27/20 13:54 06/27/20 13:54	07/02/20 22:29	Dil Fac 1 1 1
Analyte Boron Calcium	Result 0.82 80	Qualifier	0.080 0.50	0.039 0.13	mg/L mg/L mg/L	<u>D</u>	06/27/20 13:54 06/27/20 13:54 06/27/20 13:54	07/02/20 22:29 07/02/20 22:29	Dil Fac 1 1 1 1

Method: EPA 6020B - Metals (ICP/MS) - Dissolved										
	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Iron	1.0		0.050	0.020	mg/L		06/27/20 13:54	07/02/20 22:04	1
	Manganese	0.36		0.0050	0.00087	mg/L		06/27/20 13:54	07/02/20 22:04	1

0.015

0.50

0.50

<0.00061

6.1

19

0.00061 mg/L

0.16 mg/L

0.35 mg/L

General Chemistry Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1		3.0	2.1	mg/L		07/01/20 06:00	07/01/20 07:45	1
Total Alkalinity as CaCO3 to pH 4.4	140		5.0	5.0	mg/L			06/30/20 17:24	1
Bicarbonate Alkalinity as CaCO3	140		5.0	5.0	mg/L			06/30/20 17:24	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			06/30/20 17:24	1

Method: Field Sampling - Field	Sampling								
Analyte	Result Q	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
рН	5.98				SU			06/25/20 13:15	1

2

3

5

7

9

10

12

13

Client: Southern Company Job ID: 180-107562-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARGWA-19** 

Date Collected: 06/25/20 10:15 Date Received: 06/26/20 09:00

Molybdenum

**Potassium** 

**Sodium** 

Lab Sample ID: 180-107562-4

06/27/20 13:54 07/02/20 22:32

06/27/20 13:54 07/02/20 22:32

06/27/20 13:54 07/02/20 22:32

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		1.0	0.32	mg/L			06/26/20 16:56	1
Fluoride	0.030	J	0.10	0.026	mg/L			06/26/20 16:56	1
Nitrate as N	6.7		0.10	0.023	mg/L			06/26/20 16:56	1
Nitrite as N	<0.029		0.050	0.029	mg/L			06/26/20 16:56	1
Sulfate	9.8		1.0	0.38	mg/L			06/26/20 16:56	1
- Method: EPA 6020B -	Metals (ICP/MS) - T	otal Recov	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.091		0.080	0.039	mg/L		06/27/20 13:54	07/02/20 22:32	1
Calcium	14		0.50	0.13	mg/L		06/27/20 13:54	07/02/20 22:32	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		06/27/20 13:54	07/02/20 22:32	1
Lithium	0.0053		0.0050	0.0034	mg/L		06/27/20 13:54	07/02/20 22:32	1
	5.5		0.50		ma/L			07/02/20 22:32	

Method: EPA 6020B - Metals (ICP/MS) - Dissolved										
	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Iron	<0.020		0.050	0.020	mg/L		06/27/20 13:54	07/02/20 22:08	1
	Manganese	0.00089	J	0.0050	0.00087	mg/L		06/27/20 13:54	07/02/20 22:08	1

0.015

0.50

0.50

0.00061 mg/L

0.16 mg/L 0.35 mg/L

<0.00061

2.6

13

General Chemistry Analyte	Result (	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1		3.0	2.1	mg/L		07/02/20 11:40	07/02/20 13:00	1
Total Alkalinity as CaCO3 to pH 4.4	33		5.0	5.0	mg/L			06/30/20 17:36	1
Bicarbonate Alkalinity as CaCO3	33		5.0	5.0	mg/L			06/30/20 17:36	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			06/30/20 17:36	1

Method: Field Sampling - Field	Sampling								
Analyte	Result C	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
рН	5.80				SU			06/25/20 10:15	1

9

4

6

8

10

12

13

7/9/2020

Client: Southern Company Job ID: 180-107562-1

Project/Site: Plant Arkwright AP3 Alternate Source

**Client Sample ID: ARGWA-20** 

Date Collected: 06/25/20 12:30

Lab Sample ID: 180-107562-5

Matrix: Water

Method: EPA 300.0 R2.1 - Anior	•	• •	•			_			
Analyte		Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Chloride	5.1		1.0		mg/L			06/26/20 17:13	1
Fluoride	<0.026		0.10	0.026	•			06/26/20 17:13	1
Nitrate as N	0.46		0.10	0.023	J			06/26/20 17:13	1
Nitrite as N	<0.029		0.050	0.029	-			06/26/20 17:13	1
Sulfate	16		1.0	0.38	mg/L			06/26/20 17:13	1
Method: EPA 6020B - Metals (IC	P/MS) - T	otal Recove	erable						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.081		0.080	0.039	mg/L		06/27/20 13:54	07/02/20 22:36	1
Calcium	9.6		0.50	0.13	mg/L		06/27/20 13:54	07/02/20 22:36	1
Cobalt	0.00015	J	0.0025	0.00013	mg/L		06/27/20 13:54	07/02/20 22:36	1
Lithium	<0.0034		0.0050	0.0034	mg/L		06/27/20 13:54	07/02/20 22:36	1
Magnesium	4.9		0.50	0.083	mg/L		06/27/20 13:54	07/02/20 22:36	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		06/27/20 13:54	07/02/20 22:36	1
Potassium	1.5		0.50	0.16	mg/L		06/27/20 13:54	07/02/20 22:36	1
Sodium	9.7		0.50	0.35	mg/L		06/27/20 13:54	07/02/20 22:36	1
Method: EPA 6020B - Metals (IC	P/MS) - D	issolved							
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.020		0.050	0.020	mg/L		06/27/20 13:54	07/02/20 22:11	1
Manganese	0.0028	J	0.0050	0.00087	mg/L		06/27/20 13:54	07/02/20 22:11	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1		3.0	2.1	mg/L		07/02/20 11:40	07/02/20 13:05	1
Total Alkalinity as CaCO3 to pH 4.	39		5.0	5.0	mg/L			06/30/20 17:43	1
Bicarbonate Alkalinity as CaCO3	39		5.0	5.0	mg/L			06/30/20 17:43	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			06/30/20 17:43	1
Method: Field Sampling - Field	Sampling								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	5.61				SU			06/25/20 12:30	

2

Л

5

7

9

10

12

13

7/9/2020

10

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

Job ID: 180-107562-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatgraphy

Lab Sample ID: MB 180-319637/6

**Matrix: Water** 

**Analysis Batch: 319637** 

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

MB MB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Chloride 1.0 0.32 mg/L 06/26/20 07:33 < 0.32 Fluoride < 0.026 0.10 0.026 mg/L 06/26/20 07:33 Nitrate as N < 0.023 0.10 0.023 mg/L 06/26/20 07:33 Nitrite as N 0.029 mg/L < 0.029 0.050 06/26/20 07:33 Sulfate 0.38 mg/L < 0.38 1.0 06/26/20 07:33

Lab Sample ID: LCS 180-319637/5

**Matrix: Water** 

**Analysis Batch: 319637** 

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

Client Sample ID: Method Blank

**Client Sample ID: Lab Control Sample** 

Client Sample ID: ARGWC-21

**Client Sample ID: ARGWC-21** 

**Prep Type: Total/NA** 

Prep Type: Total/NA

Prep Type: Total/NA

Prep Type: Total/NA

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	50.0	49.9		mg/L		100	90 - 110	
Fluoride	2.50	2.37		mg/L		95	90 - 110	
Nitrate as N	2.50	2.41		mg/L		97	90 - 110	
Nitrite as N	2.50	2.42		mg/L		97	90 - 110	
Sulfate	50.0	50.3		mg/L		101	90 - 110	

Lab Sample ID: MB 180-320882/6

**Matrix: Water** 

Analysis Batch: 320882

MB MB

Analyte Result Qualifier RL **MDL** Unit Analyzed Dil Fac **Prepared** Sulfate 1.0 0.38 mg/L 07/08/20 13:49 <0.38

Lab Sample ID: LCS 180-320882/5

**Matrix: Water** 

**Analysis Batch: 320882** 

_	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Sulfate	50.0	50.3		ma/L	_	101	90 - 110	

Lab Sample ID: 180-107562-3 MS

**Matrix: Water** 

Analysis Batch: 320882

Analysis Buton, oroce								
	Sample Sampl	e Spike	MS	MS				%Rec.
Analyte	Result Qualif	er Added	Result	Qualifier	Unit	D	%Rec	Limits
Sulfate	210	500	709		mg/L		101	90 - 110

Lab Sample ID: 180-107562-3 MSD

**Matrix: Water** 

Analysis Batch: 320882											
-	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Sulfate	210		500	713		mg/L		101	90 - 110	1	20

Eurofins TestAmerica, Pittsburgh

Job ID: 180-107562-1

Project/Site: Plant Arkwright AP3 Alternate Source

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

Lab Sample ID: MB 180-319816/1-A

**Matrix: Water** 

**Analysis Batch: 320452** 

Client: Southern Company

**Client Sample ID: Method Blank Prep Type: Total Recoverable Prep Batch: 319816** 

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		06/27/20 13:54	07/02/20 21:26	1
Iron	<0.020		0.050	0.020	mg/L		06/27/20 13:54	07/02/20 21:26	1
Calcium	<0.13		0.50	0.13	mg/L		06/27/20 13:54	07/02/20 21:26	1
Manganese	<0.00087		0.0050	0.00087	mg/L		06/27/20 13:54	07/02/20 21:26	1
Cobalt	< 0.00013		0.00050	0.00013	mg/L		06/27/20 13:54	07/02/20 21:26	1
Lithium	<0.0034		0.0050	0.0034	mg/L		06/27/20 13:54	07/02/20 21:26	1
Magnesium	<0.083		0.50	0.083	mg/L		06/27/20 13:54	07/02/20 21:26	1
Molybdenum	< 0.00061		0.0050	0.00061	mg/L		06/27/20 13:54	07/02/20 21:26	1
Potassium	<0.16		0.50	0.16	mg/L		06/27/20 13:54	07/02/20 21:26	1
Sodium	<0.35		0.50	0.35	mg/L		06/27/20 13:54	07/02/20 21:26	1

Lab Sample ID: LCS 180-319816/2-A

**Matrix: Water** 

**Analysis Batch: 320452** 

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

**Prep Batch: 319816** 

Spike LCS LCS %Rec. Added Result Qualifier Unit Limits Analyte D %Rec Boron 1.25 1.23 mg/L 99 80 - 120 5.00 5.16 103 Iron mg/L 80 - 120 Calcium 25.0 28.5 mg/L 114 80 - 120 Manganese 0.500 0.507 101 80 - 120 mg/L Cobalt 0.500 0.527 mg/L 105 80 - 120 Lithium 0.500 0.521 mg/L 104 80 - 120 Magnesium 25.0 25.5 mg/L 102 80 - 120 Molybdenum 0.500 0.535 mg/L 107 80 - 120 Potassium 25.0 25.1 101 mg/L 80 - 120 Sodium 25.0 25.4 mg/L 101 80 - 120

Lab Sample ID: 180-107562-1 MS

**Matrix: Water** 

**Analysis Batch: 320452** 

Client Sample ID: EB#2 **Prep Type: Dissolved Prep Batch: 319816** 

Analysis Baton: 020-02	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Boron	0.042	J	1.25	1.23	-	mg/L		95	75 - 125
Iron	<0.020		5.00	5.23		mg/L		105	75 - 125
Calcium	<0.13		25.0	28.4		mg/L		114	75 - 125
Manganese	<0.00087		0.500	0.501		mg/L		100	75 - 125
Cobalt	0.00023	J	0.500	0.521		mg/L		104	75 - 125
Lithium	< 0.0034		0.500	0.522		mg/L		104	75 - 125
Magnesium	<0.083		25.0	25.2		mg/L		101	75 - 125
Molybdenum	< 0.00061		0.500	0.533		mg/L		107	75 - 125
Potassium	<0.16		25.0	24.8		mg/L		99	75 - 125
Sodium	< 0.35		25.0	25.6		ma/L		102	75 <sub>-</sub> 125

Lab Sample ID: 180-107562-1 MSD

Matrix: Water									<b>Prep Typ</b>	e: Diss	olved
Analysis Batch: 320452									Prep Ba	atch: 3°	19816
_	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Boron	0.042	J	1.25	1.27	-	mg/L		98	75 - 125	3	20

Eurofins TestAmerica, Pittsburgh

Client Sample ID: EB#2

Page 17 of 24

7/9/2020

Client: Southern Company Job ID: 180-107562-1

Project/Site: Plant Arkwright AP3 Alternate Source

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

Lab Sample ID: 180-107562-1 MSD **Matrix: Water** 

**Analysis Batch: 320452** 

Client Sample ID: EB#2 **Prep Type: Dissolved** 

**Prep Batch: 319816** 

•	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Iron	<0.020		5.00	5.00		mg/L		100	75 - 125	5	20
Calcium	<0.13		25.0	27.7		mg/L		111	75 - 125	2	20
Manganese	<0.00087		0.500	0.501		mg/L		100	75 - 125	0	20
Cobalt	0.00023	J	0.500	0.510		mg/L		102	75 - 125	2	20
Lithium	<0.0034		0.500	0.504		mg/L		101	75 - 125	4	20
Magnesium	<0.083		25.0	25.0		mg/L		100	75 - 125	1	20
Molybdenum	<0.00061		0.500	0.516		mg/L		103	75 - 125	3	20
Potassium	<0.16		25.0	24.2		mg/L		97	75 - 125	2	20
Sodium	<0.35		25.0	24.9		mg/L		100	75 - 125	3	20

Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 180-320115/1-A

**Matrix: Water** 

**Analysis Batch: 320175** 

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

**Client Sample ID: Lab Control Sample** 

85 - 115

**Client Sample ID: Lab Control Sample** 

89

**Prep Batch: 320115** 

MB MB RLAnalyte Result Qualifier MDI Unit Prepared Analyzed Dil Fac Sulfide <2.1 3.0 2.1 mg/L 07/01/20 06:00 07/01/20 07:13

Lab Sample ID: LCS 180-320115/2-A

**Matrix: Water** 

Prep Type: Total/NA **Prep Batch: 320115 Analysis Batch: 320175** Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit D %Rec Limits

10.5

Lab Sample ID: MB 180-320341/1-A

**Matrix: Water** 

Sulfide

**Analysis Batch: 320374** 

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

mg/L

Prep Batch: 320341

MB MB

Dil Fac Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Sulfide <2.1 3.0 2.1 mg/L 07/02/20 11:40 07/02/20 12:53

11.9

Lab Sample ID: LCS 180-320341/2-A **Matrix: Water** 

Analysis Batch: 320374

Prep Type: Total/NA **Prep Batch: 320341** Spike LCS LCS %Rec. Added Result Qualifier %Rec Limits Unit

Analyte Sulfide 11.6 9.95 85 - 115 86 mg/L

Lab Sample ID: 180-107562-4 MS

**Matrix: Water** 

Prep Type: Total/NA **Analysis Batch: 320374 Prep Batch: 320341** Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Sulfide <2.1 11.6 9.73 mg/L 84 75 - 125

Eurofins TestAmerica, Pittsburgh

Client Sample ID: ARGWA-19

Page 18 of 24

7/9/2020

# **QC Sample Results**

Client: Southern Company Job ID: 180-107562-1

Project/Site: Plant Arkwright AP3 Alternate Source

Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric) (Continued)

Lab Sample ID: 180-107562	2-4 MSD						(	Client S	ample ID:		
Matrix: Water									Prep Ty	pe: Tot	al/NA
Analysis Batch: 320374									Prep Ba	atch: 32	20341
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Sulfide	<2.1		11.6	9.73		mg/L		84	75 - 125	0	20

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-320519/29 **Client Sample ID: Method Blank** Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 320519

	MB N	ИΒ							
Analyte	Result C	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.0		5.0	5.0	mg/L			06/30/20 16:03	1
Bicarbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			06/30/20 16:03	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			06/30/20 16:03	1

Lab Sample ID: LCS 180-320519/28 **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA** 

Analysis Batch: 320519

4.5

Spike LCS LCS %Rec. Added Result Qualifier Analyte Unit D %Rec Limits 250 230 Total Alkalinity as CaCO3 to pH mg/L 92 90 - 110

Lab Sample ID: 180-107562-3 DU

**Matrix: Water** 

**Analysis Batch: 320519** 

/ manyole Datem 620010	Sample 3	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Total Alkalinity as CaCO3 to pH	140		140		mg/L			20
4.5								
Bicarbonate Alkalinity as CaCO3	140		140		mg/L		1	20
Carbonate Alkalinity as CaCO3	<5.0		<5.0		mg/L		NC	20

Client Sample ID: ARGWC-21

Prep Type: Total/NA

# **QC Association Summary**

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

## HPLC/IC

## Analysis Batch: 319637

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107562-1	EB#2	Total/NA	Water	EPA 300.0 R2.1	
180-107562-2	ARGWC-23	Total/NA	Water	EPA 300.0 R2.1	
180-107562-3	ARGWC-21	Total/NA	Water	EPA 300.0 R2.1	
180-107562-4	ARGWA-19	Total/NA	Water	EPA 300.0 R2.1	
180-107562-5	ARGWA-20	Total/NA	Water	EPA 300.0 R2.1	
MB 180-319637/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-319637/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

## **Analysis Batch: 320882**

Client Sample ID	Prep Type	Matrix	Method	Prep Batch
ARGWC-21	Total/NA	Water	EPA 300.0 R2.1	
Method Blank	Total/NA	Water	EPA 300.0 R2.1	
Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
ARGWC-21	Total/NA	Water	EPA 300.0 R2.1	
ARGWC-21	Total/NA	Water	EPA 300.0 R2.1	
	ARGWC-21 Method Blank Lab Control Sample ARGWC-21	ARGWC-21 Total/NA Method Blank Total/NA Lab Control Sample Total/NA ARGWC-21 Total/NA	ARGWC-21 Total/NA Water Method Blank Total/NA Water Lab Control Sample Total/NA Water ARGWC-21 Total/NA Water	ARGWC-21         Total/NA         Water         EPA 300.0 R2.1           Method Blank         Total/NA         Water         EPA 300.0 R2.1           Lab Control Sample         Total/NA         Water         EPA 300.0 R2.1           ARGWC-21         Total/NA         Water         EPA 300.0 R2.1

## **Metals**

## **Prep Batch: 319816**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107562-1	EB#2	Dissolved	Water	3005A	
180-107562-1	EB#2	Total Recoverable	Water	3005A	
180-107562-2	ARGWC-23	Dissolved	Water	3005A	
180-107562-2	ARGWC-23	Total Recoverable	Water	3005A	
180-107562-3	ARGWC-21	Dissolved	Water	3005A	
180-107562-3	ARGWC-21	Total Recoverable	Water	3005A	
180-107562-4	ARGWA-19	Dissolved	Water	3005A	
180-107562-4	ARGWA-19	Total Recoverable	Water	3005A	
180-107562-5	ARGWA-20	Dissolved	Water	3005A	
180-107562-5	ARGWA-20	Total Recoverable	Water	3005A	
MB 180-319816/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-319816/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-107562-1 MS	EB#2	Dissolved	Water	3005A	
180-107562-1 MSD	EB#2	Dissolved	Water	3005A	

## **Analysis Batch: 320452**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107562-1	EB#2	Dissolved	Water	EPA 6020B	319816
180-107562-1	EB#2	Total Recoverable	Water	EPA 6020B	319816
180-107562-2	ARGWC-23	Dissolved	Water	EPA 6020B	319816
180-107562-2	ARGWC-23	Total Recoverable	Water	EPA 6020B	319816
180-107562-3	ARGWC-21	Dissolved	Water	EPA 6020B	319816
180-107562-3	ARGWC-21	Total Recoverable	Water	EPA 6020B	319816
180-107562-4	ARGWA-19	Dissolved	Water	EPA 6020B	319816
180-107562-4	ARGWA-19	Total Recoverable	Water	EPA 6020B	319816
180-107562-5	ARGWA-20	Dissolved	Water	EPA 6020B	319816
180-107562-5	ARGWA-20	Total Recoverable	Water	EPA 6020B	319816
MB 180-319816/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	319816
LCS 180-319816/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	319816
180-107562-1 MS	EB#2	Dissolved	Water	EPA 6020B	319816
180-107562-1 MSD	EB#2	Dissolved	Water	EPA 6020B	319816

Eurofins TestAmerica, Pittsburgh

Job ID: 180-107562-1

3

4

6

Я

4.0

11

12

1

Client: Southern Company

Project/Site: Plant Arkwright AP3 Alternate Source

**General Chemistry** 

**Prep Batch: 320115** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method Pre	p Batch
180-107562-1	EB#2	Total/NA	Water	9030B	
180-107562-2	ARGWC-23	Total/NA	Water	9030B	
180-107562-3	ARGWC-21	Total/NA	Water	9030B	
MB 180-320115/1-A	Method Blank	Total/NA	Water	9030B	
LCS 180-320115/2-A	Lab Control Sample	Total/NA	Water	9030B	

**Analysis Batch: 320175** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107562-1	EB#2	Total/NA	Water	EPA 9034	320115
180-107562-2	ARGWC-23	Total/NA	Water	EPA 9034	320115
180-107562-3	ARGWC-21	Total/NA	Water	EPA 9034	320115
MB 180-320115/1-A	Method Blank	Total/NA	Water	EPA 9034	320115
LCS 180-320115/2-A	Lab Control Sample	Total/NA	Water	EPA 9034	320115

**Prep Batch: 320341** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107562-4	ARGWA-19	Total/NA	Water	9030B	
180-107562-5	ARGWA-20	Total/NA	Water	9030B	
MB 180-320341/1-A	Method Blank	Total/NA	Water	9030B	
LCS 180-320341/2-A	Lab Control Sample	Total/NA	Water	9030B	
180-107562-4 MS	ARGWA-19	Total/NA	Water	9030B	
180-107562-4 MSD	ARGWA-19	Total/NA	Water	9030B	

**Analysis Batch: 320374** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107562-4	ARGWA-19	Total/NA	Water	EPA 9034	320341
180-107562-5	ARGWA-20	Total/NA	Water	EPA 9034	320341
MB 180-320341/1-A	Method Blank	Total/NA	Water	EPA 9034	320341
LCS 180-320341/2-A	Lab Control Sample	Total/NA	Water	EPA 9034	320341
180-107562-4 MS	ARGWA-19	Total/NA	Water	EPA 9034	320341
180-107562-4 MSD	ARGWA-19	Total/NA	Water	EPA 9034	320341

**Analysis Batch: 320519** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107562-1	EB#2	Total/NA	Water	SM2320 B	_
180-107562-2	ARGWC-23	Total/NA	Water	SM2320 B	
180-107562-3	ARGWC-21	Total/NA	Water	SM2320 B	
180-107562-4	ARGWA-19	Total/NA	Water	SM2320 B	
180-107562-5	ARGWA-20	Total/NA	Water	SM2320 B	
MB 180-320519/29	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-320519/28	Lab Control Sample	Total/NA	Water	SM2320 B	
180-107562-3 DU	ARGWC-21	Total/NA	Water	SM2320 B	

Field Service / Mobile Lab

**Analysis Batch: 320074** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-107562-2	ARGWC-23	Total/NA	Water	Field Sampling	
180-107562-3	ARGWC-21	Total/NA	Water	Field Sampling	
180-107562-4	ARGWA-19	Total/NA	Water	Field Sampling	
180-107562-5	ARGWA-20	Total/NA	Water	Field Sampling	

Eurofins TestAmerica, Pittsburgh

Page 21 of 24 7/9/2020

2

Job ID: 180-107562-1

4

5

7

\_

10

11

12

13

:> eurofins

Chain of Custody Record

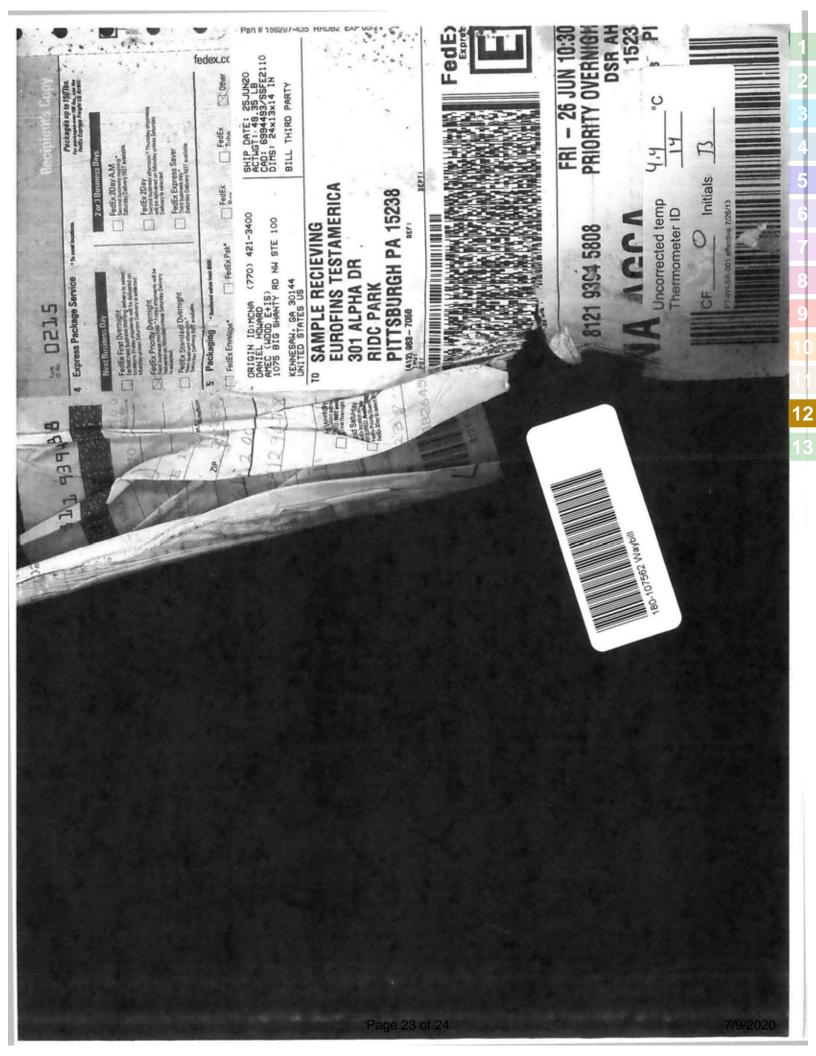
Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238

Phone: 412-963-7058 Fax: 412-963-2468

O - ASNBO2 P - NA2O45 O - NA2O45 R - NA2S203 S - H2SO4 U - Acebone V - MC/AA W - DH 4-5 Z - other (specify) Special Instructions/Note: Ponoin Months 4 pH=5.98 PH=5.80 0H= 6,37 DH=5.6 180-61584-12490.1 reservation Codes G - Amchlor H - Ascorbic Acid 180-107562 Chain of Custody C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH Page 1 of 1 1 - Ice J - Di Water K - EDTA Archive For Total Number of containers 6 26/2 Sample Disposal ( A fee may be assessed | Return To Client | Knisposal By Lab Analysis Requested ooler Temperature(s) "C and Other Remarks Special Instructions/QC Requirements CB 9034\_Calc - Local Method E-Mail shali brown@lestamericainc.com Return To Client 2540C\_Calcd - Solids, Total Dissolved (TDS) opening by eceived by. 6020B - (MOD) Custom 8 (CoMoLiCaMgNaKB) Lab PM. Brown, Shali (ON TO BOY) CEMIZM Preservation Code: Water Water Water Water Water Water Waler Water Water Sompany Matrix упедто: F Mayola Law Ecuillen Radiological Type (C=comp, G=grab) Sample 0 0 6/25/20/1815 1230 1015 1315 6/25/20 0910 Sample Time Unknown 5 days TAT Requested (days): **Date Requested** Sample Date PO#: SCS10382606 Project #. 18020201 SSOW#. Poison B Skin Imitant eliverable Requested: I, II, III, IV, Other (specify) Custody Seal No. ARGWC-23 ARGWC-21 ARGWA-19 ARGWA-20 Plant Arkwright AP3 Alternate Source Flammable 241 Ralph McGill Blvd SE B10185 Possible Hazard Identification JAbraham@southernco.com impty Kit Relinquished by E8#2 Custody Seals Intact
A Yes A No Sample Identification Client Information Farried & Southern Company Joju Abraham quished by State, Zip. GA, 30308 Atlanta



Client: Southern Company Job Number: 180-107562-1

Login Number: 107562 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Say, Thomas C

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

Date: <u>6-23×20</u> Time: <u>0 7<i>i10</i> Prepared By: 7. PiQRULY</u>	Wood. Project No. 6122201429		Pine Sonde ID: 36 Pine Handset ID: 6 Battery Voltage %: 4	306/b
Checked By:			BATT. PACK:	Sev. 16. 40794
	BRATION PRIOR TO S	SAMPLING		
DISSOLVED OXYGEN (DO)				VALUE
Was DO membrane changed?	Yes No	Date:	Time:	
Current Air Temperature °C (meter reading):			-	23.20
Current Barometric Pressure (from Weather	RITI Gan	520	ays remobiling	
Channel or NOAA.gov, which is corrected to		/ G		751,5 mm He
sea level): Elevation Corrected Barometric Pressure to	T	·····		mmla
enter into YSI DO calibration:	Ex.: 30.02 in. Hg x 25.4 100 ft. above sea level:		btract 2.54 mm Hg for ever	NIA
Theoretical DO (mg/L) from DO table based	100 it, above sea level;	703/100 X 2.3	1 = 14.4 min rig	14 / 67
on current temperature and elevation corrected				1000
pressure;				8.45
DO concentration before Calibration (mg/L):	Depending on meter v	ersion this n	nay not be available	0 10
DO concentration after Calibration (mg/L):	~ shourants ou motor A	vaccion, una li	na, not of available.	8,44
% Recovery (actual/theory x 100)	Range is 90 to 110% I	Recovery		100%
DO Charge (DO ch):	Acceptable Range is 2		· · · · · · · · · · · · · · · · · · ·	A A
DO Gain (should be between -0.7 and 1.5):			dvanced/Cal Constants	32
Note:	Exit Canoration mena	and go to 21	avanced car constants	6-6-
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over from pH standa	rds (i.e. pII buffe	ers are conductive)]	
Calibration standard used (mS/cm)			Cor# 966814	11.117 . et.
Temperature (°C)			C654 496874	1.413 m. yen
Reading before Calibration (mS/cm)				1.31 n S/cm
Reading AFTER Calibration (mS/cm)				1 3/1 VW
Conductivity Cell Constant (unitless):				11/1/2
Note: Be sure conductivity cell is submerged and free of bubb	les (gently tap sonde on table)			17777
Hq	<u> </u>			,
pH 7.0 value before calibration:	Fro 11/75	71 /01	A96K721	
pH 7.0 value after calibration:	35	16 N	D 7 5K 721	
pH 7.0 mV (range is -50 to +50 mV):	هري،	<u>/ L.</u>	MANUAL - 18 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-1610
pli 10 value before calibration:	FV0 11/201	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	4968672	7 40,7 50
pH 10 value after calibration:	- CA 1 . 17 / - W-	<u> </u>	φη Υ.(2)X <sub>1</sub> (2) 7 - X	10. DIV 000
pH 10 mV (range is -130 to -230 mV):				-196.9
pH 4.0 value before calibration:	Exp. 12/200	و مرسوس مرسو	CIEL ROLL	4.02
pH 4.0 value after calibration:	25.51		I (Ilm O U T	To Camp
pH 4.0 mV (range is 130 to 230 mV):				142.3
Note: Span between ph 4 and 7, and 7 and 10 should be between	en 165 to 180 mV			
OXIDATION/REDUCTION POTENTIAL (				
Calibration Temperature (°C):	Exa 08/202	0 /074	96K14Z	121/2
	0.231+0.0013(25-T) x	$\frac{1000 = \text{mV}}{1000}$	(T is Temperature °C)	232.01
Reading before calibration (mV):	· · · · · · · · · · · · · · · · · · ·	***************************************		22/.0
Reading after calibration (mV):		· · · · · · · · · · · · · · · · · · ·		737. 2
Note: mV theory will change with temperature,	so calculate based on	our current	temp.	the state of the s
TURBIDITY Note: Lens wiper should be parked 180	degrees from the optics.		A .	
20 NTU Turbidity Standard Lot # 19/13	Exp. Jul. 2021	Before Cal	: After Cal:	19.2
BONTU Turbidity Standard Lor# A9134	Exp. Aly 2020	Before Cal	: After Cal:	50 g
ROO - NTU Turbidity Standard L. ピアピソタ サイ	1 Dun All. 202	Bafora Cal	After Cal-	795
NTU Turbidity Check STD 27414 92	68 Exp. Jan 202	Before Cal	: After Cal:	9.56
NTU Turbidity Check STD ATHACO	CI FUL Let 2 112	Before Cal	: After Cal:	0.12
CALIBRATION SUCCESSFUL?	The state of the s			

-Hach Cat. # 2659749

Date: 6 24-20
Time: 07:76
Prepared By: To PARKER
Checked By: Dhoud

Wood. Project No. 6122201429 Pine Sonde ID: 369323 VI.09
Pine Handset ID: 030616
Battery Voltage %: 1003

RATT. PACK SKI: 407943
VI.03

CALIBRATION PRIOR TO SAMPLING

DISSOLVED OXYGEN (DO)	BRATION PRIOR	TOSMALLT	U		VALUE	]
Was DO membrane changed?	YesNo_	Date:	Time:	N/A		
Current Air Temperature °C (meter reading):			`		24.40	
Current Barometric Pressure (from Weather					127.70	İ
Channel or NOAA.gov, which is corrected to					757.4	
sea level):					morts	
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. Hg					
enter into YSI DO calibration:	100 ft. above sea l	evel: 565/100 x	2.54 = 14.4  mm	ı Hg	N/ra	
Theoretical DO (mg/L) from DO table based				1 100		
on current temperature and elevation corrected					8.26	
pressure:					my/L	
DO concentration before Calibration (mg/L):	Depending on m	eter version, tl	nis may not be	available.	8.16	
DO concentration after Calibration (mg/L):					8,27	
% Recovery (actual/theory x 100)	Range is 90 to 1				14000	6011
DO Charge (DO ch):	Acceptable Rang					
DO Gain (should be between -0.7 and 1.5):	Exit Calibration	menu and go t	o Advanced/Ca	al Constants	624	20
Note:					626	
CONDUCTIVITY [Note: Calibrate before pH to av			***************************************			
Calibration standard used (mS/cm)	Exp 12/	2020 /	074966	814	1.413	
Γemperature (°C)		-			25.03	
Reading before Calibration (mS/cm)					1,42	
Reading AFTER Calibration (mS/cm)				****	1.41	ans
Conductivity Cell Constant (unitless):					NA	Co VI J
Note: Be sure conductivity cell is submerged and free of bubb	oles (gently tap sondo o	n table)			<del></del>	
Н						
oH 7.0 value before calibration:	Exp. 11/3	1021 20	TA 9GK T	F-2,1	N/A	
oH 7.0 value after calibration:	7				NIA	
oH 7.0 mV (range is -50 to +50 mV):				*****	-17.5	
pH 10 value before calibration;	E40. 177	2021 6	THE GOR	8 1 2	NIA	
pH 10 value after calibration:	112		11 201		10.010	aw
pH 10 mV (range is -130 to -230 mV):	···				795.1	- 740
oH 4.0 value before calibration:	FV0. 12	75027	Lor#96	1.274	4.05	
oH 4.0 value after calibration:			<del></del>		NIA	
H 4.0 mV (range is 130 to 230 mV):				t-	140.2	
Vote: Span between ph 4 and 7, and 7 and 10 should be between	een 165 to 180 mV				1.7012	
OXIDATION/REDUCTION POTENTIAL (	ORP)					
Calibration Temperature (°C);	EVA	8/2420	Lor # CT	GK142	124 70	
Theoretical Calibration standard (mV)	<del>م ريخ ين من من من من من من من من من من من من من</del>	$T \times 1000 = r$	nV (T is Tem	iperature °C)	231.3	
Reading before calibration (mV):	`				228,8	
Reading after calibration (mV):					231.7	ON A
Note: mV theory will change with temperature,	so calculate hase	d on your curr	ent temn		104.7/1. T	-01/
URBIDITY Note: Lens wiper should be parked 180	degrees from the op	ics,			-	
NTU Turbidity Standard Lot a Mail?	Sea Tul	d 2. / Before	Cal:	After Cal:	120 6	
NTU Turbidity Standard Lotte Adia	En Aun	2013 URefore	Cal.	After Cal:	20.0	
NTU Turbidity Standard	TO THE	7dia Refore	Cal:	After Cal:		
NTU Turbidity Standard Lot # 1913 NTU Turbidity Standard Lot # 1913 NTU Turbidity Check STD Lot # 192	68 Elen Jour	201010 2012 Rafora	Cal.	After Cal:	804	المصيد
0.1 NTU Turbidity Check STD LoT# 400	132 Eur - 1	John Rafora	Cal·	After Cal:	9.38	AT ILL
CALIBRATION SUCCESSFUL?	-T EXP. 1-ES	LOZ Pelole	Cal.	And Cal;	0.14	
					f	

Date: 6-23-20
Time: 7/5
Prepared By: EVER GUICLEN
Checked By:

Wood. Project No. 6122201429 Pine Sonde ID: 30666
Pine Handset ID: 30679
Battery Voltage %: 80

DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	Yes No Date: Time:	
Current Air Temperature °C (meter reading):	746	2-16
Current Barometric Pressure (from Weather		- Vii
Channel or NOAA.gov, which is corrected to	1	
sea level):		
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for every	
enter into YSI DO calibration:	100 ft. above sea level: $565/100 \times 2.54 = 14.4 \text{ mm Hg}$	751.6
Theoretical DO (mg/L) from DO table based		
on current temperature and elevation corrected		
pressure:		
DO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	8,62
DO concentration after Calibration (mg/L):	8,04	£-53.
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	
DO Charge (DO ch):	Acceptable Range is 25 to 75	
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	
Note:		
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over from pH standards (i.e. pH buffers are conductive)]	
Calibration standard used (mS/cm)		1.413
remperature (°C)		27.37
Reading before Calibration (mS/cm)	1,466	1-4-4
Reading AFTER Calibration (mS/cm)	1,413	446
Conductivity Cell Constant (unitless):		
7-		
Note: Be sure conductivity cell is submerged and free of bubl	bles (gently tap sonde on table)	
Н	bles (gently tap sonde on table)	
	bles (gently tap sonde on table)	7,55
Н	bles (gently tap sonde on table)	7,55
oH oH 7.0 value before calibration:	bles (gently tap sonde on table)	7.00
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV); pH 10 value before calibration:		7,00 -32,9
bH 7.0 value before calibration: bH 7.0 value after calibration: bH 7.0 mV (range is -50 to +50 mV);	bles (gently tap sonde on table)	7:00 -32:9 <del>10:0</del>
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV); pH 10 value before calibration:		7:00 -32.9 <del>10:0</del> 0
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV); pH 10 value before calibration: pH 10 value after calibration:		7:00 -32:9 <del>10:0</del> 10: <b>0</b> 0 -206:3
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV):		7.00 -32.9 <del>10.0</del> 10.00 -206.3 4,65
bH  pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value before calibration:		7.00 -32.9 <del>1010</del> 10.00 -206.3 4,65 4,00
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value before calibration: pH 4.0 value after calibration: pH 4.0 mV (range is 130 to 230 mV):	jo.46	7.00 -32.9 <del>10.0</del> 10.00 -206.3 4,65
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value before calibration: pH 4.0 value after calibration:	io,46 jo,46 een 165 to 180 mV	7.00 -32.9 <del>1010</del> 10.00 -206.3 4,65 4,00
bH  bH 7.0 value before calibration: bH 7.0 value after calibration: bH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): bH 4.0 value before calibration: bH 4.0 value after calibration: bH 4.0 mV (range is 130 to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be betw	io,46 jo,46 een 165 to 180 mV	7.00 -32.9 <del>1010</del> 10. <b>0</b> 0 -206.3 4.65 4.00
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV); pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV); pH 4.0 value before calibration: pH 4.0 value after calibration: pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range	een 165 to 180 mV ORP)	7,00 -32,9 10,00 -206,3 4,65 4,00 139,5
bH  bH 7.0 value before calibration: bH 7.0 value after calibration: bH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): bH 4.0 value before calibration: bH 4.0 value after calibration: bH 4.0 mV (range is 130 to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be betw  DXIDATION/REDUCTION POTENTIAL (Calibration Temperature (°C): cheoretical Calibration standard (mV)	io,46 jo,46 een 165 to 180 mV	7.00 -32.9 <del>1010</del> 10.00 -206.3 4.65 4.00 139.5
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV); pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV); pH 4.0 value before calibration: pH 4.0 value after calibration: pH 4.0 mV (range is 130 to 230 mV); lote: Span between ph 4 and 7, and 7 and 10 should be betw DXIDATION/REDUCTION POTENTIAL (Calibration Temperature (°C): Theoretical Calibration standard (mV) Reading before calibration (mV):	een 165 to 180 mV ORP)	7.00 -32.9 <del>1010</del> 10.00 -206.3 4.65 4.00 139.5 23.3 240 207.1
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV); pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV); pH 4.0 value before calibration: pH 4.0 value after calibration: pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is -130 to -230 mV); pH 4.0 value before calibration; pH 10 mV (range is -130 to -230 mV); pH 4.0 value before calibration; pH 10 mV (range is -130 to -230 mV); pH 4.0 value before calibration; pH 4.0 value before calibration; pH 4.0 value before calibration; pH 4.0 mV (range is -130 to -230 mV); pH 4.0 mV (ra	/o.46  een 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)	7.00 -32.9 <del>1010</del> 10.00 -206.3 4.65 4.00 139.5
bH  bH 7.0 value before calibration: bH 7.0 value after calibration: bH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): bH 4.0 value after calibration: bH 4.0 value after calibration: bH 4.0 mV (range is 130 to 230 mV): dote: Span between ph 4 and 7, and 7 and 10 should be between the span betw	een 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.	7.00 -32.9 <del>1010</del> 10.00 -206.3 4.65 4.00 139.5 23.3 240 207.1
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 4.0 value after calibration: pH 4.0 mV (range is 130 to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span between ph 4 and 7, and 7 and 10 should be between the span	een 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp. Odegrees from the optics.	7.00 -32.9 1010 10.00 -206.3 4.65 4.00 139.5 23.3 240 207.1 231.0
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV); pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV); pH 4.0 value before calibration: pH 4.0 value after calibration: pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 mV (range is 130 to 230 mV); pH 4.0 value after calibration; pH 10 value before calibration; ph 10 value before calibration;	een 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.  Odegrees from the optics.  Before Cal: 9.45 After Cal:	7.00 -32.9 1010 10.00 -206.3 4.00 139.3 23.3 240 207.1 231.0
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value before calibration: pH 4.0 value after calibration: pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -2	een 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  so calculate based on your current temp.  Odegrees from the optics.  Before Cal: 9.45 After Cal: Before Cal: 19.8 After Cal:	7,00 -32,9 10,00 10,00 -206,3 4,65 4,00 139,5 23,3 240 207,1 231,0 9,78 20,1
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value before calibration: pH 4.0 value after calibration: pH 4.0 mV (range is 130 to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span between ph 4 and 7, and 7 and 10 should be between the span between the span between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 and 10 should be between the span to 230 mV): lote: Span between ph 4 and 7, and 7 an	een 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.  Odegrees from the optics.  Before Cal: 9.45 After Cal: Before Cal: 92.9 After Cal: Before Cal: 92.9 After Cal:	7.00 -32.9 10.00 10.00 -206.3 4,65 4,00 139.5 23.3 240 207.1 231.0 9,78 20.1 100
pH 7.0 value before calibration: pH 7.0 value after calibration: pH 7.0 mV (range is -50 to +50 mV): pH 10 value before calibration: pH 10 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value before calibration: pH 4.0 value after calibration: pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 mV (range is 130 to 230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 4.0 mV (range is -130 to -230 mV): pH 4.0 value after calibration: pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -230 mV): pH 10 mV (range is -130 to -2	een 165 to 180 mV  ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  so calculate based on your current temp.  Odegrees from the optics.  Before Cal: 9.45 After Cal: Before Cal: 19.8 After Cal:	7,00 -32,9 10,00 10,00 -206,3 4,65 4,00 139,5 23,3 240 207,1 231,0 9,78 20,1

Time: 7,5"
Prepared By: EVER GUILLEN Checked By:\_\_\_\_

Wood. Project No. 6122201429 Pine Sonde ID: 30666 Pine Handset ID: 306/4 Battery Voltage %: /oc>

CALII	BRATION	PRIOR	TO SA	AMPLING			
DISSOLVED OXYGEN (DO)					With the second		VALUE
Was DO membrane changed?	Yes	No	Barret	Date:	Time:		
Current Air Temperature °C (meter reading):						23,3	23.9
Current Barometric Pressure (from Weather							
Channel or NOAA.gov, which is corrected to							
sea level):		,	.,_,_				
Elevation Corrected Barometric Pressure to						ım Hg for every	
enter into YSI DO calibration: Theoretical DO (mg/L) from DO table based	100 ft. abo	ve sea le	vel: 56	55/100 x 2.5	4 = 14.4 mm l	Hg	751.4
, <b>-</b>							
on current temperature and elevation corrected	Ì						1
pressure:  DO concentration before Calibration (mg/L):	T 10						
DO concentration detore Calibration (mg/L):	Dependin	g on me	ter ver	rsion, this r	nay not be a	vailable.	8:76
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	<u> </u>		X 2 2				Q.8.18
% Recovery (actual/theory x 100)	Range is 9				****		
DO Charge (DO ch):	Acceptabl	_					
DO Gain (should be between -0.7 and 1.5):	Exit Calib	ration n	nenu a	ınd go to A	dvanced/Cal	Constants	
Note:					····	<u></u>	
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over	from pH s	standard	ls (i.e. pH buff	ers are conductiv	/e)]	
Calibration standard used (mS/cm)							1,413
Temperature (°C)							23,6
Reading before Calibration (mS/cm)							1.433
Reading AFTER Calibration (mS/cm)			***************************************				1.4/3
Conductivity Cell Constant (unitless):							
Note: Be sure conductivity cell is submerged and free of bubb	oles (gently tap	sonde on	table)				
pH							
pH 7.0 value before calibration:							7155
pH 7.0 value after calibration:							7.00
pH 7.0 mV (range is -50 to +50 mV):							~ 33,0
pH 10 value before calibration:							10.48
pH 10 value after calibration:							10,00
pH 10 mV (range is -130 to -230 mV):			78F (7 45F				-206.8
oH 4.0 value before calibration:							4.66
pH 4.0 value after calibration:					_	,	4,00
oH 4.0 mV (range is 130 to 230 mV):			· · · ·			7.0	139.3
Note: Span between ph 4 and 7, and 7 and 10 should be between DXIDATION/REDUCTION POTENTIAL (Control of the control of the con	een 165 to 180	mV					
Calibration Temperature (°C):			<del></del>		·		1000
Theoretical Calibration standard (mV)	0.231+0.00	113(25-	T) v 1/	000 = mV	/T is Temr	perature °C')	23,4
Reading before calibration (mV):	0,251.0,00	313(23-	1) 1 1	000 - 111 V	(1 19 1 6111)	berature C)	B 240.
Reading after calibration (mV):							206.4
		, 1 1				***	231
Note: mV theory will change with temperature, FURBIDITY Note: Lens wiper should be parked 180	, SO Calcula	te based	on yo	ur current	temp.		
	degrees from	n the opti		72.0			
10 NTU Turbidity Standard				Before Cal	(1.7	After Cal:	10:1
12 NITH Turkidity Standard				Before Cal		After Cal:	20,6
LO NTU Turbidity Standard						A Drow C'=1.	1 00 A
ro NTU Turbidity Standard				Before Cal	• • •	After Cal:	99.9
· ·				Before Cal Before Cal	: 798	After Cal: After Cal: After Cal:	803

Date: 6 - 2	5-20	
Time:74	5	^
Prepared By:	EVER	Guice
: Chooked Dig		-

Pine Sonde ID: 30666
Pine Handset ID: 306/4
Battery Voltage %: 100

DISSOLVED OXYGEN (DO)	BRATION PRIOR TO SAMPLING	YALTON
Was DO membrane changed?	Yes No C Date; Time:	VALUE
Current Air Temperature °C (meter reading):		
Current Barometric Pressure (from Weather	22.2	222
Channel or NOAA.gov, which is corrected to	•	
sea level):		
Elevation Corrected Barometric Pressure to	D 40.00'. II	- Namel American y procure manifest four start
enter into YSI DO calibration:	Ex.: 30.02 in, Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for every	
Theoretical DO (mg/L) from DO table based	100 ft. above sea level: 565/100 x 2.54 = 14.4 mm Hg	753.5
on current temperature and elevation corrected		(
oressure:		
OO concentration before Calibration (mg/L):	73	TOTA HIMEAN MUNICIPAL
OO concentration after Calibration (mg/L):	Depending on meter version, this may not be available.	8:43
	The state of the s	8.17
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	A
O Charge (DO ch):	Acceptable Range is 25 to 75	
OO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	
Vote:		,
CONDUCTIVITY [Note: Calibrate before pH to a	void carry-over from pH standards (i.e. pH buffers are conductive)]	
Calibration standard used (mS/can)		1.413
emperature (°C)		22.7
Reading before Calibration (mS/cm)		1,431
Reading AFTER Calibration (mS/cm)		1,413
Conductivity Cell Constant (unitless):		-274
lote: Be sure conductivity cell is submerged and free of bub	bies (gently tap sonde on table)	Till sådd hinn finnene aveika had landidirk baneri. F
Н	A Part of the Control	
H 7.0 value before calibration:	A CONTRACTOR OF THE CONTRACTOR	7,56
H 7.0 value after calibration:		7.00
H 7.0  mV (range is -50 to +50 mV);	3 A 2 A 3 A 3 A 3 A 3 A 3 A 3 A 3 A 3 A	-33,4
pH 10 value before calibration:	e hirse at stand at course of course at states at allow he states at allow at allow at allow at allow at allow at allow at allow at allow at allow at allowing at allowing at all all all all all all all all all	10,46
pH 10 value after calibration:	The state of the s	10,00
pH 10 mV (range is -130 to -230 mV):	A MANUAL	-206,0
H 4.0 value before calibration:	त अंदर्ज में जिल्हा के लिएक के किएन के मिलन के मिलन में किएन में किएन में किएन में किएन में मिलन में किएन के क	
	!	
	(A) (A) (A) (A) (A) (A) (A) (A) (A) (A)	
H 4.0 value after calibration:		4,00
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV):	165 to 180 mV	4,00
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be betw		4,00
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the state of the stat		4,00 139,2
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be been EXIDATION/REDUCTION POTENTIAL (  calibration Temperature (°C):	ORP)	4,00 139.3 23.3
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the standard of		4,00 139,3 23,3 240
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be betw XIDATION/REDUCTION POTENTIAL ( Calibration Temperature (°C): heoretical Calibration standard (mV) cading before calibration (mV):	ORP)	4,00 139.3 23.3 240 206.3
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be beew EXIDATION/REDUCTION POTENTIAL ( alibration Temperature (°C): heoretical Calibration standard (mV) eading before calibration (mV): eading after calibration (mV):	ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)	4,00 139,3 23,3 240
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV):  ote: Span between ph 4 and 7, and 7 and 10 should be between the standard of the should be between the standard of the stan	ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  c, so calculate based on your current temp.	4,00 139,3 23,3 240 204,3
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the standard of the should be between the standard of the stand	ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.  0 degrees from the optics,	23.3 240 206.3 237
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be been in the second of t	ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  4, so calculate based on your current temp.  0 degrees from the optics.  Before Cal: 9,55 After Cal:	4,00 139:2 23:3 240 204:3
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be been EXIDATION/REDUCTION POTENTIAL ( alibration Temperature (°C): heoretical Calibration standard (inV) eading before calibration (mV): eading after calibration (mV): ote: mV theory will change with temperature URBIDITY Note: Loss wiper should be parked 18  NTU Turbidity Standard	ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  , so calculate based on your current temp.  0 degrees from the optics.  Before Cal: 9,55 After Cal: Before Cal: 20,2 After Cal:	23.3 240 206.3 237
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the standard of the should be between the standard of the stand	ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  1. so calculate based on your current temp.  0 degrees from the optics.  Before Cal: 9,55 After Cal: Before Cal: 20,2 After Cal: Before Cal: 100 After Cal:	23.23 240 206.3 23.7
H 4.0 value after calibration: H 4.0 mV (range is 130 to 230 mV): ote: Span between ph 4 and 7, and 7 and 10 should be between the state of the stat	ORP)  0.231+0.0013(25-T) x 1000 = mV (T is Temperature °C)  1. so calculate based on your current temp.  0 degrees from the optics.  Before Cal: 9,55 After Cal: Before Cal: 2.0.2 After Cal:	23.23 240 206.3 23.7

Date: 6/23/20 Time: 730 Prepared By: Donie Howard	Wood. Project No. 6122201429	Pine Sonde ID: 6- Pine Handset ID: Battery Voltage %:	
Checked By:	VILLO I ILO	Battery Voltage 70	
CALL	BRATION PRIOR TO SAMPLING		
DISSOLVED OXYGEN (DO)	DRIVING TROOK TO BAIM ENG		VALUE
Was DO membrane changed?	Yes No Date:	Time:	
Current Air Temperature °C (meter reading):		-	22.8
Current Barometric Pressure (from Weather			
Channel or NOAA.gov, which is corrected to			1
sea level):			! !
Elevation Corrected Barometric Pressure to	Ex.: $30.02$ in. Hg x $25.4 = mm$ Hg; sub	,	
enter into YSI DO calibration:	100 ft. above sea level: 565/100 x 2.54	= 14.4 mm Hg	753.2
Theoretical DO (mg/L) from DO table based			
on current temperature and elevation corrected			
pressure: DO concentration before Calibration (mg/L):	T> 11		
DO concentration after Calibration (mg/L):	Depending on meter version, this m	ay not be available.	
% Recovery (actual/theory x 100)	Benedia 00 to 1100/ Benedia		7,80
DO Charge (DO ch):	Range is 90 to 110% Recovery Acceptable Range is 25 to 75		
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Ad	van and/Cal Country	3 4000
Note:	13Ait Cambration menti and go to Ad	vanced/Car Constants	1.0968
	void carry-over from pH standards (i.e. pH buffer	s are conductive)]	
Calibration standard used (mS/cm)	LOT 20010025 Ex		1,413
Temperature (°C)	Lat 961170 Exp	0120	3 2 3
Reading before Calibration (mS/cm)		7/~0	1/27
Reading AFTER Calibration (mS/cm)			413
Conductivity Cell Constant (unitless):			0.865 R
Note: Be sure conductivity cell is submerged and free of bub	bles (gently tap sonde on table)		
рИ			
pH 7.0 value before calibration:	Lot 19340057	Exp 8/21	7.05
pH 7.0 value after calibration:		23,60€	7.00
pH 7.0 mV (range is -50 to +50 mV):			-2.9
pH 10 value before calibration:	Lot 19320182 Ex	P \$ /21	4,96
pH 10 value after calibration:		23,9	10.00
pH 10 mV (range is -130 to -230 mV):			-1761
pH 4.0 value before calibration:	Lot 20010025 Exp	8/21	4.13
pH 4.0 value after calibration:		23.6°	400
pH 4.0 mV (range is 130 to 230 mV):			170.6
Note: Span between ph 4 and 7, and 7 and 10 should be between CXIDATION/REDUCTION POTENTIAL (			
Calibration Temperature (°C):	Lot 19410167 E	No 8/21	23.7
Theoretical Calibration standard (mV)	0.231+0.0013(25-T) x 1000 = mV	(T is Temperature °C)	23/
Reading before calibration (mV):			225.8
Reading after calibration (mV):			231
Note: mV theory will change with temperature	, so calculate based on your current to	emp,	

After Cal: After Cal: After Cal: After Cal: After Cal:

TURBIDITY Note: Lens wiper should be parked 180 degrees from the optics.

Date: 6/24/20	
Time: <u>6135</u>	
Prepared By:	Howard
Checked By:	

Pine Sonde ID: 6467778

Pine Handset ID: Battery Voltage %: 98 66 35 %

	BRATION PRIOR TO SAMPLING	
DISSOLVED OXYGEN (DO)		VALUE
Was DO membrane changed?	Yes No Date: Time:	
Current Air Temperature °C (meter reading):		24.6
Current Barometric Pressure (from Weather		
Channel or NOAA.gov, which is corrected to		
sea level):		
Elevation Corrected Barometric Pressure to	Ex.: 30.02 in. Hg x 25.4 = mm Hg; subtract 2.54 mm Hg for every	
enter into YSI DO calibration:	100 ft. above sea level: 565/100 x 2.54 = 14.4 mm Hg	751.8
Theoretical DO (mg/L) from DO table based		
on current temperature and elevation corrected		
pressure:		
DO concentration before Calibration (mg/L):	Depending on meter version, this may not be available.	
DO concentration after Calibration (mg/L):	D	7.56
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	
DO Charge (DO ch):	Acceptable Range is 25 to 75	
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Advanced/Cal Constants	1.0902
Note:  CONDUCTIVITY   Note: Calibrate before pH to a		
Calibration standard used (mS/cm)	void carry-over from pH standards (i.e. pH buffers are conductive)]	1
Temperature (°C)	Lot 9GI 170 Exp 9/20	1.413
Reading before Calibration (mS/cm)	•	7 5.8
Reading AFTER Calibration (mS/cm)		4619
Conductivity Cell Constant (unitless):		1,413
		0.8727
Note: Be sure conductivity cell is submerged and free of bub  pH	bles (gently tap sonde on table)	
pH 7.0 value before calibration:	1 1 1000	
pH 7.0 value after calibration:	LOT 19340057 Fxy 8/21 25,5°C	7.10
pH 7.0 mV (range is -50 to +50 mV):	L 3, 5 - C	7.00
pH 10 value before calibration:		-5.5
pH 10 value after calibration:	Lot 19320102 Exp 8/21	9.99
pH 10 mV (range is -130 to -230 mV):	73,44	10.00
pH 4.0 value before calibration:		7-176.4
pH 4.0 value after calibration:	Lot 20010025 Exp 8/21 25.40C	11.12
pH 4.0 mV (range is 130 to 230 mV):	χο, του	4.00
Note: Span between ph 4 and 7, and 7 and 10 should be betw	L yeen 165 to 180 mV	170,2
OXIDATION/REDUCTION POTENTIAL (		
Calibration Temperature (°C):		2 2
Theoretical Calibration standard (mV)	0.231+0.0013(25-T) x 1000 = mV (1 is Temperature °C)	25-3
Reading before calibration (mV):		
Reading after calibration (mV):		199.0
Note: mV theory will change with temperature	s, so calculate based on your current temp	
TURBIDITY Note: Lens wiper should be parked 18	0 degrees from the optics.	. 1
NTU Turbidity Standard  100 NTU Turbidity Standard  100 NTU Turbidity Standard  100 NTU Turbidity Standard  100 NTU Turbidity Check STD 1 1 1 4 4 4	122 Exp M/2 Before Cal: After Cal:	200
100 NTU Turbidity Standard Lo+ A9	127 Eng 3120 Before Cal: After Cal:	99,9
800 NTU Turbidity Standard Lot A 7;	Before Cal: After Cal:	798
NTU Turbidity Check STD 1 A A ASI	154 Exp 12 2 Before Cal: After Cal:	9.41
Oil NTU Turbidity Check STD L. + AO	37 Exp2/22 Before Cal: After Cal:	0.17
CALIBRATION SUCCESSFUL?		
		L

Date:6/25/20	
Time: 0745	
Prepared By: Data S	Howard
Checked By:	

Pine Sonde ID: 646776
Pine Handset ID:
Battery Voltage %: 85

	BRATION	PRIOR TO	SAMPLING	j		
DISSOLVED OXYGEN (DO)						VALUE
Was DO membrane changed?	Yes	No_1	Date:	Time:		
Current Air Temperature °C (meter reading):					- 111	23.6
Current Barometric Pressure (from Weather						
Channel or NOAA.gov, which is corrected to	ŀ					
sea level):				•		1
Elevation Corrected Barometric Pressure to	Ex.: 30.0	02 in. Hg x 25.	4 = mm Hg; s	ubtract 2.54 m	m Hg for ever	y
enter into YSI DO calibration:	100 ft. ab	ove sea level:	565/100 x 2	$54 = 14.4 \text{ mm }       \text$	-Ig	755.2
Theoretical DO (mg/L) from DO table based						
on current temperature and elevation corrected						ļ
pressure:						ł
DO concentration before Calibration (mg/L):	Dependi	ng on meter	version, this	may not be av	zailable.	
DO concentration after Calibration (mg/L):			10. 10.			7.69
% Recovery (actual/theory x 100)	Range is	90 to 110%	Recovery			
DO Charge (DO ch):	Acceptal	ole Range is 2	25 to 75		<del> </del>	
DO Gain (should be between -0.7 and 1.5):	Exit Cal	ibration men	and go to A	Advanced/Cal	Constants	1.09.38
Note:	<u>,</u>	·				
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-ov	er from pH stund	ards (i.e. pH but	ffers are conductiv	/e)]	
Calibration standard used (mS/cm)		+ 96I	17 % K	10 0 100 0		1.413
Temperature (°C)		<u>, , , , , , , , , , , , , , , , , , , </u>	L f M Z A	p 9/20		24,9
Reading before Calibration (mS/cm)		·	<del></del>		*****	1.59.3
Reading AFTER Calibration (mS/cm)				WWW.		1 611 2
Conductivity Cell Constant (unitless):	ļ					0.8874
Note: Be sure conductivity cell is submerged and free of bub	bles (gentiv t	an sonde on table				IDIAS ( P.
pH			,			
pH 7.0 value before calibration:	7.	+ 1934	(A E') }	200 20/01		7.07
pH 7.0 value after calibration:		, , , , , , , , , , , , , , , , , , ,	<u> </u>	-xp 3/21	7 11 1100	7,00
pH 7.0 mV (range is -50 to +50 mV):					X 707 C	-3.9
pH 10 value before calibration;	<del> 7</del> -	7 7932	81/19 6			902
pH 10 value after calibration:		T 135		Exp 8/21	24 210	
pH 10 mV (range is -130 to -230 mV):				-	<u> </u>	175.5
pH 4.0 value before calibration:	7-7-	of 2001	need of the last o	Con a State		
pH 4.0 value after calibration:		TOUT	0025 =	XX 5/21	14.400	4.00
pH 4.0 mV (range is 130 to 230 mV):					-1070	
Note: Span between ph 4 and 7, and 7 and 10 should be betw	een 165 to 1	80 mV				1695
OXIDATION/REDUCTION POTENTIAL (		00 III v	· · · · · · · · · · · · · · · · · · ·			
Calibration Temperature (°C):		1 1011	010	· · · · · · · · · · · · · · · · · · ·	9 -	Ta 11 12 1
Theoretical Calibration standard (mV)	0.231+0	4 1946 0013(25-T) x	<i>010                                   </i>	Tie Temr	erature °C)	24,2
Reading before calibration (mV):	0.231.0.	0013(23-1) A	1000 111 4	(Fis rein)	crature C)	2360
Reading after calibration (mV):	<u> </u>	· · · · · · · · · · · · · · · · · · ·	<del></del>			308 8
	l	lata legradi es				2300
Note: mV theory will change with temperature TURBIDITY Note: Lens wiper should be parked 18			your current	ı temp.		1
			Dofor- C	-1.	A A (C 1	1 (4) (3)
	~)FZP	12/20	Before Ca		After Cal:	19.9
	フノビメ	98/20	Before Ca		After Cal:	100
10 NETT Turbidity Standard Lot 192	13 /=>	Sp 11/20	Before Ca		After Cal:	KOL
NTU Turbidity Standard Lot A92  10 NTU Turbidity Check STD Lot A93  CO. NTU Turbidity Check STD Lot A93	154, E	FP11/20	Before Ca		After Cal:	942
· CAL INTO THE DROKE OF CRECK OLD I work AN	101 E		Before Ca	al:	After Cal:	0.15
CALIBRATION SUCCESSFUL?	<u>va 1,774</u>	cp 2/2-2			11101 0111	V 8 7 122

Date: 6/26/20 Time: 07.35 Prepared By: Daniel Howard		Wood.			Pine S	onde ID: <i>6</i> _	16770
lime: 0'135		Project N				landset ID:	
Prepared By: Vanie Mosard	(	61222014	29		Battery	Voltage %:	<b>75</b>
Checked By:							
	3RATIO	N PRIOR	TO SA	MPLING			
DISSOLVED OXYGEN (DO)							VALUE
Was DO membrane changed?	Yes	No_	<u> </u>	Date:	Time:_		
Current Air Temperature °C (meter reading):							23.1
Current Barometric Pressure (from Weather							
Channel or NOAA.gov, which is corrected to							
sea level):							
Elevation Corrected Barometric Pressure to						mm Hg for every	
enter into YSI DO calibration:	100 ft. a	ibove sea le	vel: 56	5/100 x 2.5	4 = 14.4 int	n Hg	758.9
Theoretical DO (mg/L) from DO table based							
on current temperature and elevation corrected							i
pressure:	<u> </u>	1 6					
DO concentration before Calibration (mg/L):	Depend	ling on mo	eter ver	sion, this	may not be	available.	
DO concentration after Calibration (mg/L):	<u> </u>		2015				1784
% Recovery (actual/theory x 100)		is 90 to 11					
DO Charge (DO ch):		able Range					
DO Gain (should be between -0.7 and 1.5):	Exit Ca	llibration i	nenu a	nd go to A	.dvanced/C	Cal Constants	1.0917
Note:			. 1 1	() 171 0		.1 .22	
CONDUCTIVITY [Note: Calibrate before pH to av							
Calibration standard used (mS/cm)	ļ	Lot 9	<u>GJ </u>	170 E	Exp 4/	20	1.413
Temperature (°C)	ļ	**************************************					23,
Reading before Calibration (mS/cm)	<u> </u>						1.591
Reading AFTER Calibration (mS/cm)	ļ <u></u>						1.413
Conductivity Cell Constant (unitless):							0.8883
Note: Be sure conductivity cell is submerged and free of bubl	oles (gently	tap sonde on	table)	·····			
pH 7.0 value before calibration;	<del></del>			<del> </del>			
<u> </u>	<u></u>	0+19	34	0057	Exp	8/2/	7.07
pH 7.0 value after calibration:	ļ					<u> </u>	7.00
pH 7.0 mV (range is -50 to +50 mV):		ر چي جيونندر جي جيسند جد داند - داند	**************************************	~ <u>~ ~ ~ ~ ~ ~</u>			-4.3
pH 10 value before calibration:	<u> </u>	ot 19	<u>~3                                    </u>	0/01	Exp	8/2/	<b>a</b> .ae
pH 10 value after calibration:				W		<u></u>	10.00
pH 10 mV (range is -130 to -230 mV):		,					176.
pH 4.0 value before calibration:	ļ <i>k</i>	Lotiz	00/	0025	Exp	8/2/	4.17
pH 4.0 value after calibration:						23.5°C	4.00
pH 4.0 mV (range is 130 to 230 mV):	L						168.7
Note: Span between ph 4 and 7, and 7 and 10 should be betw OXIDATION/REDUCTION POTENTIAL (		180 mV					
Calibration Temperature (°C):		1 10					
	0.22116	<b>5 + /9</b> ).0013(25-	46	9/67	EXP	mperature °C)	7.3.4
Theoretical Calibration standard (mV)	0.231+0	0.0013(25-	1) X II	JUU = m V	(1 18 1 0	nperature °C)	231
Reading before calibration (mV):							2172
Reading after calibration (mV):	L					<u></u>	231.0
Note: mV theory will change with temperature				ur current	temp.		
TURBIDITY Note: Lens wiper should be parked 180		H W100-1-1-1					
20NTU Turbidity Standard Lo+ A 002	12,5	xp 12/2	20	Before Ca		After Cal:	20.0
100NTU Turbidity Standard Lo+ A 912	[7] E,	φ8/20	י	Before Ca		After Cal:	100
800 NTU Turbidity Standard Lot A 92	13. E	cpl1/2	ъ	Before Ca		After Cal	797
NTU Turbidity Standard Lot A 92  10 NTU Turbidity Check STD Lot A 92  10 NTU Turbidity Check STD Lot A 92  10 NTU Turbidity Check STD Lot A 92  10 NTU Turbidity Check STD Lot A 92	54. E	wp 11/2	D	Before Ca		After Cal:	9.51
NTU Turbidity Check STD Lo+ A o	083 <u>,</u> F	EKA ŽIZ	2	Before Ca	1:	After Cal:	0,19
CALIBRATION SUCCESSFUL?	•	, ,					

Date: 6/23/20
Time: 07/5
Prepared By: F. MAYILA
Checked By:

Pine Sonde ID: 040821
Pine Handset ID: 306/2
Battery Voltage %:

DISSOLVED OXYGEN (DO)					VALUI
Was DO membrane changed?	Yes	No_X	Date:	Time:	
Current Air Temperature °C (meter reading):					26.1
Current Barometric Pressure (from Weather					751,
Channel or NOAA.gov, which is corrected to					1 '3''
sea level):					
Elevation Corrected Barometric Pressure to				ubtract 2.54 mm Hg for eve	ery
enter into YSI DO calibration:	100 ft. a	bove sea level:	565/100 x 2	54 = 14.4 inm Hg	
Theoretical DO (mg/L) from DO table based					
on current temperature and elevation corrected					
pressure:					
DO concentration before Calibration (mg/L):	Depend	ing on meter v	ersion, this	may not be available.	
DO concentration after Calibration (mg/L):					7.56
% Recovery (actual/theory x 100)		s 90 to 110%			93.3
DO Charge (DO ch):		ible Range is 2			
DO Gain (should be between -0.7 and 1.5):	Exit Cal	libration ment	and go to A	Advanced/Cal Constants	
Note:					
CONDUCTIVITY [Note: Calibrate before pH to ave	oid carry-o	ver from pH stand	ırds (i,c, pH but	fers are conductive)]	
Calibration standard used (mS/cm)					1.41:
Temperature (°C)					26.0
Reading before Calibration (mS/cm)					1.63
Reading AFTER Calibration (mS/cm)					1.413
Conductivity Cell Constant (unitless):					
Note: Be sure conductivity cell is submerged and free of bubb	les (gently	tap sonde on table	)		
pH					
pH 7.0 value before calibration:					7.60
pH 7.0 value after calibration;					7.0
oH 7.0 mV (range is -50 to +50 mV):					21.6
pH 10 value before calibration:					10.5
pH 10 value after calibration:					10.0
pH 10 mV (range is -130 to -230 mV):					-209.
oH 4.0 value before calibration:					4.69
oH 4.0 value after calibration:			, ,		4.0
oH 4.0 mV (range is 130 to 230 mV):				· · · · · · · · · · · · · · · · · · ·	136.2
Note: Span between ph 4 and 7, and 7 and 10 should be between		180 mV		· · · · · · · · · · · · · · · · · · ·	
OXIDATION/REDUCTION POTENTIAL (C	(RP)				
Calibration Temperature (°C):					26.3
	0.231+0.	.0013(25-T) x	1000 = mV	(T is Temperature °C)	
Reading before calibration (mV):		· ·			202.8
Reading after calibration (mV):					227
Note: mV theory will change with temperature,	so calcu	late based on	your current	temp.	/
TURBIDITY Note: Lens wiper should be parked 180	degrees fr	rom the optics.	,	pr	
O_NTU Turbidity Standard			Before Ca	I: After Cal:	9.07
O NTU Turbidity Standard			Before Ca		
NTU Turbidity Standard			Before Ca		
NTU Turbidity Check STD			Before Ca		<i></i>
O_NTU Turbidity Check STD PASS	ED		Before Ca		
				Audi Cali	1 7 c X /

Date: 6/24/2920 Time: 0120 Prepared By: FM411A	Wood.	Pine Sonde ID:	040821
Time: 0770	Project No.	Pine Handset ID:	30612
Prepared By: FMAYILA	6122201429	Battery Voltage %:_	
Checked By:			
CAL	BRATION PRIOR TO SAMPLING		
DISSOLVED OXYGEN (DO)	BIGATION FROM TO SAMI LING		VALUE
Was DO membrane changed?	Yes No No Date:	Time:	***************************************
Current Air Temperature °C (meter reading):			25.6
Current Barometric Pressure (from Weather			
Channel or NOAA.gov, which is corrected to			
sea level):			751.7
Elevation Corrected Barometric Pressure to	Ex.: $30.02$ in. Hg x $25.4 = mm$ Hg; sul	btract 2.54 mm Hg for eve	ry
enter into YSI DO calibration:	100 ft, above sea level: 565/100 x 2.54		·
Theoretical DO (mg/L) from DO table based			
on current temperature and elevation corrected	<u> </u>		
pressure:			
DO concentration before Calibration (mg/L):	Depending on meter version, this n	nay not be available.	
DO concentration after Calibration (mg/L):			7.85
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery	······································	93.6
DO Charge (DO ch):	Acceptable Range is 25 to 75		
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Ac	lvanced/Cal Constants	
Note:	<u> </u>		
CONDUCTIVITY [Note: Calibrate before pH to a	void carry-over from pH standards (i.e. pH buffe	rs are conductive)]	
Calibration standard used (mS/cm)			1-413
Temperature (°C)			26.3
Reading before Calibration (mS/cm)			1.574
Reading AFTER Calibration (mS/cm)			1.413
Conductivity Cell Constant (unitless):			1777
Note: Be sure conductivity cell is submerged and free of bul	obles (gently tap sonde on table)		
pH			
pH 7.0 value before calibration:			7.66
pH 7.0 value after calibration:			7,00
pH 7.0 mV (range is -50 to +50 mV):			-38.7
pH 10 value before calibration:	-	THE RESIDENCE OF STREET OF	10.57
pH 10 value after calibration:			
pH 10 mV (range is -130 to -230 mV):			10.00 -209.9
pH 4.0 value before calibration:		and the factor of the second by house the factor of the fa	4.71
pH 4.0 value after calibration:			
pH 4.0 mV (range is 130 to 230 mV):			134.9
Note: Span between ph 4 and 7, and 7 and 10 should be between	ween 165 to 180 mV		121.7
OXIDATION/REDUCTION POTENTIAL (			
Calibration Temperature (°C):			261/
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$	(T is Temperature °C)	
Reading before calibration (mV):			202.8

Calibration Temperature (°C):		261/
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$ (T is Temperature °C)	
Reading before calibration (mV):		202.8
Reading after calibration (mV):		228,0

TURBIDITY Note: Lens wiper should be	parked 180 degrees from the optics		WHE	
NTU Turbidity Standard		Before Cal:	After Cal.	
20 NTU Turbidity Standard		Before Cal:	After Cal:	19.7
100 NTU Turbidity Standard	CALIBR CHECK	Before Cal:	After Cal:	102
800 NTU Turbidity Check SED		Before Cal:	After Cal:	797
10 NTU Turbidity Check STD	PASSED	Before Cal:	After Cal:	9.98
CALIBRATION SUCCESSFUL?				

Date: 6/25/20
Time: <u>0730</u>
Prepared By: FMAYILA
Checked By:

Pine Sonde ID: 040 82/
Pine Handset ID: 306/2
Battery Voltage %:

DISSOLVED OXYGEN (DO)		10011.0	SAMPLING		VALUE
Was DO membrane changed?	Yes	No X	Date:	Time:	VALUE
Current Air Temperature °C (meter reading):	T 03		Datc	TIME,	22.94
Current Barometric Pressure (from Weather	1			· · · · · · · · · · · · · · · · · · ·	
Channel or NOAA.gov, which is corrected to					753.3
sea level):					1
Elevation Corrected Barometric Pressure to	Ex.: 30.02	in He x 25	4 = mm Ho. sul	otract 2.54 mm Hg for ever	
enter into YSI DO calibration:				= 14.4  mm Hg	'
Theoretical DO (mg/L) from DO table based					
on current temperature and elevation corrected					
pressure:					
OO concentration before Calibration (mg/L):	Depending	on meter v	version, this m	ay not be available.	
OO concentration after Calibration (mg/L):	1 1	,			7.88
Recovery (actual/theory x 100)	Range is 9	0 to 110%	Recovery	MATERIAL CONTRACTOR CO	93.2
OO Charge (DO ch):		Range is 2			1-1-6
OO Gain (should be between -0.7 and 1.5):				lvanced/Cal Constants	
Vote:			7 0110 80 10 110	Transcer Cur Community	
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over	from pH stand	ards (i.e. pH buffe	rs arc conductive)]	
Calibration standard used (mS/cm)	<u> </u>		<u> </u>		1.413
emperature (°C)	<del> </del>				25-2
Reading before Calibration (mS/cm)	1	W			
Reading AFTER Calibration (mS/cm)		•	·		1.584
Conductivity Cell Constant (unitless):					1.413
lote: Be sure conductivity cell is submerged and free of bubl	l hles (gently ian	sonde on table	·		
oH	oreb (gerin) tap	some var tubic	·/		
H 7.0 value before calibration:	T				7 62
H 7.0 value after calibration:					7.62
H 7.0 mV (range is -50 to +50 mV):	ļ				-36.4
pH 10 value before calibration:		. بند محمد بند میشند بند ح		ne d'ann d'ann a de la comp de la comp de la comp de la comp de la comp de la comp de la comp de la comp de la	10.53
pH 10 value after calibration:		- 1			- 1
pH 10 mV (range is -130 to -230 mV):					10,00
H 4.0 value before calibration:		, , , , , , , , , , , , , , , , , , ,			-208,9
H 4.0 value after calibration:					4.72
H 4.0 mV (range is 130 to 230 mV):					4:00
ote: Span between ph 4 and 7, and 7 and 10 should be betw	wen 165 to 180	mV			125.7
XIDATION/REDUCTION POTENTIAL (		111 Y			
alibration Temperature (°C):		THE THE PROPERTY AND ADDRESS OF THE PARTY AND			12/10
heoretical Calibration standard (mV)	0.231+0.00	13(25-T) x	1000 = mV	(T is Temperature °C)	24.8
eading before calibration (mV):	0.231.0.00	13(23-1) A	1000 111 7	(1 is remperature C)	2001
cading after calibration (mV):					206./
ote: mV theory will change with temperature	ao galaulat	a bread on	Troug our mont t	APP 6	229
URBIDITY Note: Lens wiper should be parked 180	, SO Calculat	the ontice	your current t	emp.	
ONTU Turbidity Standard	208,000 11011	. une opiniosi	Before Cal	ΑΔ Οι.1	100.
with a morning confidence ,					201
			Before Cal		101
<u>00</u> NTU Turbidity Standard					
00 NTU Turbidity Standard NTU Turbidity Standard	P - A	, Ps	Before Cal		807
00 NTU Turbidity Standard NTU Turbidity Standard	ed Cali	bration	Before Call Before Call	After Cal:	9.51

Date: 6/26/20
Time: 0735
Prepared By: FMAYILA
Checked By:

Pine Sonde ID: 040821
Pine Handset ID: 306/2
Battery Voltage %:

	BRATIO	N PRIOR TO	SAMPLING	3		
DISSOLVED OXYGEN (DO)						VALUE
Was DO membrane changed?	Yes	No_ <b>_X</b>	Date:	Time:	<del>_</del>	
Current Air Temperature °C (meter reading):						20.03
Current Barometric Pressure (from Weather						
Channel or NOAA.gov, which is corrected to						757,3
sea level):						
Elevation Corrected Barometric Pressure to				subtract 2,54 m		1
enter into YSI DO calibration:	100 ft. a	bove sea level	: 565/100 x 2,	.54 = 14.4 mm F	lg	
Theoretical DO (mg/L) from DO table based						
on current temperature and elevation corrected						
pressure:						-
DO concentration before Calibration (mg/L):	Depend	ing on meter	version, this	may not be av	ailable.	
DO concentration after Calibration (mg/L):					1/1	8.29
% Recovery (actual/theory x 100)		s 90 to 110%				92.8
DO Charge (DO ch);		ible Range is				
DO Gain (should be between -0.7 and 1.5):	Exit Ca	libration mer	nu and go to.	Advanced/Cal	Constants	
Note:						
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-o	ver from pH stan	dards (i.e. pH bu	iffers are conductive	e)]	
Calibration standard used (mS/cm)		·				1.413
Гemperature (°C)						22.5
Reading before Calibration (mS/cm)						1.566
Reading AFTER Calibration (mS/cm)						1.413
Conductivity Cell Constant (unitless):						
Note: Be sure conductivity cell is submerged and free of bub	oles (gently	tap sonde on tab	le)			
рН		<u></u>	<del></del>			
oH 7.0 value before calibration:						7.60
oH 7.0 value after calibration:						7.00
oH 7.0 mV (range is -50 to +50 mV):						-35.6
pH 10 value before calibration:						10.47
pH 10 value after calibration:						10:00
pH 10 inV (range is -130 to -230 mV):						-207.1
H 4.0 value before calibration:						4.77
oH 4.0 value after calibration:				·		4.00
oH 4.0 mV (range is 130 to 230 mV):						13310
Note: Span between ph 4 and 7, and 7 and 10 should be betw OXIDATION/REDUCTION POTENTIAL (		180 mV	<del></del>			
Calibration Temperature (°C):						2213
Theoretical Calibration standard (mV)	0.231+0	.0013(25-T)	$x\ 1000 = mV$	V (T is Temp	erature °C)	
Reading before calibration (mV):						21017
Reading after calibration (mV):	*					233
Note: mV theory will change with temperature	so calcu	ilate based or	n vour curren	ıt temp,		
CURBIDITY Note: Lens wiper should be parked 180						
20 NTU Turbidity Standard			Before C	Cal:	After Cal:	20.1
NTU Turbidity Standard			Before C		After Cal:	101
NTU Turbidity Standard			Before C		After Cal:	805
		11 A			After Cal:	9117
72) NIO Infoldity Check SID 22		can Mila Via				724/
NTU Turbidity Check STD	sxa ca	ilibertion Check	Before C	lal:	After Cal:	,,,,,

Date: 2020-06-24 12:39:41

Pump Information:

Pump Model/Type

Tubing Diameter

**Tubing Length** 

**Tubing Type** 

Project Information:

Operator Name Terrell Parker
Company Name Wood E&IS

Project Name Plant Arkwright AP2 ASD

Site Name ARAMW-1
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 369323

Turbidity Make/Model HACH 2100Q

Pump placement from TOC

42.0 ft

Peristaltic

0.170 in

**HDPE** 

48 ft

Well Information:

Well ID ARAMW-1
Well diameter 2 in
Well Total Depth 45.31 ft
Screen Length 10 ft
Depth to Water 12.93 ft

Pumping Information:

Final Pumping Rate 125 mL/min
Total System Volume 0.3142443 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 2.04 in
Total Volume Pumped 7.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	/cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 10
Last 5	12:13:49	2100.03	21.97	6.34	730.89	6.26	13.10	0.26	57.89
Last 5	12:18:49	2400.02	22.14	6.33	731.25	5.19	13.10	0.26	60.33
Last 5	12:23:49	2700.02	22.14	6.31	729.62	3.92	13.10	0.24	62.35
Last 5	12:28:49	2999.91	22.13	6.31	730.56	4.13	13.10	0.23	62.17
Last 5	12:33:49	3299.91	22.08	6.31	738.10	3.95	13.10	0.24	61.60
Variance 0			-0.01	-0.01	-1.63			-0.02	2.01
Variance 1			-0.01	-0.00	0.94			-0.01	-0.18
Variance 2			-0.04	-0.00	7.54			0.01	-0.58

Notes

Sample time: 12:45

Grab Samples ARAMW-1 Groundwater

Date: 2020-06-24 16:38:57

Project Information:

Operator Name Terrell Parker
Company Name Wood E&IS
Project Name Plant Arkwright AP2 ASD

Site Name ARAMW-2

Latitude 0° 0' 0"

Longitude 0° 0' 0"

Sonde SN 369323

Turbidity Make/Model HACH 2100Q

Pump Information:

Pump Model/Type Peristaltic
Tubing Type HDPE
Tubing Diameter 0.170 in
Tubing Length 25 ft

Pump placement from TOC

Well Information:

Well IDARAMW-2Well diameter2 inWell Total Depth24.85 ftScreen Length10 ftDepth to Water13.12 ft

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.2115856 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 0.24 in
Total Volume Pumped 22 L

20 ft

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	/cmTurb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 10
Last 5	16:15:18	6900.18	21.70	6.18	712.84	6.10	13.14	0.08	35.98
Last 5	16:20:18	7200.18	21.67	6.19	700.41	5.24	13.14	0.08	36.50
Last 5	16:25:18	7500.18	21.79	6.19	710.15	4.70	13.14	0.09	33.32
Last 5	16:30:18	7800.18	21.62	6.19	719.21	4.69	13.14	0.09	33.11
Last 5	16:35:18	8100.18	21.66	6.19	718.48	4.90	13.14	0.09	32.36
Variance 0			0.12	-0.00	9.74			0.01	-3.17
Variance 1			-0.18	0.00	9.06			0.00	-0.22
Variance 2			0.04	0.00	-0.73			-0.01	-0.75

Notes

Sample time: 16:40

Grab Samples ARAMW-2 Groundwater

Date: 2020-06-25 10:13:11

Project Information:

Operator Name Ever Guillen Company Name Wood

Project Name

Plant Arkwright AP2 ASD

Site Name

ARCWA 19

Site Name ARGWA-19
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 459710

Turbidity Make/Model Hach 2100Q

Pump Information:
Pump Model/Type

Pump Model/Type QED
Tubing Type HDPE
Tubing Diameter 0.17 in
Tubing Length 52.74 ft

Pump placement from TOC 47.74 ft

Well Information:

Well IDARGWA-19Well diameter2 inWell Total Depth52.74 ftScreen Length10 ftDepth to Water24.67 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.7154009 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 0 in
Total Volume Pumped 7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond mS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	09:51:41	900.03	19.42	5.79	0.19	1.81	24.77	3.81	99.10
Last 5	09:56:41	1199.92	19.42	5.80	0.19	1.17	24.77	3.75	96.03
Last 5	10:01:41	1499.93	19.31	5.80	0.19	1.31	24.77	3.70	94.35
Last 5	10:06:41	1799.93	19.23	5.80	0.19	1.05	24.77	3.67	93.74
Last 5	10:11:41	2099.93	19.21	5.80	0.19	0.77	24.77	3.63	91.86
Variance 0			-0.10	0.00	-0.00			-0.05	-1.68
Variance 1			-0.08	-0.00	-0.00			-0.03	-0.61
Variance 2			-0.02	-0.00	-0.00			-0.04	-1.88

Notes

Sampled@ 1015

Date: 2020-06-25 12:29:18

Pump Information:

Pump Model/Type

Tubing Diameter

**Tubing Length** 

Tubing Type

Project Information:

Operator Name Ever Guillen Company Name Wood

Project Name Plant Arkwright AP2 ASD

Site Name ARGWA-20 Latitude 0° 0' 0" Ungitude O° 0' 0" Sonde SN 459710

Turbidity Make/Model Hach 2100Q

Pump placement from TOC

32.70 ft

QED

HDPE

0.17 in

37.70 ft

Well Information:

Well IDARGWC-20Well diameter2 inWell Total Depth37.70 ftScreen Length10 ftDepth to Water12.07 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.6482711 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 0 in
Total Volume Pumped 7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond mS/	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	12:05:26	899.94	19.91	5.58	0.13	8.46	12.29	5.42	94.08
Last 5	12:10:26	1199.93	19.64	5.58	0.13	6.72	12.29	5.34	91.29
Last 5	12:15:30	1503.93	19.71	5.61	0.13	5.96	12.29	5.41	91.24
Last 5	12:20:30	1803.99	19.93	5.61	0.14	5.40	12.29	5.32	90.80
Last 5	12:25:30	2103.95	19.98	5.61	0.13	3.37	12.29	5.23	90.20
Variance 0			0.07	0.03	0.00			0.07	-0.06
Variance 1			0.23	-0.00	0.00			-0.09	-0.44
Variance 2			0.04	-0.00	-0.00			-0.09	-0.60

Notes

**SAMPLED @ 1230** 

Date: 2020-06-25 13:18:31

Project Information:

Operator Name Daniel Howard

Company Name Wood
Project Name Plant Arkwright AP2 ASD

Site Name
Latitude
Longitude
Sonde SN
ARGWC-21
0° 0' 0"
Condition Make (Model)
Longitude
ARGWC-21
0° 0' 0"
Longitude
Condition Make (Model)
Longitude
Longitude
Longitude
Longitude
Longitude
Longitude
Longitude
Longitude

Turbidity Make/Model Hach 2100Q Pump placem

Well Information:

Well ID ARGWC-21
Well diameter 2 in
Well Total Depth 26.98 ft
Screen Length 10 ft
Depth to Water 13.63 ft

Pump Information:

Pump Model/Type QED Micropurge Bladder Pump

Tubing TypeHDPETubing Diameter0.25 inTubing Length27 ft

Pump placement from TOC 22 ft

**Pumping Information:** 

Final Pumping Rate 200 mL/min
Total System Volume 0.7406238 L
Calculated Sample Rate 300 sec
Stabilization Drawdown
Total Volume Pumped 9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	12:54:58	1500.00	19.96	5.98	600.23	9.11	14.90	0.15	60.75
Last 5	12:59:58	1799.99	20.03	5.98	600.63	7.18	14.90	0.15	60.51
Last 5	13:04:58	2099.99	19.96	5.98	600.65	5.38	14.90	0.14	60.14
Last 5	13:09:58	2399.98	19.98	5.98	601.51	4.97	14.90	0.14	59.80
Last 5	13:14:58	2699.98	20.06	5.98	601.94	4.40	14.90	0.14	59.34
Variance 0			-0.07	-0.00	0.02			-0.01	-0.37
Variance 1			0.02	-0.00	0.86			0.00	-0.34
Variance 2			0.08	-0.00	0.43			0.00	-0.46

Notes

ARGWC-21 sample time 1315

Date: 2020-06-24 10:02:17

Project Information:

Operator Name
Company Name
Wood E&IS
Project Name

Project Name Plant Arkwright AP2 ASD Site Name ARGWC-22

Site Name
Latitude
Longitude
Sonde SN
ARGWC0° 0' 0"
Sonde SN
369323

Turbidity Make/Model HACH 2100Q

Pump Information:

Pump Model/Type Peristaltic
Tubing Type HDPE
Tubing Diameter 0.170 in
Tubing Length 30 ft

Pump placement from TOC 22.9 ft

Well Information:

Well IDARGWC-22Well diameter2 inWell Total Depth27.87 ftScreen Length10 ftDepth to Water13.51 ft

Pumping Information:

Final Pumping Rate 125 mL/min
Total System Volume 0.2339027 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 2.28 in
Total Volume Pumped 4.6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS/	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 10
Last 5	09:39:08	1200.02	20.04	5.90	1505.18	5.58	13.68	0.16	83.69
Last 5	09:44:08	1500.02	20.06	5.87	1509.91	3.15	13.68	0.16	82.64
Last 5	09:49:08	1800.02	19.83	5.85	1497.67	3.88	13.70	0.14	80.34
Last 5	09:54:08	2100.03	19.75	5.84	1498.71	2.67	13.70	0.13	80.17
Last 5	09:59:08	2400.03	19.79	5.82	1498.79	2.73	13.70	0.13	79.47
Variance 0			-0.22	-0.02	-12.25			-0.02	-2.30
Variance 1			-0.09	-0.01	1.05			-0.01	-0.17
Variance 2			0.04	-0.02	0.08			0.00	-0.70

Notes

Sample time: 10:05

Grab Samples ARGWC-22 Groundwater

Date: 2020-06-25 11:20:12

**Project Information:** 

Operator Name Daniel Howard

Company Name Wood
Project Name Plant Arkwright AP2 ASD

Site Name ARGWC-23
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 646770

Turbidity Make/Model Hatch 2100Q

Well Information:

Well ID ARGWC-23
Well diameter 2 in
Well Total Depth 28.08 ft
Screen Length 10 ft
Depth to Water 11.61 ft

Pump Information:

Pump Model/Type Masterflex Peristaltic Pump

23 ft

Tubing TypeHDPETubing Diameter0.17 inTubing Length28 ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.2149758 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 0.2 in
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond μS/cmTurb NTU		DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	10:55:59	600.02	22.21	6.38	432.84	5.41	12.74	0.18	57.30
Last 5	11:00:59	900.00	22.03	6.37	434.46	3.56	12.83	0.15	52.60
Last 5	11:05:59	1200.01	22.29	6.37	435.17	2.26	12.82	0.17	49.21
Last 5	11:10:59	1500.00	22.17	6.37	434.84	2.34	12.82	0.16	47.02
Last 5	11:15:59	1800.00	22.17	6.37	433.63	2.03	12.82	0.15	45.16
Variance 0			0.26	-0.00	0.71			0.01	-3.39
Variance 1			-0.12	-0.00	-0.33			-0.01	-2.18
Variance 2			-0.01	0.00	-1.21			-0.01	-1.86

Notes

ARGWC-23 sample time 1118

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-114167-1

Client Project/Site: CCR - Plant Arkwright

#### For:

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

Attn: Joju Abraham

Authorized for release by: 12/15/2020 6:57:15 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

Client: Southern Company Project/Site: CCR - Plant Arkwright Laboratory Job ID: 180-114167-1

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	4
Certification Summary	5
Sample Summary	6
Method Summary	7
Lab Chronicle	8
Client Sample Results	9
QC Sample Results	10
QC Association Summary	13
Chain of Custody	15
Receipt Chacklists	16

- /

5

7

Ö

10

11

1:

#### **Case Narrative**

Client: Southern Company

Job ID: 180-114167-1 Project/Site: CCR - Plant Arkwright

Job ID: 180-114167-1

Laboratory: Eurofins TestAmerica, Pittsburgh

**Narrative** 

Job Narrative 180-114167-1

#### Comments

No additional comments.

#### Receipt

The sample was received on 12/1/2020 10:00 AM; the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.1° C.

#### GC Semi VOA

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

#### Metals

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

#### Field Service / Mobile Lab

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

#### **General Chemistry**

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

### **Definitions/Glossary**

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

#### **Qualifiers**

Qualifier Qualifier Description

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

**Metals** 

Qualifier Qualifier Description

B Compound was found in the blank and sample.

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

**Glossary** 

Abbreviation These commonly used abbreviations may or may not be present in this report.

Eisted under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

.

Λ

7

8

46

11

12

## **Accreditation/Certification Summary**

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

### Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

4

5

9

10

12

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

Eurofins TestAmerica, Pittsburgh

### **Sample Summary**

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

Lab Sample ID Client Sample ID Matrix Collected Received Asset ID 180-114167-1 <u>11/30/20 15:30</u> <u>12/01/20 10:00</u> ARAMW-7 Water

Job ID: 180-114167-1

### **Method Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Method **Method Description** Protocol Laboratory TAL PIT EPA 300.0 R2.1 Anions, Ion Chromatgraphy EPA **EPA 6020B** Metals (ICP/MS) SW846 **TAL PIT** Sulfide, Acid soluble and Insoluble (Titrimetric) EPA 9034 SW846 TAL PIT SM 2540C Solids, Total Dissolved (TDS) SM TAL PIT SM2320 B Alkalinity, Total SM18 TAL PIT Field Sampling EPA Field Sampling TAL PIT 3005A Preparation, Total Recoverable or Dissolved Metals SW846 TAL PIT 9030B Sulfide, Distillation (Acid Soluble and Insoluble) SW846 **TAL PIT** 

#### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

#### **Laboratory References:**

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

2

3

0

7

1 N

11

12

1

12/15/2020

#### **Lab Chronicle**

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARAMW-7 Lab Sample ID: 180-114167-1

Date Collected: 11/30/20 15:30 Matrix: Water Date Received: 12/01/20 10:00

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1			338905	12/01/20 13:19	SAT	TAL PIT
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		10			338905	12/01/20 13:40	SAT	TAL PIT
Dissolved	Prep	3005A			50 mL	50 mL	339223	12/02/20 14:15	TJO	TAL PIT
Dissolved	Analysis Instrumen	EPA 6020B t ID: A		1			339557	12/04/20 16:44	RSK	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	339223	12/02/20 14:15	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			339557	12/04/20 16:40	RSK	TAL PIT
Total/NA	Prep	9030B			50 mL	50 mL	339220	12/02/20 13:30	CMR	TAL PIT
Total/NA	Analysis Instrumen	EPA 9034 t ID: NOEQUIP		1			339592	12/02/20 15:30	CMR	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	339384	12/03/20 17:39	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			339186	12/02/20 10:39	AVS	TAL PIT
Total/NA	Analysis Instrumen	Field Sampling t ID: NOEQUIP		1			340395	11/30/20 15:30	AGJ	TAL PIT

#### **Laboratory References:**

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

#### **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

CMR = Carl Reagle

TJO = Tyler Oliver

Batch Type: Analysis

AGJ = Andy Johnson

AVS = Abbey Smith

CMR = Carl Reagle

GRB = Gabriel Berghe

RSK = Robert Kurtz

SAT = Stephen Tallam

9

10

11

1/2

### **Client Sample Results**

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-7** 

Lab Sample ID: 180-114167-1 Date Collected: 11/30/20 15:30

**Matrix: Water** 

Date Received: 12/01/20 10:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.3		1.0	0.32	mg/L			12/01/20 13:19	1
Fluoride	0.044	J	0.10	0.044	mg/L			12/01/20 13:19	1
Nitrate as N	< 0.023		0.10	0.023	mg/L			12/01/20 13:19	1
Nitrite as N	<0.029		0.050	0.029	mg/L			12/01/20 13:19	1
Sulfate	990		10	3.8	mg/L			12/01/20 13:40	10
Method: EPA 6020B - Metals (ICI	P/MS) - To	otal Recove	rable						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.1		0.080	0.039	mg/L		12/02/20 14:15	12/04/20 16:40	1
Calcium	260		0.50	0.13	mg/L		12/02/20 14:15	12/04/20 16:40	1
Cobalt	0.028		0.0025	0.00013	mg/L		12/02/20 14:15	12/04/20 16:40	1
Lithium	0.061		0.0050	0.0034	mg/L		12/02/20 14:15	12/04/20 16:40	1
Magnesium	74		0.50	0.083	mg/L		12/02/20 14:15	12/04/20 16:40	1
Molybdenum	0.0012	J	0.015	0.00061	mg/L		12/02/20 14:15	12/04/20 16:40	1
Potassium	13		0.50	0.16	mg/L		12/02/20 14:15	12/04/20 16:40	1
Sodium	27	В	0.50	0.35	mg/L		12/02/20 14:15	12/04/20 16:40	1
Method: EPA 6020B - Metals (ICI	P/MS) - D	issolved							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	17	В	0.050	0.020	mg/L		12/02/20 14:15	12/04/20 16:44	1
Manganese	11		0.0050	0.00087	mg/L		12/02/20 14:15	12/04/20 16:44	1
General Chemistry									
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	<2.1		3.0	2.1	mg/L		12/02/20 13:30	12/02/20 15:30	1
Total Dissolved Solids	1600		10	10	mg/L			12/03/20 17:39	1
Total Alkalinity as CaCO3 to pH 4.5	120		5.0	5.0				12/02/20 10:39	1
Bicarbonate Alkalinity as CaCO3	120		5.0	5.0	mg/L			12/02/20 10:39	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/02/20 10:39	1
Method: Field Sampling - Field S									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.00				SU			11/30/20 15:30	1

12/15/2020

Client: Southern Company

Job ID: 180-114167-1 Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: MB 180-338905/6

**Matrix: Water** 

Analysis Batch: 338905

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

MB MB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Chloride 0.32 mg/L < 0.32 1.0 12/01/20 06:47 Fluoride <0.044 0.10 0.044 mg/L 12/01/20 06:47 Nitrate as N < 0.023 0.10 0.023 mg/L 12/01/20 06:47 Nitrite as N < 0.029 0.050 0.029 mg/L 12/01/20 06:47 Sulfate < 0.38 0.38 mg/L 1.0 12/01/20 06:47

Lab Sample ID: LCS 180-338905/5

**Matrix: Water** 

Analysis Batch: 338905

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	50.0	51.1		mg/L		102	90 - 110	
Fluoride	2.50	2.31		mg/L		92	90 - 110	
Nitrate as N	2.50	2.47		mg/L		99	90 - 110	
Nitrite as N	2.50	2.71		mg/L		108	90 - 110	
Sulfate	50.0	51.2		mg/L		102	90 - 110	

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

Lab Sample ID: MB 180-339223/1-A

**Matrix: Water** 

**Analysis Batch: 339557** 

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

Prep Batch: 339223

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		12/02/20 14:15	12/04/20 12:08	1
Iron	0.0349	J	0.050	0.020	mg/L		12/02/20 14:15	12/04/20 12:08	1
Calcium	<0.13		0.50	0.13	mg/L		12/02/20 14:15	12/04/20 12:08	1
Manganese	<0.00087		0.0050	0.00087	mg/L		12/02/20 14:15	12/04/20 12:08	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		12/02/20 14:15	12/04/20 12:08	1
Lithium	<0.0034		0.0050	0.0034	mg/L		12/02/20 14:15	12/04/20 12:08	1
Magnesium	<0.083		0.50	0.083	mg/L		12/02/20 14:15	12/04/20 12:08	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		12/02/20 14:15	12/04/20 12:08	1
Potassium	<0.16		0.50	0.16	mg/L		12/02/20 14:15	12/04/20 12:08	1
Sodium	0.449	J	0.50	0.35	mg/L		12/02/20 14:15	12/04/20 12:08	1

Lab Sample ID: LCS 180-339223/2-A

**Matrix: Water** 

Analysis Batch: 339557

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

Prep Batch: 339223

_	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Boron	1.25	1.04		mg/L		83	80 - 120	
Iron	5.00	5.13		mg/L		103	80 - 120	
Calcium	25.0	26.9		mg/L		108	80 - 120	
Manganese	0.500	0.482		mg/L		96	80 - 120	
Cobalt	0.500	0.498		mg/L		100	80 - 120	
Lithium	0.500	0.489		mg/L		98	80 - 120	
Magnesium	25.0	25.4		mg/L		102	80 - 120	
Molybdenum	0.500	0.501		mg/L		100	80 - 120	
Potassium	25.0	25.4		mg/L		101	80 - 120	

Eurofins TestAmerica, Pittsburgh

Page 10 of 16

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: LCS 180-339223/2-A **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total Recoverable Analysis Batch: 339557 Prep Batch: 339223** Spike LCS LCS %Rec.

Analyte Added Result Qualifier Unit %Rec Limits Sodium 25.0 24 9 mg/L 99 80 - 120

Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 180-339220/1-A Client Sample ID: Method Blank Prep Type: Total/NA **Matrix: Water** 

**Analysis Batch: 339592** Prep Batch: 339220

MB MB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed 2.1 mg/L Sulfide <2 1 3.0 12/02/20 13:30 12/02/20 15:21

Lab Sample ID: LCS 180-339220/2-A **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA Analysis Batch: 339592 Prep Batch: 339220 LCS LCS Spike %Rec.

Added Analyte Result Qualifier Unit %Rec Limits 85 - 115 Sulfide 14.8 13.0 mg/L 88

Lab Sample ID: 180-114167-1 MS Client Sample ID: ARAMW-7 **Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 339592 Prep Batch: 339220** Sample Sample Spike MS MS %Rec.

Added Analyte Result Qualifier Result Qualifier Unit %Rec Limits Sulfide <2.1 14.8 11.1 mg/L 75 75 - 125

Lab Sample ID: 180-114167-1 MSD Client Sample ID: ARAMW-7

**Matrix: Water** Prep Type: Total/NA **Analysis Batch: 339592 Prep Batch: 339220** 

MSD MSD Sample Sample Spike %Rec. **RPD** Result Qualifier Added Analyte Result Qualifier Unit %Rec Limits RPD Limit Sulfide <2.1 14.8 11.5 mg/L 78 75 - 125 20

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

Lab Sample ID: MB 180-339384/2 Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 339384** 

MB MB RL Result Qualifier **MDL** Unit Analyte Prepared Analyzed Dil Fac **Total Dissolved Solids** 10 10 mg/L 12/03/20 17:39 <10

Lab Sample ID: LCS 180-339384/1 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 339384** 

Spike LCS LCS %Rec %Rec Analyte Added Result Qualifier Unit Limits Total Dissolved Solids 624 600 96 80 - 120 mg/L

12/15/2020

### **QC Sample Results**

Client: Southern Company Job ID: 180-114167-1

Project/Site: CCR - Plant Arkwright

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-339186/5 Client Sample ID: Method Blank

**Matrix: Water** 

Analysis Batch: 339186

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.0		5.0	5.0	mg/L			12/02/20 08:37	1
Bicarbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/02/20 08:37	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/02/20 08:37	1

Lab Sample ID: LCS 180-339186/4 **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA** 

**Analysis Batch: 339186** 

LCS LCS Spike %Rec. Added Result Qualifier Unit Analyte D %Rec Limits 250 232 Total Alkalinity as CaCO3 to pH mg/L 93 90 - 110

4.5

**Prep Type: Total/NA** 

## **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Job ID: 180-114167-1

### HPLC/IC

#### Analysis Batch: 338905

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114167-1	ARAMW-7	Total/NA	Water	EPA 300.0 R2.1	
180-114167-1	ARAMW-7	Total/NA	Water	EPA 300.0 R2.1	
MB 180-338905/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-338905/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

#### Metals

#### **Prep Batch: 339223**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114167-1	ARAMW-7	Dissolved	Water	3005A	
180-114167-1	ARAMW-7	Total Recoverable	Water	3005A	
MB 180-339223/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-339223/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

#### **Analysis Batch: 339557**

<b>Lab Sample ID</b> 180-114167-1	Client Sample ID ARAMW-7	Prep Type Dissolved	Matrix Water	Method EPA 6020B	<b>Prep Batch</b> 339223
180-114167-1	ARAMW-7	Total Recoverable	Water	EPA 6020B	339223
MB 180-339223/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	339223
LCS 180-339223/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	339223

### **General Chemistry**

#### **Analysis Batch: 339186**

Lab Sample ID 180-114167-1	Client Sample ID ARAMW-7	Prep Type Total/NA	Matrix Water	Method SM2320 B	Prep Batch
MB 180-339186/5	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-339186/4	Lab Control Sample	Total/NA	Water	SM2320 B	

#### **Prep Batch: 339220**

Lab Sample ID 180-114167-1	Client Sample ID ARAMW-7	Prep Type Total/NA	Matrix Water	Method 9030B	Prep Batch
MB 180-339220/1-A	Method Blank	Total/NA	Water	9030B	
LCS 180-339220/2-A	Lab Control Sample	Total/NA	Water	9030B	
180-114167-1 MS	ARAMW-7	Total/NA	Water	9030B	
180-114167-1 MSD	ARAMW-7	Total/NA	Water	9030B	

#### Analysis Batch: 339384

Lab Sample ID 180-114167-1	Client Sample ID  ARAMW-7	Prep Type Total/NA	Matrix Water	Method SM 2540C	Prep Batch
MB 180-339384/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-339384/1	Lab Control Sample	Total/NA	Water	SM 2540C	

### **Analysis Batch: 339592**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114167-1	ARAMW-7	Total/NA	Water	EPA 9034	339220
MB 180-339220/1-A	Method Blank	Total/NA	Water	EPA 9034	339220
LCS 180-339220/2-A	Lab Control Sample	Total/NA	Water	EPA 9034	339220
180-114167-1 MS	ARAMW-7	Total/NA	Water	EPA 9034	339220
180-114167-1 MSD	ARAMW-7	Total/NA	Water	EPA 9034	339220

Eurofins TestAmerica, Pittsburgh

Page 13 of 16

6

3

4

6

Я

11

12

1:

-

## **QC Association Summary**

Job ID: 180-114167-1

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

### Field Service / Mobile Lab

Analysis Batch: 340395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114167-1	ARAMW-7	Total/NA	Water	Field Sampling	

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

Pittsburgh, PA 15238 Phone (412) 963-7058 Fax (412) 963-2468

301 Alpha Drive RIDC Park

244- ATLANTA

n - Norne

0 - Ashla02

P - Na2045

Q - Na2503

R - Na2503

S - H2504

I - TSP Dodecahyd

V - MCAA

W - PH 4-5

Z - other (specify) Special Instructions/Note: Esto, it Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Nonth 000 180-114167 Chain of Custody Total Number of containers 12/1/20 Analysis Requested oler Temperature(s) °C and Other Remarks Special Instructions/QC Requirements Received by 28D-C1, 504, NO, INO. Lab PM: Brown, Shali Wood E-Mail: Matrix ≥ Type (C=comp, G=grab) Radiological Sample Baniel Haward 1745 1530 Sample Unknown 11/30/20 Sample Date 11/30/20 Project #. 18020201 Poison B Skin Irritant Custody Seal No. Flammable sliverable Requested: I, II, III, IV, Rossible Hazard Identification mpty Kit Relinquished by 241 Ralph McGill Blvd SE Custody Seals Intact: Client Information Sample Identification Project Name: CCR - Plant Arkwright 404-508-7116(Tel) Harried M. SCS Contact SCS Contacts quished by. State, Zip. GA, 30308 3A Power Atlanta

Client: Southern Company

Job Number: 180-114167-1

Login Number: 114167

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Say, Thomas C

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

Product Name: Low-Flow System

Date: 2020-11-30 15:32:07

Project Information:

Operator Name Daniel Howard
Company Name Wood E&IS
Project Name Plant Arkwright CCR AP 2

Site Name ARAMW-7
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 512733

Turbidity Make/Model Hach 2100Q

Well Information:

Well IDARAMW-7Well diameter2 inWell Total Depth50.82 ftScreen Length10 ftDepth to Water12.17 ft

Pump Information:

Pump Model/Type Peristaltic
Tubing Type HDPE
Tubing Diameter .17 in
Tubing Length 51 ft

Pump placement from TOC

Pumping Information:

Final Pumping Rate 150 mL/min
Total System Volume 0.3176346 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 0 in
Total Volume Pumped 5 L

45.8 ft

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	15:07:46	900.02	15.27	6.00	1778.79	5.66	12.44	0.21	-43.32
Last 5	15:12:46	1200.02	15.48	6.00	1780.04	5.87	12.44	0.20	-45.57
Last 5	15:17:46	1500.02	15.37	6.00	1763.81	5.03	12.44	0.19	-45.55
Last 5	15:22:47	1801.03	15.41	6.00	1770.99	4.51	12.44	0.18	-47.37
Last 5	15:27:47	2101.03	15.42	6.00	1768.80	4.61	12.44	0.18	-43.75
Variance 0			-0.11	0.00	-16.23			-0.01	0.01
Variance 1			0.04	0.00	7.17			-0.01	-1.82
Variance 2			0.01	0.00	-2.19			-0.00	3.62

Notes

ARAMW-7 sample time 1530.

**Grab Samples** 



## **Environment Testing America**

## **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-114253-1

Client Project/Site: CCR - Plant Arkwright

#### For:

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

Attn: Joju Abraham



Authorized for release by: 12/15/2020 7:03:37 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

Client: Southern Company Project/Site: CCR - Plant Arkwright Laboratory Job ID: 180-114253-1

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	4
Certification Summary	5
Sample Summary	6
Method Summary	7
Lab Chronicle	8
Client Sample Results	9
QC Sample Results	10
QC Association Summary	13
Chain of Custody	15
Receipt Checklists	16

Δ

**O** 

9

10

12

#### **Case Narrative**

Client: Southern Company

Job ID: 180-114253-1 Project/Site: CCR - Plant Arkwright

Job ID: 180-114253-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-114253-1

#### Comments

No additional comments.

#### Receipt

The sample was received on 12/2/2020 10:30 AM; the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 4.1° C.

#### GC Semi VOA

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

#### Metals

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

#### Field Service / Mobile Lab

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

#### **General Chemistry**

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

### **Definitions/Glossary**

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

#### **Qualifiers**

M	eta	Is

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 con	nmonly use	ed abbro	eviation	ıs may	or may	not be	present i	n this	report.	

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

7

\_

10

11

12

## **Accreditation/Certification Summary**

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

### Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	<b>Expiration Date</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

4

5

7

a

10

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

Eurofins TestAmerica, Pittsburgh

### **Sample Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

 Lab Sample ID
 Client Sample ID
 Matrix
 Collected
 Received
 Asset ID

 180-114253-1
 ARAMW-8
 Water
 12/01/20 10:05
 12/02/20 10:30

Job ID: 180-114253-1

3

4

\_

<u>۾</u>

9

10

15

### **Method Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

Method **Method Description** Protocol Laboratory TAL PIT EPA 300.0 R2.1 Anions, Ion Chromatgraphy EPA TAL PIT **EPA 6020B** Metals (ICP/MS) SW846 Sulfide, Acid soluble and Insoluble (Titrimetric) EPA 9034 SW846 TAL PIT SM 2540C Solids, Total Dissolved (TDS) SM TAL PIT SM2320 B Alkalinity, Total SM18 TAL PIT Field Sampling EPA Field Sampling TAL PIT 3005A Preparation, Total Recoverable or Dissolved Metals SW846 TAL PIT 9030B Sulfide, Distillation (Acid Soluble and Insoluble) SW846 **TAL PIT** 

#### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

#### **Laboratory References:**

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

Job ID: 180-114253-1

Л

7

8

9

. .

4 6

#### **Lab Chronicle**

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

Client Sample ID: ARAMW-8 Lab Sample ID: 180-114253-1

Date Collected: 12/01/20 10:05

Date Received: 12/02/20 10:30

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 Instrument	EPA 300.0 R2.1 t ID: CHIC2100A		1			339255	12/03/20 12:34	SAT	TAL PIT
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 ID: INTEGRION		1			339100	12/02/20 23:10	SAT	TAL PIT
Dissolved Dissolved	Prep Analysis Instrument	3005A EPA 6020B t ID: A		1	50 mL	50 mL	339431 339788	12/04/20 07:38 12/05/20 15:51		TAL PIT TAL PIT
Total Recoverable Total Recoverable	Prep Analysis Instrument	3005A EPA 6020B ID: A		1	50 mL	50 mL	339431 339788	12/04/20 07:38 12/05/20 15:47		TAL PIT TAL PIT
Total/NA Total/NA	Prep Analysis Instrument	9030B EPA 9034 ID: NOEQUIP		1	50 mL	50 mL	339874 340074	12/08/20 12:30 12/08/20 14:53		TAL PIT TAL PIT
Total/NA	Analysis Instrumen	SM 2540C ID: NOEQUIP		1	100 mL	100 mL	339351	12/03/20 11:40	GRB	TAL PIT
Total/NA	Analysis Instrument	SM2320 B ID: PCTITRATOR		1			339624	12/04/20 15:57	AVS	TAL PIT
Total/NA	Analysis Instrument	Field Sampling		1			340575	12/01/20 10:05	AGJ	TAL PIT

#### **Laboratory References:**

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

#### **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

CMR = Carl Reagle

KHM = Kyle Mucroski

Batch Type: Analysis

AGJ = Andy Johnson

AVS = Abbey Smith

CMR = Carl Reagle

GRB = Gabriel Berghe

RSK = Robert Kurtz

SAT = Stephen Tallam

12/15/2020

Eurofins TestAmerica, Pittsburgh

## **Client Sample Results**

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

**Client Sample ID: ARAMW-8** 

Lab Sample ID: 180-114253-1 Date Collected: 12/01/20 10:05

**Matrix: Water** 

Date Received: 12/02/20 10:30

	otal Recove Qualifier J	1.0 0.10 0.10 0.050 1.0 Prable  RL  0.080 0.50 0.0025 0.0050 0.50 0.015 0.50	0.044 0.023 0.029 0.38 MDL 0.039 0.13 0.00013 0.0034 0.083 0.00061	mg/L mg/L  Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	<u>D</u>	Prepared 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38	12/02/20 23:10 12/03/20 12:34 12/02/20 23:10 12/02/20 23:10 12/02/20 23:10 12/02/20 23:10 Analyzed 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47	Dil Fac
023 .28 120 - To sult .40 81 054 044 25 056 7.0	otal Recove Qualifier	0.10 0.050 1.0  erable RL 0.080 0.50 0.0025 0.0050 0.50 0.015	0.023 0.029 0.38 MDL 0.039 0.13 0.00013 0.0034 0.083 0.00061	mg/L mg/L  Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	<u>D</u>	12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38	12/02/20 23:10 12/02/20 23:10 12/02/20 23:10 Analyzed 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47	Dil Fac
.28 120 - To sult .40 81 054 044 25 056 7.0	otal Recove Qualifier	0.050 1.0 erable RL 0.080 0.50 0.0025 0.0050 0.50 0.015	0.029 0.38 MDL 0.039 0.13 0.00013 0.0034 0.083 0.00061	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	<u>D</u>	12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38	12/02/20 23:10 12/02/20 23:10 Analyzed 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47	Dil Fac
- To sult 40 81 054 044 25 056 7.0	otal Recove Qualifier	1.0  Perable  RL  0.080 0.50 0.0025 0.0050 0.50 0.50	0.38  MDL 0.039 0.13 0.00013 0.0034 0.083 0.00061	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	<u>D</u>	12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38	Analyzed 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47	1
- T( 340 81 054 044 25 056 7.0	otal Recove Qualifier	0.080 0.50 0.0025 0.0050 0.50 0.50	0.039 0.13 0.00013 0.0034 0.083 0.00061	Unit mg/L mg/L mg/L mg/L mg/L mg/L mg/L	<u>D</u>	12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38	Analyzed 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47	
.40 81 054 044 25 056 7.0	Qualifier J	0.080 0.50 0.0025 0.0050 0.50 0.50	0.039 0.13 0.00013 0.0034 0.083 0.00061	mg/L mg/L mg/L mg/L mg/L mg/L	<u>D</u>	12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38	12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47	
.40 81 054 044 25 056 7.0	J	0.080 0.50 0.0025 0.0050 0.50 0.015	0.039 0.13 0.00013 0.0034 0.083 0.00061	mg/L mg/L mg/L mg/L mg/L mg/L	<u>D</u>	12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38	12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47	
81 054 044 25 056 7.0	J	0.50 0.0025 0.0050 0.50 0.015	0.13 0.00013 0.0034 0.083 0.00061	mg/L mg/L mg/L mg/L mg/L		12/04/20 07:38 12/04/20 07:38 12/04/20 07:38 12/04/20 07:38	12/05/20 15:47 12/05/20 15:47 12/05/20 15:47 12/05/20 15:47	1 1 1
054 044 25 056 7.0	J	0.0025 0.0050 0.50 0.015	0.00013 0.0034 0.083 0.00061	mg/L mg/L mg/L mg/L		12/04/20 07:38 12/04/20 07:38 12/04/20 07:38	12/05/20 15:47 12/05/20 15:47 12/05/20 15:47	1 1 1
25 25 25 7.0	J	0.0050 0.50 0.015	0.0034 0.083 0.00061	mg/L mg/L mg/L		12/04/20 07:38 12/04/20 07:38	12/05/20 15:47 12/05/20 15:47	
25 056 7.0		0.50 0.015	0.083 0.00061	mg/L mg/L		12/04/20 07:38	12/05/20 15:47	1
056 7.0		0.015	0.00061	mg/L				
7.0						12/04/20 07:38	12/05/20 15:47	
		0.50	0.16					
22			0.10	mg/L		12/04/20 07:38	12/05/20 15:47	
		0.50	0.35	mg/L		12/04/20 07:38	12/05/20 15:47	1
- D	issolved							
sult	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1.8		0.050	0.020	mg/L		12/04/20 07:38	12/05/20 15:51	
2.9		0.0050	0.00087	mg/L		12/04/20 07:38	12/05/20 15:51	1
sult	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2.1		3.0	2.1	mg/L		12/08/20 12:30	12/08/20 14:53	•
<b>120</b>		10	10	mg/L			12/03/20 11:40	1
220		5.0					12/04/20 15:57	
220		5.0	5.0	mg/L			12/04/20 15:57	•
5.0		5.0	5.0	mg/L			12/04/20 15:57	
ng								
sult	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
<	<2.1 420 220 220 <5.0 lingesult	420 220 220 <5.0 ling esult Qualifier	<2.1 3.0 420 10 220 5.0 220 5.0 <5.0 5.0 ling esult Qualifier RL	<2.1	<2.1		<2.1	<2.1

Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

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

Lab Sample ID: MB 180-339100/36

**Matrix: Water** 

Analyte

Chloride

Nitrate as N

Nitrite as N

Sulfate

Analysis Batch: 339100

Client: Southern Company

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

MB MB Result Qualifier RL **MDL** Unit Analyzed Dil Fac D Prepared < 0.32 1.0 0.32 mg/L 12/02/20 19:20 < 0.023 0.10 0.023 mg/L 12/02/20 19:20 < 0.029 0.050 0.029 mg/L 12/02/20 19:20 < 0.38 1.0 0.38 mg/L 12/02/20 19:20

Lab Sample ID: LCS 180-339100/35

**Matrix: Water** 

**Analysis Batch: 339100** 

**Client Sample ID: Lab Control Sample** 

Client Sample ID: Method Blank

**Client Sample ID: Lab Control Sample** 

**Prep Type: Total/NA** 

**Prep Type: Total/NA** 

Prep Type: Total/NA

%Rec. Spike LCS LCS Analyte Added Result Qualifier Unit %Rec Limits Chloride 50.0 50.2 100 90 - 110 mg/L Nitrate as N 2.50 2.40 mg/L 96 90 - 110 Nitrite as N 2.50 2.65 mg/L 106 90 - 110 Sulfate 50.0 50.1 mg/L 100 90 - 110

Lab Sample ID: MB 180-339255/6

**Matrix: Water** 

**Analysis Batch: 339255** 

MB MB

Analyte Result Qualifier RL **MDL** Unit Dil Fac D Prepared Analyzed Fluoride <0.044 0.10 0.044 mg/L 12/03/20 09:23

Lab Sample ID: LCS 180-339255/5

**Matrix: Water** 

**Analysis Batch: 339255** 

		Spike	LCS	LCS				%Rec.	
Analyte		Added	Result	Qualifier	Unit	D	%Rec	Limits	
Fluoride		2.50	2.41		mg/L		96	90 - 110	

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

Lab Sample ID: MB 180-339431/1-A

**Matrix: Water** 

**Analysis Batch: 339788** 

**Client Sample ID: Method Blank Prep Type: Total Recoverable Prep Batch: 339431** 

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		12/04/20 07:38	12/05/20 14:29	1
Iron	<0.020		0.050	0.020	mg/L		12/04/20 07:38	12/05/20 14:29	1
Calcium	<0.13		0.50	0.13	mg/L		12/04/20 07:38	12/05/20 14:29	1
Manganese	<0.00087		0.0050	0.00087	mg/L		12/04/20 07:38	12/05/20 14:29	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		12/04/20 07:38	12/05/20 14:29	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		12/04/20 07:38	12/05/20 14:29	1
Magnesium	<0.083		0.50	0.083	mg/L		12/04/20 07:38	12/05/20 14:29	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		12/04/20 07:38	12/05/20 14:29	1
Potassium	<0.16		0.50	0.16	mg/L		12/04/20 07:38	12/05/20 14:29	1
Sodium	<0.35		0.50	0.35	mg/L		12/04/20 07:38	12/05/20 14:29	1

Eurofins TestAmerica, Pittsburgh

10

12/15/2020

Client: Southern Company

Project/Site: CCR - Plant Arkwright

**Matrix: Water** 

**Analysis Batch: 339788** 

Lab Sample ID: LCS 180-339431/2-A

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

Client Sample ID: Lab Control Sample

Job ID: 180-114253-1

Prep Batch: 339874

	F	rep Ty	pe: Total Recoverable
			<b>Prep Batch: 339431</b>
			%Rec.
it	D	%Rec	Limits

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Boron	1.25	1.15		mg/L		92	80 - 120	
Iron	5.00	4.99		mg/L		100	80 - 120	
Calcium	25.0	28.9		mg/L		116	80 - 120	
Manganese	0.500	0.499		mg/L		100	80 - 120	
Cobalt	0.500	0.465		mg/L		93	80 - 120	
Lithium	0.500	0.490		mg/L		98	80 - 120	
Magnesium	25.0	24.6		mg/L		98	80 - 120	
Molybdenum	0.500	0.493		mg/L		99	80 - 120	
Potassium	25.0	24.3		mg/L		97	80 - 120	
Sodium	25.0	25.3		mg/L		101	80 - 120	

Method: EPA 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 180-339874/1-A Client Sample ID: Method Blank **Prep Type: Total/NA** 

**Matrix: Water** Analysis Batch: 340074

MB MB

RL**MDL** Unit Analyte Result Qualifier **Prepared** Analyzed Dil Fac 3.0 12/08/20 12:30 12/08/20 14:14 Sulfide <2.1 2.1 mg/L

Lab Sample ID: LCS 180-339874/2-A **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA Analysis Batch: 340074 Prep Batch: 339874 LCS LCS Spike %Rec. Added Result Qualifier Limits Analyte Unit %Rec

14.6

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

Lab Sample ID: MB 180-339351/2 Client Sample ID: Method Blank Prep Type: Total/NA

12.9

mg/L

88

85 - 115

**Matrix: Water** 

Sulfide

Analysis Batch: 339351

MB MB RL MDL Unit Analyte Result Qualifier Prepared Analyzed Dil Fac **Total Dissolved Solids** <10 10 10 mg/L 12/03/20 11:40

Lab Sample ID: LCS 180-339351/1 **Client Sample ID: Lab Control Sample** Prep Type: Total/NA

**Matrix: Water** 

**Analysis Batch: 339351** 

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit %Rec Limits Total Dissolved Solids 624 618 mg/L 99 80 - 120

Eurofins TestAmerica, Pittsburgh

12/15/2020

### **QC Sample Results**

Client: Southern Company Job ID: 180-114253-1

Project/Site: CCR - Plant Arkwright

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-339624/29 Client Sample ID: Method Blank

**Matrix: Water** 

Analysis Batch: 339624

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.0		5.0	5.0	mg/L			12/04/20 14:34	1
Bicarbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/04/20 14:34	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			12/04/20 14:34	1

Lab Sample ID: LCS 180-339624/28 **Client Sample ID: Lab Control Sample Prep Type: Total/NA** 

**Matrix: Water** 

Analysis Batch: 339624

LCS LCS Spike %Rec. Added Result Qualifier Unit Analyte D %Rec Limits

250 228 Total Alkalinity as CaCO3 to pH mg/L 91 90 - 110

4.5

**Prep Type: Total/NA** 

## **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Plant Arkwright

### HPLC/IC

#### Analysis Batch: 339100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Total/NA	Water	EPA 300.0 R2.1	
MB 180-339100/36	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-339100/35	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

### **Analysis Batch: 339255**

Lab Sample ID 180-114253-1	Client Sample ID  ARAMW-8	Prep Type Total/NA	Matrix Water	Method EPA 300.0 R2.1	Prep Batch
MB 180-339255/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-339255/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

#### **Metals**

#### **Prep Batch: 339431**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Dissolved	Water	3005A	
180-114253-1	ARAMW-8	Total Recoverable	Water	3005A	
MB 180-339431/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-339431/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

#### **Analysis Batch: 339788**

<b>Lab Sample ID</b> 180-114253-1	Client Sample ID ARAMW-8	Prep Type Dissolved	Matrix Water	Method EPA 6020B	<b>Prep Batch</b> 339431
180-114253-1	ARAMW-8	Total Recoverable	Water	EPA 6020B	339431
MB 180-339431/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	339431
LCS 180-339431/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	339431

### **General Chemistry**

#### **Analysis Batch: 339351**

Lab Sample ID 180-114253-1	Client Sample ID ARAMW-8	Prep Type Total/NA	Matrix Water	Method SM 2540C	Prep Batch
MB 180-339351/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-339351/1	Lab Control Sample	Total/NA	Water	SM 2540C	

#### Analysis Batch: 339624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Total/NA	Water	SM2320 B	
MB 180-339624/29	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-339624/28	Lab Control Sample	Total/NA	Water	SM2320 B	

### Prep Batch: 339874

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Total/NA	Water	9030B	<u> </u>
MB 180-339874/1-A	Method Blank	Total/NA	Water	9030B	
LCS 180-339874/2-A	Lab Control Sample	Total/NA	Water	9030B	

#### **Analysis Batch: 340074**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Total/NA	Water	EPA 9034	339874
MB 180-339874/1-A	Method Blank	Total/NA	Water	EPA 9034	339874
LCS 180-339874/2-A	Lab Control Sample	Total/NA	Water	EPA 9034	339874

Eurofins TestAmerica, Pittsburgh

Page 13 of 16

Job ID: 180-114253-1

12/15/2020

## **QC Association Summary**

Job ID: 180-114253-1

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

### Field Service / Mobile Lab

**Analysis Batch: 340575** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-114253-1	ARAMW-8	Total/NA	Water	Field Sampling	

T - TSP Dodecahyd U - Acetone V - MCAA W - pH 4-5 Z - other (specify) Special Instructions/Note: N - None O - AsNBO2 P - Na2O4S Q - Na2S2O3 R - N2S2O3 S - H2SO4 Company Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)

Return To Client Solisposal By Lab Nonline For Month PH= 7.05 180-114253 Chain of Custody Total Number of containers 2/2/2 Analysis Requested coler Temperature(s) °C and Other Remarks Special Instructions/QC Requirements: 5.1F.22 A1K 23 NO.1NO., C 504 teceived by Lab PM: Brown, Shali (oN no seY) GZM\ZM mnohe Wood E-Mail: b Type (Wwater, Shotter, C=Comp, Orwastanou, G=grab) 811-Trave. A-4b) Preservation Code Matrix отралу 3 Radiological Sample O 1720 AH Daniel Howard Sample Time 12/1/20 1005 Unknown Sample Date 12/1/20/ Project #. 18020201 Poison B Skin Imitant eliverable Requested: I, II, III, IV, Other (specify) Custody Seal No. ARAMW-8 Possible Hazard Identification Denish of Khong & empty Kit Relinquished by: oddress. 241 Ralph McGill Blvd SE Custody Seals Intact Client Information Sample Identification Project Name. CCR - Plant Arkwright thone: 404-506-7116(Tel) SCS Contacts SCS Contacts State, Zip GA, 30308 Company: GA Power Atlanta

244- ATLANTA

Chain of Custody Record

Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pittsburgh, PA 15238 Phone (412) 963-7058 Fax (412) 963-2468

Client: Southern Company

Job Number: 180-114253-1

Login Number: 114253

List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Say, Thomas C

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

Product Name: Low-Flow System

Date: 2020-12-01 10:08:02

Peristaltic

Project Information: Pump Information:
Operator Name Daniel Howard Pump Model/Type

Company NameWood E&ISTubing TypeHDPEProject NamePlant Arkwright CCR AP 2Tubing Diameter.17 inSite NameARAMW-8Tubing Length49.6 ft

Site Name ARAMW-8
Latitude 0° 0' 0"
Longitude 0° 0' 0"
Sonde SN 512733

Turbidity Make/Model Hach 2100Q Pump placement from TOC 44.6 ft

Well Information: Pumping Information:

Final Pumping Rate 100 mL/min Well ID ARAMW-8 Well diameter Total System Volume 0.3113858 L 2 in Calculated Sample Rate Well Total Depth 49.61 ft 300 sec Stabilization Drawdown Screen Length 10 ft 0.31 in Depth to Water 10.92 ft **Total Volume Pumped** 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	рН	SpCond µS	cm Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 5		+/- 10%	+/- 10
Last 5	09:42:36	900.03	11.20	7.00	718.40	3.24	12.30	0.40	-97.29
Last 5	09:47:36	1200.03	11.14	7.03	701.59	3.50	12.49	0.40	-92.28
Last 5	09:52:36	1500.03	11.11	7.04	718.46	3.85	12.65	0.37	-93.05
Last 5	09:57:36	1800.03	11.06	7.04	717.49	3.50	12.83	0.36	-95.66
Last 5	10:02:36	2100.03	11.63	7.05	709.33	3.53	12.96	0.48	-87.72
Variance 0			-0.04	0.01	16.87			-0.03	-0.77
Variance 1			-0.05	0.01	-0.97			-0.01	-2.60
Variance 2			0.57	0.01	-8.16			0.12	7.94

Notes

ARAMW-8 sample time 1005

**Grab Samples** 

Date:	1/30/20	
Time:	1240	
Prepare	d By: Danie	el Howard
Checke	ed Bv:	

Wood. Project No. 6122201429

Pine Sonde ID:	
Pine Handset ID: .5/27:33	
Battery Voltage %: 85	

DISSOLVED OXYGEN (DO)		: · · · .			VALUE
Was DO membrane changed?	Yes	No I	Date: Tir	ne:	
Current Air Temperature °C (meter reading):				** *******************************	10.5
Current Barometric Pressure (from Weather					
Channel or NOAA.gov, which is corrected to					
sea level):					1
Elevation Corrected Barometric Pressure to	Ex.: 30.02	2  in, Hg x  25.4 = n	ım Hg; subtract	2.54 mm Hg for ever	у
enter into YSI DO calibration:	100 ft, abo	ove sea level: 565/	$100 \times 2.54 = 14$	.4 mm Hg	750.0
Theoretical DO (mg/L) from DO table based					
on current temperature and elevation corrected					
pressure:					
OO concentration before Calibration (mg/L):	Dependin	ıg on meter versi	on, this may no	ot be available.	
OO concentration after Calibration (mg/L):	1	<u> </u>	· · · · · · · · · · · · · · · · · · ·	·	9.97
Recovery (actual/theory x 100)	Range is	90 to 110% Reco	overv		40
OO Charge (DO ch):		le Range is 25 to	•		7010
OO Gain (should be between -0.7 and 1.5):				ed/Cal Constants	1,105
Note:	12.III Carr	oranon mont and	- 50 10 / (0 / 4110	Ca, Ca, Constants	11/102
CONDUCTIVITY [Note: Calibrate before pH to ay	oid carry-ove	er from pH standards (	i.e. pH buffers are o	conductive)	ajar kila sa La
Calibration standard used (mS/cm)	1		19410200		1.413
Temperature (°C)		LOT Tr	19710200		14,4
Reading before Calibration (mS/cm)					1,43
Reading AFTER Calibration (mS/cm)					1 1
Conductivity Cell Constant (unitless):					1,413
	1 ( 1 .		· · · ·		0.985
Note: He sure conductivity cell is submerged and free of bubboth		ip sonde on table)			TE CENT THE
oH 7.0 value before calibration:	T	· · · · · · · · · · · · · · · · · · ·	<del>-</del>	# 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
bH 7.0 value after calibration:	Lar	19340057	8/2		7,13
H 7.0 mV (range is -50 to +50 mV):				17.0	7,02
pH 10 value before calibration:					707
•	<u> </u>	+ 193201	02 8/2	-	19.91
pH 10 value after calibration:				15.9	10.08
pH 10 mV (range is -130 to -230 mV):				, , , , , , , , , , , , , , , , , , ,	<u> 777.4</u>
H 4.0 value before calibration:	Lot	2001002	_5 5/	21	4.35
H 4.0 value after calibration:			<u> </u>	14,7	4,00
H 4.0 mV (range is 130 to 230 mV):		,		•	1625
ote: Span between ph 4 and 7, and 7 and 10 should be betw					
OXIDATION/REDUCTION POTENTIAL (	ORP) eter		ा जिल्लासी गंदार	。 在于"自己的最多的特别。	received the co
Calibration Temperature (°C):	Lo	+ 194601			14.5
heoretical Calibration standard (mV)	0.231+0.0	0013(25-T) x 100		s Temperature °C)	243
Reading before calibration (mV):					241.0
Reading after calibration (mV):					243,
lote: mV theory will change with temperature	, so calcula	ate based on you	current temp.		
URBIDITY Note: Lens wiper should be parked 180					
NTU Turbidity Standard	·····	P	efore Cal:	After Cal:	19.8
0 ONTU Turbidity Standard			efore Cal:	After Cal:	102
NTU Turbidity Standard Lot A8150	3		efore Cal:	After Cal:	825
NTU Turbidity Check STD			efore Cal:	After Cal:	
NTU Turbidity Check STD			efore Cal:	After Cal:	9.55
IVILLI INTONUNIVA DECK NILI					

Date: 12/1/2 0	Wood.	Pine Sonde ID:	
Time: 05.3.5	Project No. 6122201429	Pine Handset ID: 5/	<u> 273.3                                   </u>
Prepared By: Daniel Howard		Battery Voltage %:	85
Checked By:			
CALII	BRATION PRIOR TO SAMPLING		
DISSOLVED OXYGEN (DO)			VALUE
Was DO membrane changed?	Yes No Date:	Time:	
Current Air Temperature °C (meter reading):			23.6
Current Barometric Pressure (from Weather			
Channel or NOAA.gov, which is corrected to			
sea level):			
Elevation Corrected Barometric Pressure to	Ex.: $30.02$ in. Hg x $25.4 = mm$ Hg; sub	tract 2.54 mm Hg for every	
enter into YSI DO calibration:	100 ft. above sea level; 565/100 x 2.54	™ 14.4 mm Hg	754.0
Theoretical DO (mg/L) from DO table based			
on current temperature and elevation corrected			1 1
pressure:			
DO concentration before Calibration (mg/L):	Depending on meter version, this m	ay not be available.	
DO concentration after Calibration (mg/L):			7.78
% Recovery (actual/theory x 100)	Range is 90 to 110% Recovery		92.5
DO Charge (DO ch):	Acceptable Range is 25 to 75		
DO Gain (should be between -0.7 and 1.5):	Exit Calibration menu and go to Ad	vanced/Cal Constants	1.0819
Note:			
CONDUCTIVITY [Note: Calibrate before pH to av	oid carry-over from pH standards (i.e. pH buffer	s are conductive)]	
Calibration standard used (mS/cm)	Lot# 1941020	o 6	1.413
Temperature (°C)			23.2
Reading before Calibration (mS/cm)			1.300
Reading AFTER Calibration (mS/cm)			1.413
Conductivity Cell Constant (unitless):			1.0239
Note: Be sure conductivity cell is submerged and free of bubl	bies (gently tap sonde on table)	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Н			w 1 -
oH 7.0 value before calibration:	Lot 19340057	8/21	7.14
oH 7.0 value after calibration:		22,7%	7.00
oII 7.0 mV (range is -50 to +50 mV);			-8.5
pH 10 value before calibration:	Lot 19320102 8	121	10,05
pH 10 value after calibration:		21.9°C	10.04
pH 10 mV (range is -130 to -230 mV):			~182,2
oH 4.0 value before calibration:	Lot 20010025	8/21	4.23
oH 4.0 value after calibration:	707	22.1°C	4,00
oH 4.0 mV (range is 130 to 230 mV):		73117	165.3
Note: Span between ph 4 and 7, and 7 and 10 should be betw	reen 165 to 180 mV		100.0
OXIDATION/REDUCTION POTENTIAL (	ORP)		1 1 1 1
Calibration Temperature (°C):	Lot 1944 62107	8/21	22.3
Theoretical Calibration standard (mV)	$0.231+0.0013(25-T) \times 1000 = mV$	(T is Temperature °C)	233
Reading before calibration (mV):			227,3
Reading after calibration (mV):			233.0

Note: mV theory will change with temperature, so calculate based on your current temp.

TURBIDITY Note: Lens wiper should be parked 180 degrees from the optics.

TORDIDIT I Note: Leas wiper should be parked 180 degrees from the	opties.		
26 NTU Turbidity Standard	Before Cal:	After Cal:	20.1
NTU Turbidity Standard	Before Cal:	After Cal:	102
800 NTU Turbidity Standard Lot A8155	Before Cal:	After Cal:	798
10 NTU Turbidity Check STD	Before Cal:	After Cal:	9,70
NTU Turbidity Check STD	Before Cal:	After Cal:	
CALIBRATION SUCCESSFUL?			

		G	eorgia Por	wer.Sitte.S	swipling <u>p</u>	ala (GW)
ite Name	: Plant	Arkwr	ight	AP2 4		Date: 11/30/20-12/1/20
	Sample	Sample	3	Equipment		1,120120
Well ID	Date	Time	Field Blank	Blank	Field Dup.	Additional Comments
RAMW-7	11/30/20	1530				
RAMW-8	12/1/20	1005				
		1140	FB-01			Field Black For Ash Parls 2+3
		//55	E.	EB-01		Field Blank for Ash Ponds 2+3 Equip Blank of tubing used with peristaltic pump
	12/1/20	1352				
Jup-1	12/1/20	:			ARGWA-24	Duplicate of ARGWA-24 (DUP-1)
<del></del>			:			
<del></del>						
				<u> </u>		
<del></del>						
	·			,		
<del> </del>						·
<del></del>				<del></del>		
		<u> </u>		· · · · · · · · · · · · · · · · · · ·		
dditi 1			<b>1)</b> 1			
oditional	comments:	to guip.	Blank !	E K-01wa #12759-	s collections. Dela	ed From the HDPE tubing used with the inized water used ASTM Type I water ank FB-01 was taken using ASTM Type I Floation.
leion?	s ASTM Zed wa	105190	ting As	cations	Field Bl	ank FB-01 was taken using ASTM Type I
			3			



**Data Evaluation Narrative** 

**Project: Plant Arkwright AP2 Background and Delineation Sampling** 

Wood Project Number: 6122201429.2003.\*\*\*\*

Site: Ash Pond No. 2 Dry Ash Stockpile - Former Plant Arkwright, Georgia

**Matrix: Groundwater** 

Eurofins TestAmerica SDG Nos: 180-114167-1, 180-114253-1

#### Introduction

A data quality evaluation (DQE) was performed on the laboratory data reported for the Background and Delineation sampling event conducted at Ash Pond No. 2 Dry Ash Stockpile at the former Plant Arkwright, located in Arkwright, Georgia in November and December 2020 for Southern Company Services (SCS). The samples were collected and analyzed per the protocols presented in the *Draft Former Plant Arkwright Field Sampling Plan* (FSP) (SCS, 2016) and in accordance with the monitoring requirements of §§ 257.90 through 257.95 as referenced in the Georgia Environmental Protection Division (EPD) Rules 391-3-4-.10(6)(a)-(c) and 391-3-4-.14. GA EPD rule 391-3-4-.10(6)(a) incorporates by reference the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) Rule 40 Code of Federal Regulations (CFR) § 257 Subpart D.

The following sections provide summary discussions of the required data qualifications for the analytical methods for samples collected. A Level II DQE validation was performed on the samples analyzed by the fixed-based laboratory within these sample delivery groups (SDGs). A Level II DQE consists of review of the following criteria: sample integrity, holding times, method blanks, laboratory control samples (LCSs), matrix spikes/matrix spike duplicate (MS/MSD) recoveries and relative percent differences (RPDs), post digestion spikes (PDS), where applicable, laboratory and field duplicate RPDs, field and/or equipment blanks, and reporting limits (RLs). Additionally, the data summary tables generated from the electronic data deliverable (EDD) were compared to the laboratory hardcopy data report to verify that the EDD and laboratory data report agree.

The data were reviewed using the laboratory's precision and accuracy limits, the method requirements, and the SCS Field Sampling Plan (FSP) (SCS, 2016). DQE data qualifications were applied, if necessary, using the procedures in United States Environmental Protection Agency (USEPA) Region IV Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy (USEPA, 2011) and the National Functional Guidelines for Inorganic Superfund Methods Data Review (USEPA, 2017), as quidance, and professional judgment using the following qualifiers:

<b>Qualifier</b>	<u>Usable Data</u>
J	The analyte was positively identified but the result is an estimated quantity. The associated
	numerical value is the approximate concentration of the analyte in the sample. SCS
	Definition: Value J indicates the substance was detected at such low levels that the precision of
	the laboratory instruments could not produce as reliable of a value. Therefore, the value
	displayed (value J) is qualified by the laboratory as estimated.
UJ	The analyte was analyzed for but was not detected above the level of the reported sample
	reporting/method detection limit. The reported method detection limit (MDL) is
	approximate and may be inaccurate or imprecise.
	• • • • • • • • • • • • • • • • • • • •

SDG Nos: 180-114167-1, 180-114253-1 Page 1 of 15



<b>Qualifier</b>	<u>Usable Data (continued)</u>
U	Analyte was analyzed for but was not detected above the level of the reported sample
	reporting/method detection limit. Note: SCS does not use the "U" flag except when reporting
	results for radium that are detected below the Minimum Detection Concentration (MDC).
U*	This analyte should be considered "not-detected" because it was detected in an associated
	blank at a similar level.

<u>Qualifier</u>	<u>Unusable Data</u>
R	The sample results are rejected due to serious deficiencies in the abi

The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control (QC) criteria. The presence or absence of the analyte cannot be confirmed

confirmed.

UR The analyte was analyzed for but was not detected above the level of the reported sample reporting or method detection; however, the data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The analyte may or may not be present in the sample.

The analytical results for the samples reported in this SDG are usable with the qualifications discussed in this narrative. A summary of the data with associated qualifiers is presented in **Table 1**.

#### **Deliverables**

The data package as submitted to Wood Environment & Infrastructure Solutions, Inc. (Wood) is complete to perform a Level II DQE for USEPA Methods SW6020B, EPA 300.0, SM 2320B, SW9034 and SM2540C.

#### **Sample Integrity**

The groundwater samples were submitted to Eurofins TestAmerica in Pittsburgh, Pennsylvania (TAL PIT) and analyzed for specific total and/or dissolved metals (including Appendix III and select Appendix IV) by Method SW6020B, anions (chloride, fluoride, nitrate, nitrite, and sulfate) by Method 300.0 R2.1, alkalinity (total, bicarbonate and carbonate as CaCO<sub>3</sub>) by Method SM 2320B, sulfide by SW9034 and total dissolved solids by SM2540C.

Based on the information provided on the Chain-of-Custody (COC) forms, the field samples arrived at the laboratory intact, within temperature range, and properly preserved. Completed COC documents are included in the data package.

#### **Sample Identification**

This SDG contains the following groundwater and/or QC samples:

Sample ID	Sample Date	DQE Level
ARAMW-7	11/30/20	II
ARAMW-8	12/01/20	II

These samples were collected from the newly installed Ash Pond No. 2 monitoring wells listed above on November 30 and December 1, 2020. The field and equipment blanks associated with this event include FB-01-120120 and EB-01-062420 (reported in SDG 180-114251-1).

SDG Nos: 180-114167-1, 180-114253-1 Page 2 of 15



### Metals (SW6020B)

The samples were submitted to TAL PIT for total CCR Appendix III metals, select total Appendix IV metals, and total or dissolved geochemical metals by Methods SW6020B. The CCR Appendix III metals are: boron (B) and calcium (Ca). The geochemical metals are: total magnesium (Mg), potassium (K), and sodium (Na), and dissolved iron (Fe) and manganese (Mn). The select Appendix IV metals are: cobalt (Co), and lithium (Li). Each of the Level II components were within QC limits except for method, field blank contamination.

### **Holding Times**

The sample analyses were performed within the 6-month analysis holding time.

### Method Blanks

One of the method blanks in SDG 180-114167-1 contained iron and sodium between the MDL and the RL, and associated results less than 10 times the method blank are considered "not detected" as a possible laboratory artifact.

Action: No qualification was necessary because the associated iron and sodium results were greater than 10 times the blank value.

### **Laboratory Control Sample (LCS)**

Percent recoveries for target analytes were within quality control limits in the LCS.

### Matrix Spike/Matrix Spike Duplicate (MS/MSD)

An MS/MSD analysis was not performed on any sample in this SDG.

### Post Digestion Spike (PDS)

A PDS analysis was not available for review.

### Field Duplicate Precision

No field duplicates were collected at Ash Pond No. 2.

### Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

Field accuracy was measured through the collection of one equipment/rinsate blank and one field blank. Equipment rinsate blanks are collected to monitor the decontamination process on non-dedicated sampling equipment. Field blanks are collected to assess the water used to decontaminate the equipment and the containers into which samples are placed. One field blank (FB-01-120120) and one equipment blank (EB-01-120120) are associated with this sampling event. The field blank sample was reported with detections of boron and thallium at estimated concentrations between the MDL and RL. Results less than 10 times the field blank are considered "not detected" as a possible field artifact. **Reason Code: BF:** 

Action: The boron result for sample ARAMW-8 was qualified as not detected and flagged "U\*". Thallium was not analyzed for the samples in this SDG.

SDG Nos: 180-114167-1, 180-114253-1 Page 3 of 15



### **Reporting Limits**

The laboratory RLs met the SCS project RLs and were below the screening values for samples submitted for the analysis of metals by USEPA Method SW6020B. The laboratory RL was elevated where dilutions were required to place the constituent within the calibration range. None of the samples in this SDG required dilution.

Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated and flagged "J" by the laboratory. The "J" qualifier is maintained by the data validator.

### Total and Dissolved Metals Comparison

If total and dissolved metals samples were collected, comparison of the total and dissolved results can aid in the representativeness of the total metals value verses the metals that may be associated with suspended solids and metals actually dissolved within the water column. The dissolved metals results should be less than or equal to the total metals concentration for positive results greater than 5 times the RL. Although dissolved iron and manganese were collected and analyzed, total analyses were not scoped; therefore, no comparison was performed.

### Anions (EPA 300.0 R2.1)

The samples were submitted to TAL PIT for anions (chloride, fluoride, nitrate, nitrite, and sulfate) by Method 300.0 R2.1. Each of the Level II components were within the QC limits.

### **Holding Times**

The sample analyses were performed within the 48-hour and 28 day holding times.

### **Method Blanks**

The method blank associated with the samples analyzed in this SDG contained no reportable detections of anions.

### Laboratory Control Sample (LCS)

Percent recoveries for target analytes were within quality control limits in the LCS.

### Matrix Spike/Matrix Spike Duplicate (MS/MSD)

An MS/MSD analysis was not performed on any sample in this SDG.

### Field Duplicate Precision

No field duplicates were collected at Ash Pond No. 2.

### Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

The field blanks and equipment blank samples did not contain reportable detections of anions.

SDG Nos: 180-114167-1, 180-114253-1 Page 4 of 15



### **Reporting Limits**

The laboratory RLs met the SCS project RLs and were below the screening values for samples submitted for the analysis of anions by USEPA Method 300 R2.1. No sample dilutions were required. Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated and flagged "J" by the laboratory. The "J" qualifier is maintained by the data validator.

### Alkalinity (SM 2320B)

Samples were submitted to TAL PIT for alkalinity (total, carbonate, and bicarbonate) by Method SM 2320B to help determine aquifer characteristics. Each of the Level II components were within laboratory QC limits.

### **Holding Times**

The sample analyses were performed within the 14-day analysis holding time.

### Method Blanks

The laboratory method blanks did not contain reportable concentrations of alkalinity.

### Laboratory Control Sample (LCS)

Percent recoveries for target analytes were within quality control limits in the LCS.

### Field Duplicate Precision

No field duplicates were collected at Ash Pond No. 2.

### Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

The field blanks and equipment blank samples did not contain reportable detections of alkalinity.

### **Reporting Limits**

The laboratory RLs met the SCS project RLs for samples submitted for the analysis of alkalinity by Method SM 2230B. Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated; however, no alkalinity results were reported between the MDL and RL in this SDG.

### Sulfide (SW9034)

Samples were submitted to TAL PIT for sulfide by Method SW9034 to help determine aquifer characteristics. Each of the Level II components were within laboratory QC limits.

### **Holding Times**

The sample analyses were performed within the 7-day analysis holding time.

SDG Nos: 180-114167-1, 180-114253-1 Page 5 of 15



### Method Blanks

The laboratory method blanks did not contain reportable concentrations of sulfide.

**Laboratory Control Sample (LCS)** 

Percent recoveries for target analytes were within quality control limits in the LCS.

Field Duplicate Precision

No field duplicates were collected at Ash Pond No. 2.

Sampling Accuracy (Equipment Rinsate Blanks, Field Blanks)

The field blanks and equipment blank samples did not contain reportable detections of sulfide.

### **Reporting Limits**

The laboratory RLs were met for samples submitted for the analysis of sulfide by Method SW9034 and no samples required dilutions. Additionally, data are evaluated down to the MDL and results reported between the MDL and RL are considered quantitative estimates. Results reported between the MDL and RL were qualified as estimated; however, no sulfide results were reported between the MDL and RL in this SDG.

### **Overall Site Evaluation and Professional Judgment Flagging Changes**

The chemical data included in this SDG was validated in general accordance with the guidelines contained in the project work plan and validation SOPs. No professional judgment was used to modify flags for results reported in samples presented in this SDG.

### **Completeness**

A total of 2 wells in Ash Pond No. 2, along with the required QC samples, were sampled and analyzed during the November and December 2020 event in Ash Pond No. 2 according to the Scope of Work provided for the background and delineation sampling. Of the 2 wells scoped to be sampled, one well was reported in two separate SDGs and were sampled and analyzed as scoped.

Completeness of the field sampling activities were assessed in terms of the actual number and type of sample results received from the field and laboratory, as compared with the planned number and type of sample results. All samples planned were collected which meets a field completeness of 100%.

Analytical completeness of data is a measure of the number of valid project-specific data results obtained in comparison to the total number of data results projected to achieve project DQOs. Valid data are defined as data that meet the project-specific DQOs. No data were qualified as unusable which equals a completeness of 100%, which exceeds the 90 percent goal for field and laboratory data expected for this project.

SDG Nos: 180-114167-1, 180-114253-1 Page 6 of 15



### References

SCS, 2016, Draft Field Sampling Plan – Former Plant Arkwright, Georgia Power Company, Earth Science and Environmental Engineering Technical Services, Southern Company Services, Inc. (SCS), August 17, 2016. Permit modification to include the Appendix III and IV sampling requirements; approval of modified permit and FSP pending.

USEPA, 2011. Region 4, Science and Ecosystem Support Division, Quality Assurance Section, MTSB, Data Validation Standard Operating Procedures for Contract Laboratory Program Inorganic Data by Inductively Coupled Plasma – Atomic Emission Spectroscopy and Inductively Coupled Plasma – Mass Spectroscopy, Revision 2.0; September 2011.

USEPA, 2017. National Office of Superfund Remediation and Technology Innovation, National Functional Guidelines for Inorganic Superfund Methods Data Review, Revision 0.0; January 2017.

Prepared by/Date: <u>DLH 01/14/21</u> Checked by/Date: <u>DWK 01/27/21</u>

SDG Nos: 180-114167-1, 180-114253-1 Page 7 of 15



# TABLE 1 SUMMARY OF DATA QUALIFIERS

SDG Nos: 180-114167-1, 180-114253-1 Page 8 of 15

### TABLE 1

### **SUMMARY OF DATA QUALIFIERS**

### SAMPLE DELIVERY GROUPS: 180-114167-1 and 180-114253-1

SAMPLING DATES: November 30 - December 1, 2020

Plant Arkwright Ash Pond No. 2 Background and Delineation Sampling

Field Sample ID	Location ID	Type	SDG	Method	Parameter Name	Lab Result	Lab Qual	Val Qual	Reason Codes	Units
ARAMW-7	ARAMW-7	N	180-114167-1	300.0	fluoride	0.044	J	J		mg/L
ARAMW-7	ARAMW-7	N	180-114167-1	6020B	molybdenum	0.0012	J	J		mg/L
ARAMW-8	ARAMW-8	N	180-114253-1	6020B	boron	0.4		U*	BF	mg/L
ARAMW-8	ARAMW-8	N	180-114253-1	6020B	lithium	0.0044	J	J		mg/L

### Notes:

### **Laboratory Qualifiers:**

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

### **Reason Codes:**

BF = Field blank contamination. The result should be considered "not-detected".

-- = No Reason Code assigned for values detected between the method detection limit (MDL) and the reporting limit (RL); estimated quantitation.

### **Validation Qualifiers:**

J = The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U\* = This analyte should be considered "not-detected" because it was detected in an associated blank at a similar level.

Prepared by/Date: <u>DLH 01/15/21</u> Checked by/Date: <u>DWK 01/27/21</u>



## **DQE CHECKLISTS**

SDG Nos: 180-114167-1, 180-114253-1 Page 9 of 15



**Project:** Plant Arkwright Background and Delineation

**Project No:** 6122201429.2003.\*\*\*\* **Method:** Metals by SW6020B

Χ

Laboratory and Lot: <u>TAL PIT SDGs</u>: 180-114167-1, 180-114253-1

Reviewer/Date: D. Howard 01/14/21 Senior Reviewer/Date: D. Knaub 01/27/21

Anal for: B, Ca, Co, Li, Mg, Mo, K, Na, diss. Fe, and diss Mn

<u>NO</u> NA **COMMENTS Case Narrative and COC Completeness Review** OK X Sample Preservation and cooler temperature met (HNO₃ to pH<2) Ok, Temp = 2.1°C, SDG 180-114167-1 Ok, Temp = 4.1°C, SDG 180-114253-1 X Holding times met (180 days) Coll: 11/30/20, SDG 180-114167-1 Prep: Total and Diss. metals – 12/02/20 Anal: Total and Diss. metals – 12/04/20 Coll: 12/01/20, SDG 180-114253-1 Prep: Total and Diss. metals – 12/04/20 Anal: Total and Diss. metals – 12/05/20 Χ **OC Blanks Review** Method Blanks: SDG 180-114167-1 p. 10 MB 180-339223/1-A = Fe - 0.0349 J x 10 = 0.349, Na - 0.449 J x 10 = 4.49 mg/L Flag results < 10x blank "U": No flag, assoc. result > 10x SDG 180-114253-1 p. 10 MB 180-339431/1-A = All ND Field Blanks: SDG: 180-114251-1 FB-01: B= 0.044 J x 10 = 0.44 mg/L, TI= 0.00019 J x 10 = 0.0019 mg/L Flag results < 10x blank "U": B - ARAMW-8 (Tl not anal for in assoc. samples) Equipment Blank: SDG: 180-114251-1 EB-01 = All NDX **Laboratory Control Sample (LCS) recovery within limits** (Metals 80-120%, Hg = 80-120%) SDG 180-114167-1 p. 10 LCS 180-339223/2-A = All OK SDG 180-114253-1 p. 11 LCS 180-339431/2-A = All OK

SDG Nos: 180-114167-1, 180-114253-1 Page 10 of 15

No lab or field duplicate in this SDG

Lab Duplicate - Field Duplicate precision goals met (20%)



# Method: Metals by SW6020B (cont) YES NO NA COMMENTS Image: Matrix Spike recoveries and RPDs within limits (75-125%, RPD 20) No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MSDs in this SDG for metals Image: No MS/MSDs in this SDG for metals Image: No MSDs in this SDG for metals

SDG Nos: 180-114167-1, 180-114253-1 Page 11 of 15



**Project:** Plant Arkwright Background and Delineation

**Project No:** 6122201429.2003.\*\*\*\*

Method: Anions (chloride, fluoride, nitrate, nitrite, and sulfate) by E300.0 R2.1

**Laboratory and Lot:** <u>TAL PIT SDGs: 180-114167-1, 180-114253-1</u>

**Reviewer/Date:** <u>D. Howard 01/14/21</u> **Senior Reviewer/Date:** <u>D. Knaub 01/27/21</u>

<u>YES</u>	<u>NO</u>	<u>NA</u>	COMMENTS
			Case Narrative and COC Completeness Review OK
			Sample Preservation and cooler temperature met (Cool to 6°C) Ok, Temp = 2.1°C, SDG 180-114167-1 Ok, Temp = 4.1°C, SDG 180-114253-1
			Holding times met (NO <sub>2</sub> , NO <sub>3</sub> – 48 hrs; Cl, SO <sub>4</sub> , F – 28 days) Coll: 11/30/20 (SDG 180-114167-1) Anal: Cl, F NO <sub>2</sub> , NO <sub>3</sub> , SO <sub>4</sub> : 12/02/20 (SDG 180-114167-1)
			Coll: 12/01/20 (SDG 180-114253-1) Anal: Cl, NO <sub>2</sub> , NO <sub>3</sub> , SO <sub>4</sub> : 12/01/20 (SDG 180-114253-1) Anal: F: 12/03/20
X			QC Blanks Review  Method Blanks:  p. 10 MB 180-338905/6 = All ND (SDG 114167-1)  p. 10 MB 180-339100/36, All ND = ND, MB 180-339255/6, F = ND
			Field Blanks: SDG 180-114251-1 FB-01 = ND Equipment Blank: SDG 180-114251-1 EB-01 = ND
			Laboratory Control Sample (LCS) recovery within limits (90-110%) p. 10 LCS 180-338905/5 = All %rec OK (SDG 180-114167-1) p. 10 LCS 180-339100/5 = All %rec OK, LCS 180-339255/5, F = 96% -OK
		X	Lab Duplicate - Field Duplicate precision goals met (20%) No lab or field duplicate in this SDG
			Matrix Spike recoveries and RPDs within limits (lab %Rec limits, RPD = 20) No MS/MSDs were analyzed in this SDG
×			EDD Data Verification vs. Hardcopy (10% samples for each SDG) 100% of results were checked

SDG Nos: 180-114167-1, 180-114253-1 Page 12 of 15



**Project:** Plant Arkwright Background and Delineation

Project No: 6122201429.2003.\*\*\*\*

Method: <u>Total, Bicarbonate and Carbonate Alkalinity by SM 2320B</u> Laboratory and Lot: <u>TAL PIT SDGs: 180-114167-1, 180-114253-1</u>

**Reviewer/Date:** D. Howard 01/14/21 **Senior Reviewer/Date:** D. Knaub 01/27/21

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK

Sample Preservation and cooler temperature met (Cool to 6°C)

Ok, Temp = 2.1°C, SDG 180-114167-1 Ok, Temp = 4.1°C, SDG 180-114253-1

Holding times met (14 days)

Coll: 11/30/20 (SDG 180-114167-1) Anal: 12/02/20 (SDG 180-114167-1)

Coll: 12/01/20 (SDG 180-114253-1) Anal: 12/04/20 (SDG 180-114253-1)

QC Blanks Review

**Method Blanks** 

p. 12 MB 180-339186/5 = ND (SDG 180-114167-1) p. 12 MB 180-339624/29 = ND (SDG 180-114253-1)

Field Blanks: SDG 180-114251-1

FB-01 = ND

Equipment Blank: SDG 180-114251-1

EB-01= ND

Laboratory Control Sample (LCS) recovery within lab limits (80-120%)

p. 12 LCS 180-339186/4= 93% - OK (SDG 180-114251-1) p. 17 LCS 180-339624/4 = 91% - OK (SDG 180-114253-1)

Lab Duplicate - Field Duplicate precision goals met (20%)

No lab or field duplicate in this SDG

Matrix Spike recoveries and RPDs within limits (if applicable)

MS/MSD not applicable for alkalinity

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

100% of results were checked

SDG Nos: 180-114167-1, 180-114253-1 Page 13 of 15



**Project:** Plant Arkwright Background and Delineation

**Project No:** <u>6122201429.2003.\*\*\*\*</u> **Method:** <u>Sulfide by SW9034</u>

Laboratory and Lot: <u>TAL PIT SDGs</u>: 180-114167-1, 180-114253-1

**Reviewer/Date:** D. Howard 01/14/21 **Senior Reviewer/Date:** D. Knaub 01/27/21

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK

Sample Preservation and cooler temperature met (Cool to 6°C)

Ok, Temp = 2.1°C, SDG 180-114167-1 Ok, Temp = 4.1°C, SDG 180-114253-1

Holding times met (7 days)

Coll: 11/30/20 (SDG180-114167-1) Prep: 12/02/20 Anal: 12/02/20

Coll: 12/01/20 (SDG180-114253-1) Prep: 12/08/20 Anal: 12/08/20

**QC Blanks Review** 

**Method Blanks** 

p. 17 MB 180-320115/1-A= ND

p. 11 MB 180339874/1-A= ND (SDG 180-114253-1)

Field Blanks: SDG 180114251-1

FB-01: ND

Equipment Blank: SDG 180-114251-1

EB-01: ND

Laboratory Control Sample (LCS) recovery within lab limits (80-120%)

p. 17 LCS 180-320115/2-A = 89% - OK

p. 11 LCS 180-339874/2-A = 88% - OK (SDG 180-114253-1)

Lab Duplicate - Field Duplicate precision goals met (20%)

No lab or field duplicate in this SDG

Matrix Spike recoveries and RPDs within limits (if applicable)

180-114167-1 MS/MSD =75/78, RPD = 3 - OK (SDG 180-114167-1)

No MS/MSDs were analyzed in SDG 180-114253-1

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

100% of results were checked

SDG Nos: 180-114167-1, 180-114253-1 Page 14 of 15

# wood

### **LEVEL II DATA QUALITY VALIDATION RECORD**

**Project:** Plant Arkwright Background and Delineation

Project No: 6122201429.2003.\*\*\*\*

Method: Total Dissolved Solids (TDS) by SM2540C

Laboratory and Lot: TAL PIT SDGs: 180-114167-1, 180-114253-1

**Reviewer/Date:** D. Howard 01/14/21 **Senior Reviewer/Date:** D. Knaub 01/27/21

YES NO NA COMMENTS

Case Narrative and COC Completeness Review

OK

Sample Preservation and cooler temperature met (Cool to 6°C)

Ok, Temp = 2.1°C, SDG 180-114167-1 Ok, Temp = 4.1°C, SDG 180-114253-1

Holding times met (7 days)

Coll: 11/30/20, SDG 180-114167-1

Anal: 12/03/20

Coll: 12/01/20, SDG 180-114253-1

Anal: 12/03/20

QC Blanks Review

**Method Blanks** 

p. 11 MB 180-339384/2 = ND (SDG 180-114167-1) p. 11 MB 180-339351/2 = ND (SDG 180-114167-1)

Field and equipment blank were not analyzed for TDS

Laboratory Control Sample (LCS) recovery within lab limits (80-120%)

p. 11 LCS 180-339384/1 = 96% - OK (SDG 180-114167-1) p. 11 LCS 180-339351/1 = 99% - OK (SDG 180-114253-1)

Lab Duplicate - Field Duplicate precision goals met (20%)

No lab or field duplicate in this SDG

Matrix Spike recoveries and RPDs within limits (if applicable)

MS/MSD not applicable to TDS

EDD Data Verification vs. Hardcopy (10% samples for each SDG)

100% of results were checked

SDG Nos: 180-114167-1, 180-114253-1 Page 15 of 15



# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-113158-1

Client Project/Site: CCR - Arkwright Surfacewater

For:

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

Attn: Joju Abraham

Authorized for release by: 11/18/2020 9:17:33 AM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

Review your project results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

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

PA Lab ID: 02-00416

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	4
Certification Summary	5
Sample Summary	6
Method Summary	7
Lab Chronicle	8
Client Sample Results	10
QC Sample Results	13
QC Association Summary	16
Chain of Custody	18
Receipt Chacklists	20

4

**5** 

7

9

10

12

13

### **Case Narrative**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-113158-1

Job ID: 180-113158-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-113158-1

### Comments

No additional comments.

### Receipt

The samples were received on 11/4/2020 9:00 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.8° C.

### GC Semi VOA

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

### Metals

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

### **General Chemistry**

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

### **Definitions/Glossary**

Client: Southern Company Job ID: 180-113158-1

Project/Site: CCR - Arkwright Surfacewater

### **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.

**General Chemistry** 

Qualifier Description

HF Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

**Glossary** 

Abbreviation These commonly used abbreviations may or may not be present in this report.

Eisted under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

G

9

10

12

11

# **Accreditation/Certification Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-113158-1

## Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	Identification Number	<b>Expiration Date</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	04-30-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-21
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-20
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-21
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-20
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	02-01-21
Wisconsin	State	998027800	08-31-21

- -

-

6

9

10

12

13

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

Eurofins TestAmerica, Pittsburgh

# **Sample Summary**

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
180-113158-1	BC-0.8	Water	11/03/20 12:38	11/04/20 09:00	
180-113158-2	BC-0.5.5	Water	11/03/20 11:24	11/04/20 09:00	
180-113158-3	BC-BR	Water	11/03/20 11:49	11/04/20 09:00	

Job ID: 180-113158-1

# **Method Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 9040C	рН	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
SM2320 B	Alkalinity, Total	SM18	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT

### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

### **Laboratory References:**

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

Job ID: 180-113158-1

3

4

£

7

8

3

10

15

13

### **Lab Chronicle**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.8 Lab Sample ID: 180-113158-1

Date Collected: 11/03/20 12:38 Date Received: 11/04/20 09:00

**Matrix: Water** 

Job ID: 180-113158-1

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 nt ID: INTEGRION		1			336722	11/11/20 18:17	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	336278	11/07/20 08:11	KHM	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B at ID: A		1			337118	11/13/20 20:09	RSK	TAL PIT
Total/NA	Analysis Instrumer	EPA 9040C at ID: NOEQUIP		1			336783	11/11/20 23:38	PMH	TAL PIT
Total/NA	Analysis Instrumer	SM 2540C at ID: NOEQUIP		1	100 mL	100 mL	336451	11/09/20 17:15	GRB	TAL PIT
Total/NA	Analysis Instrumer	SM2320 B at ID: PCTITRATOR		1			336113	11/05/20 18:39	AVS	TAL PIT

Lab Sample ID: 180-113158-2 Client Sample ID: BC-0.5.5

Date Collected: 11/03/20 11:24 **Matrix: Water** Date Received: 11/04/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: CHIC2100A		1			336638	11/11/20 13:41	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	336278	11/07/20 08:11	KHM	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			337118	11/13/20 20:18	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: PCTITRATOR		1			336799	11/11/20 19:53	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	336451	11/09/20 17:15	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			336113	11/05/20 18:45	AVS	TAL PIT

**Client Sample ID: BC-BR** Lab Sample ID: 180-113158-3 Date Collected: 11/03/20 11:49 **Matrix: Water** 

Date Received: 11/04/20 09:00

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrument	EPA 300.0 R2.1 ID: CHIC2100A		1			336638	11/11/20 13:58	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	336278	11/07/20 08:11	KHM	TAL PIT
Total Recoverable	Analysis Instrument	EPA 6020B :ID: A		1			337118	11/13/20 20:21	RSK	TAL PIT
Total/NA	Analysis Instrument	EPA 9040C ID: PCTITRATOR		1			336799	11/11/20 22:00	PMH	TAL PIT
Total/NA	Analysis Instrument	SM 2540C ID: NOEQUIP		1	100 mL	100 mL	336451	11/09/20 17:15	GRB	TAL PIT
Total/NA	Analysis Instrument	SM2320 B		1			336113	11/05/20 18:50	AVS	TAL PIT

Eurofins TestAmerica, Pittsburgh

Page 8 of 20

### **Lab Chronicle**

Client: Southern Company

Job ID: 180-113158-1 Project/Site: CCR - Arkwright Surfacewater

### **Laboratory References:**

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

### **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

KHM = Kyle Mucroski

Batch Type: Analysis

AVS = Abbey Smith

GRB = Gabriel Berghe

MJH = Matthew Hartman

PMH = Paloma Hoelzle

RSK = Robert Kurtz

SAT = Stephen Tallam

# **Client Sample Results**

Client: Southern Company Project/Site: CCR - Arkwright Surfacewater Job ID: 180-113158-1

Lab Sample ID: 180-113158-1 Client Sample ID: BC-0.8

Date Collected: 11/03/20 12:38 Date Received: 11/04/20 09:00

	 . • •			
	Ma	trix:	Water	

Method: EPA 300.0 R2.1 - Anions, Ion Chromatography											
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac		
Chloride	9.5		1.0	0.32	mg/L			11/11/20 18:17	1		
Fluoride	0.066	J	0.10	0.044	mg/L			11/11/20 18:17	1		
Sulfate	3.8		1.0	0.38	mg/L			11/11/20 18:17	1		

Method: EPA 6020B - Metals	(ICP/MS) - Total Recove	rable					
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00042 J	0.0025	0.00013 mg/L		11/07/20 08:11	11/13/20 20:09	1

General Chemistry						_	_		
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.6	HF	0.1	0.1	SU			11/11/20 23:38	1
Total Dissolved Solids	84		10	10	mg/L			11/09/20 17:15	1
Total Alkalinity as CaCO3 to pH 4.5	55		5.0	5.0	mg/L			11/05/20 18:39	1
Bicarbonate Alkalinity as CaCO3	55		5.0	5.0	mg/L			11/05/20 18:39	1

# **Client Sample Results**

Client: Southern Company Job ID: 180-113158-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.5.5 Lab Sample ID: 180-113158-2

Date Collected: 11/03/20 11:24 Matrix: Water Date Received: 11/04/20 09:00

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.2		1.0	0.32	mg/L			11/11/20 13:41	1
Fluoride	0.050	J	0.10	0.044	mg/L			11/11/20 13:41	1
Sulfate	6.1		1.0	0.38	mg/L			11/11/20 13:41	1
Method: EPA 6020B - Metals (IC	P/MS) - To	otal Recove	erable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00047	J	0.0025	0.00013	mg/L		11/07/20 08:11	11/13/20 20:18	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			11/11/20 19:53	1
<b>Total Dissolved Solids</b>	88		10	10	mg/L			11/09/20 17:15	1
Total Alkalinity as CaCO3 to pH 4.5	55		5.0	5.0	mg/L			11/05/20 18:45	1
Bicarbonate Alkalinity as CaCO3	55		5.0	5 O	mg/L			11/05/20 18:45	

# **Client Sample Results**

Client: Southern Company

Job ID: 180-113158-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-BR Lab Sample ID: 180-113158-3

Date Collected: 11/03/20 11:49
Date Received: 11/04/20 09:00

Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.3		1.0	0.32	mg/L			11/11/20 13:58	1
Fluoride	<0.044		0.10	0.044	mg/L			11/11/20 13:58	1
Sulfate	6.2		1.0	0.38	mg/L			11/11/20 13:58	1
Method: EPA 6020B Analyte	- Metals (ICP/MS) - To Result	otal Recove Qualifier	rable RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
		J	0.0025	0.00013	ma/l		11/07/20 08:11	11/13/20 20:21	

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			11/11/20 22:00	1
Total Dissolved Solids	85		10	10	mg/L			11/09/20 17:15	1
Total Alkalinity as CaCO3 to pH 4.5	55		5.0	5.0	mg/L			11/05/20 18:50	1
Bicarbonate Alkalinity as CaCO3	55		5.0	5.0	mg/L			11/05/20 18:50	1

13

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-113158-1

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

Lab Sample ID: MB 180-336638/6

**Matrix: Water** 

**Analysis Batch: 336638** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

MB MB Analyte Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Chloride < 0.32 1.0 0.32 mg/L 11/11/20 05:54 0.044 mg/L Fluoride < 0.044 0.10 11/11/20 05:54 Sulfate 1.0 0.38 mg/L 11/11/20 05:54 < 0.38

Lab Sample ID: LCS 180-336638/5

**Matrix: Water** 

**Analysis Batch: 336638** 

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

Spike LCS LCS %Rec. Limits Analyte Added Result Qualifier Unit D %Rec Chloride 50.0 50.9 mg/L 102 90 - 110 Fluoride 2.50 2.49 mg/L 99 90 - 110 Sulfate 50.0 90 - 110 50.0 mg/L 100

Lab Sample ID: MB 180-336722/6

**Matrix: Water** 

**Analysis Batch: 336722** 

Client Sample ID: Method Blank

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Type: Total/NA

	IVIB	MR							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.32		1.0	0.32	mg/L			11/11/20 12:23	1
Fluoride	<0.044		0.10	0.044	mg/L			11/11/20 12:23	1
Sulfate	<0.38		1.0	0.38	mg/L			11/11/20 12:23	1

Lab Sample ID: LCS 180-336722/5

**Matrix: Water** 

Analysis Batch: 336722

/ maryolo Batom ocor 22								
_	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	50.0	51.8		mg/L		104	90 - 110	
Fluoride	2.50	2.52		mg/L		101	90 - 110	
Sulfate	50.0	51.1		mg/L		102	90 - 110	

Lab Sample ID: 180-113158-1 MS

Matrix: Water

	Analysis Batch: 336722									Fieb is	pe. Iotal/NA
l	,	Sample	Sample	Spike	MS	MS				%Rec.	
l	Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
l	Chloride	9.5		50.0	60.1		mg/L		101	90 - 110	

**Matrix: Water** 

**Analysis Batch: 336722** 

Lab Sample ID: 180-1131	58-1 MSD				Clie	nt Sample ID:	BC-0.8
Sulfate	3.8	50.0	54.5	mg/L	101	90 - 110	
Fluoride	0.066 J	2.50	2.52	mg/L	98	90 - 110	

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	9.5		50.0	61.0		mg/L		103	90 - 110	2	20
Fluoride	0.066	J	2.50	2.60		mg/L		101	90 - 110	3	20
Sulfate	3.8		50.0	55.3		mg/L		103	90 - 110	1	20

Eurofins TestAmerica, Pittsburgh

Page 13 of 20

Client Sample ID: BC-0.8

Prep Type: Total/NA

Prep Type: Total/NA

11/18/2020

10

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-113158-1

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

Lab Sample ID: MB 180-336278/1-A

**Matrix: Water** 

**Analysis Batch: 337118** 

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

**Prep Batch: 336278** 

MB MB

Result Qualifier RL **MDL** Unit Analyzed Dil Fac Analyte Prepared 0.0025 11/07/20 08:11 11/13/20 19:41 Cobalt <0.00013 0.00013 mg/L

Lab Sample ID: LCS 180-336278/2-A **Matrix: Water** 

**Analysis Batch: 337118** 

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

Client Sample ID: Lab Control Sample

**Client Sample ID: Lab Control Sample** 

Client Sample ID: Lab Control Sample

**Prep Batch: 336278** %Rec.

Prep Type: Total/NA

**Prep Type: Total/NA** 

Prep Type: Total/NA

Spike LCS LCS Added Result Qualifier Unit D %Rec Limits Analyte Cobalt 0.500 0.504 mg/L 101 80 - 120 Calcium 25.0 28.6 mg/L 114 80 - 1201.25 mg/L Boron 1.21 97 80 - 120

Method: EPA 9040C - pH

Lab Sample ID: LCS 180-336783/1

**Matrix: Water** 

Analysis Batch: 336783

Spike LCS LCS %Rec. Added Result Qualifier Limits Analyte Unit D %Rec 7.00 SU 100 99 - 101 рΗ 7.0

Lab Sample ID: LCS 180-336799/29

**Matrix: Water** 

**Analysis Batch: 336799** 

LCS LCS %Rec. Spike Added Analyte Result Qualifier D %Rec Limits Unit рΗ 7.00 7.0 SU 100 99 - 101

Lab Sample ID: LCS 180-336799/3

**Matrix: Water** 

**Analysis Batch: 336799** 

Spike LCS LCS %Rec. Added **Analyte** Result Qualifier Unit D %Rec Limits 7.00 SU 99 - 101 7.0 100

**Analysis Batch: 336799** 

Lab Sample ID: 180-113158-3 DU Client Sample ID: BC-BR **Matrix: Water** Prep Type: Total/NA

DU DU RPD Sample Sample Analyte Result Qualifier Result Qualifier Unit D **RPD** Limit 7.4 HF pН 7.5 SU 0.5

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

Lab Sample ID: MB 180-336451/2

**Matrix: Water** 

Analysis Batch: 336451

MB MB

Result Qualifier RL **MDL** Unit Prepared Analyzed <10 10 10 mg/L 11/09/20 17:15 **Total Dissolved Solids** 

Eurofins TestAmerica, Pittsburgh

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

# **QC Sample Results**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-113158-1

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

Lab Sample ID: LCS 180-336451/1

Matrix: Water

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

Analysis Batch: 336451

AnalyteAdded<br/>Total Dissolved SolidsResult<br/>714Qualifier<br/>700Unit<br/>mg/LD<br/>MRec<br/>Unit<br/>mg/L%Rec<br/>Units<br/>98

%Rec.

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-336113/53

**Matrix: Water** 

**Analysis Batch: 336113** 

Client Sample ID: Method Blank

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Type: Total/NA

MB MB Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac 5.0 5.0 mg/L Total Alkalinity as CaCO3 to pH 4.5 <5.0 11/05/20 16:59 1 5.0 mg/L Bicarbonate Alkalinity as CaCO3 <5.0 5.0 11/05/20 16:59

Lab Sample ID: LCS 180-336113/52

**Matrix: Water** 

Analysis Batch: 336113

Alialysis Datch. 330113								
	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Total Alkalinity as CaCO3 to pH	250	236		mg/L	_	95	90 - 110	 

4.5

5

4

6

7

\_

10

10

14

13

# **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

HPLC/IC

**Analysis Batch: 336638** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-2	BC-0.5.5	Total/NA	Water	EPA 300.0 R2.1	
180-113158-3	BC-BR	Total/NA	Water	EPA 300.0 R2.1	
MB 180-336638/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-336638/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

**Analysis Batch: 336722** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total/NA	Water	EPA 300.0 R2.1	
MB 180-336722/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-336722/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-113158-1 MS	BC-0.8	Total/NA	Water	EPA 300.0 R2.1	
180-113158-1 MSD	BC-0.8	Total/NA	Water	EPA 300.0 R2.1	

**Metals** 

**Prep Batch: 336278** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total Recoverable	Water	3005A	
180-113158-2	BC-0.5.5	Total Recoverable	Water	3005A	
180-113158-3	BC-BR	Total Recoverable	Water	3005A	
MB 180-336278/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-336278/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

**Analysis Batch: 337118** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total Recoverable	Water	EPA 6020B	336278
180-113158-2	BC-0.5.5	Total Recoverable	Water	EPA 6020B	336278
180-113158-3	BC-BR	Total Recoverable	Water	EPA 6020B	336278
MB 180-336278/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	336278
LCS 180-336278/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	336278

**General Chemistry** 

**Analysis Batch: 336113** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total/NA	Water	SM2320 B	
180-113158-2	BC-0.5.5	Total/NA	Water	SM2320 B	
180-113158-3	BC-BR	Total/NA	Water	SM2320 B	
MB 180-336113/53	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-336113/52	Lab Control Sample	Total/NA	Water	SM2320 B	

**Analysis Batch: 336451** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total/NA	Water	SM 2540C	
180-113158-2	BC-0.5.5	Total/NA	Water	SM 2540C	
180-113158-3	BC-BR	Total/NA	Water	SM 2540C	
MB 180-336451/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-336451/1	Lab Control Sample	Total/NA	Water	SM 2540C	

**Analysis Batch: 336783** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-1	BC-0.8	Total/NA	Water	EPA 9040C	

Eurofins TestAmerica, Pittsburgh

Page 16 of 20

Job ID: 180-113158-1

11/18/2020

# **QC Association Summary**

Client: Southern Company

Job ID: 180-113158-1

Project/Site: CCR - Arkwright Surfacewater

## **General Chemistry (Continued)**

### **Analysis Batch: 336783 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-336783/1	Lab Control Sample	Total/NA	Water	EPA 9040C	

### **Analysis Batch: 336799**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-113158-2	BC-0.5.5	Total/NA	Water	EPA 9040C	- <u> </u>
180-113158-3	BC-BR	Total/NA	Water	EPA 9040C	
LCS 180-336799/29	Lab Control Sample	Total/NA	Water	EPA 9040C	
LCS 180-336799/3	Lab Control Sample	Total/NA	Water	EPA 9040C	
180-113158-3 DU	BC-BR	Total/NA	Water	EPA 9040C	

1

3

Λ

5

\_

8

11

1:

# Chain of Custody Record

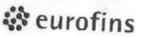
Eurofins TestAmerica, Pittsburgh

301 Alpha Drive RIDC Park

Pitsburgh, PA 15238 Phone: 412-963-7058 Fax: 412-963-2488

244- ATLANTA

	Sampler	١.		Lab PM		-	1			amer Tracking No(s):		COC No:		
Client Information	KAGO	JOHNSON	1050	Lanie	-demy-A	5	2125	いろいい	7			180-65384-13119	4-13119.1	
Clent Contact Warren Johnson	Prone 48	15	8968	Jerry Jerry	Spilor	SE uro	A PAIC CARG	Thor	7 6 %			Page 1 of 1	1 2 2	
Cempany ARCADIS U.S., Inc.								Fnalvsis	sis Reguested	sted		# dol		
Address 2839 Paces Ferry Road SE Suite 900	Due Date Requested:	:pa				$\vdash$		11/1			F	Preservation Codes	n Cod	
City. Atlanta	TAT Requested (days	ays):						, 1vi				B - NaOH C - Zn Acetate	3	2 2
State; Zip; GAA, 30339		7	DAS			- 1		X				D - Nitric Aci	P - Na2045	. w o
Phone 404-952-1615(Tel)	Purchase Order R	Series A	2606					84				G - Amchior H - Ascorbio	Acid	O3 damahudusta
Email: warren johnson@arcadis.com	WO#				(oN			OM.					200	
Project Name: Georgia Power CCR	Project #: 18023144				JO 88			1745 1745	_					pecify)
SIE PLANT ARKWEIGHT	SSON#				Y) asi			50)				of con		
-	Sample Date	Sample	Sample Type (C=comp, G=grab)	Matrix (Wwwater, Swoold, Ownasteloil, ST-Tissue Ande)	Field Filtered Perform MS/M	5020B - Metals 2320B, 9040C,	- poleC_Calcd -	- 8105.0th				TedmuM listoT	Special Instructions Note:	. Acte
	V	X	4 (6)		X	-	-						1	
36-0.8	11/3/20	1238	9	Water		×	X	×				32,35,28	11/-83	W,,02,24.
BC-0,5.5	11/3/20	1124	3	Water		×	×	×				32,25	14"H/-83	45,00.TM
Bc-BR	11/3/20	1149	.5	Water		×	X					32, 22,	12"W/-83"	41, 29"W
				Water										
				Water										
				Water										
										180-113158 Chain of Custody	Chain	of Custody		
						-	_				7			
Possible Hazard Identification		,			San	- G ejos	- 6000		mar he acco	ecord if comploe	aro rot	and londer	Library & confidence	
Non-Hazard Flammable Skin Irritant Poison B	usan B Unknown	Ш	] Radiologica!		5	Ret	im To	Client	Dispo	Return To Client Disposal By Lab Archive For Month	A C	anned ronger rchive For	Months Months	
Deliverable Requested: I, II, III, IV, Other (specify)					Spe	cial Ins	structio	ns/QC R	Special Instructions/QC Requirements:					
Empty Kit Relinquished by:		Date:			ime:		П			Method of Shipment	¥			
Reinquished by Dood	11/03/20 20	() 07	040	Arca 1	u	- Constant	12	18	7	Ell?	120	175	yo CES	2
Reinquight by HISDE	Date/Time:	8,00		Company		3e perve	D)			Care Care	14/2	000 0	And C	A
	Decenting.			Company			Z	0		Case/A	1.9cm		Company	
Custody Seals Intact: Custody Seal No.:						Cooler	ешрега.	ure(s) °C a	Cooler Temperature(s) °C and Other Rema	ks.				
					1	ı							Ver. 01/16/2019	6/2019



# **Environment Testing** TestAmerica

ORIGIN ID:LIYA (678) 966-9891 GEORGE TAYLOR EUROFINS TESTAMERICA 6500 MCDONDUGH DRIVE SUITE C-10 NORCROSS, GA 30093 UNITED STATES US

SHIP DATE: 03NDV20 ACTWGT: 23.00 LB CAD: 859116/CAFE3406

BILL RECIPIENT

10 SAMPLE RECIEVING **EUROFINS TESTAMERICA PITTSBURGH** 301 ALPHA DR. RIDC PARK PITTSBURGH PA 15238

(412) 963-7068 REF: ARCADIS PLT ARTW

11**0-1**13158 Waybill 180-113158 Waybill





TRK# 1516 9325 7929

WED - 04 NOV 10:30A PRIORITY OVERNIGHT

NA AGCA

15238 PIT'

ncorrected temp ermometer ID





Client: Southern Company

Job Number: 180-113158-1

Login Number: 113158 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Say, Thomas C

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



# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 180-117154-1

Client Project/Site: CCR - Arkwright Surfacewater

For:

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

Attn: Joju Abraham

Authorized for release by: 2/19/2021 2:59:43 PM

Shali Brown, Project Manager II (615)301-5031

Shali.Brown@Eurofinset.com

LINKS

**Review your project** results through

Have a Question?



Visit us at: www.eurofinsus.com/Env

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

Client: Southern Company Project/Site: CCR - Arkwright Surfacewater Laboratory Job ID: 180-117154-1

# **Table of Contents**

Cover Page	1
Table of Contents	2
Case Narrative	3
Definitions/Glossary	
Certification Summary	5
Sample Summary	
Method Summary	7
Lab Chronicle	8
Client Sample Results	12
QC Sample Results	21
QC Association Summary	24
Chain of Custody	26
Receint Checklists	29

2

4

5

\_\_\_\_\_

9

10

12

1:

#### **Case Narrative**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-117154-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative 180-117154-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 2/12/2021 8:45 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 3 coolers at receipt time were 1.2° C, 2.3° C and 3.2° C.

#### **Receipt Exceptions**

The container label for the 250ML container for the following sample did not match the information listed on the Chain-of-Custody (COC): BC-0.1 (180-117154-9). The container labels list a sample id of BC-0.4, while the COC lists BC-0.1. The id on the COC was used.

There are no sample collection dates or times listed on the labels. BT-1.6 (180-117154-1), BT-1.0 (180-117154-2), BC-0.8 (180-117154-3), BC-0.5.7 (180-117154-4), BC-0.5.6 (180-117154-5), BC-0.5.5 (180-117154-6), BC-BR (180-117154-7), BC-0.3 (180-117154-8) and BC-0.1 (180-117154-9)

#### GC Semi VOA

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

#### Metals

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

#### **General Chemistry**

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

Job ID: 180-117154-1

3

А

J

6

9

10

12

1.

## **Definitions/Glossary**

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

#### **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.

**General Chemistry** 

Qualifier Description

HF Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

**Glossary** 

Abbreviation These commonly used abbreviations may or may not be present in this report.

Eisted under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present

PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

Eurofins TestAmerica, Pittsburgh

2/19/2021

Page 4 of 29

5

6

7

8

9

10

12

13

# **Accreditation/Certification Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-117154-1

## Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	<b>Identification Number</b>	<b>Expiration Date</b>
Arkansas DEQ	State	19-033-0	06-27-21
California	State	2891	02-21-21
Connecticut	State	PH-0688	09-30-20 *
Florida	NELAP	E871008	06-30-21
Georgia	State	PA 02-00416	04-30-21
Illinois	NELAP	004375	06-30-21
Kansas	NELAP	E-10350	01-31-22
Kentucky (UST)	State	162013	04-30-21
Kentucky (WW)	State	KY98043	12-31-21
Louisiana	NELAP	04041	06-30-21
Maine	State	PA00164	03-06-22
Minnesota	NELAP	042-999-482	12-31-20 *
Nevada	State	PA00164	07-31-21
New Hampshire	NELAP	2030	04-05-21
New Jersey	NELAP	PA005	06-30-21
New York	NELAP	11182	04-01-21
North Carolina (WW/SW)	State	434	12-31-21
North Dakota	State	R-227	04-30-21
Oregon	NELAP	PA-2151	02-06-22
Pennsylvania	NELAP	02-00416	04-30-21
Rhode Island	State	LAO00362	12-31-21
South Carolina	State	89014	04-30-21
Texas	NELAP	T104704528	03-31-21
US Fish & Wildlife	US Federal Programs	058448	07-31-21
USDA	Federal	P-Soil-01	06-26-22
USDA	US Federal Programs	P330-16-00211	06-26-22
Utah	NELAP	PA001462019-8	05-31-21
Virginia	NELAP	10043	09-14-21
West Virginia DEP	State	142	01-31-22
Wisconsin	State	998027800	08-31-21

4

5

6

0

9

10

11

12

1

 $<sup>^{\</sup>star} \ \text{Accreditation/Certification renewal pending - accreditation/certification considered valid}.$ 

Eurofins TestAmerica, Pittsburgh

# **Sample Summary**

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset
180-117154-1	BT-1.6	Water	02/10/21 09:56	02/12/21 08:45	
180-117154-2	BT-1.0	Water	02/10/21 10:37	02/12/21 08:45	
180-117154-3	BC-0.8	Water	02/10/21 11:07	02/12/21 08:45	
180-117154-4	BC-0.5.7	Water	02/10/21 11:56	02/12/21 08:45	
180-117154-5	BC-0.5.6	Water	02/10/21 12:10	02/12/21 08:45	
180-117154-6	BC-0.5.5	Water	02/10/21 12:34	02/12/21 08:45	
180-117154-7	BC-BR	Water	02/10/21 12:56	02/12/21 08:45	
180-117154-8	BC-0.3	Water	02/10/21 15:49	02/12/21 08:45	
180-117154-9	BC-0.1	Water	02/10/21 14:06	02/12/21 08:45	

Job ID: 180-117154-1

## **Method Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020B	Metals (ICP/MS)	SW846	TAL PIT
EPA 9040C	pH	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
SM2320 B	Alkalinity, Total	SM18	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT

#### **Protocol References:**

EPA = US Environmental Protection Agency

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

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

#### **Laboratory References:**

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

Job ID: 180-117154-1

## **Lab Chronicle**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BT-1.6 Lab Sample ID: 180-117154-1

Date Collected: 02/10/21 09:56 Date Received: 02/12/21 08:45

**Matrix: Water** 

Job ID: 180-117154-1

Prep Type Total/NA	Batch Type Analysis Instrumen	Batch Method EPA 300.0 R2.1 t ID: INTEGRION	Run	Factor 1	Initial Amount 1 mL	Final Amount 1.0 mL	Batch Number 346485	Prepared or Analyzed 02/13/21 16:27	Analyst SAT	Lab TAL PIT
Total Recoverable Total Recoverable	Prep Analysis Instrumen	3005A EPA 6020B t ID: A		1	50 mL	50 mL	346673 346915	02/16/21 10:18 02/17/21 20:39		TAL PIT TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:31	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 20:48	REI	TAL PIT

**Client Sample ID: BT-1.0** Lab Sample ID: 180-117154-2

Date Collected: 02/10/21 10:37 **Matrix: Water** Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 17:29	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 20:50	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:33	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 20:56	REI	TAL PI

Client Sample ID: BC-0.8 Lab Sample ID: 180-117154-3 Date Collected: 02/10/21 11:07 **Matrix: Water** 

Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 17:50	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 20:54	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:34	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 21:05	REI	TAL PIT

Eurofins TestAmerica, Pittsburgh

Page 8 of 29 2/19/2021

## **Lab Chronicle**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.5.7 Lab Sample ID: 180-117154-4

Date Collected: 02/10/21 11:56 **Matrix: Water** 

Date Received: 02/12/21 08:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1	1 mL	1.0 mL	346485	02/13/21 18:11		TAL PIT
Total Recoverable Total Recoverable	Prep Analysis Instrumen	3005A EPA 6020B t ID: A		1	50 mL	50 mL	346673 346915	02/16/21 10:18 02/17/21 20:57		TAL PIT TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:35	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 21:13	REI	TAL PIT

Client Sample ID: BC-0.5.6 Lab Sample ID: 180-117154-5

Date Collected: 02/10/21 12:10 **Matrix: Water** Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 18:32	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 21:01	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:36	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 21:22	REI	TAL PIT

Client Sample ID: BC-0.5.5 Lab Sample ID: 180-117154-6 Date Collected: 02/10/21 12:34 **Matrix: Water** 

Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 18:53	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 21:05	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:37	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346849	02/17/21 13:17	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 21:31	REI	TAL PIT

Eurofins TestAmerica, Pittsburgh

Page 9 of 29 2/19/2021

Job ID: 180-117154-1

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Instrument ID: PCTITRATOR

**Client Sample ID: BC-BR** Lab Sample ID: 180-117154-7 **Matrix: Water** 

Date Collected: 02/10/21 12:56 Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumer	EPA 300.0 R2.1 nt ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 19:14	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumer	EPA 6020B nt ID: A		1			346915	02/17/21 21:08	RSK	TAL PIT
Total/NA	Analysis Instrumer	EPA 9040C nt ID: NOEQUIP		1			346717	02/16/21 14:38	PMH	TAL PIT
Total/NA	Analysis Instrumer	SM 2540C nt ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis	SM2320 B		1			346651	02/13/21 21:39	REI	TAL PIT

Lab Sample ID: 180-117154-8 Client Sample ID: BC-0.3

Date Collected: 02/10/21 15:49 **Matrix: Water** Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 19:35	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 21:12	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:39	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 22:35	REI	TAL PIT

Client Sample ID: BC-0.1 Lab Sample ID: 180-117154-9 Date Collected: 02/10/21 14:06 **Matrix: Water** 

Date Received: 02/12/21 08:45

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis Instrumen	EPA 300.0 R2.1 t ID: INTEGRION		1	1 mL	1.0 mL	346485	02/13/21 20:37	SAT	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	346673	02/16/21 10:18	TJO	TAL PIT
Total Recoverable	Analysis Instrumen	EPA 6020B t ID: A		1			346915	02/17/21 21:15	RSK	TAL PIT
Total/NA	Analysis Instrumen	EPA 9040C t ID: NOEQUIP		1			346717	02/16/21 14:40	PMH	TAL PIT
Total/NA	Analysis Instrumen	SM 2540C t ID: NOEQUIP		1	100 mL	100 mL	346820	02/17/21 10:34	GRB	TAL PIT
Total/NA	Analysis Instrumen	SM2320 B t ID: PCTITRATOR		1			346651	02/13/21 22:52	REI	TAL PIT

Eurofins TestAmerica, Pittsburgh

Page 10 of 29

Job ID: 180-117154-1

### **Lab Chronicle**

Client: Southern Company

Job ID: 180-117154-1 Project/Site: CCR - Arkwright Surfacewater

### **Laboratory References:**

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

#### **Analyst References:**

Lab: TAL PIT

Batch Type: Prep

TJO = Tyler Oliver

Batch Type: Analysis

GRB = Gabriel Berghe

PMH = Paloma Hoelzle

REI = Rachel Innocenzi

RSK = Robert Kurtz

SAT = Stephen Tallam

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BT-1.6

Lab Sample ID: 180-117154-1 Date Collected: 02/10/21 09:56 **Matrix: Water** 

Date Received: 02/12/21 08:45

1	Method: EPA 300.0 R2.1 - Anio	ns, Ion Chr	omatograp	hy						
1	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
(	Chloride	6.3		1.0	0.71	mg/L			02/13/21 16:27	1
1	Fluoride	0.050	J	0.10	0.026	mg/L			02/13/21 16:27	1
Ŀ	Sulfate	3.2		1.0	0.76	mg/L			02/13/21 16:27	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 20:39	1
Calcium	7.6		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 20:39	1
Cobalt	0.00028	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 20:39	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 20:39	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 20:39	1
Sodium	5.3		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 20:39	1
Potassium	1.7		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 20:39	1
Magnesium	4.7		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 20:39	1

General Chemistry									
Analyte	Result (	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.1	HF	0.1	0.1	SU			02/16/21 14:31	1
Total Dissolved Solids	67		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	43		5.0	5.0	mg/L			02/13/21 20:48	1
Bicarbonate Alkalinity as CaCO3	43		5.0	5.0	mg/L			02/13/21 20:48	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Lab Sample ID: 180-117154-2 Client Sample ID: BT-1.0 Date Collected: 02/10/21 10:37

**Matrix: Water** 

Date Received: 02/12/21 08:45

Method: EPA 300.0 R	2.1 - Anions, Ion Chro	matography						
Analyte	Result C	Qualifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.8	1.0	0.71	mg/L			02/13/21 17:29	1
Fluoride	0.051 J	0.10	0.026	mg/L			02/13/21 17:29	1
Sulfate	41	1.0	0.76	mg/L			02/13/21 17:29	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.089		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 20:50	1
Calcium	12		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 20:50	1
Cobalt	0.0013	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 20:50	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 20:50	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 20:50	1
Sodium	6.9		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 20:50	1
Potassium	1.8		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 20:50	1
Magnesium	9.3		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 20:50	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	6.9	HF	0.1	0.1	SU			02/16/21 14:33	1
Total Dissolved Solids	120		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	42		5.0	5.0	mg/L			02/13/21 20:56	1
Bicarbonate Alkalinity as CaCO3	42		5.0	5.0	mg/L			02/13/21 20:56	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.8

Lab Sample ID: 180-117154-3 Date Collected: 02/10/21 11:07

**Matrix: Water** Date Received: 02/12/21 08:45

Analyte	Result C	Qualifier RI	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.0	1.0	0.71	mg/L			02/13/21 17:50	1
Fluoride	0.050 J	J 0.10	0.026	mg/L			02/13/21 17:50	1
Sulfate	32	1.0	0.76	mg/L			02/13/21 17:50	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.27		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 20:54	1
Calcium	15		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 20:54	1
Cobalt	0.0019	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 20:54	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 20:54	1
Molybdenum	< 0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 20:54	1
Sodium	9.3		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 20:54	1
Potassium	1.6		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 20:54	1
Magnesium	8.0		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 20:54	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.2	HF	0.1	0.1	SU			02/16/21 14:34	1
Total Dissolved Solids	130		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	43		5.0	5.0	mg/L			02/13/21 21:05	1
Bicarbonate Alkalinity as CaCO3	43		5.0	5.0	mg/L			02/13/21 21:05	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.5.7

Lab Sample ID: 180-117154-4

**Matrix: Water** 

Date Collected: 02/10/21 11:56 Date Received: 02/12/21 08:45

Method: EPA 300.0 R2.1	- Anions, Ion Chromatograp	ohy						
Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.5	1.0	0.71	mg/L			02/13/21 18:11	1
Fluoride	0.055 J	0.10	0.026	mg/L			02/13/21 18:11	1
Sulfate	6.4	1.0	0.76	mg/L			02/13/21 18:11	1
<del>_</del>								

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.047	J	0.080	0.039	mg/L		02/16/21 10:18	02/17/21 20:57	1
Calcium	8.4		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 20:57	1
Cobalt	0.00056	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 20:57	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 20:57	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 20:57	1
Sodium	8.2		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 20:57	1
Potassium	1.9		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 20:57	1
Magnesium	4.2		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 20:57	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.3	HF	0.1	0.1	SU			02/16/21 14:35	1
Total Dissolved Solids	85		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	44		5.0	5.0	mg/L			02/13/21 21:13	1
Bicarbonate Alkalinity as CaCO3	44		5.0	5.0	mg/L			02/13/21 21:13	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.5.6

Lab Sample ID: 180-117154-5 Date Collected: 02/10/21 12:10 Date Received: 02/12/21 08:45

**Matrix: Water** 

Method: EPA 300.0 R2.1 - A	Anions, Ion Chr	omatograp	hy						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.6		1.0	0.71	mg/L			02/13/21 18:32	1
Fluoride	0.055	J	0.10	0.026	mg/L			02/13/21 18:32	1
Sulfate	6.7		1.0	0.76	mg/L			02/13/21 18:32	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 21:01	1
Calcium	8.7		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 21:01	1
Cobalt	0.00057	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 21:01	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 21:01	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 21:01	1
Sodium	8.4		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 21:01	1
Potassium	1.9		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 21:01	1
Magnesium	4.3		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 21:01	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			02/16/21 14:36	1
Total Dissolved Solids	96		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	43		5.0	5.0	mg/L			02/13/21 21:22	1
Bicarbonate Alkalinity as CaCO3	43		5.0	5.0	mg/L			02/13/21 21:22	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.5.5

Lab Sample ID: 180-117154-6 Date Collected: 02/10/21 12:34

**Matrix: Water** 

Date Received: 02/12/21 08:45

Method: EPA 300.0 R	2.1 - Anions, Ion Chr	omatograph	าง						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.7		1.0	0.71	mg/L			02/13/21 18:53	1
Fluoride	0.062	J	0.10	0.026	mg/L			02/13/21 18:53	1
Sulfate	6.8		1.0	0.76	mg/L			02/13/21 18:53	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 21:05	1
Calcium	8.1		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 21:05	1
Cobalt	0.00050	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 21:05	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 21:05	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 21:05	1
Sodium	8.1		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 21:05	1
Potassium	1.8		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 21:05	1
Magnesium	4.2		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 21:05	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			02/16/21 14:37	1
Total Dissolved Solids	76		10	10	mg/L			02/17/21 13:17	1
Total Alkalinity as CaCO3 to pH 4.5	44		5.0	5.0	mg/L			02/13/21 21:31	1
Bicarbonate Alkalinity as CaCO3	44		5.0	5.0	mg/L			02/13/21 21:31	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

**Client Sample ID: BC-BR** 

Lab Sample ID: 180-117154-7 Date Collected: 02/10/21 12:56

**Matrix: Water** 

Date Received: 02/12/21 08:45

Method: EPA 300.0 R2.1 - Anic	ons, Ion Chrom	atography						
Analyte	Result Qua	alifier RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.6	1.0	0.71	mg/L			02/13/21 19:14	1
Fluoride	0.056 J	0.10	0.026	mg/L			02/13/21 19:14	1
Sulfate	6.7	1.0	0.76	mg/L			02/13/21 19:14	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 21:08	1
Calcium	9.0		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 21:08	1
Cobalt	0.00052	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 21:08	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 21:08	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 21:08	1
Sodium	8.6		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 21:08	1
Potassium	1.9		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 21:08	1
Magnesium	4.4		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 21:08	1

General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.4	HF	0.1	0.1	SU			02/16/21 14:38	1
Total Dissolved Solids	88		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	43		5.0	5.0	mg/L			02/13/21 21:39	1
Bicarbonate Alkalinity as CaCO3	43		5.0	5.0	mg/L			02/13/21 21:39	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

Client Sample ID: BC-0.3 Lab Sample ID: 180-117154-8 Date Collected: 02/10/21 15:49

**Matrix: Water** 

Date Received: 02/12/21 08:45

Analyte	Result Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.0	1.0	0.71	mg/L			02/13/21 19:35	1
Fluoride	0.051 J	0.10	0.026	mg/L			02/13/21 19:35	1
Sulfate	6.5	1.0	0.76	mg/L			02/13/21 19:35	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 21:12	1
Calcium	8.6		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 21:12	1
Cobalt	0.00050	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 21:12	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 21:12	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 21:12	1
Sodium	8.4		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 21:12	1
Potassium	1.9		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 21:12	1
Magnesium	4.3		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 21:12	1

General Chemistry Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analvzed	Dil Fac
pH	7.5		0.1		SU	— <u> </u>		02/16/21 14:39	1
Total Dissolved Solids	98		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	44		5.0	5.0	mg/L			02/13/21 22:35	1
Bicarbonate Alkalinity as CaCO3	44		5.0	5.0	mg/L			02/13/21 22:35	1

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

**Bicarbonate Alkalinity as CaCO3** 

Client Sample ID: BC-0.1 Lab Sample ID: 180-117154-9

Date Collected: 02/10/21 14:06 **Matrix: Water** Date Received: 02/12/21 08:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.7		1.0	0.71	mg/L			02/13/21 20:37	1
Fluoride	0.056	J	0.10	0.026	mg/L			02/13/21 20:37	1
Sulfate	6.9		1.0	0.76	mg/L			02/13/21 20:37	1
Method: EPA 6020B - Metals (IC	P/MS) - To	otal Recove	rable						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 21:15	1
Calcium	8.3		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 21:15	1
Cobalt	0.00057	J	0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 21:15	1
Lithium	< 0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 21:15	1
Molybdenum	<0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 21:15	1
Sodium	8.2		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 21:15	1
Potassium	1.9		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 21:15	1
Magnesium	4.2		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 21:15	1
General Chemistry									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.5	HF	0.1	0.1	SU			02/16/21 14:40	1
Total Dissolved Solids	92		10	10	mg/L			02/17/21 10:34	1
Total Alkalinity as CaCO3 to pH 4.5	43		5.0	5.0	mg/L			02/13/21 22:52	1

5.0

5.0 mg/L

43

02/13/21 22:52

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-117154-1

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

Lab Sample ID: MB 180-346485/6

**Matrix: Water** 

**Analysis Batch: 346485** 

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

MB MB

Analyte	Result Qualifier	RL	MDL Unit	D Prepared	Analyzed	Dil Fac
Chloride	<0.71	1.0	0.71 mg/L		02/13/21 07:55	1
Fluoride	<0.026	0.10	0.026 mg/L		02/13/21 07:55	1
Sulfate	<0.76	1.0	0.76 mg/L		02/13/21 07:55	1

Lab Sample ID: LCS 180-346485/5

**Matrix: Water** 

Analysis Batch: 346485

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

Spike LCS LCS %Rec. Result Qualifier Unit Limits Analyte Added D %Rec Chloride 50.0 90 - 110 51.4 mg/L 103 Fluoride 2.50 2.49 mg/L 100 90 - 110 Sulfate 50.0 mg/L 90 - 110 50.5 101

Lab Sample ID: 180-117154-1 MS

Client Sample ID: BT-1.6 **Matrix: Water** Prep Type: Total/NA Analysis Batch: 346485

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride	6.3		50.0	57.9		mg/L		103	90 - 110	
Fluoride	0.050	J	2.50	2.54		mg/L		99	90 - 110	
Sulfate	3.2		50.0	54.4		mg/L		102	90 - 110	

Lab Sample ID: 180-117154-1 MSD

**Matrix: Water** 

Analysis Batch: 346485	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	6.3		50.0	57.0		mg/L		102	90 - 110	1	20
Fluoride	0.050	J	2.50	2.50		mg/L		98	90 - 110	1	20
Sulfate	3.2		50.0	53.5		mg/L		101	90 - 110	2	20

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

Lab Sample ID: MB 180-346673/1-A

**Matrix: Water** 

Analysis Batch: 346915

**Client Sample ID: Method Blank Prep Type: Total Recoverable Prep Batch: 346673** 

Client Sample ID: BT-1.6

Prep Type: Total/NA

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.039		0.080	0.039	mg/L		02/16/21 10:18	02/17/21 19:52	1
Calcium	<0.13		0.50	0.13	mg/L		02/16/21 10:18	02/17/21 19:52	1
Cobalt	<0.00013		0.0025	0.00013	mg/L		02/16/21 10:18	02/17/21 19:52	1
Lithium	<0.0034		0.0050	0.0034	mg/L		02/16/21 10:18	02/17/21 19:52	1
Molybdenum	< 0.00061		0.015	0.00061	mg/L		02/16/21 10:18	02/17/21 19:52	1
Sodium	<0.35		0.50	0.35	mg/L		02/16/21 10:18	02/17/21 19:52	1
Potassium	<0.16		0.50	0.16	mg/L		02/16/21 10:18	02/17/21 19:52	1
Magnesium	<0.083		0.50	0.083	mg/L		02/16/21 10:18	02/17/21 19:52	1

Eurofins TestAmerica, Pittsburgh

Page 21 of 29

10

Client: Southern Company Job ID: 180-117154-1

Project/Site: CCR - Arkwright Surfacewater

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

Lab Sample ID: LCS 180-346673/2-A **Matrix: Water** 

Analysis Batch: 346915

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

**Prep Batch: 346673** 

•	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Boron	1.25	1.22		mg/L		98	80 - 120	
Calcium	25.0	26.8		mg/L		107	80 - 120	
Cobalt	0.500	0.487		mg/L		97	80 - 120	
Lithium	0.500	0.489		mg/L		98	80 - 120	
Molybdenum	0.500	0.512		mg/L		102	80 - 120	
Sodium	25.0	24.9		mg/L		100	80 - 120	
Potassium	25.0	25.2		mg/L		101	80 - 120	
Magnesium	25.0	26.2		mg/L		105	80 - 120	

Method: EPA 9040C - pH

Lab Sample ID: LCS 180-346717/1

**Matrix: Water** 

**Analysis Batch: 346717** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Spike LCS LCS %Rec. Added Analyte Result Qualifier D %Rec Limits Unit SU рΗ 7.00 7.0 100 99 - 101

Lab Sample ID: 180-117154-1 DU

**Matrix: Water** 

Analysis Ratch: 346717

Client Sample ID: BT-1.6 Prep Type: Total/NA

Allalysis Dalcii. 3407 17									
	Sample	Sample	DU	DU					RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D		RPD	Limit
pH	7.1	HF	7.1		SU		 	0.3	2

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

Lab Sample ID: MB 180-346820/2

**Matrix: Water** 

**Analysis Batch: 346820** 

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

MB MB Analyte RL MDL Unit Result Qualifier D Prepared Analyzed Dil Fac Total Dissolved Solids <10 10 10 mg/L 02/17/21 10:34

Lab Sample ID: LCS 180-346820/1

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

**Matrix: Water** 

Analysis Batch: 346820

	;	Spike	LCS	LCS				%Rec.
Analyte	А	dded	Result	Qualifier	Unit	D	%Rec	Limits
Total Dissolved Solids		457	420		mg/L	_	92	80 - 120

Lab Sample ID: MB 180-346849/2

**Matrix: Water** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA

Analysis Batch: 346849

MB MB

Result Qualifier RL MDL Unit Prepared Analyzed Total Dissolved Solids <10 10 10 mg/L 02/17/21 13:17

Eurofins TestAmerica, Pittsburgh

Page 22 of 29

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-117154-1

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

Lab Sample ID: LCS 180-346849/1

**Matrix: Water** 

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

10

Analysis Batch: 346849

Spike LCS LCS %Rec. Added Result Qualifier %Rec Limits Analyte Unit **Total Dissolved Solids** 457 438 mg/L 96 80 - 120

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-346651/52 **Client Sample ID: Method Blank** 

**Matrix: Water** 

Analysis Batch: 346651

Prep Type: Total/NA

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac 5.0 Total Alkalinity as CaCO3 to pH 4.5 <5.0 5.0 mg/L 02/13/21 18:48 Bicarbonate Alkalinity as CaCO3 <5.0 5.0 02/13/21 18:48 5.0 mg/L

Lab Sample ID: MB 180-346651/76 **Client Sample ID: Method Blank** Prep Type: Total/NA

**Matrix: Water** 

Analysis Batch: 346651

MB MB Result Qualifier RL **MDL** Unit Prepared Analyzed Dil Fac Total Alkalinity as CaCO3 to pH 4.5 <5.0 5.0 5.0 mg/L 02/13/21 22:26 Bicarbonate Alkalinity as CaCO3 <5.0 5.0 02/13/21 22:26 5.0 mg/L

Lab Sample ID: LCS 180-346651/51 **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

**Analysis Batch: 346651** 

LCS LCS Spike %Rec. Added Analyte Result Qualifier Limits Unit %Rec Total Alkalinity as CaCO3 to pH 250 268 mg/L 107 90 - 110

Lab Sample ID: LCS 180-346651/75

**Matrix: Water** 

**Analysis Batch: 346651** 

LCS LCS Spike %Rec. Added Result Qualifier Unit D %Rec Limits Total Alkalinity as CaCO3 to pH 250 257 mg/L 103 90 - 110

Lab Sample ID: 180-117154-8 DU Client Sample ID: BC-0.3

**Matrix: Water** 

4.5

Analysis Batch: 346651

Alialysis Dalcii. 34003 i								
-	Sample	Sample	DU	DU				RPD
Analyte	Result	Qualifier	Result	Qualifier	Unit	D	RPD	Limit
Total Alkalinity as CaCO3 to pH	44		45.1		mg/L		 3	20
4.5								
Bicarbonate Alkalinity as CaCO3	44		45.1		mg/L		3	20

Eurofins TestAmerica, Pittsburgh

2/19/2021

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Type: Total/NA

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

## HPLC/IC

### **Analysis Batch: 346485**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total/NA	Water	EPA 300.0 R2.1	
180-117154-2	BT-1.0	Total/NA	Water	EPA 300.0 R2.1	
180-117154-3	BC-0.8	Total/NA	Water	EPA 300.0 R2.1	
180-117154-4	BC-0.5.7	Total/NA	Water	EPA 300.0 R2.1	
180-117154-5	BC-0.5.6	Total/NA	Water	EPA 300.0 R2.1	
180-117154-6	BC-0.5.5	Total/NA	Water	EPA 300.0 R2.1	
180-117154-7	BC-BR	Total/NA	Water	EPA 300.0 R2.1	
180-117154-8	BC-0.3	Total/NA	Water	EPA 300.0 R2.1	
180-117154-9	BC-0.1	Total/NA	Water	EPA 300.0 R2.1	
MB 180-346485/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-346485/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-117154-1 MS	BT-1.6	Total/NA	Water	EPA 300.0 R2.1	
180-117154-1 MSD	BT-1.6	Total/NA	Water	EPA 300.0 R2.1	

### Metals

### **Prep Batch: 346673**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total Recoverable	Water	3005A	
180-117154-2	BT-1.0	Total Recoverable	Water	3005A	
180-117154-3	BC-0.8	Total Recoverable	Water	3005A	
180-117154-4	BC-0.5.7	Total Recoverable	Water	3005A	
180-117154-5	BC-0.5.6	Total Recoverable	Water	3005A	
180-117154-6	BC-0.5.5	Total Recoverable	Water	3005A	
180-117154-7	BC-BR	Total Recoverable	Water	3005A	
180-117154-8	BC-0.3	Total Recoverable	Water	3005A	
180-117154-9	BC-0.1	Total Recoverable	Water	3005A	
MB 180-346673/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-346673/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

### **Analysis Batch: 346915**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total Recoverable	Water	EPA 6020B	346673
180-117154-2	BT-1.0	Total Recoverable	Water	EPA 6020B	346673
180-117154-3	BC-0.8	Total Recoverable	Water	EPA 6020B	346673
180-117154-4	BC-0.5.7	Total Recoverable	Water	EPA 6020B	346673
180-117154-5	BC-0.5.6	Total Recoverable	Water	EPA 6020B	346673
180-117154-6	BC-0.5.5	Total Recoverable	Water	EPA 6020B	346673
180-117154-7	BC-BR	Total Recoverable	Water	EPA 6020B	346673
180-117154-8	BC-0.3	Total Recoverable	Water	EPA 6020B	346673
180-117154-9	BC-0.1	Total Recoverable	Water	EPA 6020B	346673
MB 180-346673/1-A	Method Blank	Total Recoverable	Water	EPA 6020B	346673
LCS 180-346673/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020B	346673

## **General Chemistry**

### **Analysis Batch: 346651**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total/NA	Water	SM2320 B	
180-117154-2	BT-1.0	Total/NA	Water	SM2320 B	
180-117154-3	BC-0.8	Total/NA	Water	SM2320 B	
180-117154-4	BC-0.5.7	Total/NA	Water	SM2320 B	

Eurofins TestAmerica, Pittsburgh

\_\_\_\_

Job ID: 180-117154-1

3

4

6

8

9

11

L

## **QC Association Summary**

Client: Southern Company

Project/Site: CCR - Arkwright Surfacewater

Job ID: 180-117154-1

## **General Chemistry (Continued)**

### **Analysis Batch: 346651 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-5	BC-0.5.6	Total/NA	Water	SM2320 B	
180-117154-6	BC-0.5.5	Total/NA	Water	SM2320 B	
180-117154-7	BC-BR	Total/NA	Water	SM2320 B	
180-117154-8	BC-0.3	Total/NA	Water	SM2320 B	
180-117154-9	BC-0.1	Total/NA	Water	SM2320 B	
MB 180-346651/52	Method Blank	Total/NA	Water	SM2320 B	
MB 180-346651/76	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-346651/51	Lab Control Sample	Total/NA	Water	SM2320 B	
LCS 180-346651/75	Lab Control Sample	Total/NA	Water	SM2320 B	
180-117154-8 DU	BC-0.3	Total/NA	Water	SM2320 B	

### **Analysis Batch: 346717**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total/NA	Water	EPA 9040C	
180-117154-2	BT-1.0	Total/NA	Water	EPA 9040C	
180-117154-3	BC-0.8	Total/NA	Water	EPA 9040C	
180-117154-4	BC-0.5.7	Total/NA	Water	EPA 9040C	
180-117154-5	BC-0.5.6	Total/NA	Water	EPA 9040C	
180-117154-6	BC-0.5.5	Total/NA	Water	EPA 9040C	
180-117154-7	BC-BR	Total/NA	Water	EPA 9040C	
180-117154-8	BC-0.3	Total/NA	Water	EPA 9040C	
180-117154-9	BC-0.1	Total/NA	Water	EPA 9040C	
LCS 180-346717/1	Lab Control Sample	Total/NA	Water	EPA 9040C	
180-117154-1 DU	BT-1.6	Total/NA	Water	EPA 9040C	

### **Analysis Batch: 346820**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-1	BT-1.6	Total/NA	Water	SM 2540C	
180-117154-2	BT-1.0	Total/NA	Water	SM 2540C	
180-117154-3	BC-0.8	Total/NA	Water	SM 2540C	
180-117154-4	BC-0.5.7	Total/NA	Water	SM 2540C	
180-117154-5	BC-0.5.6	Total/NA	Water	SM 2540C	
180-117154-7	BC-BR	Total/NA	Water	SM 2540C	
180-117154-8	BC-0.3	Total/NA	Water	SM 2540C	
180-117154-9	BC-0.1	Total/NA	Water	SM 2540C	
MB 180-346820/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-346820/1	Lab Control Sample	Total/NA	Water	SM 2540C	

### Analysis Batch: 346849

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-117154-6	BC-0.5.5	Total/NA	Water	SM 2540C	
MB 180-346849/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-346849/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Eurofins TestAmerica, Pittsburgh









Environmen\* TestA-





Part # 159469-434 RIT2 EXP 11/21 ...

200

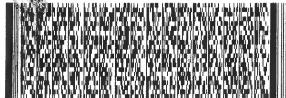
RT97

ORIGIN ID:LIYA (678) 966-9991
GEORGE TAYLOR
EUROFINS TESTING AMERICA ATL SC
6215 REGENCY PARKWAY NW
SUITE 900
NORCROSS, GA 30071
UNITED STATES US

DATE: 11FEB21 ...(WGT: 65.40 LB CAD: 859116/CAFE3406

BILL RECIPIENT

SAMPLE RECIEVING **EUROFINS TESTAMERICA PITTSBURGH** 301 ALPHA DR. RIDC PARK PITTSBURGH PA 15238



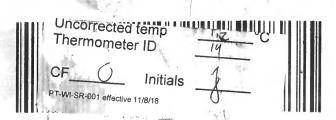


1 of 3 TRK# 1516 9328 1073

FRI - 12 FEB 4:30P STANDARD OVERNIGHT

NA AGCA

15238 PIT PA-US



Client: Southern Company

Job Number: 180-117154-1

Login Number: 117154 List Source: Eurofins TestAmerica, Pittsburgh

List Number: 1

Creator: Watson, Debbie

order reacon, boxer		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	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.	False	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	