



**REPORT**

# Annual Groundwater Monitoring & Corrective Action Report

*Plant Scherer Ash Pond 1 (AP-1)*

Submitted to:

**Georgia Power Company**

3895 McGill Boulevard

Submitted by:

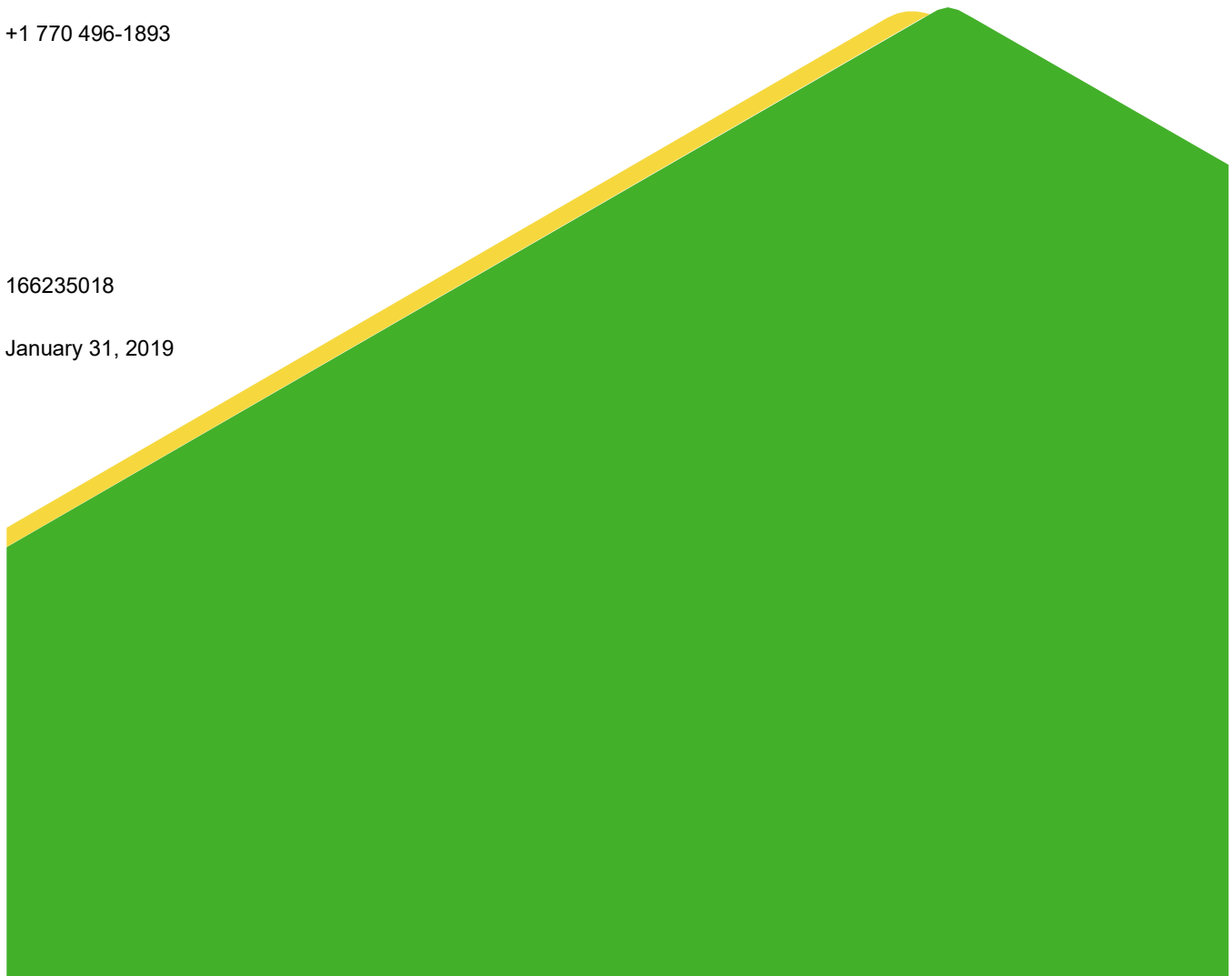
**Golder Associates Inc.**

5170 Peachtree Road Building 100 Suite 300, Atlanta, Georgia, USA 30341

+1 770 496-1893

166235018

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## Distribution List

Buddy Edmond - Plant Scherer

Tyler J. Boyles - Georgia Power Company

Joju Abraham, PG - Southern Company Services

Justin Wong - Georgia Power Company



# Table of Contents

<b>1.0</b>	<b>INTRODUCTION .....</b>	<b>2</b>
1.1	Site Description and Background .....	2
1.2	Regional Geology and Hydrogeologic Setting .....	2
1.3	Groundwater Monitoring Well Network .....	3
<b>2.0</b>	<b>GROUNDWATER MONITORING ACTIVITIES .....</b>	<b>3</b>
2.1	Monitoring Well Installation and Maintenance .....	3
2.2	Assessment Monitoring .....	4
2.3	Additional Piezometer Installation & Sampling .....	4
<b>3.0</b>	<b>SAMPLE METHODOLOGY &amp; ANALYSIS .....</b>	<b>4</b>
3.1	Groundwater Level Measurement .....	4
3.2	Groundwater Gradient and Flow Velocity .....	4
3.3	Groundwater Sampling .....	5
3.4	Laboratory Analyses .....	6
3.5	Quality Assurance and Quality Control .....	6
<b>4.0</b>	<b>STATISTICAL ANALYSES .....</b>	<b>6</b>
4.1	Statistical Methodology .....	6
4.1.1	Appendix III Constituents .....	6
4.1.2	Assessment Monitoring Statistics .....	7
4.2	Statistical Analysis Results .....	8
4.2.1	First Semi-Annual Assessment Monitoring Event (June 2018) .....	9
4.2.2	Second Semi-Annual Assessment Monitoring Event .....	9
<b>5.0</b>	<b>ALTERNATE SOURCE DEMONSTRATIONS .....</b>	<b>9</b>
<b>6.0</b>	<b>MONITORING PROGRAM STATUS .....</b>	<b>10</b>
<b>7.0</b>	<b>CONCLUSIONS AND FUTURE ACTIONS .....</b>	<b>10</b>
<b>8.0</b>	<b>REFERENCES .....</b>	<b>10</b>

## TABLES

Table 1	Monitoring Well Network Summary
Table 2	Groundwater Sampling Event Summary for 2018
Table 3	Summary of Groundwater Elevations
Table 4	Groundwater Flow Velocity Calculations - 2018
Table 5A	Summary of Groundwater Analytical Data (March 2018)
Table 5B	Summary of Groundwater Analytical Data (June 2018)
Table 5C	Summary of Groundwater Analytical Data (October 2018)

**No table of figures entries found.**

## FIGURES

Figure 1	Site Location Map
Figure 2	Site Plan and Monitoring Well Location Map
Figure 3A	Potentiometric Surface Elevation Contour Map – June 2018
Figure 3B	Potentiometric Surface Elevation Contour Map – October 2018

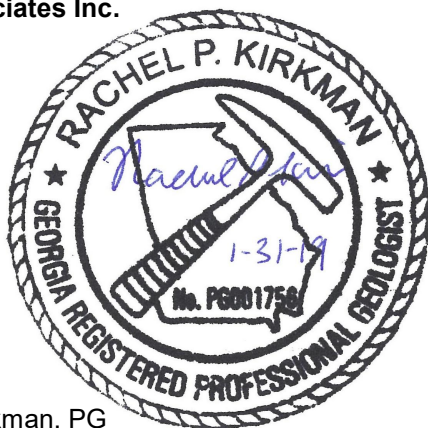
## APPENDICES

Appendix A	Laboratory Analytical & Field Sampling Results
Appendix B	Statistical Analyses
Appendix C	Appendix IV ASD

## Certification

This 2018 Annual Groundwater Monitoring & Corrective Action Report, Georgia Power Company Plant Scherer-Ash Pond (AP-1) has been prepared in accordance with the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule (40 Code of Federal Regulations [CFR] 257 Subpart D; published in 80 FR 21302-21501, April 17, 2015) and the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10 under the direction of a licensed professional engineer as well as a licensed professional geologist with Golder Associates Inc.

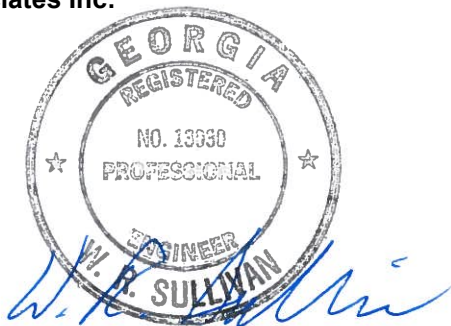
**Golder Associates Inc.**



Rachel P. Kirkman, PG  
Georgia Registered Professional Geologist No. 1756

I hereby certify that this 2018 Annual Groundwater Monitoring & Corrective Action Report, Georgia Power Company Plant Scherer-Ash Pond (AP-1) located at 10986 Georgia 87, Juliette, Georgia 31046, has been prepared to meet the requirements of 40 CFR §257.90(e).

**Golder Associates Inc.**



W. Randall Sullivan, PE  
Georgia Registered Professional Engineer No. 13030

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## 1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (USEPA) Coal Combustion Residuals (CCR) rule (40 Code of Federal Regulations [CFR] 257 Subpart D and the Georgia Environmental Protection Division (EPD) Rules for Solid Waste Management 391-3-4-.10, Golder Associates Inc. has prepared this *2018 Annual Groundwater Monitoring and Corrective Action Report* to document groundwater monitoring activities conducted at the Georgia Power Company (Georgia Power)'s Plant Scherer Ash Pond (AP-1). Semi-annual monitoring and reporting for Plant Scherer is performed in accordance with the monitoring requirements of 40 CFR §257.90 through §257.95 of the Federal CCR rule, and Georgia EPD Rules for Solid Waste Management 391-3-4-.10(6)(a).

### 1.1 Site Description and Background

Plant Scherer is a four-unit, coal-fired power generation facility located in northeast Monroe County, GA, and is operated by Georgia Power. The Plant is situated approximately 5 miles south of Juliette, GA and is surrounded primarily by agricultural and residential land use. The property occupies approximately 12,000 acres and is bounded on the south by Lake Juliette. Figure 1, Site Location Map, depicts the location of Plant Scherer relative to the surrounding area.

CCR resulting from power generation has historically been transferred and stored at ash pond AP-1. AP-1 has been in operation since the plant became commercially operational in 1982. Figure 2, Site Plan and Monitoring Well Location Map depicts the general configuration of AP-1 and site monitoring wells.

The site is located within the Piedmont Physiographic Province of central Georgia, which is characterized by gently rolling hills and narrow valleys, with locally pronounced linear ridges. Overall, the property slopes gently south toward Lake Juliette and east toward the Ocmulgee River (Figure 1). The ash pond is located on a topographically high area, with several relatively small, intermittent and perennial creeks and streams surrounding the pond. Several isolated hilltops occur west of the pond and represent topographic high points on the site. Topographic relief across the site is greater than 200 feet, with a natural topographic high of over 570 feet above mean sea level (ft msl) occurring along the ridge west of the ash pond, and a topographic low of less than 380 ft msl in the eastern portion of the site near Berry Creek.

### 1.2 Regional Geology and Hydrogeologic Setting

The following section and subsections include a general description of regional geologic and hydrogeologic characteristics of formations that occur beneath the site. Information presented in this section is based on published literature, discussion with local geologic experts, and experience working in this geologic terrain.

The metamorphic and igneous rocks that underlie the area have been subjected to physical and chemical weathering which has created a landscape dissected by creeks and streams forming a dendritic drainage pattern. These rocks are deeply weathered due to the humid climate and bedrock is typically overlain by a variably thick blanket of residual soils and saprolite. The overall depth of weathering in the Piedmont is generally about 20 to 60 feet; however, the depth of weathering along discontinuities and/or very feldspathic rock units may extend to depths greater than 100 feet. Because of such variations in rock types and structure, the depth of weathering can vary significantly over short horizontal distances.

The near surface conditions were determined based upon available boring and monitoring well installation logs. Based on our review of this information, residual soils, consisting of primarily sandy silt, silty sand, sandy clay and

silty clay, occur as a variably-thick blanket overlying bedrock across most of the site. The thickness of the residual soil encountered in the borings is variable, ranging from approximately 17 feet to 168 feet, with an average residual soil thickness of about 57 feet. Saprolitic soils and/or saprolitic rock vary in thickness across the site but were generally encountered at or near ground surface; saprolitic rock is considered to be partially weathered rock (PWR) as defined by blow counts, where available. Material overlying the top of rock surface, including residual soils, saprolite, and transitionally weathered rock, is collectively referred to as overburden or regolith.

### 1.3 Groundwater Monitoring Well Network

Pursuant to §257.91, a groundwater monitoring system was installed within the uppermost aquifer at AP-1. The monitoring system is installed to monitor groundwater passing the waste boundary of AP-1 within the uppermost aquifer. Wells are located to serve as upgradient and downgradient wells based on groundwater flow direction as determined by the potentiometric surface elevation contour maps. The monitoring well network was certified by a Professional Engineer in Georgia on October 17, 2017, and the certification is maintained in the Operating Record pursuant to §257.90(f)(6).

The certified monitoring well network for AP-1 consists of 25 monitoring wells. Table 1A, Monitoring Well Network Summary includes the pertinent construction details for the AP-1 monitoring well network at Plant Scherer. Additionally, a series of groundwater piezometers have been installed for gauging groundwater elevations. Table 1B, Piezometer Network Summary includes pertinent construction details for the AP-1 piezometer network at Plant Scherer.

## 2.0 GROUNDWATER MONITORING ACTIVITIES

In accordance with 40 CFR §257.90(e), the following describes monitoring-related activities performed during the preceding year and discusses any change in status of the monitoring program. Groundwater sampling was performed in accordance with 40 CFR §257.93. Samples were collected from each well in the certified monitoring system. The location of each of these monitoring wells is shown on Figure 2.

Table 2, Groundwater Sampling Event Summary, presents a summary of groundwater sampling events completed for AP-1. Groundwater sampling events were conducted for AP-1 during March 2018, June 2018 and October/December 2018. During the March 2018 sampling event, groundwater samples were collected and analyzed for Appendix IV to meet the requirement of §257.95(b). During each of the June and October/December 2018 semi-annual sampling events, groundwater samples were collected for both Appendix III and the Appendix IV constituents detected during the March 2018 event at each detection monitoring well. Results of sampling activities conducted in 2018 are presented in Appendix A, Analytical Results and Field Sampling Forms.

### 2.1 Monitoring Well Installation and Maintenance

There was no change to the certified groundwater monitoring system in 2018; the network remained the same as in the 2017 (previous) reporting year. Monitoring well-related activities were limited to visual inspection of well conditions prior to sampling, recording the site conditions, and performing exterior maintenance to provide safe access for sampling.

In August and September, seven additional piezometers (PZ-36S, PZ-39S, PZ-40I, PZ-41S, PZ-42I, PZ-43S, and PZ-44I) were installed to help further characterize site hydrogeologic conditions. The additional site piezometers and pertinent construction details is presented on Table 1B.

## 2.2 Assessment Monitoring

Pursuant to §257.94(e)(3), an assessment monitoring program has been established for AP-1 at Plant Scherer based on statistically significant increases documented in the *2017 Annual Groundwater Monitoring and Corrective Action Report*, (Golder 2018). A notice of assessment monitoring was placed in the operation record on May 15, 2018.

As per the requirements of §257.95, sampling, analyses and statistical evaluation of Appendix IV constituents was completed during 2018. Results of the assessment monitoring are discussed in section 4.0 and presented in Appendix A.

## 2.3 Additional Piezometer Installation & Sampling

To further characterize site conditions, additional site piezometers were installed in August and September 2018. Each of these additional site piezometers (PZ-36S, PZ-39S, PZ-40I, PZ-41S, PZ-42I, PZ-43S, PZ-44I) were sampled for Appendix III and Appendix IV constituents to further characterize groundwater conditions at the site. Additionally, select wells (SGWC-11, SGWC-15, SGWC-18 and SGWC-20) were sampled for primary cations and anions to aid in geochemical fingerprinting of the site groundwater. Results of these analyses are provided in Appendix A.

## 3.0 SAMPLE METHODOLOGY & ANALYSIS

The following sections discuss procedures used to complete each of the sampling events conducted during 2018 in connection with the assessment monitoring program.

### 3.1 Groundwater Level Measurement

Prior to each sampling event, groundwater elevations were recorded from the monitoring wells and piezometers. Groundwater elevations are summarized in Table 3, Summary of Groundwater Elevations. The June 2018 and October/December 2018 elevation data were used to develop potentiometric surface elevation contour maps (Figure 3A, Ash Pond Potentiometric Surface Elevation Contour Map – June 2018, and Figure 3B, AP-1 Potentiometric Surface Elevation Contour Map – October 2018). The general direction of groundwater flow across AP-1 is east/southeast. This groundwater flow patterns are consistent with historical observations.

### 3.2 Groundwater Gradient and Flow Velocity

Groundwater flow rates at the site were calculated based on hydraulic gradients, hydraulic conductivity from previous slug test results, and an estimated effective porosity of the screened horizon. Based on slug test data at the site, hydraulic conductivity ranges from approximately 0.06 to 1.28 feet per day (22.2 to 469 feet per year), which are used in the flow calculations. The hydraulic gradient was calculated between well pairs shown on Table 4, Groundwater Flow Velocity Calculations – 2018. An effective porosity of 0.20 was used based on the default values for effective porosity recommended by USEPA for a silty sand-type soil (U.S. USEPA, 1996).

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

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

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

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

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

$n_e$  = Effective porosity

Using this equation, groundwater flow velocities are calculated for various areas of the site and are tabulated on Table 4. Table 4 presents the velocities calculated using groundwater elevation data from each of the June and October 2018 sampling events.

As presented on Table 4 groundwater flow velocity at the site ranges from approximately 0.01 feet/day to 1.3 feet/day (or approximately 3.7 to 470 feet/year) across AP-1. These calculated groundwater flow velocities across the site are consistent with historical calculations. The observed groundwater flow velocities calculated for this monitoring event are also consistent with expected velocities in the regolith-upper bedrock aquifers of Georgia Piedmont and confirm the groundwater monitoring system as properly located to monitor the uppermost aquifer for AP-1 at Plant Scherer. However, these calculated velocities are best estimates based on field data and default data for soils, and therefore, these velocities should not be taken as absolute values, but rather as estimated values that may vary with future data collected at the site.

### 3.3 Groundwater Sampling

Groundwater samples were collected in accordance with §257.93(a) from monitoring wells and select piezometers described in Section 2.3. Monitoring wells were purged and sampled using low-flow sampling procedures. Non-dedicated, low-flow pneumatic bladder pumps were used to purge and sample the wells. During the purging of each well, field measurements of temperature, specific conductance, dissolved oxygen (DO), pH, oxidation-reduction potential (ORP), and turbidity were recorded using a SmarTroll® (In-Situ® field instrument) along with a separate turbidity meter to verify stabilization. Groundwater samples were collected when the following general stabilization criteria were met:

- 0.1 standard units for pH
- 5% for specific conductance
- 0.2 milligrams per liter (mg/L) or 10% for DO > 0.5 mg/L (whichever is greater)
- Turbidity measurements less than 10 Nephelometric Turbidity Units (NTU)

Any deviation from stabilization criteria, if applicable, is identified on field sampling forms. Following well stabilization, unfiltered samples were collected directly into appropriately preserved laboratory supplied sample containers, placed in iced coolers, and submitted to the laboratory following standard chain-of-custody protocol. Field information forms generated directly from the SmarTroll as well as chain-of-custody records are included in Appendix A.

Where sample turbidity was greater than 5 NTU and all other stabilization criteria were met, samplers continued purging in order to reduce the turbidity to 5 NTU or less. When turbidity remained above 5 NTU but was less than 10 NTU, and all other parameters are stabilized, the well was sampled. Where turbidity remained above 10 NTU, an unfiltered sample was collected followed by a filtered sample that has passed through an in-line 0.45-micron filter attached to the discharge (sample collection) tube. The unfiltered sample data are used for compliance monitoring and in the statistical analysis database. Filtered sample data are used to assess the impacts of turbidity on groundwater quality. Details regarding additional filtered samples is recorded on the field information form.



### 3.4 Laboratory Analyses

AP-1 monitoring wells were sampled and analyzed for Appendix IV monitoring parameters pursuant to 40 CFR §257.95(b). Groundwater samples collected during subsequent semi-annual events in June, October and December 2018 were analyzed for Appendix III and those Appendix IV parameters detected above the laboratory method detection limit (MDL) during the March 2018 event in accordance with 40 CFR §257.95(d). Parameters not detected above the laboratory MDL included: antimony, cadmium and molybdenum. Analytical methods used for groundwater monitoring parameters are provided in laboratory reports in Appendix A.

Laboratory analyses Test America, Inc. (TAL), which is accredited by National Environmental Laboratory Accreditation Program (NELAP) and maintain a NELAP certification for all parameters analyzed for this project. In addition, TAL laboratories are certified by the State of Georgia to perform analyses. Groundwater data and chain of custody records for the monitoring events are presented in Appendix A.

### 3.5 Quality Assurance and Quality Control

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

Groundwater quality data were validated based on the pertinent methods referenced in the laboratory reports and professional and technical judgment. Where necessary, the data were qualified with supporting documentation and justifications.

## 4.0 STATISTICAL ANALYSES

Statistical analysis of Appendix III and IV groundwater monitoring data was performed on samples collected from the certified groundwater monitoring network pursuant to 40 CFR §257.93 and following the appropriate certified statistical methodology. The statistical method used for AP-1 was developed in accordance with 40 CFR §257.93(f) using methodology presented in Statistical Analysis of Groundwater Data at RCRA Facilities, Unified Guidance, March 2009, EPA 530/R-09-007 (USEPA, 2009).

### 4.1 Statistical Methodology

The Sanitas™ groundwater statistical software was used to perform the statistical analyses. Sanitas™ is a decision support software package that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations. Although assessment monitoring has been implemented, statistical evaluation of Appendix III constituents is performed to determine if constituents have returned to background conditions. Statistical analyses of appendix IV constituents have been performed to determine whether there are exceedances of established groundwater protection standards.

#### 4.1.1 Appendix III Constituents

Groundwater quality data was evaluated through use of interwell prediction limits for Appendix III parameters. Using this method, upgradient well data were pooled to establish a background statistical limit. Data are compared to the statistical limit to determine whether any concentrations exceed background levels. The selected statistical method uses a 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. If no resample is collected, the initial exceedance is considered to be confirmed.



The following table provides a summary of the statistical methodology used at AP-1 for routine detection groundwater monitoring.

PLANT SCHERER AP-1 STATISTICAL METHOD SUMMARY		
Monitoring Well Network	Upgradient Wells	SGWA-1, SGWA-2, SGWA-3, SGWA-4, SGWA-5, SGWA-24, SGWA-25
	Downgradient Wells	SGWC-6, SGWC-7, SGWC-8, SGWC-9, SGWC-10, SGWC-11, SGWC-12, SGWC-13, SGWC-14, SGWC-15, SGWC-16, SGWC-17, SGWC-18, SGWC-19, SGWC-20, SGWC-21, SGWC-22, SGWC-23
CCR Monitoring Parameters	Appendix III (Detection Monitoring)	Boron, Calcium, Chloride, Fluoride, pH, Sulfate, and TDS
	Appendix IV (Assessment Monitoring)	Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, combined Radium 226 + 228, Fluoride, Lead, Lithium, Mercury, Molybdenum, Selenium, and Thallium
Statistical Methodology	Data Screening on Proposed Background	Evaluate outliers, trends, and seasonality when sufficient data are available
	Statistical Limits	Interwell statistical limits will be applied on a constituent basis, depending on the appropriateness of the method as determined by the Analysis of Variance

#### 4.1.2 Assessment Monitoring Statistics

Parametric tolerance limits were used to calculate background limits from pooled upgradient well data for Appendix IV parameters with a target of 95% confidence and 95% coverage. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples. The background limits were then used when determining the groundwater protection standard (GWPS) 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, background concentration for the constituent established in accordance with § 257.91; or a rule-identified GWPS specified for cobalt, lead, lithium, or molybdenum; or
- Background levels for constituents where the background level is higher than the MCL or rule-identified GWPS.

USEPA revised the Federal CCR Rule on July 30, 2018, updating providing GWPS for cobalt, lead, lithium, and molybdenum as described above in 40 CFR 257.95(h)(2). Presently those updated GWPS have not yet been incorporated in the current Georgia EPD Rules for Solid Waste Management 391-3-4-.10(6)(a); therefore, background concentrations are considered when determining the GWPS for constituents where an MCL has not been established (or where background is higher than the MCL). Under the existing EPD rules, the GWPS is:

- The MCL.
- Where an MCL has not been established, the background concentration.
- Background levels for constituents where the background level is higher than the MCL.

Following the above federal and state rule requirements, GWPS have been established for statistical comparison of Appendix IV constituents. The Summary of Background Levels and GWPS table presented below, summarizes the background limit established at each monitoring well and the GWPS established under State and Federal rules.

To complete the statistical comparison to GWPS, confidence intervals were constructed for each of the Appendix IV parameters in each downgradient well. Those confidence intervals were compared to the GWPS established under the State and Federal rules. Only when the entire confidence interval is above a GWPS is the well/constituent pair considered to exceed its respective standard. If there is an exceedance of the established standard, a statistically significant level (SSL) exceedance is identified.

Summary of Background Levels and GWPS				
Analyte	Units	Background June/October	Federal-Derived GWPS	State-Derived GWPS
Antimony	mg/L	0.0021	0.006	0.006
Arsenic	mg/L	0.0025/0.0015	0.01	0.01
Barium	mg/L	0.06308/0.06407	2	2
Beryllium	mg/L	0.0015/0.0002	0.004	0.004
Cadmium	mg/L	0.00125/0.0011	0.005	0.005
Chromium	mg/L	0.0142/0.016	0.1	0.1
Cobalt	mg/L	0.02	0.02	0.02
Fluoride	mg/L	0.15/0.108	4	4
Lead	mg/L	0.0025/0.000175	0.015	0.0025/0.000175
Lithium	mg/L	0.0125/0.00235	0.04	0.0125/0.00235
Mercury	mg/L	0.00025/0.00012	0.002	0.002
Molybdenum	mg/L	0.0075/0.00278	0.1	0.0075/0.00278
Radium (226 + 228)	pCi/L	1.2	5	5
Selenium	mg/L	0.005/0.00041	0.05	0.05
Thallium	mg/L	0.0005/0.0001	0.002	0.002

Notes:

- 1) Mg/L = milligrams per liter; pCi/L = picocuries per liter; NA = Not Available
- 2) Where 2 numbers are present, they denote the different background levels and background-derived GWPS for each of the 2 semi-annual monitoring events in the order that they were determined.

## 4.2 Statistical Analysis Results

Analytical data from the 2018 semi-annual monitoring events in June and October/December 2018 were statistically analyzed in accordance with the certified *Statistical Analysis Plan*. Appendix III statistical analysis was performed to determine if constituents have returned to background levels. Appendix IV assessment monitoring parameters were evaluated to determine if concentrations statistically exceeded the established groundwater protection standard.

Based on review of the Appendix III statistical analysis presented in Appendix B, Appendix III constituents have not returned to background levels and assessment monitoring should continue pursuant to 40 CFR 257.95(f).

#### 4.2.1 First Semi-Annual Assessment Monitoring Event (June 2018)

Analytical data from the June 2018 monitoring event at AP-1 have been statistically analyzed in accordance with the site's certified statistical analysis method. Review of the Sanitas™ results indicates that using the GWPS established according to both 40 CFR §257.95(h) and 391-3-4-.10(6)(a), the following SSLs were identified following the June 2018 monitoring event:

AP-1 Confidence Interval Statistically Significant Level Exceedances	
Appendix IV Parameter	AP-1 Monitoring Well
Cobalt	SGWC-11, SGWC-15, SGWC-18, SGWC-20

#### 4.2.2 Second Semi-Annual Assessment Monitoring Event

Analytical data from the October/December 2018 monitoring event at AP-1 has been statistically analyzed in accordance with the site's certified statistical analysis method. Review of the Sanitas™ results indicates that the following verified SSIs were identified following the October/December 2018 monitoring event:

AP-1 Confidence Interval Statistically Significant Level Exceedances	
Appendix IV Parameter	AP-1 Monitoring Well
Cobalt	SGWC-10, SGWC-11, SGWC-15, SGWC-18, SGWC-20

## 5.0 ALTERNATE SOURCE DEMONSTRATIONS

In accordance with 40 CFR §257.95, an alternate source demonstration (ASD) was prepared for cobalt at AP-1. The ASD was completed by January 13, 2019 and is included in Appendix C, Alternate Source Demonstration.

In summary, there are multiple lines of evidence that support the conclusion that the SSLs of cobalt present in compliance monitoring wells are not the result of impact by AP-1, but rather are from an alternate source. The following lines of evidence support an ASD for concentrations of cobalt in groundwater downgradient of AP-1 are:

- The absence of cobalt in porewater samples collected from AP-1.
- Naturally occurring cobalt present in soils/sediment, saprolite, and bedrock at Plant Scherer.
- Data suggest natural dissolution of cobalt into groundwater.
- Published sources of naturally-occurring cobalt in groundwater.

Review of groundwater quality data since monitoring began at AP-1 in 2016, demonstrate a spatial variability in cobalt concentrations across the site including upgradient of the AP-1. Cobalt is present in groundwater above the laboratory method detection limit in groundwater monitoring wells located both upgradient and downgradient of AP-1. Based on the information presented in the ASD, it is likely that the cobalt identified in the groundwater is derived from the naturally occurring cobalt present in the aquifer solids and is not originating from AP-1. In summary, where pH is observed to be relatively low in site groundwater, cobalt concentrations are elevated.

Naturally occurring cobalt in the geologic media is dissolved into groundwater as a result of the sporadically low pH.

## 6.0 MONITORING PROGRAM STATUS

In accordance with 40 CFR §257.94(e), an assessment monitoring program was implemented in January 2018. SSIs of Appendix III and SSLs of Appendix IV parameters were identified at AP-1 during sampling events conducted in 2018. In accordance with 40 CFR §257.95(g)(3), an ASD was prepared for the cobalt SSL exceedances.

## 7.0 CONCLUSIONS AND FUTURE ACTIONS

This *2018 Annual Groundwater Monitoring and Corrective Action Report*, Georgia Power Plant Scherer Ash Pond (AP-1) has been prepared to fulfill the requirements of USEPA CCR rule 40 CFR 257 Subpart D.

Statistical evaluations of the groundwater monitoring data for AP-1 identified SSIs of Appendix III groundwater monitoring parameters above background and SSLs of Appendix IV groundwater monitoring parameters above site specific background. In accordance with 40 CFR §257.95(g)(3), an ASD was prepared for cobalt, and the site will remain in assessment monitoring.

Annual monitoring for Appendix IV constituents will be conducted in February 2019 while the first 2019 semi-annual detection monitoring event is planned for April 2019.

## 8.0 REFERENCES

EPRI, Technical Report, *Groundwater Monitoring Guidance for the Coal Combustion Residuals Rule*, 2015.

LeGrand, H.E., *A master conceptual model for hydrogeological site characterization in the Piedmont and Mountain region of North Carolina*. North Carolina Division of Water Quality, Groundwater Section Report, 55 p., 2004.

MacStat Consulting Ltd., *Statistical Analysis Plan, Georgia Power Company Plant Scherer Ash Pond, September 2017*.

Sanitas™: Groundwater Statistical Software, Sanitas™ Technologies, Shawnee, KS, 2007. [www.sanitastech.com](http://www.sanitastech.com), 2014.

Southern Company Services, *Plant Scherer Proposed Coal Combustion By-Products Storage Facility Site Acceptability Report*, 2007.

State Waste Management Board, *State Solid Waste Management Regulations – (9VAC20 81 et seq.)*, January 2016.

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

USEPA. *RCRA Groundwater Monitoring Technical Enforcement Guidance Document*, 1986

USEPA. *Soil Guidance Manual*, 1996.

USEPA. *Environmental Investigations Standard Operating Procedures and Quality Assurance Manual*. November 2001.

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

USEPA. *Data Validation Standard Operating Procedures*. Science and Ecosystem Support Division. Revision IV. Athens, GA, September 2011.

USEPA. Federal Register. Volume 80. No. 74. Friday April 17, 2015. Part II. Environmental Protection Agency. 40 CFR Parts 257 and 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, 2015.

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

## Tables & Figures

**TABLE 1A.**  
**MONITORING WELL NETWORK SUMMARY**  
**S Georgia Power - Plant Scherer**  
**Juliette, GA**

Well ID	Former Designation(s)	Hydraulic Location	Geologic Unit Screened	Latitude	Longitude	Top of Casing Elevation (feet msl)	Ground Surface Elevation (feet msl)	Total Depth (feet bgs)	Top of Screen Elevation (feet msl)	Bottom of Screen Elevation (feet msl)	Screen Length (feet)	Date of Installation
<b>AP-1 DETECTION MONITORING WELL NETWORK</b>												
SGWA-1	APA-1/PZ-8S	Upgradient	Saprolite	33.07657	-83.82937	546.81	543.97	50.2	503.8	493.8	10.0	2/11/2015
SGWA-2	APA-11/PZ-8I	Upgradient	Bedrock	33.07658	-83.82935	546.81	543.79	51.1	502.7	492.7	10.0	2/17/2015
SGWA-3	APA-2	Upgradient	Saprolite	33.07930	-83.83133	545.65	542.47	60.5	492.0	482.0	10.0	11/18/2015
SGWA-4	APA-3	Upgradient	Saprolite	33.08273	-83.82535	547.27	544.25	60.5	493.8	483.8	10.0	11/17/2015
SGWA-5	APA-4	Upgradient	Saprolite	33.07344	-83.83746	508.11	505.32	30.2	485.1	475.1	10.0	11/18/2015
SGWC-6	APC-1	Downgradient	Saprolite	33.08462	-83.82255	510.57	507.94	25.0	492.94	482.94	10.0	11/12/2015
SGWC-7	APC-2	Downgradient	Bedrock	33.08599	-83.82163	506.05	503.32	35.0	478.3	468.3	10.0	11/11/2015
SGWC-8	APC-3	Downgradient	Bedrock	33.08653	-83.81928	513.93	511.05	40.0	481.05	471.05	10.0	11/10/2015
SGWC-9	APC-4	Downgradient	Saprolite	33.08589	-83.81773	510.37	507.61	35.0	482.61	472.61	10.0	11/6/2015
SGWC-10	APC-5	Downgradient	Saprolite	33.08385	-83.81580	509.22	506.3	30.0	486.3	476.3	10.0	11/5/2015
SGWC-11	APC-6	Downgradient	Saprolite	33.08288	-83.81488	511.28	508.3	40.0	478.3	468.3	10.0	10/29/2015
SGWC-12	APC-7	Downgradient	Saprolite	33.08296	-83.81267	500.29	497.35	47.0	460.35	450.35	10.0	10/30/2015
SGWC-13	APC-8	Downgradient	Saprolite	33.08213	-83.81022	482.58	479.75	35.0	454.75	444.75	10.0	11/4/2015
SGWC-14	APC-9/PZ-16S	Downgradient	Saprolite	33.08127	-83.80836	476.48	473.30	34.8	448.5	438.5	10.0	2/24/2015
SGWC-15	APC-10/PZ-17S	Downgradient	Saprolite	33.07914	-83.80588	483.27	480.04	44.5	445.5	435.5	10.0	2/26/2015
SGWC-16	APC-11/PZ-18S	Downgradient	Saprolite	33.07647	-83.80569	460.03	456.90	38.8	428.1	418.1	10.0	3/3/2015
SGWC-17	APC-12/PZ-20S	Downgradient	Saprolite	33.07396	-83.80533	417.96	414.8	24.1	400.7	390.7	10.0	3/11/2015
SGWC-18	APC-13/PZ-22S	Downgradient	Saprolite	33.07022	-83.80644	513.18	510.3	44.1	476.2	466.2	10.0	3/17/2015
SGWC-19	APC-14/PZ-23S	Downgradient	Saprolite	33.06769	-83.80918	478.67	475.8	34.2	451.6	441.6	10.0	3/18/2015
SGWC-20	APC-15	Downgradient	Saprolite	33.06769	-83.81175	504.44	501.12	25.0	486.12	476.12	10.0	11/19/2015
SGWC-21	APC-16/PZ-1S	Downgradient	Saprolite	33.06602	-83.81538	487.54	484.8	24.5	470.3	460.3	10.0	5/6/2015
SGWC-22	APC-17/PZ-2S	Downgradient	Saprolite	33.06639	-83.81928	518.07	515.2	46.5	479.1	468.7	10.4	1/22/2015
SGWC-23	APC-18/PZ-4I	Downgradient	Bedrock	33.06957	-83.82211	523.07	520.1	49.3	480.8	470.8	10.0	2/3/2015
SGWA-24	APA-5/PZ-7S	Upgradient	Saprolite	33.07352	-83.82663	503.86	500.9	37.7	473.2	463.2	10.0	2/10/2015
SGWA-25	APA-6/PZ-9S	Upgradient	Saprolite	33.08020	-83.82623	526.39	523.4	44.6	488.8	478.8	10.0	2/18/2015

**Notes:**

1. feet msl = feet mean sea level
2. feet bgs = feet below ground surface

**TABLE 1B.**  
**PIEZOMETER NETWORK SUMMARY**  
**Georgia Power - Plant Scherer**  
**Juliette, GA**

Well ID	Geologic Unit Screened	Latitude	Longitude	Top of Casing Elevation (feet msl)	Ground Surface Elevation (feet msl)	Total Depth (feet bgs)	Top of Screen Elevation (feet msl)	Bottom of Screen Elevation (feet msl)	Screen Length (feet)	Date of Installation
<b>PIEZOMETERS</b>										
PZ-2I	Bedrock	33.06640517	-83.81932	517.61	515.1	83.9	441.2	431.2	10	1/27/2015
PZ-3S	Saprolite	33.067894	-83.82081	517.29	514.6	49.6	475.0	465.0	10	1/28/2015
PZ-5I	Saprolite	33.07174453	-83.82313	523.24	520.7	47.2	483.5	473.5	10	2/4/2015
PZ-6S	Saprolite/PWR	33.07291573	-83.82274	531.48	529.2	54.4	484.8	474.8	10	2/4/2015
PZ-9I	Bedrock	33.08021581	-83.82622	527.49	523.5	79.8	453.7	443.7	10	2/19/2015
PZ-10S	Saprolite	33.08508695	-83.82324	516.81	514.2	34.5	489.7	479.7	10	5/5/2015
PZ-11S	Saprolite	33.0873611	-83.81997	529.21	526.1	45.5	490.6	480.6	10	4/6/2015
PZ-12S	Saprolite	33.08602396	-83.81719	517.65	514.7	44.0	480.7	470.7	10	4/1/2015
PZ-13S	Saprolite	33.08401471	-83.81521	520.21	517.4	44.9	482.5	472.5	10	4/1/2015
PZ-14S	Saprolite	33.08372361	-83.81328	511.86	508.8	44.5	474.3	464.3	10	3/26/2015
PZ-15S	Saprolite	33.0827095	-83.81087	499.06	496.1	39.7	466.4	456.4	10	4/28/2015
PZ-17I	Bedrock	33.07913383	-83.80583	483.23	480.4	96.7	393.7	383.7	10	2/27/2015
PZ-19I	Bedrock	33.07473161	-83.80538	417.48	414.5	71.5	353.0	343.0	10	3/4/2015
PZ-19S	Saprolite	33.07472776	-83.80541	417.67	414.7	24.6	400.1	390.1	10	3/4/2015
PZ-20I	Bedrock	33.07398602	-83.80531	417.11	414.1	79.2	344.9	334.9	10	3/10/2015
PZ-21S	Saprolite	33.07212133	-83.80619	473.42	470.5	23.0	457.5	447.5	10	3/12/2015
PZ-25I	Saprolite	33.08368	-83.81400	528.09	525.7	125.0	410.7	400.7	10	5/24/2016
PZ-25S	Saprolite	33.08371	-83.81410	527.91	525.5	55.0	480.5	470.5	10	5/25/2016
PZ-26S	Saprolite	33.08328	-83.81030	491.36	488.9	45.0	453.9	443.9	10	6/1/2016
PZ-27D	Bedrock	33.0829	-83.80930	475.18	472.4	125.0	367.4	347.4	20	6/17/2016
PZ-27S	PWR	33.08291	-83.80930	475.57	473.0	45.0	438.0	428.0	10	5/26/2016
PZ-28I	Bedrock	33.08244	-83.80820	483.91	481.3	69.0	422.3	412.3	10	6/3/2016
PZ-29S	Saprolite	33.08209	-83.80740	491.02	488.4	45.0	453.4	443.4	10	5/26/2016
PZ-30I	Bedrock	33.08155	-83.80590	478.03	475.4	85.0	400.4	390.4	10	6/2/2016
PZ-31I	Bedrock	33.08191	-83.80470	466.56	463.8	75.0	398.8	388.8	10	6/2/2016
PZ-32D	Bedrock	33.08159	-83.80380	465.18	462.3	126.0	366.3	336.3	30	6/1/2016
PZ-32S	Saprolite/PWR	33.0816	-83.80380	464.82	462.3	55.0	417.3	407.3	10	6/1/2016
PZ-33I	Saprolite/Bedrock	33.08201	-83.79940	469.08	466.3	76.0	400.3	390.3	10	6/8/2016
PZ-34S	PWR	33.08224	-83.79860	443.37	440.8	45.5	405.3	395.3	10	6/4/2016
PZ-35I	Saprolite/Bedrock	33.083012	-83.80924	474.17	474.5	55.5	429.0	419.0	10	6/22/2016



**TABLE 1B.**  
**PIEZOMETER NETWORK SUMMARY**  
**Georgia Power - Plant Scherer**  
**Juliette, GA**

Well ID	Geologic Unit Screened	Latitude	Longitude	Top of Casing Elevation (feet msl)	Ground Surface Elevation (feet msl)	Total Depth (feet bgs)	Top of Screen Elevation (feet msl)	Bottom of Screen Elevation (feet msl)	Screen Length (feet)	Date of Installation
PZ-36I	Bedrock	33.07973	-83.80530	481.42	478.9	95.0	393.9	383.9	10	6/5/2016
PZ-36S	Saprolite	33.07970929	-83.80537	482.19	479.21	55.0	434.21	424.21	10	8/22/2018
PZ-37I	TWR/Bedrock	33.08183	-83.80150	482.02	479.5	71.0	418.5	408.5	10	6/2/2016
PZ-38I	Bedrock	33.082673	-83.80828	481.96	482.1	74.0	418.1	408.1	10	6/23/2016
PZ-39S	Saprolite	33.07909393	-83.80464	474.49	471.87	76.0	405.87	395.87	10	8/21/2018
PZ-40I	Bedrock	33.07025497	-83.80634	512.22	509.76	83.0	436.76	426.76	10	8/15/2018
PZ-41S	Saprolite	33.06981269	-83.80581	491.35	488.44	45.0	415.44	405.44	10	8/16/2018
PZ-42I	Bedrock	33.06767345	-83.81180	502.97	500.38	96.0	427.38	417.38	10	8/21/2018
PZ-43S	Saprolite	33.06652778	-83.81110	504.00	501.27	50.5	428.27	418.27	10	8/17/2018
PZ-44I	Bedrock	33.08280082	-83.81488	510.19	507.69	114.0	434.69	424.69	10	9/5/2018
LPZ-01	PWR/Bedrock	33.070446	-83.83392	553.16	549.84	64.0	495.84	485.84	10	11/10/2015
LPZ-02	Saprolite	33.078618	-83.83555	513.96	510.46	20.0	500.46	490.46	10	11/20/2015
LPZ-03	Saprolite	33.072872	-83.83345	515.11	511.48	35.0	486.48	476.48	10	11/17/2015
LPZ-04	Saprolite	33.067606	-83.83860	461.06	457.83	28.0	439.83	429.83	10	11/18/2015
LPZ-05	Saprolite	33.065842	-83.83007	524.28	520.97	52.1	478.87	468.87	10	11/3/2015

**Notes:**

1. feet msl = feet mean sea level
2. feet bgs = feet below ground surface

**TABLE 2.**  
**GROUNDWATER SAMPLING EVENT SUMMARY**  
**Georgia Power Company - Plant Scherer**  
**Juliette, Georgia**

Well ID	Hydraulic Location	Summary of Sampling Events				Status of Monitoring Well
		March 2018	June 2018	October 2018	SSL Exceedance	
Purpose of Sampling Event		Assessment	Detection / Assessment	Detection / Assessment		
ASH POND (AP-1)						
SGWA-1	Upgradient	A01	D03/A02	D04/A03	No	Assessment
SGWA-2	Upgradient	A01	D03/A02	D04/A03	No	Assessment
SGWA-3	Upgradient	A01	D03/A02	D04/A03	No	Assessment
SGWA-4	Upgradient	A01	D03/A02	D04/A03	No	Assessment
SGWA-5	Upgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-6	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-7	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-8	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-9	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-10	Downgradient	A01	D03/A02	D04/A03	Yes	Assessment
SGWC-11	Downgradient	A01	D03/A02	D04/A03	Yes	Assessment
SGWC-12	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-13	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-14	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-15	Downgradient	A01	D03/A02	D04/A03	Yes	Assessment
SGWC-16	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-17	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-18	Downgradient	A01	D03/A02	D04/A03	Yes	Assessment
SGWC-19	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-20	Downgradient	A01	D03/A02	D04/A03	Yes	Assessment
SGWC-21	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-22	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWC-23	Downgradient	A01	D03/A02	D04/A03	No	Assessment
SGWA-24	Upgradient	A01	D03/A02	D04/A03	No	Assessment
SGWA-25	Upgradient	A01	D03/A02	D04/A03	No	Assessment

**Notes:**

Dxx - Detection Event Number

Axx - Assessment Monitoring Event Number

**TABLE 3.**  
**SUMMARY OF GROUNDWATER ELEVATIONS**  
**Georgia Power - Plant Scherer**  
**Juliette, GA**



Well ID	Top of Casing Elevation (feet/MSL)	GROUNDWATER ELEVATIONS (FEET MSL)												
		4/19/2016	5/10/2016	6/16/2017	8/8/2016	10/3/2016	11/28/2016	2/6/2017	4/4/2017	6/19/2017	10/3/2017	3/19/2018	6/4/2018	10/1/2018
ASH POND														
SGWA-1	546.81	512.11	512.13	510.06	508.14	506.12	504.30	506.52	507.33	506.31	503.43	502.31	505.46	504.93
SGWA-2	546.81	518.24	512.58	509.47	508.00	505.92	504.08	507.39	508.02	506.61	503.48	503.31	506.67	505.05
SGWA-3	545.65	497.83	515.95	510.64	512.92	511.40	509.93	512.90	512.40	511.21	509.26	509.15	512.16	509.28
SGWA-4	547.27	532.81	500.12	498.97	500.63	500.07	499.11	498.22	497.81	499.57	496.76	495.76	495.26	495.12
SGWA-5	508.11	494.97	493.56	492.75	492.01	490.93	489.71	490.85	490.99	490.68	489.23	488.39	489.97	489.22
SGWC-6	510.57	497.84	497.34	494.31	495.95	495.33	494.65	495.33	495.64	495.47	494.65	495.12	495.33	494.05
SGWC-7	506.05	485.67	493.51	493.08	492.60	492.01	491.30	491.60	491.84	491.91	491.18	491.38	491.64	490.80
SGWC-8	513.93	494.89	493.70	493.07	492.51	491.97	491.23	491.82	492.05	491.86	491.05	491.42	491.41	490.63
SGWC-9	510.37	495.07	491.16	490.02	489.93	489.39	488.94	490.07	490.14	489.77	489.13	489.43	489.82	488.77
SGWC-10	509.22	492.89	493.46	491.46	491.77	491.29	490.87	492.81	492.81	492.27	491.58	492.35	492.16	490.32
SGWC-11	511.28	477.69	494.01	490.99	492.19	491.75	491.47	493.65	493.44	492.76	492.08	492.93	492.86	490.55
SGWC-12	500.29	496.74	486.89	483.19	485.09	484.58	484.18	486.12	485.89	485.33	485.67	485.39	485.73	483.82
SGWC-13	482.58	472.38	478.62	477.44	478.17	478.12	478.21	478.79	478.67	478.31	478.30	478.58	478.47	477.82
SGWC-14	476.48	449.59	465.83	465.31	465.34	465.27	465.49	466.08	465.97	465.54	465.60	460.08	466.02	465.58
SGWC-15	483.27	462.51	455.73	454.16	453.44	453.04	452.64	455.61	455.65	454.70	453.64	454.45	454.93	452.86
SGWC-16	460.03	459.6	436.54	434.83	434.19	433.80	433.61	437.75	436.53	435.08	434.41	435.47	437.20	434.08
SGWC-17	417.96	385.98	417.38	416.91	417.31	417.42	417.38	417.56	417.54	417.46	417.96	417.37	417.16	417.96
SGWC-18	513.18	499.19	480.73	478.94	477.91	476.71	475.89	478.65	477.77	476.68	476.81	476.65	477.39	478.82
SGWC-19	478.67	467.16	463.21	461.28	461.85	461.74	461.46	463.47	462.92	462.47	462.65	462.96	463.73	462.29
SGWC-20	504.44	504.26	491.58	490.18	490.65	490.04	489.55	492.01	491.09	490.76	490.44	490.71	492.43	490.49
SGWC-21	487.54	463.53	486.92	486.16	486.04	485.58	485.61	486.85	486.61	486.17	485.79	486.49	486.97	487.14
SGWC-22	518.07	486.62	493.11	489.87	491.15	490.71	490.18	492.82	492.47	492.25	491.23	492.27	493.35	491.71
SGWC-23	523.07	510.38	492.36	491.72	491.26	490.73	490.02	491.27	491.91	492.06	491.86	492.19	493.25	493.02
SGWA-24	503.86	479.06	490.24	489.11	488.54	487.96	487.44	490.05	489.46	488.61	487.66	488.96	490.17	488.18
SGWA-25	526.39	NM	500.99	498.99	497.47	496.44	495.19	497.91	498.16	497.14	495.44	496.84	497.67	495.36
PIEZOMETERS														
PZ-2I	517.61	NM	NM	NM	NM	NM	NM	492.25	491.88	491.86	490.70	491.72	492.80	491.14
PZ-3	517.29	NM	NM	NM	NM	NM	NM	489.75	489.78	489.89	489.30	489.95	490.84	489.81
PZ-5I	523.24	NM	NM	NM	NM	NM	NM	484.42	484.44	483.93	482.95	483.97	484.68	482.88
PZ-6S	531.48	NM	NM	NM	NM	NM	NM	494.94	495.39	495.38	494.75	494.72	494.97	494.44
PZ-9I	527.49	NM	NM	NM	NM	NM	NM	498.96	499.33	498.35	496.74	497.67	498.46	496.64
PZ-10S	516.81	NM	NM	NM	NM	NM	NM	493.38	493.79	493.35	492.25	492.74	493.19	491.80
PZ-11S	529.21	NM	NM	NM	NM	NM	NM	490.45	490.70	490.51	489.80	489.99	490.25	489.60



**GOLDER**

Well ID	Top of Casing Elevation (feet/MSL)	GROUNDWATER ELEVATIONS (FEET MSL)												
		4/19/2016	5/10/2016	6/16/2017	8/8/2016	10/3/2016	11/28/2016	2/6/2017	4/4/2017	6/19/2017	10/3/2017	3/19/2018	6/4/2018	10/1/2018
PIEZOMETERS														
PZ-12S	517.65	NM	NM	NM	NM	NM	NM	488.93	489.14	488.82	488.12	488.45	488.79	487.91
PZ-13S	520.21	NM	NM	NM	NM	NM	NM	491.16	491.51	490.83	489.70	490.86	491.17	488.91
PZ-14S	511.86	NM	NM	NM	NM	NM	NM	489.43	489.26	488.42	487.24	488.31	489.40	486.46
PZ-14I	512.61	NM	NM	NM	NM	NM	NM	NM	489.30	488.46	487.27	488.33	489.37	486.49
PZ-15S	499.06	NM	NM	NM	NM	NM	NM	NM	NM	488.52	480.34	480.56	480.61	479.65
PZ-17I	483.23	NM	NM	NM	NM	NM	NM	455.77	455.74	454.71	453.58	454.53	455.02	453.08
PZ-19I	417.48	NM	NM	NM	NM	NM	NM	414.56	414.38	413.69	413.18	414.07	414.66	413.08
PZ-19S	417.67	NM	NM	NM	NM	NM	NM	414.00	413.87	413.12	412.92	413.71	414.19	412.80
PZ-20I	417.11	NM	NM	NM	NM	NM	NM	415.18	415.10	414.91	414.78	415.02	415.09	414.68
PZ-21S	473.42	NM	NM	NM	NM	NM	NM	466.12	465.77	465.23	465.00	465.50	466.40	465.36
PZ-25S	527.91	NM	NM	NM	NM	NM	NM	491.12	491.20	490.35	489.11	490.30	491.10	488.34
PZ-25I	528.09	NM	NM	NM	NM	NM	NM	491.42	491.13	490.26	489.09	490.30	491.63	488.24
PZ-26S	491.36	NM	NM	NM	NM	NM	NM	476.08	475.46	474.95	474.49	475.38	476.35	474.34
PZ-27S	475.57	NM	NM	NM	NM	NM	NM	471.18	470.91	469.73	469.42	470.77	471.45	469.22
PZ-27D	475.18	NM	NM	NM	NM	NM	NM	474.47	474.17	473.54	473.06	473.98	474.79	472.69
PZ-28I	483.91	NM	NM	NM	NM	NM	NM	466.60	466.21	465.40	464.85	466.26	466.74	464.73
PZ-29S	491.02	NM	NM	NM	NM	NM	NM	460.93	461.07	NM	459.84	461.03	461.37	459.94
PZ-30I	478.03	NM	NM	NM	NM	NM	NM	447.87	448.45	448.04	446.59	447.52	448.71	447.01
PZ-31I	466.56	NM	NM	NM	NM	NM	NM	436.13	436.53	435.96	434.54	435.47	437.01	435.28
PZ-32S	464.82	NM	NM	NM	NM	NM	NM	437.52	438.68	438.33	436.36	437.49	438.88	437.17
PZ-32D	465.18	NM	NM	NM	NM	NM	NM	435.64	436.03	435.46	433.98	435.16	436.38	434.86
PZ-33I	469.08	NM	NM	NM	NM	NM	NM	423.93	424.28	423.67	422.44	422.41	423.32	422.88
PZ-34S	443.37	NM	NM	NM	NM	NM	NM	424.01	423.79	NM	NM	421.98	424.09	421.27
PZ-35I	474.17	NM	NM	NM	NM	NM	NM	471.02	470.71	469.56	469.25	470.53	471.31	468.97
PZ-36S	482.19	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	445.46
PZ-36I	481.42	NM	NM	NM	NM	NM	NM	450.91	451.30	NM	448.22	449.17	450.32	447.67
PZ-37I	482.02	NM	NM	NM	NM	NM	NM	432.29	432.13	432.04	431.42	430.62	430.73	431.17
PZ-38I	481.96	NM	NM	NM	NM	NM	NM	467.06	466.95	466.06	465.48	466.90	467.40	465.36
PZ-39S	474.49	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	437.01
PZ-40I	512.22	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	479.50
PZ-41S	491.35	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	463.28
PZ-42I	502.97	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	492.12

TABLE 3.  
SUMMARY OF GROUNDWATER ELEVATIONS  
Georgia Power - Plant Scherer  
Juliette, GA



Well ID	Top of Casing Elevation (feet/MSL)	GROUNDWATER ELEVATIONS (FEET MSL)												
		4/19/2016	5/10/2016	6/16/2017	8/8/2016	10/3/2016	11/28/2016	2/6/2017	4/4/2017	6/19/2017	10/3/2017	3/19/2018	6/4/2018	10/1/2018
PIEZOMETERS														
PZ-43S	504.00	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	480.25
PZ-44I	510.19	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	490.11
LPZ-01	553.16	NM	NM	NM	NM	NM	NM	493.81	493.78	493.66	492.36	492.49	492.36	492.52
LPZ-02	513.96	NM	NM	NM	NM	NM	NM	509.73	509.97	508.75	507.50	508.98	509.79	507.79
LPZ-03	515.11	NM	NM	NM	NM	NM	NM	507.03	506.55	505.26	503.61	504.06	507.42	504.23
LPZ-04	461.06	NM	NM	NM	NM	NM	NM	446.13	446.60	445.87	444.20	445.50	447.10	445.50
LPZ-05	524.28	NM	NM	NM	NM	NM	NM	476.31	476.38	476.06	474.96	474.40	474.64	475.57

Notes:  
Feet MSL = feet above mean sea level  
NM = Not Measured

**TABLE 4.**  
**GROUNDWATER VELOCITY CALCULATIONS - 2018**  
**Georgia Power - Plant Scherer Ash Pond**  
**Juliette, GA**



Flow Paths	Groundwater Elevation (feet msl)	$\Delta h$ (feet) <sup>2</sup>	$\Delta l$ (feet) <sup>3</sup>	Hydraulic Gradient ( $\Delta h/\Delta l$ )	Average Hydraulic Conductivity, K (feet per day) <sup>5</sup>	Assumed Effective Porosity ( $n_e$ )	Average Linear Groundwater Velocity	
							(feet per day) <sup>4</sup>	(feet per year) <sup>4</sup>
AP-1 March 2018								
SGWC-14/PZ-29S	460.08	0.95	503.0	0.0019	1.06 to 2.34	0.2	0.01 to 0.02	3.7 to 8.1
	461.03							
SGWC-13/PZ-35I	478.58	8.05	293.0	0.0275	1.06 to 2.34	0.2	0.15 to 0.32	53.1 to 117.3
	470.53							
LPZ-3/LPZ-4	504.06	58.56	541.0	0.108	1.06 to 2.34	0.2	0.57 to 1.27	209.4 to 462.3
	445.50							
AP-1 June 2018								
SGWC-14/PZ-29S	466.02	4.65	503.0	0.009	1.06 to 2.34	0.2	0.05 to 0.11	17.9 to 39.5
	461.37							
SGWC-13/PZ-35I	478.47	7.16	293.0	0.0244	1.06 to 2.34	0.2	0.13 to 0.29	47.3 to 104.4
	471.31							
LPZ-3/LPZ-4	507.42	60.32	541.0	0.111	1.06 to 2.34	0.2	0.59 to 1.30	215.7 to 476.1
	447.10							
AP-1 October 2018								
SGWC-14/PZ-29S	465.58	5.64	503.0	0.011	1.06 to 2.34	0.2	0.06 to 0.13	21.7 to 47.9
	459.94							
SGWC-13/PZ-35I	477.82	8.85	293.0	0.0302	1.06 to 2.34	0.2	0.16 to 0.35	58.4 to 129.0
	468.97							
LPZ-3/LPZ-4	504.23	58.73	541.0	0.109	1.06 to 2.34	0.2	0.58 to 1.27	210.0 to 463.6
	445.50							

**Notes:**

1.  $\Delta H$  = Change in groundwater elevation.
2.  $\Delta L$  = Distance along flow path.
3.  $I = \Delta H / \Delta L$ .
4. Velocity =  $(I * K)/n_e$ .
5. Hydraulic conductivity range based on historic aquifer performance tests (revised 3/2017).
6. Effective porosity based on fracture occurrence.

TABLE 5A.  
ANALYTICAL DATA SUMMARY  
Ash Pond - (March 2018)  
GPC PLANT SCHERER  
JULIETTE, GEORGIA



Analyte	Units	SCREENING/TARGET LEVELS			GROUNDWATER MONITORING WELLS																	
		MCL	PQL/RL	MDL	SGWA-1	SGWA-2	SGWA-3	SGWA-4	SGWA-5	SGWA-24	SGWA-25	SGWC-6	SGWC-7	SGWC-8	SGWC-9	SGWC-10	SGWC-11	SGWC-12	SGWC-13	SGWC-14	SGWC-15	SGWC-16
		Sample Date:			3/26/2018	3/26/2018	3/26/2018	3/27/2018	3/27/2018	3/26/2018	3/27/2018	3/27/2018	3/27/2018	3/27/2018	3/27/2018	3/28/2018	3/27/2018	3/27/2018	3/27/2018	3/27/2018	3/27/2018	3/27/2018
Appendix III																						
BORON, TOTAL	mg/L	N/R	0.05	0.021	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CALCIUM, TOTAL	mg/L	N/R	0.23	0.13	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHLORIDE, TOTAL	mg/L	N/R	1.0	0.89	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
FLUORIDE, TOTAL	mg/L	4	0.2	0.082	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.19 J)	0.4	ND	ND	ND	ND	ND	ND	ND (0.12 J)	ND
pH	S.U.	N/R	N/R	N/R	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SULFATE, TOTAL	mg/L	N/R	1.0	0.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL DISSOLVED SOLIDS	mg/L	N/R	5.0	3.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Appendix IV																						
ANTIMONY, TOTAL	mg/L	0.006	0.0025	0.001	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ARSENIC, TOTAL	mg/L	0.01	0.0013	0.00046	ND	ND	ND	ND	ND	ND	ND (0.00052 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BARIUM, TOTAL	mg/L	2	0.0025	0.00049	0.053	0.036	0.035	0.061	0.01	0.022	0.024	0.021	0.27	0.17	0.069	0.031	0.039	0.043	0.029	0.055	0.035	0.021
BERYLLIUM, TOTAL	mg/L	0.004	0.0025	0.00034	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.00041 J)	ND
CADMIUM, TOTAL	mg/L	0.005	0.0025	0.00034	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CHROMIUM, TOTAL	mg/L	0.1	0.0025	0.0011	ND	0.013	0.012	0.0058	ND	0.0042	ND	ND	ND	ND (0.0012 J)	ND	ND	ND	ND	ND	ND	0.031	0.0098
COBALT, TOTAL	mg/L	N/R	0.0025	0.0004	0.0065	ND	ND	ND	ND	ND	0.014	0.004	0.0054	ND	0.0087	0.026	0.024	0.0035	0.0035	0.0083	0.27	0.0037
LEAD, TOTAL	mg/L	0.015	0.0013	0.00035	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.00039 J)	ND	ND	ND
LITHIUM, TOTAL	mg/L	N/R	0.005	0.0032	ND (0.0024 J)	ND	ND (0.0013 J)	ND	ND (0.0017 J)	ND	ND	ND	0.0061	ND (0.0023 J)	ND	ND	ND (0.0029 J)	ND	ND	ND	ND (0.0034 J)	ND
MERCURY, TOTAL	mg/L	0.002	0.0002	0.00007	ND (0.000089 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.0001 J)	ND (0.00014 J)	ND
MOLYBDENUM, TOTAL	mg/L	N/R	0.015	0.00085	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
RADIUM (226 + 228)	pCi/L	5	5	varies	0.522	0.124 U	0.226 U	0.164 U	0.252 U	0.141 U	0.207 U	0.0443 U	0.546	2.3	0.378	0.136 U	0.172 U	0.445	0.145 U	0.306 U	0.285 U	0.387 U
SELENIUM, TOTAL	mg/L	0.05	0.0013	0.00024	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
THALLIUM, TOTAL	mg/L	0.002	0.0005	8.5E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:

1. Bold indicated detection above MDL.
2. mg/L - Milligrams per Liter
3. pCi/L - picocuries per Liter
4. N/R - Indicates consituent is not regulated by Hazardous Site Response Act
5. J - Result is an estimated value. The result is greater than or equal to the Method Detection Limit (MDL) and less than the Practical Quantitation Limit (PQL). Values are displayed as less that the PQL with a J.
6. < - Constituent was analyzed for, but was not detected above the MDL and is considered a non-detect. Value is displayed as less than the PQL.
7. MCL/SMCL - Maximum Contaminant Level/Secondary Contaminant Level - United States Environmental Protection Agency (USEPA) Table of Regulated Drinking Water Contaminants (updated June 2016). Available at <https://www.epa.gov/ground-water-and-drinking-water/table-regulated-drinking-water-contaminants>. USEPA Secondary Drinking Water Standards: Guidance for Nuisance Chemicals (updated January 2016). Available at <https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals>.
8. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed with an accompanying U. The MDC varies depending upon the sample amount and elapsed time of the measurement.
9. Annual sampling for Appendix IV constituents only was completed following initiation of assessment monitoring. Appendix III constituents were not required during this monitoring event.

TABLE 5A.  
ANALYTICAL DATA SUMMARY  
Ash Pond - (March 2018)  
GPC PLANT SCHERER  
JULIETTE, GEORGIA

Analyte	Units	SCREENING/TARGET LEVELS				GROUNDWATER MONITORING WELLS						
		MCL	SMCL	PQL/RL	MDL	SGWC-17	SGWC-18	SGWC-19	SGWC-20	SGWC-21	SGWC-22	SGWC-23
		Sample Date:				3/27/2018	3/28/2018	3/28/2018	3/28/2018	3/28/2018	3/28/2018	3/27/2018
Appendix III												
BORON, TOTAL	mg/L	N/R	N/R	0.05	0.021	--	--	--	--	--	--	--
CALCIUM, TOTAL	mg/L	N/R	N/R	0.23	0.13	--	--	--	--	--	--	--
CHLORIDE, TOTAL	mg/L	N/R	250	1.0	0.89	--	--	--	--	--	--	--
FLUORIDE, TOTAL	mg/L	4	2	0.2	0.082	ND	ND	ND	ND (0.19 J)	ND	ND	ND
pH	S.U.	N/R	6.5-8.5	N/R	N/R	--	--	--	--	--	--	--
SULFATE, TOTAL	mg/L	N/R	250	1.0	0.7	--	--	--	--	--	--	--
TOTAL DISSOLVED SOLIDS	mg/L	N/R	500	5.0	3.4	--	--	--	--	--	--	--
Appendix IV												
ANTIMONY, TOTAL	mg/L	0.006	N/R	0.0025	0.001	ND	ND	ND	ND	ND	ND	ND
ARSENIC, TOTAL	mg/L	0.01	N/R	0.0013	0.00046	ND	0.0015	ND	ND	ND	ND	ND
BARIUM, TOTAL	mg/L	2	N/R	0.0025	0.00049	0.02	0.029	0.034	0.027	0.09	0.084	0.076
BERYLLIUM, TOTAL	mg/L	0.004	N/R	0.0025	0.00034	ND	ND (0.00036 J)	ND	ND (0.00079 J)	ND	ND	ND
CADMIUM, TOTAL	mg/L	0.005	N/R	0.0025	0.00034	ND	ND	ND	ND	ND	ND	ND
CHROMIUM, TOTAL	mg/L	0.1	N/R	0.0025	0.0011	0.0045	0.0082	0.014	ND	ND	ND	ND (0.0012 J)
COBALT, TOTAL	mg/L	N/R	N/R	0.0025	0.0004	ND	0.16	ND	0.18	ND	ND (0.0022 J)	ND
LEAD, TOTAL	mg/L	0.015	N/R	0.0013	0.00035	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	mg/L	N/R	N/R	0.005	0.0032	ND (0.0014 J)	0.0056	ND	0.0053	ND (0.0038 J)	ND (0.0033 J)	0.005
MERCURY, TOTAL	mg/L	0.002	N/R	0.0002	0.00007	ND	ND (0.000083 J)	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	mg/L	N/R	N/R	0.015	0.00085	ND	ND	ND	ND	ND	ND	ND
RADIUM (226 + 228)	pCi/L	5	N/R	5	varies	0.249 U	0.428	0.247 U	0.334 U	0.38	0.0661 U	0.61
SELENIUM, TOTAL	mg/L	0.05	N/R	0.0013	0.00024	ND	0.0085	ND	ND	ND	ND	ND
THALLIUM, TOTAL	mg/L	0.002	N/R	0.0005	8.5E-05	ND	ND (0.00011 J)	ND	ND (00009 J)	ND	ND	ND

NOTES:

1. Bold indicated detection above MDL.
2. mg/L - Milligrams per Liter
3. pCi/L - picocuries per Liter
4. N/R - Indicates consitiuent is not regulated by Hazardous Site Response Act
5. J - Result is an estimated value. The result is greater than or equal to the Method Detection Limit (MDL) and less than the Practical Quantitation Limit (PQL). Values are displayed as less that the PQL with a J.
6. < - Constituent was analyzed for, but was not detected above the MDL and is considered a non-detect. Value is displayed as less than the PQL.
7. MCL/SMCL - Maximum Contaminant Level/Secondary Contaminant Level - United States Environmental Protection Agency (USEPA) Table of Regulated Drinking Water Contaminants (updated June 2016). Available at <https://www.epa.gov/ground-water-and-drinking-water/table-regulated-drinking-water-contaminants>. USEPA Secondary Drinking Water Standards: Guidance for Nuisance Chemicals (updated January 2016). Available at <https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals>.
8. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed with an accompanying U. The MDC varies depending upon the sample amount and elapsed time of the measurement.



TABLE 5B.  
ANALYTICAL DATA SUMMARY  
Ash Pond - (June 2018)  
GPC PLANT SCHERER  
JULIETTE, GEORGIA



Analyte	Units	SCREENING/TARGET LEVELS			GROUNDWATER MONITORING WELLS														
		MCL	PQL/RL	MDL	SGWA-1	SGWA-2	SGWA-3	SGWA-4	SGWA-5	SGWA-24	SGWA-25	SGWC-6	SGWC-7	SGWC-8	SGWC-9	SGWC-10	SGWC-11	SGWC-12	SGWC-13
		Sample Date:			6/5/2018	6/5/2018	6/6/2018	6/6/2018	6/5/2018	6/5/2018	6/5/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	6/6/2018	6/7/2018
Appendix III																			
BORON, TOTAL	mg/L	N/R	0.05	0.021	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.059	1.8	0.07	0.37	ND	0.45
CALCIUM, TOTAL	mg/L	N/R	0.23	0.13	2.6	11	4.1	18	1.5	13	9.7	4.2	19	51	54	1.2	1.8	22	15
CHLORIDE, TOTAL	mg/L	N/R	1.0	0.89	1.7	1.3	2	1.1	1.6	1.9	2	1.3	4.6	11	12	8.6	7.5	8.8	6.2
FLUORIDE, TOTAL	mg/L	4	0.2	0.082	ND	ND	ND	ND	ND	ND	ND	ND	0.2	0.4	ND	ND	ND	ND	ND
pH	S.U.	N/R	N/R	N/R	5.38	6.73	5.62	6.7	5.59	6.27	6.06	5.99	6.56	6.42	6.12	5.43	5.32	6.10	5.93
SULFATE, TOTAL	mg/L	N/R	1.0	0.7	ND	ND	1.8	0.89 J	ND	ND	ND	ND	14	74	320	2.9	0.89 J	41	69
TOTAL DISSOLVED SOLIDS	mg/L	N/R	5.0	3.4	8	74	46	120	50	76	80	100	210	410	590	38	40	260	190
Appendix IV																			
ANTIMONY, TOTAL	mg/L	0.006	0.0025	0.001	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ARSENIC, TOTAL	mg/L	0.01	0.0013	0.00046	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BARIUM, TOTAL	mg/L	2	0.0025	0.00049	0.058	0.038	0.036	0.058	0.011	0.022	0.024	0.014	0.24	0.18	0.069	0.027	0.041	0.048	0.032
BERYLLIUM, TOTAL	mg/L	0.004	0.0025	0.00034	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	mg/L	0.005	0.0025	0.00034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	mg/L	0.1	0.0025	0.0011	ND (0.0014 J)	0.014	0.015	0.0048	ND	0.0046	ND	ND	ND	ND (0.0013 J)	ND	ND	ND	ND	ND
COBALT, TOTAL	mg/L	N/R	0.0025	0.0004	0.0028	ND	ND	ND	ND	ND	0.0095	ND (0.0021 J)	0.0034	ND	0.0064	0.018	0.026	0.0038	0.0039
LEAD, TOTAL	mg/L	0.015	0.0013	0.00035	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	mg/L	N/R	0.005	0.0032	ND (0.0018 J)	ND	ND	ND	ND	ND (0.0011 J)	ND (0.0015 J)	ND	ND (0.004 J)	ND (0.0018 J)	ND	ND	ND (0.0017 J)	ND	ND
MERCURY, TOTAL	mg/L	0.002	0.0002	0.00007	ND	ND	ND	ND	ND	ND	ND (0.000075 J)	ND	ND	ND	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	mg/L	N/R	0.015	0.00085	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIUM (226 + 228)	pCi/L	5	5	varies	0.106 U	0.0496 U	0.175 U	0.308	0.255 U	0.163 U	-0.0364 U	0.127 U	0.165 U	1.59	-0.0272 U	0.123 U	0.153 U	0.0775 U	0.235 U
SELENIUM, TOTAL	mg/L	0.05	0.0013	0.00024	ND (0.00065 J)	ND (0.00098 J)	ND	ND	ND (0.00039 J)	ND (0.00041 J)	ND (0.00029 J)	ND (0.00032 J)	ND	ND	ND	ND	ND	ND	ND (0.00064 J)
THALLIUM, TOTAL	mg/L	0.002	0.0005	8.5E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:

1. Bold indicated detection above MDL.
2. mg/L - Milligrams per Liter
3. pCi/L - picocuries per Liter
4. N/R - Indicates consituent is not regulated by Hazardous Site Response Act
5. J - Result is an estimated value. The result is greater than or equal to the Method Detection Limit (MDL) and less than the Practical Quantitation Limit (PQL). Values are displayed as less that the PQL with a J.
6. < - Constituent was analyzed for, but was not detected above the MDL and is considered a non-detect. Value is displayed as less than the PQL.
7. MCL/SMCL - Maximum Contaminant Level/Secondary Contaminant Level - United States Environmental Protection Agency (USEPA) Table of Regulated Drinking Water Contaminants (updated June 2016). Available at <https://www.epa.gov/ground-water-and-drinking-water/table-regulated-drinking-water-contaminants>. USEPA Secondary Drinking Water Standards: Guidance for Nuisance Chemicals (updated January 2016). Available at <https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals>.
8. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed with an accompanying U. The MDC varies depending upon the sample amount and elapsed time of the measurement.
9. -- Each of these Appendix IV constituents were not detected during the March 2018 monitoring event and therefore are not required to be analyzed.

TABLE 5B.  
ANALYTICAL DATA SUMMARY  
Ash Pond - (June 2018)  
GPC PLANT SCHERER  
JULIETTE, GEORGIA



Analyte	Units	SCREENING/TARGET LEVELS							GROUNDWATER MONITORING WELLS						
		MCL	SMCL	PQL/RL	MDL	SGWC-14	SGWC-15	SGWC-16	SGWC-17	SGWC-18	SGWC-19	SGWC-20	SGWC-21	SGWC-22	SGWC-23
		Sample Date:				6/7/2018	6/7/2018	6/7/2018	6/7/2018	6/8/2018	6/8/2018	6/7/2018	6/7/2018	6/7/2018	6/7/2018
Appendix III															
BORON, TOTAL	mg/L	N/R	N/R	0.05	0.021	1.6	1.7	0.59	0.35	4.3	1.8	2.1	1.4	0.41	0.71
CALCIUM, TOTAL	mg/L	N/R	N/R	0.23	0.13	44	16	0.84	49	90	37	11	29	26	25
CHLORIDE, TOTAL	mg/L	N/R	250	1.0	0.89	10	9.3	7.7	8	9	7.2	9.9	8.6	10	10
FLUORIDE, TOTAL	mg/L	4	2	0.2	0.082	ND	ND (0.14 J)	ND	ND	ND	ND	0.21	ND	ND	ND
pH	S.U.	N/R	6.5-8.5	N/R	N/R	5.81	4.62	5.26	6.21	4.69	5.52	4.26	6.1	5.66	5.97
SULFATE, TOTAL	mg/L	N/R	250	1.0	0.7	190	190	25	170	870	220	210	79	94	100
TOTAL DISSOLVED SOLIDS	mg/L	N/R	500	5.0	3.4	340	310	74	360	820	320	320	260	210	220
Appendix IV															
ANTIMONY, TOTAL	mg/L	0.006	N/R	0.0025	0.001	--	--	--	--	--	--	--	--	--	--
ARSENIC, TOTAL	mg/L	0.01	N/R	0.0013	0.00046	ND	ND	ND	ND	0.002	ND	ND	ND	ND	ND
BARIUM, TOTAL	mg/L	2	N/R	0.0025	0.00049	0.057	0.035	0.022	0.02	0.032	0.035	0.029	0.092	0.084	0.082
BERYLLIUM, TOTAL	mg/L	0.004	N/R	0.0025	0.00034	ND	ND (0.00038 J)	ND	ND	ND (0.00035 J)	ND	ND (0.000869 J)	ND	ND	ND
CADMIUM, TOTAL	mg/L	0.005	N/R	0.0025	0.00034	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	mg/L	0.1	N/R	0.0025	0.0011	ND	0.032	0.01	0.0083	0.0086	0.015	ND	ND	ND	ND
COBALT, TOTAL	mg/L	N/R	N/R	0.0025	0.0004	0.0025	0.3	0.0037	ND	0.19	ND	0.21	ND	ND (0.0022 J)	ND
LEAD, TOTAL	mg/L	0.015	N/R	0.0013	0.00035	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	mg/L	N/R	N/R	0.005	0.0032	ND	ND (0.003 J)	ND	ND	ND (0.0042 J)	ND (0.0022 J)	ND (0.0038 J)	ND (0.0013 J)	ND	ND (0.0027 J)
MERCURY, TOTAL	mg/L	0.002	N/R	0.0002	0.00007	ND	ND (0.00013 J)	ND	ND (0.00011 J)	ND (0.00014 J)	ND	ND (0.000082 J)	ND	ND	0.00028
MOLYBDENUM, TOTAL	mg/L	N/R	N/R	0.015	0.00085	--	--	--	--	--	--	--	--	--	--
RADIUM (226 + 228)	pCi/L	5	N/R	5	varies	0.211 U	0.64	0.283 U	0.172 U	0.32 U	0.0462 U	0.235 U	0.514	0.222 U	0.64
SELENIUM, TOTAL	mg/L	0.05	N/R	0.0013	0.00024	ND (0.00084 J)	0.0014	0.0013	ND (0.00064 J)	0.014	ND (0.00063 J)	ND (0.00066 J)	ND	ND	ND
THALLIUM, TOTAL	mg/L	0.002	N/R	0.0005	8.5E-05	ND	ND	ND	ND	ND (0.00019 J)	ND	ND (0.00014 J)	ND	ND	ND

NOTES:

1. Bold indicated detection above MDL.
2. mg/L - Milligrams per Liter
3. pCi/L - picocuries per Liter
4. N/R - Indicates consitiuent is not regulated by Hazardous Site Response Act
5. J - Result is an estimated value. The result is greater than or equal to the Method Detection Limit (MDL) and less than the Practical Quantitation Limit (PQL). Values are displayed as less that the PQL with a J.
6. < - Constituent was analyzed for, but was not detected above the MDL and is considered a non-detect. Value is displayed as less than the PQL.
7. MCL/SMCL - Maximum Contaminant Level/Secondary Contaminant Level - United States Environmental Protection Agency (USEPA) Table of Regulated Drinking Water Contaminants (updated June 2016). Available at <https://www.epa.gov/ground-water-and-drinking-water/table-regulated-drinking-water-contaminants>. USEPA Secondary Drinking Water Standards: Guidance for Nuisance Chemicals (updated January 2016). Available at <https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals>.
8. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed with an accompanying U. The MDC varies depending upon the sample amount and elapsed time of the measurement.
9. -- Each of these Appendix IV constituents were not detected during the March 2018 monitoring event and therefore are not required to be analyzed.

TABLE 5C.  
ANALYTICAL DATA SUMMARY  
Ash Pond - (October/December 2018)  
GPC PLANT SCHERER  
JULIETTE, GEORGIA



Analyte	Units	SCREENING/TARGET LEVELS			GROUNDWATER MONITORING WELLS														
		MCL	PQL/RL	MDL	SGWA-1	SGWA-2	SGWA-3	SGWA-4	SGWA-5	SGWA-24	SGWA-25	SGWC-6	SGWC-7	SGWC-8	SGWC-9	SGWC-10	SGWC-11	SGWC-12	SGWC-13
		Sample Date:			10/5/2018	10/5/2018	10/5/2018	10/8/2018	10/8/2018	10/5/2018	10/8/2018	10/8/2018	10/9/2018	10/9/2018	10/9/2018	10/9/2018	10/16/2018	10/8/2018	10/8/2018
Appendix III																			
BORON, TOTAL	mg/L	N/R	0.05	0.021	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.064	1.6	0.098	0.35	ND	0.47
CALCIUM, TOTAL	mg/L	N/R	0.23	0.13	1.7	10	4.3	18	1.4	12	9.4	6.5	16	46	55	4.0	1.8	21	16
CHLORIDE, TOTAL	mg/L	N/R	1.0	0.89	1.7	1.3	2	1.2	1.7	2	1.9	1.8	4.2	11	13	8.6	7.8	9.1	7.5
FLUORIDE, TOTAL	mg/L	4	0.2	0.082	ND	ND	ND	ND	ND	ND	ND	ND	0.2	0.47	ND	ND	ND	ND	ND
pH	S.U.	N/R	N/R	N/R	5.46	6.81	5.76	6.53	5.7	6.37	6.16	6.3	6.56	6.51	6.06	5.29	5.34	6.16	6.02
SULFATE, TOTAL	mg/L	N/R	1.0	0.7	ND	ND	1.4	ND (0.76 J)	ND	ND	ND	ND	10	72	330	16	1.3	43	74
TOTAL DISSOLVED SOLIDS	mg/L	N/R	5.0	3.4	16	110	ND (4 J)	94	58	100	ND (4 J)	44	170	390	510	38	100	190	140
Appendix IV																			
ANTIMONY, TOTAL	mg/L	0.006	0.0025	0.001	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
ARSENIC, TOTAL	mg/L	0.01	0.0013	0.00046	ND	ND	ND (0.00096 J)	ND (0.00056 J)	ND (0.00052 J)	ND	ND	ND	ND (0.00049 J)	ND (0.00053 J)	ND (0.00068 J)	ND	ND	ND (0.0007 J)	ND (0.00069 J)
BARIUM, TOTAL	mg/L	2	0.0025	0.00049	0.058	0.036	0.035	0.064	0.011	0.024	0.024	0.069	0.28	0.17	0.077	0.032	0.037	0.049	0.033
BERYLLIUM, TOTAL	mg/L	0.004	0.0025	0.00034	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CADMIUM, TOTAL	mg/L	0.005	0.0025	0.00034	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	mg/L	0.1	0.0025	0.0011	ND (0.0014 J)	0.016	0.015	0.0098	ND (0.0011 J)	0.0058	ND	ND	ND	ND (0.0016 J)	ND	ND	ND	ND	ND
COBALT, TOTAL	mg/L	N/R	0.0025	0.0004	ND (0.00075 J)	ND	ND	ND	ND	ND (0.00058 J)	0.0047	ND	0.013	ND	0.0049	0.03	0.023	0.0037	0.0036
LEAD, TOTAL	mg/L	0.015	0.0013	0.00035	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	mg/L	N/R	0.005	0.0032	ND (0.0018 J)	ND	ND	ND	ND	ND (0.0012 J)	ND	ND	0.0053	ND (0.002 J)	ND	ND	ND (0.0031 J)	ND	ND (0.0014 J)
MERCURY, TOTAL	mg/L	0.002	0.0002	0.00007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.000072 J)	ND	ND
MOLYBDENUM, TOTAL	mg/L	N/R	0.015	0.00085	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
RADIUM (226 + 228)	pCi/L	5	5	varies	0.522	0.474	0.5	-0.0974 U	0.764	0.568	0.478	0.77	0.385	3.01	0.565	0.387	1.06	0.865	0.64
SELENIUM, TOTAL	mg/L	0.05	0.0013	0.00024	ND (0.00031 J)	ND (0.00028 J)	ND (0.00024 J)	ND (0.00041 J)	ND	ND	ND	ND	ND (0.00034 J)	ND	ND	ND	ND (0.00046 J)	ND	ND
THALLIUM, TOTAL	mg/L	0.002	0.0005	8.5E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:

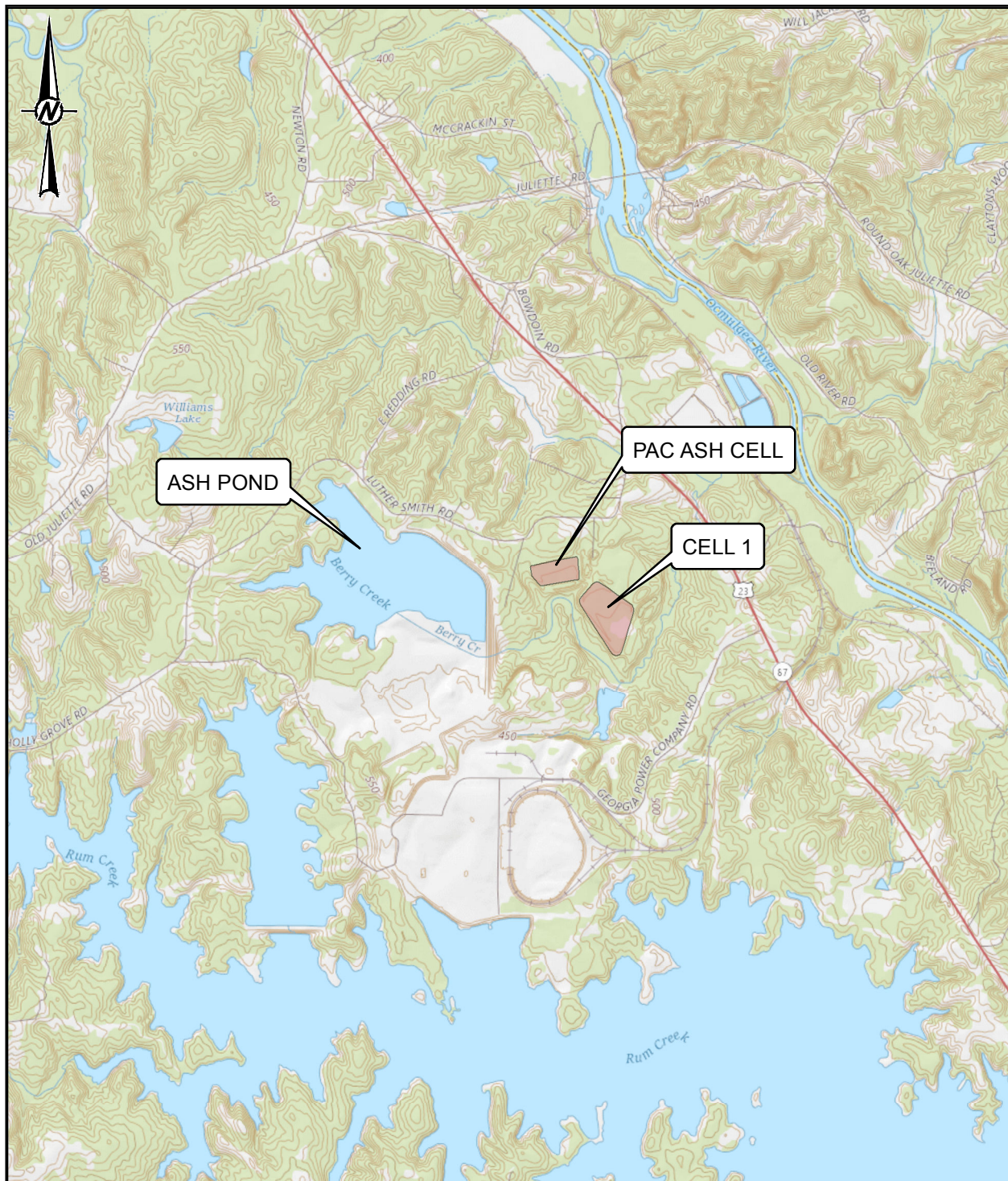
1. Bold indicated detection above MDL.
2. mg/L - Milligrams per Liter
3. pCi/L - picocuries per Liter
4. N/R - Indicates consituent is not regulated by Hazardous Site Response Act
5. J - Result is an estimated value. The result is greater than or equal to the Method Detection Limit (MDL) and less than the Practical Quantitation Limit (PQL). Values are displayed as less that the PQL with a J.
6. < - Constituent was analyzed for, but was not detected above the MDL and is considered a non-detect. Value is displayed as less than the PQL.
7. MCL/SMCL - Maximum Contaminant Level/Secondary Contaminant Level - United States Environmental Protection Agency (USEPA) Table of Regulated Drinking Water Contaminants (updated June 2016). Available at <https://www.epa.gov/ground-water-and-drinking-water/table-regulated-drinking-water-contaminants>. USEPA Secondary Drinking Water Standards: Guidance for Nuisance Chemicals (updated January 2016). Available at <https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals>.
8. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed with an accompanying U. The MDC varies depending upon the sample amount and elapsed time of the measurement.
9. SGWC-18 samples collected 10/18/2018 required dilution for analyses. As a result, the reporting limit has been increased. The reported result is not detected at 0.41 mg/L.
10. -- Each of these Appendix IV constituents were not detected during the March 2018 monitoring event and therefore are not required to be analyzed.

TABLE 5C.  
ANALYTICAL DATA SUMMARY  
Ash Pond - (October/December 2018)  
GPC PLANT SCHERER  
JULIETTE, GEORGIA

Analyte	Units	SCREENING/TARGET LEVELS							GROUNDWATER MONITORING WELLS						
		MCL	SMCL	PQL/RL	MDL	SGWC-14	SGWC-15	SGWC-16	SGWC-17	SGWC-18	SGWC-19	SGWC-20	SGWC-21	SGWC-22	SGWC-23
		Sample Date:				10/8/2018	10/16/2018	10/8/2018	10/8/2018	10/18/2018	10/9/2018	10/18/2018	10/8/2018	10/8/2018	10/8/2018
Appendix III															
BORON, TOTAL	mg/L	N/R	N/R	0.05	0.021	1.4	1.5	0.55	0.44	4.9	1.8	2.3	1.2	0.4	0.6
CALCIUM, TOTAL	mg/L	N/R	N/R	0.23	0.13	37	16	0.94	46	100	42	12	29	28	24
CHLORIDE, TOTAL	mg/L	N/R	250	1.0	0.89	10	10	8.1	8.1	16	7.3	11	9.3	10	9.9
FLUORIDE, TOTAL	mg/L	4	2	0.2	0.082	ND	ND (0.14 J)	ND	ND	ND*	ND	0.23	ND	ND	ND
pH	S.U.	N/R	6.5-8.5	N/R	N/R	5.83	4.59	5.29	6.17	4.7	5.51	4.3	6.14	5.74	5.94
SULFATE, TOTAL	mg/L	N/R	250	1.0	0.7	190	200	28	180	1200	270	210	88	99	96
TOTAL DISSOLVED SOLIDS	mg/L	N/R	500	5.0	3.4	280	350	42	390	1200	250	370	310	260	30
Appendix IV															
ANTIMONY, TOTAL	mg/L	0.006	N/R	0.0025	0.001	--	--	--	--	--	--	--	--	--	--
ARSENIC, TOTAL	mg/L	0.01	N/R	0.0013	0.00046	ND (0.00097 J)	ND	ND (0.00054 J)	ND (0.00075 J)	0.0023	ND (0.00058 J)	ND	ND	ND	ND
BARIUM, TOTAL	mg/L	2	N/R	0.0025	0.00049	0.053	0.031	0.025	0.021	0.033	0.037	0.027	0.092	0.084	0.077
BERYLLIUM, TOTAL	mg/L	0.004	N/R	0.0025	0.00034	ND	ND (0.0004 J)	ND	ND	ND	ND	ND (0.00079 J)	ND	ND	ND
CADMIUM, TOTAL	mg/L	0.005	N/R	0.0025	0.00034	--	--	--	--	--	--	--	--	--	--
CHROMIUM, TOTAL	mg/L	0.1	N/R	0.0025	0.0011	ND	0.032	0.013	0.0055	0.009	0.017	ND	ND	ND (0.0012 J)	ND (0.0017 J)
COBALT, TOTAL	mg/L	N/R	N/R	0.0025	0.0004	0.0071	0.27	0.0044	ND (0.00046 J)	0.21	ND	0.16	ND	ND (0.0021 J)	ND
LEAD, TOTAL	mg/L	0.015	N/R	0.0013	0.00035	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LITHIUM, TOTAL	mg/L	N/R	N/R	0.005	0.0032	ND (0.0011 J)	ND (0.0034 J)	ND (0.0015 J)	ND	0.0054	ND	0.0062	ND (0.0019 J)	ND (0.0011 J)	ND (0.0035 J)
MERCURY, TOTAL	mg/L	0.002	N/R	0.0002	0.00007	ND	ND	ND	ND	0.00021	ND	ND	ND	ND	ND
MOLYBDENUM, TOTAL	mg/L	N/R	N/R	0.015	0.00085	--	--	--	--	--	--	--	--	--	--
RADIUM (226 + 228)	pCi/L	5	N/R	5	varies	0.636	0.731	0.799	0.682	0.304 U	0.584	0.399	0.374	0.499	0.437
SELENIUM, TOTAL	mg/L	0.05	N/R	0.0013	0.00024	ND	0.0021	0.0014	ND (0.00028 J)	0.017	ND (0.0005 J)	ND (0.00049 J)	ND	ND	ND (0.00026 J)
THALLIUM, TOTAL	mg/L	0.002	N/R	0.0005	8.5E-05	ND	ND (0.0001 J)	ND	ND	ND (0.00019 J)	ND	ND (0.00018 J)	ND	ND	ND

- NOTES:
1. Bold indicated detection above MDL.
  2. mg/L - Milligrams per Liter
  3. pCi/L - picocuries per Liter
  4. N/R - Indicates consitiuent is not regulated by Hazardous Site Response Act
  5. J - Result is an estimated value. The result is greater than or equal to the Method Detection Limit (MDL) and less than the Practical Quantitation Limit (PQL). Values are displayed as less that the PQL with a J.
  6. < - Constituent was analyzed for, but was not detected above the MDL and is considered a non-detect. Value is displayed as less than the PQL.
  7. MCL/SMCL - Maximum Contaminant Level/Secondary Contaminant Level - United States Environmental Protection Agency (USEPA) Table of Regulated Drinking Water Contaminants (updated June 2016). Available at <https://www.epa.gov/ground-water-and-drinking-water/table-regulated-drinking-water-contaminants>. USEPA Secondary Drinking Water Standards: Guidance for Nuisance Chemicals (updated January 2016). Available at <https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals>.
  8. Radium data is a combination of radium isotopes 226 and 228. When results are reported below the MDC (Minimum Detectable Concentration), data is displayed with an accompanying U. The MDC varies depending upon the sample amount and elapsed time of the measurement.
  9. SGWC-18 samples collected 10/18/2018 required dilution for analyses. As a result, the reporting limit has been increased. The reported result is not detected at 0.41 mg/L.
  10. -- Each of these Appendix IV constituents were not detected during the March 2018 monitoring event and therefore are not required to be analyzed.





Service Layer Credits: USGS The National Map: National Boundaries Dataset, National Elevation Dataset, Geographic Names Information System, National

0 4000 8000  
Feet

CLIENT  
GEORGIA POWER COMPANY  
PLANT SCHERER



PROJECT  
2018 1ST SEMI-ANNUAL GROUNDWATER MONITORING  
PLANT SCHERER

TITLE  
**SITE LOCATION MAP**

CONSULTANT



YYYY-MM-DD 2018-01-31

PREPARED DJC

DESIGN DLP

REVIEW *dlp*

APPROVED *rpk*

PROJECT No.  
1662350

CONTROL  
1662350\000-GIS.mxd

Rev.  
0

FIGURE  
1





**LEGEND**  
 MONITORING WELL LOCATION

ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.

1. COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).

2. MONITORING WELL/PIEZOMETER LOCATIONS PROVIDED BY SOUTHERN COMPANY SERVICES.

100050001000

Feet

CLIENT

GEORGIA POWER COMPANY



PROJECT

GROUNDWATER MONITORING PROGRAM

AP-1

TITLE

SITE PLAN AND DETECTION MONITORING

WELL LOCATION MAP

CONSULTANT



YYYY-MM-DD	2018-10-24
PREPARED	DJC
DESIGN	DLP
REVIEW	DLP
APPROVED	RPK

PROJECT No.

1662350

CONTROL

1662350L003-GIS.mxd

Rev.

0

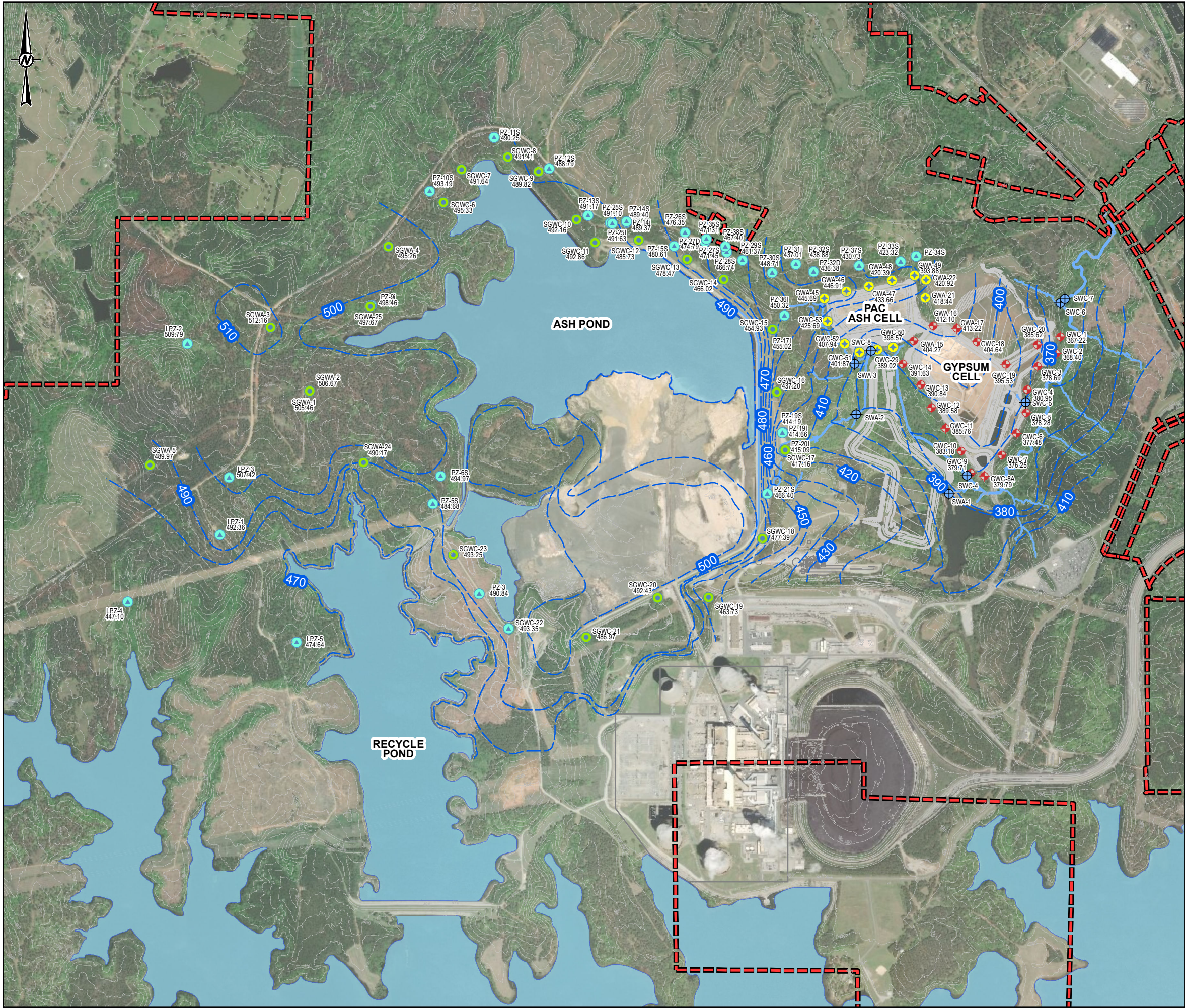
FIGURE

A1

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

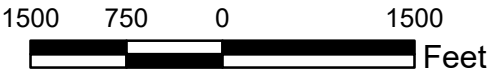




- LEGEND**
- SCHERER ASH POND-CCR MONITORING WELL
  - ◆ CELL 1 LANDFILL MONITORING WELL
  - PAC ASH LANDFILL MONITORING WELL
  - ▲ ASH POND PIEZOMETER
  - PIEZOMETER
  - SURFACE WATER SAMPLE
  - - - GROUNDWATER ELEVATION CONTOUR (FMSL)
  - - - PROPERTY BOUNDARY
  - PONDS

- NOTES**
1. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
  2. GROUNDWATER ELEVATION MEASUREMENTS OBTAINED JUNE 4, 2018 BY GOLDER ASSOCIATES.
  3. GROUNDWATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FMSL).
  4. DEEP AND INTERMEDIATE WELL GROUNDWATER ELEVATIONS WERE NOT USED TO GENERATE GROUNDWATER CONTOURS.

- REFERENCE**
1. COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).
  2. MONITORING WELL/PIEZOMETER LOCATIONS PROVIDED BY SOUTHERN COMPANY SERVICES.



CLIENT  
SOUTHERN COMPANY SERVICES, INC.  
PLANT SCHERER



PROJECT  
GROUNDWATER MONITORING PROGRAM  
SEMI-ANNUAL COMPLIANCE EVENT

TITLE  
**ASH POND POTENTIOMETRIC SURFACE MAP  
JUNE 4, 2018**

CONSULTANT	YYYY-MM-DD	2018-06-15
	PREPARED	DJC
	DESIGN	DLP
	REVIEW	
	APPROVED	



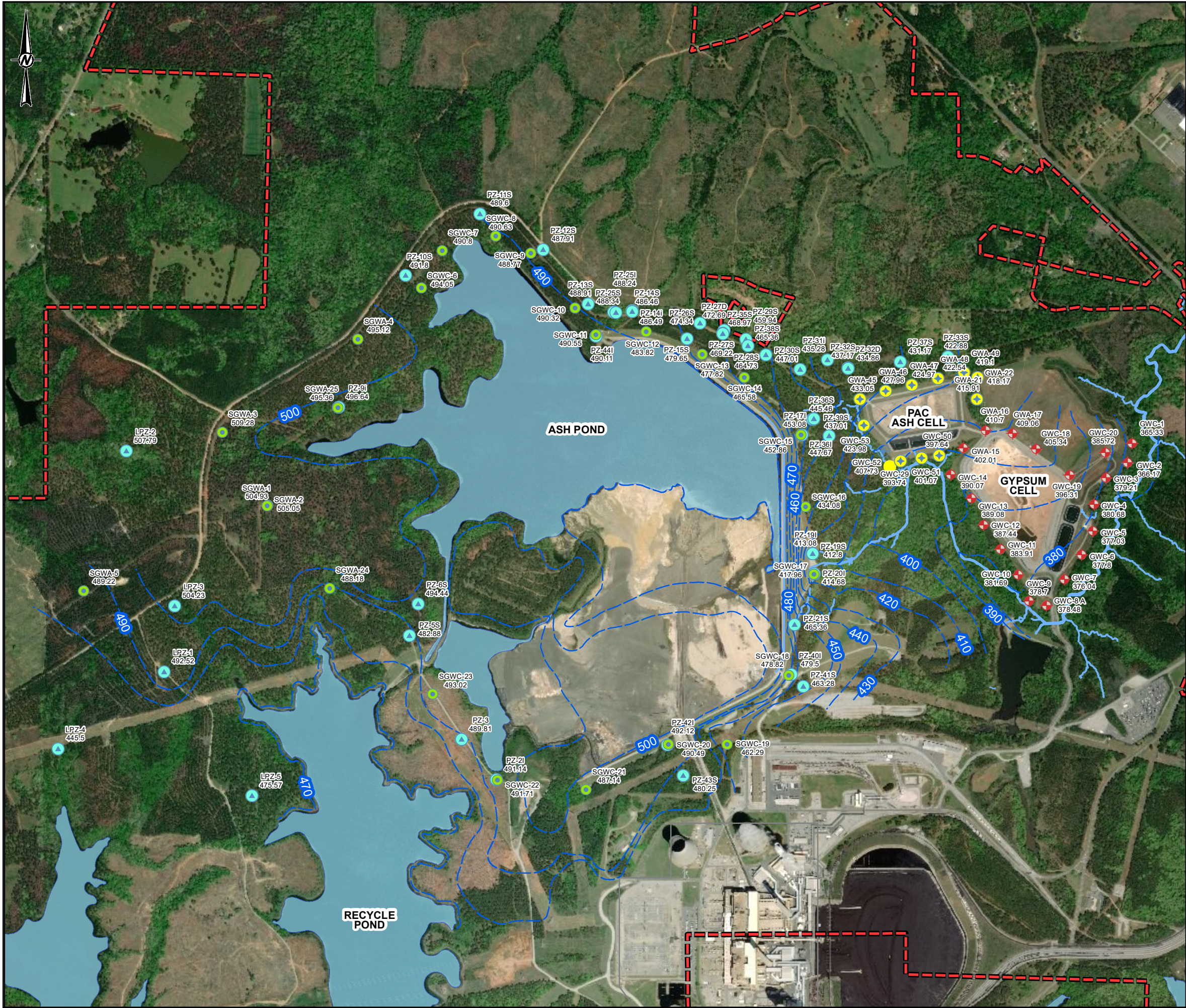
PROJECT No.  
1662350

CONTROL  
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Rev.  
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FIGURE  
**3A**

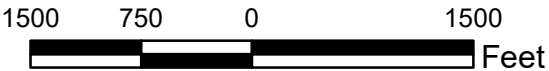




- LEGEND**
- SCHERER ASH POND-CCR MONITORING WELL
  - ◆ CELL 1 LANDFILL MONITORING WELL
  - PAC ASH LANDFILL MONITORING WELL
  - ▲ ASH POND PIEZOMETER
  - ▲ PIEZOMETER
  - ⊕ SURFACE WATER SAMPLE
  - - - GROUNDWATER ELEVATION CONTOUR (FAMSL)
  - ▬▬▬ PROPERTY BOUNDARY
  - PONDS

- NOTES**
1. ALL LOCATIONS AND BOUNDARIES ARE APPROXIMATE.
  2. GROUNDWATER ELEVATION MEASUREMENTS OBTAINED OCTOBER 1, 2018 BY GOLDER ASSOCIATES.
  3. GROUNDWATER ELEVATIONS DISPLAYED IN FEET ABOVE MEAN SEA LEVEL (FAMSL).
  4. DEEP AND INTERMEDIATE WELL GROUNDWATER ELEVATIONS WERE NOT USED TO GENERATE GROUNDWATER CONTOURS.

- REFERENCE**
1. COORDINATE SYSTEM: NAD 1983 STATE PLAN GEORGIA WEST (U.S. FEET).
  2. MONITORING WELL/PIEZOMETER LOCATIONS PROVIDED BY SOUTHERN COMPANY SERVICES.



CLIENT  
SOUTHERN COMPANY SERVICES, INC.  
PLANT SCHERER



PROJECT  
GROUNDWATER MONITORING PROGRAM  
SEMI-ANNUAL COMPLIANCE EVENT

TITLE  
**ASH POND POTENTIOMETRIC SURFACE MAP  
OCTOBER 1, 2018**

CONSULTANT	YYYY-MM-DD	2019-01-04
	PREPARED	DJC
	DESIGN	DLP
	REVIEW	
	APPROVED	



PROJECT No.  
1662350

CONTROL  
1662350N004-GIS.mxd

Rev.  
0

FIGURE  
**3B**



**APPENDIX A**

**Laboratory Analytical & Field  
Sampling Reports**

# ANALYTICAL DATA REPORTS MARCH 2018

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-151428-1

TestAmerica Sample Delivery Group: Ash Pond

Client Project/Site: CCR - Plant Scherer

For:

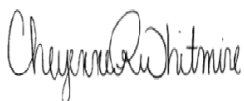
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

4/13/2018 3:56:21 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

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

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

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

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

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

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



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Detection Summary . . . . .	4
Method Summary . . . . .	10
Sample Summary . . . . .	11
Client Sample Results . . . . .	12
Definitions . . . . .	46
Chronicle . . . . .	47
QC Association . . . . .	56
QC Sample Results . . . . .	63
Chain of Custody . . . . .	72
Receipt Checklists . . . . .	76
Certification Summary . . . . .	77

## Case Narrative

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Job ID: 400-151428-1**

**Laboratory: TestAmerica Pensacola**

### Narrative

#### Job Narrative 400-151428-1

#### Metals

Method(s) 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 392265 and analytical batch 393106 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 6020: The post digestion spike % recovery for Lithium associated with batch 393373 was outside of control limits.

Method(s) 6020: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 392655, 392993 and 393096 and analytical batch 393373 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 6020: The continuing calibration verification (CCV) associated with batch 393373 recovered above the upper control limit for Lithium. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SGWA-2 (400-151428-3), SGWA-4 (400-151428-7), SGWC-6 (400-151428-9), SGWC-14 (400-151428-11), SGWC-16 (400-151428-13), SGWA-25 (400-151428-16), EB-2 (AP) (400-151428-17), SGWC-10 (400-151428-20), SGWC-9 (400-151428-26) and (MB 400-392655/1-A ^5).

Method(s) 6020: The continuing calibration verification (CCV) associated with batch 393373 recovered above the upper control limit for Arsenic, Beryllium, and Lithium. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: (MB 400-392993/1-A ^5).

Method(s) 6020: The continuing calibration verification (CCV) associated with batch 393373 recovered above the upper control limit for Arsenic and Lithium. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SGWC-12 (400-151428-22), SGWC-13 (400-151428-23) and FB-1 (AP) (400-151428-24).

Method(s) 6020: The continuing calibration verification (CCV) associated with batch 393373 recovered above the upper control limit for Arsenic. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: SGWC-11 (400-151428-21) and FB-2 (AP) (400-151428-25).

Method(s) 7470A: The method blank for preparation batch 393404 and analytical batch 393589 contained Mercury above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-analysis of samples was not performed.

## Detection Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

### Client Sample ID: SGWA-24

### Lab Sample ID: 400-151428-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.022		0.0025	0.00049	mg/L	5		6020	Total
Chromium	0.0042		0.0025	0.0011	mg/L	5		6020	Recoverable
									Total
									Recoverable

### Client Sample ID: SGWA-1

### Lab Sample ID: 400-151428-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.053		0.0025	0.00049	mg/L	5		6020	Total
Cobalt	0.0065		0.0025	0.00040	mg/L	5		6020	Recoverable
Lithium - RA	0.0024	J	0.0050	0.0011	mg/L	5		6020	Total
Mercury	0.000089	J B	0.00020	0.000070	mg/L	1		7470A	Recoverable
									Total/NA

### Client Sample ID: SGWA-2

### Lab Sample ID: 400-151428-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.036		0.0025	0.00049	mg/L	5		6020	Total
Chromium	0.013		0.0025	0.0011	mg/L	5		6020	Recoverable
									Total
									Recoverable

### Client Sample ID: FD-1 (AP)

### Lab Sample ID: 400-151428-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.054		0.0025	0.00049	mg/L	5		6020	Total
Cobalt	0.0060		0.0025	0.00040	mg/L	5		6020	Recoverable
Lithium - RA	0.0023	J	0.0050	0.0011	mg/L	5		6020	Total
Mercury	0.000089	J B	0.00020	0.000070	mg/L	1		7470A	Recoverable
									Total/NA

### Client Sample ID: EB-1 (AP)

### Lab Sample ID: 400-151428-5

No Detections.

### Client Sample ID: SGWA-3

### Lab Sample ID: 400-151428-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.035		0.0025	0.00049	mg/L	5		6020	Total
Chromium	0.012		0.0025	0.0011	mg/L	5		6020	Recoverable
Lithium - RA	0.0013	J	0.0050	0.0011	mg/L	5		6020	Total
									Recoverable

### Client Sample ID: SGWA-4

### Lab Sample ID: 400-151428-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.061		0.0025	0.00049	mg/L	5		6020	Total
									Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

## Client Sample ID: SGWA-4 (Continued)

## Lab Sample ID: 400-151428-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	0.0058		0.0025	0.0011	mg/L	5		6020	Total Recoverable

## Client Sample ID: SGWA-5

## Lab Sample ID: 400-151428-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.010		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Lithium - RA	0.0017	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

## Client Sample ID: SGWC-6

## Lab Sample ID: 400-151428-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.021		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0040		0.0025	0.00040	mg/L	5		6020	Total Recoverable

## Client Sample ID: SGWC-7

## Lab Sample ID: 400-151428-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.19	J	0.20	0.082	mg/L	1		300.0	Total/NA
Barium	0.27		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0054		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium - RA	0.0061		0.0050	0.0011	mg/L	5		6020	Total Recoverable

## Client Sample ID: SGWC-14

## Lab Sample ID: 400-151428-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.055		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0083		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Mercury	0.00010	J B	0.00020	0.000070	mg/L	1		7470A	Total/NA

## Client Sample ID: SGWC-15

## Lab Sample ID: 400-151428-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.12	J	0.20	0.082	mg/L	1		300.0	Total/NA
Barium	0.035		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Beryllium	0.00041	J	0.0025	0.00034	mg/L	5		6020	Total Recoverable
Chromium	0.031		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Cobalt	0.27		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium - RA	0.0034	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Mercury	0.00014	J B	0.00020	0.000070	mg/L	1		7470A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

### Client Sample ID: SGWC-16

### Lab Sample ID: 400-151428-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Barium	0.021		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Chromium	0.0098		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Cobalt	0.0037		0.0025	0.00040	mg/L	5			6020	Total Recoverable

### Client Sample ID: SGWC-17

### Lab Sample ID: 400-151428-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Barium	0.020		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Chromium	0.0045		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Lithium	0.0014	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable

### Client Sample ID: SGWC-23

### Lab Sample ID: 400-151428-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Barium	0.076		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Chromium	0.0012	J	0.0025	0.0011	mg/L	5			6020	Total Recoverable
Lithium - RA	0.0050		0.0050	0.0011	mg/L	5			6020	Total Recoverable

### Client Sample ID: SGWA-25

### Lab Sample ID: 400-151428-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Arsenic	0.00052	J	0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.024		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Cobalt	0.014		0.0025	0.00040	mg/L	5			6020	Total Recoverable

### Client Sample ID: EB-2 (AP)

### Lab Sample ID: 400-151428-17

No Detections.

### Client Sample ID: FD-2 (AP)

### Lab Sample ID: 400-151428-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Barium	0.056		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Cobalt	0.0083		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium - RA	0.0013	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable

### Client Sample ID: SGWC-8

### Lab Sample ID: 400-151428-19

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola



## Detection Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

### Client Sample ID: SGWC-8 (Continued)

Lab Sample ID: 400-151428-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.40		0.20	0.082	mg/L	1		300.0	Total/NA
Barium	0.17		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.0012	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium - RA	0.0023	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-10

Lab Sample ID: 400-151428-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.031		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.026		0.0025	0.00040	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-11

Lab Sample ID: 400-151428-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.039		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.024		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium - RA	0.0029	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-12

Lab Sample ID: 400-151428-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.043		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0035		0.0025	0.00040	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-13

Lab Sample ID: 400-151428-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.029		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0035		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lead	0.00039	J	0.0013	0.00035	mg/L	5		6020	Total Recoverable

### Client Sample ID: FB-1 (AP)

Lab Sample ID: 400-151428-24

No Detections.

### Client Sample ID: FB-2 (AP)

Lab Sample ID: 400-151428-25

No Detections.

### Client Sample ID: SGWC-9

Lab Sample ID: 400-151428-26

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

### Client Sample ID: SGWC-9 (Continued)

### Lab Sample ID: 400-151428-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.069		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0087		0.0025	0.00040	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-18

### Lab Sample ID: 400-151428-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0015		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.029		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Beryllium	0.00036	J	0.0025	0.00034	mg/L	5		6020	Total Recoverable
Chromium	0.0082		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Cobalt	0.16		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Selenium	0.0085		0.0013	0.00024	mg/L	5		6020	Total Recoverable
Thallium	0.00011	J	0.00050	0.000085	mg/L	5		6020	Total Recoverable
Lithium - RA	0.0056		0.0050	0.0011	mg/L	5		6020	Total Recoverable
Mercury	0.000083	J	0.00020	0.000070	mg/L	1		7470A	Total/NA

### Client Sample ID: SGWC-19

### Lab Sample ID: 400-151428-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.034		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.014		0.0025	0.0011	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-20

### Lab Sample ID: 400-151428-29

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.19	J	0.20	0.082	mg/L	1		300.0	Total/NA
Barium	0.027		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Beryllium	0.00079	J	0.0025	0.00034	mg/L	5		6020	Total Recoverable
Cobalt	0.18		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Thallium	0.000090	J	0.00050	0.000085	mg/L	5		6020	Total Recoverable
Lithium - RA	0.0053		0.0050	0.0011	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-21

### Lab Sample ID: 400-151428-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.090		0.0025	0.00049	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

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

Lab Sample ID: 400-151428-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.0038	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-22

Lab Sample ID: 400-151428-31

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.084		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0022	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0033	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

### Client Sample ID: EB-3 (AP)

Lab Sample ID: 400-151428-32

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.0016	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

### Client Sample ID: FB-3 (AP)

Lab Sample ID: 400-151428-33

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.0024	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

### Client Sample ID: FD-3 (AP)

Lab Sample ID: 400-151428-34

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.085		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0021	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0028	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Method Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL PEN
6020	Metals (ICP/MS)	SW846	TAL PEN
7470A	Mercury (CVAA)	SW846	TAL PEN

### Protocol References:

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

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

### Laboratory References:

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

# Sample Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-151428-1	SGWA-24	Water	03/26/18 11:00	03/28/18 09:44
400-151428-2	SGWA-1	Water	03/26/18 14:40	03/28/18 09:44
400-151428-3	SGWA-2	Water	03/26/18 15:40	03/28/18 09:44
400-151428-4	FD-1 (AP)	Water	03/26/18 00:00	03/28/18 09:44
400-151428-5	EB-1 (AP)	Water	03/26/18 16:15	03/28/18 09:44
400-151428-6	SGWA-3	Water	03/26/18 16:05	03/28/18 09:44
400-151428-7	SGWA-4	Water	03/27/18 13:10	03/29/18 10:20
400-151428-8	SGWA-5	Water	03/27/18 09:35	03/29/18 10:20
400-151428-9	SGWC-6	Water	03/27/18 14:25	03/29/18 10:20
400-151428-10	SGWC-7	Water	03/27/18 15:30	03/29/18 10:20
400-151428-11	SGWC-14	Water	03/27/18 09:25	03/29/18 10:20
400-151428-12	SGWC-15	Water	03/27/18 10:45	03/29/18 10:20
400-151428-13	SGWC-16	Water	03/27/18 12:35	03/29/18 10:20
400-151428-14	SGWC-17	Water	03/27/18 14:05	03/29/18 10:20
400-151428-15	SGWC-23	Water	03/27/18 15:10	03/29/18 10:20
400-151428-16	SGWA-25	Water	03/27/18 10:45	03/29/18 10:20
400-151428-17	EB-2 (AP)	Water	03/27/18 16:00	03/29/18 10:20
400-151428-18	FD-2 (AP)	Water	03/27/18 00:00	03/29/18 10:20
400-151428-19	SGWC-8	Water	03/27/18 09:25	03/29/18 10:20
400-151428-20	SGWC-10	Water	03/27/18 11:20	03/29/18 10:20
400-151428-21	SGWC-11	Water	03/27/18 13:30	03/29/18 10:20
400-151428-22	SGWC-12	Water	03/27/18 14:55	03/29/18 10:20
400-151428-23	SGWC-13	Water	03/27/18 16:05	03/29/18 10:20
400-151428-24	FB-1 (AP)	Water	03/27/18 09:00	03/29/18 10:20
400-151428-25	FB-2 (AP)	Water	03/27/18 10:40	03/29/18 10:20
400-151428-26	SGWC-9	Water	03/28/18 10:55	04/03/18 09:32
400-151428-27	SGWC-18	Water	03/28/18 11:55	04/03/18 09:32
400-151428-28	SGWC-19	Water	03/28/18 12:05	04/03/18 09:32
400-151428-29	SGWC-20	Water	03/28/18 10:10	04/03/18 09:32
400-151428-30	SGWC-21	Water	03/28/18 09:05	04/03/18 09:32
400-151428-31	SGWC-22	Water	03/28/18 09:25	04/03/18 09:32
400-151428-32	EB-3 (AP)	Water	03/28/18 13:00	04/03/18 09:32
400-151428-33	FB-3 (AP)	Water	03/28/18 09:00	04/03/18 09:32
400-151428-34	FD-3 (AP)	Water	03/28/18 00:00	04/03/18 09:32

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWA-24**

**Date Collected: 03/26/18 11:00**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-1**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 07:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 20:24	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 20:24	5
Barium	0.022		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 20:24	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 20:24	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 20:24	5
Chromium	0.0042		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 20:24	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 20:24	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 20:24	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 20:24	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 20:24	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 20:24	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0011	F1	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/10/18 14:37	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 15:35	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWA-1**

**Date Collected: 03/26/18 14:40**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-2**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 08:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 20:46	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 20:46	5
Barium	0.053		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 20:46	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 20:46	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 20:46	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 20:46	5
Cobalt	0.0065		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 20:46	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 20:46	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 20:46	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 20:46	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 20:46	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0024	J	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/10/18 14:42	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000089	J B	0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 15:37	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWA-2**

**Date Collected: 03/26/18 15:40**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-3**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 09:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Barium	0.036		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Chromium	0.013		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 20:51	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 20:51	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 15:38	1



# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: FD-1 (AP)**

**Date Collected: 03/26/18 00:00**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-4**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 09:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 20:55	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 20:55	5
Barium	0.054		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 20:55	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 20:55	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 20:55	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 20:55	5
Cobalt	0.0060		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 20:55	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 20:55	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 20:55	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 20:55	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 20:55	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0023	J	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/10/18 14:46	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000089	J B	0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 15:40	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: EB-1 (AP)**

**Date Collected: 03/26/18 16:15**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-5**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 09:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 21:00	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 21:00	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 21:00	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:00	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:00	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:00	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 21:00	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 21:00	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 21:00	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 21:00	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 21:00	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0011		0.0050	0.0011	mg/L	-	04/04/18 12:19	04/10/18 14:52	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 15:42	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWA-3**

**Date Collected: 03/26/18 16:05**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-6**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 11:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 21:04	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 21:04	5
Barium	0.035		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 21:04	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:04	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:04	5
Chromium	0.012		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:04	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 21:04	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 21:04	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 21:04	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 21:04	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 21:04	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0013	J	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/10/18 14:56	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 15:44	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWA-4**  
**Date Collected: 03/27/18 13:10**  
**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-7**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 11:26	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Barium	0.061		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Chromium	0.0058		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Lithium	<0.0011 ^		0.0050	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 21:31	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 21:31	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 15:45	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWA-5**

**Date Collected: 03/27/18 09:35**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-8**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 11:49	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 21:36	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 21:36	5
Barium	0.010		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 21:36	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:36	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:36	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:36	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 21:36	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 21:36	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 21:36	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 21:36	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 21:36	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0017	J	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/10/18 15:01	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 15:47	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-6**

**Date Collected: 03/27/18 14:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-9**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 12:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Barium	0.021		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Cobalt	0.0040		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 21:40	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 21:40	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 15:49	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-7**

**Date Collected: 03/27/18 15:30**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-10**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.19	J	0.20	0.082	mg/L	-		04/06/18 12:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 21:45	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 21:45	5
Barium	0.27		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 21:45	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:45	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:45	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:45	5
Cobalt	0.0054		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 21:45	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 21:45	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 21:45	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 21:45	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 21:45	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0061		0.0050	0.0011	mg/L	-	04/04/18 12:19	04/10/18 15:05	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 15:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-14**

**Lab Sample ID: 400-151428-11**

**Date Collected: 03/27/18 09:25**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 12:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Barium	0.055		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Cobalt	0.0083		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 21:49	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 21:49	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00010	J B	0.00020	0.000070	mg/L	-	04/10/18 12:15	04/11/18 16:01	1



# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Date Collected: 03/27/18 10:45**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-12**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.12	J	0.20	0.082	mg/L			04/07/18 02:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/04/18 12:19	04/09/18 21:54	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/04/18 12:19	04/09/18 21:54	5
Barium	0.035		0.0025	0.00049	mg/L		04/04/18 12:19	04/09/18 21:54	5
Beryllium	0.00041	J	0.0025	0.00034	mg/L		04/04/18 12:19	04/09/18 21:54	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/04/18 12:19	04/09/18 21:54	5
Chromium	0.031		0.0025	0.0011	mg/L		04/04/18 12:19	04/09/18 21:54	5
Cobalt	0.27		0.0025	0.00040	mg/L		04/04/18 12:19	04/09/18 21:54	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/04/18 12:19	04/09/18 21:54	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/04/18 12:19	04/09/18 21:54	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/04/18 12:19	04/09/18 21:54	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/04/18 12:19	04/09/18 21:54	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0034	J	0.0050	0.0011	mg/L		04/04/18 12:19	04/10/18 15:10	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00014	J B	0.00020	0.000070	mg/L		04/10/18 12:15	04/11/18 16:03	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-16**

**Lab Sample ID: 400-151428-13**

**Date Collected: 03/27/18 12:35**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 03:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Barium	0.021		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Chromium	0.0098		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Cobalt	0.0037		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 21:58	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 21:58	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 13:53	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-17**

**Lab Sample ID: 400-151428-14**

**Date Collected: 03/27/18 14:05**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/06/18 21:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Barium	0.020		0.0025	0.00049	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Chromium	0.0045		0.0025	0.0011	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Lithium	0.0014	J	0.0050	0.0011	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/01/18 12:07	04/06/18 17:45	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/01/18 12:07	04/06/18 17:45	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:12	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-23**

**Date Collected: 03/27/18 15:10**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-15**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 02:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 22:03	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 22:03	5
Barium	0.076		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 22:03	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 22:03	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 22:03	5
Chromium	0.0012	J	0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 22:03	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 22:03	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 22:03	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 22:03	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 22:03	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 22:03	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0050		0.0050	0.0011	mg/L	-	04/04/18 12:19	04/10/18 15:14	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:14	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWA-25**

**Date Collected: 03/27/18 10:45**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-16**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 03:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Arsenic	0.00052	J	0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Barium	0.024		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Cobalt	0.014		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 22:07	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 22:07	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:16	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: EB-2 (AP)**

**Date Collected: 03/27/18 16:00**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-17**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 04:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Lithium	<0.0011 ^		0.0050	0.0011	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 22:12	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 22:12	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:18	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: FD-2 (AP)**

**Date Collected: 03/27/18 00:00**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-18**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 05:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 22:39	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 22:39	5
Barium	0.056		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 22:39	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 22:39	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 22:39	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 22:39	5
Cobalt	0.0083		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 22:39	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 22:39	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 22:39	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 22:39	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 22:39	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0013	J	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/10/18 15:19	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:19	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-8**

**Date Collected: 03/27/18 09:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-19**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.40		0.20	0.082	mg/L			04/07/18 05:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/04/18 12:19	04/09/18 22:43	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/04/18 12:19	04/09/18 22:43	5
Barium	0.17		0.0025	0.00049	mg/L		04/04/18 12:19	04/09/18 22:43	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/04/18 12:19	04/09/18 22:43	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/04/18 12:19	04/09/18 22:43	5
Chromium	0.0012	J	0.0025	0.0011	mg/L		04/04/18 12:19	04/09/18 22:43	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/04/18 12:19	04/09/18 22:43	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/04/18 12:19	04/09/18 22:43	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/04/18 12:19	04/09/18 22:43	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/04/18 12:19	04/09/18 22:43	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/04/18 12:19	04/09/18 22:43	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0023	J	0.0050	0.0011	mg/L		04/04/18 12:19	04/10/18 15:42	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/10/18 14:15	04/12/18 14:21	1



# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-10**

**Date Collected: 03/27/18 11:20**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-20**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 06:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Barium	0.031		0.0025	0.00049	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Cobalt	0.026		0.0025	0.00040	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/04/18 12:19	04/09/18 22:48	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/04/18 12:19	04/09/18 22:48	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:23	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Date Collected: 03/27/18 13:30**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-21**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 06:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/06/18 12:38	04/10/18 05:42	5
Arsenic	<0.00046	^	0.0013	0.00046	mg/L	-	04/06/18 12:38	04/10/18 05:42	5
Barium	0.039		0.0025	0.00049	mg/L	-	04/06/18 12:38	04/10/18 05:42	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/06/18 12:38	04/10/18 05:42	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/06/18 12:38	04/10/18 05:42	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/06/18 12:38	04/10/18 05:42	5
Cobalt	0.024		0.0025	0.00040	mg/L	-	04/06/18 12:38	04/10/18 05:42	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/06/18 12:38	04/10/18 05:42	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/06/18 12:38	04/10/18 05:42	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/06/18 12:38	04/10/18 05:42	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/06/18 12:38	04/10/18 05:42	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0029	J	0.0050	0.0011	mg/L	-	04/06/18 12:38	04/10/18 14:10	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:24	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-12**

**Date Collected: 03/27/18 14:55**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-22**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 06:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Arsenic	<0.00046	^	0.0013	0.00046	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Barium	0.043		0.0025	0.00049	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Cobalt	0.0035		0.0025	0.00040	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/06/18 12:38	04/10/18 05:46	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/06/18 12:38	04/10/18 05:46	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:26	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-13**

**Lab Sample ID: 400-151428-23**

**Date Collected: 03/27/18 16:05**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 09:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Arsenic	<0.00046	^	0.0013	0.00046	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Barium	0.029		0.0025	0.00049	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Cobalt	0.0035		0.0025	0.00040	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Lead	0.00039	J	0.0013	0.00035	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/06/18 12:38	04/10/18 05:51	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/06/18 12:38	04/10/18 05:51	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:28	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: FB-1 (AP)**

**Date Collected: 03/27/18 09:00**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-24**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 10:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Arsenic	<0.00046	^	0.0013	0.00046	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/06/18 12:38	04/10/18 05:55	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/06/18 12:38	04/10/18 05:55	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:40	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: FB-2 (AP)**

**Date Collected: 03/27/18 10:40**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-25**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 10:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/06/18 12:38	04/10/18 06:00	5
Arsenic	<0.00046	^	0.0013	0.00046	mg/L	-	04/06/18 12:38	04/10/18 06:00	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	04/06/18 12:38	04/10/18 06:00	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/06/18 12:38	04/10/18 06:00	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/06/18 12:38	04/10/18 06:00	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/06/18 12:38	04/10/18 06:00	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/06/18 12:38	04/10/18 06:00	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/06/18 12:38	04/10/18 06:00	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/06/18 12:38	04/10/18 06:00	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/06/18 12:38	04/10/18 06:00	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/06/18 12:38	04/10/18 06:00	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0011		0.0050	0.0011	mg/L	-	04/06/18 12:38	04/10/18 14:15	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:42	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-9**

**Date Collected: 03/28/18 10:55**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-26**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 11:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Barium	0.069		0.0025	0.00049	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Cobalt	0.0087		0.0025	0.00040	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/07/18 12:25	04/09/18 23:10	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/07/18 12:25	04/09/18 23:10	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:44	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-18**

**Date Collected: 03/28/18 11:55**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-27**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 11:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/07/18 12:25	04/09/18 23:15	5
Arsenic	0.0015		0.0013	0.00046	mg/L	-	04/07/18 12:25	04/09/18 23:15	5
Barium	0.029		0.0025	0.00049	mg/L	-	04/07/18 12:25	04/09/18 23:15	5
Beryllium	0.00036	J	0.0025	0.00034	mg/L	-	04/07/18 12:25	04/09/18 23:15	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/09/18 23:15	5
Chromium	0.0082		0.0025	0.0011	mg/L	-	04/07/18 12:25	04/09/18 23:15	5
Cobalt	0.16		0.0025	0.00040	mg/L	-	04/07/18 12:25	04/09/18 23:15	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/07/18 12:25	04/09/18 23:15	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/07/18 12:25	04/09/18 23:15	5
Selenium	0.0085		0.0013	0.00024	mg/L	-	04/07/18 12:25	04/09/18 23:15	5
Thallium	0.00011	J	0.00050	0.000085	mg/L	-	04/07/18 12:25	04/09/18 23:15	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0056		0.0050	0.0011	mg/L	-	04/07/18 12:25	04/10/18 12:54	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000083	J	0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:45	1



# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-19**

**Date Collected: 03/28/18 12:05**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-28**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 12:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/07/18 12:25	04/09/18 23:19	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/07/18 12:25	04/09/18 23:19	5
Barium	0.034		0.0025	0.00049	mg/L	-	04/07/18 12:25	04/09/18 23:19	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/09/18 23:19	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/09/18 23:19	5
Chromium	0.014		0.0025	0.0011	mg/L	-	04/07/18 12:25	04/09/18 23:19	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/07/18 12:25	04/09/18 23:19	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/07/18 12:25	04/09/18 23:19	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/07/18 12:25	04/09/18 23:19	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/07/18 12:25	04/09/18 23:19	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/07/18 12:25	04/09/18 23:19	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.0011		0.0050	0.0011	mg/L	-	04/07/18 12:25	04/10/18 12:58	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:47	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Date Collected: 03/28/18 10:10**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-29**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.19	J	0.20	0.082	mg/L	-		04/07/18 12:56	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/07/18 12:25	04/09/18 23:24	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/07/18 12:25	04/09/18 23:24	5
Barium	0.027		0.0025	0.00049	mg/L	-	04/07/18 12:25	04/09/18 23:24	5
Beryllium	0.00079	J	0.0025	0.00034	mg/L	-	04/07/18 12:25	04/09/18 23:24	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/09/18 23:24	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/07/18 12:25	04/09/18 23:24	5
Cobalt	0.18		0.0025	0.00040	mg/L	-	04/07/18 12:25	04/09/18 23:24	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/07/18 12:25	04/09/18 23:24	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/07/18 12:25	04/09/18 23:24	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/07/18 12:25	04/09/18 23:24	5
Thallium	0.000090	J	0.00050	0.000085	mg/L	-	04/07/18 12:25	04/09/18 23:24	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	0.0053		0.0050	0.0011	mg/L	-	04/07/18 12:25	04/10/18 13:03	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:49	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-21**

**Date Collected: 03/28/18 09:05**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-30**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 13:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Barium	0.090		0.0025	0.00049	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Lithium	0.0038	J	0.0050	0.0011	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/07/18 12:25	04/10/18 00:09	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/07/18 12:25	04/10/18 00:09	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:50	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-22**

**Date Collected: 03/28/18 09:25**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-31**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 13:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Barium	0.084		0.0025	0.00049	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Cobalt	0.0022	J	0.0025	0.00040	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Lithium	0.0033	J	0.0050	0.0011	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/07/18 12:25	04/10/18 00:13	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/07/18 12:25	04/10/18 00:13	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:52	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: EB-3 (AP)**

**Date Collected: 03/28/18 13:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-32**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 14:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Lithium	0.0016	J	0.0050	0.0011	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/07/18 12:25	04/10/18 00:18	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/07/18 12:25	04/10/18 00:18	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/10/18 14:15	04/12/18 14:54	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: FB-3 (AP)**

**Date Collected: 03/28/18 09:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-33**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 14:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Lithium	0.0024	J	0.0050	0.0011	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/07/18 12:25	04/10/18 00:22	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/07/18 12:25	04/10/18 00:22	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/11/18 11:34	04/12/18 13:16	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: FD-3 (AP)**

**Date Collected: 03/28/18 00:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-34**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 14:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Barium	0.085		0.0025	0.00049	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Cobalt	0.0021	J	0.0025	0.00040	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Lithium	0.0028	J	0.0050	0.0011	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	04/07/18 12:25	04/10/18 00:27	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	04/07/18 12:25	04/10/18 00:27	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	04/11/18 11:39	04/12/18 13:18	1

## Definitions/Glossary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

### Qualifiers

#### HPLC/IC

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

#### Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
^	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.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

### Glossary

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



# Lab Chronicle

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWA-24**

**Date Collected: 03/26/18 11:00**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 07:38	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 20:24	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 14:37	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 15:35	JAP	TAL PEN

**Client Sample ID: SGWA-1**

**Date Collected: 03/26/18 14:40**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 08:46	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 20:46	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 14:42	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 15:37	JAP	TAL PEN

**Client Sample ID: SGWA-2**

**Date Collected: 03/26/18 15:40**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 09:09	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 20:51	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 15:38	JAP	TAL PEN

**Client Sample ID: FD-1 (AP)**

**Date Collected: 03/26/18 00:00**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 09:32	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 20:55	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 14:46	DRE	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: FD-1 (AP)**

**Date Collected: 03/26/18 00:00**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 15:40	JAP	TAL PEN

**Client Sample ID: EB-1 (AP)**

**Date Collected: 03/26/18 16:15**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 09:55	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 21:00	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 14:52	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 15:42	JAP	TAL PEN

**Client Sample ID: SGWA-3**

**Date Collected: 03/26/18 16:05**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 11:03	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 21:04	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 14:56	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 15:44	JAP	TAL PEN

**Client Sample ID: SGWA-4**

**Date Collected: 03/27/18 13:10**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 11:26	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 21:31	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 15:45	JAP	TAL PEN

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWA-5**

**Date Collected: 03/27/18 09:35**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 11:49	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 21:36	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 15:01	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 15:47	JAP	TAL PEN

**Client Sample ID: SGWC-6**

**Date Collected: 03/27/18 14:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 12:12	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 21:40	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 15:49	JAP	TAL PEN

**Client Sample ID: SGWC-7**

**Date Collected: 03/27/18 15:30**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-10**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 12:34	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 21:45	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 15:05	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 15:51	JAP	TAL PEN

**Client Sample ID: SGWC-14**

**Date Collected: 03/27/18 09:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-11**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	392929	04/06/18 12:57	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 21:49	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 16:01	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Date Collected: 03/27/18 10:45**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-12**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/07/18 02:16	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 21:54	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 15:10	DRE	TAL PEN
Total/NA	Prep	7470A			393404	04/10/18 12:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393589	04/11/18 16:03	JAP	TAL PEN

**Client Sample ID: SGWC-16**

**Date Collected: 03/27/18 12:35**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-13**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/07/18 03:25	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 21:58	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 13:53	JAP	TAL PEN

**Client Sample ID: SGWC-17**

**Date Collected: 03/27/18 14:05**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-14**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/06/18 21:42	JAW	TAL PEN
Total Recoverable	Prep	3005A			392265	04/01/18 12:07	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393106	04/06/18 17:45	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:12	JAP	TAL PEN

**Client Sample ID: SGWC-23**

**Date Collected: 03/27/18 15:10**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-15**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/07/18 02:39	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 22:03	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 15:14	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:14	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWA-25**

**Date Collected: 03/27/18 10:45**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-16**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/07/18 03:48	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 22:07	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:16	JAP	TAL PEN

**Client Sample ID: EB-2 (AP)**

**Date Collected: 03/27/18 16:00**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-17**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/07/18 04:56	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 22:12	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:18	JAP	TAL PEN

**Client Sample ID: FD-2 (AP)**

**Date Collected: 03/27/18 00:00**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-18**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/07/18 05:19	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 22:39	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 15:19	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:19	JAP	TAL PEN

**Client Sample ID: SGWC-8**

**Date Collected: 03/27/18 09:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-19**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/07/18 05:42	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 22:43	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 15:42	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:21	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-10**

**Lab Sample ID: 400-151428-20**

**Date Collected: 03/27/18 11:20**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/07/18 06:05	JAW	TAL PEN
Total Recoverable	Prep	3005A			392655	04/04/18 12:19	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 22:48	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:23	JAP	TAL PEN

**Client Sample ID: SGWC-11**

**Lab Sample ID: 400-151428-21**

**Date Collected: 03/27/18 13:30**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/07/18 06:28	JAW	TAL PEN
Total Recoverable	Prep	3005A			392993	04/06/18 12:38	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/10/18 05:42	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392993	04/06/18 12:38	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 14:10	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:24	JAP	TAL PEN

**Client Sample ID: SGWC-12**

**Lab Sample ID: 400-151428-22**

**Date Collected: 03/27/18 14:55**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393083	04/07/18 06:50	JAW	TAL PEN
Total Recoverable	Prep	3005A			392993	04/06/18 12:38	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/10/18 05:46	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:26	JAP	TAL PEN

**Client Sample ID: SGWC-13**

**Lab Sample ID: 400-151428-23**

**Date Collected: 03/27/18 16:05**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 09:07	JAW	TAL PEN
Total Recoverable	Prep	3005A			392993	04/06/18 12:38	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/10/18 05:51	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:28	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

## Client Sample ID: FB-1 (AP)

Date Collected: 03/27/18 09:00

Date Received: 03/29/18 10:20

## Lab Sample ID: 400-151428-24

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 10:16	JAW	TAL PEN
Total Recoverable	Prep	3005A			392993	04/06/18 12:38	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/10/18 05:55	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:40	JAP	TAL PEN

## Client Sample ID: FB-2 (AP)

Date Collected: 03/27/18 10:40

Date Received: 03/29/18 10:20

## Lab Sample ID: 400-151428-25

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 10:39	JAW	TAL PEN
Total Recoverable	Prep	3005A			392993	04/06/18 12:38	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/10/18 06:00	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		392993	04/06/18 12:38	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 14:15	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:42	JAP	TAL PEN

## Client Sample ID: SGWC-9

Date Collected: 03/28/18 10:55

Date Received: 04/03/18 09:32

## Lab Sample ID: 400-151428-26

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 11:02	JAW	TAL PEN
Total Recoverable	Prep	3005A			393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 23:10	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:44	JAP	TAL PEN

## Client Sample ID: SGWC-18

Date Collected: 03/28/18 11:55

Date Received: 04/03/18 09:32

## Lab Sample ID: 400-151428-27

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 11:24	JAW	TAL PEN
Total Recoverable	Prep	3005A			393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 23:15	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 12:54	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:45	JAP	TAL PEN

TestAmerica Pensacola



# Lab Chronicle

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: SGWC-19**

**Date Collected: 03/28/18 12:05**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-28**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 12:33	JAW	TAL PEN
Total Recoverable	Prep	3005A			393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 23:19	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 12:58	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:47	JAP	TAL PEN

**Client Sample ID: SGWC-20**

**Date Collected: 03/28/18 10:10**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-29**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 12:56	JAW	TAL PEN
Total Recoverable	Prep	3005A			393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/09/18 23:24	DRE	TAL PEN
Total Recoverable	Prep	3005A	RA		393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020	RA	5	393442	04/10/18 13:03	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:49	JAP	TAL PEN

**Client Sample ID: SGWC-21**

**Date Collected: 03/28/18 09:05**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-30**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 13:19	JAW	TAL PEN
Total Recoverable	Prep	3005A			393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/10/18 00:09	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:50	JAP	TAL PEN

**Client Sample ID: SGWC-22**

**Date Collected: 03/28/18 09:25**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-31**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 13:42	JAW	TAL PEN
Total Recoverable	Prep	3005A			393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/10/18 00:13	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:52	JAP	TAL PEN

TestAmerica Pensacola



# Lab Chronicle

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

**Client Sample ID: EB-3 (AP)**

**Date Collected: 03/28/18 13:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-32**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 14:05	JAW	TAL PEN
Total Recoverable	Prep	3005A			393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/10/18 00:18	DRE	TAL PEN
Total/NA	Prep	7470A			393428	04/10/18 14:15	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 14:54	JAP	TAL PEN

**Client Sample ID: FB-3 (AP)**

**Date Collected: 03/28/18 09:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-33**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 14:27	JAW	TAL PEN
Total Recoverable	Prep	3005A			393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/10/18 00:22	DRE	TAL PEN
Total/NA	Prep	7470A			393526	04/11/18 11:34	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 13:16	JAP	TAL PEN

**Client Sample ID: FD-3 (AP)**

**Date Collected: 03/28/18 00:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-34**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	393088	04/07/18 14:50	JAW	TAL PEN
Total Recoverable	Prep	3005A			393096	04/07/18 12:25	DN1	TAL PEN
Total Recoverable	Analysis	6020		5	393373	04/10/18 00:27	DRE	TAL PEN
Total/NA	Prep	7470A			393526	04/11/18 11:39	JAP	TAL PEN
Total/NA	Analysis	7470A		1	393751	04/12/18 13:18	JAP	TAL PEN

## Laboratory References:

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

# QC Association Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

## HPLC/IC

### Analysis Batch: 392929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-1	SGWA-24	Total/NA	Water	300.0	
400-151428-2	SGWA-1	Total/NA	Water	300.0	
400-151428-3	SGWA-2	Total/NA	Water	300.0	
400-151428-4	FD-1 (AP)	Total/NA	Water	300.0	
400-151428-5	EB-1 (AP)	Total/NA	Water	300.0	
400-151428-6	SGWA-3	Total/NA	Water	300.0	
400-151428-7	SGWA-4	Total/NA	Water	300.0	
400-151428-8	SGWA-5	Total/NA	Water	300.0	
400-151428-9	SGWC-6	Total/NA	Water	300.0	
400-151428-10	SGWC-7	Total/NA	Water	300.0	
400-151428-11	SGWC-14	Total/NA	Water	300.0	
MB 400-392929/4	Method Blank	Total/NA	Water	300.0	
LCS 400-392929/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-392929/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-151428-1 MS	SGWA-24	Total/NA	Water	300.0	
400-151428-1 MSD	SGWA-24	Total/NA	Water	300.0	

### Analysis Batch: 393083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-12	SGWC-15	Total/NA	Water	300.0	
400-151428-13	SGWC-16	Total/NA	Water	300.0	
400-151428-14	SGWC-17	Total/NA	Water	300.0	
400-151428-15	SGWC-23	Total/NA	Water	300.0	
400-151428-16	SGWA-25	Total/NA	Water	300.0	
400-151428-17	EB-2 (AP)	Total/NA	Water	300.0	
400-151428-18	FD-2 (AP)	Total/NA	Water	300.0	
400-151428-19	SGWC-8	Total/NA	Water	300.0	
400-151428-20	SGWC-10	Total/NA	Water	300.0	
400-151428-21	SGWC-11	Total/NA	Water	300.0	
400-151428-22	SGWC-12	Total/NA	Water	300.0	
MB 400-393083/38	Method Blank	Total/NA	Water	300.0	
LCS 400-393083/39	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-393083/40	Lab Control Sample Dup	Total/NA	Water	300.0	
400-151428-14 MS	SGWC-17	Total/NA	Water	300.0	
400-151428-14 MSD	SGWC-17	Total/NA	Water	300.0	

### Analysis Batch: 393088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-23	SGWC-13	Total/NA	Water	300.0	
400-151428-24	FB-1 (AP)	Total/NA	Water	300.0	
400-151428-25	FB-2 (AP)	Total/NA	Water	300.0	
400-151428-26	SGWC-9	Total/NA	Water	300.0	
400-151428-27	SGWC-18	Total/NA	Water	300.0	
400-151428-28	SGWC-19	Total/NA	Water	300.0	
400-151428-29	SGWC-20	Total/NA	Water	300.0	
400-151428-30	SGWC-21	Total/NA	Water	300.0	
400-151428-31	SGWC-22	Total/NA	Water	300.0	
400-151428-32	EB-3 (AP)	Total/NA	Water	300.0	
400-151428-33	FB-3 (AP)	Total/NA	Water	300.0	
400-151428-34	FD-3 (AP)	Total/NA	Water	300.0	
MB 400-393088/4	Method Blank	Total/NA	Water	300.0	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

## HPLC/IC (Continued)

### Analysis Batch: 393088 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-393088/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-393088/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-151428-23 MS	SGWC-13	Total/NA	Water	300.0	
400-151428-23 MSD	SGWC-13	Total/NA	Water	300.0	

## Metals

### Prep Batch: 392265

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-14	SGWC-17	Total Recoverable	Water	3005A	
MB 400-392265/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-392265/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-151170-B-24-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-151170-B-24-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Prep Batch: 392655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-1	SGWA-24	Total Recoverable	Water	3005A	
400-151428-1 - RA	SGWA-24	Total Recoverable	Water	3005A	
400-151428-2	SGWA-1	Total Recoverable	Water	3005A	
400-151428-2 - RA	SGWA-1	Total Recoverable	Water	3005A	
400-151428-3	SGWA-2	Total Recoverable	Water	3005A	
400-151428-4 - RA	FD-1 (AP)	Total Recoverable	Water	3005A	
400-151428-4	FD-1 (AP)	Total Recoverable	Water	3005A	
400-151428-5 - RA	EB-1 (AP)	Total Recoverable	Water	3005A	
400-151428-5	EB-1 (AP)	Total Recoverable	Water	3005A	
400-151428-6 - RA	SGWA-3	Total Recoverable	Water	3005A	
400-151428-6	SGWA-3	Total Recoverable	Water	3005A	
400-151428-7	SGWA-4	Total Recoverable	Water	3005A	
400-151428-8 - RA	SGWA-5	Total Recoverable	Water	3005A	
400-151428-8	SGWA-5	Total Recoverable	Water	3005A	
400-151428-9	SGWC-6	Total Recoverable	Water	3005A	
400-151428-10	SGWC-7	Total Recoverable	Water	3005A	
400-151428-10 - RA	SGWC-7	Total Recoverable	Water	3005A	
400-151428-11	SGWC-14	Total Recoverable	Water	3005A	
400-151428-12 - RA	SGWC-15	Total Recoverable	Water	3005A	
400-151428-12	SGWC-15	Total Recoverable	Water	3005A	
400-151428-13	SGWC-16	Total Recoverable	Water	3005A	
400-151428-15 - RA	SGWC-23	Total Recoverable	Water	3005A	
400-151428-15	SGWC-23	Total Recoverable	Water	3005A	
400-151428-16	SGWA-25	Total Recoverable	Water	3005A	
400-151428-17	EB-2 (AP)	Total Recoverable	Water	3005A	
400-151428-18	FD-2 (AP)	Total Recoverable	Water	3005A	
400-151428-18 - RA	FD-2 (AP)	Total Recoverable	Water	3005A	
400-151428-19	SGWC-8	Total Recoverable	Water	3005A	
400-151428-19 - RA	SGWC-8	Total Recoverable	Water	3005A	
400-151428-20	SGWC-10	Total Recoverable	Water	3005A	
MB 400-392655/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-392655/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-151428-1 MS	SGWA-24	Total Recoverable	Water	3005A	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

## Metals (Continued)

### Prep Batch: 392655 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-1 MSD	SGWA-24	Total Recoverable	Water	3005A	

### Prep Batch: 392993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-21 - RA	SGWC-11	Total Recoverable	Water	3005A	
400-151428-21	SGWC-11	Total Recoverable	Water	3005A	
400-151428-22	SGWC-12	Total Recoverable	Water	3005A	
400-151428-23	SGWC-13	Total Recoverable	Water	3005A	
400-151428-24	FB-1 (AP)	Total Recoverable	Water	3005A	
400-151428-25	FB-2 (AP)	Total Recoverable	Water	3005A	
400-151428-25 - RA	FB-2 (AP)	Total Recoverable	Water	3005A	
MB 400-392993/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-392993/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-151541-C-5-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-151541-C-5-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Prep Batch: 393096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-26	SGWC-9	Total Recoverable	Water	3005A	
400-151428-27	SGWC-18	Total Recoverable	Water	3005A	
400-151428-27 - RA	SGWC-18	Total Recoverable	Water	3005A	
400-151428-28 - RA	SGWC-19	Total Recoverable	Water	3005A	
400-151428-28	SGWC-19	Total Recoverable	Water	3005A	
400-151428-29 - RA	SGWC-20	Total Recoverable	Water	3005A	
400-151428-29	SGWC-20	Total Recoverable	Water	3005A	
400-151428-30	SGWC-21	Total Recoverable	Water	3005A	
400-151428-31	SGWC-22	Total Recoverable	Water	3005A	
400-151428-32	EB-3 (AP)	Total Recoverable	Water	3005A	
400-151428-33	FB-3 (AP)	Total Recoverable	Water	3005A	
400-151428-34	FD-3 (AP)	Total Recoverable	Water	3005A	
MB 400-393096/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-393096/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-151478-G-5-B MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-151478-G-5-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 393106

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-14	SGWC-17	Total Recoverable	Water	6020	392265
MB 400-392265/1-A ^5	Method Blank	Total Recoverable	Water	6020	392265
LCS 400-392265/2-A	Lab Control Sample	Total Recoverable	Water	6020	392265
400-151170-B-24-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	392265
400-151170-B-24-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	392265

### Analysis Batch: 393373

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-1	SGWA-24	Total Recoverable	Water	6020	392655
400-151428-2	SGWA-1	Total Recoverable	Water	6020	392655
400-151428-3	SGWA-2	Total Recoverable	Water	6020	392655
400-151428-4	FD-1 (AP)	Total Recoverable	Water	6020	392655
400-151428-5	EB-1 (AP)	Total Recoverable	Water	6020	392655
400-151428-6	SGWA-3	Total Recoverable	Water	6020	392655

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 393373 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-7	SGWA-4	Total Recoverable	Water	6020	392655
400-151428-8	SGWA-5	Total Recoverable	Water	6020	392655
400-151428-9	SGWC-6	Total Recoverable	Water	6020	392655
400-151428-10	SGWC-7	Total Recoverable	Water	6020	392655
400-151428-11	SGWC-14	Total Recoverable	Water	6020	392655
400-151428-12	SGWC-15	Total Recoverable	Water	6020	392655
400-151428-13	SGWC-16	Total Recoverable	Water	6020	392655
400-151428-15	SGWC-23	Total Recoverable	Water	6020	392655
400-151428-16	SGWA-25	Total Recoverable	Water	6020	392655
400-151428-17	EB-2 (AP)	Total Recoverable	Water	6020	392655
400-151428-18	FD-2 (AP)	Total Recoverable	Water	6020	392655
400-151428-19	SGWC-8	Total Recoverable	Water	6020	392655
400-151428-20	SGWC-10	Total Recoverable	Water	6020	392655
400-151428-21	SGWC-11	Total Recoverable	Water	6020	392993
400-151428-22	SGWC-12	Total Recoverable	Water	6020	392993
400-151428-23	SGWC-13	Total Recoverable	Water	6020	392993
400-151428-24	FB-1 (AP)	Total Recoverable	Water	6020	392993
400-151428-25	FB-2 (AP)	Total Recoverable	Water	6020	392993
400-151428-26	SGWC-9	Total Recoverable	Water	6020	393096
400-151428-27	SGWC-18	Total Recoverable	Water	6020	393096
400-151428-28	SGWC-19	Total Recoverable	Water	6020	393096
400-151428-29	SGWC-20	Total Recoverable	Water	6020	393096
400-151428-30	SGWC-21	Total Recoverable	Water	6020	393096
400-151428-31	SGWC-22	Total Recoverable	Water	6020	393096
400-151428-32	EB-3 (AP)	Total Recoverable	Water	6020	393096
400-151428-33	FB-3 (AP)	Total Recoverable	Water	6020	393096
400-151428-34	FD-3 (AP)	Total Recoverable	Water	6020	393096
MB 400-392655/1-A ^5	Method Blank	Total Recoverable	Water	6020	392655
MB 400-392993/1-A ^5	Method Blank	Total Recoverable	Water	6020	392993
LCS 400-393096/2-A	Lab Control Sample	Total Recoverable	Water	6020	393096
400-151428-1 MS	SGWA-24	Total Recoverable	Water	6020	392655
400-151428-1 MSD	SGWA-24	Total Recoverable	Water	6020	392655
400-151478-G-5-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	393096
400-151478-G-5-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	393096
400-151541-C-5-B MS ^5	Matrix Spike	Total Recoverable	Water	6020	392993
400-151541-C-5-C MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	392993

### Prep Batch: 393404

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-1	SGWA-24	Total/NA	Water	7470A	
400-151428-2	SGWA-1	Total/NA	Water	7470A	
400-151428-3	SGWA-2	Total/NA	Water	7470A	
400-151428-4	FD-1 (AP)	Total/NA	Water	7470A	
400-151428-5	EB-1 (AP)	Total/NA	Water	7470A	
400-151428-6	SGWA-3	Total/NA	Water	7470A	
400-151428-7	SGWA-4	Total/NA	Water	7470A	
400-151428-8	SGWA-5	Total/NA	Water	7470A	
400-151428-9	SGWC-6	Total/NA	Water	7470A	
400-151428-10	SGWC-7	Total/NA	Water	7470A	
400-151428-11	SGWC-14	Total/NA	Water	7470A	
400-151428-12	SGWC-15	Total/NA	Water	7470A	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

## Metals (Continued)

### Prep Batch: 393404 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 400-393404/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-393404/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-151280-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	
400-151280-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Prep Batch: 393428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-13	SGWC-16	Total/NA	Water	7470A	
400-151428-14	SGWC-17	Total/NA	Water	7470A	
400-151428-15	SGWC-23	Total/NA	Water	7470A	
400-151428-16	SGWA-25	Total/NA	Water	7470A	
400-151428-17	EB-2 (AP)	Total/NA	Water	7470A	
400-151428-18	FD-2 (AP)	Total/NA	Water	7470A	
400-151428-19	SGWC-8	Total/NA	Water	7470A	
400-151428-20	SGWC-10	Total/NA	Water	7470A	
400-151428-21	SGWC-11	Total/NA	Water	7470A	
400-151428-22	SGWC-12	Total/NA	Water	7470A	
400-151428-23	SGWC-13	Total/NA	Water	7470A	
400-151428-24	FB-1 (AP)	Total/NA	Water	7470A	
400-151428-25	FB-2 (AP)	Total/NA	Water	7470A	
400-151428-26	SGWC-9	Total/NA	Water	7470A	
400-151428-27	SGWC-18	Total/NA	Water	7470A	
400-151428-28	SGWC-19	Total/NA	Water	7470A	
400-151428-29	SGWC-20	Total/NA	Water	7470A	
400-151428-30	SGWC-21	Total/NA	Water	7470A	
400-151428-31	SGWC-22	Total/NA	Water	7470A	
400-151428-32	EB-3 (AP)	Total/NA	Water	7470A	
MB 400-393428/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-393428/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-151428-13 MS	SGWC-16	Total/NA	Water	7470A	
400-151428-13 MSD	SGWC-16	Total/NA	Water	7470A	

### Analysis Batch: 393442

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-1 - RA	SGWA-24	Total Recoverable	Water	6020	392655
400-151428-2 - RA	SGWA-1	Total Recoverable	Water	6020	392655
400-151428-4 - RA	FD-1 (AP)	Total Recoverable	Water	6020	392655
400-151428-5 - RA	EB-1 (AP)	Total Recoverable	Water	6020	392655
400-151428-6 - RA	SGWA-3	Total Recoverable	Water	6020	392655
400-151428-8 - RA	SGWA-5	Total Recoverable	Water	6020	392655
400-151428-10 - RA	SGWC-7	Total Recoverable	Water	6020	392655
400-151428-12 - RA	SGWC-15	Total Recoverable	Water	6020	392655
400-151428-15 - RA	SGWC-23	Total Recoverable	Water	6020	392655
400-151428-18 - RA	FD-2 (AP)	Total Recoverable	Water	6020	392655
400-151428-19 - RA	SGWC-8	Total Recoverable	Water	6020	392655
400-151428-21 - RA	SGWC-11	Total Recoverable	Water	6020	392993
400-151428-25 - RA	FB-2 (AP)	Total Recoverable	Water	6020	392993
400-151428-27 - RA	SGWC-18	Total Recoverable	Water	6020	393096
400-151428-28 - RA	SGWC-19	Total Recoverable	Water	6020	393096
400-151428-29 - RA	SGWC-20	Total Recoverable	Water	6020	393096
MB 400-393096/1-A ^5	Method Blank	Total Recoverable	Water	6020	393096

TestAmerica Pensacola



# QC Association Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 393442 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-392655/2-A	Lab Control Sample	Total Recoverable	Water	6020	392655
LCS 400-392993/2-A	Lab Control Sample	Total Recoverable	Water	6020	392993

### Prep Batch: 393526

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-33	FB-3 (AP)	Total/NA	Water	7470A	
400-151428-34	FD-3 (AP)	Total/NA	Water	7470A	
MB 400-393526/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-393526/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-151582-N-3-E MS	Matrix Spike	Total/NA	Water	7470A	
400-151582-N-3-F MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Analysis Batch: 393589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-1	SGWA-24	Total/NA	Water	7470A	393404
400-151428-2	SGWA-1	Total/NA	Water	7470A	393404
400-151428-3	SGWA-2	Total/NA	Water	7470A	393404
400-151428-4	FD-1 (AP)	Total/NA	Water	7470A	393404
400-151428-5	EB-1 (AP)	Total/NA	Water	7470A	393404
400-151428-6	SGWA-3	Total/NA	Water	7470A	393404
400-151428-7	SGWA-4	Total/NA	Water	7470A	393404
400-151428-8	SGWA-5	Total/NA	Water	7470A	393404
400-151428-9	SGWC-6	Total/NA	Water	7470A	393404
400-151428-10	SGWC-7	Total/NA	Water	7470A	393404
400-151428-11	SGWC-14	Total/NA	Water	7470A	393404
400-151428-12	SGWC-15	Total/NA	Water	7470A	393404
MB 400-393404/14-A	Method Blank	Total/NA	Water	7470A	393404
LCS 400-393404/15-A	Lab Control Sample	Total/NA	Water	7470A	393404
400-151280-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	393404
400-151280-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	393404

### Analysis Batch: 393751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-13	SGWC-16	Total/NA	Water	7470A	393428
400-151428-14	SGWC-17	Total/NA	Water	7470A	393428
400-151428-15	SGWC-23	Total/NA	Water	7470A	393428
400-151428-16	SGWA-25	Total/NA	Water	7470A	393428
400-151428-17	EB-2 (AP)	Total/NA	Water	7470A	393428
400-151428-18	FD-2 (AP)	Total/NA	Water	7470A	393428
400-151428-19	SGWC-8	Total/NA	Water	7470A	393428
400-151428-20	SGWC-10	Total/NA	Water	7470A	393428
400-151428-21	SGWC-11	Total/NA	Water	7470A	393428
400-151428-22	SGWC-12	Total/NA	Water	7470A	393428
400-151428-23	SGWC-13	Total/NA	Water	7470A	393428
400-151428-24	FB-1 (AP)	Total/NA	Water	7470A	393428
400-151428-25	FB-2 (AP)	Total/NA	Water	7470A	393428
400-151428-26	SGWC-9	Total/NA	Water	7470A	393428
400-151428-27	SGWC-18	Total/NA	Water	7470A	393428
400-151428-28	SGWC-19	Total/NA	Water	7470A	393428
400-151428-29	SGWC-20	Total/NA	Water	7470A	393428
400-151428-30	SGWC-21	Total/NA	Water	7470A	393428

TestAmerica Pensacola

## QC Association Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

### Metals (Continued)

#### Analysis Batch: 393751 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-31	SGWC-22	Total/NA	Water	7470A	393428
400-151428-32	EB-3 (AP)	Total/NA	Water	7470A	393428
400-151428-33	FB-3 (AP)	Total/NA	Water	7470A	393526
400-151428-34	FD-3 (AP)	Total/NA	Water	7470A	393526
MB 400-393428/14-A	Method Blank	Total/NA	Water	7470A	393428
MB 400-393526/14-A	Method Blank	Total/NA	Water	7470A	393526
LCS 400-393428/15-A	Lab Control Sample	Total/NA	Water	7470A	393428
LCS 400-393526/15-A	Lab Control Sample	Total/NA	Water	7470A	393526
400-151428-13 MS	SGWC-16	Total/NA	Water	7470A	393428
400-151428-13 MSD	SGWC-16	Total/NA	Water	7470A	393428
400-151582-N-3-E MS	Matrix Spike	Total/NA	Water	7470A	393526
400-151582-N-3-F MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	393526



# QC Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 400-392929/4

Matrix: Water

Analysis Batch: 392929

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L			04/06/18 06:29	1

Lab Sample ID: LCS 400-392929/5

Matrix: Water

Analysis Batch: 392929

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	9.92		mg/L		99	90 - 110

Lab Sample ID: LCSD 400-392929/6

Matrix: Water

Analysis Batch: 392929

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	9.85		mg/L		99	90 - 110	1	15

Lab Sample ID: 400-151428-1 MS

Matrix: Water

Analysis Batch: 392929

Client Sample ID: SGWA-24

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	<0.082		10.0	9.94		mg/L		99	80 - 120

Lab Sample ID: 400-151428-1 MSD

Matrix: Water

Analysis Batch: 392929

Client Sample ID: SGWA-24

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	<0.082		10.0	9.89		mg/L		99	80 - 120	0	20

Lab Sample ID: MB 400-393083/38

Matrix: Water

Analysis Batch: 393083

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L			04/06/18 19:42	1

Lab Sample ID: LCS 400-393083/39

Matrix: Water

Analysis Batch: 393083

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	9.98		mg/L		100	90 - 110

Lab Sample ID: LCSD 400-393083/40

Matrix: Water

Analysis Batch: 393083

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	9.97		mg/L		100	90 - 110	0	15

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

Lab Sample ID: 400-151428-14 MS  
Matrix: Water  
Analysis Batch: 393083

Client Sample ID: SGWC-17  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	<0.082		10.0	10.2		mg/L	-	102	80 - 120

Lab Sample ID: 400-151428-14 MSD  
Matrix: Water  
Analysis Batch: 393083

Client Sample ID: SGWC-17  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	<0.082		10.0	10.2		mg/L	-	102	80 - 120	0	20

Lab Sample ID: MB 400-393088/4  
Matrix: Water  
Analysis Batch: 393088

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil	Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		04/07/18 07:59		1

Lab Sample ID: LCS 400-393088/5  
Matrix: Water  
Analysis Batch: 393088

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

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

Lab Sample ID: LCSD 400-393088/6  
Matrix: Water  
Analysis Batch: 393088

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

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

Lab Sample ID: 400-151428-23 MS  
Matrix: Water  
Analysis Batch: 393088

Client Sample ID: SGWC-13  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	<0.082		10.0	10.1		mg/L	-	101	80 - 120

Lab Sample ID: 400-151428-23 MSD  
Matrix: Water  
Analysis Batch: 393088

Client Sample ID: SGWC-13  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	<0.082		10.0	10.1		mg/L	-	101	80 - 120	1	20

# QC Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

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

Lab Sample ID: MB 400-392265/1-A ^5

Matrix: Water

Analysis Batch: 393106

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 392265

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/01/18 12:07	04/06/18 14:14	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/01/18 12:07	04/06/18 14:14	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/01/18 12:07	04/06/18 14:14	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/01/18 12:07	04/06/18 14:14	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/01/18 12:07	04/06/18 14:14	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/01/18 12:07	04/06/18 14:14	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/01/18 12:07	04/06/18 14:14	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/01/18 12:07	04/06/18 14:14	5
Lithium	<0.0011		0.0050	0.0011	mg/L		04/01/18 12:07	04/06/18 14:14	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/01/18 12:07	04/06/18 14:14	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/01/18 12:07	04/06/18 14:14	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/01/18 12:07	04/06/18 14:14	5

Lab Sample ID: LCS 400-392265/2-A

Matrix: Water

Analysis Batch: 393106

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 392265

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0528		mg/L		106	80 - 120
Arsenic	0.0500	0.0512		mg/L		102	80 - 120
Barium	0.0500	0.0505		mg/L		101	80 - 120
Beryllium	0.0500	0.0507		mg/L		101	80 - 120
Cadmium	0.0500	0.0515		mg/L		103	80 - 120
Chromium	0.0500	0.0497		mg/L		99	80 - 120
Cobalt	0.0500	0.0495		mg/L		99	80 - 120
Lead	0.0500	0.0512		mg/L		102	80 - 120
Lithium	0.0500	0.0503		mg/L		101	80 - 120
Molybdenum	0.0500	0.0514		mg/L		103	80 - 120
Selenium	0.0500	0.0488		mg/L		98	80 - 120
Thallium	0.0100	0.00986		mg/L		99	80 - 120

Lab Sample ID: 400-151170-B-24-B MS ^5

Matrix: Water

Analysis Batch: 393106

Client Sample ID: Matrix Spike

Prep Type: Total Recoverable

Prep Batch: 392265

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0010		0.0500	0.0556		mg/L		111	75 - 125
Arsenic	<0.00046		0.0500	0.0519		mg/L		104	75 - 125
Barium	0.035		0.0500	0.0880		mg/L		107	75 - 125
Beryllium	<0.00034		0.0500	0.0517		mg/L		103	75 - 125
Cadmium	<0.00034		0.0500	0.0512		mg/L		102	75 - 125
Chromium	0.0086	F1	0.0500	0.0589		mg/L		101	75 - 125
Cobalt	<0.00040		0.0500	0.0504		mg/L		101	75 - 125
Lead	<0.00035		0.0500	0.0518		mg/L		104	75 - 125
Lithium	<0.0011	F1	0.0500	0.0657	F1	mg/L		131	75 - 125
Molybdenum	<0.00085		0.0500	0.0537		mg/L		107	75 - 125
Selenium	<0.00024		0.0500	0.0502		mg/L		100	75 - 125
Thallium	<0.000085		0.0100	0.0100		mg/L		100	75 - 125

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

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

Lab Sample ID: 400-151170-B-24-C MSD ^5

Matrix: Water

Analysis Batch: 393106

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total Recoverable

Prep Batch: 392265

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.0010		0.0500	0.0543		mg/L		109	75 - 125	2	20
Arsenic	<0.00046		0.0500	0.0521		mg/L		104	75 - 125	0	20
Barium	0.035		0.0500	0.0865		mg/L		104	75 - 125	2	20
Beryllium	<0.00034		0.0500	0.0505		mg/L		101	75 - 125	2	20
Cadmium	<0.00034		0.0500	0.0537		mg/L		107	75 - 125	5	20
Chromium	0.0086	F1	0.0500	0.0717	F1	mg/L		126	75 - 125	20	20
Cobalt	<0.00040		0.0500	0.0504		mg/L		101	75 - 125	0	20
Lead	<0.00035		0.0500	0.0518		mg/L		104	75 - 125	0	20
Lithium	<0.0011	F1	0.0500	0.0656	F1	mg/L		131	75 - 125	0	20
Molybdenum	<0.00085		0.0500	0.0529		mg/L		106	75 - 125	2	20
Selenium	<0.00024		0.0500	0.0492		mg/L		98	75 - 125	2	20
Thallium	<0.00085		0.0100	0.0101		mg/L		101	75 - 125	1	20

Lab Sample ID: MB 400-392655/1-A ^5

Matrix: Water

Analysis Batch: 393373

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 392655

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/04/18 12:19	04/09/18 19:52	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/04/18 12:19	04/09/18 19:52	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/04/18 12:19	04/09/18 19:52	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/04/18 12:19	04/09/18 19:52	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/04/18 12:19	04/09/18 19:52	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/04/18 12:19	04/09/18 19:52	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/04/18 12:19	04/09/18 19:52	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/04/18 12:19	04/09/18 19:52	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L		04/04/18 12:19	04/09/18 19:52	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/04/18 12:19	04/09/18 19:52	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/04/18 12:19	04/09/18 19:52	5
Thallium	<0.00085		0.00050	0.00085	mg/L		04/04/18 12:19	04/09/18 19:52	5

Lab Sample ID: LCS 400-392655/2-A

Matrix: Water

Analysis Batch: 393442

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 392655

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0513		mg/L		103	80 - 120
Arsenic	0.0500	0.0516		mg/L		103	80 - 120
Barium	0.0500	0.0510		mg/L		102	80 - 120
Beryllium	0.0500	0.0527		mg/L		105	80 - 120
Cadmium	0.0500	0.0525		mg/L		105	80 - 120
Chromium	0.0500	0.0532		mg/L		106	80 - 120
Cobalt	0.0500	0.0540		mg/L		108	80 - 120
Lead	0.0500	0.0504		mg/L		101	80 - 120
Lithium	0.0500	0.0506		mg/L		101	80 - 120
Molybdenum	0.0500	0.0518		mg/L		104	80 - 120
Selenium	0.0500	0.0507		mg/L		101	80 - 120
Thallium	0.0100	0.0103		mg/L		103	80 - 120

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

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

Lab Sample ID: 400-151428-1 MS

Matrix: Water

Analysis Batch: 393373

Client Sample ID: SGWA-24

Prep Type: Total Recoverable

Prep Batch: 392655

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0010		0.0500	0.0533		mg/L		107	75 - 125
Arsenic	<0.00046		0.0500	0.0571		mg/L		114	75 - 125
Barium	0.022		0.0500	0.0738		mg/L		104	75 - 125
Beryllium	<0.00034		0.0500	0.0568		mg/L		114	75 - 125
Cadmium	<0.00034		0.0500	0.0504		mg/L		101	75 - 125
Chromium	0.0047		0.0500	0.0543		mg/L		99	75 - 125
Cobalt	<0.00040		0.0500	0.0518		mg/L		104	75 - 125
Lead	<0.00035		0.0500	0.0520		mg/L		104	75 - 125
Lithium	<0.0011	F1	0.0500	0.0699	F1 ^	mg/L		140	75 - 125
Molybdenum	<0.00085		0.0500	0.0492		mg/L		98	75 - 125
Selenium	0.00025	J	0.0500	0.0512		mg/L		102	75 - 125
Thallium	<0.00085		0.0100	0.00990		mg/L		99	75 - 125

Lab Sample ID: 400-151428-1 MSD

Matrix: Water

Analysis Batch: 393373

Client Sample ID: SGWA-24

Prep Type: Total Recoverable

Prep Batch: 392655

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.0010		0.0500	0.0522		mg/L		104	75 - 125	2	20
Arsenic	<0.00046		0.0500	0.0569		mg/L		114	75 - 125	0	20
Barium	0.022		0.0500	0.0726		mg/L		102	75 - 125	2	20
Beryllium	<0.00034		0.0500	0.0563		mg/L		113	75 - 125	1	20
Cadmium	<0.00034		0.0500	0.0493		mg/L		99	75 - 125	2	20
Chromium	0.0047		0.0500	0.0540		mg/L		98	75 - 125	1	20
Cobalt	<0.00040		0.0500	0.0518		mg/L		104	75 - 125	0	20
Lead	<0.00035		0.0500	0.0520		mg/L		104	75 - 125	0	20
Lithium	<0.0011	F1	0.0500	0.0700	F1 ^	mg/L		140	75 - 125	0	20
Molybdenum	<0.00085		0.0500	0.0474		mg/L		95	75 - 125	4	20
Selenium	0.00025	J	0.0500	0.0495		mg/L		99	75 - 125	3	20
Thallium	<0.00085		0.0100	0.00986		mg/L		99	75 - 125	0	20

Lab Sample ID: MB 400-392993/1-A ^5

Matrix: Water

Analysis Batch: 393373

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 392993

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/06/18 12:38	04/10/18 03:18	5
Arsenic	<0.00046	^	0.0013	0.00046	mg/L		04/06/18 12:38	04/10/18 03:18	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/06/18 12:38	04/10/18 03:18	5
Beryllium	<0.00034	^	0.0025	0.00034	mg/L		04/06/18 12:38	04/10/18 03:18	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/06/18 12:38	04/10/18 03:18	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/06/18 12:38	04/10/18 03:18	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/06/18 12:38	04/10/18 03:18	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/06/18 12:38	04/10/18 03:18	5
Lithium	<0.0011	^	0.0050	0.0011	mg/L		04/06/18 12:38	04/10/18 03:18	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/06/18 12:38	04/10/18 03:18	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/06/18 12:38	04/10/18 03:18	5
Thallium	<0.00085		0.00050	0.00085	mg/L		04/06/18 12:38	04/10/18 03:18	5

TestAmerica Pensacola



# QC Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

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

Lab Sample ID: LCS 400-392993/2-A

Matrix: Water

Analysis Batch: 393442

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 392993

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0507		mg/L		101	80 - 120
Arsenic	0.0500	0.0513		mg/L		103	80 - 120
Barium	0.0500	0.0498		mg/L		100	80 - 120
Beryllium	0.0500	0.0506		mg/L		101	80 - 120
Cadmium	0.0500	0.0516		mg/L		103	80 - 120
Chromium	0.0500	0.0531		mg/L		106	80 - 120
Cobalt	0.0500	0.0538		mg/L		108	80 - 120
Lead	0.0500	0.0513		mg/L		103	80 - 120
Lithium	0.0500	0.0493		mg/L		99	80 - 120
Molybdenum	0.0500	0.0516		mg/L		103	80 - 120
Selenium	0.0500	0.0506		mg/L		101	80 - 120
Thallium	0.0100	0.0103		mg/L		103	80 - 120

Lab Sample ID: 400-151541-C-5-B MS ^5

Matrix: Water

Analysis Batch: 393373

Client Sample ID: Matrix Spike

Prep Type: Total Recoverable

Prep Batch: 392993

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0010		0.0500	0.0551		mg/L		110	75 - 125
Arsenic	0.0017	^ F1	0.0500	0.0647	^ F1	mg/L		126	75 - 125
Barium	0.043		0.0500	0.0918		mg/L		99	75 - 125
Beryllium	<0.00034	^	0.0500	0.0575	^	mg/L		115	75 - 125
Cadmium	<0.00034		0.0500	0.0496		mg/L		99	75 - 125
Chromium	0.0050		0.0500	0.0441		mg/L		78	75 - 125
Cobalt	<0.00040		0.0500	0.0462		mg/L		92	75 - 125
Lead	<0.00035		0.0500	0.0515		mg/L		103	75 - 125
Lithium	0.25	^	0.0500	0.301	^ 4	mg/L		112	75 - 125
Molybdenum	<0.00085		0.0500	0.0503		mg/L		101	75 - 125
Selenium	<0.00024		0.0500	0.0497		mg/L		99	75 - 125
Thallium	<0.00085		0.0100	0.00950		mg/L		95	75 - 125

Lab Sample ID: 400-151541-C-5-C MSD ^5

Matrix: Water

Analysis Batch: 393373

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total Recoverable

Prep Batch: 392993

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Antimony	<0.0010		0.0500	0.0546		mg/L		109	75 - 125	1	20
Arsenic	0.0017	^ F1	0.0500	0.0640	^	mg/L		125	75 - 125	1	20
Barium	0.043		0.0500	0.0932		mg/L		101	75 - 125	1	20
Beryllium	<0.00034	^	0.0500	0.0567	^	mg/L		113	75 - 125	1	20
Cadmium	<0.00034		0.0500	0.0519		mg/L		104	75 - 125	5	20
Chromium	0.0050		0.0500	0.0443		mg/L		79	75 - 125	1	20
Cobalt	<0.00040		0.0500	0.0459		mg/L		92	75 - 125	1	20
Lead	<0.00035		0.0500	0.0510		mg/L		102	75 - 125	1	20
Lithium	0.25	^	0.0500	0.303	^ 4	mg/L		115	75 - 125	1	20
Molybdenum	<0.00085		0.0500	0.0487		mg/L		97	75 - 125	3	20
Selenium	<0.00024		0.0500	0.0470		mg/L		94	75 - 125	6	20
Thallium	<0.00085		0.0100	0.00948		mg/L		95	75 - 125	0	20

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

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

Lab Sample ID: MB 400-393096/1-A ^5

Matrix: Water

Analysis Batch: 393442

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 393096

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		04/07/18 12:25	04/10/18 12:22	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		04/07/18 12:25	04/10/18 12:22	5
Barium	<0.00049		0.0025	0.00049	mg/L		04/07/18 12:25	04/10/18 12:22	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		04/07/18 12:25	04/10/18 12:22	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		04/07/18 12:25	04/10/18 12:22	5
Chromium	<0.0011		0.0025	0.0011	mg/L		04/07/18 12:25	04/10/18 12:22	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		04/07/18 12:25	04/10/18 12:22	5
Lead	<0.00035		0.0013	0.00035	mg/L		04/07/18 12:25	04/10/18 12:22	5
Lithium	<0.0011		0.0050	0.0011	mg/L		04/07/18 12:25	04/10/18 12:22	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		04/07/18 12:25	04/10/18 12:22	5
Selenium	<0.00024		0.0013	0.00024	mg/L		04/07/18 12:25	04/10/18 12:22	5
Thallium	<0.000085		0.00050	0.000085	mg/L		04/07/18 12:25	04/10/18 12:22	5

Lab Sample ID: LCS 400-393096/2-A

Matrix: Water

Analysis Batch: 393373

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 393096

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0522		mg/L		104	80 - 120
Arsenic	0.0500	0.0521		mg/L		104	80 - 120
Barium	0.0500	0.0504		mg/L		101	80 - 120
Beryllium	0.0500	0.0528		mg/L		106	80 - 120
Cadmium	0.0500	0.0497		mg/L		99	80 - 120
Chromium	0.0500	0.0479		mg/L		96	80 - 120
Cobalt	0.0500	0.0507		mg/L		101	80 - 120
Lead	0.0500	0.0513		mg/L		103	80 - 120
Lithium	0.0500	0.0517 ^		mg/L		103	80 - 120
Molybdenum	0.0500	0.0500		mg/L		100	80 - 120
Selenium	0.0500	0.0487		mg/L		97	80 - 120
Thallium	0.0100	0.00960		mg/L		96	80 - 120

Lab Sample ID: 400-151478-G-5-B MS ^5

Matrix: Water

Analysis Batch: 393373

Client Sample ID: Matrix Spike

Prep Type: Total Recoverable

Prep Batch: 393096

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0010		0.0500	0.0534		mg/L		107	75 - 125
Arsenic	<0.00046	^	0.0500	0.0554	^	mg/L		111	75 - 125
Barium	0.085		0.0500	0.142		mg/L		114	75 - 125
Beryllium	<0.00034		0.0500	0.0548		mg/L		110	75 - 125
Cadmium	<0.00034		0.0500	0.0496		mg/L		99	75 - 125
Chromium	<0.0011		0.0500	0.0502		mg/L		100	75 - 125
Cobalt	0.0014	J	0.0500	0.0534		mg/L		104	75 - 125
Lead	<0.00035		0.0500	0.0517		mg/L		103	75 - 125
Lithium	<0.0011	F1 ^	0.0500	0.0704	F1 ^	mg/L		141	75 - 125
Molybdenum	<0.00085		0.0500	0.0501		mg/L		100	75 - 125
Selenium	<0.00024		0.0500	0.0504		mg/L		101	75 - 125
Thallium	<0.000085		0.0100	0.00985		mg/L		98	75 - 125

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

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

Lab Sample ID: 400-151478-G-5-C MSD ^5

Matrix: Water

Analysis Batch: 393373

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total Recoverable

Prep Batch: 393096

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.0010		0.0500	0.0517		mg/L		103	75 - 125	3	20
Arsenic	<0.00046	^	0.0500	0.0565	^	mg/L		113	75 - 125	2	20
Barium	0.085		0.0500	0.138		mg/L		106	75 - 125	3	20
Beryllium	<0.00034		0.0500	0.0551		mg/L		110	75 - 125	1	20
Cadmium	<0.00034		0.0500	0.0492		mg/L		98	75 - 125	1	20
Chromium	<0.0011		0.0500	0.0499		mg/L		100	75 - 125	1	20
Cobalt	0.0014	J	0.0500	0.0536		mg/L		104	75 - 125	0	20
Lead	<0.00035		0.0500	0.0516		mg/L		103	75 - 125	0	20
Lithium	<0.0011	F1 ^	0.0500	0.0717	F1 ^	mg/L		143	75 - 125	2	20
Molybdenum	<0.00085		0.0500	0.0478		mg/L		96	75 - 125	5	20
Selenium	<0.00024		0.0500	0.0481		mg/L		96	75 - 125	5	20
Thallium	<0.000085		0.0100	0.00971		mg/L		97	75 - 125	1	20

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 400-393404/14-A

Matrix: Water

Analysis Batch: 393589

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 393404

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0000777	J	0.00020	0.000070	mg/L		04/10/18 12:08	04/11/18 15:00	1

Lab Sample ID: LCS 400-393404/15-A

Matrix: Water

Analysis Batch: 393589

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 393404

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

Lab Sample ID: 400-151280-B-1-C MS

Matrix: Water

Analysis Batch: 393589

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 393404

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070		0.00201	0.00198		mg/L		98	80 - 120

Lab Sample ID: 400-151280-B-1-D MSD

Matrix: Water

Analysis Batch: 393589

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 393404

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000070		0.00201	0.00193		mg/L		96	80 - 120	2	20

Lab Sample ID: MB 400-393428/14-A

Matrix: Water

Analysis Batch: 393751

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 393428

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/10/18 14:14	04/12/18 13:50	1

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

Lab Sample ID: LCS 400-393428/15-A  
Matrix: Water  
Analysis Batch: 393751

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 393428

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.000964		mg/L		96	80 - 120

Lab Sample ID: 400-151428-13 MS  
Matrix: Water  
Analysis Batch: 393751

Client Sample ID: SGWC-16  
Prep Type: Total/NA  
Prep Batch: 393428

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070		0.00201	0.00180		mg/L		89	80 - 120

Lab Sample ID: 400-151428-13 MSD  
Matrix: Water  
Analysis Batch: 393751

Client Sample ID: SGWC-16  
Prep Type: Total/NA  
Prep Batch: 393428

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000070		0.00201	0.00169		mg/L		84	80 - 120	6	20

Lab Sample ID: MB 400-393526/14-A  
Matrix: Water  
Analysis Batch: 393751

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 393526

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		04/11/18 11:34	04/12/18 12:23	1

Lab Sample ID: LCS 400-393526/15-A  
Matrix: Water  
Analysis Batch: 393751

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 393526

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.000976		mg/L		97	80 - 120

Lab Sample ID: 400-151582-N-3-E MS  
Matrix: Water  
Analysis Batch: 393751

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 393526

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070		0.00201	0.00176		mg/L		87	80 - 120

Lab Sample ID: 400-151582-N-3-F MSD  
Matrix: Water  
Analysis Batch: 393751

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 393526

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000070		0.00201	0.00183		mg/L		91	80 - 120	4	20



# Chain of Custody Record

<b>Client Information</b> Client Contact: Ben Hodges Southern Company Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State: GA, Zip: 30308 Enroll: JAbraham@southernco.com Project Name: CCR - Scherer Site: Ash Pond		Lab PM: Whitmire, Cheyenne R E-Mail: cheyenne.whitmire@testamericainc.com Carrier Tracking No(s): COC No: 400-57303-24790 Page: 1 of 1	
Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 4007041 SSOW#:		<b>Analysis Requested</b> Perform MS/MSD (Yes or No) 300_ORGFM_28D-Fluoride 6020-Sb,As,Ba,Be,Cd,Cr,Co,Pb,Mo,Se,Ti,7470A-Hg 9315_Ra226,9320_Ra228,Ra226Ra228_GFPc Total Number of containers:	
<b>Sample Identification</b> Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Special Instructions/Note: Extra Radium RAD-STLWS		Special Instructions/Note: Extra Radium RAD-STLWS	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: Ben Hodges Relinquished by: Ben Hodges Relinquished by: Ben Hodges Relinquished by: Ben Hodges		Method of Shipment: Received by: T-Elrod Date/Time: 3/27/18 0800 Received by: C Now Date/Time: 3/27/18 10:05 Received by: C Now Date/Time: 3/27/18 16:00	
Custody Seal Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No: 450045		Cooler Temperature(s) °C and Other Remarks:	



## Chain of Custody Record



<b>Client Information</b>		Lab Pk: Whitmore, Cheyenne R		Carrier Tracking Note:		COC No: 400-57303-24790	
Client Contact: Joju Abraham		Phone:		E-Mail: cheyenne.whitmore@testamericainc.com		Page: 1 of 1	
Company: Southern Company		Address: 241 Ralph McGill Blvd SE B10185		City: Atlanta		State, Zip: GA, 30308	
Phone:		PO #:		WO #:		Email: JAbraham@southernco.com	
Project Name: CCR - Scherer		Project #: 40007041		SSOW#:		Ash Pond	
<b>Sample Identification</b>		Sample Date		Sample Time		Sample Type (C=Comp, G=grab)	
Matrix (H=water, S=solid, O=ore/slag, ST=flotation, A=air)		Preservation Code:		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)	
6020-Sb,As,Ba,Bi,Cd,Cr,Cy,Pb,Li,Mn,Se,Te,Ti,7470-Hg		9315-Ra226,9320-Ra228,Ra226Ra228,GFPc		300_ORGM_28D-Fluoride		300_ORGM_28D-Fluoride	
SGWA-4		3/27/18		1310		G	
SGWA-5		3/27/18		0935		G	
SGWC-6		3/27/18		1425		G	
SGWC-7		3/27/18		1530		G	
SGWC-14		3/27/18		0925		G	
SGWC-15		3/27/18		1045		G	
SGWC-16		3/27/18		1235		G	
SGWC-17		3/27/18		1405		G	
SGWC-23		3/27/18		1510		G	
SGWA-25		3/27/18		1045		G	
EEB-2(AP)		3/27/18		1600		G	
FD-2(AP)		3/27/18		-		G	
<b>Possible Hazard Identification</b>		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Deliverable Requested: I, II, III, IV, Other (specify)		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For	
Empty Kit Relinquished by:		Date:		Time:		Special Instructions/QC Requirements:	
Relinquished by: Kim Murm		Date/Time: 3-28-18 / 0800		Company: Golden		Received by: Kim BAH	
Relinquished by: Kim BAH		Date/Time: 3-28-18 / 0947		Company: C Now		Received by: Kim BAH	
Relinquished by: Kim BAH		Date/Time: 3/28/18 / 1600		Company: C Now		Received by: Kim BAH	
Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Custody Seal No.:		Custody Seal No.:	

# TestAmerica Pensacola

3355 McLemore Drive  
Pensacola, FL 32514  
Phone (850) 474-1001 Fax (850) 478-2671

## Chain of Custody Record



<b>Client Information</b> Client Contact: Jojo Abraham Company: Southern Company Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State: GA, Zip: 30308 Phone: _____ Email: JAbraham@southernco.com Project Name: CCR - Scherer Site: Ash Pond		Lab PM: Whitmore, Cheyenne R E-Mail: cheyenne.whitmore@testamericainc.com Carrier Tracking No(s): _____ Lab No: 400-57303-24780 Page: 2 of 2 Job #: _____									
<b>Analysis Requested</b> Due Date Requested: _____ TAT Requested (days): _____ PO #: _____ WO #: _____ Project #: 40007041 SSOW#: _____											
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=other, B=biological, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300_ORGFM_28D-Fluoride	6020-Sb,As,Ba,Cd,Cr,Cu,Pb,LI,Mo,Se,Tl,7470A-Hg	8316_Pa226, 9320_Pa228,Pa228Ra228_GFPc	Preservation Codes:	Special Instructions/Note:
SGWC-8	3/27/18	0925	G	Water	N	1	1	1	1	A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - Acetone P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - MCAA V - pH 4-5 W - other (specify)	
SGWC-10	3/27/18	1120	G	Water	N	1	1	1	1		
SGWC-11	3/27/18	1330	G	Water	N	1	1	1	1		
SGWC-12	3/27/18	1455	G	Water	N	1	1	1	1		
SGWC-13	3/27/18	1805	G	Water	N	1	1	1	1		
FB-1(AP)	3/27/18	0900	G	Water	N	1	1	1	1		
FB-2(AP)	3/27/18	1040	G	Water	N	1	1	1	1		
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) _____											
<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months											
<b>Special Instructions/QC Requirements:</b> _____											
<b>Empty Kit Relinquished by:</b> _____											
<b>Relinquished by:</b> Kara [Signature] Date/Time: 3-28-18 / 0800 Company: _____											
<b>Relinquished by:</b> M BATH Date/Time: 3-28-18 9:47 Company: CONAIEA MIN											
<b>Relinquished by:</b> [Signature] Date/Time: 3/28/18 1600 Company: _____											
<b>Custody Seals Intact:</b> 1 Yes 3 No <b>Custody Seal No.:</b> _____											
<b>Cooler Temperature(s) °C and Other Remarks:</b> 3/28/18 10:20											




TestAmerica Pensacola  
3355 McLemore Drive  
Pensacola, FL 32514  
Phone (850) 474-1001 Fax (850) 476-267

## Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

<b>Client Information</b> Client Contact: Jolu Abraham Company: Southern Company Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State: GA, 30308 Phone: _____ Email: JAbraham@southernco.com Project Name: CCR - Scherer Site: Ash Pond		<b>Lab Info</b> Lab Name: Whitmire, Cheyenne R E-Mail: cheyenne.whitmire@testamericainc.com Lab #: Job #: Carrier Tracking No(s): COC No: 400-57303-24790 Page: 1 of 1																																																																																																					
<b>Analysis Requested</b> Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 40007041 SSOW #:		400-151428 COC 																																																																																																					
<b>Sample Identification</b> <table border="1"> <thead> <tr> <th>Sample ID</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (C=comp, G=grab)</th> <th>Matrix (Water, Soil, Sediment, etc.)</th> <th>Preservation Code</th> <th>Field Filtered Sample (Yes or No)</th> <th>300 ORGFM, 28D-Fluoride</th> <th>6020-Sb, As, Ba, Cd, Cr, Co, Pb, Li, Mo, Se, Ti, Tl, 7470A-Hg</th> <th>9315-Ra226, 9320-Ra228, Ra228Ra228-GFPc</th> </tr> </thead> <tbody> <tr> <td>SGWC-9</td> <td>3/28/18</td> <td>1055</td> <td>G</td> <td>Water</td> <td>N</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>SGWC-18</td> <td>3/28/18</td> <td>1155</td> <td>G</td> <td>Water</td> <td>N</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>SGWC-19</td> <td>3/28/18</td> <td>1205</td> <td>G</td> <td>Water</td> <td>N</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>SGWC-20</td> <td>3/28/18</td> <td>1010</td> <td>G</td> <td>Water</td> <td>N</td> <td>1</td> <td>1</td> <td>2</td> <td>1</td> </tr> <tr> <td>SGWC-21</td> <td>3/28/18</td> <td>0905</td> <td>G</td> <td>Water</td> <td>N</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>SGWC-22</td> <td>3/28/18</td> <td>0925</td> <td>G</td> <td>Water</td> <td>N</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>EB-3(AP)</td> <td>3/28/18</td> <td>1300</td> <td>G</td> <td>Water</td> <td>N</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>FB-3(AP)</td> <td>3/28/18</td> <td>0900</td> <td>G</td> <td>Water</td> <td>N</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>FD-3(AP)</td> <td>3/28/18</td> <td>-</td> <td>G</td> <td>Water</td> <td>N</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>		Sample ID	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Soil, Sediment, etc.)	Preservation Code	Field Filtered Sample (Yes or No)	300 ORGFM, 28D-Fluoride	6020-Sb, As, Ba, Cd, Cr, Co, Pb, Li, Mo, Se, Ti, Tl, 7470A-Hg	9315-Ra226, 9320-Ra228, Ra228Ra228-GFPc	SGWC-9	3/28/18	1055	G	Water	N	1	1	1	1	SGWC-18	3/28/18	1155	G	Water	N	1	1	1	1	SGWC-19	3/28/18	1205	G	Water	N	1	1	1	1	SGWC-20	3/28/18	1010	G	Water	N	1	1	2	1	SGWC-21	3/28/18	0905	G	Water	N	1	1	1	1	SGWC-22	3/28/18	0925	G	Water	N	1	1	1	1	EB-3(AP)	3/28/18	1300	G	Water	N	1	1	1	1	FB-3(AP)	3/28/18	0900	G	Water	N	1	1	1	1	FD-3(AP)	3/28/18	-	G	Water	N	1	1	1	1	Total Number of Containers: 3 Special Instructions/Note: Extra Radium Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecalhydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify) Other:	
Sample ID	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Soil, Sediment, etc.)	Preservation Code	Field Filtered Sample (Yes or No)	300 ORGFM, 28D-Fluoride	6020-Sb, As, Ba, Cd, Cr, Co, Pb, Li, Mo, Se, Ti, Tl, 7470A-Hg	9315-Ra226, 9320-Ra228, Ra228Ra228-GFPc																																																																																														
SGWC-9	3/28/18	1055	G	Water	N	1	1	1	1																																																																																														
SGWC-18	3/28/18	1155	G	Water	N	1	1	1	1																																																																																														
SGWC-19	3/28/18	1205	G	Water	N	1	1	1	1																																																																																														
SGWC-20	3/28/18	1010	G	Water	N	1	1	2	1																																																																																														
SGWC-21	3/28/18	0905	G	Water	N	1	1	1	1																																																																																														
SGWC-22	3/28/18	0925	G	Water	N	1	1	1	1																																																																																														
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<b>Empty Kit Relinquished by:</b> Relinquished by: [Signature] Date/Time: 3/28/18 16:15 Company: Golden		<b>Method of Shipment:</b> Date/Time: 3/28/18 16:15 Company: TA																																																																																																					
<b>Relinquished by:</b> Relinquished by: [Signature] Date/Time: 3/28/18 16:45 Company: TA		<b>Relinquished by:</b> Relinquished by: [Signature] Date/Time: 3/28/18 10:55 Company: TA																																																																																																					
<b>Custody Seal No.:</b> Custody Seal No.: 0.8 Cooler Temperature(s) °C and Other Remarks: 0.5°C		<b>Relinquished by:</b> Relinquished by: [Signature] Date/Time: 4/3/18 09:32 Company: TA																																																																																																					

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-151428-1

SDG Number: Ash Pond

**Login Number: 151428**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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	0.0°C IR7, 0.5°C IR-8 (4/3/18)
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 $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Accreditation/Certification Summary

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

TestAmerica Job ID: 400-151428-1  
SDG: Ash Pond

### Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-18
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	03-31-18 *
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-18
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-18
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-17-12	09-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18

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

TestAmerica Pensacola

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-151428-2

TestAmerica Sample Delivery Group: Ash Pond

Client Project/Site: CCR - Plant Scherer

For:

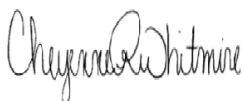
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

4/30/2018 1:55:17 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

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

### LINKS

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results through

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

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

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

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

1

2

3

4

5

6

7

8

9

10

11

12

13





# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Method Summary . . . . .	4
Sample Summary . . . . .	5
Client Sample Results . . . . .	6
Definitions . . . . .	40
Chronicle . . . . .	41
QC Association . . . . .	50
QC Sample Results . . . . .	53
Chain of Custody . . . . .	60
Receipt Checklists . . . . .	64
Certification Summary . . . . .	68

## Case Narrative

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Job ID: 400-151428-2**

**Laboratory: TestAmerica Pensacola**

### Narrative

#### Job Narrative 400-151428-2

#### RAD

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-358961: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: SGWC-17 (400-151428-14), EB-2 (AP) (400-151428-17), SGWC-8 (400-151428-19), SGWC-10 (400-151428-20), SGWC-11 (400-151428-21), SGWC-12 (400-151428-22), FB-1 (AP) (400-151428-24) and FB-2 (AP) (400-151428-25). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-358955: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: SGWC-17 (400-151428-14), EB-2 (AP) (400-151428-17), SGWC-8 (400-151428-19), SGWC-10 (400-151428-20), SGWC-11 (400-151428-21), SGWC-12 (400-151428-22), FB-1 (AP) (400-151428-24) and FB-2 (AP) (400-151428-25). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

## Method Summary

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

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

### Protocol References:

None = None

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

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

### Laboratory References:

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

# Sample Summary

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-151428-1	SGWA-24	Water	03/26/18 11:00	03/28/18 09:44
400-151428-2	SGWA-1	Water	03/26/18 14:40	03/28/18 09:44
400-151428-3	SGWA-2	Water	03/26/18 15:40	03/28/18 09:44
400-151428-4	FD-1 (AP)	Water	03/26/18 00:00	03/28/18 09:44
400-151428-5	EB-1 (AP)	Water	03/26/18 16:15	03/28/18 09:44
400-151428-6	SGWA-3	Water	03/26/18 16:05	03/28/18 09:44
400-151428-7	SGWA-4	Water	03/27/18 13:10	03/29/18 10:20
400-151428-8	SGWA-5	Water	03/27/18 09:35	03/29/18 10:20
400-151428-9	SGWC-6	Water	03/27/18 14:25	03/29/18 10:20
400-151428-10	SGWC-7	Water	03/27/18 15:30	03/29/18 10:20
400-151428-11	SGWC-14	Water	03/27/18 09:25	03/29/18 10:20
400-151428-12	SGWC-15	Water	03/27/18 10:45	03/29/18 10:20
400-151428-13	SGWC-16	Water	03/27/18 12:35	03/29/18 10:20
400-151428-14	SGWC-17	Water	03/27/18 14:05	03/29/18 10:20
400-151428-15	SGWC-23	Water	03/27/18 15:10	03/29/18 10:20
400-151428-16	SGWA-25	Water	03/27/18 10:45	03/29/18 10:20
400-151428-17	EB-2 (AP)	Water	03/27/18 16:00	03/29/18 10:20
400-151428-18	FD-2 (AP)	Water	03/27/18 00:00	03/29/18 10:20
400-151428-19	SGWC-8	Water	03/27/18 09:25	03/29/18 10:20
400-151428-20	SGWC-10	Water	03/27/18 11:20	03/29/18 10:20
400-151428-21	SGWC-11	Water	03/27/18 13:30	03/29/18 10:20
400-151428-22	SGWC-12	Water	03/27/18 14:55	03/29/18 10:20
400-151428-23	SGWC-13	Water	03/27/18 16:05	03/29/18 10:20
400-151428-24	FB-1 (AP)	Water	03/27/18 09:00	03/29/18 10:20
400-151428-25	FB-2 (AP)	Water	03/27/18 10:40	03/29/18 10:20
400-151428-26	SGWC-9	Water	03/28/18 10:55	04/03/18 09:32
400-151428-27	SGWC-18	Water	03/28/18 11:55	04/03/18 09:32
400-151428-28	SGWC-19	Water	03/28/18 12:05	04/03/18 09:32
400-151428-29	SGWC-20	Water	03/28/18 10:10	04/03/18 09:32
400-151428-30	SGWC-21	Water	03/28/18 09:05	04/03/18 09:32
400-151428-31	SGWC-22	Water	03/28/18 09:25	04/03/18 09:32
400-151428-32	EB-3 (AP)	Water	03/28/18 13:00	04/03/18 09:32
400-151428-33	FB-3 (AP)	Water	03/28/18 09:00	04/03/18 09:32
400-151428-34	FD-3 (AP)	Water	03/28/18 00:00	04/03/18 09:32

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWA-24**

**Date Collected: 03/26/18 11:00**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-1**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00556	U	0.0447	0.0447	1.00	0.0896	pCi/L	04/03/18 09:45	04/25/18 06:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					04/03/18 09:45	04/25/18 06:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.135	U	0.216	0.216	1.00	0.365	pCi/L	04/03/18 10:12	04/10/18 15:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					04/03/18 10:12	04/10/18 15:24	1
Y Carrier	90.5		40 - 110					04/03/18 10:12	04/10/18 15:24	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.141	U	0.221	0.221	5.00	0.365	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWA-1**  
**Date Collected: 03/26/18 14:40**  
**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-2**  
**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0619		0.0468	0.0471	1.00	0.0619	pCi/L	04/03/18 09:45	04/25/18 06:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110					04/03/18 09:45	04/25/18 06:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.460		0.258	0.261	1.00	0.391	pCi/L	04/03/18 10:12	04/10/18 15:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110					04/03/18 10:12	04/10/18 15:24	1
Y Carrier	93.5		40 - 110					04/03/18 10:12	04/10/18 15:24	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.522		0.262	0.265	5.00	0.391	pCi/L		04/27/18 19:01	1



# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWA-2**  
**Date Collected: 03/26/18 15:40**  
**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-3**  
**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0135	U	0.0404	0.0404	1.00	0.0777	pCi/L	04/03/18 09:45	04/25/18 06:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110					04/03/18 09:45	04/25/18 06:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.110	U	0.218	0.219	1.00	0.372	pCi/L	04/03/18 10:12	04/10/18 15:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.3		40 - 110					04/03/18 10:12	04/10/18 15:24	1
Y Carrier	95.7		40 - 110					04/03/18 10:12	04/10/18 15:24	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.124	U	0.222	0.223	5.00	0.372	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: FD-1 (AP)**

**Date Collected: 03/26/18 00:00**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-4**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0126	U	0.0352	0.0352	1.00	0.0684	pCi/L	04/03/18 09:45	04/25/18 06:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.1		40 - 110					04/03/18 09:45	04/25/18 06:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.531		0.233	0.239	1.00	0.330	pCi/L	04/03/18 10:12	04/10/18 15:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.1		40 - 110					04/03/18 10:12	04/10/18 15:24	1
Y Carrier	95.3		40 - 110					04/03/18 10:12	04/10/18 15:24	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.544		0.236	0.242	5.00	0.330	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: EB-1 (AP)**

**Date Collected: 03/26/18 16:15**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-5**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0851		0.0548	0.0553	1.00	0.0687	pCi/L	04/03/18 09:45	04/25/18 06:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					04/03/18 09:45	04/25/18 06:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.161	U	0.208	0.208	1.00	0.346	pCi/L	04/03/18 10:12	04/10/18 15:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					04/03/18 10:12	04/10/18 15:24	1
Y Carrier	90.8		40 - 110					04/03/18 10:12	04/10/18 15:24	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.246	U	0.215	0.215	5.00	0.346	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWA-3**  
**Date Collected: 03/26/18 16:05**  
**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-6**  
**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0400	U	0.0514	0.0515	1.00	0.0855	pCi/L	04/03/18 09:45	04/25/18 06:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		40 - 110					04/03/18 09:45	04/25/18 06:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.186	U	0.268	0.269	1.00	0.448	pCi/L	04/03/18 10:12	04/10/18 15:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.4		40 - 110					04/03/18 10:12	04/10/18 15:24	1
Y Carrier	92.7		40 - 110					04/03/18 10:12	04/10/18 15:24	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.226	U	0.273	0.274	5.00	0.448	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWA-4**  
**Date Collected: 03/27/18 13:10**  
**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-7**  
**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0833		0.0575	0.0580	1.00	0.0768	pCi/L	04/03/18 09:45	04/25/18 06:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.6		40 - 110					04/03/18 09:45	04/25/18 06:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0811	U	0.222	0.222	1.00	0.383	pCi/L	04/03/18 10:12	04/10/18 15:24	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.6		40 - 110					04/03/18 10:12	04/10/18 15:24	1
Y Carrier	94.2		40 - 110					04/03/18 10:12	04/10/18 15:24	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.164	U	0.229	0.229	5.00	0.383	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWA-5**

**Date Collected: 03/27/18 09:35**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-8**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0713	U	0.0586	0.0590	1.00	0.0868	pCi/L	04/03/18 09:45	04/25/18 06:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					04/03/18 09:45	04/25/18 06:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.180	U	0.242	0.243	1.00	0.404	pCi/L	04/03/18 10:12	04/10/18 15:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					04/03/18 10:12	04/10/18 15:25	1
Y Carrier	91.6		40 - 110					04/03/18 10:12	04/10/18 15:25	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.252	U	0.249	0.250	5.00	0.404	pCi/L		04/27/18 19:01	1



# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-6**

**Date Collected: 03/27/18 14:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-9**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00968	U	0.0378	0.0378	1.00	0.0749	pCi/L	04/03/18 09:45	04/25/18 06:13	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					04/03/18 09:45	04/25/18 06:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0346	U	0.225	0.225	1.00	0.395	pCi/L	04/03/18 10:12	04/10/18 15:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					04/03/18 10:12	04/10/18 15:25	1
Y Carrier	95.0		40 - 110					04/03/18 10:12	04/10/18 15:25	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0443	U	0.228	0.228	5.00	0.395	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-7**  
**Date Collected: 03/27/18 15:30**  
**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-10**  
**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0541	U	0.0523	0.0525	1.00	0.0803	pCi/L	04/03/18 09:45	04/25/18 06:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.2		40 - 110					04/03/18 09:45	04/25/18 06:14	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.492		0.285	0.288	1.00	0.436	pCi/L	04/03/18 10:12	04/10/18 15:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.2		40 - 110					04/03/18 10:12	04/10/18 15:25	1
Y Carrier	93.5		40 - 110					04/03/18 10:12	04/10/18 15:25	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.546		0.290	0.293	5.00	0.436	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-14**

**Date Collected: 03/27/18 09:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-11**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0438	U	0.0455	0.0457	1.00	0.0702	pCi/L	04/03/18 09:45	04/25/18 06:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					04/03/18 09:45	04/25/18 06:14	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.262	U	0.249	0.251	1.00	0.404	pCi/L	04/03/18 10:12	04/10/18 15:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					04/03/18 10:12	04/10/18 15:25	1
Y Carrier	97.2		40 - 110					04/03/18 10:12	04/10/18 15:25	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.306	U	0.253	0.255	5.00	0.404	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Date Collected: 03/27/18 10:45**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-12**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0727	U	0.0562	0.0566	1.00	0.0794	pCi/L	04/03/18 09:45	04/25/18 06:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					04/03/18 09:45	04/25/18 06:14	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.212	U	0.231	0.232	1.00	0.379	pCi/L	04/03/18 10:12	04/10/18 15:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					04/03/18 10:12	04/10/18 15:25	1
Y Carrier	97.6		40 - 110					04/03/18 10:12	04/10/18 15:25	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.285	U	0.238	0.239	5.00	0.379	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-16**

**Date Collected: 03/27/18 12:35**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-13**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00983	U	0.0303	0.0303	1.00	0.0620	pCi/L	04/05/18 11:12	04/27/18 05:32	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					04/05/18 11:12	04/27/18 05:32	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.377	U	0.256	0.258	1.00	0.399	pCi/L	04/05/18 11:30	04/12/18 16:43	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					04/05/18 11:30	04/12/18 16:43	1
Y Carrier	87.5		40 - 110					04/05/18 11:30	04/12/18 16:43	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.387	U	0.258	0.260	5.00	0.399	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-17**

**Date Collected: 03/27/18 14:05**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-14**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0469	U	0.0420	0.0422	1.00	0.0604	pCi/L	04/04/18 11:24	04/26/18 09:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					04/04/18 11:24	04/26/18 09:38	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.202	U	0.193	0.194	1.00	0.313	pCi/L	04/04/18 12:42	04/11/18 15:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					04/04/18 12:42	04/11/18 15:20	1
Y Carrier	92.7		40 - 110					04/04/18 12:42	04/11/18 15:20	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.249	U	0.198	0.199	5.00	0.313	pCi/L		04/27/18 19:01	1



# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-23**

**Date Collected: 03/27/18 15:10**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-15**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0842		0.0535	0.0540	1.00	0.0654	pCi/L	04/03/18 09:45	04/25/18 06:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110					04/03/18 09:45	04/25/18 06:14	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.525		0.249	0.253	1.00	0.362	pCi/L	04/03/18 10:12	04/10/18 15:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110					04/03/18 10:12	04/10/18 15:25	1
Y Carrier	95.0		40 - 110					04/03/18 10:12	04/10/18 15:25	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.610		0.255	0.259	5.00	0.362	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWA-25**

**Date Collected: 03/27/18 10:45**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-16**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0861		0.0566	0.0572	1.00	0.0723	pCi/L	04/03/18 09:45	04/25/18 06:14	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					04/03/18 09:45	04/25/18 06:14	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.121	U	0.230	0.231	1.00	0.392	pCi/L	04/03/18 10:12	04/10/18 15:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					04/03/18 10:12	04/10/18 15:25	1
Y Carrier	93.8		40 - 110					04/03/18 10:12	04/10/18 15:25	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.207	U	0.237	0.238	5.00	0.392	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: EB-2 (AP)**

**Date Collected: 03/27/18 16:00**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-17**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0209	U	0.0442	0.0442	1.00	0.0808	pCi/L	04/04/18 11:24	04/26/18 09:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					04/04/18 11:24	04/26/18 09:38	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.208	U	0.219	0.220	1.00	0.357	pCi/L	04/04/18 12:42	04/11/18 15:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					04/04/18 12:42	04/11/18 15:21	1
Y Carrier	93.8		40 - 110					04/04/18 12:42	04/11/18 15:21	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.229	U	0.223	0.224	5.00	0.357	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: FD-2 (AP)**

**Date Collected: 03/27/18 00:00**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-18**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0270	U	0.0480	0.0481	1.00	0.0850	pCi/L	04/03/18 09:45	04/25/18 06:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					04/03/18 09:45	04/25/18 06:15	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0710	U	0.192	0.192	1.00	0.333	pCi/L	04/03/18 10:12	04/10/18 15:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					04/03/18 10:12	04/10/18 15:25	1
Y Carrier	94.6		40 - 110					04/03/18 10:12	04/10/18 15:25	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0980	U	0.198	0.198	5.00	0.333	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-8**

**Date Collected: 03/27/18 09:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-19**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.495		0.114	0.123	1.00	0.0596	pCi/L	04/04/18 11:24	04/26/18 09:38	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					04/04/18 11:24	04/26/18 09:38	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.80		0.313	0.355	1.00	0.327	pCi/L	04/04/18 12:42	04/11/18 15:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					04/04/18 12:42	04/11/18 15:21	1
Y Carrier	93.5		40 - 110					04/04/18 12:42	04/11/18 15:21	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	2.30		0.333	0.376	5.00	0.327	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-10**

**Date Collected: 03/27/18 11:20**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-20**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0320	U	0.0456	0.0457	1.00	0.0775	pCi/L	04/04/18 11:24	04/26/18 09:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					04/04/18 11:24	04/26/18 09:39	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.104	U	0.185	0.186	1.00	0.316	pCi/L	04/04/18 12:42	04/11/18 15:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					04/04/18 12:42	04/11/18 15:21	1
Y Carrier	92.0		40 - 110					04/04/18 12:42	04/11/18 15:21	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.136	U	0.191	0.192	5.00	0.316	pCi/L		04/27/18 19:01	1



# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Date Collected: 03/27/18 13:30**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-21**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.103		0.0613	0.0620	1.00	0.0747	pCi/L	04/04/18 11:24	04/26/18 09:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					04/04/18 11:24	04/26/18 09:39	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0689	U	0.180	0.180	1.00	0.313	pCi/L	04/04/18 12:42	04/11/18 15:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					04/04/18 12:42	04/11/18 15:21	1
Y Carrier	92.3		40 - 110					04/04/18 12:42	04/11/18 15:21	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.172	U	0.190	0.190	5.00	0.313	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-12**

**Date Collected: 03/27/18 14:55**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-22**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0712		0.0525	0.0529	1.00	0.0710	pCi/L	04/04/18 11:24	04/26/18 09:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					04/04/18 11:24	04/26/18 09:39	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.374	U	0.247	0.249	1.00	0.385	pCi/L	04/04/18 12:42	04/11/18 15:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					04/04/18 12:42	04/11/18 15:21	1
Y Carrier	93.5		40 - 110					04/04/18 12:42	04/11/18 15:21	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.445		0.253	0.255	5.00	0.385	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-13**

**Date Collected: 03/27/18 16:05**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-23**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0646	U	0.0493	0.0497	1.00	0.0657	pCi/L	04/03/18 09:45	04/25/18 06:15	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.9		40 - 110					04/03/18 09:45	04/25/18 06:15	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0799	U	0.239	0.239	1.00	0.413	pCi/L	04/03/18 10:12	04/10/18 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.9		40 - 110					04/03/18 10:12	04/10/18 15:26	1
Y Carrier	91.2		40 - 110					04/03/18 10:12	04/10/18 15:26	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.145	U	0.244	0.244	5.00	0.413	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: FB-1 (AP)**

**Date Collected: 03/27/18 09:00**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-24**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0434	U	0.0401	0.0403	1.00	0.0573	pCi/L	04/04/18 11:24	04/26/18 09:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					04/04/18 11:24	04/26/18 09:39	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.348		0.221	0.223	1.00	0.339	pCi/L	04/04/18 12:42	04/11/18 15:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					04/04/18 12:42	04/11/18 15:21	1
Y Carrier	92.0		40 - 110					04/04/18 12:42	04/11/18 15:21	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.391		0.225	0.227	5.00	0.339	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: FB-2 (AP)**

**Date Collected: 03/27/18 10:40**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-25**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0340	U	0.0426	0.0427	1.00	0.0693	pCi/L	04/04/18 11:24	04/26/18 09:39	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					04/04/18 11:24	04/26/18 09:39	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0387	U	0.184	0.184	1.00	0.323	pCi/L	04/04/18 12:42	04/11/18 15:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					04/04/18 12:42	04/11/18 15:21	1
Y Carrier	92.3		40 - 110					04/04/18 12:42	04/11/18 15:21	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0727	U	0.189	0.189	5.00	0.323	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-9**

**Date Collected: 03/28/18 10:55**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-26**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0706		0.0468	0.0473	1.00	0.0563	pCi/L	04/03/18 09:45	04/25/18 06:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					04/03/18 09:45	04/25/18 06:16	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.307	U	0.223	0.225	1.00	0.349	pCi/L	04/03/18 10:12	04/10/18 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					04/03/18 10:12	04/10/18 15:26	1
Y Carrier	96.1		40 - 110					04/03/18 10:12	04/10/18 15:26	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.378		0.228	0.230	5.00	0.349	pCi/L		04/27/18 19:01	1



# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-18**

**Date Collected: 03/28/18 11:55**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-27**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0467	U	0.0446	0.0448	1.00	0.0664	pCi/L	04/03/18 09:45	04/25/18 06:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					04/03/18 09:45	04/25/18 06:16	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.381		0.213	0.216	1.00	0.317	pCi/L	04/03/18 10:12	04/10/18 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					04/03/18 10:12	04/10/18 15:26	1
Y Carrier	95.7		40 - 110					04/03/18 10:12	04/10/18 15:26	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.428		0.218	0.221	5.00	0.317	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-19**

**Date Collected: 03/28/18 12:05**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-28**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0189	U	0.0321	0.0322	1.00	0.0575	pCi/L	04/03/18 09:45	04/25/18 06:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					04/03/18 09:45	04/25/18 06:16	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.228	U	0.199	0.200	1.00	0.318	pCi/L	04/03/18 10:12	04/10/18 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					04/03/18 10:12	04/10/18 15:26	1
Y Carrier	94.2		40 - 110					04/03/18 10:12	04/10/18 15:26	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.247	U	0.202	0.203	5.00	0.318	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Date Collected: 03/28/18 10:10**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-29**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0512	U	0.0557	0.0559	1.00	0.0882	pCi/L	04/03/18 12:53	04/25/18 06:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					04/03/18 12:53	04/25/18 06:21	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.283	U	0.213	0.215	1.00	0.335	pCi/L	04/03/18 13:02	04/11/18 15:25	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					04/03/18 13:02	04/11/18 15:25	1
Y Carrier	92.7		40 - 110					04/03/18 13:02	04/11/18 15:25	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.334	U	0.220	0.222	5.00	0.335	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-21**

**Date Collected: 03/28/18 09:05**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-30**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0263	U	0.0458	0.0459	1.00	0.0813	pCi/L	04/03/18 12:53	04/25/18 06:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					04/03/18 12:53	04/25/18 06:21	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.354		0.205	0.207	1.00	0.308	pCi/L	04/03/18 13:02	04/11/18 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					04/03/18 13:02	04/11/18 15:26	1
Y Carrier	93.8		40 - 110					04/03/18 13:02	04/11/18 15:26	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.380		0.210	0.212	5.00	0.308	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-22**

**Date Collected: 03/28/18 09:25**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-31**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0532	U	0.0495	0.0497	1.00	0.0733	pCi/L	04/03/18 12:53	04/25/18 06:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					04/03/18 12:53	04/25/18 06:21	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0129	U	0.196	0.196	1.00	0.348	pCi/L	04/03/18 13:02	04/11/18 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					04/03/18 13:02	04/11/18 15:26	1
Y Carrier	93.1		40 - 110					04/03/18 13:02	04/11/18 15:26	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0661	U	0.202	0.202	5.00	0.348	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: EB-3 (AP)**

**Date Collected: 03/28/18 13:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-32**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0336	U	0.0418	0.0419	1.00	0.0682	pCi/L	04/03/18 12:53	04/25/18 06:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					04/03/18 12:53	04/25/18 06:21	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0936	U	0.193	0.193	1.00	0.330	pCi/L	04/03/18 13:02	04/11/18 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					04/03/18 13:02	04/11/18 15:26	1
Y Carrier	93.8		40 - 110					04/03/18 13:02	04/11/18 15:26	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.127	U	0.197	0.197	5.00	0.330	pCi/L		04/27/18 19:01	1



# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: FB-3 (AP)**

**Date Collected: 03/28/18 09:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-33**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00133	U	0.0417	0.0417	1.00	0.0877	pCi/L	04/03/18 12:53	04/25/18 06:21	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					04/03/18 12:53	04/25/18 06:21	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.196	U	0.219	0.220	1.00	0.359	pCi/L	04/03/18 13:02	04/11/18 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					04/03/18 13:02	04/11/18 15:26	1
Y Carrier	94.2		40 - 110					04/03/18 13:02	04/11/18 15:26	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.197	U	0.223	0.224	5.00	0.359	pCi/L		04/27/18 19:01	1

# Client Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: FD-3 (AP)**

**Date Collected: 03/28/18 00:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-34**

**Matrix: Water**

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0744	U	0.0596	0.0600	1.00	0.0856	pCi/L	04/03/18 12:53	04/25/18 08:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					04/03/18 12:53	04/25/18 08:45	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0114	U	0.198	0.198	1.00	0.356	pCi/L	04/03/18 13:02	04/11/18 15:26	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					04/03/18 13:02	04/11/18 15:26	1
Y Carrier	91.2		40 - 110					04/03/18 13:02	04/11/18 15:26	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0631	U	0.207	0.207	5.00	0.356	pCi/L		04/27/18 19:01	1

## Definitions/Glossary

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

### Qualifiers

#### Rad

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

### Glossary

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

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWA-24**

**Date Collected: 03/26/18 11:00**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:13	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWA-1**

**Date Collected: 03/26/18 14:40**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:13	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWA-2**

**Date Collected: 03/26/18 15:40**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:13	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: FD-1 (AP)**

**Date Collected: 03/26/18 00:00**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:13	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: EB-1 (AP)**

**Date Collected: 03/26/18 16:15**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:13	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWA-3**

**Date Collected: 03/26/18 16:05**

**Date Received: 03/28/18 09:44**

**Lab Sample ID: 400-151428-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:13	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWA-4**

**Date Collected: 03/27/18 13:10**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:13	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:24	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWA-5**

**Date Collected: 03/27/18 09:35**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:13	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:25	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-6**

**Date Collected: 03/27/18 14:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:13	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:25	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-7**

**Date Collected: 03/27/18 15:30**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-10**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:14	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:25	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-14**

**Date Collected: 03/27/18 09:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-11**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:14	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:25	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-15**

**Date Collected: 03/27/18 10:45**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-12**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:14	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:25	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

TestAmerica Pensacola



# Lab Chronicle

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-16**

**Lab Sample ID: 400-151428-13**

**Date Collected: 03/27/18 12:35**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			359081	04/05/18 11:12	TJT	TAL SL
Total/NA	Analysis	9315		1	363032	04/27/18 05:32	RTM	TAL SL
Total/NA	Prep	PrecSep_0			359083	04/05/18 11:30	TJT	TAL SL
Total/NA	Analysis	9320		1	360400	04/12/18 16:43	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-17**

**Lab Sample ID: 400-151428-14**

**Date Collected: 03/27/18 14:05**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358955	04/04/18 11:24	TJT	TAL SL
Total/NA	Analysis	9315		1	362821	04/26/18 09:38	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358961	04/04/18 12:42	TJT	TAL SL
Total/NA	Analysis	9320		1	360144	04/11/18 15:20	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-23**

**Lab Sample ID: 400-151428-15**

**Date Collected: 03/27/18 15:10**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:14	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:25	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWA-25**

**Lab Sample ID: 400-151428-16**

**Date Collected: 03/27/18 10:45**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362512	04/25/18 06:14	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:25	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: EB-2 (AP)**

**Date Collected: 03/27/18 16:00**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-17**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358955	04/04/18 11:24	TJT	TAL SL
Total/NA	Analysis	9315		1	362821	04/26/18 09:38	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358961	04/04/18 12:42	TJT	TAL SL
Total/NA	Analysis	9320		1	360144	04/11/18 15:21	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: FD-2 (AP)**

**Date Collected: 03/27/18 00:00**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-18**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362513	04/25/18 06:15	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:25	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-8**

**Date Collected: 03/27/18 09:25**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-19**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358955	04/04/18 11:24	TJT	TAL SL
Total/NA	Analysis	9315		1	362821	04/26/18 09:38	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358961	04/04/18 12:42	TJT	TAL SL
Total/NA	Analysis	9320		1	360144	04/11/18 15:21	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-10**

**Date Collected: 03/27/18 11:20**

**Date Received: 03/29/18 10:20**

**Lab Sample ID: 400-151428-20**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358955	04/04/18 11:24	TJT	TAL SL
Total/NA	Analysis	9315		1	362821	04/26/18 09:39	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358961	04/04/18 12:42	TJT	TAL SL
Total/NA	Analysis	9320		1	360144	04/11/18 15:21	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Lab Sample ID: 400-151428-21**

**Date Collected: 03/27/18 13:30**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358955	04/04/18 11:24	TJT	TAL SL
Total/NA	Analysis	9315		1	362821	04/26/18 09:39	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358961	04/04/18 12:42	TJT	TAL SL
Total/NA	Analysis	9320		1	360144	04/11/18 15:21	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-12**

**Lab Sample ID: 400-151428-22**

**Date Collected: 03/27/18 14:55**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358955	04/04/18 11:24	TJT	TAL SL
Total/NA	Analysis	9315		1	362821	04/26/18 09:39	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358961	04/04/18 12:42	TJT	TAL SL
Total/NA	Analysis	9320		1	360144	04/11/18 15:21	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-13**

**Lab Sample ID: 400-151428-23**

**Date Collected: 03/27/18 16:05**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362513	04/25/18 06:15	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:26	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: FB-1 (AP)**

**Lab Sample ID: 400-151428-24**

**Date Collected: 03/27/18 09:00**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358955	04/04/18 11:24	TJT	TAL SL
Total/NA	Analysis	9315		1	362821	04/26/18 09:39	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358961	04/04/18 12:42	TJT	TAL SL
Total/NA	Analysis	9320		1	360144	04/11/18 15:21	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: FB-2 (AP)**

**Lab Sample ID: 400-151428-25**

**Date Collected: 03/27/18 10:40**

**Matrix: Water**

**Date Received: 03/29/18 10:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358955	04/04/18 11:24	TJT	TAL SL
Total/NA	Analysis	9315		1	362821	04/26/18 09:39	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358961	04/04/18 12:42	TJT	TAL SL
Total/NA	Analysis	9320		1	360144	04/11/18 15:21	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-9**

**Lab Sample ID: 400-151428-26**

**Date Collected: 03/28/18 10:55**

**Matrix: Water**

**Date Received: 04/03/18 09:32**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362513	04/25/18 06:16	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:26	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-18**

**Lab Sample ID: 400-151428-27**

**Date Collected: 03/28/18 11:55**

**Matrix: Water**

**Date Received: 04/03/18 09:32**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362513	04/25/18 06:16	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:26	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-19**

**Lab Sample ID: 400-151428-28**

**Date Collected: 03/28/18 12:05**

**Matrix: Water**

**Date Received: 04/03/18 09:32**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358654	04/03/18 09:45	TJT	TAL SL
Total/NA	Analysis	9315		1	362513	04/25/18 06:16	RTM	TAL SL
Total/NA	Prep	PrecSep_0			358660	04/03/18 10:12	TJT	TAL SL
Total/NA	Analysis	9320		1	359778	04/10/18 15:26	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Lab Sample ID: 400-151428-29**

**Date Collected: 03/28/18 10:10**

**Matrix: Water**

**Date Received: 04/03/18 09:32**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358694	04/03/18 12:53	TJT	TAL SL
Total/NA	Analysis	9315		1	362635	04/25/18 06:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			358695	04/03/18 13:02	TJT	TAL SL
Total/NA	Analysis	9320		1	360146	04/11/18 15:25	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-21**

**Lab Sample ID: 400-151428-30**

**Date Collected: 03/28/18 09:05**

**Matrix: Water**

**Date Received: 04/03/18 09:32**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358694	04/03/18 12:53	TJT	TAL SL
Total/NA	Analysis	9315		1	362635	04/25/18 06:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			358695	04/03/18 13:02	TJT	TAL SL
Total/NA	Analysis	9320		1	360146	04/11/18 15:26	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: SGWC-22**

**Lab Sample ID: 400-151428-31**

**Date Collected: 03/28/18 09:25**

**Matrix: Water**

**Date Received: 04/03/18 09:32**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358694	04/03/18 12:53	TJT	TAL SL
Total/NA	Analysis	9315		1	362635	04/25/18 06:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			358695	04/03/18 13:02	TJT	TAL SL
Total/NA	Analysis	9320		1	360146	04/11/18 15:26	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: EB-3 (AP)**

**Lab Sample ID: 400-151428-32**

**Date Collected: 03/28/18 13:00**

**Matrix: Water**

**Date Received: 04/03/18 09:32**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358694	04/03/18 12:53	TJT	TAL SL
Total/NA	Analysis	9315		1	362635	04/25/18 06:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			358695	04/03/18 13:02	TJT	TAL SL
Total/NA	Analysis	9320		1	360146	04/11/18 15:26	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

**Client Sample ID: FB-3 (AP)**

**Date Collected: 03/28/18 09:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-33**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358694	04/03/18 12:53	TJT	TAL SL
Total/NA	Analysis	9315		1	362635	04/25/18 06:21	CDR	TAL SL
Total/NA	Prep	PrecSep_0			358695	04/03/18 13:02	TJT	TAL SL
Total/NA	Analysis	9320		1	360146	04/11/18 15:26	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

**Client Sample ID: FD-3 (AP)**

**Date Collected: 03/28/18 00:00**

**Date Received: 04/03/18 09:32**

**Lab Sample ID: 400-151428-34**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			358694	04/03/18 12:53	TJT	TAL SL
Total/NA	Analysis	9315		1	362635	04/25/18 08:45	CDR	TAL SL
Total/NA	Prep	PrecSep_0			358695	04/03/18 13:02	TJT	TAL SL
Total/NA	Analysis	9320		1	360146	04/11/18 15:26	ALD	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	363121	04/27/18 19:01	RTM	TAL SL

## Laboratory References:

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



# QC Association Summary

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

## Rad

### Prep Batch: 358654

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-1	SGWA-24	Total/NA	Water	PrecSep-21	
400-151428-2	SGWA-1	Total/NA	Water	PrecSep-21	
400-151428-3	SGWA-2	Total/NA	Water	PrecSep-21	
400-151428-4	FD-1 (AP)	Total/NA	Water	PrecSep-21	
400-151428-5	EB-1 (AP)	Total/NA	Water	PrecSep-21	
400-151428-6	SGWA-3	Total/NA	Water	PrecSep-21	
400-151428-7	SGWA-4	Total/NA	Water	PrecSep-21	
400-151428-8	SGWA-5	Total/NA	Water	PrecSep-21	
400-151428-9	SGWC-6	Total/NA	Water	PrecSep-21	
400-151428-10	SGWC-7	Total/NA	Water	PrecSep-21	
400-151428-11	SGWC-14	Total/NA	Water	PrecSep-21	
400-151428-12	SGWC-15	Total/NA	Water	PrecSep-21	
400-151428-15	SGWC-23	Total/NA	Water	PrecSep-21	
400-151428-16	SGWA-25	Total/NA	Water	PrecSep-21	
400-151428-18	FD-2 (AP)	Total/NA	Water	PrecSep-21	
400-151428-23	SGWC-13	Total/NA	Water	PrecSep-21	
400-151428-26	SGWC-9	Total/NA	Water	PrecSep-21	
400-151428-27	SGWC-18	Total/NA	Water	PrecSep-21	
400-151428-28	SGWC-19	Total/NA	Water	PrecSep-21	
MB 160-358654/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-358654/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-151428-1 DU	SGWA-24	Total/NA	Water	PrecSep-21	

### Prep Batch: 358660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-1	SGWA-24	Total/NA	Water	PrecSep_0	
400-151428-2	SGWA-1	Total/NA	Water	PrecSep_0	
400-151428-3	SGWA-2	Total/NA	Water	PrecSep_0	
400-151428-4	FD-1 (AP)	Total/NA	Water	PrecSep_0	
400-151428-5	EB-1 (AP)	Total/NA	Water	PrecSep_0	
400-151428-6	SGWA-3	Total/NA	Water	PrecSep_0	
400-151428-7	SGWA-4	Total/NA	Water	PrecSep_0	
400-151428-8	SGWA-5	Total/NA	Water	PrecSep_0	
400-151428-9	SGWC-6	Total/NA	Water	PrecSep_0	
400-151428-10	SGWC-7	Total/NA	Water	PrecSep_0	
400-151428-11	SGWC-14	Total/NA	Water	PrecSep_0	
400-151428-12	SGWC-15	Total/NA	Water	PrecSep_0	
400-151428-15	SGWC-23	Total/NA	Water	PrecSep_0	
400-151428-16	SGWA-25	Total/NA	Water	PrecSep_0	
400-151428-18	FD-2 (AP)	Total/NA	Water	PrecSep_0	
400-151428-23	SGWC-13	Total/NA	Water	PrecSep_0	
400-151428-26	SGWC-9	Total/NA	Water	PrecSep_0	
400-151428-27	SGWC-18	Total/NA	Water	PrecSep_0	
400-151428-28	SGWC-19	Total/NA	Water	PrecSep_0	
MB 160-358660/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-358660/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-151428-1 DU	SGWA-24	Total/NA	Water	PrecSep_0	

### Prep Batch: 358694

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-29	SGWC-20	Total/NA	Water	PrecSep-21	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

## Rad (Continued)

### Prep Batch: 358694 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-30	SGWC-21	Total/NA	Water	PrecSep-21	
400-151428-31	SGWC-22	Total/NA	Water	PrecSep-21	
400-151428-32	EB-3 (AP)	Total/NA	Water	PrecSep-21	
400-151428-33	FB-3 (AP)	Total/NA	Water	PrecSep-21	
400-151428-34	FD-3 (AP)	Total/NA	Water	PrecSep-21	
MB 160-358694/12-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-358694/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-151428-29 DU	SGWC-20	Total/NA	Water	PrecSep-21	

### Prep Batch: 358695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-29	SGWC-20	Total/NA	Water	PrecSep_0	
400-151428-30	SGWC-21	Total/NA	Water	PrecSep_0	
400-151428-31	SGWC-22	Total/NA	Water	PrecSep_0	
400-151428-32	EB-3 (AP)	Total/NA	Water	PrecSep_0	
400-151428-33	FB-3 (AP)	Total/NA	Water	PrecSep_0	
400-151428-34	FD-3 (AP)	Total/NA	Water	PrecSep_0	
MB 160-358695/12-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-358695/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-151428-29 DU	SGWC-20	Total/NA	Water	PrecSep_0	

### Prep Batch: 358955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-14	SGWC-17	Total/NA	Water	PrecSep-21	
400-151428-17	EB-2 (AP)	Total/NA	Water	PrecSep-21	
400-151428-19	SGWC-8	Total/NA	Water	PrecSep-21	
400-151428-20	SGWC-10	Total/NA	Water	PrecSep-21	
400-151428-21	SGWC-11	Total/NA	Water	PrecSep-21	
400-151428-22	SGWC-12	Total/NA	Water	PrecSep-21	
400-151428-24	FB-1 (AP)	Total/NA	Water	PrecSep-21	
400-151428-25	FB-2 (AP)	Total/NA	Water	PrecSep-21	
MB 160-358955/19-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-358955/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-358955/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 358961

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-14	SGWC-17	Total/NA	Water	PrecSep_0	
400-151428-17	EB-2 (AP)	Total/NA	Water	PrecSep_0	
400-151428-19	SGWC-8	Total/NA	Water	PrecSep_0	
400-151428-20	SGWC-10	Total/NA	Water	PrecSep_0	
400-151428-21	SGWC-11	Total/NA	Water	PrecSep_0	
400-151428-22	SGWC-12	Total/NA	Water	PrecSep_0	
400-151428-24	FB-1 (AP)	Total/NA	Water	PrecSep_0	
400-151428-25	FB-2 (AP)	Total/NA	Water	PrecSep_0	
MB 160-358961/19-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-358961/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-358961/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

TestAmerica Pensacola

## QC Association Summary

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

### Rad (Continued)

#### Prep Batch: 359081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-13	SGWC-16	Total/NA	Water	PrecSep-21	
MB 160-359081/10-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-359081/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-151428-13 DU	SGWC-16	Total/NA	Water	PrecSep-21	

#### Prep Batch: 359083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-151428-13	SGWC-16	Total/NA	Water	PrecSep_0	
MB 160-359083/10-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-359083/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-151428-13 DU	SGWC-16	Total/NA	Water	PrecSep_0	

# QC Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

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

Lab Sample ID: MB 160-358654/23-A

Matrix: Water

Analysis Batch: 362513

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 358654

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0006120	U	0.0287	0.0287	1.00	0.0651	pCi/L	04/03/18 09:45	04/25/18 06:16	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					04/03/18 09:45	04/25/18 06:16	1

Lab Sample ID: LCS 160-358654/1-A

Matrix: Water

Analysis Batch: 362512

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 358654

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.8	11.29		1.15	1.00	0.0909	pCi/L	96	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	92.6		40 - 110							

Lab Sample ID: 400-151428-1 DU

Matrix: Water

Analysis Batch: 362512

Client Sample ID: SGWA-24

Prep Type: Total/NA

Prep Batch: 358654

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.00556	U	0.03407	U	0.0444	1.00	0.0736	pCi/L	0.32	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	97.1		40 - 110							

Lab Sample ID: MB 160-358694/12-A

Matrix: Water

Analysis Batch: 362635

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 358694

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02737	U	0.0445	0.0446	1.00	0.0782	pCi/L	04/03/18 12:53	04/25/18 06:20	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					04/03/18 12:53	04/25/18 06:20	1

Lab Sample ID: LCS 160-358694/1-A

Matrix: Water

Analysis Batch: 362635

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 358694

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.8	11.43		1.17	1.00	0.0871	pCi/L	97	68 - 137

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

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

Lab Sample ID: LCS 160-358694/1-A  
Matrix: Water  
Analysis Batch: 362635

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 358694

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	103		40 - 110

Lab Sample ID: 400-151428-29 DU  
Matrix: Water  
Analysis Batch: 362635

Client Sample ID: SGWC-20  
Prep Type: Total/NA  
Prep Batch: 358694

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.0512	U	0.02892	U	0.0449	1.00	0.0779	pCi/L	0.22	1
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	99.4		40 - 110							

Lab Sample ID: MB 160-358955/19-A  
Matrix: Water  
Analysis Batch: 362821

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 358955

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.07453	U	0.0556	0.0560	1.00	0.0764	pCi/L	04/04/18 11:24	04/26/18 09:40	1
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	103		40 - 110							

Lab Sample ID: LCS 160-358955/1-A  
Matrix: Water  
Analysis Batch: 362821

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 358955

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.8	9.789		0.998	1.00	0.0658	pCi/L	83	68 - 137
Carrier	%Yield	Qualifier	Limits						
Ba Carrier	109		40 - 110						

Lab Sample ID: LCSD 160-358955/2-A  
Matrix: Water  
Analysis Batch: 362821

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 358955

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	11.8	10.69		1.09	1.00	0.0741	pCi/L	91	68 - 137	0.43	1
Carrier	%Yield	Qualifier	Limits								
Ba Carrier	109		40 - 110								

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

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

Lab Sample ID: MB 160-359081/10-A  
Matrix: Water  
Analysis Batch: 363032

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 359081

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.02683	U	0.0476	0.0477	1.00	0.0845	pCi/L	04/05/18 11:12	04/27/18 05:33	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					04/05/18 11:12	04/27/18 05:33	1

Lab Sample ID: LCS 160-359081/1-A  
Matrix: Water  
Analysis Batch: 363032

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 359081

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.8	11.51		1.17	1.00	0.0725	pCi/L	97	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	96.8		40 - 110							

Lab Sample ID: 400-151428-13 DU  
Matrix: Water  
Analysis Batch: 363032

Client Sample ID: SGWC-16  
Prep Type: Total/NA  
Prep Batch: 359081

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.00983	U	0.02649	U	0.0454	1.00	0.0803	pCi/L	0.22	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	97.3		40 - 110							

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

Lab Sample ID: MB 160-358660/23-A  
Matrix: Water  
Analysis Batch: 359778

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 358660

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.06645	U	0.192	0.193	1.00	0.358	pCi/L	04/03/18 10:12	04/10/18 15:26	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					04/03/18 10:12	04/10/18 15:26	1
Y Carrier	96.1		40 - 110					04/03/18 10:12	04/10/18 15:26	1

TestAmerica Pensacola



# QC Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

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

Lab Sample ID: LCS 160-358660/1-A  
Matrix: Water  
Analysis Batch: 359778

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 358660

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.41	8.158		0.986	1.00	0.393	pCi/L	97	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	92.6		40 - 110						
Y Carrier	92.0		40 - 110						

Lab Sample ID: 400-151428-1 DU  
Matrix: Water  
Analysis Batch: 359778

Client Sample ID: SGWA-24  
Prep Type: Total/NA  
Prep Batch: 358660

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.135	U	0.1035	U	0.218	1.00	0.373	pCi/L	0.07	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	97.1		40 - 110							
Y Carrier	92.0		40 - 110							

Lab Sample ID: MB 160-358695/12-A  
Matrix: Water  
Analysis Batch: 360146

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 358695

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1792	U	0.194	0.195	1.00	0.317	pCi/L	04/03/18 13:02	04/11/18 15:26	1
Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac				
Ba Carrier	104		40 - 110	04/03/18 13:02	04/11/18 15:26	1				
Y Carrier	93.1		40 - 110	04/03/18 13:02	04/11/18 15:26	1				

Lab Sample ID: LCS 160-358695/1-A  
Matrix: Water  
Analysis Batch: 360144

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 358695

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.40	8.088		0.946	1.00	0.313	pCi/L	96	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	103		40 - 110						
Y Carrier	90.5		40 - 110						

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

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

Lab Sample ID: 400-151428-29 DU

Matrix: Water

Analysis Batch: 360146

Client Sample ID: SGWC-20

Prep Type: Total/NA

Prep Batch: 358695

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.283	U	0.2237	U	0.217	1.00	0.349	pCi/L	0.14	1
<b>Carrier</b>										
	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>							
Ba Carrier	99.4		40 - 110							
Y Carrier	93.1		40 - 110							

Lab Sample ID: MB 160-358961/19-A

Matrix: Water

Analysis Batch: 360144

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 358961

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.04409	U	0.203	0.203	1.00	0.355	pCi/L	04/04/18 12:42	04/11/18 15:22	1
<b>Carrier</b>										
	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>							
Ba Carrier	103		40 - 110							
Y Carrier	90.1		40 - 110							
								<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
								04/04/18 12:42	04/11/18 15:22	1
								04/04/18 12:42	04/11/18 15:22	1

Lab Sample ID: LCS 160-358961/1-A

Matrix: Water

Analysis Batch: 360144

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 358961

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.40	7.616		0.889	1.00	0.314	pCi/L	91	56 - 140
<b>Carrier</b>									
	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>						
Ba Carrier	109		40 - 110						
Y Carrier	92.3		40 - 110						

Lab Sample ID: LCSD 160-358961/2-A

Matrix: Water

Analysis Batch: 360144

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 358961

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	8.40	7.448		0.875	1.00	0.308	pCi/L	89	56 - 140	0.09	1
<b>Carrier</b>											
	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>								
Ba Carrier	109		40 - 110								
Y Carrier	93.5		40 - 110								

# QC Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

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

Lab Sample ID: MB 160-359083/10-A  
Matrix: Water  
Analysis Batch: 360400

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 359083

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1450	U	0.211	0.212	1.00	0.354	pCi/L	04/05/18 11:30	04/12/18 16:44	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					04/05/18 11:30	04/12/18 16:44	1
Y Carrier	91.2		40 - 110					04/05/18 11:30	04/12/18 16:44	1

Lab Sample ID: LCS 160-359083/1-A  
Matrix: Water  
Analysis Batch: 360400

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 359083

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.40	9.154		1.05	1.00	0.350	pCi/L	109	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	96.8		40 - 110						
Y Carrier	91.2		40 - 110						

Lab Sample ID: 400-151428-13 DU  
Matrix: Water  
Analysis Batch: 360400

Client Sample ID: SGWC-16  
Prep Type: Total/NA  
Prep Batch: 359083

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.377	U	0.05813	U	0.216	1.00	0.377	pCi/L	0.67	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	97.3		40 - 110							
Y Carrier	90.8		40 - 110							

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Lab Sample ID: 400-151428-1 DU  
Matrix: Water  
Analysis Batch: 363121

Client Sample ID: SGWA-24  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.141	U	0.1376	U	0.222	5.00	0.373	pCi/L	0.01	

# QC Sample Results

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228 (Continued)

Lab Sample ID: 400-151428-13 DU  
Matrix: Water  
Analysis Batch: 363121

Client Sample ID: SGWC-16  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.387	U	0.08462	U	0.221	5.00	0.377	pCi/L	0.63	

Lab Sample ID: 400-151428-29 DU  
Matrix: Water  
Analysis Batch: 363121

Client Sample ID: SGWC-20  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.334	U	0.2526	U	0.222	5.00	0.349	pCi/L	0.18	

## Chain of Custody Record

<b>Client Information</b> Client Contact: Ben Hodges Southern Company Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State: GA, Zip: 30308 Enroll: JAbraham@southernco.com Project Name: CCR - Scherer Site: Ash Pond		Lab PM: Whitmire, Cheyenne R E-Mail: cheyenne.whitmire@testamericainc.com Carrier Tracking No(s): COC No: 400-57303-24790 Page: 1 of 1	
<b>Analysis Requested</b> Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 4007041 SSOW#:		QR Code: 400-151428 COC Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
<b>Sample Identification</b> Sample Date Sample Time Sample Type (C=comp, G=grab) Matrix (W=water, S=solid, O=waste/oil, BT=tissue, A=air)		Perform MS/MSD (Yes or No) Field Filtered Sample (Yes or No) 300_ORGFM_28D-Fluoride 6020-Sb,As,Ba,Be,Cd,Cr,Co,Pb,LI,Mo,Se,Tl, 7470A-Hg 9315_Ra226, 9320_Ra228, Ra226Ra228_GFPc	
SGWA-24 SGWA-1 SGWA-2 FD-1(AP) EB-1(AP) SGWA-3		Special Instructions/Note: Extra Radium RAD-STL-4.5	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by: Ben Hodges Relinquished by: Ben Hodges Relinquished by: Ben Hodges Relinquished by: Ben Hodges		Date: 3/27/18 0800 Date: 3-27-18 1005 Date: 3/27/18 1600 Date: 3/27/18 1600	
Custody Seal Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No: 450045		Cooler Temperature(s) °C and Other Remarks:	



# Chain of Custody Record

<b>Client Information</b> Client Contact: <u>Ben Hodges</u> Phone: <u>                    </u> Company: <u>Southern Company</u>		Lab Pmt: <u>Whitmire, Cheyenne R</u> E-Mail: <u>cheyenne.whitmire@testamericainc.com</u>		Carrier Tracking No(s): <u>                    </u> COC No: <u>400-57303-24790</u> Page: 1 of 1						
Address: <u>241 Ralph McGill Blvd SE B10185</u> City: <u>Atlanta</u> State, Zip: <u>GA, 30308</u> Phone: <u>                    </u> Email: <u>JAbraham@southernco.com</u> Project Name: <u>CCR - Scherer</u> Site: <u>Ash Pond</u>		<b>Analysis Requested</b> Due Date Requested: <u>                    </u> TAT Requested (days): <u>                    </u> PO #: <u>                    </u> WO #: <u>                    </u> Project #: <u>40007041</u> SSOW#: <u>                    </u>		Job #: <u>                    </u> Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: <u>                    </u> M - Hexane N - None O - AsHClO2 P - Na2OAS Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify) <u>                    </u>						
<b>Sample Identification</b> Sample Date: <u>3/27/18</u> Sample Time: <u>1310</u> Sample Type (C=Comp, G=grab): <u>G</u> Matrix (W=water, S=solid, O=soil, G=gravel, A=air) <u>Water</u>		Field Filtered Sample (Yes or No) <u>N</u> Perform MS/MSD (Yes or No) <u>N</u> 300_ORGM_28D-Fluoride <u>N</u> 6020-Sb,As,Ba,Bi,Cd,Cr,Cu,Pb,LI,Mo,Se,Ti,7470A-Hg <u>D</u> 9315_Ra226,9320_Ra228,Ra226Ra228_GFPc <u>D</u>		Total Number of Containers: <u>3</u> Special Instructions/Note: <u>                    </u>						
SGWA-4	3/27/18	1310	G	Water	N	1	1	1	3	Extra Radium 4 3 3 3 3 3 3 3 3
SGWA-5	3/27/18	0935	G	Water	N	1	1	1	3	
SGWC-6	3/27/18	1425	G	Water	N	1	1	1	3	
SGWC-7	3/27/18	1530	G	Water	N	1	1	1	3	
SGWC-14	3/27/18	0925	G	Water	N	1	1	1	3	
SGWC-15	3/27/18	1045	G	Water	N	1	1	1	3	
SGWC-16	3/27/18	1235	G	Water	N	1	1	2	4	
SGWC-17	3/27/18	1405	G	Water	N	1	1	1	3	
SGWC-23	3/27/18	1510	G	Water	N	1	1	1	3	
SGWA-25	3/27/18	1045	G	Water	N	1	1	1	3	
EB-2(AP)	3/27/18	1800	G	Water	N	1	1	1	3	
FD-2(AP)	3/27/18	-	G	Water	N	1	1	1	3	

**Possible Hazard Identification**  
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological  
 Deliverable Requested: I, II, III, IV, Other (specify)                     

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

**Special Instructions/QC Requirements:**  
                    

<b>Relinquished by:</b> <u>K. M. Hurm</u> Date/Time: <u>3-28-18 / 0800</u> Company: <u>Goldor</u>		<b>Received by:</b> <u>M. BAH</u> Date/Time: <u>3-28-18 / 8:00</u> Company: <u>C NOW</u>	
<b>Relinquished by:</b> <u>M. BAH</u> Date/Time: <u>3-28-18 / 9:47</u> Company: <u>C NOW</u>		<b>Received by:</b> <u>M. BAH</u> Date/Time: <u>3-28-18 / 9:47</u> Company: <u>C NOW</u>	
<b>Relinquished by:</b> <u>M. BAH</u> Date/Time: <u>3-28-18 / 1600</u> Company: <u>C NOW</u>		<b>Received by:</b> <u>M. BAH</u> Date/Time: <u>3-28-18 / 1600</u> Company: <u>C NOW</u>	

**Custody Seals Intact:**  
 Δ Yes Δ No                     

**Cooler Temperature(s) °C and Cooler Remarks:**  
3.3 C, 5.2 C



## Chain of Custody Record

[illegible]





## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-151428-2

SDG Number: Ash Pond

**Login Number: 151428**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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	0.0°C IR7, 0.5°C IR-8 (4/3/18)
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 $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-151428-2

SDG Number: Ash Pond

**Login Number: 151428**

**List Number: 2**

**Creator: Taylor, Kristene N**

**List Source: TestAmerica St. Louis**

**List Creation: 03/29/18 02:45 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	18.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	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 $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-151428-2

SDG Number: Ash Pond

**Login Number: 151428**

**List Number: 5**

**Creator: Taylor, Kristene N**

**List Source: TestAmerica St. Louis**

**List Creation: 03/31/18 09:58 AM**

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

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-151428-2

SDG Number: Ash Pond

**Login Number: 151428**

**List Number: 7**

**Creator: Clarke, Jill C**

**List Source: TestAmerica St. Louis**

**List Creation: 04/04/18 12:20 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.2
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	False	



# Accreditation/Certification Summary

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-18
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	ELAP	9	2510	03-31-18 *
Florida	NELAP	4	E81010	06-30-18
Georgia	State Program	4	N/A	06-30-18
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-18
Kentucky (UST)	State Program	4	53	06-30-18
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-18
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-18
Michigan	State Program	5	9912	06-30-18
New Jersey	NELAP	2	FL006	06-30-18
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18
Tennessee	State Program	4	TN02907	06-30-18
Texas	NELAP	6	T104704286-17-12	09-30-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-18
Washington	State Program	10	C915	05-15-18
West Virginia DEP	State Program	3	136	06-30-18

## Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-18 *
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	06-30-18 *
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-18 *
Illinois	NELAP	5	200023	11-30-18
Iowa	State Program	7	373	12-01-18
Kansas	NELAP	7	E-10236	10-31-18
Kentucky (DW)	State Program	4	90125	12-31-18
L-A-B	DoD ELAP		L2305	04-06-19
Louisiana	NELAP	6	04080	06-30-18
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18
Michigan	State Program	5	9005	06-30-18
Missouri	State Program	7	780	06-30-18
Nevada	State Program	9	MO000542018-1	07-31-18

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

TestAmerica Pensacola

## Accreditation/Certification Summary

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

TestAmerica Job ID: 400-151428-2  
SDG: Ash Pond

### Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
New Jersey	NELAP	2	MO002	06-30-18 *
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-18
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-18
Texas	NELAP	6	T104704193-17-11	07-31-18
US Fish & Wildlife	Federal		058448	08-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18
Virginia	NELAP	3	460230	06-14-18 *
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18 *

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

TestAmerica Pensacola

# ANALYTICAL DATA REPORTS JUNE 2018

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-154761-1

TestAmerica Sample Delivery Group: Ash Pond

Client Project/Site: CCR - Plant Scherer

For:

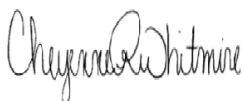
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

7/16/2018 2:59:18 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

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

### LINKS

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results through

TotalAccess

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

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

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



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Detection Summary . . . . .	4
Method Summary . . . . .	13
Sample Summary . . . . .	14
Client Sample Results . . . . .	15
Definitions . . . . .	62
Chronicle . . . . .	63
QC Association . . . . .	77
QC Sample Results . . . . .	86
Chain of Custody . . . . .	100
Receipt Checklists . . . . .	104
Certification Summary . . . . .	107

# Case Narrative

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Job ID: 400-154761-1**

**Laboratory: TestAmerica Pensacola**

## Narrative

### Job Narrative 400-154761-1

#### HPLC/IC

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: SGWC-8 (400-154761-13), SGWC-9 (400-154761-17), SGWC-13 (400-154761-21), SGWC-14 (400-154761-22), SGWC-15 (400-154761-23), SGWC-17 (400-154761-25), SGWC-20 (400-154761-26), SGWC-21 (400-154761-27), SGWC-22 (400-154761-28), SGWC-23 (400-154761-29), FD-3(AP) (400-154761-31), SGWC-18 (400-154761-33) and SGWC-19 (400-154761-34). Elevated reporting limits (RLs) are provided.

#### RAD

Method(s) 9320: Radium-228 Prep Batch 160-371128: The following sample exhibited a negative result greater in magnitude than the 3 sigma TPU: EB-2(AP) (400-154761-16). This occurrence was evaluated and determined to be random in nature. Sporadic occurrences such as this are statistically expected. No further action is required.

#### Metals

Method(s) 6020: The method blank for preparation batch 401724 and 401725 and analytical batch 401891 contained Selenium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 6020: The following samples were diluted to bring the concentration of target analytes within the calibration range: SGWC-20 (400-154761-26), SGWC-18 (400-154761-33) and SGWC-19 (400-154761-34). Elevated reporting limits (RLs) are provided.



# Detection Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Client Sample ID: SGWA-1

## Lab Sample ID: 400-154761-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	1.7		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.058		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	2.6		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.0014	J	0.0025	0.0011	mg/L	5			6020	Total Recoverable
Cobalt	0.0028		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0018	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.00065	J B	0.0013	0.00024	mg/L	5			6020	Total Recoverable
Total Dissolved Solids	8.0		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: SGWA-2

## Lab Sample ID: 400-154761-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	1.3		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.038		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	11		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.014		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.00098	J B	0.0013	0.00024	mg/L	5			6020	Total Recoverable
Total Dissolved Solids	74		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: SGWA-24

## Lab Sample ID: 400-154761-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	1.9		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.022		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	13		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.0046		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Lithium	0.0011	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.00041	J B	0.0013	0.00024	mg/L	5			6020	Total Recoverable
Total Dissolved Solids	76		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: SGWA-25

## Lab Sample ID: 400-154761-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	2.0		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.024		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	9.7		0.25	0.13	mg/L	5			6020	Total Recoverable
Cobalt	0.0095		0.0025	0.00040	mg/L	5			6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

### Client Sample ID: SGWA-25 (Continued)

### Lab Sample ID: 400-154761-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Lithium	0.0015	J	0.0050	0.0011	mg/L	5			6020	Total
Selenium	0.00029	J B	0.0013	0.00024	mg/L	5			6020	Recoverable
Mercury	0.000075	J	0.00020	0.000070	mg/L	1			7470A	Total
Total Dissolved Solids	80		5.0	3.4	mg/L	1			SM 2540C	NA

### Client Sample ID: SGWA-5

### Lab Sample ID: 400-154761-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	1.6		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.011		0.0025	0.00049	mg/L	5			6020	Total
Calcium	1.5		0.25	0.13	mg/L	5			6020	Recoverable
Selenium	0.00039	J B	0.0013	0.00024	mg/L	5			6020	Total
Total Dissolved Solids	50		5.0	3.4	mg/L	1			SM 2540C	NA

### Client Sample ID: FB-1(AP)

### Lab Sample ID: 400-154761-6

No Detections.

### Client Sample ID: FD-1(AP)

### Lab Sample ID: 400-154761-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	1.3		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.039		0.0025	0.00049	mg/L	5			6020	Total
Calcium	11		0.25	0.13	mg/L	5			6020	Recoverable
Chromium	0.014		0.0025	0.0011	mg/L	5			6020	Total
Mercury	0.000072	J	0.00020	0.000070	mg/L	1			7470A	Recoverable
Total Dissolved Solids	94		5.0	3.4	mg/L	1			SM 2540C	Total/NA

### Client Sample ID: EB-1(AP)

### Lab Sample ID: 400-154761-8

No Detections.

### Client Sample ID: SGWA-3

### Lab Sample ID: 400-154761-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	2.0		1.0	0.89	mg/L	1			300.0	Total/NA
Sulfate	1.8		1.0	0.70	mg/L	1			300.0	Total/NA
Barium	0.036		0.0025	0.00049	mg/L	5			6020	Total
Calcium	4.1		0.25	0.13	mg/L	5			6020	Recoverable
Chromium	0.015		0.0025	0.0011	mg/L	5			6020	Total
Total Dissolved Solids	46		5.0	3.4	mg/L	1			SM 2540C	Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Client Sample ID: SGWA-4

## Lab Sample ID: 400-154761-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	1.1		1.0	0.89	mg/L	1			300.0	Total/NA
Sulfate	0.89	J	1.0	0.70	mg/L	1			300.0	Total/NA
Barium	0.058		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	18		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.0048		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Total Dissolved Solids	120		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: SGWC-6

## Lab Sample ID: 400-154761-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	1.3		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.014		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	4.2		0.25	0.13	mg/L	5			6020	Total Recoverable
Cobalt	0.0021	J	0.0025	0.00040	mg/L	5			6020	Total Recoverable
Selenium	0.00032	J B	0.0013	0.00024	mg/L	5			6020	Total Recoverable
Total Dissolved Solids	100		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: SGWC-7

## Lab Sample ID: 400-154761-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	4.6		1.0	0.89	mg/L	1			300.0	Total/NA
Fluoride	0.20		0.20	0.082	mg/L	1			300.0	Total/NA
Sulfate	14		1.0	0.70	mg/L	1			300.0	Total/NA
Barium	0.24		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	19		0.25	0.13	mg/L	5			6020	Total Recoverable
Cobalt	0.0034		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0040	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Total Dissolved Solids	210		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: SGWC-8

## Lab Sample ID: 400-154761-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	11		1.0	0.89	mg/L	1			300.0	Total/NA
Fluoride	0.40		0.20	0.082	mg/L	1			300.0	Total/NA
Sulfate - DL	74		5.0	3.5	mg/L	5			300.0	Total/NA
Barium	0.18		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Boron	0.059		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	51		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.0013	J	0.0025	0.0011	mg/L	5			6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Client Sample ID: SGWC-8 (Continued)

## Lab Sample ID: 400-154761-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lithium	0.0018	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable Total/NA
Total Dissolved Solids	410		5.0	3.4	mg/L	1		SM 2540C	

## Client Sample ID: FB-2(AP)

## Lab Sample ID: 400-154761-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	32		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: FD-2(AP)

## Lab Sample ID: 400-154761-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.4		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	0.78	J	1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.040		0.0025	0.00049	mg/L	5		6020	Total Recoverable Total
Boron	0.35		0.050	0.021	mg/L	5		6020	Recoverable Total
Calcium	1.8		0.25	0.13	mg/L	5		6020	Recoverable Total
Cobalt	0.026		0.0025	0.00040	mg/L	5		6020	Recoverable Total
Lithium	0.0019	J	0.0050	0.0011	mg/L	5		6020	Recoverable Total
Total Dissolved Solids	10		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: EB-2(AP)

## Lab Sample ID: 400-154761-16

No Detections.

## Client Sample ID: SGWC-9

## Lab Sample ID: 400-154761-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	320		10	7.0	mg/L	10		300.0	Total/NA
Barium	0.069		0.0025	0.00049	mg/L	5		6020	Total Recoverable Total
Boron	1.8		0.050	0.021	mg/L	5		6020	Recoverable Total
Calcium	54		0.25	0.13	mg/L	5		6020	Recoverable Total
Cobalt	0.0064		0.0025	0.00040	mg/L	5		6020	Recoverable Total
Total Dissolved Solids	590		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-10

## Lab Sample ID: 400-154761-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.6		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	2.9		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.027		0.0025	0.00049	mg/L	5		6020	Total Recoverable Total
Boron	0.070		0.050	0.021	mg/L	5		6020	Recoverable Total

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Client Sample ID: SGWC-10 (Continued)

## Lab Sample ID: 400-154761-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Calcium	1.2		0.25	0.13	mg/L	5			6020	Total
Cobalt	0.018		0.0025	0.00040	mg/L	5			6020	Recoverable
Total Dissolved Solids	38		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: SGWC-11

## Lab Sample ID: 400-154761-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	7.5		1.0	0.89	mg/L	1			300.0	Total/NA
Sulfate	0.89	J	1.0	0.70	mg/L	1			300.0	Total/NA
Barium	0.041		0.0025	0.00049	mg/L	5			6020	Total
Boron	0.37		0.050	0.021	mg/L	5			6020	Recoverable
Calcium	1.8		0.25	0.13	mg/L	5			6020	Total
Cobalt	0.026		0.0025	0.00040	mg/L	5			6020	Recoverable
Lithium	0.0017	J	0.0050	0.0011	mg/L	5			6020	Total
Total Dissolved Solids	40		5.0	3.4	mg/L	1			SM 2540C	Recoverable

## Client Sample ID: SGWC-12

## Lab Sample ID: 400-154761-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	8.8		1.0	0.89	mg/L	1			300.0	Total/NA
Sulfate	41		1.0	0.70	mg/L	1			300.0	Total/NA
Barium	0.048		0.0025	0.00049	mg/L	5			6020	Total
Calcium	22		0.25	0.13	mg/L	5			6020	Recoverable
Cobalt	0.0038		0.0025	0.00040	mg/L	5			6020	Total
Total Dissolved Solids	260		5.0	3.4	mg/L	1			SM 2540C	Recoverable

## Client Sample ID: SGWC-13

## Lab Sample ID: 400-154761-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	6.2		1.0	0.89	mg/L	1			300.0	Total/NA
Sulfate - DL	69		5.0	3.5	mg/L	5			300.0	Total/NA
Barium	0.032		0.0025	0.00049	mg/L	5			6020	Total
Boron	0.45		0.050	0.021	mg/L	5			6020	Recoverable
Calcium	15		0.25	0.13	mg/L	5			6020	Total
Cobalt	0.0039		0.0025	0.00040	mg/L	5			6020	Recoverable
Selenium	0.00064	J B	0.0013	0.00024	mg/L	5			6020	Total
Total Dissolved Solids	190		5.0	3.4	mg/L	1			SM 2540C	Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Client Sample ID: SGWC-14

## Lab Sample ID: 400-154761-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	190		5.0	3.5	mg/L	5		300.0	Total/NA
Barium	0.057		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	1.6		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	44		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.0025		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Selenium	0.00084	J B	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	340		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-15

## Lab Sample ID: 400-154761-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.3		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.14	J	0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate - DL	190		5.0	3.5	mg/L	5		300.0	Total/NA
Barium	0.035		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Beryllium	0.00038	J	0.0025	0.00034	mg/L	5		6020	Total Recoverable
Boron	1.7		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	16		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.032		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Cobalt	0.30		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0030	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0014	B	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Mercury	0.00013	J	0.00020	0.000070	mg/L	1		7470A	Total/NA
Total Dissolved Solids	310		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-16

## Lab Sample ID: 400-154761-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.7		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	25		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.022		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.59		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	0.84		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.010		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Cobalt	0.0037		0.0025	0.00040	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola



# Detection Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Client Sample ID: SGWC-16 (Continued)

## Lab Sample ID: 400-154761-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.0013	B	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	74		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-17

## Lab Sample ID: 400-154761-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.0		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	170		5.0	3.5	mg/L	5		300.0	Total/NA
Barium	0.020		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.35		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	49		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0083		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.00064	J B	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Mercury	0.00011	J	0.00020	0.000070	mg/L	1		7470A	Total/NA
Total Dissolved Solids	360		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-20

## Lab Sample ID: 400-154761-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.9		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.21		0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate - DL	210		5.0	3.5	mg/L	5		300.0	Total/NA
Barium	0.029		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Beryllium	0.00086	J	0.0025	0.00034	mg/L	5		6020	Total Recoverable
Calcium	11		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.21		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0038	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.00066	J B	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Thallium	0.00014	J	0.00050	0.000085	mg/L	5		6020	Total Recoverable
Boron - DL	2.1		0.25	0.11	mg/L	25		6020	Total Recoverable
Mercury	0.000082	J	0.00020	0.000070	mg/L	1		7470A	Total/NA
Total Dissolved Solids	320		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-21

## Lab Sample ID: 400-154761-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.6		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	79		5.0	3.5	mg/L	5		300.0	Total/NA
Barium	0.092		0.0025	0.00049	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

### Lab Sample ID: 400-154761-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron	1.4		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	29		0.25	0.13	mg/L	5			6020	Total Recoverable
Lithium	0.0013	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Total Dissolved Solids	260		5.0	3.4	mg/L	1			SM 2540C	Total/NA

### Client Sample ID: SGWC-22

### Lab Sample ID: 400-154761-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	10		1.0	0.89	mg/L	1			300.0	Total/NA
Sulfate - DL	94		5.0	3.5	mg/L	5			300.0	Total/NA
Barium	0.084		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Boron	0.41		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	26		0.25	0.13	mg/L	5			6020	Total Recoverable
Cobalt	0.0022	J	0.0025	0.00040	mg/L	5			6020	Total Recoverable
Total Dissolved Solids	210		5.0	3.4	mg/L	1			SM 2540C	Total/NA

### Client Sample ID: SGWC-23

### Lab Sample ID: 400-154761-29

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	10		1.0	0.89	mg/L	1			300.0	Total/NA
Sulfate - DL	100		5.0	3.5	mg/L	5			300.0	Total/NA
Barium	0.082		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Boron	0.71		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	25		0.25	0.13	mg/L	5			6020	Total Recoverable
Lithium	0.0027	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Mercury	0.00028		0.00020	0.000070	mg/L	1			7470A	Total/NA
Total Dissolved Solids	220		5.0	3.4	mg/L	1			SM 2540C	Total/NA

### Client Sample ID: FB-3(AP)

### Lab Sample ID: 400-154761-30

No Detections.

### Client Sample ID: FD-3(AP)

### Lab Sample ID: 400-154761-31

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	6.2		1.0	0.89	mg/L	1			300.0	Total/NA
Sulfate - DL	70		5.0	3.5	mg/L	5			300.0	Total/NA
Barium	0.032		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Boron	0.45		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	15		0.25	0.13	mg/L	5			6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Client Sample ID: FD-3(AP) (Continued)

## Lab Sample ID: 400-154761-31

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.0040		0.0025	0.00040	mg/L	5		6020	Total
Total Dissolved Solids	12		5.0	3.4	mg/L	1		SM 2540C	Recoverable Total/NA

## Client Sample ID: EB-3(AP)

## Lab Sample ID: 400-154761-32

No Detections.

## Client Sample ID: SGWC-18

## Lab Sample ID: 400-154761-33

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.0		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	870		20	14	mg/L	20		300.0	Total/NA
Arsenic	0.0020		0.0013	0.00046	mg/L	5		6020	Total
Barium	0.032		0.0025	0.00049	mg/L	5		6020	Recoverable
Beryllium	0.00035	J	0.0025	0.00034	mg/L	5		6020	Total
Calcium	90		0.25	0.13	mg/L	5		6020	Recoverable
Chromium	0.0086		0.0025	0.0011	mg/L	5		6020	Total
Cobalt	0.19		0.0025	0.00040	mg/L	5		6020	Recoverable
Lithium	0.0042	J	0.0050	0.0011	mg/L	5		6020	Total
Selenium	0.014	B	0.0013	0.00024	mg/L	5		6020	Recoverable
Thallium	0.00019	J	0.00050	0.000085	mg/L	5		6020	Total
Boron - DL	4.3		0.25	0.11	mg/L	25		6020	Recoverable
Mercury	0.00014	J	0.00020	0.000070	mg/L	1		7470A	Total/NA
Total Dissolved Solids	820		10	6.8	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-19

## Lab Sample ID: 400-154761-34

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.2		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	220		5.0	3.5	mg/L	5		300.0	Total/NA
Barium	0.035		0.0025	0.00049	mg/L	5		6020	Total
Calcium	37		0.25	0.13	mg/L	5		6020	Recoverable
Chromium	0.015		0.0025	0.0011	mg/L	5		6020	Total
Lithium	0.0022	J	0.0050	0.0011	mg/L	5		6020	Recoverable
Selenium	0.00063	J B	0.0013	0.00024	mg/L	5		6020	Total
Boron - DL	1.8		0.25	0.11	mg/L	25		6020	Recoverable
Total Dissolved Solids	320		5.0	3.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Method Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL PEN
6020	Metals (ICP/MS)	SW846	TAL PEN
7470A	Mercury (CVAA)	SW846	TAL PEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PEN
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN
7470A	Preparation, Mercury	SW846	TAL PEN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

### Protocol References:

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

None = None

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

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

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

### Laboratory References:

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

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

# Sample Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-154761-1	SGWA-1	Water	06/05/18 14:30	06/07/18 10:09
400-154761-2	SGWA-2	Water	06/05/18 15:30	06/07/18 10:09
400-154761-3	SGWA-24	Water	06/05/18 14:50	06/07/18 10:09
400-154761-4	SGWA-25	Water	06/05/18 17:00	06/07/18 10:09
400-154761-5	SGWA-5	Water	06/05/18 16:30	06/07/18 10:09
400-154761-6	FB-1(AP)	Water	06/05/18 14:20	06/07/18 10:09
400-154761-7	FD-1(AP)	Water	06/05/18 00:00	06/07/18 10:09
400-154761-8	EB-1(AP)	Water	06/05/18 17:30	06/07/18 10:09
400-154761-9	SGWA-3	Water	06/06/18 09:40	06/08/18 09:17
400-154761-10	SGWA-4	Water	06/06/18 11:20	06/08/18 09:17
400-154761-11	SGWC-6	Water	06/06/18 09:40	06/08/18 09:17
400-154761-12	SGWC-7	Water	06/06/18 11:00	06/08/18 09:17
400-154761-13	SGWC-8	Water	06/06/18 13:30	06/08/18 09:17
400-154761-14	FB-2(AP)	Water	06/06/18 09:20	06/08/18 09:17
400-154761-15	FD-2(AP)	Water	06/06/18 00:00	06/08/18 09:17
400-154761-16	EB-2(AP)	Water	06/06/18 17:25	06/08/18 09:17
400-154761-17	SGWC-9	Water	06/06/18 14:45	06/08/18 09:17
400-154761-18	SGWC-10	Water	06/06/18 15:50	06/08/18 09:17
400-154761-19	SGWC-11	Water	06/06/18 14:35	06/08/18 09:17
400-154761-20	SGWC-12	Water	06/06/18 16:25	06/08/18 09:17
400-154761-21	SGWC-13	Water	06/07/18 09:15	06/09/18 08:26
400-154761-22	SGWC-14	Water	06/07/18 10:30	06/09/18 08:26
400-154761-23	SGWC-15	Water	06/07/18 12:10	06/09/18 08:26
400-154761-24	SGWC-16	Water	06/07/18 14:00	06/09/18 08:26
400-154761-25	SGWC-17	Water	06/07/18 15:00	06/09/18 08:26
400-154761-26	SGWC-20	Water	06/07/18 15:25	06/09/18 08:26
400-154761-27	SGWC-21	Water	06/07/18 14:10	06/09/18 08:26
400-154761-28	SGWC-22	Water	06/07/18 10:25	06/09/18 08:26
400-154761-29	SGWC-23	Water	06/07/18 09:15	06/09/18 08:26
400-154761-30	FB-3(AP)	Water	06/07/18 10:20	06/09/18 08:26
400-154761-31	FD-3(AP)	Water	06/07/18 00:00	06/09/18 08:26
400-154761-32	EB-3(AP)	Water	06/07/18 16:00	06/09/18 08:26
400-154761-33	SGWC-18	Water	06/08/18 09:20	06/09/18 08:26
400-154761-34	SGWC-19	Water	06/08/18 09:05	06/09/18 08:26

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWA-1**  
**Date Collected: 06/05/18 14:30**  
**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-1**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.7		1.0	0.89	mg/L			06/25/18 14:42	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 14:42	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 14:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 14:06	5
Barium	0.058		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 14:06	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 14:06	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 14:06	5
Calcium	2.6		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 14:06	5
Chromium	0.0014	J	0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 14:06	5
Cobalt	0.0028		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 14:06	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 14:06	5
Lithium	0.0018	J	0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 14:06	5
Selenium	0.00065	J B	0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 14:06	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 14:06	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 11:43	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	8.0		5.0	3.4	mg/L			06/11/18 17:02	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0431	U	0.135	0.135	1.00	0.259	pCi/L	06/19/18 08:49	07/11/18 19:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	110		40 - 110					06/19/18 08:49	07/11/18 19:09	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0632	U	0.179	0.179	1.00	0.311	pCi/L	06/19/18 09:16	07/11/18 15:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	110		40 - 110					06/19/18 09:16	07/11/18 15:18	1
Y Carrier	92.7		40 - 110					06/19/18 09:16	07/11/18 15:18	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.106	U	0.224	0.224	5.00	0.311	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola



# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWA-2**

**Date Collected: 06/05/18 15:30**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-2**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.3		1.0	0.89	mg/L			06/25/18 17:45	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 17:45	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 17:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 14:29	5
Barium	0.038		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 14:29	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 14:29	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 14:29	5
Calcium	11		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 14:29	5
Chromium	0.014		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 14:29	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 14:29	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 14:29	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 14:29	5
Selenium	0.00098	J B	0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 14:29	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 14:29	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 11:45	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	74		5.0	3.4	mg/L			06/11/18 17:02	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0606	U	0.145	0.145	1.00	0.270	pCi/L	06/19/18 08:49	07/11/18 19:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 08:49	07/11/18 19:10	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0110	U	0.174	0.174	1.00	0.315	pCi/L	06/19/18 09:16	07/11/18 15:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 09:16	07/11/18 15:18	1
Y Carrier	94.2		40 - 110					06/19/18 09:16	07/11/18 15:18	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0496	U	0.226	0.226	5.00	0.315	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWA-24**

**Date Collected: 06/05/18 14:50**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-3**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.9		1.0	0.89	mg/L			06/25/18 18:08	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 18:08	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 18:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 14:33	5
Barium	0.022		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 14:33	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 14:33	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 14:33	5
Calcium	13		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 14:33	5
Chromium	0.0046		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 14:33	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 14:33	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 14:33	5
Lithium	0.0011	J	0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 14:33	5
Selenium	0.00041	J B	0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 14:33	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 14:33	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:04	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	76		5.0	3.4	mg/L			06/11/18 17:02	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0847	U	0.127	0.128	1.00	0.220	pCi/L	06/19/18 08:49	07/11/18 19:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 08:49	07/11/18 19:10	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0788	U	0.190	0.190	1.00	0.328	pCi/L	06/19/18 09:16	07/11/18 15:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 09:16	07/11/18 15:19	1
Y Carrier	93.1		40 - 110					06/19/18 09:16	07/11/18 15:19	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.163	U	0.229	0.229	5.00	0.328	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWA-25**

**Date Collected: 06/05/18 17:00**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-4**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.0		1.0	0.89	mg/L			06/25/18 18:31	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 18:31	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 18:31	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 14:38	5
Barium	0.024		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 14:38	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 14:38	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 14:38	5
Calcium	9.7		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 14:38	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 14:38	5
Cobalt	0.0095		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 14:38	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 14:38	5
Lithium	0.0015	J	0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 14:38	5
Selenium	0.00029	J B	0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 14:38	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 14:38	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000075	J	0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:06	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	80		5.0	3.4	mg/L			06/11/18 17:02	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.166	U	0.165	0.166	1.00	0.252	pCi/L	06/19/18 08:49	07/11/18 19:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110					06/19/18 08:49	07/11/18 19:10	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.203	U	0.169	0.170	1.00	0.346	pCi/L	06/19/18 09:16	07/11/18 15:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110					06/19/18 09:16	07/11/18 15:19	1
Y Carrier	90.8		40 - 110					06/19/18 09:16	07/11/18 15:19	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0364	U	0.236	0.238	5.00	0.346	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWA-5**  
**Date Collected: 06/05/18 16:30**  
**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-5**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.6		1.0	0.89	mg/L			06/25/18 18:54	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 18:54	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 18:54	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 15:05	5
Barium	0.011		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 15:05	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 15:05	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 15:05	5
Calcium	1.5		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 15:05	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 15:05	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 15:05	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 15:05	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 15:05	5
Selenium	0.00039	J B	0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 15:05	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 15:05	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:08	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	50		5.0	3.4	mg/L			06/11/18 17:02	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0662	U	0.142	0.142	1.00	0.261	pCi/L	06/19/18 08:49	07/11/18 19:10	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/19/18 08:49	07/11/18 19:10	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.189	U	0.188	0.188	1.00	0.304	pCi/L	06/19/18 09:16	07/11/18 15:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/19/18 09:16	07/11/18 15:19	1
Y Carrier	97.9		40 - 110					06/19/18 09:16	07/11/18 15:19	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.255	U	0.236	0.236	5.00	0.304	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: FB-1(AP)**

**Date Collected: 06/05/18 14:20**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-6**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/25/18 20:02	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 20:02	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 20:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 15:09	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 15:09	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 15:09	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 15:09	5
Calcium	<0.13		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 15:09	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 15:09	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 15:09	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 15:09	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 15:09	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 15:09	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 15:09	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:09	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/11/18 17:02	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.113	U	0.147	0.147	1.00	0.244	pCi/L	06/19/18 08:49	07/11/18 19:10	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	109		40 - 110					06/19/18 08:49	07/11/18 19:10	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0381	U	0.158	0.158	1.00	0.278	pCi/L	06/19/18 09:16	07/11/18 15:19	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	109		40 - 110					06/19/18 09:16	07/11/18 15:19	1
Y Carrier	96.1		40 - 110					06/19/18 09:16	07/11/18 15:19	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.151	U	0.216	0.216	5.00	0.278	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: FD-1(AP)**

**Date Collected: 06/05/18 00:00**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-7**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.3		1.0	0.89	mg/L			06/25/18 20:25	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 20:25	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 20:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 15:14	5
Barium	0.039		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 15:14	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 15:14	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 15:14	5
Calcium	11		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 15:14	5
Chromium	0.014		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 15:14	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 15:14	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 15:14	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 15:14	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 15:14	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 15:14	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000072	J	0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:11	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	94		5.0	3.4	mg/L			06/10/18 09:45	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0801	U	0.134	0.134	1.00	0.237	pCi/L	06/19/18 08:49	07/11/18 19:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 08:49	07/11/18 19:11	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.186	U	0.181	0.182	1.00	0.293	pCi/L	06/19/18 09:16	07/11/18 15:19	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 09:16	07/11/18 15:19	1
Y Carrier	92.7		40 - 110					06/19/18 09:16	07/11/18 15:19	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.266	U	0.225	0.226	5.00	0.293	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola



# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: EB-1(AP)**

**Date Collected: 06/05/18 17:30**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-8**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/25/18 20:48	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 20:48	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 20:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 15:18	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 15:18	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 15:18	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 15:18	5
Calcium	<0.13		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 15:18	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 15:18	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 15:18	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 15:18	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 15:18	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 15:18	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 15:18	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:13	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/11/18 17:02	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0422	U	0.132	0.132	1.00	0.255	pCi/L	06/19/18 08:49	07/11/18 19:11	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	106		40 - 110					06/19/18 08:49	07/11/18 19:11	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0584	U	0.142	0.142	1.00	0.247	pCi/L	06/19/18 09:16	07/11/18 15:20	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	106		40 - 110					06/19/18 09:16	07/11/18 15:20	1
Y Carrier	99.1		40 - 110					06/19/18 09:16	07/11/18 15:20	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.101	U	0.194	0.194	5.00	0.255	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWA-3**

**Date Collected: 06/06/18 09:40**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-9**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.0		1.0	0.89	mg/L			06/25/18 19:17	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 19:17	1
Sulfate	1.8		1.0	0.70	mg/L			06/25/18 19:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 15:42	5
Barium	0.036		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 15:42	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 15:42	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 15:42	5
Calcium	4.1		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 15:42	5
Chromium	0.015		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 15:42	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 15:42	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 15:42	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 15:42	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 15:42	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 15:42	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:15	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	46		5.0	3.4	mg/L			06/12/18 13:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.171	U	0.160	0.160	1.00	0.236	pCi/L	06/19/18 08:49	07/11/18 19:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/19/18 08:49	07/11/18 19:11	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.00359	U	0.169	0.169	1.00	0.304	pCi/L	06/19/18 09:16	07/11/18 15:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/19/18 09:16	07/11/18 15:20	1
Y Carrier	94.2		40 - 110					06/19/18 09:16	07/11/18 15:20	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.175	U	0.233	0.233	5.00	0.304	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWA-4**  
**Date Collected: 06/06/18 11:20**  
**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-10**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.1		1.0	0.89	mg/L			06/25/18 21:57	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 21:57	1
Sulfate	0.89	J	1.0	0.70	mg/L			06/25/18 21:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 15:47	5
Barium	0.058		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 15:47	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 15:47	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 15:47	5
Calcium	18		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 15:47	5
Chromium	0.0048		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 15:47	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 15:47	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 15:47	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 15:47	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 15:47	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 15:47	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:17	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	120		5.0	3.4	mg/L			06/12/18 13:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0207	U	0.0975	0.0976	1.00	0.230	pCi/L	06/19/18 08:49	07/11/18 19:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/19/18 08:49	07/11/18 19:06	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.329		0.190	0.193	1.00	0.282	pCi/L	06/19/18 09:16	07/11/18 15:20	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/19/18 09:16	07/11/18 15:20	1
Y Carrier	96.1		40 - 110					06/19/18 09:16	07/11/18 15:20	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.308		0.214	0.216	5.00	0.282	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-6**  
**Date Collected: 06/06/18 09:40**  
**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-11**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.3		1.0	0.89	mg/L			06/25/18 22:20	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 22:20	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 22:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 16:14	5
Barium	0.014		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 16:14	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 16:14	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 16:14	5
Calcium	4.2		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 16:14	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 16:14	5
Cobalt	0.0021	J	0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 16:14	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 16:14	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 16:14	5
Selenium	0.00032	J B	0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 16:14	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 16:14	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:19	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	100		5.0	3.4	mg/L			06/12/18 13:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0117	U	0.0999	0.0999	1.00	0.215	pCi/L	06/19/18 08:49	07/11/18 19:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					06/19/18 08:49	07/11/18 19:06	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.115	U	0.188	0.189	1.00	0.318	pCi/L	06/19/18 09:16	07/11/18 15:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					06/19/18 09:16	07/11/18 15:22	1
Y Carrier	95.0		40 - 110					06/19/18 09:16	07/11/18 15:22	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.127	U	0.213	0.214	5.00	0.318	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-7**

**Lab Sample ID: 400-154761-12**

**Date Collected: 06/06/18 11:00**

**Matrix: Water**

**Date Received: 06/08/18 09:17**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.6		1.0	0.89	mg/L			06/25/18 22:43	1
Fluoride	0.20		0.20	0.082	mg/L			06/25/18 22:43	1
Sulfate	14		1.0	0.70	mg/L			06/25/18 22:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 16:19	5
Barium	0.24		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 16:19	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 16:19	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 16:19	5
Calcium	19		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 16:19	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 16:19	5
Cobalt	0.0034		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 16:19	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 16:19	5
Lithium	0.0040	J	0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 16:19	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 16:19	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 16:19	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:21	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	210		5.0	3.4	mg/L			06/12/18 13:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0540	U	0.101	0.101	1.00	0.185	pCi/L	06/19/18 08:49	07/11/18 19:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/19/18 08:49	07/11/18 19:06	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.111	U	0.190	0.190	1.00	0.322	pCi/L	06/19/18 09:16	07/11/18 15:22	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/19/18 09:16	07/11/18 15:22	1
Y Carrier	93.8		40 - 110					06/19/18 09:16	07/11/18 15:22	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.165	U	0.215	0.215	5.00	0.322	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-8**

**Date Collected: 06/06/18 13:30**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-13**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		1.0	0.89	mg/L			06/25/18 23:06	1
Fluoride	0.40		0.20	0.082	mg/L			06/25/18 23:06	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	74		5.0	3.5	mg/L			06/26/18 18:40	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 16:24	5
Barium	0.18		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 16:24	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 16:24	5
Boron	0.059		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 16:24	5
Calcium	51		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 16:24	5
Chromium	0.0013	J	0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 16:24	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 16:24	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 16:24	5
Lithium	0.0018	J	0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 16:24	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 16:24	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 16:24	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:33	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	410		5.0	3.4	mg/L			06/12/18 13:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.498		0.224	0.228	1.00	0.223	pCi/L	06/19/18 08:49	07/11/18 19:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 08:49	07/11/18 19:06	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.09		0.277	0.294	1.00	0.346	pCi/L	06/19/18 09:16	07/11/18 15:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 09:16	07/11/18 15:23	1
Y Carrier	97.6		40 - 110					06/19/18 09:16	07/11/18 15:23	1

TestAmerica Pensacola



## Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-8**

**Date Collected: 06/06/18 13:30**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-13**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.59		0.356	0.372	5.00	0.346	pCi/L		07/16/18 10:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: FB-2(AP)**

**Date Collected: 06/06/18 09:20**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-14**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/25/18 23:29	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 23:29	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 23:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 16:28	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 16:28	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 16:28	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 16:28	5
Calcium	<0.13		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 16:28	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 16:28	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 16:28	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 16:28	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 16:28	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 16:28	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 16:28	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:35	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	32		5.0	3.4	mg/L			06/12/18 13:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.158	U	0.155	0.156	1.00	0.236	pCi/L	06/19/18 08:49	07/11/18 19:06	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	99.7		40 - 110					06/19/18 08:49	07/11/18 19:06	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0481	U	0.179	0.179	1.00	0.315	pCi/L	06/19/18 09:16	07/11/18 15:23	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	99.7		40 - 110					06/19/18 09:16	07/11/18 15:23	1
Y Carrier	95.0		40 - 110					06/19/18 09:16	07/11/18 15:23	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.207	U	0.237	0.237	5.00	0.315	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

Client Sample ID: FD-2(AP)

Lab Sample ID: 400-154761-15

Date Collected: 06/06/18 00:00

Matrix: Water

Date Received: 06/08/18 09:17

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.4		1.0	0.89	mg/L			06/25/18 23:51	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 23:51	1
Sulfate	0.78	J	1.0	0.70	mg/L			06/25/18 23:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 16:33	5
Barium	0.040		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 16:33	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 16:33	5
Boron	0.35		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 16:33	5
Calcium	1.8		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 16:33	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 16:33	5
Cobalt	0.026		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 16:33	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 16:33	5
Lithium	0.0019	J	0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 16:33	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 16:33	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 16:33	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:36	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	10		5.0	3.4	mg/L			06/11/18 17:02	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0787	U	0.135	0.135	1.00	0.239	pCi/L	06/19/18 08:49	07/11/18 19:06	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 08:49	07/11/18 19:06	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.188	U	0.215	0.216	1.00	0.408	pCi/L	06/19/18 09:16	07/11/18 15:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 09:16	07/11/18 15:23	1
Y Carrier	93.8		40 - 110					06/19/18 09:16	07/11/18 15:23	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.109	U	0.254	0.255	5.00	0.408	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: EB-2(AP)**

**Date Collected: 06/06/18 17:25**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-16**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/26/18 03:19	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 03:19	1
Sulfate	<0.70		1.0	0.70	mg/L			06/26/18 03:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 16:38	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 16:38	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 16:38	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 16:38	5
Calcium	<0.13		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 16:38	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 16:38	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 16:38	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 16:38	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 16:38	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 16:38	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 16:38	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:38	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/12/18 13:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0488	U	0.134	0.134	1.00	0.255	pCi/L	06/19/18 08:49	07/11/18 19:06	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	105		40 - 110					06/19/18 08:49	07/11/18 19:06	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.379	U	0.181	0.185	1.00	0.383	pCi/L	06/19/18 09:16	07/11/18 15:23	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	105		40 - 110					06/19/18 09:16	07/11/18 15:23	1
Y Carrier	95.7		40 - 110					06/19/18 09:16	07/11/18 15:23	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.330	U	0.225	0.228	5.00	0.383	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-9**

**Date Collected: 06/06/18 14:45**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-17**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12		1.0	0.89	mg/L			06/26/18 02:10	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 02:10	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	320		10	7.0	mg/L			06/26/18 19:03	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 16:42	5
Barium	0.069		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 16:42	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 16:42	5
Boron	1.8		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 16:42	5
Calcium	54		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 16:42	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 16:42	5
Cobalt	0.0064		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 16:42	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 16:42	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 16:42	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 16:42	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 16:42	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:40	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	590		5.0	3.4	mg/L			06/12/18 13:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00618	U	0.122	0.122	1.00	0.259	pCi/L	06/19/18 08:49	07/11/18 19:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110					06/19/18 08:49	07/11/18 19:08	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0333	U	0.391	0.391	1.00	0.711	pCi/L	06/19/18 09:16	07/11/18 22:31	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110					06/19/18 09:16	07/11/18 22:31	1
Y Carrier	97.6		40 - 110					06/19/18 09:16	07/11/18 22:31	1

TestAmerica Pensacola

## Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-9**

**Date Collected: 06/06/18 14:45**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-17**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0272	U	0.410	0.410	5.00	0.711	pCi/L		07/16/18 10:51	1



# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-10**

**Lab Sample ID: 400-154761-18**

**Date Collected: 06/06/18 15:50**

**Matrix: Water**

**Date Received: 06/08/18 09:17**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.6		1.0	0.89	mg/L			06/26/18 03:42	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 03:42	1
Sulfate	2.9		1.0	0.70	mg/L			06/26/18 03:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 16:47	5
Barium	0.027		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 16:47	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 16:47	5
Boron	0.070		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 16:47	5
Calcium	1.2		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 16:47	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 16:47	5
Cobalt	0.018		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 16:47	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 16:47	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 16:47	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 16:47	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 16:47	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:42	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	38		5.0	3.4	mg/L			06/12/18 14:04	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0311	U	0.121	0.121	1.00	0.241	pCi/L	06/19/18 08:49	07/11/18 19:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/19/18 08:49	07/11/18 19:07	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0921	U	0.177	0.177	1.00	0.302	pCi/L	06/19/18 09:16	07/11/18 15:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/19/18 09:16	07/11/18 15:23	1
Y Carrier	97.2		40 - 110					06/19/18 09:16	07/11/18 15:23	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.123	U	0.214	0.214	5.00	0.302	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Lab Sample ID: 400-154761-19**

**Date Collected: 06/06/18 14:35**

**Matrix: Water**

**Date Received: 06/08/18 09:17**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.5		1.0	0.89	mg/L			06/26/18 04:05	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 04:05	1
Sulfate	0.89	J	1.0	0.70	mg/L			06/26/18 04:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 16:51	5
Barium	0.041		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 16:51	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 16:51	5
Boron	0.37		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 16:51	5
Calcium	1.8		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 16:51	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 16:51	5
Cobalt	0.026		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 16:51	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 16:51	5
Lithium	0.0017	J	0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 16:51	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 16:51	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 16:51	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:44	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	40		5.0	3.4	mg/L			06/12/18 14:04	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0328	U	0.116	0.116	1.00	0.261	pCi/L	06/19/18 08:49	07/11/18 19:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 08:49	07/11/18 19:07	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.186	U	0.178	0.179	1.00	0.287	pCi/L	06/19/18 09:16	07/11/18 15:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 09:16	07/11/18 15:23	1
Y Carrier	96.1		40 - 110					06/19/18 09:16	07/11/18 15:23	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.153	U	0.212	0.213	5.00	0.287	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-12**

**Date Collected: 06/06/18 16:25**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-20**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.8		1.0	0.89	mg/L			06/26/18 04:28	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 04:28	1
Sulfate	41		1.0	0.70	mg/L			06/26/18 04:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 16:56	5
Barium	0.048		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 16:56	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 16:56	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 16:56	5
Calcium	22		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 16:56	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 16:56	5
Cobalt	0.0038		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 16:56	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 16:56	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 16:56	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 16:56	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 16:56	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:46	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	260		5.0	3.4	mg/L			06/12/18 13:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0406	U	0.120	0.120	1.00	0.233	pCi/L	06/19/18 08:49	07/11/18 19:07	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/19/18 08:49	07/11/18 19:07	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0370	U	0.171	0.171	1.00	0.301	pCi/L	06/19/18 09:16	07/11/18 15:23	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					06/19/18 09:16	07/11/18 15:23	1
Y Carrier	97.2		40 - 110					06/19/18 09:16	07/11/18 15:23	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0775	U	0.209	0.209	5.00	0.301	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-13**

**Date Collected: 06/07/18 09:15**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-21**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.2		1.0	0.89	mg/L			06/26/18 05:37	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 05:37	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	69		5.0	3.5	mg/L			06/26/18 19:26	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 17:36	5
Barium	0.032		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 17:36	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 17:36	5
Boron	0.45		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 17:36	5
Calcium	15		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 17:36	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 17:36	5
Cobalt	0.0039		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 17:36	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 17:36	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 17:36	5
Selenium	0.00064	J B	0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 17:36	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 17:36	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:14	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	190		5.0	3.4	mg/L			06/13/18 16:43	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0347	U	0.113	0.113	1.00	0.223	pCi/L	06/19/18 10:05	07/12/18 14:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 10:05	07/12/18 14:56	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.200	U	0.196	0.197	1.00	0.318	pCi/L	06/19/18 10:53	07/12/18 09:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 10:53	07/12/18 09:42	1
Y Carrier	89.0		40 - 110					06/19/18 10:53	07/12/18 09:42	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-13**

**Date Collected: 06/07/18 09:15**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-21**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.235	U	0.226	0.227	5.00	0.318	pCi/L		07/16/18 10:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-14**

**Date Collected: 06/07/18 10:30**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-22**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10		1.0	0.89	mg/L			06/26/18 06:00	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 06:00	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	190		5.0	3.5	mg/L			06/26/18 20:12	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 17:59	5
Barium	0.057		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 17:59	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 17:59	5
Boron	1.6		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 17:59	5
Calcium	44		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 17:59	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 17:59	5
Cobalt	0.0025		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 17:59	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 17:59	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 17:59	5
Selenium	0.00084	J B	0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 17:59	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 17:59	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:16	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	340		5.0	3.4	mg/L			06/13/18 16:43	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0667	U	0.128	0.128	1.00	0.233	pCi/L	06/19/18 10:05	07/12/18 14:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/19/18 10:05	07/12/18 14:56	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.144	U	0.267	0.267	1.00	0.451	pCi/L	06/19/18 10:53	07/12/18 09:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/19/18 10:53	07/12/18 09:46	1
Y Carrier	89.7		40 - 110					06/19/18 10:53	07/12/18 09:46	1

TestAmerica Pensacola



## Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-14**

**Date Collected: 06/07/18 10:30**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-22**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.211	U	0.296	0.296	5.00	0.451	pCi/L		07/16/18 10:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Date Collected: 06/07/18 12:10**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-23**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.3		1.0	0.89	mg/L			06/26/18 06:23	1
Fluoride	0.14	J	0.20	0.082	mg/L			06/26/18 06:23	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	190		5.0	3.5	mg/L			06/26/18 20:35	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 18:03	5
Barium	0.035		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 18:03	5
Beryllium	0.00038	J	0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 18:03	5
Boron	1.7		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 18:03	5
Calcium	16		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 18:03	5
Chromium	0.032		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 18:03	5
Cobalt	0.30		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 18:03	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 18:03	5
Lithium	0.0030	J	0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 18:03	5
Selenium	0.0014	B	0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 18:03	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 18:03	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00013	J	0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:17	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	310		5.0	3.4	mg/L			06/13/18 16:43	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.127	U	0.152	0.152	1.00	0.248	pCi/L	06/19/18 10:05	07/12/18 14:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110					06/19/18 10:05	07/12/18 14:56	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.514		0.240	0.245	1.00	0.350	pCi/L	06/19/18 10:53	07/12/18 09:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110					06/19/18 10:53	07/12/18 09:46	1
Y Carrier	96.8		40 - 110					06/19/18 10:53	07/12/18 09:46	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Date Collected: 06/07/18 12:10**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-23**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.640		0.284	0.288	5.00	0.350	pCi/L		07/16/18 10:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-16**

**Date Collected: 06/07/18 14:00**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-24**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.7		1.0	0.89	mg/L			06/26/18 06:46	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 06:46	1
Sulfate	25		1.0	0.70	mg/L			06/26/18 06:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 18:08	5
Barium	0.022		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 18:08	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 18:08	5
Boron	0.59		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 18:08	5
Calcium	0.84		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 18:08	5
Chromium	0.010		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 18:08	5
Cobalt	0.0037		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 18:08	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 18:08	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 18:08	5
Selenium	0.0013	B	0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 18:08	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 18:08	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:19	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	74		5.0	3.4	mg/L			06/13/18 16:43	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0533	U	0.120	0.120	1.00	0.224	pCi/L	06/19/18 10:05	07/12/18 14:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 10:05	07/12/18 14:55	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.229	U	0.233	0.234	1.00	0.380	pCi/L	06/19/18 10:53	07/12/18 09:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 10:53	07/12/18 09:40	1
Y Carrier	87.5		40 - 110					06/19/18 10:53	07/12/18 09:40	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.283	U	0.262	0.263	5.00	0.380	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-17**

**Date Collected: 06/07/18 15:00**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-25**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.0		1.0	0.89	mg/L			06/26/18 07:08	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 07:08	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	170		5.0	3.5	mg/L			06/26/18 20:58	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 18:35	5
Barium	0.020		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 18:35	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 18:35	5
Boron	0.35		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 18:35	5
Calcium	49		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 18:35	5
Chromium	0.0083		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 18:35	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 18:35	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 18:35	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 18:35	5
Selenium	0.00064	J B	0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 18:35	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 18:35	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00011	J	0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:21	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	360		5.0	3.4	mg/L			06/13/18 16:43	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00558	U	0.103	0.103	1.00	0.222	pCi/L	06/19/18 10:05	07/12/18 14:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 10:05	07/12/18 14:55	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.166	U	0.227	0.227	1.00	0.378	pCi/L	06/19/18 10:53	07/12/18 09:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 10:53	07/12/18 09:40	1
Y Carrier	84.1		40 - 110					06/19/18 10:53	07/12/18 09:40	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-17**

**Date Collected: 06/07/18 15:00**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-25**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.172	U	0.249	0.249	5.00	0.378	pCi/L		07/16/18 10:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Date Collected: 06/07/18 15:25**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-26**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.9		1.0	0.89	mg/L			06/26/18 07:31	1
Fluoride	0.21		0.20	0.082	mg/L			06/26/18 07:31	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	210		5.0	3.5	mg/L			06/26/18 22:06	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 18:39	5
Barium	0.029		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 18:39	5
Beryllium	0.00086	J	0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 18:39	5
Calcium	11		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 18:39	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 18:39	5
Cobalt	0.21		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 18:39	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 18:39	5
Lithium	0.0038	J	0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 18:39	5
Selenium	0.00066	J B	0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 18:39	5
Thallium	0.00014	J	0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 18:39	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.1		0.25	0.11	mg/L		06/20/18 08:27	06/20/18 18:44	25

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000082	J	0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:32	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	320		5.0	3.4	mg/L			06/13/18 16:43	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.192	U	0.153	0.154	1.00	0.209	pCi/L	06/19/18 10:05	07/12/18 14:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/19/18 10:05	07/12/18 14:55	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0429	U	0.267	0.267	1.00	0.466	pCi/L	06/19/18 10:53	07/12/18 09:40	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/19/18 10:53	07/12/18 09:40	1
Y Carrier	82.6		40 - 110					06/19/18 10:53	07/12/18 09:40	1

TestAmerica Pensacola



# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Date Collected: 06/07/18 15:25**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-26**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.235	U	0.308	0.308	5.00	0.466	pCi/L		07/16/18 10:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-21**

**Date Collected: 06/07/18 14:10**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-27**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.6		1.0	0.89	mg/L			06/26/18 08:17	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 08:17	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	79		5.0	3.5	mg/L			06/26/18 22:29	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 18:48	5
Barium	0.092		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 18:48	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 18:48	5
Boron	1.4		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 18:48	5
Calcium	29		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 18:48	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 18:48	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 18:48	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 18:48	5
Lithium	0.0013	J	0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 18:48	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 18:48	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 18:48	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:34	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	260		5.0	3.4	mg/L			06/13/18 18:25	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.166	U	0.147	0.148	1.00	0.212	pCi/L	06/19/18 10:05	07/12/18 14:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 10:05	07/12/18 14:55	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.348		0.217	0.219	1.00	0.330	pCi/L	06/19/18 10:53	07/12/18 09:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 10:53	07/12/18 09:41	1
Y Carrier	86.7		40 - 110					06/19/18 10:53	07/12/18 09:41	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-21**

**Date Collected: 06/07/18 14:10**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-27**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.514		0.262	0.264	5.00	0.330	pCi/L		07/16/18 10:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-22**

**Date Collected: 06/07/18 10:25**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-28**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10		1.0	0.89	mg/L			06/26/18 08:40	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 08:40	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	94		5.0	3.5	mg/L			06/26/18 22:52	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 18:53	5
Barium	0.084		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 18:53	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 18:53	5
Boron	0.41		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 18:53	5
Calcium	26		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 18:53	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 18:53	5
Cobalt	0.0022	J	0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 18:53	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 18:53	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 18:53	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 18:53	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 18:53	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:36	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	210		5.0	3.4	mg/L			06/13/18 16:43	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0531	U	0.0990	0.0991	1.00	0.182	pCi/L	06/19/18 10:05	07/12/18 14:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 10:05	07/12/18 14:55	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.169	U	0.193	0.194	1.00	0.318	pCi/L	06/19/18 10:53	07/12/18 09:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					06/19/18 10:53	07/12/18 09:41	1
Y Carrier	93.1		40 - 110					06/19/18 10:53	07/12/18 09:41	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-22**

**Date Collected: 06/07/18 10:25**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-28**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.222	U	0.217	0.218	5.00	0.318	pCi/L		07/16/18 10:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-23**

**Date Collected: 06/07/18 09:15**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-29**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10		1.0	0.89	mg/L			06/26/18 09:03	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 09:03	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	100		5.0	3.5	mg/L			06/26/18 23:15	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 18:57	5
Barium	0.082		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 18:57	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 18:57	5
Boron	0.71		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 18:57	5
Calcium	25		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 18:57	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 18:57	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 18:57	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 18:57	5
Lithium	0.0027	J	0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 18:57	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 18:57	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 18:57	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00028		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:38	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	220		5.0	3.4	mg/L			06/13/18 12:30	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.377		0.195	0.197	1.00	0.212	pCi/L	06/19/18 10:05	07/12/18 14:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/19/18 10:05	07/12/18 14:55	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.263	U	0.198	0.200	1.00	0.310	pCi/L	06/19/18 10:53	07/12/18 09:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					06/19/18 10:53	07/12/18 09:41	1
Y Carrier	89.7		40 - 110					06/19/18 10:53	07/12/18 09:41	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-23**

**Date Collected: 06/07/18 09:15**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-29**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.640		0.278	0.281	5.00	0.310	pCi/L		07/16/18 10:51	1



# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: FB-3(AP)**

**Date Collected: 06/07/18 10:20**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-30**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/26/18 10:12	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 10:12	1
Sulfate	<0.70		1.0	0.70	mg/L			06/26/18 10:12	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 19:06	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 19:06	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 19:06	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 19:06	5
Calcium	<0.13		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 19:06	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 19:06	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 19:06	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 19:06	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 19:06	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 19:06	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 19:06	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:40	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/13/18 12:30	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0743	U	0.127	0.127	1.00	0.225	pCi/L	06/19/18 10:05	07/12/18 14:55	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	106		40 - 110					06/19/18 10:05	07/12/18 14:55	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0229	U	0.187	0.187	1.00	0.340	pCi/L	06/19/18 10:53	07/12/18 09:41	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	106		40 - 110					06/19/18 10:53	07/12/18 09:41	1
Y Carrier	90.1		40 - 110					06/19/18 10:53	07/12/18 09:41	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0514	U	0.226	0.226	5.00	0.340	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: FD-3(AP)**

**Date Collected: 06/07/18 00:00**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-31**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.2		1.0	0.89	mg/L			06/26/18 10:35	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 10:35	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	70		5.0	3.5	mg/L			06/26/18 23:38	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 19:02	5
Barium	0.032		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 19:02	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 19:02	5
Boron	0.45		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 19:02	5
Calcium	15		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 19:02	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 19:02	5
Cobalt	0.0040		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 19:02	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 19:02	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 19:02	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 19:02	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 19:02	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:42	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	12		5.0	3.4	mg/L			06/12/18 13:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0296	U	0.115	0.115	1.00	0.229	pCi/L	06/19/18 10:05	07/12/18 14:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					06/19/18 10:05	07/12/18 14:56	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0838	U	0.180	0.180	1.00	0.309	pCi/L	06/19/18 10:53	07/12/18 09:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	107		40 - 110					06/19/18 10:53	07/12/18 09:41	1
Y Carrier	90.1		40 - 110					06/19/18 10:53	07/12/18 09:41	1

TestAmerica Pensacola

## Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: FD-3(AP)**

**Date Collected: 06/07/18 00:00**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-31**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.113	U	0.214	0.214	5.00	0.309	pCi/L		07/16/18 10:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: EB-3(AP)**

**Date Collected: 06/07/18 16:00**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-32**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/26/18 10:58	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 10:58	1
Sulfate	<0.70		1.0	0.70	mg/L			06/26/18 10:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 19:11	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 19:11	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 19:11	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 19:11	5
Calcium	<0.13		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 19:11	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 19:11	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 19:11	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 19:11	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 19:11	5
Selenium	<0.00024		0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 19:11	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 19:11	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:43	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/13/18 12:30	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00343	U	0.119	0.119	1.00	0.246	pCi/L	06/19/18 10:05	07/12/18 14:56	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	107		40 - 110					06/19/18 10:05	07/12/18 14:56	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.223	U	0.188	0.189	1.00	0.299	pCi/L	06/19/18 10:53	07/12/18 09:41	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	107		40 - 110					06/19/18 10:53	07/12/18 09:41	1
Y Carrier	94.2		40 - 110					06/19/18 10:53	07/12/18 09:41	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.226	U	0.222	0.223	5.00	0.299	pCi/L		07/16/18 10:51	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-18**

**Date Collected: 06/08/18 09:20**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-33**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.0		1.0	0.89	mg/L			06/26/18 11:20	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 11:20	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	870		20	14	mg/L			06/28/18 04:54	20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0020		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 19:15	5
Barium	0.032		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 19:15	5
Beryllium	0.00035	J	0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 19:15	5
Calcium	90		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 19:15	5
Chromium	0.0086		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 19:15	5
Cobalt	0.19		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 19:15	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 19:15	5
Lithium	0.0042	J	0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 19:15	5
Selenium	0.014	B	0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 19:15	5
Thallium	0.00019	J	0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 19:15	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	4.3		0.25	0.11	mg/L		06/20/18 08:27	06/20/18 19:42	25

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00014	J	0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:45	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	820		10	6.8	mg/L			06/13/18 18:25	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0357	U	0.0898	0.0898	1.00	0.227	pCi/L	06/19/18 10:05	07/12/18 14:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 10:05	07/12/18 14:56	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.356	U	0.238	0.240	1.00	0.370	pCi/L	06/19/18 10:53	07/12/18 09:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 10:53	07/12/18 09:41	1
Y Carrier	88.2		40 - 110					06/19/18 10:53	07/12/18 09:41	1

TestAmerica Pensacola

## Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-18**

**Date Collected: 06/08/18 09:20**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-33**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.320	U	0.254	0.256	5.00	0.370	pCi/L		07/16/18 10:51	1

# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-19**

**Date Collected: 06/08/18 09:05**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-34**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.2		1.0	0.89	mg/L			06/26/18 11:43	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 11:43	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	220		5.0	3.5	mg/L			06/28/18 05:17	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 19:47	5
Barium	0.035		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 19:47	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 19:47	5
Calcium	37		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 19:47	5
Chromium	0.015		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 19:47	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 19:47	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 19:47	5
Lithium	0.0022	J	0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 19:47	5
Selenium	0.00063	J B	0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 19:47	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 19:47	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.8		0.25	0.11	mg/L		06/20/18 08:27	06/20/18 19:51	25

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 13:47	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	320		5.0	3.4	mg/L			06/13/18 18:25	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.00570	U	0.105	0.105	1.00	0.227	pCi/L	06/19/18 10:05	07/12/18 14:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/19/18 10:05	07/12/18 14:56	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0405	U	0.186	0.186	1.00	0.327	pCi/L	06/19/18 10:53	07/12/18 09:41	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					06/19/18 10:53	07/12/18 09:41	1
Y Carrier	92.3		40 - 110					06/19/18 10:53	07/12/18 09:41	1

TestAmerica Pensacola



# Client Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-19**

**Date Collected: 06/08/18 09:05**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-34**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0462	U	0.214	0.214	5.00	0.327	pCi/L		07/16/18 10:51	1

## Definitions/Glossary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

### Qualifiers

#### HPLC/IC

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

#### Metals

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

#### Rad

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

### Glossary

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

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWA-1**

**Date Collected: 06/05/18 14:30**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 14:42	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 14:06	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 11:43	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400731	06/11/18 17:02	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374834	07/11/18 19:09	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374835	07/11/18 15:18	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWA-2**

**Date Collected: 06/05/18 15:30**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 17:45	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 14:29	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 11:45	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400731	06/11/18 17:02	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374834	07/11/18 19:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374835	07/11/18 15:18	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWA-24**

**Date Collected: 06/05/18 14:50**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 18:08	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 14:33	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:04	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400731	06/11/18 17:02	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374834	07/11/18 19:10	CDR	TAL SL

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWA-24**

**Date Collected: 06/05/18 14:50**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374835	07/11/18 15:19	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWA-25**

**Date Collected: 06/05/18 17:00**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 18:31	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 14:38	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:06	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400731	06/11/18 17:02	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374834	07/11/18 19:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374835	07/11/18 15:19	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWA-5**

**Date Collected: 06/05/18 16:30**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 18:54	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 15:05	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:08	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400731	06/11/18 17:02	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374834	07/11/18 19:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374835	07/11/18 15:19	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: FB-1(AP)**

**Date Collected: 06/05/18 14:20**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 20:02	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 15:09	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:09	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400731	06/11/18 17:02	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374834	07/11/18 19:10	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374835	07/11/18 15:19	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: FD-1(AP)**

**Date Collected: 06/05/18 00:00**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 20:25	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 15:14	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:11	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400598	06/10/18 09:45	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374834	07/11/18 19:11	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374835	07/11/18 15:19	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: EB-1(AP)**

**Date Collected: 06/05/18 17:30**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 20:48	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 15:18	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:13	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400731	06/11/18 17:02	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374834	07/11/18 19:11	CDR	TAL SL

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: EB-1(AP)**

**Date Collected: 06/05/18 17:30**

**Date Received: 06/07/18 10:09**

**Lab Sample ID: 400-154761-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374835	07/11/18 15:20	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWA-3**

**Date Collected: 06/06/18 09:40**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 19:17	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 15:42	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:15	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400819	06/12/18 13:36	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374834	07/11/18 19:11	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374835	07/11/18 15:20	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWA-4**

**Date Collected: 06/06/18 11:20**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-10**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 21:57	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 15:47	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:17	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400819	06/12/18 13:36	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374836	07/11/18 19:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374835	07/11/18 15:20	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-6**

**Date Collected: 06/06/18 09:40**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-11**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 22:20	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 16:14	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:19	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400819	06/12/18 13:36	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374836	07/11/18 19:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374836	07/11/18 15:22	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-7**

**Date Collected: 06/06/18 11:00**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-12**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 22:43	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 16:19	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:21	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400819	06/12/18 13:36	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374836	07/11/18 19:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374836	07/11/18 15:22	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-8**

**Date Collected: 06/06/18 13:30**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-13**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 23:06	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402619	06/26/18 18:40	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 16:24	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:33	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400819	06/12/18 13:36	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL

TestAmerica Pensacola



# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-8**

**Date Collected: 06/06/18 13:30**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-13**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9315		1	374836	07/11/18 19:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374836	07/11/18 15:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: FB-2(AP)**

**Date Collected: 06/06/18 09:20**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-14**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 23:29	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 16:28	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:35	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400819	06/12/18 13:36	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374836	07/11/18 19:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374836	07/11/18 15:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: FD-2(AP)**

**Date Collected: 06/06/18 00:00**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-15**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402384	06/25/18 23:51	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 16:33	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:36	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400731	06/11/18 17:02	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374836	07/11/18 19:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374836	07/11/18 15:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: EB-2(AP)**

**Date Collected: 06/06/18 17:25**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-16**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 03:19	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 16:38	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:38	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400819	06/12/18 13:36	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374836	07/11/18 19:06	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374836	07/11/18 15:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-9**

**Date Collected: 06/06/18 14:45**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-17**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 02:10	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	10	402619	06/26/18 19:03	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 16:42	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:40	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400819	06/12/18 13:36	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374836	07/11/18 19:08	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374836	07/11/18 22:31	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-10**

**Date Collected: 06/06/18 15:50**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-18**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 03:42	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 16:47	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:42	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400822	06/12/18 14:04	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-10**

**Date Collected: 06/06/18 15:50**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-18**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9315		1	374836	07/11/18 19:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374836	07/11/18 15:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-11**

**Date Collected: 06/06/18 14:35**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-19**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 04:05	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 16:51	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:44	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400822	06/12/18 14:04	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374836	07/11/18 19:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374836	07/11/18 15:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-12**

**Date Collected: 06/06/18 16:25**

**Date Received: 06/08/18 09:17**

**Lab Sample ID: 400-154761-20**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 04:28	JAW	TAL PEN
Total Recoverable	Prep	3005A			401724	06/20/18 08:24	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 16:56	DRE	TAL PEN
Total/NA	Prep	7470A			402163	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 12:46	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400819	06/12/18 13:36	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371113	06/19/18 08:49	JLC	TAL SL
Total/NA	Analysis	9315		1	374836	07/11/18 19:07	RTM	TAL SL
Total/NA	Prep	PrecSep_0			371128	06/19/18 09:16	JLC	TAL SL
Total/NA	Analysis	9320		1	374836	07/11/18 15:23	RTM	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-13**

**Date Collected: 06/07/18 09:15**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-21**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 05:37	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402619	06/26/18 19:26	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 17:36	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:14	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400962	06/13/18 16:43	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:56	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:42	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-14**

**Date Collected: 06/07/18 10:30**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-22**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 06:00	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402619	06/26/18 20:12	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 17:59	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:16	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400962	06/13/18 16:43	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:56	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375139	07/12/18 09:46	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-15**

**Date Collected: 06/07/18 12:10**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-23**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 06:23	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402619	06/26/18 20:35	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 18:03	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:17	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Lab Sample ID: 400-154761-23**

**Date Collected: 06/07/18 12:10**

**Matrix: Water**

**Date Received: 06/09/18 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	400962	06/13/18 16:43	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:56	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375139	07/12/18 09:46	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-16**

**Lab Sample ID: 400-154761-24**

**Date Collected: 06/07/18 14:00**

**Matrix: Water**

**Date Received: 06/09/18 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 06:46	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 18:08	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:19	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400962	06/13/18 16:43	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:55	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:40	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-17**

**Lab Sample ID: 400-154761-25**

**Date Collected: 06/07/18 15:00**

**Matrix: Water**

**Date Received: 06/09/18 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 07:08	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402619	06/26/18 20:58	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 18:35	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:21	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400962	06/13/18 16:43	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:55	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:40	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Date Collected: 06/07/18 15:25**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-26**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 07:31	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402619	06/26/18 22:06	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 18:39	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	401891	06/20/18 18:44	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:32	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400962	06/13/18 16:43	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:55	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:40	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-21**

**Date Collected: 06/07/18 14:10**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-27**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 08:17	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402619	06/26/18 22:29	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 18:48	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:34	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400948	06/13/18 18:25	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:55	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-22**

**Date Collected: 06/07/18 10:25**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-28**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 08:40	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402619	06/26/18 22:52	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 18:53	DRE	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-22**

**Lab Sample ID: 400-154761-28**

**Date Collected: 06/07/18 10:25**

**Matrix: Water**

**Date Received: 06/09/18 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:36	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400962	06/13/18 16:43	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:55	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-23**

**Lab Sample ID: 400-154761-29**

**Date Collected: 06/07/18 09:15**

**Matrix: Water**

**Date Received: 06/09/18 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 09:03	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402619	06/26/18 23:15	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 18:57	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:38	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400955	06/13/18 12:30	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:55	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: FB-3(AP)**

**Lab Sample ID: 400-154761-30**

**Date Collected: 06/07/18 10:20**

**Matrix: Water**

**Date Received: 06/09/18 08:26**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 10:12	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 19:06	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:40	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400955	06/13/18 12:30	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:55	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:41	CDR	TAL SL

TestAmerica Pensacola



# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: FB-3(AP)**

**Date Collected: 06/07/18 10:20**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-30**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: FD-3(AP)**

**Date Collected: 06/07/18 00:00**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-31**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 10:35	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402619	06/26/18 23:38	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 19:02	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:42	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400819	06/12/18 13:36	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:56	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: EB-3(AP)**

**Date Collected: 06/07/18 16:00**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-32**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 10:58	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 19:11	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:43	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400955	06/13/18 12:30	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:56	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

# Lab Chronicle

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

**Client Sample ID: SGWC-18**

**Date Collected: 06/08/18 09:20**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-33**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 11:20	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	20	402782	06/28/18 04:54	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 19:15	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	401891	06/20/18 19:42	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:45	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400948	06/13/18 18:25	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:56	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

**Client Sample ID: SGWC-19**

**Date Collected: 06/08/18 09:05**

**Date Received: 06/09/18 08:26**

**Lab Sample ID: 400-154761-34**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	402469	06/26/18 11:43	JAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	402782	06/28/18 05:17	JAW	TAL PEN
Total Recoverable	Prep	3005A			401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	401891	06/20/18 19:47	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		401725	06/20/18 08:27	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	401891	06/20/18 19:51	DRE	TAL PEN
Total/NA	Prep	7470A			402166	06/23/18 14:33	DN1	TAL PEN
Total/NA	Analysis	7470A		1	402434	06/25/18 13:47	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	400948	06/13/18 18:25	RRC	TAL PEN
Total/NA	Prep	PrecSep-21			371136	06/19/18 10:05	JLC	TAL SL
Total/NA	Analysis	9315		1	375103	07/12/18 14:56	CDR	TAL SL
Total/NA	Prep	PrecSep_0			371223	06/19/18 10:53	JLC	TAL SL
Total/NA	Analysis	9320		1	375103	07/12/18 09:41	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	375781	07/16/18 10:51	RTM	TAL SL

## Laboratory References:

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

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

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## HPLC/IC

### Analysis Batch: 402384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-1	SGWA-1	Total/NA	Water	300.0	
400-154761-2	SGWA-2	Total/NA	Water	300.0	
400-154761-3	SGWA-24	Total/NA	Water	300.0	
400-154761-4	SGWA-25	Total/NA	Water	300.0	
400-154761-5	SGWA-5	Total/NA	Water	300.0	
400-154761-6	FB-1(AP)	Total/NA	Water	300.0	
400-154761-7	FD-1(AP)	Total/NA	Water	300.0	
400-154761-8	EB-1(AP)	Total/NA	Water	300.0	
400-154761-9	SGWA-3	Total/NA	Water	300.0	
400-154761-10	SGWA-4	Total/NA	Water	300.0	
400-154761-11	SGWC-6	Total/NA	Water	300.0	
400-154761-12	SGWC-7	Total/NA	Water	300.0	
400-154761-13	SGWC-8	Total/NA	Water	300.0	
400-154761-14	FB-2(AP)	Total/NA	Water	300.0	
400-154761-15	FD-2(AP)	Total/NA	Water	300.0	
MB 400-402384/4	Method Blank	Total/NA	Water	300.0	
LCS 400-402384/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-402384/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-154761-1 MS	SGWA-1	Total/NA	Water	300.0	
400-154761-1 MSD	SGWA-1	Total/NA	Water	300.0	

### Analysis Batch: 402469

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-16	EB-2(AP)	Total/NA	Water	300.0	
400-154761-17	SGWC-9	Total/NA	Water	300.0	
400-154761-18	SGWC-10	Total/NA	Water	300.0	
400-154761-19	SGWC-11	Total/NA	Water	300.0	
400-154761-20	SGWC-12	Total/NA	Water	300.0	
400-154761-21	SGWC-13	Total/NA	Water	300.0	
400-154761-22	SGWC-14	Total/NA	Water	300.0	
400-154761-23	SGWC-15	Total/NA	Water	300.0	
400-154761-24	SGWC-16	Total/NA	Water	300.0	
400-154761-25	SGWC-17	Total/NA	Water	300.0	
400-154761-26	SGWC-20	Total/NA	Water	300.0	
400-154761-27	SGWC-21	Total/NA	Water	300.0	
400-154761-28	SGWC-22	Total/NA	Water	300.0	
400-154761-29	SGWC-23	Total/NA	Water	300.0	
400-154761-30	FB-3(AP)	Total/NA	Water	300.0	
400-154761-31	FD-3(AP)	Total/NA	Water	300.0	
400-154761-32	EB-3(AP)	Total/NA	Water	300.0	
400-154761-33	SGWC-18	Total/NA	Water	300.0	
400-154761-34	SGWC-19	Total/NA	Water	300.0	
MB 400-402469/36	Method Blank	Total/NA	Water	300.0	
LCS 400-402469/37	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-402469/38	Lab Control Sample Dup	Total/NA	Water	300.0	
400-154761-17 MS	SGWC-9	Total/NA	Water	300.0	
400-154761-17 MSD	SGWC-9	Total/NA	Water	300.0	

### Analysis Batch: 402619

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-13 - DL	SGWC-8	Total/NA	Water	300.0	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## HPLC/IC (Continued)

### Analysis Batch: 402619 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-17 - DL	SGWC-9	Total/NA	Water	300.0	
400-154761-21 - DL	SGWC-13	Total/NA	Water	300.0	
400-154761-22 - DL	SGWC-14	Total/NA	Water	300.0	
400-154761-23 - DL	SGWC-15	Total/NA	Water	300.0	
400-154761-25 - DL	SGWC-17	Total/NA	Water	300.0	
400-154761-26 - DL	SGWC-20	Total/NA	Water	300.0	
400-154761-27 - DL	SGWC-21	Total/NA	Water	300.0	
400-154761-28 - DL	SGWC-22	Total/NA	Water	300.0	
400-154761-29 - DL	SGWC-23	Total/NA	Water	300.0	
400-154761-31 - DL	FD-3(AP)	Total/NA	Water	300.0	
MB 400-402619/4	Method Blank	Total/NA	Water	300.0	
LCS 400-402619/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-402619/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-155336-B-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-155336-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 402782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-33 - DL	SGWC-18	Total/NA	Water	300.0	
400-154761-34 - DL	SGWC-19	Total/NA	Water	300.0	
MB 400-402782/20	Method Blank	Total/NA	Water	300.0	
LCS 400-402782/21	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-402782/22	Lab Control Sample Dup	Total/NA	Water	300.0	
400-155635-B-2 MS	Matrix Spike	Total/NA	Water	300.0	
400-155635-B-2 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 401724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-1	SGWA-1	Total Recoverable	Water	3005A	
400-154761-2	SGWA-2	Total Recoverable	Water	3005A	
400-154761-3	SGWA-24	Total Recoverable	Water	3005A	
400-154761-4	SGWA-25	Total Recoverable	Water	3005A	
400-154761-5	SGWA-5	Total Recoverable	Water	3005A	
400-154761-6	FB-1(AP)	Total Recoverable	Water	3005A	
400-154761-7	FD-1(AP)	Total Recoverable	Water	3005A	
400-154761-8	EB-1(AP)	Total Recoverable	Water	3005A	
400-154761-9	SGWA-3	Total Recoverable	Water	3005A	
400-154761-10	SGWA-4	Total Recoverable	Water	3005A	
400-154761-11	SGWC-6	Total Recoverable	Water	3005A	
400-154761-12	SGWC-7	Total Recoverable	Water	3005A	
400-154761-13	SGWC-8	Total Recoverable	Water	3005A	
400-154761-14	FB-2(AP)	Total Recoverable	Water	3005A	
400-154761-15	FD-2(AP)	Total Recoverable	Water	3005A	
400-154761-16	EB-2(AP)	Total Recoverable	Water	3005A	
400-154761-17	SGWC-9	Total Recoverable	Water	3005A	
400-154761-18	SGWC-10	Total Recoverable	Water	3005A	
400-154761-19	SGWC-11	Total Recoverable	Water	3005A	
400-154761-20	SGWC-12	Total Recoverable	Water	3005A	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Metals (Continued)

### Prep Batch: 401724 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 400-401724/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-401724/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-154761-1 MS	SGWA-1	Total Recoverable	Water	3005A	
400-154761-1 MSD	SGWA-1	Total Recoverable	Water	3005A	

### Prep Batch: 401725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-21	SGWC-13	Total Recoverable	Water	3005A	
400-154761-22	SGWC-14	Total Recoverable	Water	3005A	
400-154761-23	SGWC-15	Total Recoverable	Water	3005A	
400-154761-24	SGWC-16	Total Recoverable	Water	3005A	
400-154761-25	SGWC-17	Total Recoverable	Water	3005A	
400-154761-26	SGWC-20	Total Recoverable	Water	3005A	
400-154761-26 - DL	SGWC-20	Total Recoverable	Water	3005A	
400-154761-27	SGWC-21	Total Recoverable	Water	3005A	
400-154761-28	SGWC-22	Total Recoverable	Water	3005A	
400-154761-29	SGWC-23	Total Recoverable	Water	3005A	
400-154761-30	FB-3(AP)	Total Recoverable	Water	3005A	
400-154761-31	FD-3(AP)	Total Recoverable	Water	3005A	
400-154761-32	EB-3(AP)	Total Recoverable	Water	3005A	
400-154761-33 - DL	SGWC-18	Total Recoverable	Water	3005A	
400-154761-33	SGWC-18	Total Recoverable	Water	3005A	
400-154761-34	SGWC-19	Total Recoverable	Water	3005A	
400-154761-34 - DL	SGWC-19	Total Recoverable	Water	3005A	
MB 400-401725/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-401725/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-154761-21 MS	SGWC-13	Total Recoverable	Water	3005A	
400-154761-21 MSD	SGWC-13	Total Recoverable	Water	3005A	

### Analysis Batch: 401891

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-1	SGWA-1	Total Recoverable	Water	6020	401724
400-154761-2	SGWA-2	Total Recoverable	Water	6020	401724
400-154761-3	SGWA-24	Total Recoverable	Water	6020	401724
400-154761-4	SGWA-25	Total Recoverable	Water	6020	401724
400-154761-5	SGWA-5	Total Recoverable	Water	6020	401724
400-154761-6	FB-1(AP)	Total Recoverable	Water	6020	401724
400-154761-7	FD-1(AP)	Total Recoverable	Water	6020	401724
400-154761-8	EB-1(AP)	Total Recoverable	Water	6020	401724
400-154761-9	SGWA-3	Total Recoverable	Water	6020	401724
400-154761-10	SGWA-4	Total Recoverable	Water	6020	401724
400-154761-11	SGWC-6	Total Recoverable	Water	6020	401724
400-154761-12	SGWC-7	Total Recoverable	Water	6020	401724
400-154761-13	SGWC-8	Total Recoverable	Water	6020	401724
400-154761-14	FB-2(AP)	Total Recoverable	Water	6020	401724
400-154761-15	FD-2(AP)	Total Recoverable	Water	6020	401724
400-154761-16	EB-2(AP)	Total Recoverable	Water	6020	401724
400-154761-17	SGWC-9	Total Recoverable	Water	6020	401724
400-154761-18	SGWC-10	Total Recoverable	Water	6020	401724
400-154761-19	SGWC-11	Total Recoverable	Water	6020	401724
400-154761-20	SGWC-12	Total Recoverable	Water	6020	401724

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 401891 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-21	SGWC-13	Total Recoverable	Water	6020	401725
400-154761-22	SGWC-14	Total Recoverable	Water	6020	401725
400-154761-23	SGWC-15	Total Recoverable	Water	6020	401725
400-154761-24	SGWC-16	Total Recoverable	Water	6020	401725
400-154761-25	SGWC-17	Total Recoverable	Water	6020	401725
400-154761-26	SGWC-20	Total Recoverable	Water	6020	401725
400-154761-26 - DL	SGWC-20	Total Recoverable	Water	6020	401725
400-154761-27	SGWC-21	Total Recoverable	Water	6020	401725
400-154761-28	SGWC-22	Total Recoverable	Water	6020	401725
400-154761-29	SGWC-23	Total Recoverable	Water	6020	401725
400-154761-30	FB-3(AP)	Total Recoverable	Water	6020	401725
400-154761-31	FD-3(AP)	Total Recoverable	Water	6020	401725
400-154761-32	EB-3(AP)	Total Recoverable	Water	6020	401725
400-154761-33	SGWC-18	Total Recoverable	Water	6020	401725
400-154761-33 - DL	SGWC-18	Total Recoverable	Water	6020	401725
400-154761-34	SGWC-19	Total Recoverable	Water	6020	401725
400-154761-34 - DL	SGWC-19	Total Recoverable	Water	6020	401725
MB 400-401724/1-A ^5	Method Blank	Total Recoverable	Water	6020	401724
MB 400-401725/1-A ^5	Method Blank	Total Recoverable	Water	6020	401725
LCS 400-401724/2-A	Lab Control Sample	Total Recoverable	Water	6020	401724
LCS 400-401725/2-A	Lab Control Sample	Total Recoverable	Water	6020	401725
400-154761-1 MS	SGWA-1	Total Recoverable	Water	6020	401724
400-154761-1 MSD	SGWA-1	Total Recoverable	Water	6020	401724
400-154761-21 MS	SGWC-13	Total Recoverable	Water	6020	401725
400-154761-21 MSD	SGWC-13	Total Recoverable	Water	6020	401725

### Prep Batch: 402163

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-1	SGWA-1	Total/NA	Water	7470A	
400-154761-2	SGWA-2	Total/NA	Water	7470A	
400-154761-3	SGWA-24	Total/NA	Water	7470A	
400-154761-4	SGWA-25	Total/NA	Water	7470A	
400-154761-5	SGWA-5	Total/NA	Water	7470A	
400-154761-6	FB-1(AP)	Total/NA	Water	7470A	
400-154761-7	FD-1(AP)	Total/NA	Water	7470A	
400-154761-8	EB-1(AP)	Total/NA	Water	7470A	
400-154761-9	SGWA-3	Total/NA	Water	7470A	
400-154761-10	SGWA-4	Total/NA	Water	7470A	
400-154761-11	SGWC-6	Total/NA	Water	7470A	
400-154761-12	SGWC-7	Total/NA	Water	7470A	
400-154761-13	SGWC-8	Total/NA	Water	7470A	
400-154761-14	FB-2(AP)	Total/NA	Water	7470A	
400-154761-15	FD-2(AP)	Total/NA	Water	7470A	
400-154761-16	EB-2(AP)	Total/NA	Water	7470A	
400-154761-17	SGWC-9	Total/NA	Water	7470A	
400-154761-18	SGWC-10	Total/NA	Water	7470A	
400-154761-19	SGWC-11	Total/NA	Water	7470A	
400-154761-20	SGWC-12	Total/NA	Water	7470A	
MB 400-402163/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-402163/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-154761-2 MS	SGWA-2	Total/NA	Water	7470A	

TestAmerica Pensacola



# QC Association Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Metals (Continued)

### Prep Batch: 402163 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-2 MSD	SGWA-2	Total/NA	Water	7470A	

### Prep Batch: 402166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-21	SGWC-13	Total/NA	Water	7470A	
400-154761-22	SGWC-14	Total/NA	Water	7470A	
400-154761-23	SGWC-15	Total/NA	Water	7470A	
400-154761-24	SGWC-16	Total/NA	Water	7470A	
400-154761-25	SGWC-17	Total/NA	Water	7470A	
400-154761-26	SGWC-20	Total/NA	Water	7470A	
400-154761-27	SGWC-21	Total/NA	Water	7470A	
400-154761-28	SGWC-22	Total/NA	Water	7470A	
400-154761-29	SGWC-23	Total/NA	Water	7470A	
400-154761-30	FB-3(AP)	Total/NA	Water	7470A	
400-154761-31	FD-3(AP)	Total/NA	Water	7470A	
400-154761-32	EB-3(AP)	Total/NA	Water	7470A	
400-154761-33	SGWC-18	Total/NA	Water	7470A	
400-154761-34	SGWC-19	Total/NA	Water	7470A	
MB 400-402166/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-402166/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-155379-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	
400-155379-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Analysis Batch: 402434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-1	SGWA-1	Total/NA	Water	7470A	402163
400-154761-2	SGWA-2	Total/NA	Water	7470A	402163
400-154761-3	SGWA-24	Total/NA	Water	7470A	402163
400-154761-4	SGWA-25	Total/NA	Water	7470A	402163
400-154761-5	SGWA-5	Total/NA	Water	7470A	402163
400-154761-6	FB-1(AP)	Total/NA	Water	7470A	402163
400-154761-7	FD-1(AP)	Total/NA	Water	7470A	402163
400-154761-8	EB-1(AP)	Total/NA	Water	7470A	402163
400-154761-9	SGWA-3	Total/NA	Water	7470A	402163
400-154761-10	SGWA-4	Total/NA	Water	7470A	402163
400-154761-11	SGWC-6	Total/NA	Water	7470A	402163
400-154761-12	SGWC-7	Total/NA	Water	7470A	402163
400-154761-13	SGWC-8	Total/NA	Water	7470A	402163
400-154761-14	FB-2(AP)	Total/NA	Water	7470A	402163
400-154761-15	FD-2(AP)	Total/NA	Water	7470A	402163
400-154761-16	EB-2(AP)	Total/NA	Water	7470A	402163
400-154761-17	SGWC-9	Total/NA	Water	7470A	402163
400-154761-18	SGWC-10	Total/NA	Water	7470A	402163
400-154761-19	SGWC-11	Total/NA	Water	7470A	402163
400-154761-20	SGWC-12	Total/NA	Water	7470A	402163
400-154761-21	SGWC-13	Total/NA	Water	7470A	402166
400-154761-22	SGWC-14	Total/NA	Water	7470A	402166
400-154761-23	SGWC-15	Total/NA	Water	7470A	402166
400-154761-24	SGWC-16	Total/NA	Water	7470A	402166
400-154761-25	SGWC-17	Total/NA	Water	7470A	402166
400-154761-26	SGWC-20	Total/NA	Water	7470A	402166

TestAmerica Pensacola



# QC Association Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 402434 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-27	SGWC-21	Total/NA	Water	7470A	402166
400-154761-28	SGWC-22	Total/NA	Water	7470A	402166
400-154761-29	SGWC-23	Total/NA	Water	7470A	402166
400-154761-30	FB-3(AP)	Total/NA	Water	7470A	402166
400-154761-31	FD-3(AP)	Total/NA	Water	7470A	402166
400-154761-32	EB-3(AP)	Total/NA	Water	7470A	402166
400-154761-33	SGWC-18	Total/NA	Water	7470A	402166
400-154761-34	SGWC-19	Total/NA	Water	7470A	402166
MB 400-402163/14-A	Method Blank	Total/NA	Water	7470A	402163
MB 400-402166/14-A	Method Blank	Total/NA	Water	7470A	402166
LCS 400-402163/15-A	Lab Control Sample	Total/NA	Water	7470A	402163
LCS 400-402166/15-A	Lab Control Sample	Total/NA	Water	7470A	402166
400-154761-2 MS	SGWA-2	Total/NA	Water	7470A	402163
400-154761-2 MSD	SGWA-2	Total/NA	Water	7470A	402163
400-155379-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	402166
400-155379-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	402166

## General Chemistry

### Analysis Batch: 400598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-7	FD-1(AP)	Total/NA	Water	SM 2540C	
MB 400-400598/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-400598/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-154695-A-3 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 400731

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-1	SGWA-1	Total/NA	Water	SM 2540C	
400-154761-2	SGWA-2	Total/NA	Water	SM 2540C	
400-154761-3	SGWA-24	Total/NA	Water	SM 2540C	
400-154761-4	SGWA-25	Total/NA	Water	SM 2540C	
400-154761-5	SGWA-5	Total/NA	Water	SM 2540C	
400-154761-6	FB-1(AP)	Total/NA	Water	SM 2540C	
400-154761-8	EB-1(AP)	Total/NA	Water	SM 2540C	
400-154761-15	FD-2(AP)	Total/NA	Water	SM 2540C	
MB 400-400731/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-400731/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-154761-3 DU	SGWA-24	Total/NA	Water	SM 2540C	

### Analysis Batch: 400819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-9	SGWA-3	Total/NA	Water	SM 2540C	
400-154761-10	SGWA-4	Total/NA	Water	SM 2540C	
400-154761-11	SGWC-6	Total/NA	Water	SM 2540C	
400-154761-12	SGWC-7	Total/NA	Water	SM 2540C	
400-154761-13	SGWC-8	Total/NA	Water	SM 2540C	
400-154761-14	FB-2(AP)	Total/NA	Water	SM 2540C	
400-154761-16	EB-2(AP)	Total/NA	Water	SM 2540C	
400-154761-17	SGWC-9	Total/NA	Water	SM 2540C	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## General Chemistry (Continued)

### Analysis Batch: 400819 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-20	SGWC-12	Total/NA	Water	SM 2540C	
400-154761-31	FD-3(AP)	Total/NA	Water	SM 2540C	
MB 400-400819/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-400819/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-154761-9 DU	SGWA-3	Total/NA	Water	SM 2540C	
400-154761-13 DU	SGWC-8	Total/NA	Water	SM 2540C	

### Analysis Batch: 400822

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-18	SGWC-10	Total/NA	Water	SM 2540C	
400-154761-19	SGWC-11	Total/NA	Water	SM 2540C	
MB 400-400822/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-400822/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-154761-19 DU	SGWC-11	Total/NA	Water	SM 2540C	

### Analysis Batch: 400948

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-27	SGWC-21	Total/NA	Water	SM 2540C	
400-154761-33	SGWC-18	Total/NA	Water	SM 2540C	
400-154761-34	SGWC-19	Total/NA	Water	SM 2540C	
MB 400-400948/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-400948/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-154761-34 DU	SGWC-19	Total/NA	Water	SM 2540C	

### Analysis Batch: 400955

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-29	SGWC-23	Total/NA	Water	SM 2540C	
400-154761-30	FB-3(AP)	Total/NA	Water	SM 2540C	
400-154761-32	EB-3(AP)	Total/NA	Water	SM 2540C	
MB 400-400955/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-400955/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-154761-29 DU	SGWC-23	Total/NA	Water	SM 2540C	

### Analysis Batch: 400962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-21	SGWC-13	Total/NA	Water	SM 2540C	
400-154761-22	SGWC-14	Total/NA	Water	SM 2540C	
400-154761-23	SGWC-15	Total/NA	Water	SM 2540C	
400-154761-24	SGWC-16	Total/NA	Water	SM 2540C	
400-154761-25	SGWC-17	Total/NA	Water	SM 2540C	
400-154761-26	SGWC-20	Total/NA	Water	SM 2540C	
400-154761-28	SGWC-22	Total/NA	Water	SM 2540C	
MB 400-400962/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-400962/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-154761-23 DU	SGWC-15	Total/NA	Water	SM 2540C	
400-154761-24 DU	SGWC-16	Total/NA	Water	SM 2540C	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Rad

### Prep Batch: 371113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-1	SGWA-1	Total/NA	Water	PrecSep-21	
400-154761-2	SGWA-2	Total/NA	Water	PrecSep-21	
400-154761-3	SGWA-24	Total/NA	Water	PrecSep-21	
400-154761-4	SGWA-25	Total/NA	Water	PrecSep-21	
400-154761-5	SGWA-5	Total/NA	Water	PrecSep-21	
400-154761-6	FB-1(AP)	Total/NA	Water	PrecSep-21	
400-154761-7	FD-1(AP)	Total/NA	Water	PrecSep-21	
400-154761-8	EB-1(AP)	Total/NA	Water	PrecSep-21	
400-154761-9	SGWA-3	Total/NA	Water	PrecSep-21	
400-154761-10	SGWA-4	Total/NA	Water	PrecSep-21	
400-154761-11	SGWC-6	Total/NA	Water	PrecSep-21	
400-154761-12	SGWC-7	Total/NA	Water	PrecSep-21	
400-154761-13	SGWC-8	Total/NA	Water	PrecSep-21	
400-154761-14	FB-2(AP)	Total/NA	Water	PrecSep-21	
400-154761-15	FD-2(AP)	Total/NA	Water	PrecSep-21	
400-154761-16	EB-2(AP)	Total/NA	Water	PrecSep-21	
400-154761-17	SGWC-9	Total/NA	Water	PrecSep-21	
400-154761-18	SGWC-10	Total/NA	Water	PrecSep-21	
400-154761-19	SGWC-11	Total/NA	Water	PrecSep-21	
400-154761-20	SGWC-12	Total/NA	Water	PrecSep-21	
MB 160-371113/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-371113/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-154761-3 DU	SGWA-24	Total/NA	Water	PrecSep-21	
400-154761-13 DU	SGWC-8	Total/NA	Water	PrecSep-21	

### Prep Batch: 371128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-1	SGWA-1	Total/NA	Water	PrecSep_0	
400-154761-2	SGWA-2	Total/NA	Water	PrecSep_0	
400-154761-3	SGWA-24	Total/NA	Water	PrecSep_0	
400-154761-4	SGWA-25	Total/NA	Water	PrecSep_0	
400-154761-5	SGWA-5	Total/NA	Water	PrecSep_0	
400-154761-6	FB-1(AP)	Total/NA	Water	PrecSep_0	
400-154761-7	FD-1(AP)	Total/NA	Water	PrecSep_0	
400-154761-8	EB-1(AP)	Total/NA	Water	PrecSep_0	
400-154761-9	SGWA-3	Total/NA	Water	PrecSep_0	
400-154761-10	SGWA-4	Total/NA	Water	PrecSep_0	
400-154761-11	SGWC-6	Total/NA	Water	PrecSep_0	
400-154761-12	SGWC-7	Total/NA	Water	PrecSep_0	
400-154761-13	SGWC-8	Total/NA	Water	PrecSep_0	
400-154761-14	FB-2(AP)	Total/NA	Water	PrecSep_0	
400-154761-15	FD-2(AP)	Total/NA	Water	PrecSep_0	
400-154761-16	EB-2(AP)	Total/NA	Water	PrecSep_0	
400-154761-17	SGWC-9	Total/NA	Water	PrecSep_0	
400-154761-18	SGWC-10	Total/NA	Water	PrecSep_0	
400-154761-19	SGWC-11	Total/NA	Water	PrecSep_0	
400-154761-20	SGWC-12	Total/NA	Water	PrecSep_0	
MB 160-371128/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-371128/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-154761-3 DU	SGWA-24	Total/NA	Water	PrecSep_0	
400-154761-13 DU	SGWC-8	Total/NA	Water	PrecSep_0	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Prep Batch: 371136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-21	SGWC-13	Total/NA	Water	PrecSep-21	
400-154761-22	SGWC-14	Total/NA	Water	PrecSep-21	
400-154761-23	SGWC-15	Total/NA	Water	PrecSep-21	
400-154761-24	SGWC-16	Total/NA	Water	PrecSep-21	
400-154761-25	SGWC-17	Total/NA	Water	PrecSep-21	
400-154761-26	SGWC-20	Total/NA	Water	PrecSep-21	
400-154761-27	SGWC-21	Total/NA	Water	PrecSep-21	
400-154761-28	SGWC-22	Total/NA	Water	PrecSep-21	
400-154761-29	SGWC-23	Total/NA	Water	PrecSep-21	
400-154761-30	FB-3(AP)	Total/NA	Water	PrecSep-21	
400-154761-31	FD-3(AP)	Total/NA	Water	PrecSep-21	
400-154761-32	EB-3(AP)	Total/NA	Water	PrecSep-21	
400-154761-33	SGWC-18	Total/NA	Water	PrecSep-21	
400-154761-34	SGWC-19	Total/NA	Water	PrecSep-21	
MB 160-371136/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-371136/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-154761-29 DU	SGWC-23	Total/NA	Water	PrecSep-21	

## Prep Batch: 371223

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-154761-21	SGWC-13	Total/NA	Water	PrecSep_0	
400-154761-22	SGWC-14	Total/NA	Water	PrecSep_0	
400-154761-23	SGWC-15	Total/NA	Water	PrecSep_0	
400-154761-24	SGWC-16	Total/NA	Water	PrecSep_0	
400-154761-25	SGWC-17	Total/NA	Water	PrecSep_0	
400-154761-26	SGWC-20	Total/NA	Water	PrecSep_0	
400-154761-27	SGWC-21	Total/NA	Water	PrecSep_0	
400-154761-28	SGWC-22	Total/NA	Water	PrecSep_0	
400-154761-29	SGWC-23	Total/NA	Water	PrecSep_0	
400-154761-30	FB-3(AP)	Total/NA	Water	PrecSep_0	
400-154761-31	FD-3(AP)	Total/NA	Water	PrecSep_0	
400-154761-32	EB-3(AP)	Total/NA	Water	PrecSep_0	
400-154761-33	SGWC-18	Total/NA	Water	PrecSep_0	
400-154761-34	SGWC-19	Total/NA	Water	PrecSep_0	
MB 160-371223/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-371223/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-154761-29 DU	SGWC-23	Total/NA	Water	PrecSep_0	

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 400-402384/4

Matrix: Water

Analysis Batch: 402384

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/25/18 12:47	1
Fluoride	<0.082		0.20	0.082	mg/L			06/25/18 12:47	1
Sulfate	<0.70		1.0	0.70	mg/L			06/25/18 12:47	1

Lab Sample ID: LCS 400-402384/5

Matrix: Water

Analysis Batch: 402384

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.49		mg/L		95	90 - 110
Fluoride	10.0	9.78		mg/L		98	90 - 110
Sulfate	10.0	9.94		mg/L		99	90 - 110

Lab Sample ID: LCSD 400-402384/6

Matrix: Water

Analysis Batch: 402384

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.45		mg/L		94	90 - 110	0	15
Fluoride	10.0	9.95		mg/L		99	90 - 110	2	15
Sulfate	10.0	9.93		mg/L		99	90 - 110	0	15

Lab Sample ID: 400-154761-1 MS

Matrix: Water

Analysis Batch: 402384

Client Sample ID: SGWA-1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1.7		10.0	11.2		mg/L		95	80 - 120
Fluoride	<0.082		10.0	10.3		mg/L		103	80 - 120
Sulfate	<0.70		10.0	10.5		mg/L		105	80 - 120

Lab Sample ID: 400-154761-1 MSD

Matrix: Water

Analysis Batch: 402384

Client Sample ID: SGWA-1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1.7		10.0	11.2		mg/L		96	80 - 120	1	20
Fluoride	<0.082		10.0	10.2		mg/L		102	80 - 120	0	20
Sulfate	<0.70		10.0	10.7		mg/L		107	80 - 120	1	20

Lab Sample ID: MB 400-402469/36

Matrix: Water

Analysis Batch: 402469

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/26/18 01:01	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 01:01	1
Sulfate	<0.70		1.0	0.70	mg/L			06/26/18 01:01	1

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: LCS 400-402469/37

Matrix: Water

Analysis Batch: 402469

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.47		mg/L		95	90 - 110
Fluoride	10.0	10.0		mg/L		100	90 - 110
Sulfate	10.0	9.84		mg/L		98	90 - 110

Lab Sample ID: LCSD 400-402469/38

Matrix: Water

Analysis Batch: 402469

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.45		mg/L		94	90 - 110	0	15
Fluoride	10.0	9.99		mg/L		100	90 - 110	0	15
Sulfate	10.0	9.86		mg/L		99	90 - 110	0	15

Lab Sample ID: 400-154761-17 MS

Matrix: Water

Analysis Batch: 402469

Client Sample ID: SGWC-9

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	12		10.0	21.5		mg/L		95	80 - 120
Fluoride	<0.082		10.0	10.5		mg/L		105	80 - 120
Sulfate	310	E	10.0	318	E 4	mg/L		111	80 - 120

Lab Sample ID: 400-154761-17 MSD

Matrix: Water

Analysis Batch: 402469

Client Sample ID: SGWC-9

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12		10.0	21.4		mg/L		95	80 - 120	0	20
Fluoride	<0.082		10.0	10.4		mg/L		104	80 - 120	1	20
Sulfate	310	E	10.0	320	E 4	mg/L		129	80 - 120	1	20

Lab Sample ID: MB 400-402619/4

Matrix: Water

Analysis Batch: 402619

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/26/18 12:52	1
Fluoride	<0.082		0.20	0.082	mg/L			06/26/18 12:52	1
Sulfate	<0.70		1.0	0.70	mg/L			06/26/18 12:52	1

Lab Sample ID: LCS 400-402619/5

Matrix: Water

Analysis Batch: 402619

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.38		mg/L		94	90 - 110
Fluoride	10.0	9.95		mg/L		100	90 - 110
Sulfate	10.0	9.78		mg/L		98	90 - 110

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: LCSD 400-402619/6

Matrix: Water

Analysis Batch: 402619

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.37		mg/L		94	90 - 110	0	15
Fluoride	10.0	9.95		mg/L		100	90 - 110	0	15
Sulfate	10.0	9.87		mg/L		99	90 - 110	1	15

Lab Sample ID: 400-155336-B-1 MS

Matrix: Water

Analysis Batch: 402619

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25		10.0	35.0		mg/L		98	80 - 120		
Fluoride	0.34		10.0	10.4		mg/L		101	80 - 120		
Sulfate	15		10.0	25.3		mg/L		106	80 - 120		

Lab Sample ID: 400-155336-B-1 MSD

Matrix: Water

Analysis Batch: 402619

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25		10.0	35.0		mg/L		99	80 - 120	0	20
Fluoride	0.34		10.0	10.4		mg/L		101	80 - 120	0	20
Sulfate	15		10.0	25.4		mg/L		107	80 - 120	0	20

Lab Sample ID: MB 400-402782/20

Matrix: Water

Analysis Batch: 402782

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			06/27/18 21:17	1
Fluoride	<0.082		0.20	0.082	mg/L			06/27/18 21:17	1
Sulfate	<0.70		1.0	0.70	mg/L			06/27/18 21:17	1

Lab Sample ID: LCS 400-402782/21

Matrix: Water

Analysis Batch: 402782

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.33		mg/L		93	90 - 110		
Fluoride	10.0	9.74		mg/L		97	90 - 110		
Sulfate	10.0	9.68		mg/L		97	90 - 110		

Lab Sample ID: LCSD 400-402782/22

Matrix: Water

Analysis Batch: 402782

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.30		mg/L		93	90 - 110	0	15
Fluoride	10.0	9.79		mg/L		98	90 - 110	1	15
Sulfate	10.0	9.63		mg/L		96	90 - 110	0	15

TestAmerica Pensacola



# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: 400-155635-B-2 MS

Matrix: Water

Analysis Batch: 402782

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	68	E	10.0	77.1	E 4	mg/L		86	80 - 120
Fluoride	0.31		10.0	10.4		mg/L		101	80 - 120
Sulfate	29		10.0	38.4		mg/L		97	80 - 120

Lab Sample ID: 400-155635-B-2 MSD

Matrix: Water

Analysis Batch: 402782

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	68	E	10.0	77.1	E 4	mg/L		86	80 - 120	0	20
Fluoride	0.31		10.0	10.5		mg/L		102	80 - 120	0	20
Sulfate	29		10.0	38.5		mg/L		97	80 - 120	0	20

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

Lab Sample ID: MB 400-401724/1-A ^5

Matrix: Water

Analysis Batch: 401891

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 401724

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:24	06/20/18 13:53	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/20/18 08:24	06/20/18 13:53	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:24	06/20/18 13:53	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:24	06/20/18 13:53	5
Calcium	<0.13		0.25	0.13	mg/L		06/20/18 08:24	06/20/18 13:53	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:24	06/20/18 13:53	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:24	06/20/18 13:53	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:24	06/20/18 13:53	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:24	06/20/18 13:53	5
Selenium	0.000295	J	0.0013	0.00024	mg/L		06/20/18 08:24	06/20/18 13:53	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:24	06/20/18 13:53	5

Lab Sample ID: LCS 400-401724/2-A

Matrix: Water

Analysis Batch: 401891

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 401724

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0500	0.0520		mg/L		104	80 - 120
Barium	0.0500	0.0522		mg/L		104	80 - 120
Beryllium	0.0500	0.0501		mg/L		100	80 - 120
Boron	0.100	0.100		mg/L		100	80 - 120
Calcium	5.00	4.99		mg/L		100	80 - 120
Chromium	0.0500	0.0506		mg/L		101	80 - 120
Cobalt	0.0500	0.0565		mg/L		113	80 - 120
Lead	0.0500	0.0506		mg/L		101	80 - 120
Lithium	0.0500	0.0545		mg/L		109	80 - 120
Selenium	0.0500	0.0522		mg/L		104	80 - 120
Thallium	0.0100	0.0102		mg/L		102	80 - 120

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: 400-154761-1 MS

Matrix: Water

Analysis Batch: 401891

Client Sample ID: SGWA-1

Prep Type: Total Recoverable

Prep Batch: 401724

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00046		0.0500	0.0557		mg/L		111	75 - 125
Barium	0.058		0.0500	0.113		mg/L		110	75 - 125
Beryllium	<0.00034		0.0500	0.0556		mg/L		111	75 - 125
Boron	<0.021		0.100	0.110		mg/L		110	75 - 125
Calcium	2.6		5.00	7.83		mg/L		105	75 - 125
Chromium	0.0014	J	0.0500	0.0552		mg/L		108	75 - 125
Cobalt	0.0028		0.0500	0.0590		mg/L		112	75 - 125
Lead	<0.00035		0.0500	0.0510		mg/L		102	75 - 125
Lithium	0.0018	J	0.0500	0.0524		mg/L		101	75 - 125
Selenium	0.00065	J B	0.0500	0.0596		mg/L		118	75 - 125
Thallium	<0.000085		0.0100	0.0106		mg/L		106	75 - 125

Lab Sample ID: 400-154761-1 MSD

Matrix: Water

Analysis Batch: 401891

Client Sample ID: SGWA-1

Prep Type: Total Recoverable

Prep Batch: 401724

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00046		0.0500	0.0531		mg/L		106	75 - 125	5	20
Barium	0.058		0.0500	0.111		mg/L		107	75 - 125	2	20
Beryllium	<0.00034		0.0500	0.0545		mg/L		109	75 - 125	2	20
Boron	<0.021		0.100	0.101		mg/L		101	75 - 125	8	20
Calcium	2.6		5.00	7.68		mg/L		102	75 - 125	2	20
Chromium	0.0014	J	0.0500	0.0539		mg/L		105	75 - 125	2	20
Cobalt	0.0028		0.0500	0.0571		mg/L		109	75 - 125	3	20
Lead	<0.00035		0.0500	0.0491		mg/L		98	75 - 125	4	20
Lithium	0.0018	J	0.0500	0.0512		mg/L		99	75 - 125	2	20
Selenium	0.00065	J B	0.0500	0.0582		mg/L		115	75 - 125	2	20
Thallium	<0.000085		0.0100	0.0104		mg/L		104	75 - 125	2	20

Lab Sample ID: MB 400-401725/1-A ^5

Matrix: Water

Analysis Batch: 401891

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 401725

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		06/20/18 08:27	06/20/18 17:23	5
Barium	<0.00049		0.0025	0.00049	mg/L		06/20/18 08:27	06/20/18 17:23	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		06/20/18 08:27	06/20/18 17:23	5
Boron	<0.021		0.050	0.021	mg/L		06/20/18 08:27	06/20/18 17:23	5
Calcium	<0.13		0.25	0.13	mg/L		06/20/18 08:27	06/20/18 17:23	5
Chromium	<0.0011		0.0025	0.0011	mg/L		06/20/18 08:27	06/20/18 17:23	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		06/20/18 08:27	06/20/18 17:23	5
Lead	<0.00035		0.0013	0.00035	mg/L		06/20/18 08:27	06/20/18 17:23	5
Lithium	<0.0011		0.0050	0.0011	mg/L		06/20/18 08:27	06/20/18 17:23	5
Selenium	0.000250	J	0.0013	0.00024	mg/L		06/20/18 08:27	06/20/18 17:23	5
Thallium	<0.000085		0.00050	0.000085	mg/L		06/20/18 08:27	06/20/18 17:23	5

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: LCS 400-401725/2-A

Matrix: Water

Analysis Batch: 401891

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 401725

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.0500	0.0517		mg/L		103	80 - 120
Barium	0.0500	0.0511		mg/L		102	80 - 120
Beryllium	0.0500	0.0499		mg/L		100	80 - 120
Boron	0.100	0.0972		mg/L		97	80 - 120
Calcium	5.00	4.96		mg/L		99	80 - 120
Chromium	0.0500	0.0501		mg/L		100	80 - 120
Cobalt	0.0500	0.0549		mg/L		110	80 - 120
Lead	0.0500	0.0500		mg/L		100	80 - 120
Lithium	0.0500	0.0537		mg/L		107	80 - 120
Selenium	0.0500	0.0526		mg/L		105	80 - 120
Thallium	0.0100	0.0101		mg/L		101	80 - 120

Lab Sample ID: 400-154761-21 MS

Matrix: Water

Analysis Batch: 401891

Client Sample ID: SGWC-13

Prep Type: Total Recoverable

Prep Batch: 401725

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	<0.00046		0.0500	0.0542		mg/L		108	75 - 125
Barium	0.032		0.0500	0.0844		mg/L		105	75 - 125
Beryllium	<0.00034		0.0500	0.0531		mg/L		106	75 - 125
Boron	0.45		0.100	0.560	4	mg/L		112	75 - 125
Calcium	15		5.00	19.9		mg/L		98	75 - 125
Chromium	<0.0011		0.0500	0.0510		mg/L		102	75 - 125
Cobalt	0.0039		0.0500	0.0575		mg/L		107	75 - 125
Lead	<0.00035		0.0500	0.0481		mg/L		96	75 - 125
Lithium	<0.0011		0.0500	0.0499		mg/L		100	75 - 125
Selenium	0.00064	J B	0.0500	0.0585		mg/L		116	75 - 125
Thallium	<0.000085		0.0100	0.00998		mg/L		100	75 - 125

Lab Sample ID: 400-154761-21 MSD

Matrix: Water

Analysis Batch: 401891

Client Sample ID: SGWC-13

Prep Type: Total Recoverable

Prep Batch: 401725

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	<0.00046		0.0500	0.0532		mg/L		106	75 - 125	2	20
Barium	0.032		0.0500	0.0844		mg/L		105	75 - 125	0	20
Beryllium	<0.00034		0.0500	0.0520		mg/L		104	75 - 125	2	20
Boron	0.45		0.100	0.581	4	mg/L		133	75 - 125	4	20
Calcium	15		5.00	20.0		mg/L		101	75 - 125	1	20
Chromium	<0.0011		0.0500	0.0514		mg/L		103	75 - 125	1	20
Cobalt	0.0039		0.0500	0.0577		mg/L		108	75 - 125	0	20
Lead	<0.00035		0.0500	0.0479		mg/L		96	75 - 125	1	20
Lithium	<0.0011		0.0500	0.0505		mg/L		101	75 - 125	1	20
Selenium	0.00064	J B	0.0500	0.0563		mg/L		111	75 - 125	4	20
Thallium	<0.000085		0.0100	0.0101		mg/L		101	75 - 125	1	20

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 400-402163/14-A

Matrix: Water

Analysis Batch: 402434

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 402163

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 11:40	1

Lab Sample ID: LCS 400-402163/15-A

Matrix: Water

Analysis Batch: 402434

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 402163

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.000988		mg/L		98	80 - 120

Lab Sample ID: 400-154761-2 MS

Matrix: Water

Analysis Batch: 402434

Client Sample ID: SGWA-2

Prep Type: Total/NA

Prep Batch: 402163

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070		0.00201	0.00197		mg/L		98	80 - 120

Lab Sample ID: 400-154761-2 MSD

Matrix: Water

Analysis Batch: 402434

Client Sample ID: SGWA-2

Prep Type: Total/NA

Prep Batch: 402163

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000070		0.00201	0.00200		mg/L		99	80 - 120	1	20

Lab Sample ID: MB 400-402166/14-A

Matrix: Water

Analysis Batch: 402434

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 402166

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		06/23/18 14:33	06/25/18 12:48	1

Lab Sample ID: LCS 400-402166/15-A

Matrix: Water

Analysis Batch: 402434

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 402166

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.000981		mg/L		97	80 - 120

Lab Sample ID: 400-155379-B-1-C MS

Matrix: Water

Analysis Batch: 402434

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 402166

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070		0.00201	0.00187		mg/L		93	80 - 120

Lab Sample ID: 400-155379-B-1-D MSD

Matrix: Water

Analysis Batch: 402434

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 402166

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000070		0.00201	0.00190		mg/L		94	80 - 120	2	20

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: MB 400-400598/1

Matrix: Water

Analysis Batch: 400598

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L	-		06/10/18 09:45	1

Lab Sample ID: LCS 400-400598/2

Matrix: Water

Analysis Batch: 400598

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	248		mg/L	-	85	78 - 122

Lab Sample ID: 400-154695-A-3 DU

Matrix: Water

Analysis Batch: 400598

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	80		80.0		mg/L	-	0	5

Lab Sample ID: MB 400-400731/1

Matrix: Water

Analysis Batch: 400731

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L	-		06/11/18 17:02	1

Lab Sample ID: LCS 400-400731/2

Matrix: Water

Analysis Batch: 400731

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	274		mg/L	-	94	78 - 122

Lab Sample ID: 400-154761-3 DU

Matrix: Water

Analysis Batch: 400731

Client Sample ID: SGWA-24

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	76		76.0		mg/L	-	0	5

Lab Sample ID: MB 400-400819/1

Matrix: Water

Analysis Batch: 400819

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L	-		06/12/18 13:36	1

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: LCS 400-400819/2

Matrix: Water

Analysis Batch: 400819

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	304		mg/L		104	78 - 122

Lab Sample ID: 400-154761-9 DU

Matrix: Water

Analysis Batch: 400819

Client Sample ID: SGWA-3

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	46		46.0		mg/L		0	5

Lab Sample ID: 400-154761-13 DU

Matrix: Water

Analysis Batch: 400819

Client Sample ID: SGWC-8

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	410		406		mg/L		0.5	5

Lab Sample ID: MB 400-400822/1

Matrix: Water

Analysis Batch: 400822

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/12/18 14:04	1

Lab Sample ID: LCS 400-400822/2

Matrix: Water

Analysis Batch: 400822

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	242		mg/L		83	78 - 122

Lab Sample ID: 400-154761-19 DU

Matrix: Water

Analysis Batch: 400822

Client Sample ID: SGWC-11

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	40		40.0		mg/L		0	5

Lab Sample ID: MB 400-400948/1

Matrix: Water

Analysis Batch: 400948

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/13/18 18:25	1

Lab Sample ID: LCS 400-400948/2

Matrix: Water

Analysis Batch: 400948

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	266		mg/L		91	78 - 122

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

Lab Sample ID: 400-154761-34 DU  
Matrix: Water  
Analysis Batch: 400948

Client Sample ID: SGWC-19  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	320		322		mg/L		0	5

Lab Sample ID: MB 400-400955/1  
Matrix: Water  
Analysis Batch: 400955

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/13/18 12:30	1

Lab Sample ID: LCS 400-400955/2  
Matrix: Water  
Analysis Batch: 400955

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	260		mg/L		89	78 - 122

Lab Sample ID: 400-154761-29 DU  
Matrix: Water  
Analysis Batch: 400955

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

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	220		222		mg/L		0	5

Lab Sample ID: MB 400-400962/1  
Matrix: Water  
Analysis Batch: 400962

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			06/13/18 16:43	1

Lab Sample ID: LCS 400-400962/2  
Matrix: Water  
Analysis Batch: 400962

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	254		mg/L		87	78 - 122

Lab Sample ID: 400-154761-23 DU  
Matrix: Water  
Analysis Batch: 400962

Client Sample ID: SGWC-15  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	310		310		mg/L		0	5

Lab Sample ID: 400-154761-24 DU  
Matrix: Water  
Analysis Batch: 400962

Client Sample ID: SGWC-16  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	74		74.0		mg/L		0	5

TestAmerica Pensacola



# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: MB 160-371113/24-A  
Matrix: Water  
Analysis Batch: 374836

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 371113

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.005810	U	0.107	0.107	1.00	0.231	pCi/L	06/19/18 08:49	07/11/18 19:07	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					06/19/18 08:49	07/11/18 19:07	1

Lab Sample ID: LCS 160-371113/1-A  
Matrix: Water  
Analysis Batch: 374834

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 371113

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.8	9.309		1.22	1.00	0.201	pCi/L	79	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	108		40 - 110							

Lab Sample ID: 400-154761-3 DU  
Matrix: Water  
Analysis Batch: 374834

Client Sample ID: SGWA-24  
Prep Type: Total/NA  
Prep Batch: 371113

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.0847	U	-0.05358	U	0.112	1.00	0.273	pCi/L	0.58	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	109		40 - 110							

Lab Sample ID: 400-154761-13 DU  
Matrix: Water  
Analysis Batch: 374836

Client Sample ID: SGWC-8  
Prep Type: Total/NA  
Prep Batch: 371113

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.498		0.6226		0.254	1.00	0.222	pCi/L	0.26	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	102		40 - 110							

Lab Sample ID: MB 160-371136/23-A  
Matrix: Water  
Analysis Batch: 375138

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 371136

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.08998	U	0.127	0.127	1.00	0.216	pCi/L	06/19/18 10:05	07/12/18 15:00	1

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: MB 160-371136/23-A  
Matrix: Water  
Analysis Batch: 375138

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 371136

Carrier	MB %Yield	MB Qualifier	Limits
Ba Carrier	108		40 - 110

Prepared	Analyzed	Dil Fac
06/19/18 10:05	07/12/18 15:00	1

Lab Sample ID: LCS 160-371136/1-A  
Matrix: Water  
Analysis Batch: 375103

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 371136

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.8	11.11		1.35	1.00	0.273	pCi/L	94	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	105		40 - 110						

Lab Sample ID: 400-154761-29 DU  
Matrix: Water  
Analysis Batch: 375103

Client Sample ID: SGWC-23  
Prep Type: Total/NA  
Prep Batch: 371136

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.377		0.3946		0.202	1.00	0.211	pCi/L	0.04	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	104		40 - 110							

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

Lab Sample ID: MB 160-371128/24-A  
Matrix: Water  
Analysis Batch: 374836

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 371128

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.07597	U	0.154	0.154	1.00	0.295	pCi/L	06/19/18 09:16	07/11/18 15:23	1
Carrier	MB %Yield	MB Qualifier	Limits							
Ba Carrier	104		40 - 110							
Y Carrier	97.2		40 - 110							

Lab Sample ID: LCS 160-371128/1-A  
Matrix: Water  
Analysis Batch: 374835

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 371128

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	8.15	7.844		0.915	1.00	0.301	pCi/L	96	56 - 140

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: LCS 160-371128/1-A  
Matrix: Water  
Analysis Batch: 374835

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 371128

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	108		40 - 110
Y Carrier	90.1		40 - 110

Lab Sample ID: 400-154761-3 DU  
Matrix: Water  
Analysis Batch: 374835

Client Sample ID: SGWA-24  
Prep Type: Total/NA  
Prep Batch: 371128

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.0788	U	0.3110		0.184	1.00	0.271	pCi/L	0.62	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	109		40 - 110							
Y Carrier	95.0		40 - 110							

Lab Sample ID: 400-154761-13 DU  
Matrix: Water  
Analysis Batch: 374836

Client Sample ID: SGWC-8  
Prep Type: Total/NA  
Prep Batch: 371128

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	1.09		1.252		0.304	1.00	0.329	pCi/L	0.27	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	102		40 - 110							
Y Carrier	98.3		40 - 110							

Lab Sample ID: MB 160-371223/23-A  
Matrix: Water  
Analysis Batch: 375139

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 371223

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.05581	U	0.216	0.216	1.00	0.378	pCi/L	06/19/18 10:53	07/12/18 09:47	1
Carrier	MB %Yield	MB Qualifier	Limits							
Ba Carrier	108		40 - 110							
Y Carrier	81.1		40 - 110							

Lab Sample ID: LCS 160-371223/1-A  
Matrix: Water  
Analysis Batch: 375103

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 371223

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec.	%Rec. Limits
Radium-228	8.15	8.392		0.981	1.00	0.350	pCi/L	103	56 - 140

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

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

Lab Sample ID: LCS 160-371223/1-A  
Matrix: Water  
Analysis Batch: 375103

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 371223

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	105		40 - 110
Y Carrier	86.0		40 - 110

Lab Sample ID: 400-154761-29 DU  
Matrix: Water  
Analysis Batch: 375103

Client Sample ID: SGWC-23  
Prep Type: Total/NA  
Prep Batch: 371223

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.263	U	0.06156	U	0.167	1.00	0.292	pCi/L	0.55	1
	DU	DU								
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	104		40 - 110							
Y Carrier	90.1		40 - 110							

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Lab Sample ID: 400-154761-3 DU  
Matrix: Water  
Analysis Batch: 375781

Client Sample ID: SGWA-24  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.163	U	0.2574	U	0.215	5.00	0.273	pCi/L	0.21	

Lab Sample ID: 400-154761-13 DU  
Matrix: Water  
Analysis Batch: 375781

Client Sample ID: SGWC-8  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	1.59		1.875		0.396	5.00	0.329	pCi/L	0.37	

Lab Sample ID: 400-154761-29 DU  
Matrix: Water  
Analysis Batch: 375781

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

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.640		0.4562		0.262	5.00	0.292	pCi/L	0.34	

TestAmerica Pensacola

<b>Client Information</b> Client Contact: Joju Abraham Company: Southern Company Address: 2411 Ralph McGill Blvd SE B10185 City: Atlanta State: GA, Zip: 30308 Phone: [blank] Email: JAbraham@southernco.com Project Name: CCR - Scherer Site: Ash Pond		Sampler: Ben Hodges Lab PM: Whitmire, Cheyenne R Phone: 912-258-7457 E-Mail: cheyenne.whitmire@testamericainc.com		Carrier Tracking No(s): COC No: 400-57303-24790 Page: 1 of 1	
<b>Analysis Requested</b> Due Date Requested: [blank] TAT Requested (days): [blank] PO #: [blank] WO #: [blank] Project #: 40007041 SOW#: [blank]					
Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: [blank]					
M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify) [blank]					
Total Number of containers: [blank]					
Special Instructions/Note: [blank]					
Sample Identification					
Sample ID	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=wastewater, BT=Tissue, A=Air)	Preservation Code
SGWA-1	6/5/18	1430	G	W	N
SGWA-2	6/5/18	1530	G	W	N
SGWA-24	6/5/18	1450	G	W	N
SGWA-25	6/5/18	1700	G	W	N
SGWA-5	6/5/18	1630	G	W	N
FB-1(AP)	6/5/18	1420	G	W	N
FD-1(AP)	6/5/18	--	G	W	N
EB-1(AP)	6/5/18	1730	G	W	N
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					
Deliverable Requested: I, II, III, IV, Other (specify) [blank]					
Empty Kit Relinquished by: [blank] Date: [blank]					
Relinquished by: [blank] Date/Time: 6/6/18 08:15 Company: Golder					
Relinquished by: [blank] Date/Time: 6/6/18 12:25 Company: Courier					
Relinquished by: [blank] Date/Time: 6-6-18 16:10 Company: A					
Custody Seal No.: [blank]					
Cooler Temperature(s) °C and Other Remarks: 0.4°C, 18-17					



<b>Client Information</b> Client Contact: Ben Hodges Phone: 912-258-7457 E-Mail: cheyenne.whitmire@testamericainc.com Company: Southern Company		Lab PM: Whitmire, Cheyenne R Carrier Tracking No(s): 400-57303-24790 Page: 1 of 1	
Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State, Zip: GA, 30308 Phone: Email: JAbraham@southernco.com Project Name: CCR - Scherer Site: Ash Pond		Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 40007041 SSOW#:	
<b>Sample Identification</b>		<b>Analysis Requested</b>	
Sample ID	Sample Date	Sample Time	Matrix
SGWC-13	6/7/18	0915	G
SGWC-14	6/7/18	1030	G
SGWC-15	6/7/18	1210	G
SGWC-16	6/7/18	1400	G
SGWC-17	6/7/18	1500	G
SGWC-20	6/7/18	1525	G
SGWC-21	6/7/18	1410	G
SGWC-22	6/7/18	1025	G
SGWC-23	6/7/18	0915	G
FB-3(AP)	6/7/18	1020	G
FD-3(AP)	6/7/18	--	G
EB-3(AP)	6/7/18	1600	G
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<b>Sample Disposal</b> (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
<b>Deliverable Requested:</b> I, II, IV, Other (specify)		<b>Special Instructions/QC Requirements:</b>	
<b>Empty Kit Relinquished by:</b>		<b>Method of Shipment:</b>	
<b>Relinquished by:</b>		<b>Date:</b>	
<b>Relinquished by:</b>		<b>Date:</b>	
<b>Relinquished by:</b>		<b>Date:</b>	
<b>Relinquished by:</b>		<b>Date:</b>	
<b>Custody Seal No.:</b> 42724		<b>Cooler Temperature(s) °C and Other Remarks:</b> 4.8°C IR8, 3.7°C IR8	

<b>Client Information</b> Client Contact: Ben Hodges Phone: 912-258-7457 E-Mail: cheyenne.whitmire@testamericainc.com Company: Southern Company		Lab PM: Whitmire, Cheyenne R Carrier Tracking No(s): COC No: 400-57303-24790 Page: 1 of 1	
Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State, Zip: GA, 30308 Phone: Email: JAbraham@southernco.com Project Name: CCR - Scherer Site: Ash Pond		<b>Analysis Requested</b> Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 40007041 SSOW#:	
<b>Sample Identification</b> Sample Date Sample Time Sample Type (C=Comp, G=grab) Matrix (W=water, S=solid, O=oil, BT=Tissue, A=air)		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 2540C-TDS, 300_ORGM_28D-Chloride, Fluoride, Sulfate 6020-As, Ba, Cr, Co, Li, Se, Ca, B, Be, Pb, Ti, Hg(7470) 9315_Ra226, 9320_Ra228, Ra226Ra228_GFPc	
SGWC-18 SGWC-19		Preservation Code: G W G W	
Special Instructions/Note: Total Number of Containers		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			
Deliverable Requested: I, II, III, IV, Other (specify)			
Empty Kit Relinquished by:			
Relinquished by:		Date:	
Relinquished by:		Date:	
Relinquished by:		Date:	
Custody Seals Intact: Δ Yes Δ No		Custody Seal No.:	
Cooler Temperature(s) °C and Other Remarks: 3.7°C IR8		Cooler Temperature(s) °C and Other Remarks: 4.0°C IR8	





<b>Client Information</b>				Lab PM: Ben Hodges Phone: 912-258-7457 E-Mail: cheyenne.whitmire@testamericainc.com				COC No: 400-57303-24790 Page: 1 of 1			
<b>Company:</b> Southern Company				<b>Analysis Requested</b>				<b>Job #:</b>			
<b>Address:</b>				<b>Due Date Requested:</b>				<b>Preservation Codes:</b>			
241 Ralph McGill Blvd SE B10185				TAT Requested (days):				A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
City: Atlanta				PO #:				M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)			
State, Zip: GA, 30308				WO #:							
Phone:				Project #:							
Email: JABraham@southernco.com				40007041							
Project Name: CCR - Scherer				SSOW#:							
Site: Ash Pond											
<b>Sample Identification</b>				<b>Sample Date</b>				<b>Sample Time</b>			
<b>Sample Type</b> (C=Comp, G=grab)				<b>Matrix</b> (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)				<b>Preservation Code:</b>			
SGWA-3				G				W			
SGWA-4				G				W			
SGWC-6				G				W			
SGWC-7				G				W			
SGWC-8				G				W			
FB-2(AP)				G				W			
FD-2(AP)				G				W			
EB-2(AP)				G				W			
SGWC-9				G				W			
SGWC-10				G				W			
SGWC-11				G				W			
SGWC-12				G				W			
<b>Possible Hazard Identification</b>				<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>				<b>Special Instructions/Note:</b>			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological				<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months				Total Number of containers: _____			
<b>Deliverable Requested: I, II, III, IV, Other (specify)</b>				<b>Special Instructions/QC Requirements:</b>				<b>Method of Shipment:</b>			
<b>Empty Kit Relinquished by:</b>				<b>Date:</b>				<b>Time:</b>			
Relinquished by: <i>John. Brown</i>				Date/Time: 6/7/18 0800				Company: <i>Golden</i>			
Relinquished by: <i>Elaine Cook</i>				Date/Time: 6/7/18				Company: <i>Golden</i>			
Relinquished by: <i>V. Sacorson</i>				Date/Time: 6-7-18 1610				Company: <i>Golden</i>			
<b>Custody Seals Intact:</b>				<b>Custody Seal No.:</b>				<b>Cooler Temperature(s) and Other Remarks:</b>			
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				122				0.20 2.267 0.17			

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-154761-1

SDG Number: Ash Pond

**Login Number: 154761**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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	0.4°C, IR-7
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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-154761-1

SDG Number: Ash Pond

**Login Number: 154761**

**List Number: 2**

**Creator: Taylor, Kristene N**

**List Source: TestAmerica St. Louis**

**List Creation: 06/18/18 08:36 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	17.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-154761-1

SDG Number: Ash Pond

**Login Number: 154761**

**List Number: 5**

**Creator: Taylor, Kristene N**

**List Source: TestAmerica St. Louis**

**List Creation: 06/18/18 08:42 AM**

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

# Accreditation/Certification Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-18
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-18
Iowa	State Program	7	367	08-01-18
Kansas	NELAP	7	E-10253	10-31-18
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA170005	12-31-18
Maryland	State Program	3	233	09-30-18
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-18
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-18 *
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-14	09-30-18
US Fish & Wildlife	Federal		LE058448-0	07-31-18
USDA	Federal		P330-16-00172	05-24-19
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

## Laboratory: TestAmerica St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD ELAP		L2305	04-06-19
Arizona	State Program	9	AZ0813	12-08-18
California	State Program	9	2886	06-30-19
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-19
Illinois	NELAP	5	200023	11-30-18
Iowa	State Program	7	373	12-01-18
Kansas	NELAP	7	E-10236	10-31-18
Kentucky (DW)	State Program	4	90125	12-31-18
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA180017	12-31-18
Maryland	State Program	3	310	09-30-18
Michigan	State Program	5	9005	06-30-18 *
Missouri	State Program	7	780	06-30-18 *

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

TestAmerica Pensacola

## Accreditation/Certification Summary

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

TestAmerica Job ID: 400-154761-1  
SDG: Ash Pond

### Laboratory: TestAmerica St. Louis (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Nevada	State Program	9	MO000542018-1	07-31-18 *
New Jersey	NELAP	2	MO002	06-30-19
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-18 *
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-18 *
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-18 *
Texas	NELAP	6	T104704193-17-11	07-31-18 *
US Fish & Wildlife	Federal		058448	07-31-18
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542016-8	07-31-18 *
Virginia	NELAP	3	460230	06-14-19
Washington	State Program	10	C592	08-30-18
West Virginia DEP	State Program	3	381	08-31-18 *

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

TestAmerica Pensacola



# ANALYTICAL DATA REPORTS OCTOBER/DECEMBER 2018



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-163833-1

TestAmerica Sample Delivery Group: Ash Pond

Client Project/Site: CCR - Plant Scherer

For:

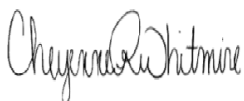
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

12/28/2018 1:52:03 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

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

### LINKS

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

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

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

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

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Detection Summary . . . . .	4
Method Summary . . . . .	6
Sample Summary . . . . .	7
Client Sample Results . . . . .	8
Definitions . . . . .	12
Chronicle . . . . .	13
QC Association . . . . .	16
QC Sample Results . . . . .	18
Chain of Custody . . . . .	21
Receipt Checklists . . . . .	22
Certification Summary . . . . .	23

## Case Narrative

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

**Job ID: 400-163833-1**

**Laboratory: TestAmerica Pensacola**

### Narrative

#### Job Narrative 400-163833-1

#### HPLC/IC

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: SGWC-9 (400-163833-1), SGWC-21 (400-163833-5), SGWC-23 (400-163833-7) and FD-3 (AP) (400-163833-10). Elevated reporting limits (RLs) are provided.

#### Metals

Method(s) 6020: The following samples were diluted to bring the concentration of target analytes within the calibration range: SGWC-9 (400-163833-1), SGWC-19 (400-163833-4) and FD-3 (AP) (400-163833-10). Elevated reporting limits (RLs) are provided.

# Detection Summary

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

## Client Sample ID: SGWC-9

## Lab Sample ID: 400-163833-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	330		10	7.0	mg/L	10		300.0	Total/NA
Calcium	55		0.25	0.13	mg/L	5		6020	Total Recoverable
Boron - DL	1.6		0.25	0.11	mg/L	25		6020	Total Recoverable
Total Dissolved Solids	510		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-10

## Lab Sample ID: 400-163833-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.6		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	16		1.0	0.70	mg/L	1		300.0	Total/NA
Boron	0.098		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	4.0		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	38		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-16

## Lab Sample ID: 400-163833-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.1		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	28		1.0	0.70	mg/L	1		300.0	Total/NA
Boron	0.55		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	0.94		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	42		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-19

## Lab Sample ID: 400-163833-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.3		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	270		10	7.0	mg/L	10		300.0	Total/NA
Calcium	42		0.25	0.13	mg/L	5		6020	Total Recoverable
Boron - DL	1.8		0.25	0.11	mg/L	25		6020	Total Recoverable
Total Dissolved Solids	250		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-21

## Lab Sample ID: 400-163833-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.3		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	88		2.0	1.4	mg/L	2		300.0	Total/NA
Boron	1.2		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	29		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	310		5.0	3.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

### Client Sample ID: SGWC-22

### Lab Sample ID: 400-163833-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	99		5.0	3.5	mg/L	5		300.0	Total/NA
Boron	0.40		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	28		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	260		5.0	3.4	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: SGWC-23

### Lab Sample ID: 400-163833-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.9		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	96		2.0	1.4	mg/L	2		300.0	Total/NA
Boron	0.60		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	24		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	30		5.0	3.4	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: FB-3 (AP)

### Lab Sample ID: 400-163833-8

No Detections.

### Client Sample ID: EB-3 (AP)

### Lab Sample ID: 400-163833-9

No Detections.

### Client Sample ID: FD-3 (AP)

### Lab Sample ID: 400-163833-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	13		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	350		10	7.0	mg/L	10		300.0	Total/NA
Calcium	55		0.25	0.13	mg/L	5		6020	Total Recoverable
Boron - DL	1.7		0.25	0.11	mg/L	25		6020	Total Recoverable
Total Dissolved Solids	530		5.0	3.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Method Summary

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

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

### Protocol References:

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

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

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

### Laboratory References:

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

# Sample Summary

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-163833-1	SGWC-9	Water	12/17/18 11:40	12/19/18 09:47
400-163833-2	SGWC-10	Water	12/17/18 13:55	12/19/18 09:47
400-163833-3	SGWC-16	Water	12/17/18 14:25	12/19/18 09:47
400-163833-4	SGWC-19	Water	12/17/18 12:05	12/19/18 09:47
400-163833-5	SGWC-21	Water	12/17/18 11:00	12/19/18 09:47
400-163833-6	SGWC-22	Water	12/17/18 12:05	12/19/18 09:47
400-163833-7	SGWC-23	Water	12/17/18 11:10	12/19/18 09:47
400-163833-8	FB-3 (AP)	Water	12/17/18 11:05	12/19/18 09:47
400-163833-9	EB-3 (AP)	Water	12/17/18 12:45	12/19/18 09:47
400-163833-10	FD-3 (AP)	Water	12/17/18 00:00	12/19/18 09:47



# Client Sample Results

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

**Client Sample ID: SGWC-9**

**Date Collected: 12/17/18 11:40**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-1**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13		1.0	0.89	mg/L	-		12/24/18 14:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	330		10	7.0	mg/L	-		12/24/18 15:06	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	55		0.25	0.13	mg/L	-	12/21/18 10:21	12/21/18 17:40	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.6		0.25	0.11	mg/L	-	12/21/18 10:21	12/21/18 18:16	25

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	510		5.0	3.4	mg/L	-		12/21/18 10:25	1

**Client Sample ID: SGWC-10**

**Date Collected: 12/17/18 13:55**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-2**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.6		1.0	0.89	mg/L	-		12/24/18 15:28	1
Sulfate	16		1.0	0.70	mg/L	-		12/24/18 15:28	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.098		0.050	0.021	mg/L	-	12/21/18 10:21	12/21/18 18:20	5
Calcium	4.0		0.25	0.13	mg/L	-	12/21/18 10:21	12/21/18 18:20	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	38		5.0	3.4	mg/L	-		12/21/18 10:25	1

**Client Sample ID: SGWC-16**

**Date Collected: 12/17/18 14:25**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-3**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.1		1.0	0.89	mg/L	-		12/24/18 15:51	1
Sulfate	28		1.0	0.70	mg/L	-		12/24/18 15:51	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.55		0.050	0.021	mg/L	-	12/21/18 10:21	12/21/18 18:24	5
Calcium	0.94		0.25	0.13	mg/L	-	12/21/18 10:21	12/21/18 18:24	5

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

**Client Sample ID: SGWC-16**

Date Collected: 12/17/18 14:25

Date Received: 12/19/18 09:47

**Lab Sample ID: 400-163833-3**

Matrix: Water

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	42		5.0	3.4	mg/L	-		12/21/18 10:25	1

**Client Sample ID: SGWC-19**

Date Collected: 12/17/18 12:05

Date Received: 12/19/18 09:47

**Lab Sample ID: 400-163833-4**

Matrix: Water

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.3		1.0	0.89	mg/L	-		12/24/18 16:14	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	270		10	7.0	mg/L	-		12/27/18 14:48	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	42		0.25	0.13	mg/L	-	12/21/18 10:21	12/21/18 18:27	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.8		0.25	0.11	mg/L	-	12/21/18 10:21	12/21/18 18:31	25

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	250		5.0	3.4	mg/L	-		12/21/18 10:25	1

**Client Sample ID: SGWC-21**

Date Collected: 12/17/18 11:00

Date Received: 12/19/18 09:47

**Lab Sample ID: 400-163833-5**

Matrix: Water

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.3		1.0	0.89	mg/L	-		12/24/18 16:37	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	88		2.0	1.4	mg/L	-		12/26/18 17:39	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.2		0.050	0.021	mg/L	-	12/21/18 10:21	12/21/18 18:34	5
Calcium	29		0.25	0.13	mg/L	-	12/21/18 10:21	12/21/18 18:34	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	310		5.0	3.4	mg/L	-		12/21/18 10:25	1

# Client Sample Results

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

**Client Sample ID: SGWC-22**

**Date Collected: 12/17/18 12:05**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-6**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10		1.0	0.89	mg/L	-		12/24/18 17:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	99		5.0	3.5	mg/L	-		12/27/18 15:10	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.40		0.050	0.021	mg/L	-	12/21/18 10:21	12/21/18 18:38	5
Calcium	28		0.25	0.13	mg/L	-	12/21/18 10:21	12/21/18 18:38	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	260		5.0	3.4	mg/L	-		12/21/18 10:25	1

**Client Sample ID: SGWC-23**

**Date Collected: 12/17/18 11:10**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-7**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.9		1.0	0.89	mg/L	-		12/24/18 18:08	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	96		2.0	1.4	mg/L	-		12/26/18 18:24	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.60		0.050	0.021	mg/L	-	12/21/18 10:21	12/21/18 18:42	5
Calcium	24		0.25	0.13	mg/L	-	12/21/18 10:21	12/21/18 18:42	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	30		5.0	3.4	mg/L	-		12/21/18 10:25	1

**Client Sample ID: FB-3 (AP)**

**Date Collected: 12/17/18 11:05**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-8**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L	-		12/24/18 19:17	1
Sulfate	<0.70		1.0	0.70	mg/L	-		12/24/18 19:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L	-	12/21/18 10:21	12/21/18 18:45	5
Calcium	<0.13		0.25	0.13	mg/L	-	12/21/18 10:21	12/21/18 18:45	5

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

**Client Sample ID: FB-3 (AP)**  
**Date Collected: 12/17/18 11:05**  
**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-8**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L	-		12/21/18 10:25	1

**Client Sample ID: EB-3 (AP)**  
**Date Collected: 12/17/18 12:45**  
**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-9**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L	-		12/24/18 19:40	1
Sulfate	<0.70		1.0	0.70	mg/L	-		12/24/18 19:40	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L	-	12/21/18 10:21	12/21/18 18:49	5
Calcium	<0.13		0.25	0.13	mg/L	-	12/21/18 10:21	12/21/18 18:49	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L	-		12/21/18 10:25	1

**Client Sample ID: FD-3 (AP)**  
**Date Collected: 12/17/18 00:00**  
**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-10**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13		1.0	0.89	mg/L	-		12/24/18 20:02	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	350		10	7.0	mg/L	-		12/26/18 18:47	10

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	55		0.25	0.13	mg/L	-	12/21/18 10:21	12/21/18 19:11	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.7		0.25	0.11	mg/L	-	12/21/18 10:21	12/21/18 19:14	25

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	530		5.0	3.4	mg/L	-		12/21/18 10:25	1

## Definitions/Glossary

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

### Qualifiers

#### Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.

### Glossary

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

# Lab Chronicle

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

**Client Sample ID: SGWC-9**

**Date Collected: 12/17/18 11:40**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424543	12/24/18 14:43	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	10	424543	12/24/18 15:06	BAW	TAL PEN
Total Recoverable	Prep	3005A			424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	424370	12/21/18 17:40	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	424370	12/21/18 18:16	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	424198	12/21/18 10:25	CLB	TAL PEN

**Client Sample ID: SGWC-10**

**Date Collected: 12/17/18 13:55**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424543	12/24/18 15:28	BAW	TAL PEN
Total Recoverable	Prep	3005A			424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	424370	12/21/18 18:20	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	424198	12/21/18 10:25	CLB	TAL PEN

**Client Sample ID: SGWC-16**

**Date Collected: 12/17/18 14:25**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424543	12/24/18 15:51	BAW	TAL PEN
Total Recoverable	Prep	3005A			424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	424370	12/21/18 18:24	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	424198	12/21/18 10:25	CLB	TAL PEN

**Client Sample ID: SGWC-19**

**Date Collected: 12/17/18 12:05**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424543	12/24/18 16:14	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	10	424854	12/27/18 14:48	BAW	TAL PEN
Total Recoverable	Prep	3005A			424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	424370	12/21/18 18:27	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	424370	12/21/18 18:31	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	424198	12/21/18 10:25	CLB	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

**Client Sample ID: SGWC-21**

**Date Collected: 12/17/18 11:00**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424543	12/24/18 16:37	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	2	424806	12/26/18 17:39	BAW	TAL PEN
Total Recoverable	Prep	3005A			424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	424370	12/21/18 18:34	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	424198	12/21/18 10:25	CLB	TAL PEN

**Client Sample ID: SGWC-22**

**Date Collected: 12/17/18 12:05**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424543	12/24/18 17:45	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	424854	12/27/18 15:10	BAW	TAL PEN
Total Recoverable	Prep	3005A			424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	424370	12/21/18 18:38	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	424198	12/21/18 10:25	CLB	TAL PEN

**Client Sample ID: SGWC-23**

**Date Collected: 12/17/18 11:10**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424543	12/24/18 18:08	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	2	424806	12/26/18 18:24	BAW	TAL PEN
Total Recoverable	Prep	3005A			424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	424370	12/21/18 18:42	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	424198	12/21/18 10:25	CLB	TAL PEN

**Client Sample ID: FB-3 (AP)**

**Date Collected: 12/17/18 11:05**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424543	12/24/18 19:17	BAW	TAL PEN
Total Recoverable	Prep	3005A			424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	424370	12/21/18 18:45	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	424198	12/21/18 10:25	CLB	TAL PEN



# Lab Chronicle

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

**Client Sample ID: EB-3 (AP)**

**Date Collected: 12/17/18 12:45**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424543	12/24/18 19:40	BAW	TAL PEN
Total Recoverable	Prep	3005A			424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	424370	12/21/18 18:49	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	424198	12/21/18 10:25	CLB	TAL PEN

**Client Sample ID: FD-3 (AP)**

**Date Collected: 12/17/18 00:00**

**Date Received: 12/19/18 09:47**

**Lab Sample ID: 400-163833-10**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424543	12/24/18 20:02	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	10	424806	12/26/18 18:47	BAW	TAL PEN
Total Recoverable	Prep	3005A			424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	424370	12/21/18 19:11	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		424196	12/21/18 10:21	DRE	TAL PEN
Total Recoverable	Analysis	6020	DL	25	424370	12/21/18 19:14	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	424198	12/21/18 10:25	CLB	TAL PEN

## Laboratory References:

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

# QC Association Summary

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

## HPLC/IC

### Analysis Batch: 424543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163833-1	SGWC-9	Total/NA	Water	300.0	
400-163833-1 - DL	SGWC-9	Total/NA	Water	300.0	
400-163833-2	SGWC-10	Total/NA	Water	300.0	
400-163833-3	SGWC-16	Total/NA	Water	300.0	
400-163833-4	SGWC-19	Total/NA	Water	300.0	
400-163833-5	SGWC-21	Total/NA	Water	300.0	
400-163833-6	SGWC-22	Total/NA	Water	300.0	
400-163833-7	SGWC-23	Total/NA	Water	300.0	
400-163833-8	FB-3 (AP)	Total/NA	Water	300.0	
400-163833-9	EB-3 (AP)	Total/NA	Water	300.0	
400-163833-10	FD-3 (AP)	Total/NA	Water	300.0	
MB 400-424543/4	Method Blank	Total/NA	Water	300.0	
LCS 400-424543/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-424543/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-163362-F-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-163362-F-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 424806

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163833-5 - DL	SGWC-21	Total/NA	Water	300.0	
400-163833-7 - DL	SGWC-23	Total/NA	Water	300.0	
400-163833-10 - DL	FD-3 (AP)	Total/NA	Water	300.0	
MB 400-424806/4	Method Blank	Total/NA	Water	300.0	
LCS 400-424806/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-424806/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-163982-D-4 MS	Matrix Spike	Total/NA	Water	300.0	
400-163982-D-4 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 424854

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163833-4 - DL	SGWC-19	Total/NA	Water	300.0	
400-163833-6 - DL	SGWC-22	Total/NA	Water	300.0	

## Metals

### Prep Batch: 424196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163833-1	SGWC-9	Total Recoverable	Water	3005A	
400-163833-1 - DL	SGWC-9	Total Recoverable	Water	3005A	
400-163833-2	SGWC-10	Total Recoverable	Water	3005A	
400-163833-3	SGWC-16	Total Recoverable	Water	3005A	
400-163833-4	SGWC-19	Total Recoverable	Water	3005A	
400-163833-4 - DL	SGWC-19	Total Recoverable	Water	3005A	
400-163833-5	SGWC-21	Total Recoverable	Water	3005A	
400-163833-6	SGWC-22	Total Recoverable	Water	3005A	
400-163833-7	SGWC-23	Total Recoverable	Water	3005A	
400-163833-8	FB-3 (AP)	Total Recoverable	Water	3005A	
400-163833-9	EB-3 (AP)	Total Recoverable	Water	3005A	
400-163833-10 - DL	FD-3 (AP)	Total Recoverable	Water	3005A	
400-163833-10	FD-3 (AP)	Total Recoverable	Water	3005A	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

## Metals (Continued)

### Prep Batch: 424196 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 400-424196/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-424196/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-163833-1 MS	SGWC-9	Total Recoverable	Water	3005A	
400-163833-1 MSD	SGWC-9	Total Recoverable	Water	3005A	

### Analysis Batch: 424370

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163833-1	SGWC-9	Total Recoverable	Water	6020	424196
400-163833-1 - DL	SGWC-9	Total Recoverable	Water	6020	424196
400-163833-2	SGWC-10	Total Recoverable	Water	6020	424196
400-163833-3	SGWC-16	Total Recoverable	Water	6020	424196
400-163833-4	SGWC-19	Total Recoverable	Water	6020	424196
400-163833-4 - DL	SGWC-19	Total Recoverable	Water	6020	424196
400-163833-5	SGWC-21	Total Recoverable	Water	6020	424196
400-163833-6	SGWC-22	Total Recoverable	Water	6020	424196
400-163833-7	SGWC-23	Total Recoverable	Water	6020	424196
400-163833-8	FB-3 (AP)	Total Recoverable	Water	6020	424196
400-163833-9	EB-3 (AP)	Total Recoverable	Water	6020	424196
400-163833-10	FD-3 (AP)	Total Recoverable	Water	6020	424196
400-163833-10 - DL	FD-3 (AP)	Total Recoverable	Water	6020	424196
MB 400-424196/1-A ^5	Method Blank	Total Recoverable	Water	6020	424196
LCS 400-424196/2-A	Lab Control Sample	Total Recoverable	Water	6020	424196
400-163833-1 MS	SGWC-9	Total Recoverable	Water	6020	424196
400-163833-1 MSD	SGWC-9	Total Recoverable	Water	6020	424196

## General Chemistry

### Analysis Batch: 424198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163833-1	SGWC-9	Total/NA	Water	SM 2540C	
400-163833-2	SGWC-10	Total/NA	Water	SM 2540C	
400-163833-3	SGWC-16	Total/NA	Water	SM 2540C	
400-163833-4	SGWC-19	Total/NA	Water	SM 2540C	
400-163833-5	SGWC-21	Total/NA	Water	SM 2540C	
400-163833-6	SGWC-22	Total/NA	Water	SM 2540C	
400-163833-7	SGWC-23	Total/NA	Water	SM 2540C	
400-163833-8	FB-3 (AP)	Total/NA	Water	SM 2540C	
400-163833-9	EB-3 (AP)	Total/NA	Water	SM 2540C	
400-163833-10	FD-3 (AP)	Total/NA	Water	SM 2540C	
MB 400-424198/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-424198/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-163833-10 DU	FD-3 (AP)	Total/NA	Water	SM 2540C	

# QC Sample Results

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 400-424543/4

Matrix: Water

Analysis Batch: 424543

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			12/24/18 11:08	1
Sulfate	<0.70		1.0	0.70	mg/L			12/24/18 11:08	1

Lab Sample ID: LCS 400-424543/5

Matrix: Water

Analysis Batch: 424543

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.90		mg/L		99	90 - 110
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-424543/6

Matrix: Water

Analysis Batch: 424543

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.85		mg/L		98	90 - 110	1	15
Sulfate	10.0	10.2		mg/L		102	90 - 110	1	15

Lab Sample ID: 400-163362-F-1 MS

Matrix: Water

Analysis Batch: 424543

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.0		10.0	16.5		mg/L		95	80 - 120
Sulfate	5.2		10.0	14.8		mg/L		97	80 - 120

Lab Sample ID: 400-163362-F-1 MSD

Matrix: Water

Analysis Batch: 424543

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	7.0		10.0	16.7		mg/L		97	80 - 120	1	20
Sulfate	5.2		10.0	15.5		mg/L		103	80 - 120	4	20

Lab Sample ID: MB 400-424806/4

Matrix: Water

Analysis Batch: 424806

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			12/26/18 16:08	1
Sulfate	<0.70		1.0	0.70	mg/L			12/26/18 16:08	1

Lab Sample ID: LCS 400-424806/5

Matrix: Water

Analysis Batch: 424806

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.63		mg/L		96	90 - 110

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

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

Lab Sample ID: LCS 400-424806/5  
Matrix: Water  
Analysis Batch: 424806

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.2		mg/L		102	90 - 110

Lab Sample ID: LCSD 400-424806/6  
Matrix: Water  
Analysis Batch: 424806

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.62		mg/L		96	90 - 110	0	15
Sulfate	10.0	10.1		mg/L		101	90 - 110	1	15

Lab Sample ID: 400-163982-D-4 MS  
Matrix: Water  
Analysis Batch: 424806

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.6		10.0	12.2		mg/L		96	80 - 120
Sulfate	<0.70		10.0	10.7		mg/L		107	80 - 120

Lab Sample ID: 400-163982-D-4 MSD  
Matrix: Water  
Analysis Batch: 424806

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

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.6		10.0	12.2		mg/L		96	80 - 120	0	20
Sulfate	<0.70		10.0	10.6		mg/L		106	80 - 120	1	20

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

Lab Sample ID: MB 400-424196/1-A ^5  
Matrix: Water  
Analysis Batch: 424370

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 424196

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/21/18 10:21	12/21/18 17:33	5
Calcium	<0.13		0.25	0.13	mg/L		12/21/18 10:21	12/21/18 17:33	5

Lab Sample ID: LCS 400-424196/2-A  
Matrix: Water  
Analysis Batch: 424370

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 424196

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.100	0.101		mg/L		101	80 - 120
Calcium	5.00	5.18		mg/L		104	80 - 120

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

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

Lab Sample ID: 400-163833-1 MS

Matrix: Water

Analysis Batch: 424370

Client Sample ID: SGWC-9

Prep Type: Total Recoverable

Prep Batch: 424196

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	1.7		0.100	1.84	E 4	mg/L		164	75 - 125
Calcium	55		5.00	60.2	4	mg/L		114	75 - 125

Lab Sample ID: 400-163833-1 MSD

Matrix: Water

Analysis Batch: 424370

Client Sample ID: SGWC-9

Prep Type: Total Recoverable

Prep Batch: 424196

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	1.7		0.100	1.85	E 4	mg/L		176	75 - 125	1	20
Calcium	55		5.00	60.6	4	mg/L		122	75 - 125	1	20

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

Lab Sample ID: MB 400-424198/1

Matrix: Water

Analysis Batch: 424198

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			12/21/18 10:25	1

Lab Sample ID: LCS 400-424198/2

Matrix: Water

Analysis Batch: 424198

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	260		mg/L		89	78 - 122

Lab Sample ID: 400-163833-10 DU

Matrix: Water

Analysis Batch: 424198

Client Sample ID: FD-3 (AP)

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	530		534		mg/L		0	5



681-Atlanta

**TestAmerica Pensacola**  
3355 McLemore Drive

Pensacola, FL 32514-7045  
phone 850.474.1001 fax 850.474.4789

# Chain of Custody Record



400-163833 COC

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: Dawn Prell		Site Contact: Devin Thomas		12/17/2018		COC No: 2 of 2 COCs	
Southern Company		Tel/Fax: 248-536-5445		Lab Contact: Cheyenne Whitmire		Carrier:		Sampler:	
241 Ralph McGill Blvd SE B10185		Analysis Turnaround Time		300 ORGFM, 280-Chloride & Sulfate				For Lab Use Only:	
Atlanta, GA, 30308		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		6020 - Boron & Calcium				Walk-in Client:	
(404) 506-7239		TAT if different from Below		Z540C - Total Dissolved Solids				Lab Sampling:	
Phone		2 weeks		Perform MS/MSD (Y/N)				Job / SDG No.:	
FAX		1 week		Filtered Sample (Y/N)					
Project Name: GPC Plant Scherer		<input type="checkbox"/> 2 days							
Site: Ash Pond		<input type="checkbox"/> 1 day							
P O #								Sample Specific Notes:	
Sample Identification	Sample Date	Sample Time	Sample Type (c-Comp, G-Grab)	Matrix	# of Cont.	1	4	1	
SGWC-9	12/17/2018	1140	G	GW	2	X	X	X	
SGWC-10	12/17/2018	1355	G	GW	2	X	X	X	
SGWC-16	12/17/2018	1425	G	GW	2	X	X	X	
SGWC-19	12/17/2018	1205	G	GW	2	X	X	X	
SGWC-21	12/17/2018	1100	G	GW	2	X	X	X	
SGWC-22	12/17/2018	1205	G	GW	2	X	X	X	
SGWC-23	12/17/2018	1110	G	GW	2	X	X	X	
FB-3 (AP)	12/17/2018	1105	G	GW	2	X	X	X	
EB-3 (AP)	12/17/2018	1245	G	GW	2	X	X	X	
FD-3 (AP)	12/17/2018	-	G	GW	2	X	X	X	
<p><b>Preservation Used:</b> 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other</p> <p><b>Possible Hazard Identification:</b></p> <p>Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.</p> <p><input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison <input type="checkbox"/> Unknown</p> <p><b>Special Instructions/QC Requirements &amp; Comments:</b></p>									
<p><b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b></p> <p>Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for <input type="checkbox"/> Months</p>									
Custody Seal No.:		Cooler Temp. (°C):		Obs'd:		Cor'd:		Therm ID No.:	
Relinquished by: <i>Dawn Prell</i>		Company: <i>Coker Associates</i>		Date/Time: <i>12/18/18 10:12</i>		Received by: <i>TH</i>		Company: <i>TH</i>	
Relinquished by: <i>TH</i>		Company: <i>TH</i>		Date/Time: <i>12/18/18 12:00</i>		Received by: <i>TH</i>		Company: <i>TH</i>	
Relinquished by: <i>TH</i>		Company: <i>TH</i>		Date/Time: <i>12/18/18 9:47</i>		Received by: <i>TH</i>		Company: <i>TH</i>	

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018

O.G. 2 R 7



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-163833-1

SDG Number: Ash Pond

**Login Number: 163833**

**List Number: 1**

**Creator: Whitmire, Cheyenne R**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	0.0°C IR-7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Accreditation/Certification Summary

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

TestAmerica Job ID: 400-163833-1  
SDG: Ash Pond

## Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	12-31-18 *
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-19
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA017	12-31-19
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-19
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18 *
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

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

TestAmerica Pensacola

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-163613-1

TestAmerica Sample Delivery Group: Ash Pond

Client Project/Site: CCR - Plant Scherer

For:

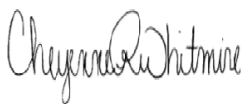
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

12/21/2018 6:05:01 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

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

### LINKS

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Have a Question?



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

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

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

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

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Detection Summary . . . . .	4
Method Summary . . . . .	8
Sample Summary . . . . .	9
Client Sample Results . . . . .	10
Definitions . . . . .	17
Chronicle . . . . .	18
QC Association . . . . .	23
QC Sample Results . . . . .	26
Chain of Custody . . . . .	31
Receipt Checklists . . . . .	33
Certification Summary . . . . .	34



## Case Narrative

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Job ID: 400-163613-1**

**Laboratory: TestAmerica Pensacola**

### Narrative

#### Job Narrative 400-163613-1

#### HPLC/IC

Method(s) 300.0: Due to the high concentration of Sulfate, the matrix spike / matrix spike duplicate (MS/MSD) for analytical batch 424251 could not be evaluated for accuracy and precision. The associated laboratory control sample / laboratory control sample duplicate (LCS/LCSD) met acceptance criteria.

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: SGWC-8 (400-163613-12), SGWC-13 (400-163613-14), SGWC-14 (400-163613-15) and SGWC-17 (400-163613-16). Elevated reporting limits (RLs) are provided.

#### Metals

Method(s) 6020: The method blank for preparation batch 423642 and analytical batch 423830 contained Calcium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

# Detection Summary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

## Client Sample ID: SGWA-1

## Lab Sample ID: 400-163613-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1.7		1.0	0.89	mg/L	1		300.0	Total/NA
Calcium	1.7		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	16		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWA-2

## Lab Sample ID: 400-163613-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1.3		1.0	0.89	mg/L	1		300.0	Total/NA
Calcium	10		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	110		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWA-3

## Lab Sample ID: 400-163613-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.0		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	1.4		1.0	0.70	mg/L	1		300.0	Total/NA
Calcium	4.3		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	4.0	J	5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWA-4

## Lab Sample ID: 400-163613-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1.2		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	0.76	J	1.0	0.70	mg/L	1		300.0	Total/NA
Calcium	18		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	94		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWA-5

## Lab Sample ID: 400-163613-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1.7		1.0	0.89	mg/L	1		300.0	Total/NA
Calcium	1.4		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	58		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWA-24

## Lab Sample ID: 400-163613-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	2.0		1.0	0.89	mg/L	1		300.0	Total/NA
Calcium	12		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	100		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWA-25

## Lab Sample ID: 400-163613-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1.9		1.0	0.89	mg/L	1		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

### Client Sample ID: SGWA-25 (Continued)

### Lab Sample ID: 400-163613-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	9.4		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	4.0	J	5.0	3.4	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: EB-1 (AP)

### Lab Sample ID: 400-163613-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Calcium	0.13	J	0.25	0.13	mg/L	5		6020	Total Recoverable

### Client Sample ID: FB-1 (AP)

### Lab Sample ID: 400-163613-9

No Detections.

### Client Sample ID: SGWC-6

### Lab Sample ID: 400-163613-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1.8		1.0	0.89	mg/L	1		300.0	Total/NA
Calcium	6.5		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	44		5.0	3.4	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: SGWC-7

### Lab Sample ID: 400-163613-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.2		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	10		1.0	0.70	mg/L	1		300.0	Total/NA
Calcium	16		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	170		5.0	3.4	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: SGWC-8

### Lab Sample ID: 400-163613-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	72		2.0	1.4	mg/L	2		300.0	Total/NA
Boron	0.064		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	46		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	390		5.0	3.4	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: SGWC-12

### Lab Sample ID: 400-163613-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.1		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	43		1.0	0.70	mg/L	1		300.0	Total/NA
Calcium	21		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	190		5.0	3.4	mg/L	1		SM 2540C	Total/NA

### Client Sample ID: SGWC-13

### Lab Sample ID: 400-163613-14

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola



# Detection Summary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

## Client Sample ID: SGWC-13 (Continued)

Lab Sample ID: 400-163613-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.5		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	74		2.0	1.4	mg/L	2		300.0	Total/NA
Boron	0.47		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	16		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	140		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-14

Lab Sample ID: 400-163613-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	10		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	190		5.0	3.5	mg/L	5		300.0	Total/NA
Boron	1.4		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	37		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	280		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: SGWC-17

Lab Sample ID: 400-163613-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.1		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	180		5.0	3.5	mg/L	5		300.0	Total/NA
Boron	0.44		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	46		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	390		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: FB-2 (AP)

Lab Sample ID: 400-163613-17

No Detections.

## Client Sample ID: EB-2 (AP)

Lab Sample ID: 400-163613-18

No Detections.

## Client Sample ID: FD-1 (AP)

Lab Sample ID: 400-163613-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.0		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	43		1.0	0.70	mg/L	1		300.0	Total/NA
Calcium	20		0.25	0.13	mg/L	5		6020	Total Recoverable
Total Dissolved Solids	200		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: FD-2 (AP)

Lab Sample ID: 400-163613-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	1.8		1.0	0.89	mg/L	1		300.0	Total/NA
Calcium	6.5		0.25	0.13	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: FD-2 (AP) (Continued)**

**Lab Sample ID: 400-163613-20**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	86		5.0	3.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Method Summary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

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

### Protocol References:

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

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

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

### Laboratory References:

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

# Sample Summary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-163613-1	SGWA-1	Water	12/13/18 12:30	12/15/18 08:33
400-163613-2	SGWA-2	Water	12/13/18 13:38	12/15/18 08:33
400-163613-3	SGWA-3	Water	12/13/18 13:50	12/15/18 08:33
400-163613-4	SGWA-4	Water	12/13/18 16:25	12/15/18 08:33
400-163613-5	SGWA-5	Water	12/13/18 14:50	12/15/18 08:33
400-163613-6	SGWA-24	Water	12/13/18 16:10	12/15/18 08:33
400-163613-7	SGWA-25	Water	12/13/18 15:10	12/15/18 08:33
400-163613-8	EB-1 (AP)	Water	12/13/18 16:55	12/15/18 08:33
400-163613-9	FB-1 (AP)	Water	12/13/18 16:25	12/15/18 08:33
400-163613-10	SGWC-6	Water	12/14/18 10:00	12/15/18 08:33
400-163613-11	SGWC-7	Water	12/14/18 11:15	12/15/18 08:33
400-163613-12	SGWC-8	Water	12/14/18 12:10	12/15/18 08:33
400-163613-13	SGWC-12	Water	12/14/18 09:52	12/15/18 08:33
400-163613-14	SGWC-13	Water	12/14/18 10:48	12/15/18 08:33
400-163613-15	SGWC-14	Water	12/14/18 12:30	12/15/18 08:33
400-163613-16	SGWC-17	Water	12/14/18 12:10	12/15/18 08:33
400-163613-17	FB-2 (AP)	Water	12/14/18 10:45	12/15/18 08:33
400-163613-18	EB-2 (AP)	Water	12/14/18 13:15	12/15/18 08:33
400-163613-19	FD-1 (AP)	Water	12/14/18 00:00	12/15/18 08:33
400-163613-20	FD-2 (AP)	Water	12/14/18 00:00	12/15/18 08:33

# Client Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: SGWA-1**

**Date Collected: 12/13/18 12:30**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-1**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.7		1.0	0.89	mg/L			12/18/18 18:35	1
Sulfate	<0.70		1.0	0.70	mg/L			12/18/18 18:35	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 14:31	5
Calcium	1.7		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 14:31	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	16		5.0	3.4	mg/L			12/19/18 10:29	1

**Client Sample ID: SGWA-2**

**Date Collected: 12/13/18 13:38**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-2**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.3		1.0	0.89	mg/L			12/18/18 18:58	1
Sulfate	<0.70		1.0	0.70	mg/L			12/18/18 18:58	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 14:49	5
Calcium	10		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 14:49	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	110		5.0	3.4	mg/L			12/19/18 10:29	1

**Client Sample ID: SGWA-3**

**Date Collected: 12/13/18 13:50**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-3**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.0		1.0	0.89	mg/L			12/18/18 19:21	1
Sulfate	1.4		1.0	0.70	mg/L			12/18/18 19:21	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 14:53	5
Calcium	4.3		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 14:53	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	4.0	J	5.0	3.4	mg/L			12/19/18 09:54	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: SGWA-4**

**Date Collected: 12/13/18 16:25**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-4**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.2		1.0	0.89	mg/L			12/18/18 20:06	1
Sulfate	0.76	J	1.0	0.70	mg/L			12/18/18 20:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 14:56	5
Calcium	18		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 14:56	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	94		5.0	3.4	mg/L			12/19/18 10:29	1

**Client Sample ID: SGWA-5**

**Date Collected: 12/13/18 14:50**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-5**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.7		1.0	0.89	mg/L			12/18/18 20:29	1
Sulfate	<0.70		1.0	0.70	mg/L			12/18/18 20:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 15:18	5
Calcium	1.4		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 15:18	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	58		5.0	3.4	mg/L			12/19/18 09:54	1

**Client Sample ID: SGWA-24**

**Date Collected: 12/13/18 16:10**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-6**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.0		1.0	0.89	mg/L			12/18/18 21:38	1
Sulfate	<0.70		1.0	0.70	mg/L			12/18/18 21:38	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 15:22	5
Calcium	12		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 15:22	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	100		5.0	3.4	mg/L			12/19/18 09:54	1

# Client Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: SGWA-25**

**Date Collected: 12/13/18 15:10**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-7**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.9		1.0	0.89	mg/L			12/18/18 22:00	1
Sulfate	<0.70		1.0	0.70	mg/L			12/18/18 22:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 15:25	5
Calcium	9.4		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 15:25	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	4.0	J	5.0	3.4	mg/L			12/19/18 09:54	1

**Client Sample ID: EB-1 (AP)**

**Date Collected: 12/13/18 16:55**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-8**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			12/18/18 22:23	1
Sulfate	<0.70		1.0	0.70	mg/L			12/18/18 22:23	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 15:29	5
Calcium	0.13	J	0.25	0.13	mg/L		12/18/18 09:43	12/18/18 15:29	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			12/19/18 09:54	1

**Client Sample ID: FB-1 (AP)**

**Date Collected: 12/13/18 16:25**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-9**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			12/18/18 22:46	1
Sulfate	<0.70		1.0	0.70	mg/L			12/18/18 22:46	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 15:32	5
Calcium	<0.13		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 15:32	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			12/19/18 09:54	1

TestAmerica Pensacola



# Client Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: SGWC-6**

**Date Collected: 12/14/18 10:00**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-10**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.8		1.0	0.89	mg/L	-		12/18/18 23:09	1
Sulfate	<0.70		1.0	0.70	mg/L	-		12/18/18 23:09	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L	-	12/18/18 09:43	12/18/18 15:36	5
Calcium	6.5		0.25	0.13	mg/L	-	12/18/18 09:43	12/18/18 15:36	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	44		5.0	3.4	mg/L	-		12/19/18 10:29	1

**Client Sample ID: SGWC-7**

**Date Collected: 12/14/18 11:15**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-11**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.2		1.0	0.89	mg/L	-		12/18/18 23:32	1
Sulfate	10		1.0	0.70	mg/L	-		12/18/18 23:32	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L	-	12/18/18 09:43	12/18/18 15:40	5
Calcium	16		0.25	0.13	mg/L	-	12/18/18 09:43	12/18/18 15:40	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	170		5.0	3.4	mg/L	-		12/19/18 10:29	1

**Client Sample ID: SGWC-8**

**Date Collected: 12/14/18 12:10**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-12**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		1.0	0.89	mg/L	-		12/20/18 10:11	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	72		2.0	1.4	mg/L	-		12/21/18 05:14	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.064		0.050	0.021	mg/L	-	12/18/18 09:43	12/18/18 15:43	5
Calcium	46		0.25	0.13	mg/L	-	12/18/18 09:43	12/18/18 15:43	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	390		5.0	3.4	mg/L	-		12/19/18 10:29	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: SGWC-12**

**Date Collected: 12/14/18 09:52**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-13**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.1		1.0	0.89	mg/L			12/20/18 10:57	1
Sulfate	43		1.0	0.70	mg/L			12/20/18 10:57	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 15:47	5
Calcium	21		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 15:47	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	190		5.0	3.4	mg/L			12/19/18 09:54	1

**Client Sample ID: SGWC-13**

**Date Collected: 12/14/18 10:48**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-14**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.5		1.0	0.89	mg/L			12/20/18 11:20	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	74		2.0	1.4	mg/L			12/21/18 05:37	2

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.47		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 15:51	5
Calcium	16		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 15:51	5

**General Chemistry**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	140		5.0	3.4	mg/L			12/19/18 10:29	1

**Client Sample ID: SGWC-14**

**Date Collected: 12/14/18 12:30**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-15**

**Matrix: Water**

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10		1.0	0.89	mg/L			12/20/18 12:29	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	190		5.0	3.5	mg/L			12/21/18 14:45	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.4		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 16:12	5
Calcium	37		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 16:12	5

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: SGWC-14**

Date Collected: 12/14/18 12:30

Date Received: 12/15/18 08:33

**Lab Sample ID: 400-163613-15**

Matrix: Water

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	280		5.0	3.4	mg/L	-		12/19/18 10:29	1

**Client Sample ID: SGWC-17**

Date Collected: 12/14/18 12:10

Date Received: 12/15/18 08:33

**Lab Sample ID: 400-163613-16**

Matrix: Water

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.1		1.0	0.89	mg/L	-		12/20/18 12:51	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	180		5.0	3.5	mg/L	-		12/21/18 15:08	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	0.44		0.050	0.021	mg/L	-	12/18/18 09:43	12/18/18 16:16	5
Calcium	46		0.25	0.13	mg/L	-	12/18/18 09:43	12/18/18 16:16	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	390		5.0	3.4	mg/L	-		12/19/18 10:29	1

**Client Sample ID: FB-2 (AP)**

Date Collected: 12/14/18 10:45

Date Received: 12/15/18 08:33

**Lab Sample ID: 400-163613-17**

Matrix: Water

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L	-		12/20/18 13:14	1
Sulfate	<0.70		1.0	0.70	mg/L	-		12/20/18 13:14	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L	-	12/18/18 09:43	12/18/18 16:20	5
Calcium	<0.13		0.25	0.13	mg/L	-	12/18/18 09:43	12/18/18 16:20	5

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L	-		12/19/18 09:54	1

**Client Sample ID: EB-2 (AP)**

Date Collected: 12/14/18 13:15

Date Received: 12/15/18 08:33

**Lab Sample ID: 400-163613-18**

Matrix: Water

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L	-		12/20/18 13:37	1
Sulfate	<0.70		1.0	0.70	mg/L	-		12/20/18 13:37	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

## Client Sample ID: EB-2 (AP)

Date Collected: 12/14/18 13:15

Date Received: 12/15/18 08:33

## Lab Sample ID: 400-163613-18

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 16:23	5
Calcium	<0.13		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 16:23	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			12/19/18 09:54	1

## Client Sample ID: FD-1 (AP)

Date Collected: 12/14/18 00:00

Date Received: 12/15/18 08:33

## Lab Sample ID: 400-163613-19

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.0		1.0	0.89	mg/L			12/20/18 14:00	1
Sulfate	43		1.0	0.70	mg/L			12/20/18 14:00	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 16:27	5
Calcium	20		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 16:27	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	200		5.0	3.4	mg/L			12/19/18 10:29	1

## Client Sample ID: FD-2 (AP)

Date Collected: 12/14/18 00:00

Date Received: 12/15/18 08:33

## Lab Sample ID: 400-163613-20

Matrix: Water

### Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.8		1.0	0.89	mg/L			12/21/18 00:40	1
Sulfate	<0.70		1.0	0.70	mg/L			12/21/18 00:40	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 16:30	5
Calcium	6.5		0.25	0.13	mg/L		12/18/18 09:43	12/18/18 16:30	5

### General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	86		5.0	3.4	mg/L			12/19/18 10:29	1

## Definitions/Glossary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

### Qualifiers

#### HPLC/IC

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

#### Metals

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

#### General Chemistry

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

### Glossary

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

# Lab Chronicle

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: SGWA-1**

**Date Collected: 12/13/18 12:30**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 18:35	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 14:31	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

**Client Sample ID: SGWA-2**

**Date Collected: 12/13/18 13:38**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 18:58	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 14:49	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

**Client Sample ID: SGWA-3**

**Date Collected: 12/13/18 13:50**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 19:21	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 14:53	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423835	12/19/18 09:54	CLB	TAL PEN

**Client Sample ID: SGWA-4**

**Date Collected: 12/13/18 16:25**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 20:06	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 14:56	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

**Client Sample ID: SGWA-5**

**Date Collected: 12/13/18 14:50**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 20:29	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: SGWA-5**

**Date Collected: 12/13/18 14:50**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Analysis	6020		5	423830	12/18/18 15:18	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423835	12/19/18 09:54	CLB	TAL PEN

**Client Sample ID: SGWA-24**

**Date Collected: 12/13/18 16:10**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 21:38	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 15:22	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423835	12/19/18 09:54	CLB	TAL PEN

**Client Sample ID: SGWA-25**

**Date Collected: 12/13/18 15:10**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 22:00	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 15:25	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423835	12/19/18 09:54	CLB	TAL PEN

**Client Sample ID: EB-1 (AP)**

**Date Collected: 12/13/18 16:55**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 22:23	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 15:29	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423835	12/19/18 09:54	CLB	TAL PEN

**Client Sample ID: FB-1 (AP)**

**Date Collected: 12/13/18 16:25**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 22:46	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 15:32	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423835	12/19/18 09:54	CLB	TAL PEN

TestAmerica Pensacola



# Lab Chronicle

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: SGWC-6**

**Lab Sample ID: 400-163613-10**

**Date Collected: 12/14/18 10:00**

**Matrix: Water**

**Date Received: 12/15/18 08:33**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 23:09	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 15:36	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

**Client Sample ID: SGWC-7**

**Lab Sample ID: 400-163613-11**

**Date Collected: 12/14/18 11:15**

**Matrix: Water**

**Date Received: 12/15/18 08:33**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	423845	12/18/18 23:32	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 15:40	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

**Client Sample ID: SGWC-8**

**Lab Sample ID: 400-163613-12**

**Date Collected: 12/14/18 12:10**

**Matrix: Water**

**Date Received: 12/15/18 08:33**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424007	12/20/18 10:11	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	2	424202	12/21/18 05:14	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 15:43	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

**Client Sample ID: SGWC-12**

**Lab Sample ID: 400-163613-13**

**Date Collected: 12/14/18 09:52**

**Matrix: Water**

**Date Received: 12/15/18 08:33**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424007	12/20/18 10:57	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 15:47	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423835	12/19/18 09:54	CLB	TAL PEN

**Client Sample ID: SGWC-13**

**Lab Sample ID: 400-163613-14**

**Date Collected: 12/14/18 10:48**

**Matrix: Water**

**Date Received: 12/15/18 08:33**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424007	12/20/18 11:20	BAW	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: SGWC-13**

**Date Collected: 12/14/18 10:48**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-14**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0	DL	2	424202	12/21/18 05:37	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 15:51	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

**Client Sample ID: SGWC-14**

**Date Collected: 12/14/18 12:30**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-15**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424007	12/20/18 12:29	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	424251	12/21/18 14:45	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 16:12	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

**Client Sample ID: SGWC-17**

**Date Collected: 12/14/18 12:10**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-16**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424007	12/20/18 12:51	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	424251	12/21/18 15:08	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 16:16	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

**Client Sample ID: FB-2 (AP)**

**Date Collected: 12/14/18 10:45**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-17**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424007	12/20/18 13:14	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 16:20	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423835	12/19/18 09:54	CLB	TAL PEN

# Lab Chronicle

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

**Client Sample ID: EB-2 (AP)**

**Date Collected: 12/14/18 13:15**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-18**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424007	12/20/18 13:37	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 16:23	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423835	12/19/18 09:54	CLB	TAL PEN

**Client Sample ID: FD-1 (AP)**

**Date Collected: 12/14/18 00:00**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-19**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424007	12/20/18 14:00	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 16:27	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

**Client Sample ID: FD-2 (AP)**

**Date Collected: 12/14/18 00:00**

**Date Received: 12/15/18 08:33**

**Lab Sample ID: 400-163613-20**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	424202	12/21/18 00:40	BAW	TAL PEN
Total Recoverable	Prep	3005A			423642	12/18/18 09:43	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	423830	12/18/18 16:30	DRE	TAL PEN
Total/NA	Analysis	SM 2540C		1	423847	12/19/18 10:29	CLB	TAL PEN

## Laboratory References:

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

# QC Association Summary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

## HPLC/IC

### Analysis Batch: 423845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163613-1	SGWA-1	Total/NA	Water	300.0	
400-163613-2	SGWA-2	Total/NA	Water	300.0	
400-163613-3	SGWA-3	Total/NA	Water	300.0	
400-163613-4	SGWA-4	Total/NA	Water	300.0	
400-163613-5	SGWA-5	Total/NA	Water	300.0	
400-163613-6	SGWA-24	Total/NA	Water	300.0	
400-163613-7	SGWA-25	Total/NA	Water	300.0	
400-163613-8	EB-1 (AP)	Total/NA	Water	300.0	
400-163613-9	FB-1 (AP)	Total/NA	Water	300.0	
400-163613-10	SGWC-6	Total/NA	Water	300.0	
400-163613-11	SGWC-7	Total/NA	Water	300.0	
MB 400-423845/4	Method Blank	Total/NA	Water	300.0	
LCS 400-423845/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-423845/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-163412-J-8 MS	Matrix Spike	Total/NA	Water	300.0	
400-163412-J-8 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 424007

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163613-12	SGWC-8	Total/NA	Water	300.0	
400-163613-13	SGWC-12	Total/NA	Water	300.0	
400-163613-14	SGWC-13	Total/NA	Water	300.0	
400-163613-15	SGWC-14	Total/NA	Water	300.0	
400-163613-16	SGWC-17	Total/NA	Water	300.0	
400-163613-17	FB-2 (AP)	Total/NA	Water	300.0	
400-163613-18	EB-2 (AP)	Total/NA	Water	300.0	
400-163613-19	FD-1 (AP)	Total/NA	Water	300.0	
MB 400-424007/4	Method Blank	Total/NA	Water	300.0	
LCS 400-424007/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-424007/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-163339-B-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-163339-B-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 424202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163613-12 - DL	SGWC-8	Total/NA	Water	300.0	
400-163613-14 - DL	SGWC-13	Total/NA	Water	300.0	
400-163613-20	FD-2 (AP)	Total/NA	Water	300.0	
MB 400-424202/4	Method Blank	Total/NA	Water	300.0	
LCS 400-424202/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-424202/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-163573-K-12 MS	Matrix Spike	Total/NA	Water	300.0	
400-163573-K-12 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 424251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163613-15 - DL	SGWC-14	Total/NA	Water	300.0	
400-163613-16 - DL	SGWC-17	Total/NA	Water	300.0	
MB 400-424251/4	Method Blank	Total/NA	Water	300.0	
LCS 400-424251/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-424251/6	Lab Control Sample Dup	Total/NA	Water	300.0	

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

## HPLC/IC (Continued)

### Analysis Batch: 424251 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163573-K-16 MS	Matrix Spike	Total/NA	Water	300.0	
400-163573-K-16 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 423642

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163613-1	SGWA-1	Total Recoverable	Water	3005A	
400-163613-2	SGWA-2	Total Recoverable	Water	3005A	
400-163613-3	SGWA-3	Total Recoverable	Water	3005A	
400-163613-4	SGWA-4	Total Recoverable	Water	3005A	
400-163613-5	SGWA-5	Total Recoverable	Water	3005A	
400-163613-6	SGWA-24	Total Recoverable	Water	3005A	
400-163613-7	SGWA-25	Total Recoverable	Water	3005A	
400-163613-8	EB-1 (AP)	Total Recoverable	Water	3005A	
400-163613-9	FB-1 (AP)	Total Recoverable	Water	3005A	
400-163613-10	SGWC-6	Total Recoverable	Water	3005A	
400-163613-11	SGWC-7	Total Recoverable	Water	3005A	
400-163613-12	SGWC-8	Total Recoverable	Water	3005A	
400-163613-13	SGWC-12	Total Recoverable	Water	3005A	
400-163613-14	SGWC-13	Total Recoverable	Water	3005A	
400-163613-15	SGWC-14	Total Recoverable	Water	3005A	
400-163613-16	SGWC-17	Total Recoverable	Water	3005A	
400-163613-17	FB-2 (AP)	Total Recoverable	Water	3005A	
400-163613-18	EB-2 (AP)	Total Recoverable	Water	3005A	
400-163613-19	FD-1 (AP)	Total Recoverable	Water	3005A	
400-163613-20	FD-2 (AP)	Total Recoverable	Water	3005A	
MB 400-423642/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-423642/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-163613-1 MS	SGWA-1	Total Recoverable	Water	3005A	
400-163613-1 MSD	SGWA-1	Total Recoverable	Water	3005A	

### Analysis Batch: 423830

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163613-1	SGWA-1	Total Recoverable	Water	6020	423642
400-163613-2	SGWA-2	Total Recoverable	Water	6020	423642
400-163613-3	SGWA-3	Total Recoverable	Water	6020	423642
400-163613-4	SGWA-4	Total Recoverable	Water	6020	423642
400-163613-5	SGWA-5	Total Recoverable	Water	6020	423642
400-163613-6	SGWA-24	Total Recoverable	Water	6020	423642
400-163613-7	SGWA-25	Total Recoverable	Water	6020	423642
400-163613-8	EB-1 (AP)	Total Recoverable	Water	6020	423642
400-163613-9	FB-1 (AP)	Total Recoverable	Water	6020	423642
400-163613-10	SGWC-6	Total Recoverable	Water	6020	423642
400-163613-11	SGWC-7	Total Recoverable	Water	6020	423642
400-163613-12	SGWC-8	Total Recoverable	Water	6020	423642
400-163613-13	SGWC-12	Total Recoverable	Water	6020	423642
400-163613-14	SGWC-13	Total Recoverable	Water	6020	423642
400-163613-15	SGWC-14	Total Recoverable	Water	6020	423642
400-163613-16	SGWC-17	Total Recoverable	Water	6020	423642

TestAmerica Pensacola

# QC Association Summary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 423830 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163613-17	FB-2 (AP)	Total Recoverable	Water	6020	423642
400-163613-18	EB-2 (AP)	Total Recoverable	Water	6020	423642
400-163613-19	FD-1 (AP)	Total Recoverable	Water	6020	423642
400-163613-20	FD-2 (AP)	Total Recoverable	Water	6020	423642
MB 400-423642/1-A ^5	Method Blank	Total Recoverable	Water	6020	423642
LCS 400-423642/2-A	Lab Control Sample	Total Recoverable	Water	6020	423642
400-163613-1 MS	SGWA-1	Total Recoverable	Water	6020	423642
400-163613-1 MSD	SGWA-1	Total Recoverable	Water	6020	423642

### Analysis Batch: 424031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 400-423642/1-A ^5	Method Blank	Total Recoverable	Water	6020	423642

## General Chemistry

### Analysis Batch: 423835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163613-3	SGWA-3	Total/NA	Water	SM 2540C	
400-163613-5	SGWA-5	Total/NA	Water	SM 2540C	
400-163613-6	SGWA-24	Total/NA	Water	SM 2540C	
400-163613-7	SGWA-25	Total/NA	Water	SM 2540C	
400-163613-8	EB-1 (AP)	Total/NA	Water	SM 2540C	
400-163613-9	FB-1 (AP)	Total/NA	Water	SM 2540C	
400-163613-13	SGWC-12	Total/NA	Water	SM 2540C	
400-163613-17	FB-2 (AP)	Total/NA	Water	SM 2540C	
400-163613-18	EB-2 (AP)	Total/NA	Water	SM 2540C	
MB 400-423835/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-423835/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-163523-A-1 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 423847

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-163613-1	SGWA-1	Total/NA	Water	SM 2540C	
400-163613-2	SGWA-2	Total/NA	Water	SM 2540C	
400-163613-4	SGWA-4	Total/NA	Water	SM 2540C	
400-163613-10	SGWC-6	Total/NA	Water	SM 2540C	
400-163613-11	SGWC-7	Total/NA	Water	SM 2540C	
400-163613-12	SGWC-8	Total/NA	Water	SM 2540C	
400-163613-14	SGWC-13	Total/NA	Water	SM 2540C	
400-163613-15	SGWC-14	Total/NA	Water	SM 2540C	
400-163613-16	SGWC-17	Total/NA	Water	SM 2540C	
400-163613-19	FD-1 (AP)	Total/NA	Water	SM 2540C	
400-163613-20	FD-2 (AP)	Total/NA	Water	SM 2540C	
MB 400-423847/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-423847/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-163613-2 DU	SGWA-2	Total/NA	Water	SM 2540C	

# QC Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 400-423845/4

Matrix: Water

Analysis Batch: 423845

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			12/18/18 12:30	1
Sulfate	<0.70		1.0	0.70	mg/L			12/18/18 12:30	1

Lab Sample ID: LCS 400-423845/5

Matrix: Water

Analysis Batch: 423845

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.86		mg/L		99	90 - 110
Sulfate	10.0	10.7		mg/L		107	90 - 110

Lab Sample ID: LCSD 400-423845/6

Matrix: Water

Analysis Batch: 423845

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.87		mg/L		99	90 - 110	0	15
Sulfate	10.0	10.2		mg/L		102	90 - 110	4	15

Lab Sample ID: 400-163412-J-8 MS

Matrix: Water

Analysis Batch: 423845

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	5.7		10.0	15.3		mg/L		96	80 - 120
Sulfate	6.9		10.0	17.2		mg/L		103	80 - 120

Lab Sample ID: 400-163412-J-8 MSD

Matrix: Water

Analysis Batch: 423845

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	5.7		10.0	15.3		mg/L		96	80 - 120	0	20
Sulfate	6.9		10.0	17.4		mg/L		104	80 - 120	1	20

Lab Sample ID: MB 400-424007/4

Matrix: Water

Analysis Batch: 424007

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			12/19/18 13:22	1
Sulfate	<0.70		1.0	0.70	mg/L			12/19/18 13:22	1

Lab Sample ID: LCS 400-424007/5

Matrix: Water

Analysis Batch: 424007

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.65		mg/L		96	90 - 110

TestAmerica Pensacola



# QC Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

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

Lab Sample ID: LCS 400-424007/5

Matrix: Water

Analysis Batch: 424007

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	10.0	10.0		mg/L		100	90 - 110

Lab Sample ID: LCSD 400-424007/6

Matrix: Water

Analysis Batch: 424007

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.60		mg/L		96	90 - 110	1	15
Sulfate	10.0	10.1		mg/L		101	90 - 110	1	15

Lab Sample ID: 400-163339-B-1 MS

Matrix: Water

Analysis Batch: 424007

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	23		10.0	32.5		mg/L		91	80 - 120
Sulfate	12		10.0	22.1		mg/L		105	80 - 120

Lab Sample ID: 400-163339-B-1 MSD

Matrix: Water

Analysis Batch: 424007

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	23		10.0	32.7		mg/L		94	80 - 120	1	20
Sulfate	12		10.0	22.4		mg/L		108	80 - 120	1	20

Lab Sample ID: MB 400-424202/4

Matrix: Water

Analysis Batch: 424202

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			12/20/18 23:31	1
Sulfate	<0.70		1.0	0.70	mg/L			12/20/18 23:31	1

Lab Sample ID: LCS 400-424202/5

Matrix: Water

Analysis Batch: 424202

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.64		mg/L		96	90 - 110
Sulfate	10.0	10.1		mg/L		101	90 - 110

Lab Sample ID: LCSD 400-424202/6

Matrix: Water

Analysis Batch: 424202

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.63		mg/L		96	90 - 110	0	15
Sulfate	10.0	10.1		mg/L		101	90 - 110	1	15

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

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

Lab Sample ID: 400-163573-K-12 MS

Matrix: Water

Analysis Batch: 424202

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.0		10.0	16.5		mg/L		94	80 - 120
Sulfate	13		10.0	22.8		mg/L		101	80 - 120

Lab Sample ID: 400-163573-K-12 MSD

Matrix: Water

Analysis Batch: 424202

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	7.0		10.0	16.6		mg/L		96	80 - 120	1	20
Sulfate	13		10.0	23.0		mg/L		103	80 - 120	1	20

Lab Sample ID: MB 400-424251/4

Matrix: Water

Analysis Batch: 424251

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			12/21/18 12:28	1
Sulfate	<0.70		1.0	0.70	mg/L			12/21/18 12:28	1

Lab Sample ID: LCS 400-424251/5

Matrix: Water

Analysis Batch: 424251

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.79		mg/L		98	90 - 110
Sulfate	10.0	10.3		mg/L		103	90 - 110

Lab Sample ID: LCSD 400-424251/6

Matrix: Water

Analysis Batch: 424251

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.62		mg/L		96	90 - 110	2	15
Sulfate	10.0	10.0		mg/L		100	90 - 110	3	15

Lab Sample ID: 400-163573-K-16 MS

Matrix: Water

Analysis Batch: 424251

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	28		10.0	36.7		mg/L		86	80 - 120
Sulfate	270	E	10.0	268	E 4	mg/L		1	80 - 120

Lab Sample ID: 400-163573-K-16 MSD

Matrix: Water

Analysis Batch: 424251

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	28		10.0	36.8		mg/L		88	80 - 120	0	20

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

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

Lab Sample ID: 400-163573-K-16 MSD

Matrix: Water

Analysis Batch: 424251

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	270	E	10.0	273	E 4	mg/L		45	80 - 120	2	20

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

Lab Sample ID: MB 400-423642/1-A ^5

Matrix: Water

Analysis Batch: 423830

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 423642

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/18/18 14:24	5
Calcium	0.207	J	0.25	0.13	mg/L		12/18/18 09:43	12/18/18 14:24	5

Lab Sample ID: MB 400-423642/1-A ^5

Matrix: Water

Analysis Batch: 424031

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 423642

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	<0.021		0.050	0.021	mg/L		12/18/18 09:43	12/19/18 12:25	5
Calcium	<0.13		0.25	0.13	mg/L		12/18/18 09:43	12/19/18 12:25	5

Lab Sample ID: LCS 400-423642/2-A

Matrix: Water

Analysis Batch: 423830

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 423642

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	0.100	0.0995		mg/L		99	80 - 120
Calcium	5.00	4.77		mg/L		95	80 - 120

Lab Sample ID: 400-163613-1 MS

Matrix: Water

Analysis Batch: 423830

Client Sample ID: SGWA-1

Prep Type: Total Recoverable

Prep Batch: 423642

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Boron	<0.021		0.100	0.102		mg/L		102	75 - 125
Calcium	1.7		5.00	6.51		mg/L		96	75 - 125

Lab Sample ID: 400-163613-1 MSD

Matrix: Water

Analysis Batch: 423830

Client Sample ID: SGWA-1

Prep Type: Total Recoverable

Prep Batch: 423642

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Boron	<0.021		0.100	0.0974		mg/L		97	75 - 125	5	20
Calcium	1.7		5.00	6.64		mg/L		99	75 - 125	2	20

TestAmerica Pensacola

# QC Sample Results

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

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

Lab Sample ID: MB 400-423835/1

Matrix: Water

Analysis Batch: 423835

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L	-		12/19/18 09:54	1

Lab Sample ID: LCS 400-423835/2

Matrix: Water

Analysis Batch: 423835

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	284		mg/L	-	97	78 - 122

Lab Sample ID: 400-163523-A-1 DU

Matrix: Water

Analysis Batch: 423835

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	48		48.0		mg/L	-	0	5

Lab Sample ID: MB 400-423847/1

Matrix: Water

Analysis Batch: 423847

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L	-		12/19/18 10:29	1

Lab Sample ID: LCS 400-423847/2

Matrix: Water

Analysis Batch: 423847

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	252		mg/L	-	86	78 - 122

Lab Sample ID: 400-163613-2 DU

Matrix: Water

Analysis Batch: 423847

Client Sample ID: SGWA-2

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	110		108		mg/L	-	0	5







## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-163613-1

SDG Number: Ash Pond

**Login Number: 163613**

**List Number: 1**

**Creator: Johnson, Jeremy N**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.2°C IR8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	Per the client Fluoride is not required.
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 $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Accreditation/Certification Summary

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

TestAmerica Job ID: 400-163613-1  
SDG: Ash Pond

### Laboratory: TestAmerica Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	12-31-18
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA017	12-31-19
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-19
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-160240-1

TestAmerica Sample Delivery Group: Ash Pond

Client Project/Site: CCR - Plant Scherer

For:

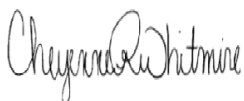
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

11/30/2018 1:07:30 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

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

### LINKS

Review your project  
results through

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Have a Question?



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

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

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

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

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Detection Summary . . . . .	5
Method Summary . . . . .	13
Sample Summary . . . . .	14
Client Sample Results . . . . .	15
Definitions . . . . .	53
Chronicle . . . . .	54
QC Association . . . . .	66
QC Sample Results . . . . .	76
Chain of Custody . . . . .	101
Receipt Checklists . . . . .	106
Certification Summary . . . . .	109

# Case Narrative

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Job ID: 400-160240-1**

**Laboratory: TestAmerica Pensacola**

## Narrative

### Job Narrative 400-160240-1

#### HPLC/IC

Method(s) 300.0: The laboratory control sample (LCS) for analytical batch 415543 recovered outside control limits for the following analytes: Fluoride. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method(s) 300.0: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with analytical batch 415684 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Sulfate in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

Method(s) 300.0: The method blank for analytical batch 418094 contained Fluoride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 300.0: The method blank for analytical batch 418296 contained Fluoride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 300.0: The following sample was diluted to bring the concentration of target analytes within the calibration range: SGWC-20 (400-160240-46). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The following sample was diluted due to conductivity: SGWC-18 (400-160240-45). Elevated reporting limits (RL) are provided.

Method(s) 300.0: The continuing calibration blank for analytical batch 418094 contained Fluoride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

#### RAD

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-398030: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: SGWC-18 (400-160240-45). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-397318: Sample SGWC-15 (400-160240-32) and the method blank associated with prep batch 160-397318 were partially spilled during the plating process contributing to the lower-than-normal yttrium carrier recovery. The carrier weights are within passing limits.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-398027: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: SGWC-18 (400-160240-45). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

#### Metals

Method(s) 6020: The method blank for preparation batch 415486 and analytical batch 415796 contained Arsenic above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 6020: The following samples were diluted to bring the concentration of target analytes within the calibration range: SGWC-9 (400-160240-13), SGWC-19 (400-160240-15), FD-3(AP) (400-160240-16), SGWC-18 (400-160240-45) and SGWC-20 (400-160240-46). Elevated reporting limits (RLs) are provided.

Method(s) 6020: The method blank for preparation batch 415485 and analytical batch 415796 contained Selenium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 6020: The method blank for preparation batch 418964 and analytical batch 419210 contained Lithium above the method

## Case Narrative

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

### Job ID: 400-160240-1 (Continued)

#### Laboratory: TestAmerica Pensacola (Continued)

detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 7470A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 415495 and analytical batch 415840 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 7470A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 418701 and analytical batch 419038 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 7470A: The method blank for preparation batch 418701 and analytical batch 419038 contained Mercury above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-analysis of samples was not performed.

## Detection Summary

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

### Client Sample ID: SGWA-1

### Lab Sample ID: 400-160240-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00064	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.058		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.0014	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable
Cobalt	0.00075	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0018	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.00031	J B	0.0013	0.00024	mg/L	5		6020	Total Recoverable

### Client Sample ID: FB-1(AP)

### Lab Sample ID: 400-160240-2

No Detections.

### Client Sample ID: SGWA-2

### Lab Sample ID: 400-160240-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.036		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.016		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.00028	J B	0.0013	0.00024	mg/L	5		6020	Total Recoverable

### Client Sample ID: EB-1(AP)

### Lab Sample ID: 400-160240-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00064	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWA-3

### Lab Sample ID: 400-160240-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00096	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.035		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.015		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.00024	J B	0.0013	0.00024	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWA-24

### Lab Sample ID: 400-160240-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.024		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.0058		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Cobalt	0.00058	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Client Sample ID: SGWA-24 (Continued)

## Lab Sample ID: 400-160240-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Lithium	0.0012	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable

## Client Sample ID: SGWC-22

## Lab Sample ID: 400-160240-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Arsenic	0.0015		0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.084		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Chromium	0.0012	J	0.0025	0.0011	mg/L	5			6020	Total Recoverable
Cobalt	0.0021	J	0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0011	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable

## Client Sample ID: SGWC-23

## Lab Sample ID: 400-160240-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Arsenic	0.0019		0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.077		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Chromium	0.0017	J	0.0025	0.0011	mg/L	5			6020	Total Recoverable
Lithium	0.0035	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.00026	J B	0.0013	0.00024	mg/L	5			6020	Total Recoverable

## Client Sample ID: EB-2(AP)

## Lab Sample ID: 400-160240-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Arsenic	0.0016		0.0013	0.00046	mg/L	5			6020	Total Recoverable

## Client Sample ID: SGWC-21

## Lab Sample ID: 400-160240-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Arsenic	0.0019		0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.092		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Lithium	0.0019	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable

## Client Sample ID: SGWC-7

## Lab Sample ID: 400-160240-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Fluoride	0.20		0.20	0.082	mg/L	1			300.0	Total/NA
Arsenic	0.00049	J	0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.28		0.0025	0.00049	mg/L	5			6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola



# Detection Summary

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Client Sample ID: SGWC-7 (Continued)

## Lab Sample ID: 400-160240-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Cobalt	0.013		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0053		0.0050	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.00034	J B	0.0013	0.00024	mg/L	5			6020	Total Recoverable

## Client Sample ID: SGWC-8

## Lab Sample ID: 400-160240-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Fluoride	0.47		0.20	0.082	mg/L	1			300.0	Total/NA
Arsenic	0.0015		0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.17		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Chromium	0.0016	J	0.0025	0.0011	mg/L	5			6020	Total Recoverable
Lithium	0.0020	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable

## Client Sample ID: SGWC-9

## Lab Sample ID: 400-160240-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Arsenic	0.0013		0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.077		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Cobalt	0.0049		0.0025	0.00040	mg/L	5			6020	Total Recoverable

## Client Sample ID: SGWC-10

## Lab Sample ID: 400-160240-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Arsenic	0.0015		0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.032		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Cobalt	0.030		0.0025	0.00040	mg/L	5			6020	Total Recoverable

## Client Sample ID: SGWC-19

## Lab Sample ID: 400-160240-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Arsenic	0.0014		0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.037		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Chromium	0.017		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.00050	J B	0.0013	0.00024	mg/L	5			6020	Total Recoverable

## Client Sample ID: FD-3(AP)

## Lab Sample ID: 400-160240-16

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

### Client Sample ID: FD-3(AP) (Continued)

### Lab Sample ID: 400-160240-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0013		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.036		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.016		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Lithium	0.0014	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.00055	J B	0.0013	0.00024	mg/L	5		6020	Total Recoverable

### Client Sample ID: FB-3(AP)

### Lab Sample ID: 400-160240-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0013		0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: EB-3(AP)

### Lab Sample ID: 400-160240-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0013		0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWA-25

### Lab Sample ID: 400-160240-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0018		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.024		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0047		0.0025	0.00040	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWA-4

### Lab Sample ID: 400-160240-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00056	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.064		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.0098		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.00041	J B	0.0013	0.00024	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWA-5

### Lab Sample ID: 400-160240-21

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00052	J B	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.011		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.0011	J	0.0025	0.0011	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

### Client Sample ID: SGWC-6

### Lab Sample ID: 400-160240-22

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0011	J B	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.069		0.0025	0.00049	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-12

### Lab Sample ID: 400-160240-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0014	B	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.049		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0037		0.0025	0.00040	mg/L	5		6020	Total Recoverable

### Client Sample ID: FB-2(AP)

### Lab Sample ID: 400-160240-24

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Selenium	0.00029	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-13

### Lab Sample ID: 400-160240-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00047	J B	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.033		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0036		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0014	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-14

### Lab Sample ID: 400-160240-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00097	J B	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.053		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0071		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0011	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-16

### Lab Sample ID: 400-160240-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0012	J B	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.025		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.013		0.0025	0.0011	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Client Sample ID: SGWC-16 (Continued)

## Lab Sample ID: 400-160240-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cobalt	0.0044		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0015	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Selenium	0.0014		0.0013	0.00024	mg/L	5		6020	Total Recoverable

## Client Sample ID: SGWC-17

## Lab Sample ID: 400-160240-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0013	B	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.021		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.0055		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Cobalt	0.00046	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Selenium	0.00028	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable

## Client Sample ID: FD-1(AP)

## Lab Sample ID: 400-160240-29

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0013	B	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.022		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Chromium	0.0055		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Cobalt	0.00049	J	0.0025	0.00040	mg/L	5		6020	Total Recoverable
Selenium	0.00030	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable

## Client Sample ID: FD-2(AP)

## Lab Sample ID: 400-160240-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoride	0.091	J	0.20	0.082	mg/L	1		300.0	Total/NA
Arsenic	0.0017	B	0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.092		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Lithium	0.0017	J	0.0050	0.0011	mg/L	5		6020	Total Recoverable

## Client Sample ID: SGWC-11

## Lab Sample ID: 400-160240-31

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	7.8		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	1.3		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.037		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.35		0.050	0.021	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Client Sample ID: SGWC-11 (Continued)

## Lab Sample ID: 400-160240-31

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Calcium	1.8		0.25	0.13	mg/L	5			6020	Total Recoverable
Cobalt	0.023		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0031	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.00046	J	0.0013	0.00024	mg/L	5			6020	Total Recoverable
Mercury	0.000072	J B	0.00020	0.000070	mg/L	1			7470A	Total/NA
Total Dissolved Solids	100		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: SGWC-15

## Lab Sample ID: 400-160240-32

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	10		1.0	0.89	mg/L	1			300.0	Total/NA
Fluoride	0.14	J B	0.20	0.082	mg/L	1			300.0	Total/NA
Sulfate - DL	200		5.0	3.5	mg/L	5			300.0	Total/NA
Barium	0.031		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Beryllium	0.00040	J	0.0025	0.00034	mg/L	5			6020	Total Recoverable
Boron	1.5		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	16		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.032		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Cobalt	0.27		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0034	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.0021		0.0013	0.00024	mg/L	5			6020	Total Recoverable
Thallium	0.00010	J	0.00050	0.000085	mg/L	5			6020	Total Recoverable
Mercury	0.00013	J B	0.00020	0.000070	mg/L	1			7470A	Total/NA
Total Dissolved Solids	350		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: SGWC-18

## Lab Sample ID: 400-160240-45

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	16		5.0	4.5	mg/L	5			300.0	Total/NA
Arsenic	0.0023		0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.033		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	100		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.0090		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Cobalt	0.21		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0054		0.0050	0.0011	mg/L	5			6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Client Sample ID: SGWC-18 (Continued)

## Lab Sample ID: 400-160240-45

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Selenium	0.017		0.0013	0.00024	mg/L	5			6020	Total
Thallium	0.00019	J	0.00050	0.000085	mg/L	5			6020	Recoverable
Boron - DL	4.9		0.25	0.11	mg/L	25			6020	Total
Arsenic, Dissolved	0.0024		0.0013	0.00046	mg/L	5			6020	Recoverable
Barium, Dissolved	0.034		0.0025	0.00049	mg/L	5			6020	Dissolved
Beryllium, Dissolved	0.00034	J	0.0025	0.00034	mg/L	5			6020	Dissolved
Chromium, Dissolved	0.0089		0.0025	0.0011	mg/L	5			6020	Dissolved
Cobalt, Dissolved	0.21		0.0025	0.00040	mg/L	5			6020	Dissolved
Lithium, Dissolved	0.0061		0.0050	0.0011	mg/L	5			6020	Dissolved
Selenium, Dissolved	0.017		0.0013	0.00024	mg/L	5			6020	Dissolved
Thallium, Dissolved	0.00021	J	0.00050	0.000085	mg/L	5			6020	Dissolved
Mercury	0.00024		0.00020	0.000070	mg/L	1			7470A	Total/NA
Total Dissolved Solids	1200		10	6.8	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: SGWC-20

## Lab Sample ID: 400-160240-46

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	11		1.0	0.89	mg/L	1			300.0	Total/NA
Fluoride	0.23	B	0.20	0.082	mg/L	1			300.0	Total/NA
Barium	0.027		0.0025	0.00049	mg/L	5			6020	Total
Beryllium	0.00079	J	0.0025	0.00034	mg/L	5			6020	Recoverable
Calcium	12		0.25	0.13	mg/L	5			6020	Total
Cobalt	0.16		0.0025	0.00040	mg/L	5			6020	Recoverable
Lithium	0.0062	B	0.0050	0.0011	mg/L	5			6020	Total
Selenium	0.00049	J	0.0013	0.00024	mg/L	5			6020	Recoverable
Thallium	0.00018	J	0.00050	0.000085	mg/L	5			6020	Total
Boron - DL	2.3		0.25	0.11	mg/L	25			6020	Recoverable
Total Dissolved Solids	370		5.0	3.4	mg/L	1			SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Method Summary

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL PEN
6020	Metals (ICP/MS)	SW846	TAL PEN
7470A	Mercury (CVAA)	SW846	TAL PEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PEN
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN
7470A	Preparation, Mercury	SW846	TAL PEN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

### Protocol References:

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

None = None

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

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

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

### Laboratory References:

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

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



# Sample Summary

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-160240-1	SGWA-1	Water	10/05/18 09:00	10/06/18 08:31
400-160240-2	FB-1(AP)	Water	10/05/18 08:40	10/06/18 08:31
400-160240-3	SGWA-2	Water	10/05/18 10:15	10/06/18 08:31
400-160240-4	EB-1(AP)	Water	10/05/18 11:15	10/06/18 08:31
400-160240-5	SGWA-3	Water	10/05/18 09:45	10/06/18 08:31
400-160240-6	SGWA-24	Water	10/05/18 11:15	10/06/18 08:31
400-160240-7	SGWC-22	Water	10/08/18 14:20	10/10/18 08:58
400-160240-8	SGWC-23	Water	10/08/18 15:50	10/10/18 08:58
400-160240-9	EB-2(AP)	Water	10/08/18 16:30	10/10/18 08:58
400-160240-10	SGWC-21	Water	10/08/18 12:05	10/10/18 08:58
400-160240-11	SGWC-7	Water	10/09/18 09:25	10/10/18 08:58
400-160240-12	SGWC-8	Water	10/09/18 10:35	10/10/18 08:58
400-160240-13	SGWC-9	Water	10/09/18 10:20	10/10/18 08:58
400-160240-14	SGWC-10	Water	10/09/18 09:10	10/10/18 08:58
400-160240-15	SGWC-19	Water	10/09/18 08:50	10/10/18 08:58
400-160240-16	FD-3(AP)	Water	10/09/18 00:00	10/10/18 08:58
400-160240-17	FB-3(AP)	Water	10/09/18 08:45	10/10/18 08:58
400-160240-18	EB-3(AP)	Water	10/09/18 11:30	10/10/18 08:58
400-160240-19	SGWA-25	Water	10/08/18 14:20	10/10/18 08:58
400-160240-20	SGWA-4	Water	10/08/18 13:15	10/10/18 08:58
400-160240-21	SGWA-5	Water	10/08/18 10:45	10/10/18 08:58
400-160240-22	SGWC-6	Water	10/08/18 15:25	10/10/18 08:58
400-160240-23	SGWC-12	Water	10/08/18 10:40	10/10/18 08:58
400-160240-24	FB-2(AP)	Water	10/08/18 10:15	10/10/18 08:58
400-160240-25	SGWC-13	Water	10/08/18 12:25	10/10/18 08:58
400-160240-26	SGWC-14	Water	10/08/18 13:30	10/10/18 08:58
400-160240-27	SGWC-16	Water	10/08/18 14:40	10/10/18 08:58
400-160240-28	SGWC-17	Water	10/08/18 10:30	10/10/18 08:58
400-160240-29	FD-1(AP)	Water	10/08/18 00:00	10/10/18 08:58
400-160240-30	FD-2(AP)	Water	10/08/18 00:00	10/10/18 08:58
400-160240-31	SGWC-11	Water	10/16/18 10:50	10/19/18 09:04
400-160240-32	SGWC-15	Water	10/16/18 15:15	10/19/18 09:04
400-160240-45	SGWC-18	Water	10/18/18 09:05	10/20/18 08:28
400-160240-46	SGWC-20	Water	10/18/18 10:35	10/20/18 08:28

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWA-1**  
**Date Collected: 10/05/18 09:00**  
**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-1**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/15/18 23:39	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Arsenic	0.00064	J	0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Barium	0.058		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Chromium	0.0014	J	0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Cobalt	0.00075	J	0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Lithium	0.0018	J	0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Selenium	0.00031	J B	0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 12:08	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 12:08	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 09:44	10/18/18 12:57	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.203		0.0852	0.0871	1.00	0.0829	pCi/L	10/10/18 11:51	11/01/18 05:56	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.1		40 - 110					10/10/18 11:51	11/01/18 05:56	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.319	U	0.223	0.225	1.00	0.344	pCi/L	10/10/18 13:30	10/25/18 09:44	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.1		40 - 110					10/10/18 13:30	10/25/18 09:44	1
Y Carrier	77.4		40 - 110					10/10/18 13:30	10/25/18 09:44	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.522		0.239	0.241	5.00	0.344	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: FB-1(AP)**

**Date Collected: 10/05/18 08:40**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-2**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 00:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 12:58	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 12:58	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 09:44	10/18/18 13:08	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>0.157</b>		0.0794	0.0807	1.00	0.0902	pCi/L	10/10/18 11:51	11/01/18 05:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110					10/10/18 11:51	11/01/18 05:57	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-228</b>	<b>0.664</b>		0.259	0.266	1.00	0.362	pCi/L	10/10/18 13:30	10/25/18 09:44	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110					10/10/18 13:30	10/25/18 09:44	1
Y Carrier	84.5		40 - 110					10/10/18 13:30	10/25/18 09:44	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Combined Radium 226 + 228</b>	<b>0.822</b>		0.271	0.278	5.00	0.362	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWA-2**  
**Date Collected: 10/05/18 10:15**  
**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-3**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 00:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Barium	0.036		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Chromium	0.016		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Selenium	0.00028	J B	0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 13:02	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 13:02	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 09:44	10/18/18 13:10	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.190		0.0857	0.0873	1.00	0.0922	pCi/L	10/10/18 11:51	11/01/18 05:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					10/10/18 11:51	11/01/18 05:57	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.285	U	0.236	0.238	1.00	0.376	pCi/L	10/10/18 13:30	10/25/18 09:44	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					10/10/18 13:30	10/25/18 09:44	1
Y Carrier	83.0		40 - 110					10/10/18 13:30	10/25/18 09:44	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.474		0.251	0.254	5.00	0.376	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: EB-1(AP)**

**Date Collected: 10/05/18 11:15**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-4**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 00:48	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
<b>Arsenic</b>	<b>0.00064</b>	<b>J</b>	0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 13:07	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 13:07	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 09:44	10/18/18 13:12	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>0.209</b>		0.0891	0.0911	1.00	0.100	pCi/L	10/10/18 11:51	11/01/18 05:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/10/18 11:51	11/01/18 05:57	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.129	U	0.248	0.248	1.00	0.421	pCi/L	10/10/18 13:30	10/25/18 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/10/18 13:30	10/25/18 09:45	1
Y Carrier	77.4		40 - 110					10/10/18 13:30	10/25/18 09:45	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.339	U	0.264	0.264	5.00	0.421	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWA-3**

**Date Collected: 10/05/18 09:45**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-5**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 01:10	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Arsenic	0.00096	J	0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Barium	0.035		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Chromium	0.015		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Selenium	0.00024	J B	0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 13:11	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 13:11	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 09:44	10/18/18 13:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.211		0.0894	0.0914	1.00	0.0914	pCi/L	10/10/18 11:51	11/01/18 05:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					10/10/18 11:51	11/01/18 05:57	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.289	U	0.265	0.266	1.00	0.427	pCi/L	10/10/18 13:30	10/25/18 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					10/10/18 13:30	10/25/18 09:45	1
Y Carrier	78.9		40 - 110					10/10/18 13:30	10/25/18 09:45	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.500		0.280	0.281	5.00	0.427	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWA-24**

**Date Collected: 10/05/18 11:15**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-6**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 02:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Barium	0.024		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Chromium	0.0058		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Cobalt	0.00058	J	0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Lithium	0.0012	J	0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 13:16	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 13:16	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 09:44	10/18/18 13:15	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.133		0.0727	0.0737	1.00	0.0847	pCi/L	10/10/18 11:51	11/01/18 05:57	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					10/10/18 11:51	11/01/18 05:57	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.435		0.243	0.246	1.00	0.363	pCi/L	10/10/18 13:30	10/25/18 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					10/10/18 13:30	10/25/18 09:45	1
Y Carrier	82.2		40 - 110					10/10/18 13:30	10/25/18 09:45	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.568		0.254	0.257	5.00	0.363	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola



# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-22**

**Date Collected: 10/08/18 14:20**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-7**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 02:42	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Arsenic	0.0015		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Barium	0.084		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Chromium	0.0012	J	0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Cobalt	0.0021	J	0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Lithium	0.0011	J	0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 13:20	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 13:20	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:16	10/17/18 14:43	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.223		0.102	0.104	1.00	0.117	pCi/L	10/12/18 11:33	11/05/18 10:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/12/18 11:33	11/05/18 10:16	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.276	U	0.222	0.223	1.00	0.352	pCi/L	10/12/18 12:42	10/31/18 17:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/12/18 12:42	10/31/18 17:01	1
Y Carrier	86.4		40 - 110					10/12/18 12:42	10/31/18 17:01	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.499		0.244	0.246	5.00	0.352	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-23**

**Date Collected: 10/08/18 15:50**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-8**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 03:05	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Arsenic	0.0019		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Barium	0.077		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Chromium	0.0017	J	0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Lithium	0.0035	J	0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Selenium	0.00026	J B	0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 13:24	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 13:24	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:16	10/17/18 15:00	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.276		0.109	0.112	1.00	0.108	pCi/L	10/12/18 11:33	11/05/18 10:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110					10/12/18 11:33	11/05/18 10:16	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.161	U	0.190	0.191	1.00	0.314	pCi/L	10/12/18 12:42	10/31/18 17:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.4		40 - 110					10/12/18 12:42	10/31/18 17:01	1
Y Carrier	87.1		40 - 110					10/12/18 12:42	10/31/18 17:01	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.437		0.219	0.221	5.00	0.314	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: EB-2(AP)**

**Date Collected: 10/08/18 16:30**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-9**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 04:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
<b>Arsenic</b>	<b>0.0016</b>		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 13:29	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 13:29	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:16	10/17/18 15:02	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>0.160</b>		0.0985	0.0996	1.00	0.125	pCi/L	10/12/18 11:33	11/05/18 10:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/12/18 11:33	11/05/18 10:16	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0470	U	0.172	0.172	1.00	0.303	pCi/L	10/12/18 12:42	10/31/18 17:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/12/18 12:42	10/31/18 17:01	1
Y Carrier	87.5		40 - 110					10/12/18 12:42	10/31/18 17:01	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.207	U	0.198	0.199	5.00	0.303	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-21**

**Date Collected: 10/08/18 12:05**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-10**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 04:36	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Arsenic	0.0019		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Barium	0.092		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Lithium	0.0019	J	0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 13:33	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 13:33	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:16	10/17/18 15:04	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.132		0.0836	0.0844	1.00	0.109	pCi/L	10/12/18 11:33	11/05/18 10:16	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/12/18 11:33	11/05/18 10:16	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.242	U	0.208	0.209	1.00	0.330	pCi/L	10/12/18 12:42	10/31/18 17:01	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/12/18 12:42	10/31/18 17:01	1
Y Carrier	86.4		40 - 110					10/12/18 12:42	10/31/18 17:01	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.374		0.224	0.225	5.00	0.330	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-7**

**Date Collected: 10/09/18 09:25**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-11**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.20		0.20	0.082	mg/L	-		10/17/18 02:27	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Arsenic	0.00049	J	0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Barium	0.28		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Cobalt	0.013		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Lithium	0.0053		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Selenium	0.00034	J B	0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 14:00	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 14:00	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:16	10/17/18 15:06	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.158		0.0882	0.0893	1.00	0.104	pCi/L	10/12/18 11:33	11/05/18 10:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					10/12/18 11:33	11/05/18 10:17	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.227	U	0.228	0.229	1.00	0.370	pCi/L	10/12/18 12:42	10/31/18 17:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.2		40 - 110					10/12/18 12:42	10/31/18 17:03	1
Y Carrier	85.2		40 - 110					10/12/18 12:42	10/31/18 17:03	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.385		0.244	0.246	5.00	0.370	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-8**

**Date Collected: 10/09/18 10:35**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-12**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.47		0.20	0.082	mg/L	-		10/17/18 02:50	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Arsenic	0.0015		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Barium	0.17		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Chromium	0.0016	J	0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Lithium	0.0020	J	0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 14:05	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 14:05	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:16	10/17/18 15:08	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.674		0.157	0.168	1.00	0.104	pCi/L	10/12/18 11:33	11/05/18 10:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/12/18 11:33	11/05/18 10:17	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	2.34		0.367	0.425	1.00	0.351	pCi/L	10/12/18 12:42	10/31/18 17:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/12/18 12:42	10/31/18 17:03	1
Y Carrier	84.5		40 - 110					10/12/18 12:42	10/31/18 17:03	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	3.01		0.399	0.457	5.00	0.351	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-9**

**Date Collected: 10/09/18 10:20**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-13**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 05:44	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Arsenic	0.0013		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Barium	0.077		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Cobalt	0.0049		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 14:09	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 14:09	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:13	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.213		0.107	0.109	1.00	0.133	pCi/L	10/12/18 11:33	11/05/18 10:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					10/12/18 11:33	11/05/18 10:17	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.352		0.229	0.231	1.00	0.351	pCi/L	10/12/18 12:42	10/31/18 17:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					10/12/18 12:42	10/31/18 17:03	1
Y Carrier	85.2		40 - 110					10/12/18 12:42	10/31/18 17:03	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.565		0.253	0.255	5.00	0.351	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola



# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-10**

**Date Collected: 10/09/18 09:10**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-14**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082	*	0.20	0.082	mg/L	-		10/16/18 06:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Arsenic	0.0015		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Barium	0.032		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Cobalt	0.030		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 14:20	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 14:20	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:30	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.126		0.0843	0.0851	1.00	0.113	pCi/L	10/12/18 11:33	11/05/18 10:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/12/18 11:33	11/05/18 10:17	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.261	U	0.205	0.206	1.00	0.321	pCi/L	10/12/18 12:42	10/31/18 17:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/12/18 12:42	10/31/18 17:03	1
Y Carrier	84.5		40 - 110					10/12/18 12:42	10/31/18 17:03	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.387		0.222	0.223	5.00	0.321	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-19**

**Date Collected: 10/09/18 08:50**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-15**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 13:07	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Arsenic	0.0014		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Barium	0.037		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Chromium	0.017		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Selenium	0.00050	J B	0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 14:25	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 14:25	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:32	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.309		0.114	0.117	1.00	0.109	pCi/L	10/12/18 11:33	11/05/18 10:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/12/18 11:33	11/05/18 10:17	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.276	U	0.208	0.209	1.00	0.324	pCi/L	10/12/18 12:42	10/31/18 17:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	104		40 - 110					10/12/18 12:42	10/31/18 17:03	1
Y Carrier	86.0		40 - 110					10/12/18 12:42	10/31/18 17:03	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.584		0.237	0.240	5.00	0.324	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: FD-3(AP)**

**Date Collected: 10/09/18 00:00**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-16**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/16/18 19:13	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Arsenic	0.0013		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Barium	0.036		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Chromium	0.016		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Lithium	0.0014	J	0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Selenium	0.00055	J B	0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 14:29	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 14:29	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:34	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.210		0.100	0.102	1.00	0.113	pCi/L	10/12/18 11:33	11/05/18 10:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/12/18 11:33	11/05/18 10:17	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.182	U	0.210	0.210	1.00	0.345	pCi/L	10/12/18 12:42	10/31/18 17:03	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/12/18 12:42	10/31/18 17:03	1
Y Carrier	86.0		40 - 110					10/12/18 12:42	10/31/18 17:03	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.391		0.233	0.233	5.00	0.345	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: FB-3(AP)**

**Date Collected: 10/09/18 08:45**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-17**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/16/18 22:16	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
<b>Arsenic</b>	<b>0.0013</b>		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 14:34	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 14:34	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:36	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0978	U	0.0809	0.0814	1.00	0.119	pCi/L	10/12/18 11:33	11/05/18 10:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/12/18 11:33	11/05/18 10:17	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.177	U	0.229	0.230	1.00	0.381	pCi/L	10/12/18 12:42	10/31/18 17:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/12/18 12:42	10/31/18 17:04	1
Y Carrier	85.2		40 - 110					10/12/18 12:42	10/31/18 17:04	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.275	U	0.243	0.244	5.00	0.381	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: EB-3(AP)**

**Date Collected: 10/09/18 11:30**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-18**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 07:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
<b>Arsenic</b>	<b>0.0013</b>		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 14:38	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 14:38	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:38	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>0.204</b>		0.0950	0.0967	1.00	0.104	pCi/L	10/12/18 11:33	11/05/18 10:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					10/12/18 11:33	11/05/18 10:17	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0901	U	0.191	0.191	1.00	0.328	pCi/L	10/12/18 12:42	10/31/18 17:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	106		40 - 110					10/12/18 12:42	10/31/18 17:04	1
Y Carrier	86.4		40 - 110					10/12/18 12:42	10/31/18 17:04	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.294	U	0.213	0.214	5.00	0.328	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWA-25**

**Date Collected: 10/08/18 14:20**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-19**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 07:47	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Arsenic	0.0018		0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Barium	0.024		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Cobalt	0.0047		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 14:43	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 14:43	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:39	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.186		0.0898	0.0913	1.00	0.100	pCi/L	10/12/18 11:33	11/05/18 10:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					10/12/18 11:33	11/05/18 10:18	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.292	U	0.206	0.207	1.00	0.318	pCi/L	10/12/18 12:42	10/31/18 17:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	109		40 - 110					10/12/18 12:42	10/31/18 17:04	1
Y Carrier	83.4		40 - 110					10/12/18 12:42	10/31/18 17:04	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.478		0.225	0.226	5.00	0.318	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWA-4**  
**Date Collected: 10/08/18 13:15**  
**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-20**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 08:55	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Arsenic	0.00056	J	0.0013	0.00046	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Barium	0.064		0.0025	0.00049	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Chromium	0.0098		0.0025	0.0011	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Selenium	0.00041	J B	0.0013	0.00024	mg/L	-	10/15/18 14:59	10/16/18 15:05	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 14:59	10/16/18 15:05	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:41	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0976	U	0.0762	0.0767	1.00	0.107	pCi/L	10/12/18 11:33	11/05/18 10:18	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/12/18 11:33	11/05/18 10:18	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.195	U	0.148	0.149	1.00	0.315	pCi/L	10/12/18 12:42	10/31/18 17:04	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/12/18 12:42	10/31/18 17:04	1
Y Carrier	82.6		40 - 110					10/12/18 12:42	10/31/18 17:04	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	-0.0974	U	0.166	0.168	5.00	0.315	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola



# Client Sample Results

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

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWA-5**  
**Date Collected: 10/08/18 10:45**  
**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-21**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 09:18	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Arsenic	0.00052	J B	0.0013	0.00046	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Barium	0.011		0.0025	0.00049	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Chromium	0.0011	J	0.0025	0.0011	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 15:02	10/16/18 15:23	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 15:02	10/16/18 15:23	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:43	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.210		0.0903	0.0922	1.00	0.0966	pCi/L	10/12/18 09:37	11/05/18 05:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		40 - 110					10/12/18 09:37	11/05/18 05:59	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.554		0.279	0.284	1.00	0.411	pCi/L	10/12/18 10:51	10/23/18 09:44	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.0		40 - 110					10/12/18 10:51	10/23/18 09:44	1
Y Carrier	79.6		40 - 110					10/12/18 10:51	10/23/18 09:44	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.764		0.293	0.299	5.00	0.411	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-6**

**Date Collected: 10/08/18 15:25**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-22**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 09:41	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Arsenic	0.0011	J B	0.0013	0.00046	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Barium	0.069		0.0025	0.00049	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 15:02	10/16/18 15:45	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 15:02	10/16/18 15:45	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:45	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.214		0.0846	0.0868	1.00	0.0807	pCi/L	10/12/18 09:37	11/05/18 05:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					10/12/18 09:37	11/05/18 05:59	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.556		0.291	0.296	1.00	0.433	pCi/L	10/12/18 10:51	10/23/18 09:44	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	98.5		40 - 110					10/12/18 10:51	10/23/18 09:44	1
Y Carrier	69.5		40 - 110					10/12/18 10:51	10/23/18 09:44	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.770		0.303	0.308	5.00	0.433	pCi/L		11/26/18 15:23	1

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# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-12**

**Date Collected: 10/08/18 10:40**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-23**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 10:04	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Arsenic	0.0014	B	0.0013	0.00046	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Barium	0.049		0.0025	0.00049	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Cobalt	0.0037		0.0025	0.00040	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 15:02	10/16/18 15:49	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 15:02	10/16/18 15:49	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:56	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.237		0.0851	0.0877	1.00	0.0695	pCi/L	10/12/18 09:37	11/05/18 05:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					10/12/18 09:37	11/05/18 05:59	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.628		0.238	0.245	1.00	0.323	pCi/L	10/12/18 10:51	10/23/18 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					10/12/18 10:51	10/23/18 09:45	1
Y Carrier	83.7		40 - 110					10/12/18 10:51	10/23/18 09:45	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.865		0.253	0.260	5.00	0.323	pCi/L		11/26/18 15:23	1

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# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: FB-2(AP)**

**Date Collected: 10/08/18 10:15**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-24**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 10:27	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Arsenic	<0.00046		0.0013	0.00046	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Barium	<0.00049		0.0025	0.00049	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Selenium	0.00029	J	0.0013	0.00024	mg/L	-	10/15/18 15:02	10/16/18 16:12	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 15:02	10/16/18 16:12	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 15:58	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.211		0.0915	0.0935	1.00	0.104	pCi/L	10/12/18 09:37	11/05/18 05:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.2		40 - 110					10/12/18 09:37	11/05/18 05:59	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.552		0.268	0.273	1.00	0.391	pCi/L	10/12/18 10:51	10/23/18 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.2		40 - 110					10/12/18 10:51	10/23/18 09:45	1
Y Carrier	76.6		40 - 110					10/12/18 10:51	10/23/18 09:45	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.763		0.283	0.289	5.00	0.391	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-13**

**Date Collected: 10/08/18 12:25**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-25**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 11:35	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Arsenic	0.00047	J B	0.0013	0.00046	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Barium	0.033		0.0025	0.00049	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Cobalt	0.0036		0.0025	0.00040	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Lithium	0.0014	J	0.0050	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 15:02	10/16/18 16:16	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 15:02	10/16/18 16:16	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 16:00	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.113		0.0655	0.0663	1.00	0.0770	pCi/L	10/12/18 09:37	11/05/18 08:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/12/18 09:37	11/05/18 08:08	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.527		0.255	0.259	1.00	0.371	pCi/L	10/12/18 10:51	10/23/18 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/12/18 10:51	10/23/18 09:45	1
Y Carrier	78.5		40 - 110					10/12/18 10:51	10/23/18 09:45	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.640		0.263	0.267	5.00	0.371	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-14**

**Date Collected: 10/08/18 13:30**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-26**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 11:58	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Arsenic	0.00097	J B	0.0013	0.00046	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Barium	0.053		0.0025	0.00049	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Cobalt	0.0071		0.0025	0.00040	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Lithium	0.0011	J	0.0050	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 15:02	10/16/18 16:21	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 15:02	10/16/18 16:21	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 16:01	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.250		0.0910	0.0938	1.00	0.0878	pCi/L	10/12/18 09:37	11/05/18 08:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					10/12/18 09:37	11/05/18 08:08	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.386	U	0.252	0.255	1.00	0.390	pCi/L	10/12/18 10:51	10/23/18 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					10/12/18 10:51	10/23/18 09:45	1
Y Carrier	76.6		40 - 110					10/12/18 10:51	10/23/18 09:45	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.636		0.268	0.272	5.00	0.390	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-16**

**Date Collected: 10/08/18 14:40**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-27**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/17/18 12:21	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Arsenic	0.0012	J B	0.0013	0.00046	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Barium	0.025		0.0025	0.00049	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Chromium	0.013		0.0025	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Cobalt	0.0044		0.0025	0.00040	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Lithium	0.0015	J	0.0050	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Selenium	0.0014		0.0013	0.00024	mg/L	-	10/15/18 15:02	10/16/18 16:25	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 15:02	10/16/18 16:25	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 16:03	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.160		0.0779	0.0792	1.00	0.0888	pCi/L	10/12/18 09:37	11/05/18 08:08	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110					10/12/18 09:37	11/05/18 08:08	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.639		0.237	0.244	1.00	0.319	pCi/L	10/12/18 10:51	10/23/18 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	99.7		40 - 110					10/12/18 10:51	10/23/18 09:45	1
Y Carrier	84.1		40 - 110					10/12/18 10:51	10/23/18 09:45	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.799		0.249	0.257	5.00	0.319	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola



# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-17**

**Date Collected: 10/08/18 10:30**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-28**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/16/18 21:53	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Arsenic	0.0013	B	0.0013	0.00046	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Barium	0.021		0.0025	0.00049	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Chromium	0.0055		0.0025	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Cobalt	0.00046	J	0.0025	0.00040	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Selenium	0.00028	J	0.0013	0.00024	mg/L	-	10/15/18 15:02	10/16/18 16:30	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 15:02	10/16/18 16:30	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 16:05	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.182		0.0782	0.0799	1.00	0.0788	pCi/L	10/12/18 09:37	11/05/18 08:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					10/12/18 09:37	11/05/18 08:09	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.500		0.227	0.231	1.00	0.322	pCi/L	10/12/18 10:51	10/23/18 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					10/12/18 10:51	10/23/18 09:45	1
Y Carrier	81.5		40 - 110					10/12/18 10:51	10/23/18 09:45	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.682		0.240	0.244	5.00	0.322	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: FD-1(AP)**

**Date Collected: 10/08/18 00:00**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-29**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/12/18 00:15	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Arsenic	0.0013	B	0.0013	0.00046	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Barium	0.022		0.0025	0.00049	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Chromium	0.0055		0.0025	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Cobalt	0.00049	J	0.0025	0.00040	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Lithium	<0.0011		0.0050	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Selenium	0.00030	J	0.0013	0.00024	mg/L	-	10/15/18 15:02	10/16/18 16:34	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 15:02	10/16/18 16:34	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 16:07	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.213		0.0805	0.0828	1.00	0.0684	pCi/L	10/12/18 09:37	11/05/18 08:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					10/12/18 09:37	11/05/18 08:09	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.571		0.266	0.271	1.00	0.388	pCi/L	10/12/18 10:51	10/23/18 09:45	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110					10/12/18 10:51	10/23/18 09:45	1
Y Carrier	78.5		40 - 110					10/12/18 10:51	10/23/18 09:45	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.784		0.278	0.283	5.00	0.388	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: FD-2(AP)**

**Date Collected: 10/08/18 00:00**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-30**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	0.091	J	0.20	0.082	mg/L	-		10/12/18 00:38	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Arsenic	0.0017	B	0.0013	0.00046	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Barium	0.092		0.0025	0.00049	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Beryllium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Cadmium	<0.00034		0.0025	0.00034	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Chromium	<0.0011		0.0025	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Cobalt	<0.00040		0.0025	0.00040	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Lead	<0.00035		0.0013	0.00035	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Lithium	0.0017	J	0.0050	0.0011	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Molybdenum	<0.00085		0.015	0.00085	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Selenium	<0.00024		0.0013	0.00024	mg/L	-	10/15/18 15:02	10/16/18 16:39	5
Thallium	<0.000085		0.00050	0.000085	mg/L	-	10/15/18 15:02	10/16/18 16:39	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L	-	10/16/18 10:42	10/17/18 16:09	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.214		0.0890	0.0910	1.00	0.0988	pCi/L	10/12/18 09:37	11/05/18 08:09	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					10/12/18 09:37	11/05/18 08:09	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.346	U	0.233	0.235	1.00	0.359	pCi/L	10/12/18 10:51	10/23/18 09:46	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110					10/12/18 10:51	10/23/18 09:46	1
Y Carrier	78.5		40 - 110					10/12/18 10:51	10/23/18 09:46	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.560		0.249	0.252	5.00	0.359	pCi/L		11/26/18 15:23	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Date Collected: 10/16/18 10:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-31**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.8		1.0	0.89	mg/L			11/02/18 18:54	1
Fluoride	<0.082		0.20	0.082	mg/L			11/02/18 18:54	1
Sulfate	1.3		1.0	0.70	mg/L			11/02/18 18:54	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 15:29	5
Barium	0.037		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 15:29	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:29	5
Boron	0.35		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 15:29	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:29	5
Calcium	1.8		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 15:29	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 15:29	5
Cobalt	0.023		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 15:29	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 15:29	5
Lithium	0.0031	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 15:29	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		11/09/18 11:00	11/09/18 15:29	5
Selenium	0.00046	J	0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 15:29	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 15:29	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000072	J B	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 15:42	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	100		5.0	3.4	mg/L			10/22/18 14:36	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.200		0.0877	0.0895	1.00	0.0880	pCi/L	10/25/18 10:07	11/20/18 05:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					10/25/18 10:07	11/20/18 05:47	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.858		0.308	0.318	1.00	0.411	pCi/L	10/25/18 11:56	11/12/18 14:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					10/25/18 11:56	11/12/18 14:58	1
Y Carrier	82.2		40 - 110					10/25/18 11:56	11/12/18 14:58	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Date Collected: 10/16/18 10:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-31**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.06		0.320	0.330	5.00	0.411	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Date Collected: 10/16/18 15:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-32**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10		1.0	0.89	mg/L			11/02/18 19:17	1
Fluoride	0.14	J B	0.20	0.082	mg/L			11/02/18 19:17	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	200		5.0	3.5	mg/L			11/05/18 15:32	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 15:47	5
Barium	0.031		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 15:47	5
Beryllium	0.00040	J	0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:47	5
Boron	1.5		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 15:47	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:47	5
Calcium	16		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 15:47	5
Chromium	0.032		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 15:47	5
Cobalt	0.27		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 15:47	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 15:47	5
Lithium	0.0034	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 15:47	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		11/09/18 11:00	11/09/18 15:47	5
Selenium	0.0021		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 15:47	5
Thallium	0.00010	J	0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 15:47	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00013	J B	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 15:44	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	350		5.0	3.4	mg/L			10/22/18 14:36	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.214		0.0914	0.0934	1.00	0.0927	pCi/L	10/25/18 10:07	11/20/18 05:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.6		40 - 110					10/25/18 10:07	11/20/18 05:47	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.517	U	0.346	0.349	1.00	0.532	pCi/L	10/25/18 11:56	11/12/18 14:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.6		40 - 110					10/25/18 11:56	11/12/18 14:59	1
Y Carrier	61.7		40 - 110					10/25/18 11:56	11/12/18 14:59	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Date Collected: 10/16/18 15:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-32**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.731		0.358	0.361	5.00	0.532	pCi/L		11/26/18 15:23	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-18**

**Date Collected: 10/18/18 09:05**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-45**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16		5.0	4.5	mg/L			11/05/18 23:31	5
Fluoride	<0.41		1.0	0.41	mg/L			11/05/18 23:31	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0023		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:36	5
Barium	0.033		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:36	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:36	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:36	5
Calcium	100		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 16:36	5
Chromium	0.0090		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:36	5
Cobalt	0.21		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:36	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:36	5
Lithium	0.0054		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:36	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		11/09/18 11:00	11/09/18 16:36	5
Selenium	0.017		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:36	5
Thallium	0.00019	J	0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:36	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	4.9		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 17:35	25

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	0.0024		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 17:28	5
Barium, Dissolved	0.034		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 17:28	5
Beryllium, Dissolved	0.00034	J	0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 17:28	5
Chromium, Dissolved	0.0089		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 17:28	5
Cobalt, Dissolved	0.21		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 17:28	5
Iron, Dissolved	<0.053		0.13	0.053	mg/L		11/09/18 11:00	11/09/18 17:28	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 17:28	5
Lithium, Dissolved	0.0061		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 17:28	5
Selenium, Dissolved	0.017		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 17:28	5
Thallium, Dissolved	0.00021	J	0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 17:28	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00024		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:07	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1200		10	6.8	mg/L			10/25/18 12:27	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.161		0.0806	0.0819	1.00	0.0917	pCi/L	10/29/18 11:40	11/20/18 11:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					10/29/18 11:40	11/20/18 11:17	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.143	U	0.250	0.250	1.00	0.423	pCi/L	10/29/18 11:58	11/12/18 16:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					10/29/18 11:58	11/12/18 16:30	1
Y Carrier	77.4		40 - 110					10/29/18 11:58	11/12/18 16:30	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.304	U	0.263	0.263	5.00	0.423	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Date Collected: 10/18/18 10:35**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-46**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		1.0	0.89	mg/L			11/03/18 05:11	1
Fluoride	0.23	B	0.20	0.082	mg/L			11/03/18 05:11	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 18:17	5
Barium	0.027		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 18:17	5
Beryllium	0.00079	J	0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 18:17	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 18:17	5
Calcium	12		0.25	0.13	mg/L		11/09/18 11:50	11/09/18 18:17	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 18:17	5
Cobalt	0.16		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 18:17	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 18:17	5
Lithium	0.0062	B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 18:17	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		11/09/18 11:50	11/09/18 18:17	5
Selenium	0.00049	J	0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 18:17	5
Thallium	0.00018	J	0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 18:17	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.3		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 20:07	25

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:05	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	370		5.0	3.4	mg/L			10/25/18 12:27	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.251		0.102	0.105	1.00	0.103	pCi/L	10/25/18 10:04	11/20/18 07:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.4		40 - 110					10/25/18 10:04	11/20/18 07:54	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.148	U	0.230	0.231	1.00	0.388	pCi/L	10/25/18 10:33	11/13/18 13:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.4		40 - 110					10/25/18 10:33	11/13/18 13:42	1
Y Carrier	87.1		40 - 110					10/25/18 10:33	11/13/18 13:42	1

TestAmerica Pensacola

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Date Collected: 10/18/18 10:35**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-46**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.399		0.252	0.254	5.00	0.388	pCi/L		11/26/18 15:23	1

## Definitions/Glossary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

### Qualifiers

#### HPLC/IC

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.

#### Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.

#### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWA-1**

**Date Collected: 10/05/18 09:00**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/15/18 23:39	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 12:08	DRE	TAL PEN
Total/NA	Prep	7470A			415482	10/16/18 09:44	JAP	TAL PEN
Total/NA	Analysis	7470A		1	416025	10/18/18 12:57	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398697	11/01/18 05:56	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397302	10/25/18 09:44	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: FB-1(AP)**

**Date Collected: 10/05/18 08:40**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 00:02	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 12:58	DRE	TAL PEN
Total/NA	Prep	7470A			415482	10/16/18 09:44	JAP	TAL PEN
Total/NA	Analysis	7470A		1	416025	10/18/18 13:08	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398697	11/01/18 05:57	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397302	10/25/18 09:44	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWA-2**

**Date Collected: 10/05/18 10:15**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 00:25	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 13:02	DRE	TAL PEN
Total/NA	Prep	7470A			415482	10/16/18 09:44	JAP	TAL PEN
Total/NA	Analysis	7470A		1	416025	10/18/18 13:10	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398697	11/01/18 05:57	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397302	10/25/18 09:44	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: EB-1(AP)**

**Date Collected: 10/05/18 11:15**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 00:48	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 13:07	DRE	TAL PEN
Total/NA	Prep	7470A			415482	10/16/18 09:44	JAP	TAL PEN
Total/NA	Analysis	7470A		1	416025	10/18/18 13:12	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398697	11/01/18 05:57	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397302	10/25/18 09:45	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWA-3**

**Date Collected: 10/05/18 09:45**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 01:10	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 13:11	DRE	TAL PEN
Total/NA	Prep	7470A			415482	10/16/18 09:44	JAP	TAL PEN
Total/NA	Analysis	7470A		1	416025	10/18/18 13:13	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398697	11/01/18 05:57	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397302	10/25/18 09:45	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWA-24**

**Date Collected: 10/05/18 11:15**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 02:19	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 13:16	DRE	TAL PEN
Total/NA	Prep	7470A			415482	10/16/18 09:44	JAP	TAL PEN
Total/NA	Analysis	7470A		1	416025	10/18/18 13:15	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394199	10/10/18 11:51	JLC	TAL SL
Total/NA	Analysis	9315		1	398697	11/01/18 05:57	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394218	10/10/18 13:30	JLC	TAL SL
Total/NA	Analysis	9320		1	397302	10/25/18 09:45	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola



# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-22**

**Lab Sample ID: 400-160240-7**

**Date Collected: 10/08/18 14:20**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 02:42	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 13:20	DRE	TAL PEN
Total/NA	Prep	7470A			415495	10/16/18 10:16	DRE	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 14:43	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:16	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398413	10/31/18 17:01	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-23**

**Lab Sample ID: 400-160240-8**

**Date Collected: 10/08/18 15:50**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 03:05	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 13:24	DRE	TAL PEN
Total/NA	Prep	7470A			415495	10/16/18 10:16	DRE	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:00	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:16	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398413	10/31/18 17:01	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: EB-2(AP)**

**Lab Sample ID: 400-160240-9**

**Date Collected: 10/08/18 16:30**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 04:13	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 13:29	DRE	TAL PEN
Total/NA	Prep	7470A			415495	10/16/18 10:16	DRE	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:02	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:16	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398413	10/31/18 17:01	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-21**

**Lab Sample ID: 400-160240-10**

**Date Collected: 10/08/18 12:05**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 04:36	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 13:33	DRE	TAL PEN
Total/NA	Prep	7470A			415495	10/16/18 10:16	DRE	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:04	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:16	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398413	10/31/18 17:01	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-7**

**Lab Sample ID: 400-160240-11**

**Date Collected: 10/09/18 09:25**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415684	10/17/18 02:27	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 14:00	DRE	TAL PEN
Total/NA	Prep	7470A			415495	10/16/18 10:16	DRE	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:06	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398414	10/31/18 17:03	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-8**

**Lab Sample ID: 400-160240-12**

**Date Collected: 10/09/18 10:35**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415684	10/17/18 02:50	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 14:05	DRE	TAL PEN
Total/NA	Prep	7470A			415495	10/16/18 10:16	DRE	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:08	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398414	10/31/18 17:03	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-9**

**Lab Sample ID: 400-160240-13**

**Date Collected: 10/09/18 10:20**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 05:44	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 14:09	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:13	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398414	10/31/18 17:03	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-10**

**Lab Sample ID: 400-160240-14**

**Date Collected: 10/09/18 09:10**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415543	10/16/18 06:07	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 14:20	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:30	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398414	10/31/18 17:03	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-19**

**Lab Sample ID: 400-160240-15**

**Date Collected: 10/09/18 08:50**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 13:07	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 14:25	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:32	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398414	10/31/18 17:03	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: FD-3(AP)**

**Date Collected: 10/09/18 00:00**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-16**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415684	10/16/18 19:13	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 14:29	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:34	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398414	10/31/18 17:03	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: FB-3(AP)**

**Date Collected: 10/09/18 08:45**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-17**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415684	10/16/18 22:16	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 14:34	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:36	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398414	10/31/18 17:04	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: EB-3(AP)**

**Date Collected: 10/09/18 11:30**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-18**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 07:24	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 14:38	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:38	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398414	10/31/18 17:04	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWA-25**

**Lab Sample ID: 400-160240-19**

**Date Collected: 10/08/18 14:20**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 07:47	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 14:43	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:39	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:18	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398414	10/31/18 17:04	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWA-4**

**Lab Sample ID: 400-160240-20**

**Date Collected: 10/08/18 13:15**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 08:55	BAW	TAL PEN
Total Recoverable	Prep	3005A			415485	10/15/18 14:59	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 15:05	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:41	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394786	10/12/18 11:33	JLC	TAL SL
Total/NA	Analysis	9315		1	399232	11/05/18 10:18	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394791	10/12/18 12:42	JLC	TAL SL
Total/NA	Analysis	9320		1	398414	10/31/18 17:04	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWA-5**

**Lab Sample ID: 400-160240-21**

**Date Collected: 10/08/18 10:45**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 09:18	BAW	TAL PEN
Total Recoverable	Prep	3005A			415486	10/15/18 15:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 15:23	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:43	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394766	10/12/18 09:37	JLC	TAL SL
Total/NA	Analysis	9315		1	399234	11/05/18 05:59	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394779	10/12/18 10:51	JLC	TAL SL
Total/NA	Analysis	9320		1	396712	10/23/18 09:44	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-6**

**Lab Sample ID: 400-160240-22**

**Date Collected: 10/08/18 15:25**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 09:41	BAW	TAL PEN
Total Recoverable	Prep	3005A			415486	10/15/18 15:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 15:45	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:45	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394766	10/12/18 09:37	JLC	TAL SL
Total/NA	Analysis	9315		1	399234	11/05/18 05:59	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394779	10/12/18 10:51	JLC	TAL SL
Total/NA	Analysis	9320		1	396712	10/23/18 09:44	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-12**

**Lab Sample ID: 400-160240-23**

**Date Collected: 10/08/18 10:40**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 10:04	BAW	TAL PEN
Total Recoverable	Prep	3005A			415486	10/15/18 15:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 15:49	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:56	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394766	10/12/18 09:37	JLC	TAL SL
Total/NA	Analysis	9315		1	399234	11/05/18 05:59	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394779	10/12/18 10:51	JLC	TAL SL
Total/NA	Analysis	9320		1	396712	10/23/18 09:45	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: FB-2(AP)**

**Lab Sample ID: 400-160240-24**

**Date Collected: 10/08/18 10:15**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 10:27	BAW	TAL PEN
Total Recoverable	Prep	3005A			415486	10/15/18 15:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 16:12	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 15:58	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394766	10/12/18 09:37	JLC	TAL SL
Total/NA	Analysis	9315		1	399234	11/05/18 05:59	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394779	10/12/18 10:51	JLC	TAL SL
Total/NA	Analysis	9320		1	396712	10/23/18 09:45	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-13**

**Lab Sample ID: 400-160240-25**

**Date Collected: 10/08/18 12:25**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 11:35	BAW	TAL PEN
Total Recoverable	Prep	3005A			415486	10/15/18 15:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 16:16	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 16:00	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394766	10/12/18 09:37	JLC	TAL SL
Total/NA	Analysis	9315		1	399234	11/05/18 08:08	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394779	10/12/18 10:51	JLC	TAL SL
Total/NA	Analysis	9320		1	396712	10/23/18 09:45	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-14**

**Lab Sample ID: 400-160240-26**

**Date Collected: 10/08/18 13:30**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 11:58	BAW	TAL PEN
Total Recoverable	Prep	3005A			415486	10/15/18 15:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 16:21	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 16:01	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394766	10/12/18 09:37	JLC	TAL SL
Total/NA	Analysis	9315		1	399234	11/05/18 08:08	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394779	10/12/18 10:51	JLC	TAL SL
Total/NA	Analysis	9320		1	396712	10/23/18 09:45	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-16**

**Lab Sample ID: 400-160240-27**

**Date Collected: 10/08/18 14:40**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415749	10/17/18 12:21	BAW	TAL PEN
Total Recoverable	Prep	3005A			415486	10/15/18 15:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 16:25	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 16:03	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394766	10/12/18 09:37	JLC	TAL SL
Total/NA	Analysis	9315		1	399234	11/05/18 08:08	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394779	10/12/18 10:51	JLC	TAL SL
Total/NA	Analysis	9320		1	396712	10/23/18 09:45	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola



# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-17**

**Lab Sample ID: 400-160240-28**

**Date Collected: 10/08/18 10:30**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415684	10/16/18 21:53	BAW	TAL PEN
Total Recoverable	Prep	3005A			415486	10/15/18 15:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 16:30	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 16:05	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394766	10/12/18 09:37	JLC	TAL SL
Total/NA	Analysis	9315		1	399234	11/05/18 08:09	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394779	10/12/18 10:51	JLC	TAL SL
Total/NA	Analysis	9320		1	396712	10/23/18 09:45	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: FD-1(AP)**

**Lab Sample ID: 400-160240-29**

**Date Collected: 10/08/18 00:00**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415062	10/12/18 00:15	BAW	TAL PEN
Total Recoverable	Prep	3005A			415486	10/15/18 15:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 16:34	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 16:07	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394766	10/12/18 09:37	JLC	TAL SL
Total/NA	Analysis	9315		1	399234	11/05/18 08:09	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394779	10/12/18 10:51	JLC	TAL SL
Total/NA	Analysis	9320		1	396712	10/23/18 09:45	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: FD-2(AP)**

**Lab Sample ID: 400-160240-30**

**Date Collected: 10/08/18 00:00**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	415062	10/12/18 00:38	BAW	TAL PEN
Total Recoverable	Prep	3005A			415486	10/15/18 15:02	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	415796	10/16/18 16:39	DRE	TAL PEN
Total/NA	Prep	7470A			415608	10/16/18 10:42	JAP	TAL PEN
Total/NA	Analysis	7470A		1	415840	10/17/18 16:09	JAP	TAL PEN
Total/NA	Prep	PrecSep-21			394766	10/12/18 09:37	JLC	TAL SL
Total/NA	Analysis	9315		1	399234	11/05/18 08:09	CDR	TAL SL
Total/NA	Prep	PrecSep_0			394779	10/12/18 10:51	JLC	TAL SL
Total/NA	Analysis	9320		1	396712	10/23/18 09:46	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Date Collected: 10/16/18 10:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-31**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418094	11/02/18 18:54	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 15:29	DRE	TAL PEN
Total/NA	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419038	11/09/18 15:42	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	416446	10/22/18 14:36	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401802	11/20/18 05:47	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 14:58	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-15**

**Date Collected: 10/16/18 15:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-32**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418094	11/02/18 19:17	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	418361	11/05/18 15:32	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 15:47	DRE	TAL PEN
Total/NA	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419038	11/09/18 15:44	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	416446	10/22/18 14:36	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401802	11/20/18 05:47	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 14:59	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-18**

**Date Collected: 10/18/18 09:05**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-45**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	418361	11/05/18 23:31	BAW	TAL PEN
Dissolved	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 17:28	DRE	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 16:36	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020	DL	25	419210	11/09/18 17:35	DRE	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

**Client Sample ID: SGWC-18**

**Lab Sample ID: 400-160240-45**

**Date Collected: 10/18/18 09:05**

**Matrix: Water**

**Date Received: 10/20/18 08:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:07	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			398027	10/29/18 11:40	JLC	TAL SL
Total/NA	Analysis	9315		1	401803	11/20/18 11:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			398030	10/29/18 11:58	JLC	TAL SL
Total/NA	Analysis	9320		1	400470	11/12/18 16:30	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-20**

**Lab Sample ID: 400-160240-46**

**Date Collected: 10/18/18 10:35**

**Matrix: Water**

**Date Received: 10/20/18 08:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418296	11/03/18 05:11	BAW	TAL PEN
Total Recoverable	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 18:17	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020	DL	25	419210	11/09/18 20:07	DRE	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:05	JAP	TAL PEN
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397276	10/25/18 10:04	JLC	TAL SL
Total/NA	Analysis	9315		1	401803	11/20/18 07:54	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397294	10/25/18 10:33	JLC	TAL SL
Total/NA	Analysis	9320		1	400703	11/13/18 13:42	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

## Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## HPLC/IC

### Analysis Batch: 415062

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-29	FD-1(AP)	Total/NA	Water	300.0	
400-160240-30	FD-2(AP)	Total/NA	Water	300.0	
MB 400-415062/17	Method Blank	Total/NA	Water	300.0	
LCS 400-415062/38	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-415062/39	Lab Control Sample Dup	Total/NA	Water	300.0	
400-160367-I-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-160367-I-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 415543

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-1	SGWA-1	Total/NA	Water	300.0	
400-160240-2	FB-1(AP)	Total/NA	Water	300.0	
400-160240-3	SGWA-2	Total/NA	Water	300.0	
400-160240-4	EB-1(AP)	Total/NA	Water	300.0	
400-160240-5	SGWA-3	Total/NA	Water	300.0	
400-160240-6	SGWA-24	Total/NA	Water	300.0	
400-160240-7	SGWC-22	Total/NA	Water	300.0	
400-160240-8	SGWC-23	Total/NA	Water	300.0	
400-160240-9	EB-2(AP)	Total/NA	Water	300.0	
400-160240-10	SGWC-21	Total/NA	Water	300.0	
400-160240-13	SGWC-9	Total/NA	Water	300.0	
400-160240-14	SGWC-10	Total/NA	Water	300.0	
MB 400-415543/36	Method Blank	Total/NA	Water	300.0	
LCS 400-415543/37	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-415543/38	Lab Control Sample Dup	Total/NA	Water	300.0	
400-160196-D-3 MS	Matrix Spike	Total/NA	Water	300.0	
400-160196-D-3 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 415684

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-11	SGWC-7	Total/NA	Water	300.0	
400-160240-12	SGWC-8	Total/NA	Water	300.0	
400-160240-16	FD-3(AP)	Total/NA	Water	300.0	
400-160240-17	FB-3(AP)	Total/NA	Water	300.0	
400-160240-28	SGWC-17	Total/NA	Water	300.0	
MB 400-415684/21	Method Blank	Total/NA	Water	300.0	
LCS 400-415684/22	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-415684/23	Lab Control Sample Dup	Total/NA	Water	300.0	
400-160284-B-2 MS	Matrix Spike	Total/NA	Water	300.0	
400-160284-B-3 MS	Matrix Spike	Total/NA	Water	300.0	
400-160284-B-3 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 415749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-15	SGWC-19	Total/NA	Water	300.0	
400-160240-18	EB-3(AP)	Total/NA	Water	300.0	
400-160240-19	SGWA-25	Total/NA	Water	300.0	
400-160240-20	SGWA-4	Total/NA	Water	300.0	
400-160240-21	SGWA-5	Total/NA	Water	300.0	
400-160240-22	SGWC-6	Total/NA	Water	300.0	
400-160240-23	SGWC-12	Total/NA	Water	300.0	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## HPLC/IC (Continued)

### Analysis Batch: 415749 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-24	FB-2(AP)	Total/NA	Water	300.0	
400-160240-25	SGWC-13	Total/NA	Water	300.0	
400-160240-26	SGWC-14	Total/NA	Water	300.0	
400-160240-27	SGWC-16	Total/NA	Water	300.0	
MB 400-415749/4	Method Blank	Total/NA	Water	300.0	
LCS 400-415749/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-415749/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-160302-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-160302-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 418094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	300.0	
400-160240-32	SGWC-15	Total/NA	Water	300.0	
MB 400-418094/4	Method Blank	Total/NA	Water	300.0	
LCS 400-418094/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-418094/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-161260-E-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-161260-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 418296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-46	SGWC-20	Total/NA	Water	300.0	
MB 400-418296/40	Method Blank	Total/NA	Water	300.0	
LCS 400-418296/46	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-418296/47	Lab Control Sample Dup	Total/NA	Water	300.0	
400-161260-E-3 MS	Matrix Spike	Total/NA	Water	300.0	
400-161260-E-3 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 418361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-32 - DL	SGWC-15	Total/NA	Water	300.0	
400-160240-45	SGWC-18	Total/NA	Water	300.0	
MB 400-418361/4	Method Blank	Total/NA	Water	300.0	
LCS 400-418361/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-418361/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-161340-H-3 MS	Matrix Spike	Total/NA	Water	300.0	
400-161340-H-3 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 415482

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-1	SGWA-1	Total/NA	Water	7470A	
400-160240-2	FB-1(AP)	Total/NA	Water	7470A	
400-160240-3	SGWA-2	Total/NA	Water	7470A	
400-160240-4	EB-1(AP)	Total/NA	Water	7470A	
400-160240-5	SGWA-3	Total/NA	Water	7470A	
400-160240-6	SGWA-24	Total/NA	Water	7470A	
MB 400-415482/13-A	Method Blank	Total/NA	Water	7470A	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Metals (Continued)

### Prep Batch: 415482 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-415482/14-A	Lab Control Sample	Total/NA	Water	7470A	
400-160138-B-1-E MS	Matrix Spike	Total/NA	Water	7470A	
400-160138-B-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Prep Batch: 415485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-1	SGWA-1	Total Recoverable	Water	3005A	
400-160240-2	FB-1(AP)	Total Recoverable	Water	3005A	
400-160240-3	SGWA-2	Total Recoverable	Water	3005A	
400-160240-4	EB-1(AP)	Total Recoverable	Water	3005A	
400-160240-5	SGWA-3	Total Recoverable	Water	3005A	
400-160240-6	SGWA-24	Total Recoverable	Water	3005A	
400-160240-7	SGWC-22	Total Recoverable	Water	3005A	
400-160240-8	SGWC-23	Total Recoverable	Water	3005A	
400-160240-9	EB-2(AP)	Total Recoverable	Water	3005A	
400-160240-10	SGWC-21	Total Recoverable	Water	3005A	
400-160240-11	SGWC-7	Total Recoverable	Water	3005A	
400-160240-12	SGWC-8	Total Recoverable	Water	3005A	
400-160240-13	SGWC-9	Total Recoverable	Water	3005A	
400-160240-14	SGWC-10	Total Recoverable	Water	3005A	
400-160240-15	SGWC-19	Total Recoverable	Water	3005A	
400-160240-16	FD-3(AP)	Total Recoverable	Water	3005A	
400-160240-17	FB-3(AP)	Total Recoverable	Water	3005A	
400-160240-18	EB-3(AP)	Total Recoverable	Water	3005A	
400-160240-19	SGWA-25	Total Recoverable	Water	3005A	
400-160240-20	SGWA-4	Total Recoverable	Water	3005A	
MB 400-415485/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-415485/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-160240-1 MS	SGWA-1	Total Recoverable	Water	3005A	
400-160240-1 MSD	SGWA-1	Total Recoverable	Water	3005A	

### Prep Batch: 415486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-21	SGWA-5	Total Recoverable	Water	3005A	
400-160240-22	SGWC-6	Total Recoverable	Water	3005A	
400-160240-23	SGWC-12	Total Recoverable	Water	3005A	
400-160240-24	FB-2(AP)	Total Recoverable	Water	3005A	
400-160240-25	SGWC-13	Total Recoverable	Water	3005A	
400-160240-26	SGWC-14	Total Recoverable	Water	3005A	
400-160240-27	SGWC-16	Total Recoverable	Water	3005A	
400-160240-28	SGWC-17	Total Recoverable	Water	3005A	
400-160240-29	FD-1(AP)	Total Recoverable	Water	3005A	
400-160240-30	FD-2(AP)	Total Recoverable	Water	3005A	
MB 400-415486/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-415486/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-160240-21 MS	SGWA-5	Total Recoverable	Water	3005A	
400-160240-21 MSD	SGWA-5	Total Recoverable	Water	3005A	

### Prep Batch: 415495

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-7	SGWC-22	Total/NA	Water	7470A	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Metals (Continued)

### Prep Batch: 415495 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-8	SGWC-23	Total/NA	Water	7470A	
400-160240-9	EB-2(AP)	Total/NA	Water	7470A	
400-160240-10	SGWC-21	Total/NA	Water	7470A	
400-160240-11	SGWC-7	Total/NA	Water	7470A	
400-160240-12	SGWC-8	Total/NA	Water	7470A	
MB 400-415495/13-A	Method Blank	Total/NA	Water	7470A	
LCS 400-415495/14-A	Lab Control Sample	Total/NA	Water	7470A	
400-160036-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	
400-160036-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Prep Batch: 415608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-13	SGWC-9	Total/NA	Water	7470A	
400-160240-14	SGWC-10	Total/NA	Water	7470A	
400-160240-15	SGWC-19	Total/NA	Water	7470A	
400-160240-16	FD-3(AP)	Total/NA	Water	7470A	
400-160240-17	FB-3(AP)	Total/NA	Water	7470A	
400-160240-18	EB-3(AP)	Total/NA	Water	7470A	
400-160240-19	SGWA-25	Total/NA	Water	7470A	
400-160240-20	SGWA-4	Total/NA	Water	7470A	
400-160240-21	SGWA-5	Total/NA	Water	7470A	
400-160240-22	SGWC-6	Total/NA	Water	7470A	
400-160240-23	SGWC-12	Total/NA	Water	7470A	
400-160240-24	FB-2(AP)	Total/NA	Water	7470A	
400-160240-25	SGWC-13	Total/NA	Water	7470A	
400-160240-26	SGWC-14	Total/NA	Water	7470A	
400-160240-27	SGWC-16	Total/NA	Water	7470A	
400-160240-28	SGWC-17	Total/NA	Water	7470A	
400-160240-29	FD-1(AP)	Total/NA	Water	7470A	
400-160240-30	FD-2(AP)	Total/NA	Water	7470A	
MB 400-415608/13-A	Method Blank	Total/NA	Water	7470A	
LCS 400-415608/14-A	Lab Control Sample	Total/NA	Water	7470A	
400-160240-13 MS	SGWC-9	Total/NA	Water	7470A	
400-160240-13 MSD	SGWC-9	Total/NA	Water	7470A	

### Analysis Batch: 415796

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-1	SGWA-1	Total Recoverable	Water	6020	415485
400-160240-2	FB-1(AP)	Total Recoverable	Water	6020	415485
400-160240-3	SGWA-2	Total Recoverable	Water	6020	415485
400-160240-4	EB-1(AP)	Total Recoverable	Water	6020	415485
400-160240-5	SGWA-3	Total Recoverable	Water	6020	415485
400-160240-6	SGWA-24	Total Recoverable	Water	6020	415485
400-160240-7	SGWC-22	Total Recoverable	Water	6020	415485
400-160240-8	SGWC-23	Total Recoverable	Water	6020	415485
400-160240-9	EB-2(AP)	Total Recoverable	Water	6020	415485
400-160240-10	SGWC-21	Total Recoverable	Water	6020	415485
400-160240-11	SGWC-7	Total Recoverable	Water	6020	415485
400-160240-12	SGWC-8	Total Recoverable	Water	6020	415485
400-160240-13	SGWC-9	Total Recoverable	Water	6020	415485
400-160240-14	SGWC-10	Total Recoverable	Water	6020	415485

TestAmerica Pensacola



# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 415796 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-15	SGWC-19	Total Recoverable	Water	6020	415485
400-160240-16	FD-3(AP)	Total Recoverable	Water	6020	415485
400-160240-17	FB-3(AP)	Total Recoverable	Water	6020	415485
400-160240-18	EB-3(AP)	Total Recoverable	Water	6020	415485
400-160240-19	SGWA-25	Total Recoverable	Water	6020	415485
400-160240-20	SGWA-4	Total Recoverable	Water	6020	415485
400-160240-21	SGWA-5	Total Recoverable	Water	6020	415486
400-160240-22	SGWC-6	Total Recoverable	Water	6020	415486
400-160240-23	SGWC-12	Total Recoverable	Water	6020	415486
400-160240-24	FB-2(AP)	Total Recoverable	Water	6020	415486
400-160240-25	SGWC-13	Total Recoverable	Water	6020	415486
400-160240-26	SGWC-14	Total Recoverable	Water	6020	415486
400-160240-27	SGWC-16	Total Recoverable	Water	6020	415486
400-160240-28	SGWC-17	Total Recoverable	Water	6020	415486
400-160240-29	FD-1(AP)	Total Recoverable	Water	6020	415486
400-160240-30	FD-2(AP)	Total Recoverable	Water	6020	415486
MB 400-415485/1-A ^5	Method Blank	Total Recoverable	Water	6020	415485
MB 400-415486/1-A ^5	Method Blank	Total Recoverable	Water	6020	415486
LCS 400-415485/2-A	Lab Control Sample	Total Recoverable	Water	6020	415485
LCS 400-415486/2-A	Lab Control Sample	Total Recoverable	Water	6020	415486
400-160240-1 MS	SGWA-1	Total Recoverable	Water	6020	415485
400-160240-1 MSD	SGWA-1	Total Recoverable	Water	6020	415485
400-160240-21 MS	SGWA-5	Total Recoverable	Water	6020	415486
400-160240-21 MSD	SGWA-5	Total Recoverable	Water	6020	415486

### Analysis Batch: 415840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-7	SGWC-22	Total/NA	Water	7470A	415495
400-160240-8	SGWC-23	Total/NA	Water	7470A	415495
400-160240-9	EB-2(AP)	Total/NA	Water	7470A	415495
400-160240-10	SGWC-21	Total/NA	Water	7470A	415495
400-160240-11	SGWC-7	Total/NA	Water	7470A	415495
400-160240-12	SGWC-8	Total/NA	Water	7470A	415495
400-160240-13	SGWC-9	Total/NA	Water	7470A	415608
400-160240-14	SGWC-10	Total/NA	Water	7470A	415608
400-160240-15	SGWC-19	Total/NA	Water	7470A	415608
400-160240-16	FD-3(AP)	Total/NA	Water	7470A	415608
400-160240-17	FB-3(AP)	Total/NA	Water	7470A	415608
400-160240-18	EB-3(AP)	Total/NA	Water	7470A	415608
400-160240-19	SGWA-25	Total/NA	Water	7470A	415608
400-160240-20	SGWA-4	Total/NA	Water	7470A	415608
400-160240-21	SGWA-5	Total/NA	Water	7470A	415608
400-160240-22	SGWC-6	Total/NA	Water	7470A	415608
400-160240-23	SGWC-12	Total/NA	Water	7470A	415608
400-160240-24	FB-2(AP)	Total/NA	Water	7470A	415608
400-160240-25	SGWC-13	Total/NA	Water	7470A	415608
400-160240-26	SGWC-14	Total/NA	Water	7470A	415608
400-160240-27	SGWC-16	Total/NA	Water	7470A	415608
400-160240-28	SGWC-17	Total/NA	Water	7470A	415608
400-160240-29	FD-1(AP)	Total/NA	Water	7470A	415608
400-160240-30	FD-2(AP)	Total/NA	Water	7470A	415608

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 415840 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 400-415495/13-A	Method Blank	Total/NA	Water	7470A	415495
MB 400-415608/13-A	Method Blank	Total/NA	Water	7470A	415608
LCS 400-415495/14-A	Lab Control Sample	Total/NA	Water	7470A	415495
LCS 400-415608/14-A	Lab Control Sample	Total/NA	Water	7470A	415608
400-160036-B-1-C MS	Matrix Spike	Total/NA	Water	7470A	415495
400-160036-B-1-D MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	415495
400-160240-13 MS	SGWC-9	Total/NA	Water	7470A	415608
400-160240-13 MSD	SGWC-9	Total/NA	Water	7470A	415608

### Analysis Batch: 416025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-1	SGWA-1	Total/NA	Water	7470A	415482
400-160240-2	FB-1(AP)	Total/NA	Water	7470A	415482
400-160240-3	SGWA-2	Total/NA	Water	7470A	415482
400-160240-4	EB-1(AP)	Total/NA	Water	7470A	415482
400-160240-5	SGWA-3	Total/NA	Water	7470A	415482
400-160240-6	SGWA-24	Total/NA	Water	7470A	415482
MB 400-415482/13-A	Method Blank	Total/NA	Water	7470A	415482
LCS 400-415482/14-A	Lab Control Sample	Total/NA	Water	7470A	415482
400-160138-B-1-E MS	Matrix Spike	Total/NA	Water	7470A	415482
400-160138-B-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	415482

### Prep Batch: 418701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	7470A	
400-160240-32	SGWC-15	Total/NA	Water	7470A	
MB 400-418701/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-418701/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-161395-A-3-B MS	Matrix Spike	Total/NA	Water	7470A	
400-161395-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Prep Batch: 418848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Total/NA	Water	7470A	
400-160240-46	SGWC-20	Total/NA	Water	7470A	
MB 400-418848/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-418848/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-160240-B-42-B MS	Matrix Spike	Total/NA	Water	7470A	
400-160240-B-42-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Prep Batch: 418952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total Recoverable	Water	3005A	
400-160240-32	SGWC-15	Total Recoverable	Water	3005A	
400-160240-45	SGWC-18	Dissolved	Water	3005A	
400-160240-45 - DL	SGWC-18	Total Recoverable	Water	3005A	
400-160240-45	SGWC-18	Total Recoverable	Water	3005A	
MB 400-418952/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-418952/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-160240-31 MS	SGWC-11	Total Recoverable	Water	3005A	
400-160240-31 MSD	SGWC-11	Total Recoverable	Water	3005A	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Prep Batch: 418964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-46	SGWC-20	Total Recoverable	Water	3005A	
400-160240-46 - DL	SGWC-20	Total Recoverable	Water	3005A	
MB 400-418964/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-418964/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-160240-46 MS	SGWC-20	Total Recoverable	Water	3005A	
400-160240-46 MSD	SGWC-20	Total Recoverable	Water	3005A	

## Analysis Batch: 419038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	7470A	418701
400-160240-32	SGWC-15	Total/NA	Water	7470A	418701
MB 400-418701/14-A	Method Blank	Total/NA	Water	7470A	418701
LCS 400-418701/15-A	Lab Control Sample	Total/NA	Water	7470A	418701
400-161395-A-3-B MS	Matrix Spike	Total/NA	Water	7470A	418701
400-161395-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	418701

## Analysis Batch: 419210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total Recoverable	Water	6020	418952
400-160240-32	SGWC-15	Total Recoverable	Water	6020	418952
400-160240-45	SGWC-18	Dissolved	Water	6020	418952
400-160240-45	SGWC-18	Total Recoverable	Water	6020	418952
400-160240-45 - DL	SGWC-18	Total Recoverable	Water	6020	418952
400-160240-46	SGWC-20	Total Recoverable	Water	6020	418964
400-160240-46 - DL	SGWC-20	Total Recoverable	Water	6020	418964
MB 400-418952/1-A ^5	Method Blank	Total Recoverable	Water	6020	418952
MB 400-418964/1-A ^5	Method Blank	Total Recoverable	Water	6020	418964
LCS 400-418952/2-A	Lab Control Sample	Total Recoverable	Water	6020	418952
LCS 400-418964/2-A	Lab Control Sample	Total Recoverable	Water	6020	418964
400-160240-31 MS	SGWC-11	Total Recoverable	Water	6020	418952
400-160240-31 MSD	SGWC-11	Total Recoverable	Water	6020	418952
400-160240-46 MS	SGWC-20	Total Recoverable	Water	6020	418964
400-160240-46 MSD	SGWC-20	Total Recoverable	Water	6020	418964

## Analysis Batch: 419409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Total/NA	Water	7470A	418848
400-160240-46	SGWC-20	Total/NA	Water	7470A	418848
MB 400-418848/14-A	Method Blank	Total/NA	Water	7470A	418848
LCS 400-418848/15-A	Lab Control Sample	Total/NA	Water	7470A	418848
400-160240-B-42-B MS	Matrix Spike	Total/NA	Water	7470A	418848
400-160240-B-42-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	418848

## General Chemistry

## Analysis Batch: 416446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	SM 2540C	
400-160240-32	SGWC-15	Total/NA	Water	SM 2540C	
MB 400-416446/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-416446/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-160742-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 2540C	
400-160240-32 DU	SGWC-15	Total/NA	Water	SM 2540C	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Analysis Batch: 416940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Total/NA	Water	SM 2540C	
400-160240-46	SGWC-20	Total/NA	Water	SM 2540C	
MB 400-416940/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-416940/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-160240-A-54 DU	Duplicate	Total/NA	Water	SM 2540C	

## Rad

### Prep Batch: 394199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-1	SGWA-1	Total/NA	Water	PrecSep-21	
400-160240-2	FB-1(AP)	Total/NA	Water	PrecSep-21	
400-160240-3	SGWA-2	Total/NA	Water	PrecSep-21	
400-160240-4	EB-1(AP)	Total/NA	Water	PrecSep-21	
400-160240-5	SGWA-3	Total/NA	Water	PrecSep-21	
400-160240-6	SGWA-24	Total/NA	Water	PrecSep-21	
MB 160-394199/21-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-394199/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-160240-6 DU	SGWA-24	Total/NA	Water	PrecSep-21	

### Prep Batch: 394218

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-1	SGWA-1	Total/NA	Water	PrecSep_0	
400-160240-2	FB-1(AP)	Total/NA	Water	PrecSep_0	
400-160240-3	SGWA-2	Total/NA	Water	PrecSep_0	
400-160240-4	EB-1(AP)	Total/NA	Water	PrecSep_0	
400-160240-5	SGWA-3	Total/NA	Water	PrecSep_0	
400-160240-6	SGWA-24	Total/NA	Water	PrecSep_0	
MB 160-394218/21-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-394218/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-160240-6 DU	SGWA-24	Total/NA	Water	PrecSep_0	

### Prep Batch: 394766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-21	SGWA-5	Total/NA	Water	PrecSep-21	
400-160240-22	SGWC-6	Total/NA	Water	PrecSep-21	
400-160240-23	SGWC-12	Total/NA	Water	PrecSep-21	
400-160240-24	FB-2(AP)	Total/NA	Water	PrecSep-21	
400-160240-25	SGWC-13	Total/NA	Water	PrecSep-21	
400-160240-26	SGWC-14	Total/NA	Water	PrecSep-21	
400-160240-27	SGWC-16	Total/NA	Water	PrecSep-21	
400-160240-28	SGWC-17	Total/NA	Water	PrecSep-21	
400-160240-29	FD-1(AP)	Total/NA	Water	PrecSep-21	
400-160240-30	FD-2(AP)	Total/NA	Water	PrecSep-21	
MB 160-394766/17-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-394766/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
500-152940-W-1-B MS	Matrix Spike	Total/NA	Water	PrecSep-21	
500-152940-W-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep-21	
400-160240-21 DU	SGWA-5	Total/NA	Water	PrecSep-21	

### Prep Batch: 394779

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-21	SGWA-5	Total/NA	Water	PrecSep_0	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Rad (Continued)

### Prep Batch: 394779 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-22	SGWC-6	Total/NA	Water	PrecSep_0	
400-160240-23	SGWC-12	Total/NA	Water	PrecSep_0	
400-160240-24	FB-2(AP)	Total/NA	Water	PrecSep_0	
400-160240-25	SGWC-13	Total/NA	Water	PrecSep_0	
400-160240-26	SGWC-14	Total/NA	Water	PrecSep_0	
400-160240-27	SGWC-16	Total/NA	Water	PrecSep_0	
400-160240-28	SGWC-17	Total/NA	Water	PrecSep_0	
400-160240-29	FD-1(AP)	Total/NA	Water	PrecSep_0	
400-160240-30	FD-2(AP)	Total/NA	Water	PrecSep_0	
MB 160-394779/17-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-394779/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
500-152940-W-1-E MS	Matrix Spike	Total/NA	Water	PrecSep_0	
500-152940-W-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	PrecSep_0	
400-160240-21 DU	SGWA-5	Total/NA	Water	PrecSep_0	

### Prep Batch: 394786

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-7	SGWC-22	Total/NA	Water	PrecSep-21	
400-160240-8	SGWC-23	Total/NA	Water	PrecSep-21	
400-160240-9	EB-2(AP)	Total/NA	Water	PrecSep-21	
400-160240-10	SGWC-21	Total/NA	Water	PrecSep-21	
400-160240-11	SGWC-7	Total/NA	Water	PrecSep-21	
400-160240-12	SGWC-8	Total/NA	Water	PrecSep-21	
400-160240-13	SGWC-9	Total/NA	Water	PrecSep-21	
400-160240-14	SGWC-10	Total/NA	Water	PrecSep-21	
400-160240-15	SGWC-19	Total/NA	Water	PrecSep-21	
400-160240-16	FD-3(AP)	Total/NA	Water	PrecSep-21	
400-160240-17	FB-3(AP)	Total/NA	Water	PrecSep-21	
400-160240-18	EB-3(AP)	Total/NA	Water	PrecSep-21	
400-160240-19	SGWA-25	Total/NA	Water	PrecSep-21	
400-160240-20	SGWA-4	Total/NA	Water	PrecSep-21	
MB 160-394786/22-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-394786/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-160240-11 DU	SGWC-7	Total/NA	Water	PrecSep-21	

### Prep Batch: 394791

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-7	SGWC-22	Total/NA	Water	PrecSep_0	
400-160240-8	SGWC-23	Total/NA	Water	PrecSep_0	
400-160240-9	EB-2(AP)	Total/NA	Water	PrecSep_0	
400-160240-10	SGWC-21	Total/NA	Water	PrecSep_0	
400-160240-11	SGWC-7	Total/NA	Water	PrecSep_0	
400-160240-12	SGWC-8	Total/NA	Water	PrecSep_0	
400-160240-13	SGWC-9	Total/NA	Water	PrecSep_0	
400-160240-14	SGWC-10	Total/NA	Water	PrecSep_0	
400-160240-15	SGWC-19	Total/NA	Water	PrecSep_0	
400-160240-16	FD-3(AP)	Total/NA	Water	PrecSep_0	
400-160240-17	FB-3(AP)	Total/NA	Water	PrecSep_0	
400-160240-18	EB-3(AP)	Total/NA	Water	PrecSep_0	
400-160240-19	SGWA-25	Total/NA	Water	PrecSep_0	
400-160240-20	SGWA-4	Total/NA	Water	PrecSep_0	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Rad (Continued)

### Prep Batch: 394791 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 160-394791/22-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-394791/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-160240-11 DU	SGWC-7	Total/NA	Water	PrecSep_0	

### Prep Batch: 397276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-46	SGWC-20	Total/NA	Water	PrecSep-21	
MB 160-397276/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-397276/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-160832-A-8-A DU	Duplicate	Total/NA	Water	PrecSep-21	

### Prep Batch: 397279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	PrecSep-21	
400-160240-32	SGWC-15	Total/NA	Water	PrecSep-21	
MB 160-397279/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-397279/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-160240-A-35-A DU	Duplicate	Total/NA	Water	PrecSep-21	

### Prep Batch: 397294

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-46	SGWC-20	Total/NA	Water	PrecSep_0	
MB 160-397294/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-397294/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-160832-A-8-B DU	Duplicate	Total/NA	Water	PrecSep_0	

### Prep Batch: 397318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	PrecSep_0	
400-160240-32	SGWC-15	Total/NA	Water	PrecSep_0	
MB 160-397318/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-397318/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-160240-A-35-B DU	Duplicate	Total/NA	Water	PrecSep_0	

### Prep Batch: 398027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Total/NA	Water	PrecSep-21	
MB 160-398027/11-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-398027/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-398027/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

### Prep Batch: 398030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Total/NA	Water	PrecSep_0	
MB 160-398030/11-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-398030/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-398030/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 400-415062/17

Matrix: Water

Analysis Batch: 415062

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/11/18 17:04	1

Lab Sample ID: LCS 400-415062/38

Matrix: Water

Analysis Batch: 415062

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.3		mg/L	-	103	90 - 110

Lab Sample ID: LCSD 400-415062/39

Matrix: Water

Analysis Batch: 415062

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.7		mg/L	-	107	90 - 110	4	15

Lab Sample ID: 400-160367-I-1 MS

Matrix: Water

Analysis Batch: 415062

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.17	J	10.0	11.6		mg/L	-	114	80 - 120

Lab Sample ID: 400-160367-I-1 MSD

Matrix: Water

Analysis Batch: 415062

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.17	J	10.0	11.6		mg/L	-	114	80 - 120	0	20

Lab Sample ID: MB 400-415543/36

Matrix: Water

Analysis Batch: 415543

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L	-		10/15/18 19:05	1

Lab Sample ID: LCS 400-415543/37

Matrix: Water

Analysis Batch: 415543

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	11.1	*	mg/L	-	111	90 - 110

Lab Sample ID: LCSD 400-415543/38

Matrix: Water

Analysis Batch: 415543

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	11.0		mg/L	-	110	90 - 110	1	15

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

Lab Sample ID: 400-160196-D-3 MS

Matrix: Water

Analysis Batch: 415543

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.091	J *	10.0	11.6		mg/L		115	80 - 120

Lab Sample ID: MB 400-415684/21

Matrix: Water

Analysis Batch: 415684

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L			10/16/18 15:47	1

Lab Sample ID: LCS 400-415684/22

Matrix: Water

Analysis Batch: 415684

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.5		mg/L		105	90 - 110

Lab Sample ID: LCSD 400-415684/23

Matrix: Water

Analysis Batch: 415684

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.7		mg/L		107	90 - 110	2	15

Lab Sample ID: 400-160284-B-2 MS

Matrix: Water

Analysis Batch: 415684

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	<0.082		10.0	11.0		mg/L		110	80 - 120

Lab Sample ID: 400-160284-B-3 MS

Matrix: Water

Analysis Batch: 415684

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	<0.082		10.0	11.2		mg/L		112	80 - 120

Lab Sample ID: 400-160284-B-3 MSD

Matrix: Water

Analysis Batch: 415684

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	<0.082		10.0	11.5		mg/L		115	80 - 120	3	20

Lab Sample ID: MB 400-415749/4

Matrix: Water

Analysis Batch: 415749

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Fluoride	<0.082		0.20	0.082	mg/L			10/17/18 04:21	1

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 400-415749/5

Matrix: Water

Analysis Batch: 415749

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	10.0	10.6		mg/L		106	90 - 110

Lab Sample ID: LCSD 400-415749/6

Matrix: Water

Analysis Batch: 415749

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	10.0	10.7		mg/L		107	90 - 110	1	15

Lab Sample ID: 400-160302-A-1 MS

Matrix: Water

Analysis Batch: 415749

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Fluoride	0.34		10.0	11.0		mg/L		107	80 - 120

Lab Sample ID: 400-160302-A-1 MSD

Matrix: Water

Analysis Batch: 415749

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Fluoride	0.34		10.0	11.3		mg/L		110	80 - 120	3	20

Lab Sample ID: MB 400-418094/4

Matrix: Water

Analysis Batch: 418094

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/02/18 07:05	1
Fluoride	0.0951	J	0.20	0.082	mg/L			11/02/18 07:05	1
Sulfate	<0.70		1.0	0.70	mg/L			11/02/18 07:05	1

Lab Sample ID: LCS 400-418094/5

Matrix: Water

Analysis Batch: 418094

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.95		mg/L		100	90 - 110
Fluoride	10.0	9.95		mg/L		99	90 - 110
Sulfate	10.0	10.8		mg/L		108	90 - 110

Lab Sample ID: LCSD 400-418094/6

Matrix: Water

Analysis Batch: 418094

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.95		mg/L		99	90 - 110	0	15
Fluoride	10.0	9.96		mg/L		100	90 - 110	0	15
Sulfate	10.0	11.0		mg/L		110	90 - 110	2	15

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 400-161260-E-1 MS

Matrix: Water

Analysis Batch: 418094

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.1		10.0	16.8		mg/L		97	80 - 120
Fluoride	<0.082		10.0	9.67		mg/L		97	80 - 120
Sulfate	9.6		10.0	20.0		mg/L		104	80 - 120

Lab Sample ID: 400-161260-E-1 MSD

Matrix: Water

Analysis Batch: 418094

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	7.1		10.0	17.2		mg/L		100	80 - 120	2	20
Fluoride	<0.082		10.0	9.97		mg/L		100	80 - 120	3	20
Sulfate	9.6		10.0	20.7		mg/L		110	80 - 120	3	20

Lab Sample ID: MB 400-418296/40

Matrix: Water

Analysis Batch: 418296

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/02/18 21:57	1
Fluoride	0.0932	J	0.20	0.082	mg/L			11/02/18 21:57	1

Lab Sample ID: LCS 400-418296/46

Matrix: Water

Analysis Batch: 418296

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.88		mg/L		99	90 - 110
Fluoride	10.0	9.80		mg/L		98	90 - 110

Lab Sample ID: LCSD 400-418296/47

Matrix: Water

Analysis Batch: 418296

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.86		mg/L		99	90 - 110	0	15
Fluoride	10.0	9.87		mg/L		99	90 - 110	1	15

Lab Sample ID: 400-161260-E-3 MS

Matrix: Water

Analysis Batch: 418296

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.9		10.0	12.9		mg/L		101	80 - 120
Fluoride	<0.082		10.0	10.1		mg/L		101	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 400-161260-E-3 MSD

Matrix: Water

Analysis Batch: 418296

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.9		10.0	12.8		mg/L		100	80 - 120	1	20
Fluoride	<0.082		10.0	10.1		mg/L		101	80 - 120	0	20

Lab Sample ID: MB 400-418361/4

Matrix: Water

Analysis Batch: 418361

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/05/18 12:03	1
Fluoride	<0.082		0.20	0.082	mg/L			11/05/18 12:03	1
Sulfate	<0.70		1.0	0.70	mg/L			11/05/18 12:03	1

Lab Sample ID: LCS 400-418361/5

Matrix: Water

Analysis Batch: 418361

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.93		mg/L		99	90 - 110
Fluoride	10.0	9.88		mg/L		99	90 - 110
Sulfate	10.0	10.7		mg/L		107	90 - 110

Lab Sample ID: LCSD 400-418361/6

Matrix: Water

Analysis Batch: 418361

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.76		mg/L		98	90 - 110	2	15
Fluoride	10.0	10.2		mg/L		102	90 - 110	3	15
Sulfate	10.0	10.6		mg/L		106	90 - 110	0	15

Lab Sample ID: 400-161340-H-3 MS

Matrix: Water

Analysis Batch: 418361

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	100		50.0	150		mg/L		95	80 - 120
Fluoride	0.45	J	50.0	53.9		mg/L		107	80 - 120
Sulfate	140		50.0	190		mg/L		104	80 - 120

Lab Sample ID: 400-161340-H-3 MSD

Matrix: Water

Analysis Batch: 418361

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100		50.0	152		mg/L		99	80 - 120	1	20
Fluoride	0.45	J	50.0	53.9		mg/L		107	80 - 120	0	20
Sulfate	140		50.0	193		mg/L		111	80 - 120	2	20

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-415485/1-A ^5  
Matrix: Water  
Analysis Batch: 415796

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 415485

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/15/18 14:59	10/16/18 11:46	5
Arsenic	<0.00046		0.0013	0.00046	mg/L		10/15/18 14:59	10/16/18 11:46	5
Barium	<0.00049		0.0025	0.00049	mg/L		10/15/18 14:59	10/16/18 11:46	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/15/18 14:59	10/16/18 11:46	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/15/18 14:59	10/16/18 11:46	5
Chromium	<0.0011		0.0025	0.0011	mg/L		10/15/18 14:59	10/16/18 11:46	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/15/18 14:59	10/16/18 11:46	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/15/18 14:59	10/16/18 11:46	5
Lithium	<0.0011		0.0050	0.0011	mg/L		10/15/18 14:59	10/16/18 11:46	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		10/15/18 14:59	10/16/18 11:46	5
Selenium	0.000305	J	0.0013	0.00024	mg/L		10/15/18 14:59	10/16/18 11:46	5
Thallium	<0.000085		0.00050	0.000085	mg/L		10/15/18 14:59	10/16/18 11:46	5

Lab Sample ID: LCS 400-415485/2-A  
Matrix: Water  
Analysis Batch: 415796

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 415485

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0495		mg/L		99	80 - 120
Arsenic	0.0500	0.0512		mg/L		102	80 - 120
Barium	0.0500	0.0510		mg/L		102	80 - 120
Beryllium	0.0500	0.0491		mg/L		98	80 - 120
Cadmium	0.0500	0.0514		mg/L		103	80 - 120
Chromium	0.0500	0.0525		mg/L		105	80 - 120
Cobalt	0.0500	0.0531		mg/L		106	80 - 120
Lead	0.0500	0.0518		mg/L		104	80 - 120
Lithium	0.0500	0.0533		mg/L		107	80 - 120
Molybdenum	0.0500	0.0496		mg/L		99	80 - 120
Selenium	0.0500	0.0499		mg/L		100	80 - 120
Thallium	0.0100	0.0100		mg/L		100	80 - 120

Lab Sample ID: 400-160240-1 MS  
Matrix: Water  
Analysis Batch: 415796

Client Sample ID: SGWA-1  
Prep Type: Total Recoverable  
Prep Batch: 415485

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0010		0.0500	0.0533		mg/L		107	75 - 125
Arsenic	0.00064	J	0.0500	0.0528		mg/L		104	75 - 125
Barium	0.058		0.0500	0.111		mg/L		106	75 - 125
Beryllium	<0.00034		0.0500	0.0497		mg/L		99	75 - 125
Cadmium	<0.00034		0.0500	0.0544		mg/L		109	75 - 125
Chromium	0.0014	J	0.0500	0.0575		mg/L		112	75 - 125
Cobalt	0.00075	J	0.0500	0.0550		mg/L		109	75 - 125
Lead	<0.00035		0.0500	0.0508		mg/L		102	75 - 125
Lithium	0.0018	J	0.0500	0.0541		mg/L		105	75 - 125
Molybdenum	<0.00085		0.0500	0.0514		mg/L		103	75 - 125
Selenium	0.00031	J B	0.0500	0.0518		mg/L		103	75 - 125
Thallium	<0.000085		0.0100	0.0105		mg/L		105	75 - 125

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-160240-1 MSD

Matrix: Water

Analysis Batch: 415796

Client Sample ID: SGWA-1

Prep Type: Total Recoverable

Prep Batch: 415485

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.0010		0.0500	0.0517		mg/L		103	75 - 125	3	20
Arsenic	0.00064	J	0.0500	0.0527		mg/L		104	75 - 125	0	20
Barium	0.058		0.0500	0.109		mg/L		103	75 - 125	1	20
Beryllium	<0.00034		0.0500	0.0502		mg/L		100	75 - 125	1	20
Cadmium	<0.00034		0.0500	0.0544		mg/L		109	75 - 125	0	20
Chromium	0.0014	J	0.0500	0.0577		mg/L		113	75 - 125	0	20
Cobalt	0.00075	J	0.0500	0.0554		mg/L		109	75 - 125	1	20
Lead	<0.00035		0.0500	0.0516		mg/L		103	75 - 125	2	20
Lithium	0.0018	J	0.0500	0.0543		mg/L		105	75 - 125	0	20
Molybdenum	<0.00085		0.0500	0.0502		mg/L		100	75 - 125	2	20
Selenium	0.00031	J B	0.0500	0.0512		mg/L		102	75 - 125	1	20
Thallium	<0.00085		0.0100	0.0106		mg/L		106	75 - 125	2	20

Lab Sample ID: MB 400-415486/1-A ^5

Matrix: Water

Analysis Batch: 415796

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 415486

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Antimony	<0.0010		0.0025	0.0010	mg/L		10/15/18 15:02	10/16/18 15:09	5
Arsenic	0.00111	J	0.0013	0.00046	mg/L		10/15/18 15:02	10/16/18 15:09	5
Barium	<0.00049		0.0025	0.00049	mg/L		10/15/18 15:02	10/16/18 15:09	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		10/15/18 15:02	10/16/18 15:09	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		10/15/18 15:02	10/16/18 15:09	5
Chromium	<0.0011		0.0025	0.0011	mg/L		10/15/18 15:02	10/16/18 15:09	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		10/15/18 15:02	10/16/18 15:09	5
Lead	<0.00035		0.0013	0.00035	mg/L		10/15/18 15:02	10/16/18 15:09	5
Lithium	<0.0011		0.0050	0.0011	mg/L		10/15/18 15:02	10/16/18 15:09	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		10/15/18 15:02	10/16/18 15:09	5
Selenium	<0.00024		0.0013	0.00024	mg/L		10/15/18 15:02	10/16/18 15:09	5
Thallium	<0.00085		0.00050	0.000085	mg/L		10/15/18 15:02	10/16/18 15:09	5

Lab Sample ID: LCS 400-415486/2-A

Matrix: Water

Analysis Batch: 415796

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 415486

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	0.0500	0.0510		mg/L		102	80 - 120
Arsenic	0.0500	0.0512		mg/L		102	80 - 120
Barium	0.0500	0.0519		mg/L		104	80 - 120
Beryllium	0.0500	0.0488		mg/L		98	80 - 120
Cadmium	0.0500	0.0519		mg/L		104	80 - 120
Chromium	0.0500	0.0537		mg/L		107	80 - 120
Cobalt	0.0500	0.0532		mg/L		106	80 - 120
Lead	0.0500	0.0520		mg/L		104	80 - 120
Lithium	0.0500	0.0533		mg/L		107	80 - 120
Molybdenum	0.0500	0.0502		mg/L		100	80 - 120
Selenium	0.0500	0.0497		mg/L		99	80 - 120
Thallium	0.0100	0.0102		mg/L		102	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-160240-21 MS

Matrix: Water

Analysis Batch: 415796

Client Sample ID: SGWA-5

Prep Type: Total Recoverable

Prep Batch: 415486

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Antimony	<0.0010		0.0500	0.0530		mg/L		106	75 - 125
Arsenic	0.00052	J B	0.0500	0.0534		mg/L		106	75 - 125
Barium	0.011		0.0500	0.0646		mg/L		108	75 - 125
Beryllium	<0.00034		0.0500	0.0500		mg/L		100	75 - 125
Cadmium	<0.00034		0.0500	0.0538		mg/L		108	75 - 125
Chromium	0.0011	J	0.0500	0.0594		mg/L		119	75 - 125
Cobalt	<0.00040		0.0500	0.0566		mg/L		113	75 - 125
Lead	<0.00035		0.0500	0.0509		mg/L		102	75 - 125
Lithium	<0.0011		0.0500	0.0563		mg/L		113	75 - 125
Molybdenum	<0.00085		0.0500	0.0516		mg/L		103	75 - 125
Selenium	<0.00024		0.0500	0.0509		mg/L		102	75 - 125
Thallium	<0.000085		0.0100	0.0104		mg/L		104	75 - 125

Lab Sample ID: 400-160240-21 MSD

Matrix: Water

Analysis Batch: 415796

Client Sample ID: SGWA-5

Prep Type: Total Recoverable

Prep Batch: 415486

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Antimony	<0.0010		0.0500	0.0511		mg/L		102	75 - 125	4	20
Arsenic	0.00052	J B	0.0500	0.0531		mg/L		105	75 - 125	1	20
Barium	0.011		0.0500	0.0643		mg/L		108	75 - 125	1	20
Beryllium	<0.00034		0.0500	0.0503		mg/L		101	75 - 125	0	20
Cadmium	<0.00034		0.0500	0.0543		mg/L		109	75 - 125	1	20
Chromium	0.0011	J	0.0500	0.0598		mg/L		120	75 - 125	1	20
Cobalt	<0.00040		0.0500	0.0555		mg/L		111	75 - 125	2	20
Lead	<0.00035		0.0500	0.0511		mg/L		102	75 - 125	0	20
Lithium	<0.0011		0.0500	0.0550		mg/L		110	75 - 125	2	20
Molybdenum	<0.00085		0.0500	0.0496		mg/L		99	75 - 125	4	20
Selenium	<0.00024		0.0500	0.0495		mg/L		99	75 - 125	3	20
Thallium	<0.000085		0.0100	0.0104		mg/L		104	75 - 125	1	20

Lab Sample ID: MB 400-418952/1-A ^5

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 15:18	5
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 15:18	5
Barium	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 15:18	5
Barium, Dissolved	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 15:18	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:18	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:18	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 15:18	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:18	5
Iron, Dissolved	<0.053		0.13	0.053	mg/L		11/09/18 11:00	11/09/18 15:18	5
Calcium	<0.13		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 15:18	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 15:18	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 15:18	5

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 400-418952/1-A ^5

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 15:18	5
Cobalt, Dissolved	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 15:18	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 15:18	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 15:18	5
Lithium	<0.0011		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 15:18	5
Lithium, Dissolved	<0.0011		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 15:18	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		11/09/18 11:00	11/09/18 15:18	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 15:18	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 15:18	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 15:18	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 15:18	5

Lab Sample ID: LCS 400-418952/2-A

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0500	0.0484		mg/L		97	80 - 120
Arsenic, Dissolved	0.0500	0.0484		mg/L		97	80 - 120
Barium	0.0500	0.0484		mg/L		97	80 - 120
Barium, Dissolved	0.0500	0.0484		mg/L		97	80 - 120
Beryllium	0.0500	0.0520		mg/L		104	80 - 120
Beryllium, Dissolved	0.0500	0.0520		mg/L		104	80 - 120
Boron	0.100	0.102		mg/L		102	80 - 120
Cadmium	0.0500	0.0494		mg/L		99	80 - 120
Iron, Dissolved	5.00	4.87		mg/L		97	80 - 120
Calcium	5.00	4.91		mg/L		98	80 - 120
Chromium	0.0500	0.0471		mg/L		94	80 - 120
Chromium, Dissolved	0.0500	0.0471		mg/L		94	80 - 120
Cobalt	0.0500	0.0493		mg/L		99	80 - 120
Cobalt, Dissolved	0.0500	0.0493		mg/L		99	80 - 120
Lead	0.0500	0.0500		mg/L		100	80 - 120
Lead, Dissolved	0.0500	0.0500		mg/L		100	80 - 120
Lithium	0.0500	0.0522		mg/L		104	80 - 120
Lithium, Dissolved	0.0500	0.0522		mg/L		104	80 - 120
Molybdenum	0.0500	0.0468		mg/L		94	80 - 120
Selenium	0.0500	0.0473		mg/L		95	80 - 120
Selenium, Dissolved	0.0500	0.0473		mg/L		95	80 - 120
Thallium	0.0100	0.00975		mg/L		98	80 - 120
Thallium, Dissolved	0.0100	0.00975		mg/L		98	80 - 120

Lab Sample ID: 400-160240-31 MS

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-11

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00046		0.0500	0.0484		mg/L		97	75 - 125
Arsenic, Dissolved	<0.00046		0.0500	0.0484		mg/L		97	75 - 125
Barium	0.037		0.0500	0.0850		mg/L		96	75 - 125

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-160240-31 MS

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-11

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium, Dissolved	0.037		0.0500	0.0850		mg/L		96	75 - 125
Beryllium	<0.00034		0.0500	0.0513		mg/L		103	75 - 125
Beryllium, Dissolved	<0.00034		0.0500	0.0513		mg/L		103	75 - 125
Boron	0.35		0.100	0.447		mg/L		97	75 - 125
Cadmium	<0.00034		0.0500	0.0496		mg/L		99	75 - 125
Iron, Dissolved	1.1		5.00	5.97		mg/L		98	75 - 125
Calcium	1.8		5.00	6.67		mg/L		97	75 - 125
Chromium	<0.0011		0.0500	0.0471		mg/L		94	75 - 125
Chromium, Dissolved	<0.0011		0.0500	0.0471		mg/L		94	75 - 125
Cobalt	0.023		0.0500	0.0719		mg/L		99	75 - 125
Cobalt, Dissolved	0.023		0.0500	0.0719		mg/L		99	75 - 125
Lead	<0.00035		0.0500	0.0496		mg/L		99	75 - 125
Lead, Dissolved	<0.00035		0.0500	0.0496		mg/L		99	75 - 125
Lithium	0.0031	J	0.0500	0.0564		mg/L		107	75 - 125
Lithium, Dissolved	0.0031	J	0.0500	0.0564		mg/L		107	75 - 125
Molybdenum	<0.00085		0.0500	0.0471		mg/L		94	75 - 125
Selenium	0.00046	J	0.0500	0.0490		mg/L		97	75 - 125
Selenium, Dissolved	0.00046	J	0.0500	0.0490		mg/L		97	75 - 125
Thallium	<0.00085		0.0100	0.00970		mg/L		97	75 - 125
Thallium, Dissolved	<0.00085		0.0100	0.00970		mg/L		97	75 - 125

Lab Sample ID: 400-160240-31 MSD

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-11

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00046		0.0500	0.0504		mg/L		101	75 - 125	4	20
Arsenic, Dissolved	<0.00046		0.0500	0.0504		mg/L		101	75 - 125	4	20
Barium	0.037		0.0500	0.0884		mg/L		103	75 - 125	4	20
Barium, Dissolved	0.037		0.0500	0.0884		mg/L		103	75 - 125	4	20
Beryllium	<0.00034		0.0500	0.0529		mg/L		106	75 - 125	3	20
Beryllium, Dissolved	<0.00034		0.0500	0.0529		mg/L		106	75 - 125	3	20
Boron	0.35		0.100	0.467		mg/L		117	75 - 125	4	20
Cadmium	<0.00034		0.0500	0.0517		mg/L		103	75 - 125	4	20
Iron, Dissolved	1.1		5.00	6.17		mg/L		102	75 - 125	3	20
Calcium	1.8		5.00	6.97		mg/L		103	75 - 125	4	20
Chromium	<0.0011		0.0500	0.0492		mg/L		98	75 - 125	4	20
Chromium, Dissolved	<0.0011		0.0500	0.0492		mg/L		98	75 - 125	4	20
Cobalt	0.023		0.0500	0.0751		mg/L		105	75 - 125	4	20
Cobalt, Dissolved	0.023		0.0500	0.0751		mg/L		105	75 - 125	4	20
Lead	<0.00035		0.0500	0.0513		mg/L		103	75 - 125	3	20
Lead, Dissolved	<0.00035		0.0500	0.0513		mg/L		103	75 - 125	3	20
Lithium	0.0031	J	0.0500	0.0582		mg/L		110	75 - 125	3	20
Lithium, Dissolved	0.0031	J	0.0500	0.0582		mg/L		110	75 - 125	3	20
Molybdenum	<0.00085		0.0500	0.0482		mg/L		96	75 - 125	2	20
Selenium	0.00046	J	0.0500	0.0503		mg/L		100	75 - 125	3	20
Selenium, Dissolved	0.00046	J	0.0500	0.0503		mg/L		100	75 - 125	3	20
Thallium	<0.00085		0.0100	0.00997		mg/L		100	75 - 125	3	20

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-160240-31 MSD

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-11

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Thallium, Dissolved	<0.000085		0.0100	0.00997		mg/L		100	75 - 125	3	20

Lab Sample ID: MB 400-418964/1-A ^5

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 17:59	5
Barium	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 17:59	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 17:59	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:50	11/09/18 17:59	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 17:59	5
Calcium	<0.13		0.25	0.13	mg/L		11/09/18 11:50	11/09/18 17:59	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 17:59	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 17:59	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 17:59	5
Lithium	0.00119	J	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 17:59	5
Molybdenum	<0.00085		0.015	0.00085	mg/L		11/09/18 11:50	11/09/18 17:59	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 17:59	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 17:59	5

Lab Sample ID: LCS 400-418964/2-A

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0500	0.0495		mg/L		99	80 - 120
Barium	0.0500	0.0491		mg/L		98	80 - 120
Beryllium	0.0500	0.0533		mg/L		107	80 - 120
Boron	0.100	0.105		mg/L		105	80 - 120
Cadmium	0.0500	0.0513		mg/L		103	80 - 120
Calcium	5.00	5.07		mg/L		101	80 - 120
Chromium	0.0500	0.0485		mg/L		97	80 - 120
Cobalt	0.0500	0.0506		mg/L		101	80 - 120
Lead	0.0500	0.0519		mg/L		104	80 - 120
Lithium	0.0500	0.0524		mg/L		105	80 - 120
Molybdenum	0.0500	0.0477		mg/L		95	80 - 120
Selenium	0.0500	0.0487		mg/L		97	80 - 120
Thallium	0.0100	0.0100		mg/L		100	80 - 120

Lab Sample ID: 400-160240-46 MS

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-20

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00046		0.0500	0.0509		mg/L		102	75 - 125
Barium	0.027		0.0500	0.0755		mg/L		97	75 - 125
Beryllium	0.00079	J	0.0500	0.0546		mg/L		108	75 - 125
Boron	2.3	E	0.100	2.23	E 4	mg/L		-52	75 - 125

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-160240-46 MS

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-20

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	<0.00034		0.0500	0.0513		mg/L		103	75 - 125
Calcium	12		5.00	16.9		mg/L		99	75 - 125
Chromium	<0.0011		0.0500	0.0493		mg/L		99	75 - 125
Cobalt	0.16		0.0500	0.212		mg/L		96	75 - 125
Lead	<0.00035		0.0500	0.0510		mg/L		102	75 - 125
Lithium	0.0062	B	0.0500	0.0615		mg/L		110	75 - 125
Molybdenum	<0.00085		0.0500	0.0484		mg/L		97	75 - 125
Selenium	0.00049	J	0.0500	0.0503		mg/L		100	75 - 125
Thallium	0.00018	J	0.0100	0.00997		mg/L		98	75 - 125

Lab Sample ID: 400-160240-46 MSD

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-20

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Arsenic	<0.00046		0.0500	0.0497		mg/L		99	75 - 125	2	20
Barium	0.027		0.0500	0.0728		mg/L		92	75 - 125	4	20
Beryllium	0.00079	J	0.0500	0.0553		mg/L		109	75 - 125	1	20
Boron	2.3	E	0.100	2.20	E 4	mg/L		-82	75 - 125	1	20
Cadmium	<0.00034		0.0500	0.0507		mg/L		101	75 - 125	1	20
Calcium	12		5.00	16.5		mg/L		92	75 - 125	2	20
Chromium	<0.0011		0.0500	0.0490		mg/L		98	75 - 125	1	20
Cobalt	0.16		0.0500	0.211		mg/L		93	75 - 125	1	20
Lead	<0.00035		0.0500	0.0502		mg/L		100	75 - 125	2	20
Lithium	0.0062	B	0.0500	0.0620		mg/L		112	75 - 125	1	20
Molybdenum	<0.00085		0.0500	0.0478		mg/L		96	75 - 125	1	20
Selenium	0.00049	J	0.0500	0.0490		mg/L		97	75 - 125	3	20
Thallium	0.00018	J	0.0100	0.00960		mg/L		94	75 - 125	4	20

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 400-415482/13-A

Matrix: Water

Analysis Batch: 416025

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 415482

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/15/18 14:40	10/18/18 11:30	1

Lab Sample ID: LCS 400-415482/14-A

Matrix: Water

Analysis Batch: 416025

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 415482

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.000988		mg/L		98	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 400-160138-B-1-E MS  
Matrix: Water  
Analysis Batch: 416025

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 415482

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070		0.00201	0.00200		mg/L		99	80 - 120

Lab Sample ID: 400-160138-B-1-F MSD  
Matrix: Water  
Analysis Batch: 416025

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 415482

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Mercury	<0.000070		0.00201	0.00197		mg/L		98	80 - 120	1	20

Lab Sample ID: MB 400-415495/13-A  
Matrix: Water  
Analysis Batch: 415840

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 415495

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/15/18 15:14	10/17/18 13:37	1

Lab Sample ID: LCS 400-415495/14-A  
Matrix: Water  
Analysis Batch: 415840

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 415495

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.000992		mg/L		99	80 - 120

Lab Sample ID: 400-160036-B-1-C MS  
Matrix: Water  
Analysis Batch: 415840

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 415495

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070	F1	0.00201	0.00143	F1	mg/L		71	80 - 120

Lab Sample ID: 400-160036-B-1-D MSD  
Matrix: Water  
Analysis Batch: 415840

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 415495

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Mercury	<0.000070	F1	0.00201	0.00142	F1	mg/L		70	80 - 120	1	20

Lab Sample ID: MB 400-415608/13-A  
Matrix: Water  
Analysis Batch: 415840

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 415608

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		10/16/18 10:40	10/17/18 15:10	1

Lab Sample ID: LCS 400-415608/14-A  
Matrix: Water  
Analysis Batch: 415840

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 415608

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.000986		mg/L		98	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

Lab Sample ID: 400-160240-13 MS  
Matrix: Water  
Analysis Batch: 415840

Client Sample ID: SGWC-9  
Prep Type: Total/NA  
Prep Batch: 415608  
%Rec. Limits

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	<0.000070		0.00201	0.00174		mg/L		87	80 - 120

Lab Sample ID: 400-160240-13 MSD  
Matrix: Water  
Analysis Batch: 415840

Client Sample ID: SGWC-9  
Prep Type: Total/NA  
Prep Batch: 415608  
%Rec. RPD

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	<0.000070		0.00201	0.00195		mg/L		97	80 - 120	11	20

Lab Sample ID: MB 400-418701/14-A  
Matrix: Water  
Analysis Batch: 419038

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 418701

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0000845	J	0.00020	0.000070	mg/L		11/07/18 13:53	11/09/18 14:47	1

Lab Sample ID: LCS 400-418701/15-A  
Matrix: Water  
Analysis Batch: 419038

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 418701  
%Rec. Limits

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00101	0.00103		mg/L		103	80 - 120

Lab Sample ID: 400-161395-A-3-B MS  
Matrix: Water  
Analysis Batch: 419038

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 418701  
%Rec. Limits

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00014	J F1 B	0.00201	0.00153	F1	mg/L		69	80 - 120

Lab Sample ID: 400-161395-A-3-C MSD  
Matrix: Water  
Analysis Batch: 419038

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 418701  
%Rec. RPD

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Mercury	0.00014	J F1 B	0.00201	0.00149	F1	mg/L		67	80 - 120	3	20

Lab Sample ID: MB 400-418848/14-A  
Matrix: Water  
Analysis Batch: 419409

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 418848

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 09:32	1

Lab Sample ID: LCS 400-418848/15-A  
Matrix: Water  
Analysis Batch: 419409

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 418848  
%Rec. Limits

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Mercury	0.00101	0.000957		mg/L		95	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 400-160240-B-42-B MS

Matrix: Water

Analysis Batch: 419409

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 418848

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070		0.00201	0.00190		mg/L		94	80 - 120

Lab Sample ID: 400-160240-B-42-C MSD

Matrix: Water

Analysis Batch: 419409

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 418848

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000070		0.00201	0.00184		mg/L		92	80 - 120	3	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 400-416446/1

Matrix: Water

Analysis Batch: 416446

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/22/18 14:36	1

Lab Sample ID: LCS 400-416446/2

Matrix: Water

Analysis Batch: 416446

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	328		mg/L		112	78 - 122

Lab Sample ID: 400-160240-32 DU

Matrix: Water

Analysis Batch: 416446

Client Sample ID: SGWC-15

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	350		348		mg/L		0.6	5

Lab Sample ID: MB 400-416940/1

Matrix: Water

Analysis Batch: 416940

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/25/18 12:27	1

Lab Sample ID: LCS 400-416940/2

Matrix: Water

Analysis Batch: 416940

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	234		mg/L		80	78 - 122

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: 400-160240-A-54 DU  
Matrix: Water  
Analysis Batch: 416940

Client Sample ID: Duplicate  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Total Dissolved Solids	840		842		mg/L		0.2	5

## Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-394199/21-A  
Matrix: Water  
Analysis Batch: 398696

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 394199

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1722		0.0772	0.0787	1.00	0.0729	pCi/L	10/10/18 11:51	11/01/18 06:00	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	100		40 - 110					10/10/18 11:51	11/01/18 06:00	1

Lab Sample ID: LCS 160-394199/1-A  
Matrix: Water  
Analysis Batch: 398697

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 394199

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	11.4	11.75		1.23	1.00	0.105	pCi/L	103	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	85.8		40 - 110						

Lab Sample ID: 400-160240-6 DU  
Matrix: Water  
Analysis Batch: 398697

Client Sample ID: SGWA-24  
Prep Type: Total/NA  
Prep Batch: 394199

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	Limit
Radium-226	0.133		0.2229		0.0923	1.00	0.0887	pCi/L	0.54	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	101		40 - 110							

Lab Sample ID: MB 160-394766/17-A  
Matrix: Water  
Analysis Batch: 399232

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 394766

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.2099		0.0808	0.0830	1.00	0.0749	pCi/L	10/12/18 09:37	11/05/18 09:31	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/12/18 09:37	11/05/18 09:31	1

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

Lab Sample ID: LCS 160-394766/1-A  
Matrix: Water  
Analysis Batch: 399234

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 394766

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	11.55		1.19	1.00	0.0806	pCi/L	102	68 - 137		
	LCS	LCS											
Carrier	%Yield	Qualifier	Limits										
Ba Carrier	94.7		40 - 110										

Lab Sample ID: 500-152940-W-1-B MS  
Matrix: Water  
Analysis Batch: 399234

Client Sample ID: Matrix Spike  
Prep Type: Total/NA  
Prep Batch: 394766

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226	2.42		15.1	16.52		1.68	1.00	0.128	pCi/L	93	75 - 138		
	MS	MS											
Carrier	%Yield	Qualifier	Limits										
Ba Carrier	101		40 - 110										

Lab Sample ID: 500-152940-W-1-C MSD  
Matrix: Water  
Analysis Batch: 399232

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total/NA  
Prep Batch: 394766

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226	2.42		15.1	15.81		1.61	1.00	0.0776	pCi/L	88	75 - 138	0.22	1
	MSD	MSD											
Carrier	%Yield	Qualifier	Limits										
Ba Carrier	103		40 - 110										

Lab Sample ID: 400-160240-21 DU  
Matrix: Water  
Analysis Batch: 399234

Client Sample ID: SGWA-5  
Prep Type: Total/NA  
Prep Batch: 394766

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit				RER	RER Limit
Radium-226	0.210		0.2911		0.101	1.00	0.0874	pCi/L				0.42	1
	DU	DU											
Carrier	%Yield	Qualifier	Limits										
Ba Carrier	102		40 - 110										

Lab Sample ID: MB 160-394786/22-A  
Matrix: Water  
Analysis Batch: 399234

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 394786

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.2751		0.119	0.122	1.00	0.135	pCi/L	10/12/18 11:33	11/05/18 10:28	1
	MB	MB								
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110					10/12/18 11:33	11/05/18 10:28	1

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

Lab Sample ID: LCS 160-394786/1-A  
Matrix: Water  
Analysis Batch: 399232

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 394786

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.4	11.03		1.17	1.00	0.120	pCi/L	97	68 - 137
	LCS	LCS								
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	104		40 - 110							

Lab Sample ID: 400-160240-11 DU  
Matrix: Water  
Analysis Batch: 399232

Client Sample ID: SGWC-7  
Prep Type: Total/NA  
Prep Batch: 394786

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit		RER	RER Limit
Radium-226	0.158		0.1935		0.101	1.00	0.121	pCi/L		0.18	1
	DU	DU									
Carrier	%Yield	Qualifier	Limits								
Ba Carrier	100		40 - 110								

Lab Sample ID: MB 160-397276/23-A  
Matrix: Water  
Analysis Batch: 401802

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 397276

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1769		0.0810	0.0826	1.00	0.0796	pCi/L	10/25/18 10:04	11/20/18 07:55	1
	MB	MB								
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					10/25/18 10:04	11/20/18 07:55	1

Lab Sample ID: LCS 160-397276/1-A  
Matrix: Water  
Analysis Batch: 401873

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 397276

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.4	12.62		1.31	1.00	0.127	pCi/L	111	68 - 137
	LCS	LCS								
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	99.7		40 - 110							

Lab Sample ID: 400-160832-A-8-A DU  
Matrix: Water  
Analysis Batch: 401803

Client Sample ID: Duplicate  
Prep Type: Total/NA  
Prep Batch: 397276

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit		RER	RER Limit
Radium-226	0.207		0.2120		0.0952	1.00	0.0985	pCi/L		0.03	1
	DU	DU									
Carrier	%Yield	Qualifier	Limits								
Ba Carrier	95.0		40 - 110								

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

Lab Sample ID: MB 160-397279/24-A  
Matrix: Water  
Analysis Batch: 401873

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 397279

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1764		0.0941	0.0955	1.00	0.115	pCi/L	10/26/18 08:34	11/20/18 07:43	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					10/26/18 08:34	11/20/18 07:43	1

Lab Sample ID: LCS 160-397279/1-A  
Matrix: Water  
Analysis Batch: 401802

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 397279

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.4	10.06		1.06	1.00	0.0998	pCi/L	89	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	97.9		40 - 110							

Lab Sample ID: 400-160240-A-35-A DU  
Matrix: Water  
Analysis Batch: 401874

Client Sample ID: Duplicate  
Prep Type: Total/NA  
Prep Batch: 397279

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.143		0.1438		0.0776	1.00	0.0879	pCi/L	0.01	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	101		40 - 110							

Lab Sample ID: MB 160-398027/11-A  
Matrix: Water  
Analysis Batch: 401803

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 398027

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.2707		0.172	0.174	1.00	0.234	pCi/L	10/29/18 11:40	11/20/18 11:18	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.9		40 - 110					10/29/18 11:40	11/20/18 11:18	1

Lab Sample ID: LCS 160-398027/1-A  
Matrix: Water  
Analysis Batch: 401803

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 398027

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		22.7	21.18		2.22	1.00	0.203	pCi/L	93	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	90.9		40 - 110							

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

Lab Sample ID: LCSD 160-398027/2-A  
Matrix: Water  
Analysis Batch: 401803

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 398027

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			22.7	22.04		2.32	1.00	0.216	pCi/L	97	68 - 137	0.19	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits										
Ba Carrier	90.6		40 - 110										

## Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-394218/21-A  
Matrix: Water  
Analysis Batch: 397303

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 394218

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3833	U	0.279	0.282	1.00	0.439	pCi/L	10/10/18 13:30	10/25/18 09:48	1
Carrier	MB %Yield	MB Qualifier	Limits							
Ba Carrier	100		40 - 110							
Y Carrier	72.5		40 - 110							

Lab Sample ID: LCS 160-394218/1-A  
Matrix: Water  
Analysis Batch: 397302

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 394218

Radium-228											
Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228			10.9	13.06		1.43	1.00	0.378	pCi/L	120	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits								
Ba Carrier	85.8		40 - 110								
Y Carrier	87.9		40 - 110								

Lab Sample ID: 400-160240-6 DU  
Matrix: Water  
Analysis Batch: 397302

Client Sample ID: SGWA-24  
Prep Type: Total/NA  
Prep Batch: 394218

Analyte	Sample Result	Sample Qual		DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit		RER	RER Limit
Radium-228	0.435			0.3733		0.233	1.00	0.351	pCi/L		0.13	1
Carrier	DU %Yield	DU Qualifier	Limits									
Ba Carrier	101		40 - 110									
Y Carrier	78.9		40 - 110									

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: MB 160-394779/17-A

Matrix: Water

Analysis Batch: 396712

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 394779

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.4433		0.220	0.223	1.00	0.318	pCi/L	10/12/18 10:51	10/23/18 09:46	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	105		40 - 110					10/12/18 10:51	10/23/18 09:46	1
Y Carrier	80.7		40 - 110					10/12/18 10:51	10/23/18 09:46	1

Lab Sample ID: LCS 160-394779/1-A

Matrix: Water

Analysis Batch: 396712

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 394779

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228		9.29	9.233		1.08	1.00	0.411	pCi/L	99	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	94.7		40 - 110							
Y Carrier	81.5		40 - 110							

Lab Sample ID: 500-152940-W-1-E MS

Matrix: Water

Analysis Batch: 396712

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 394779

Analyte	Sample Result	Sample Qual	Spike Added	MS Result	MS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	1.14		12.4	11.52		1.36	1.00	0.499	pCi/L	84	45 - 150
Carrier	MS %Yield	MS Qualifier	Limits								
Ba Carrier	101		40 - 110								
Y Carrier	77.8		40 - 110								

Lab Sample ID: 500-152940-W-1-F MSD

Matrix: Water

Analysis Batch: 396712

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 394779

Analyte	Sample Result	Sample Qual	Spike Added	MSD Result	MSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	1.14		12.4	12.39		1.43	1.00	0.453	pCi/L	91	45 - 150	0.31	1
Carrier	MSD %Yield	MSD Qualifier	Limits										
Ba Carrier	103		40 - 110										
Y Carrier	80.0		40 - 110										

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: 400-160240-21 DU  
Matrix: Water  
Analysis Batch: 396712

Client Sample ID: SGWA-5  
Prep Type: Total/NA  
Prep Batch: 394779

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.554		0.3344	U	0.244	1.00	0.379	pCi/L	0.42	1
<b>Carrier</b>										
	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>							
Ba Carrier	102		40 - 110							
Y Carrier	78.9		40 - 110							

Lab Sample ID: MB 160-394791/22-A  
Matrix: Water  
Analysis Batch: 398414

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 394791

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.05032	U	0.189	0.190	1.00	0.351	pCi/L	10/12/18 12:42	10/31/18 17:04	1
<b>Carrier</b>										
	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>							
Ba Carrier	101		40 - 110							
Y Carrier	87.9		40 - 110							
								<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
								10/12/18 12:42	10/31/18 17:04	1
								10/12/18 12:42	10/31/18 17:04	1

Lab Sample ID: LCS 160-394791/1-A  
Matrix: Water  
Analysis Batch: 398413

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 394791

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	9.26	8.304		0.979	1.00	0.375	pCi/L	90	56 - 140
<b>Carrier</b>									
	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>						
Ba Carrier	104		40 - 110						
Y Carrier	86.4		40 - 110						

Lab Sample ID: 400-160240-11 DU  
Matrix: Water  
Analysis Batch: 398414

Client Sample ID: SGWC-7  
Prep Type: Total/NA  
Prep Batch: 394791

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.227	U	0.4048		0.237	1.00	0.351	pCi/L	0.38	1
<b>Carrier</b>										
	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>							
Ba Carrier	100		40 - 110							
Y Carrier	85.2		40 - 110							

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: MB 160-397294/23-A

Matrix: Water

Analysis Batch: 400703

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 397294

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1355	U	0.230	0.230	1.00	0.389	pCi/L	10/25/18 10:33	11/13/18 13:43	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					10/25/18 10:33	11/13/18 13:43	1
Y Carrier	83.7		40 - 110					10/25/18 10:33	11/13/18 13:43	1

Lab Sample ID: LCS 160-397294/1-A

Matrix: Water

Analysis Batch: 400703

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 397294

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	9.22	9.166		1.08	1.00	0.399	pCi/L	99	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	99.7		40 - 110						
Y Carrier	77.4		40 - 110						

Lab Sample ID: 400-160832-A-8-B DU

Matrix: Water

Analysis Batch: 400703

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 397294

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.413	U	0.0000	U	0.231	1.00	0.414	pCi/L	0.82	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	95.0		40 - 110							
Y Carrier	81.5		40 - 110							

Lab Sample ID: MB 160-397318/24-A

Matrix: Water

Analysis Batch: 400469

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 397318

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.8277		0.403	0.410	1.00	0.586	pCi/L	10/26/18 08:49	11/12/18 14:58	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					10/26/18 08:49	11/12/18 14:58	1
Y Carrier	56.4		40 - 110					10/26/18 08:49	11/12/18 14:58	1

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-397318/1-A

Matrix: Water

Analysis Batch: 400469

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 397318

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	9.22	8.223		0.987	1.00	0.386	pCi/L	89	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	97.9		40 - 110
Y Carrier	89.3		40 - 110

Lab Sample ID: 400-160240-A-35-B DU

Matrix: Water

Analysis Batch: 400469

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 397318

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.497		0.6104		0.299	1.00	0.430	pCi/L	0.19	1

Carrier	DU %Yield	DU Qualifier	Limits
Ba Carrier	101		40 - 110
Y Carrier	80.4		40 - 110

Lab Sample ID: MB 160-398030/11-A

Matrix: Water

Analysis Batch: 400470

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 398030

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3114	U	0.522	0.523	1.00	0.883	pCi/L	10/29/18 11:58	11/12/18 16:29	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.9		40 - 110	10/29/18 11:58	11/12/18 16:29	1
Y Carrier	74.0		40 - 110	10/29/18 11:58	11/12/18 16:29	1

Lab Sample ID: LCS 160-398030/1-A

Matrix: Water

Analysis Batch: 400470

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 398030

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	18.4	19.82		2.34	1.00	0.710	pCi/L	107	56 - 140

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	90.9		40 - 110
Y Carrier	77.0		40 - 110

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCSD 160-398030/2-A

Matrix: Water

Analysis Batch: 400470

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 398030

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	18.4	19.28		2.31	1.00	0.844	pCi/L	105	56 - 140	0.12	1
<b>Carrier</b>	<b>%Yield</b>	<b>LCSD Qualifier</b>	<b>Limits</b>								
Ba Carrier	90.6		40 - 110								
Y Carrier	77.8		40 - 110								

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Lab Sample ID: 400-160240-6 DU

Matrix: Water

Analysis Batch: 402686

Client Sample ID: SGWA-24

Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.568		0.5961		0.251	5.00	0.351	pCi/L	0.06	

Lab Sample ID: 400-160240-11 DU

Matrix: Water

Analysis Batch: 402686

Client Sample ID: SGWC-7

Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.385		0.5983		0.258	5.00	0.351	pCi/L	0.42	

Lab Sample ID: 400-160240-21 DU

Matrix: Water

Analysis Batch: 402686

Client Sample ID: SGWA-5

Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.764		0.6255		0.264	5.00	0.379	pCi/L	0.25	

Lab Sample ID: 400-160240-A-35 DU

Matrix: Water

Analysis Batch: 402686

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.640		0.7542		0.309	5.00	0.430	pCi/L	0.18	

TestAmerica Pensacola

## Chain of Custody Record

154761 8128

[illegible]

## Chain of Custody Record

<b>Client Information</b>		Lab PM: Whitmire, Chyenne R		Carrier Tracking No(s):		COC No: 400-57303-24790	
Client Contact: Ben Hodges		Phone:		E-Mail: cheyenne.whitmire@testamericainc.com		Page: 2 of 2	
Company: Southern Company		Due Date Requested:		Analysis Requested		Job #: 160240	
Address: 241 Ralph McGill Blvd SE B10185		TAT Requested (days):		Field Filtered Sample (Yes or No)		Total Number of Containers	
City: Atlanta		PO #:		Perform MS/MSD (Yes or No)		Preservation Codes:	
State, Zip: GA, 30308		IWO #:		300_ORGFM_28D-Fluoride		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Email: JAbraham@southernco.com		Project #:		6020-Sb,As,Ba,Cd,Cr,Cu,Pb,LI,Mo,Se,Tl,7470A-Hg		M - Hexane N - None O - AsNeO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)	
CCR - Scherer		SSOW#:		9315_Ra226, 9320_Ra228,Ra228Ra228_GFPc		Special Instructions/Note:	
Site: Ash Pond		Sample Date		Sample Time		Matrix (W-water, S-solid, O-wastewater, ST-Tissue, A-Air)	
Sample Identification		Sample Date		Sample Time		Sample Type (C=comp, G=grab)	
SGWC-22	10/8/18	1420	G	Water	N	1	1
SGWC-23	10/8/18	1550	G	Water	N	1	1
EB-2(AP)	10/8/18	1630	G	Water	N	1	1
SGWC-21	10/8/18	1205	G	Water	N	1	1
SGWC-7	10/9/18	0925	G	Water	N	1	2
SGWC-8	10/9/18	1035	G	Water	N	1	1
SGWC-9	10/9/18	1020	G	Water	N	1	1
SGWC-10	10/9/18	0910	G	Water	N	1	1
SGWC-19	10/9/18	0850	G	Water	N	1	1
FD-3(AP)	10/9/18	--	G	Water	N	1	1
FB-3(AP)	10/9/18	0845	G	Water	N	1	1
EB-3(AP)	10/9/18	1130	G	Water	N	1	1
Possible Hazard Identification		Poison B		Unknown		Radiological	
Non-Hazard		Flammable		Skin Irritant		Deliverable Requested: I, II, III, IV, Other (specify)	
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: [Signature]		10-9-18/1422		10:22		Company: TA	
Relinquished by: [Signature]		10/9/18		16:10		Company: TA	
Relinquished by: [Signature]		10/9/18		10:18		Company: TA	
Custody Seal No.:		Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		1.2°C, 1.5°C, 0.0°C IR-7	



## Chain of Custody Record

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:			
Client Contact: Joju Abraham		Ben Hodges		Whitmore, Cheyenne R				400-57303-24790			
Company: Southern Company		Phone:		E-Mail: cheyanne.whitmore@testamerica.com				Page: 1 of 1			
Address: 241 Ralph McGill Blvd SE B10185		Due Date Requested:		Analysis Requested				Job #:			
City: Atlanta		TAT Requested (days):									
State, Zip: GA, 30308		PO #:									
Phone:		WO #:									
Email: JAbraham@southernco.com		Project #: 40007041									
CCR - Scherer		SSOW#:									
Site: Ash Pond											
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Seawater, Soil, Sludge, Other)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300_ORGM_28D-Fluoride	6020-Sb,As,Ba,Be,Cd,Cr,Cu,Pb,LI,Mo,Se,Te,Tl,7470A-Hg	9316_Ra226, 9320_Ra228,Ra226Ra228_GFPc	Total Number of containers	Special Instructions/Note:
SGWA-25	10/8/18	1420	G	Water	N	N	1	1	1	3	
SGWA-4	10/8/18	1315	G	Water	N	N	1	1	1	3	
SGWA-5	10/8/18	1045	G	Water	N	N	1	1	2	4	Extra Radium
SGWC-6	10/8/18	1525	G	Water	N	N	1	1	1	3	
SGWC-12	10/8/18	1040	G	Water	N	N	1	1	1	3	
FB-2(AP)	10/8/18	1015	G	Water	N	N	1	1	1	3	
SGWC-13	10/8/18	1225	G	Water	N	N	1	1	1	3	
SGWC-14	10/8/18	1330	G	Water	N	N	1	1	1	3	
SGWC-16	10/8/18	1440	G	Water	N	N	1	1	1	3	
SGWC-17	10/8/18	1030	G	Water	N	N	1	1	1	3	
FD-1(AP)	10/8/18	--	G	Water	N	N	1	1	1	3	
FD-2(AP)	10/8/18	--	G	Water	N	N	1	1	1	3	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)											
<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months											
Special Instructions/QC Requirements: Equi Goldr_Rad UDS and Equi Goldr UDS Equis EDDs											
Empty Kit Relinquished by: _____ Date: _____											
Relinquished by: _____ Date: 10-9-18/1422 Company: Goldr											
Relinquished by: _____ Date: 10/9/18 Company: Goldr											
Relinquished by: _____ Date: 10/9/18 Company: Goldr											
Custody Seal No.: _____											
Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No											
Cooler Temperature(s) °C and Other Remarks:											

# Chain of Custody Record

<b>Client Information</b> Client Contact: Ben Hodges Client: Joji Abraham Company: Southern Company Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State, Zip: GA, 30308 Phone: Email: JAbraham@southernco.com Project Name: CCR - Scherer Site: Ash Pond		Lab PM: Whitmire, Cheyenne R E-Mail: cheyenne.whitmire@testamericainc.com Carrier Tracking No(s): Job #:		COC No: 400-57303-24790 Page: 1 of 1	
Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 40007041 SSOW#:		<b>Analysis Requested</b>			
Sample Identification Sample Date Sample Time Sample Type (C=comp, G=grab) Matrix (W=water, B=solid, O=wastefl, S=Trunk, A=Air) Preservation Code:		Total Number of containers Special Instructions/Note:			
SGWC-11 10/16/18 1050 G Water N		3 315_Ra228, 9320_Ra228, Ra228Ra228_GFPc			
SGWC-15 10/16/18 1515 G Water N		3 300_ORGFM_280-Fluoride, 2840C TDS, B, Ca, Cl, SO4			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements: Equi Golder, Rad UDS and Equi Golder UDS EDDs			
Empty Kit Relinquished by:		Time:			
Relinquished by: [Signature] Date: 10/18/18 07:50 Company: Golder		Received by: [Signature] Date: 10/18/18 07:50 Company:			
Relinquished by: [Signature] Date: 10/18/18 09:40 Company: TA		Received by: [Signature] Date: 10/18/18 16:10 Company:			
Relinquished by: [Signature] Date: 10/19/18 09:04 Company:		Received by: [Signature] Date: 10/19/18 09:04 Company:			
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:			



## Chain of Custody Record

<b>Client Information</b> Client Contact: Ben Hodges Phone: _____ Company: Southern Company Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State: GA, Zip: 30308 PO #: _____ Email: JAbraham@southernco.com Project Name: CCR - Scherer Site: Ash Pond		Lab PM: Whimire, Cheyenne R Carrier Tracking No(s): _____ E-Mail: cheyenne.whimire@testamericainc.com Job #: 100240-1		COC No: 400-57303-24790 Page: 1 of 1			
<b>Due Date Requested:</b> TAT Requested (days): _____ PO #: _____ WO #: _____ Project #: 40007041 SSOW#: _____		<b>Analysis Requested</b> Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: _____ M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Decahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify) _____					
<b>Sample Identification</b> Sample Date: 10/18/18 Sample Time: 0905 Sample Type (C=Comp, G=Grab): G Matrix (W=Water, S=solid, O=soil, B=Bottom, A=Air): _____ Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Perform MS/MSD (Yes or No): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 300_ORGFM_280-Fluoride, 2540C TDS, B, Ca, Cl, SO4 6020-As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl, 7470A-Hg 9315_Ra226, 9320_Ra228, Ra226Ra228_GFPc		Total Number of containers: 3 Special Instructions/Note: _____					
SGWC-18 SGWC-20		Preservation Code: N Sample Date: 10/18/18 Sample Time: 1035 Sample Type (C=Comp, G=Grab): G Matrix (W=Water, S=solid, O=soil, B=Bottom, A=Air): _____ Field Filtered Sample (Yes or No): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Perform MS/MSD (Yes or No): <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 300_ORGFM_280-Fluoride, 2540C TDS, B, Ca, Cl, SO4 6020-As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl, 7470A-Hg 9315_Ra226, 9320_Ra228, Ra226Ra228_GFPc		Total Number of containers: 3 Special Instructions/Note: _____			
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological							
Deliverable Requested: I, II, III, IV, Other (specify) _____							
Empty Kit Relinquished by: _____ Date: _____ Time: _____							
Relinquished by: _____ Date/Time: 10/19/18 1048 Company: Golder							
Relinquished by: _____ Date/Time: 10/19/18 1610 Company: _____							
Relinquished by: _____ Date/Time: _____ Company: _____							
Custody Seal No. _____ Δ Yes Δ No							
Cooler Temperature(s) °C and Other Remarks: 5.702613							

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-160240-1

SDG Number: Ash Pond

**Login Number: 160240**

**List Number: 1**

**Creator: Conrady, Hank W**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.2°C 4.3°C IR-7, 2.6°C, 1.5°C IR-7, 5.7°C, IR-8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-160240-1

SDG Number: Ash Pond

**Login Number: 160240**

**List Number: 2**

**Creator: McKinney, Gerrod E**

**List Source: TestAmerica St. Louis**

**List Creation: 10/08/18 06:17 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	20.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-160240-1

SDG Number: Ash Pond

**Login Number: 160240**

**List Number: 3**

**Creator: McKinney, Gerrod E**

**List Source: TestAmerica St. Louis**

**List Creation: 10/10/18 05:29 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	21.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

## Laboratory: TestAmerica Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-18 *
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA180023	12-31-18
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD ELAP		L2305	04-06-19
Arizona	State Program	9	AZ0813	12-08-18 *
California	State Program	9	2886	06-30-19
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-19
Illinois	NELAP	5	200023	11-30-18 *
Iowa	State Program	7	373	12-01-18 *
Kansas	NELAP	7	E-10236	10-31-18 *
Kentucky (DW)	State Program	4	90125	12-31-18
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA180017	12-31-18 *
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-18 *
Missouri	State Program	7	780	06-30-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pensacola

## Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-1  
SDG: Ash Pond

### Laboratory: TestAmerica St. Louis (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-19
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-12	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-160240-2

TestAmerica Sample Delivery Group: Ash Pond

Client Project/Site: CCR - Plant Scherer

For:

Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

11/30/2018 6:54:18 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14



# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Detection Summary . . . . .	5
Method Summary . . . . .	16
Sample Summary . . . . .	17
Client Sample Results . . . . .	18
Definitions . . . . .	62
Chronicle . . . . .	64
QC Association . . . . .	75
QC Sample Results . . . . .	85
Chain of Custody . . . . .	108
Receipt Checklists . . . . .	111
Certification Summary . . . . .	114



# Case Narrative

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Job ID: 400-160240-2**

**Laboratory: TestAmerica Pensacola**

## Narrative

### Job Narrative 400-160240-2

#### HPLC/IC

Method(s) 300.0: The method blank for analytical batch 418094 contained Fluoride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 300.0: The method blank for analytical batch 418296 contained Fluoride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 300.0: The following sample was diluted due to conductivity: SGWC-18 (400-160240-45). Elevated reporting limits (RL) are provided.

Method(s) 300.0: The continuing calibration blank for analytical batch 418094 contained Fluoride above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 300.0: The following samples were diluted to bring the concentration of target analytes within the calibration range: SGWC-15 (400-160240-32), SGWC-20 (400-160240-46), FD-2 (400-160240-47), PZ-42I (400-160240-49), PZ-41S (400-160240-51), PZ-17I (400-160240-52), PZ-43S (400-160240-53) and PZ-40I (400-160240-54). Elevated reporting limits (RLs) are provided.

Method(s) 300.0: The continuing calibration verification (CCV) associated with batch 418474 recovered above the upper control limit for Sulfate. The method blank associated with this CCV was non-detect for the affected analyte and the LCS/LCSD/MS/MSD was within recovery limits; therefore, the data has been reported. The following samples are impacted: (LCS 400-418474/5), (LCSD 400-418474/6), (MB 400-418474/4), (400-161490-V-1 MS) and (400-161490-V-1 MSD).

#### RAD

Method(s) 9315: Ra-226 Prep Batch 160-397461: The barium carrier recovery is outside the lower control limit (40%) for the following sample: PZ-25I (400-160240-43). There was physical evidence of matrix interference apparent during the initial preparation of the sample. The pellet was noted as smaller during the out-of-ingrowth process. The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference.

Method(s) 9320: Ra-228 Prep Batch 160-397471: The barium carrier recovery is outside the lower control limit (40%) for the following sample: PZ-25I (400-160240-43). There was physical evidence of matrix interference apparent during the initial preparation of the sample. The pellet was noted as smaller during the out of ingrowth process. The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference.

Method(s) 9320: Ra-228 Prep Batch 160-397471: The following sample did not meet the requested limit (RL) due to the low carrier recovery due to the presence of matrix interferences (see prep NCM 160-154346). The data have been reported with this narrative. PZ-25I (400-160240-43)

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-398030: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: PZ-39S (400-160240-44) and SGWC-18 (400-160240-45). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-397318: Sample SGWC-15 (400-160240-32) and the method blank associated with prep batch 160-397318 were partially spilled during the plating process contributing to the lower-than-normal yttrium carrier recovery. The carrier weights are within passing limits.

Method(s) PrecSep\_0: Radium 228 Prep Batch 160-397318: The following sample aliquots were reduced due to potential matrix interference. Sample was reduced due to discoloration and heavy sediment levels. PZ-44I (400-160240-34)

Method(s) PrecSep\_0: Radium-228 Prep Batch 160-397471: The barium carrier recovery is outside the lower control limit (40%) for the following sample: PZ-25I (400-160240-43). The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference. The pellet was noted as smaller during the out of ingrowth process.

## Case Narrative

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

### Job ID: 400-160240-2 (Continued)

#### Laboratory: TestAmerica Pensacola (Continued)

Method(s) PrecSep-21: Radium 226 Prep Batch 160-398027: Insufficient sample volume was available to perform a sample duplicate (DUP) for the following samples: PZ-39S (400-160240-44) and SGWC-18 (400-160240-45). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-397279: The following sample aliquots were reduced due to potential matrix interference. Sample was reduced due to discoloration and heavy sediment levels. PZ-44I (400-160240-34)

Method(s) PrecSep-21: Radium-226 Prep Batch 160-397461: The barium carrier recovery is outside the lower control limit (40%) for the following sample: PZ-25I (400-160240-43). The QC samples associated with the batch have acceptable carrier recovery indicating the presence of matrix interference. The pellet was noted as smaller during the out of ingrowth process.

#### Metals

Method(s) 7470A: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 418701 and analytical batch 400-419038 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method(s) 7470A: The method blank for preparation batch 418701 and analytical batch 419038 contained Mercury above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-analysis of samples was not performed.

Method(s) 6020: The method blank for preparation batch 418964 and analytical batch 419210 contained Lithium above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 6020: The following samples were diluted to bring the concentration of target analytes within the calibration range: SGWC-18 (400-160240-45), SGWC-20 (400-160240-46), FD-2 (400-160240-47), PZ-42I (400-160240-49), PZ-41S (400-160240-51) and PZ-40I (400-160240-54). Elevated reporting limits (RLs) are provided.

#### General Chemistry

Method(s) SM 2320B: The sample duplicate precision for the following sample associated with analytical batch 417274 was outside control limits: (400-160645-A-3) and (400-160645-A-3 DU). The associated Laboratory Control Sample(LCS)met acceptance criteria.

## Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Lab Sample ID: 400-160240-31**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	7.8		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.037		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Boron	0.35		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	1.8		0.25	0.13	mg/L	5			6020	Total Recoverable
Cobalt	0.023		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0031	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.00046	J	0.0013	0.00024	mg/L	5			6020	Total Recoverable
Sodium	7.7		0.25	0.17	mg/L	5			6020	Total Recoverable
Potassium	0.30		0.25	0.11	mg/L	5			6020	Total Recoverable
Magnesium	1.5		0.13	0.032	mg/L	5			6020	Total Recoverable
Mercury	0.000072	J B	0.00020	0.000070	mg/L	1			7470A	Total/NA
Alkalinity, Total	140		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	140		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	100		5.0	3.4	mg/L	1			SM 2540C	Total/NA

**Client Sample ID: SGWC-15**

**Lab Sample ID: 400-160240-32**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	10		1.0	0.89	mg/L	1			300.0	Total/NA
Fluoride	0.14	J B	0.20	0.082	mg/L	1			300.0	Total/NA
Barium	0.031		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Beryllium	0.00040	J	0.0025	0.00034	mg/L	5			6020	Total Recoverable
Boron	1.5		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	16		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.032		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Cobalt	0.27		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0034	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.0021		0.0013	0.00024	mg/L	5			6020	Total Recoverable
Thallium	0.00010	J	0.00050	0.000085	mg/L	5			6020	Total Recoverable
Sodium	44		0.25	0.17	mg/L	5			6020	Total Recoverable
Potassium	4.8		0.25	0.11	mg/L	5			6020	Total Recoverable
Magnesium	17		0.13	0.032	mg/L	5			6020	Total Recoverable
Mercury	0.00013	J B	0.00020	0.000070	mg/L	1			7470A	Total/NA
Total Dissolved Solids	350		5.0	3.4	mg/L	1			SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FD-1**

**Lab Sample ID: 400-160240-33**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	7.4		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.039		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Boron	0.38		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	1.8		0.25	0.13	mg/L	5			6020	Total Recoverable
Cobalt	0.023		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0032	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.00030	J	0.0013	0.00024	mg/L	5			6020	Total Recoverable
Sodium	7.8		0.25	0.17	mg/L	5			6020	Total Recoverable
Potassium	0.32		0.25	0.11	mg/L	5			6020	Total Recoverable
Magnesium	1.5		0.13	0.032	mg/L	5			6020	Total Recoverable
Mercury	0.000083	J B	0.00020	0.000070	mg/L	1			7470A	Total/NA
Alkalinity, Total	110		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	110		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	82		5.0	3.4	mg/L	1			SM 2540C	Total/NA

**Client Sample ID: PZ-44I**

**Lab Sample ID: 400-160240-34**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	4.3		1.0	0.89	mg/L	1			300.0	Total/NA
Sulfate	6.0		1.0	0.70	mg/L	1			300.0	Total/NA
Barium	0.014		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	21		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.0046		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Cobalt	0.0021	J	0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.069		0.0050	0.0011	mg/L	5			6020	Total Recoverable
Selenium	0.00046	J	0.0013	0.00024	mg/L	5			6020	Total Recoverable
Sodium	12		0.25	0.17	mg/L	5			6020	Total Recoverable
Potassium	14		0.25	0.11	mg/L	5			6020	Total Recoverable
Magnesium	11		0.13	0.032	mg/L	5			6020	Total Recoverable
Mercury	0.000084	J B	0.00020	0.000070	mg/L	1			7470A	Total/NA
Alkalinity, Total	140		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	140		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	180		5.0	3.4	mg/L	1			SM 2540C	Total/NA

**Client Sample ID: PZ-25S**

**Lab Sample ID: 400-160240-35**

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Client Sample ID: PZ-25S (Continued)

## Lab Sample ID: 400-160240-35

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	4.7		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	1.1		1.0	0.70	mg/L	1		300.0	Total/NA
Barium	0.022		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	1.5		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.026		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0068		0.0050	0.0011	mg/L	5		6020	Total Recoverable
Sodium	3.3		0.25	0.17	mg/L	5		6020	Total Recoverable
Potassium	0.33		0.25	0.11	mg/L	5		6020	Total Recoverable
Magnesium	0.40		0.13	0.032	mg/L	5		6020	Total Recoverable
Mercury	0.000086	J B	0.00020	0.000070	mg/L	1		7470A	Total/NA
Alkalinity, Total	5.9		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	5.9		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	66		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: EB-1

## Lab Sample ID: 400-160240-36

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	0.000096	J B	0.00020	0.000070	mg/L	1		7470A	Total/NA

## Client Sample ID: FB-1

## Lab Sample ID: 400-160240-37

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	0.000087	J B	0.00020	0.000070	mg/L	1		7470A	Total/NA

## Client Sample ID: SGWC-11

## Lab Sample ID: 400-160240-38

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium, Dissolved	0.039		0.0025	0.00049	mg/L	5		6020	Dissolved
Cobalt, Dissolved	0.022		0.0025	0.00040	mg/L	5		6020	Dissolved
Iron, Dissolved	0.99		0.13	0.053	mg/L	5		6020	Dissolved
Lithium, Dissolved	0.0027	J	0.0050	0.0011	mg/L	5		6020	Dissolved
Mercury, Dissolved	0.000080	J B	0.00020	0.000070	mg/L	1		7470A	Dissolved

## Client Sample ID: SGWC-15

## Lab Sample ID: 400-160240-39

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium, Dissolved	0.032		0.0025	0.00049	mg/L	5		6020	Dissolved
Beryllium, Dissolved	0.00039	J	0.0025	0.00034	mg/L	5		6020	Dissolved
Chromium, Dissolved	0.031		0.0025	0.0011	mg/L	5		6020	Dissolved
Cobalt, Dissolved	0.27		0.0025	0.00040	mg/L	5		6020	Dissolved
Lithium, Dissolved	0.0037	J	0.0050	0.0011	mg/L	5		6020	Dissolved
Selenium, Dissolved	0.0011	J	0.0013	0.00024	mg/L	5		6020	Dissolved
Mercury, Dissolved	0.00010	J B	0.00020	0.000070	mg/L	1		7470A	Dissolved

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Client Sample ID: PZ-44I

## Lab Sample ID: 400-160240-40

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Barium, Dissolved	0.010		0.0025	0.00049	mg/L	5			6020	Dissolved
Cobalt, Dissolved	0.0018	J	0.0025	0.00040	mg/L	5			6020	Dissolved
Iron, Dissolved	0.77		0.13	0.053	mg/L	5			6020	Dissolved
Lithium, Dissolved	0.055		0.0050	0.0011	mg/L	5			6020	Dissolved
Selenium, Dissolved	0.00025	J	0.0013	0.00024	mg/L	5			6020	Dissolved

## Client Sample ID: PZ-25S

## Lab Sample ID: 400-160240-41

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Barium, Dissolved	0.025		0.0025	0.00049	mg/L	5			6020	Dissolved
Cobalt, Dissolved	0.030		0.0025	0.00040	mg/L	5			6020	Dissolved
Iron, Dissolved	0.25		0.13	0.053	mg/L	5			6020	Dissolved
Lithium, Dissolved	0.0054		0.0050	0.0011	mg/L	5			6020	Dissolved

## Client Sample ID: PZ-36S

## Lab Sample ID: 400-160240-42

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	6.9		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.030		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Boron	0.15		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	6.0		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.0011	J	0.0025	0.0011	mg/L	5			6020	Total Recoverable
Cobalt	0.0021	J	0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0019	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Sodium	2.9		0.25	0.17	mg/L	5			6020	Total Recoverable
Potassium	0.93		0.25	0.11	mg/L	5			6020	Total Recoverable
Magnesium	3.2		0.13	0.032	mg/L	5			6020	Total Recoverable
Barium, Dissolved	0.030		0.0025	0.00049	mg/L	5			6020	Dissolved
Chromium, Dissolved	0.0013	J	0.0025	0.0011	mg/L	5			6020	Dissolved
Cobalt, Dissolved	0.0017	J	0.0025	0.00040	mg/L	5			6020	Dissolved
Lithium, Dissolved	0.0014	J	0.0050	0.0011	mg/L	5			6020	Dissolved
Alkalinity, Total	29		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	29		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	64		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: PZ-25I

## Lab Sample ID: 400-160240-43

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	4.6		1.0	0.89	mg/L	1			300.0	Total/NA
Barium	0.070		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	26		0.25	0.13	mg/L	5			6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola



# Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Client Sample ID: PZ-25I (Continued)

## Lab Sample ID: 400-160240-43

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chromium	0.0041		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Cobalt	0.0073		0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0037	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Sodium	5.0		0.25	0.17	mg/L	5			6020	Total Recoverable
Potassium	1.1		0.25	0.11	mg/L	5			6020	Total Recoverable
Magnesium	14		0.13	0.032	mg/L	5			6020	Total Recoverable
Barium, Dissolved	0.064		0.0025	0.00049	mg/L	5			6020	Dissolved
Chromium, Dissolved	0.0012	J	0.0025	0.0011	mg/L	5			6020	Dissolved
Cobalt, Dissolved	0.0043		0.0025	0.00040	mg/L	5			6020	Dissolved
Iron, Dissolved	0.48		0.13	0.053	mg/L	5			6020	Dissolved
Lithium, Dissolved	0.0025	J	0.0050	0.0011	mg/L	5			6020	Dissolved
Alkalinity, Total	140		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	140		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	150		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: PZ-39S

## Lab Sample ID: 400-160240-44

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	8.3		1.0	0.89	mg/L	1			300.0	Total/NA
Fluoride	0.087	J	0.20	0.082	mg/L	1			300.0	Total/NA
Sulfate	4.0		1.0	0.70	mg/L	1			300.0	Total/NA
Arsenic	0.0011	J	0.0013	0.00046	mg/L	5			6020	Total Recoverable
Barium	0.020		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Calcium	22		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.0027		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Cobalt	0.00051	J	0.0025	0.00040	mg/L	5			6020	Total Recoverable
Lithium	0.0027	J	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Sodium	8.0		0.25	0.17	mg/L	5			6020	Total Recoverable
Potassium	1.9		0.25	0.11	mg/L	5			6020	Total Recoverable
Magnesium	7.4		0.13	0.032	mg/L	5			6020	Total Recoverable
Arsenic, Dissolved	0.0019		0.0013	0.00046	mg/L	5			6020	Dissolved
Barium, Dissolved	0.017		0.0025	0.00049	mg/L	5			6020	Dissolved
Iron, Dissolved	0.48		0.13	0.053	mg/L	5			6020	Dissolved
Lithium, Dissolved	0.0015	J	0.0050	0.0011	mg/L	5			6020	Dissolved
Alkalinity, Total	98		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	98		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	140		5.0	3.4	mg/L	1			SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

Client Sample ID: SGWC-18

Lab Sample ID: 400-160240-45

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	16		5.0	4.5	mg/L	5		300.0	Total/NA
Sulfate - DL	1200		50	35	mg/L	50		300.0	Total/NA
Arsenic	0.0023		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Barium	0.033		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	100		0.25	0.13	mg/L	5		6020	Total Recoverable
Chromium	0.0090		0.0025	0.0011	mg/L	5		6020	Total Recoverable
Cobalt	0.21		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0054		0.0050	0.0011	mg/L	5		6020	Total Recoverable
Magnesium	62		0.13	0.032	mg/L	5		6020	Total Recoverable
Potassium	4.5		0.25	0.11	mg/L	5		6020	Total Recoverable
Selenium	0.017		0.0013	0.00024	mg/L	5		6020	Total Recoverable
Thallium	0.00019	J	0.00050	0.000085	mg/L	5		6020	Total Recoverable
Boron - DL	4.9		0.25	0.11	mg/L	25		6020	Total Recoverable
Sodium - DL	290		1.3	0.84	mg/L	25		6020	Total Recoverable
Mercury	0.00024		0.00020	0.000070	mg/L	1		7470A	Total/NA
Total Dissolved Solids	1200		10	6.8	mg/L	1		SM 2540C	Total/NA

Client Sample ID: SGWC-20

Lab Sample ID: 400-160240-46

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	11		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.23	B	0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate - DL	210		5.0	3.5	mg/L	5		300.0	Total/NA
Barium	0.027		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Beryllium	0.00079	J	0.0025	0.00034	mg/L	5		6020	Total Recoverable
Calcium	12		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.16		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0062	B	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Magnesium	17		0.13	0.032	mg/L	5		6020	Total Recoverable
Potassium	3.4		0.25	0.11	mg/L	5		6020	Total Recoverable
Selenium	0.00049	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Sodium	54		0.25	0.17	mg/L	5		6020	Total Recoverable
Thallium	0.00018	J	0.00050	0.000085	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Client Sample ID: SGWC-20 (Continued)

## Lab Sample ID: 400-160240-46

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Boron - DL	2.3		0.25	0.11	mg/L	25			6020	Total
Barium, Dissolved	0.025		0.0025	0.00049	mg/L	5			6020	Recoverable Dissolved
Beryllium, Dissolved	0.00062	J	0.0025	0.00034	mg/L	5			6020	Dissolved
Cobalt, Dissolved	0.13		0.0025	0.00040	mg/L	5			6020	Dissolved
Lithium, Dissolved	0.0047	J B	0.0050	0.0011	mg/L	5			6020	Dissolved
Selenium, Dissolved	0.00032	J	0.0013	0.00024	mg/L	5			6020	Dissolved
Thallium, Dissolved	0.00017	J	0.00050	0.000085	mg/L	5			6020	Dissolved
Total Dissolved Solids	370		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: FD-2

## Lab Sample ID: 400-160240-47

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	16		1.0	0.89	mg/L	1			300.0	Total/NA
Fluoride	0.087	J B	0.20	0.082	mg/L	1			300.0	Total/NA
Sulfate - DL	1200		100	70	mg/L	100			300.0	Total/NA
Arsenic	0.0025		0.0013	0.00046	mg/L	5			6020	Total
Barium	0.035		0.0025	0.00049	mg/L	5			6020	Recoverable Total
Beryllium	0.00038	J	0.0025	0.00034	mg/L	5			6020	Recoverable Total
Calcium	100		0.25	0.13	mg/L	5			6020	Recoverable Total
Chromium	0.0095		0.0025	0.0011	mg/L	5			6020	Recoverable Total
Cobalt	0.22		0.0025	0.00040	mg/L	5			6020	Recoverable Total
Lithium	0.0060	B	0.0050	0.0011	mg/L	5			6020	Recoverable Total
Magnesium	63		0.13	0.032	mg/L	5			6020	Recoverable Total
Potassium	4.6		0.25	0.11	mg/L	5			6020	Recoverable Total
Selenium	0.017		0.0013	0.00024	mg/L	5			6020	Recoverable Total
Thallium	0.00021	J	0.00050	0.000085	mg/L	5			6020	Recoverable Total
Boron - DL	4.6		0.50	0.21	mg/L	50			6020	Recoverable Total
Sodium - DL	310		2.5	1.7	mg/L	50			6020	Recoverable Total
Arsenic, Dissolved	0.0024		0.0013	0.00046	mg/L	5			6020	Dissolved
Barium, Dissolved	0.034		0.0025	0.00049	mg/L	5			6020	Dissolved
Chromium, Dissolved	0.0091		0.0025	0.0011	mg/L	5			6020	Dissolved
Cobalt, Dissolved	0.21		0.0025	0.00040	mg/L	5			6020	Dissolved
Lithium, Dissolved	0.0063	B	0.0050	0.0011	mg/L	5			6020	Dissolved
Selenium, Dissolved	0.016		0.0013	0.00024	mg/L	5			6020	Dissolved
Thallium, Dissolved	0.00020	J	0.00050	0.000085	mg/L	5			6020	Dissolved
Mercury	0.00025		0.00020	0.000070	mg/L	1			7470A	Total/NA
Mercury, Dissolved	0.00012	J	0.00020	0.000070	mg/L	1			7470A	Dissolved
Total Dissolved Solids	1600		10	6.8	mg/L	1			SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Client Sample ID: FB-2

## Lab Sample ID: 400-160240-48

No Detections.

## Client Sample ID: PZ-42I

## Lab Sample ID: 400-160240-49

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	12		1.0	0.89	mg/L	1		300.0	Total/NA
Fluoride	0.083	J	0.20	0.082	mg/L	1		300.0	Total/NA
Sulfate - DL	250		10	7.0	mg/L	10		300.0	Total/NA
Barium	0.10		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Calcium	64		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.0064		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0040	J B	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Magnesium	27		0.13	0.032	mg/L	5		6020	Total Recoverable
Potassium	4.7		0.25	0.11	mg/L	5		6020	Total Recoverable
Selenium	0.00026	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Sodium	24		0.25	0.17	mg/L	5		6020	Total Recoverable
Boron - DL	2.6		0.25	0.11	mg/L	25		6020	Total Recoverable
Barium, Dissolved	0.096		0.0025	0.00049	mg/L	5		6020	Dissolved
Cobalt, Dissolved	0.0060		0.0025	0.00040	mg/L	5		6020	Dissolved
Iron, Dissolved	1.7		0.13	0.053	mg/L	5		6020	Dissolved
Lithium, Dissolved	0.0047	J B	0.0050	0.0011	mg/L	5		6020	Dissolved
Alkalinity, Total	84		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	84		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	440		5.0	3.4	mg/L	1		SM 2540C	Total/NA

## Client Sample ID: EB-2

## Lab Sample ID: 400-160240-50

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Boron	0.039	J	0.050	0.021	mg/L	5		6020	Total Recoverable
Alkalinity, Total	5.5		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	5.5		1.0	0.98	mg/L	1		SM 2320B	Total/NA

## Client Sample ID: PZ-41S

## Lab Sample ID: 400-160240-51

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	6.8		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate	550		20	14	mg/L	20		300.0	Total/NA
Barium	0.059		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0092		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0029	J B	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Magnesium	43		0.13	0.032	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Client Sample ID: PZ-41S (Continued)

## Lab Sample ID: 400-160240-51

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Potassium	3.7		0.25	0.11	mg/L	5			6020	Total Recoverable
Selenium	0.0045		0.0013	0.00024	mg/L	5			6020	Total Recoverable
Sodium	79		0.25	0.17	mg/L	5			6020	Total Recoverable
Boron - DL	3.5		0.25	0.11	mg/L	25			6020	Total Recoverable
Calcium - DL	120		1.3	0.63	mg/L	25			6020	Total Recoverable
Barium, Dissolved	0.058		0.0025	0.00049	mg/L	5			6020	Dissolved
Cobalt, Dissolved	0.0093		0.0025	0.00040	mg/L	5			6020	Dissolved
Iron, Dissolved	0.92		0.13	0.053	mg/L	5			6020	Dissolved
Lithium, Dissolved	0.0030	J B	0.0050	0.0011	mg/L	5			6020	Dissolved
Selenium, Dissolved	0.0050		0.0013	0.00024	mg/L	5			6020	Dissolved
Alkalinity, Total	39		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	39		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	670		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: PZ-17I

## Lab Sample ID: 400-160240-52

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	5.5		1.0	0.89	mg/L	1			300.0	Total/NA
Sulfate - DL	92		2.0	1.4	mg/L	2			300.0	Total/NA
Barium	0.055		0.0025	0.00049	mg/L	5			6020	Total Recoverable
Boron	0.067		0.050	0.021	mg/L	5			6020	Total Recoverable
Calcium	33		0.25	0.13	mg/L	5			6020	Total Recoverable
Chromium	0.0049		0.0025	0.0011	mg/L	5			6020	Total Recoverable
Lithium	0.0017	J B	0.0050	0.0011	mg/L	5			6020	Total Recoverable
Magnesium	15		0.13	0.032	mg/L	5			6020	Total Recoverable
Potassium	2.0		0.25	0.11	mg/L	5			6020	Total Recoverable
Selenium	0.00047	J	0.0013	0.00024	mg/L	5			6020	Total Recoverable
Sodium	11		0.25	0.17	mg/L	5			6020	Total Recoverable
Barium, Dissolved	0.055		0.0025	0.00049	mg/L	5			6020	Dissolved
Chromium, Dissolved	0.0037		0.0025	0.0011	mg/L	5			6020	Dissolved
Lithium, Dissolved	0.0020	J B	0.0050	0.0011	mg/L	5			6020	Dissolved
Selenium, Dissolved	0.00047	J	0.0013	0.00024	mg/L	5			6020	Dissolved
Alkalinity, Total	66		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	66		1.0	0.98	mg/L	1			SM 2320B	Total/NA
Total Dissolved Solids	260		5.0	3.4	mg/L	1			SM 2540C	Total/NA

## Client Sample ID: PZ-43S

## Lab Sample ID: 400-160240-53

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Chloride	6.3		1.0	0.89	mg/L	1			300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

Client Sample ID: PZ-43S (Continued)

Lab Sample ID: 400-160240-53

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate - DL	140		5.0	3.5	mg/L	5		300.0	Total/NA
Barium	0.12		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Boron	0.82		0.050	0.021	mg/L	5		6020	Total Recoverable
Calcium	44		0.25	0.13	mg/L	5		6020	Total Recoverable
Cobalt	0.0086		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.0015	J B	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Magnesium	14		0.13	0.032	mg/L	5		6020	Total Recoverable
Potassium	3.6		0.25	0.11	mg/L	5		6020	Total Recoverable
Sodium	12		0.25	0.17	mg/L	5		6020	Total Recoverable
Barium, Dissolved	0.13		0.0025	0.00049	mg/L	5		6020	Dissolved
Cobalt, Dissolved	0.0091		0.0025	0.00040	mg/L	5		6020	Dissolved
Iron, Dissolved	0.97		0.13	0.053	mg/L	5		6020	Dissolved
Lithium, Dissolved	0.0027	J B	0.0050	0.0011	mg/L	5		6020	Dissolved
Alkalinity, Total	63		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	63		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Total Dissolved Solids	230		5.0	3.4	mg/L	1		SM 2540C	Total/NA

Client Sample ID: PZ-40I

Lab Sample ID: 400-160240-54

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	9.3		1.0	0.89	mg/L	1		300.0	Total/NA
Sulfate - DL	570		20	14	mg/L	20		300.0	Total/NA
Barium	0.089		0.0025	0.00049	mg/L	5		6020	Total Recoverable
Cobalt	0.0076		0.0025	0.00040	mg/L	5		6020	Total Recoverable
Lithium	0.015	B	0.0050	0.0011	mg/L	5		6020	Total Recoverable
Magnesium	47		0.13	0.032	mg/L	5		6020	Total Recoverable
Potassium	9.4		0.25	0.11	mg/L	5		6020	Total Recoverable
Selenium	0.00059	J	0.0013	0.00024	mg/L	5		6020	Total Recoverable
Sodium	37		0.25	0.17	mg/L	5		6020	Total Recoverable
Boron - DL	3.8		0.25	0.11	mg/L	25		6020	Total Recoverable
Calcium - DL	120		1.3	0.63	mg/L	25		6020	Total Recoverable
Barium, Dissolved	0.089		0.0025	0.00049	mg/L	5		6020	Dissolved
Cobalt, Dissolved	0.0078		0.0025	0.00040	mg/L	5		6020	Dissolved
Iron, Dissolved	3.8		0.13	0.053	mg/L	5		6020	Dissolved
Lithium, Dissolved	0.015	B	0.0050	0.0011	mg/L	5		6020	Dissolved
Selenium, Dissolved	0.00062	J	0.0013	0.00024	mg/L	5		6020	Dissolved
Alkalinity, Total	55		1.0	0.98	mg/L	1		SM 2320B	Total/NA
Bicarbonate Alkalinity as CaCO3	55		1.0	0.98	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-40I (Continued)**

**Lab Sample ID: 400-160240-54**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Dissolved Solids	840		5.0	3.4	mg/L	1		SM 2540C	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola



## Method Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL PEN
6020	Metals (ICP/MS)	SW846	TAL PEN
7470A	Mercury (CVAA)	SW846	TAL PEN
SM 2320B	Alkalinity	SM	TAL PEN
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PEN
9315	Radium-226 (GFPC)	SW846	TAL SL
9320	Radium-228 (GFPC)	SW846	TAL SL
Ra226_Ra228	Combined Radium-226 and Radium-228	TAL-STL	TAL SL
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN
7470A	Preparation, Mercury	SW846	TAL PEN
PrecSep_0	Preparation, Precipitate Separation	None	TAL SL
PrecSep-21	Preparation, Precipitate Separation (21-Day In-Growth)	None	TAL SL

### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

None = None

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

TAL-STL = TestAmerica Laboratories, St. Louis, Facility Standard Operating Procedure.

### Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# Sample Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-160240-31	SGWC-11	Water	10/16/18 10:50	10/19/18 09:04
400-160240-32	SGWC-15	Water	10/16/18 15:15	10/19/18 09:04
400-160240-33	FD-1	Water	10/16/18 00:00	10/19/18 09:04
400-160240-34	PZ-44I	Water	10/16/18 13:45	10/19/18 09:04
400-160240-35	PZ-25S	Water	10/16/18 10:40	10/19/18 09:04
400-160240-36	EB-1	Water	10/16/18 16:50	10/19/18 09:04
400-160240-37	FB-1	Water	10/16/18 13:30	10/19/18 09:04
400-160240-38	SGWC-11	Water	10/17/18 12:30	10/19/18 09:04
400-160240-39	SGWC-15	Water	10/17/18 15:00	10/19/18 09:04
400-160240-40	PZ-44I	Water	10/17/18 13:50	10/19/18 09:04
400-160240-41	PZ-25S	Water	10/17/18 09:50	10/19/18 09:04
400-160240-42	PZ-36S	Water	10/17/18 09:35	10/19/18 09:04
400-160240-43	PZ-25I	Water	10/17/18 11:15	10/19/18 09:04
400-160240-44	PZ-39S	Water	10/17/18 13:15	10/19/18 09:04
400-160240-45	SGWC-18	Water	10/18/18 09:05	10/20/18 08:28
400-160240-46	SGWC-20	Water	10/18/18 10:35	10/20/18 08:28
400-160240-47	FD-2	Water	10/18/18 00:00	10/20/18 08:28
400-160240-48	FB-2	Water	10/18/18 10:30	10/20/18 08:28
400-160240-49	PZ-42I	Water	10/18/18 12:15	10/20/18 08:28
400-160240-50	EB-2	Water	10/18/18 15:30	10/20/18 08:28
400-160240-51	PZ-41S	Water	10/18/18 13:50	10/20/18 08:28
400-160240-52	PZ-17I	Water	10/18/18 09:10	10/20/18 08:28
400-160240-53	PZ-43S	Water	10/18/18 15:20	10/20/18 08:28
400-160240-54	PZ-40I	Water	10/18/18 14:05	10/20/18 08:28

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Date Collected: 10/16/18 10:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-31**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.8		1.0	0.89	mg/L			11/02/18 18:54	1
Fluoride	<0.082		0.20	0.082	mg/L			11/02/18 18:54	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 15:29	5
Barium	0.037		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 15:29	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:29	5
Boron	0.35		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 15:29	5
Calcium	1.8		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 15:29	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 15:29	5
Cobalt	0.023		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 15:29	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 15:29	5
Lithium	0.0031	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 15:29	5
Selenium	0.00046	J	0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 15:29	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 15:29	5
Sodium	7.7		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 15:29	5
Potassium	0.30		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 15:29	5
Magnesium	1.5		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 15:29	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000072	J B	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 15:42	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	140		1.0	0.98	mg/L			10/28/18 09:36	1
Bicarbonate Alkalinity as CaCO3	140		1.0	0.98	mg/L			10/28/18 09:36	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 09:36	1
Total Dissolved Solids	100		5.0	3.4	mg/L			10/22/18 14:36	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.200		0.0877	0.0895	1.00	0.0880	pCi/L	10/25/18 10:07	11/20/18 05:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					10/25/18 10:07	11/20/18 05:47	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.858		0.308	0.318	1.00	0.411	pCi/L	10/25/18 11:56	11/12/18 14:58	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					10/25/18 11:56	11/12/18 14:58	1
Y Carrier	82.2		40 - 110					10/25/18 11:56	11/12/18 14:58	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Date Collected: 10/16/18 10:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-31**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.06		0.320	0.330	5.00	0.411	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Date Collected: 10/16/18 15:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-32**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10		1.0	0.89	mg/L			11/02/18 19:17	1
Fluoride	0.14	J B	0.20	0.082	mg/L			11/02/18 19:17	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 15:47	5
Barium	0.031		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 15:47	5
Beryllium	0.00040	J	0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:47	5
Boron	1.5		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 15:47	5
Calcium	16		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 15:47	5
Chromium	0.032		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 15:47	5
Cobalt	0.27		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 15:47	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 15:47	5
Lithium	0.0034	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 15:47	5
Selenium	0.0021		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 15:47	5
Thallium	0.00010	J	0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 15:47	5
Sodium	44		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 15:47	5
Potassium	4.8		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 15:47	5
Magnesium	17		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 15:47	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00013	J B	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 15:44	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	<0.98		1.0	0.98	mg/L			10/28/18 10:18	1
Bicarbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 10:18	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 10:18	1
Total Dissolved Solids	350		5.0	3.4	mg/L			10/22/18 14:36	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.214		0.0914	0.0934	1.00	0.0927	pCi/L	10/25/18 10:07	11/20/18 05:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.6		40 - 110					10/25/18 10:07	11/20/18 05:47	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.517	U	0.346	0.349	1.00	0.532	pCi/L	10/25/18 11:56	11/12/18 14:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	95.6		40 - 110					10/25/18 11:56	11/12/18 14:59	1
Y Carrier	61.7		40 - 110					10/25/18 11:56	11/12/18 14:59	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Date Collected: 10/16/18 15:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-32**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.731		0.358	0.361	5.00	0.532	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FD-1**

**Date Collected: 10/16/18 00:00**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-33**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.4		1.0	0.89	mg/L			11/05/18 22:23	1
Fluoride	<0.082		0.20	0.082	mg/L			11/05/18 22:23	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 15:50	5
Barium	0.039		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 15:50	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:50	5
Boron	0.38		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 15:50	5
Calcium	1.8		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 15:50	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 15:50	5
Cobalt	0.023		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 15:50	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 15:50	5
Lithium	0.0032	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 15:50	5
Selenium	0.00030	J	0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 15:50	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 15:50	5
Sodium	7.8		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 15:50	5
Potassium	0.32		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 15:50	5
Magnesium	1.5		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 15:50	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000083	J B	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 15:46	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	110		1.0	0.98	mg/L			10/26/18 14:35	1
Bicarbonate Alkalinity as CaCO <sub>3</sub>	110		1.0	0.98	mg/L			10/26/18 14:35	1
Carbonate Alkalinity as CaCO <sub>3</sub>	<0.98		1.0	0.98	mg/L			10/26/18 14:35	1
Total Dissolved Solids	82		5.0	3.4	mg/L			10/22/18 14:36	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.139		0.0792	0.0801	1.00	0.0980	pCi/L	10/25/18 10:07	11/20/18 05:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.9		40 - 110					10/25/18 10:07	11/20/18 05:47	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.502		0.323	0.327	1.00	0.502	pCi/L	10/25/18 11:56	11/12/18 14:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.9		40 - 110					10/25/18 11:56	11/12/18 14:59	1
Y Carrier	79.6		40 - 110					10/25/18 11:56	11/12/18 14:59	1

TestAmerica Pensacola



# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FD-1**

**Date Collected: 10/16/18 00:00**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-33**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.640		0.333	0.337	5.00	0.502	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-44I**

**Date Collected: 10/16/18 13:45**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-34**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.3		1.0	0.89	mg/L			11/02/18 19:40	1
Fluoride	<0.082		0.20	0.082	mg/L			11/02/18 19:40	1
Sulfate	6.0		1.0	0.70	mg/L			11/02/18 19:40	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:12	5
Barium	0.014		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:12	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:12	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 16:12	5
Calcium	21		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 16:12	5
Chromium	0.0046		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:12	5
Cobalt	0.0021	J	0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:12	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:12	5
Lithium	0.069		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:12	5
Selenium	0.00046	J	0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:12	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:12	5
Sodium	12		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 16:12	5
Potassium	14		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 16:12	5
Magnesium	11		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 16:12	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000084	J B	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 15:48	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	140		1.0	0.98	mg/L			10/28/18 10:25	1
Bicarbonate Alkalinity as CaCO3	140		1.0	0.98	mg/L			10/28/18 10:25	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 10:25	1
Total Dissolved Solids	180		5.0	3.4	mg/L			10/22/18 14:36	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.216		0.107	0.109	1.00	0.111	pCi/L	10/25/18 10:07	11/20/18 05:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					10/25/18 10:07	11/20/18 05:47	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.335	U	0.384	0.386	1.00	0.632	pCi/L	10/25/18 11:56	11/12/18 14:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.0		40 - 110					10/25/18 11:56	11/12/18 14:59	1
Y Carrier	74.4		40 - 110					10/25/18 11:56	11/12/18 14:59	1

TestAmerica Pensacola

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-44I**

**Date Collected: 10/16/18 13:45**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-34**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.551	U	0.399	0.401	5.00	0.632	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-25S**

**Date Collected: 10/16/18 10:40**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-35**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.7		1.0	0.89	mg/L			11/02/18 20:03	1
Fluoride	<0.082		0.20	0.082	mg/L			11/02/18 20:03	1
Sulfate	1.1		1.0	0.70	mg/L			11/02/18 20:03	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:15	5
Barium	0.022		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:15	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:15	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 16:15	5
Calcium	1.5		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 16:15	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:15	5
Cobalt	0.026		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:15	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:15	5
Lithium	0.0068		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:15	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:15	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:15	5
Sodium	3.3		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 16:15	5
Potassium	0.33		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 16:15	5
Magnesium	0.40		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 16:15	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000086	J B	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 16:11	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	5.9		1.0	0.98	mg/L			10/28/18 10:30	1
Bicarbonate Alkalinity as CaCO3	5.9		1.0	0.98	mg/L			10/28/18 10:30	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 10:30	1
Total Dissolved Solids	66		5.0	3.4	mg/L			10/22/18 14:36	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.143		0.0770	0.0781	1.00	0.0867	pCi/L	10/25/18 10:07	11/20/18 05:47	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.3		40 - 110					10/25/18 10:07	11/20/18 05:47	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.497		0.304	0.307	1.00	0.463	pCi/L	10/25/18 11:56	11/12/18 14:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.3		40 - 110					10/25/18 11:56	11/12/18 14:59	1
Y Carrier	81.5		40 - 110					10/25/18 11:56	11/12/18 14:59	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-25S**

**Date Collected: 10/16/18 10:40**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-35**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.640		0.314	0.317	5.00	0.463	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: EB-1**

**Date Collected: 10/16/18 16:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-36**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/02/18 20:26	1
Fluoride	<0.082		0.20	0.082	mg/L			11/02/18 20:26	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:19	5
Barium	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:19	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:19	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 16:19	5
Calcium	<0.13		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 16:19	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:19	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:19	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:19	5
Lithium	<0.0011		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:19	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:19	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:19	5
Sodium	<0.17		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 16:19	5
Potassium	<0.11		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 16:19	5
Magnesium	<0.032		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 16:19	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000096	J B	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 16:13	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	<0.98		1.0	0.98	mg/L			10/28/18 10:35	1
Bicarbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 10:35	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 10:35	1
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/22/18 14:36	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0869	U	0.0665	0.0669	1.00	0.0917	pCi/L	10/25/18 10:07	11/20/18 05:48	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	95.3		40 - 110					10/25/18 10:07	11/20/18 05:48	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.564		0.340	0.344	1.00	0.522	pCi/L	10/25/18 11:56	11/12/18 14:59	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	95.3		40 - 110					10/25/18 11:56	11/12/18 14:59	1
Y Carrier	74.8		40 - 110					10/25/18 11:56	11/12/18 14:59	1

TestAmerica Pensacola

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: EB-1**

**Date Collected: 10/16/18 16:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-36**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.651		0.346	0.350	5.00	0.522	pCi/L		11/26/18 15:23	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FB-1**

**Date Collected: 10/16/18 13:30**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-37**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/02/18 20:48	1
Fluoride	<0.082		0.20	0.082	mg/L			11/02/18 20:48	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:22	5
Barium	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:22	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:22	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 16:22	5
Calcium	<0.13		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 16:22	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:22	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:22	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:22	5
Lithium	<0.0011		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:22	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:22	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:22	5
Sodium	<0.17		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 16:22	5
Potassium	<0.11		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 16:22	5
Magnesium	<0.032		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 16:22	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.000087	J B	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 16:15	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	<0.98		1.0	0.98	mg/L			10/28/18 10:40	1
Bicarbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 10:40	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 10:40	1
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/22/18 14:36	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.196		0.0862	0.0880	1.00	0.0870	pCi/L	10/25/18 10:07	11/20/18 05:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					10/25/18 10:07	11/20/18 05:48	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.862		0.308	0.318	1.00	0.418	pCi/L	10/25/18 11:56	11/12/18 14:59	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	96.5		40 - 110					10/25/18 11:56	11/12/18 14:59	1
Y Carrier	83.4		40 - 110					10/25/18 11:56	11/12/18 14:59	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FB-1**

**Date Collected: 10/16/18 13:30**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-37**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.06		0.320	0.330	5.00	0.418	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Date Collected: 10/17/18 12:30**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-38**

**Matrix: Water**

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:40	5
<b>Barium, Dissolved</b>	<b>0.039</b>		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:40	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:40	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:40	5
<b>Cobalt, Dissolved</b>	<b>0.022</b>		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:40	5
<b>Iron, Dissolved</b>	<b>0.99</b>		0.13	0.053	mg/L		11/09/18 11:00	11/09/18 16:40	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:40	5
<b>Lithium, Dissolved</b>	<b>0.0027</b>	<b>J</b>	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:40	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:40	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:40	5

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Mercury, Dissolved</b>	<b>0.000080</b>	<b>J B</b>	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 16:17	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Lab Sample ID: 400-160240-39**

**Date Collected: 10/17/18 15:00**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:43	5
Barium, Dissolved	0.032		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:43	5
Beryllium, Dissolved	0.00039	J	0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:43	5
Chromium, Dissolved	0.031		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:43	5
Cobalt, Dissolved	0.27		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:43	5
Iron, Dissolved	<0.053		0.13	0.053	mg/L		11/09/18 11:00	11/09/18 16:43	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:43	5
Lithium, Dissolved	0.0037	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:43	5
Selenium, Dissolved	0.0011	J	0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:43	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:43	5

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	0.00010	J B	0.00020	0.000070	mg/L		11/08/18 10:02	11/09/18 16:19	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-44I**

**Date Collected: 10/17/18 13:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-40**

**Matrix: Water**

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 17:05	5
<b>Barium, Dissolved</b>	<b>0.010</b>		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 17:05	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 17:05	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 17:05	5
<b>Cobalt, Dissolved</b>	<b>0.0018</b>	<b>J</b>	0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 17:05	5
<b>Iron, Dissolved</b>	<b>0.77</b>		0.13	0.053	mg/L		11/09/18 11:00	11/09/18 17:05	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 17:05	5
<b>Lithium, Dissolved</b>	<b>0.055</b>		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 17:05	5
<b>Selenium, Dissolved</b>	<b>0.00025</b>	<b>J</b>	0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 17:05	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 17:05	5

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 09:47	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-25S**

**Date Collected: 10/17/18 09:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-41**

**Matrix: Water**

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 17:08	5
<b>Barium, Dissolved</b>	<b>0.025</b>		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 17:08	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 17:08	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 17:08	5
<b>Cobalt, Dissolved</b>	<b>0.030</b>		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 17:08	5
<b>Iron, Dissolved</b>	<b>0.25</b>		0.13	0.053	mg/L		11/09/18 11:00	11/09/18 17:08	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 17:08	5
<b>Lithium, Dissolved</b>	<b>0.0054</b>		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 17:08	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 17:08	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 17:08	5

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 09:48	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-36S**

**Date Collected: 10/17/18 09:35**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-42**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.9		1.0	0.89	mg/L			11/05/18 22:00	1
Fluoride	<0.082		0.20	0.082	mg/L			11/05/18 22:00	1
Sulfate	<0.70		1.0	0.70	mg/L			11/05/18 22:00	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:26	5
Barium	0.030		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:26	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:26	5
Boron	0.15		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 16:26	5
Calcium	6.0		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 16:26	5
Chromium	0.0011	J	0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:26	5
Cobalt	0.0021	J	0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:26	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:26	5
Lithium	0.0019	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:26	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:26	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:26	5
Sodium	2.9		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 16:26	5
Potassium	0.93		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 16:26	5
Magnesium	3.2		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 16:26	5

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 17:12	5
Barium, Dissolved	0.030		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 17:12	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 17:12	5
Chromium, Dissolved	0.0013	J	0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 17:12	5
Cobalt, Dissolved	0.0017	J	0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 17:12	5
Iron, Dissolved	<0.053		0.13	0.053	mg/L		11/09/18 11:00	11/09/18 17:12	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 17:12	5
Lithium, Dissolved	0.0014	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 17:12	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 17:12	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 17:12	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 09:35	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 09:59	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	29		1.0	0.98	mg/L			10/29/18 13:08	1
Bicarbonate Alkalinity as CaCO3	29		1.0	0.98	mg/L			10/29/18 13:08	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 13:08	1
Total Dissolved Solids	64		5.0	3.4	mg/L			10/23/18 11:59	1

TestAmerica Pensacola



# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-36S**

**Date Collected: 10/17/18 09:35**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-42**

**Matrix: Water**

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.199		0.105	0.107	1.00	0.127	pCi/L	10/26/18 10:06	11/20/18 05:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.7		40 - 110					10/26/18 10:06	11/20/18 05:34	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.449	U	0.297	0.300	1.00	0.455	pCi/L	10/26/18 10:46	11/14/18 16:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	86.7		40 - 110					10/26/18 10:46	11/14/18 16:11	1
Y Carrier	77.0		40 - 110					10/26/18 10:46	11/14/18 16:11	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.648		0.315	0.319	5.00	0.455	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-25I**

**Date Collected: 10/17/18 11:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-43**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.6		1.0	0.89	mg/L			11/05/18 22:46	1
Fluoride	<0.082		0.20	0.082	mg/L			11/05/18 22:46	1
Sulfate	<0.70		1.0	0.70	mg/L			11/05/18 22:46	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:29	5
Barium	0.070		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:29	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:29	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 16:29	5
Calcium	26		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 16:29	5
Chromium	0.0041		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:29	5
Cobalt	0.0073		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:29	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:29	5
Lithium	0.0037	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:29	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:29	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:29	5
Sodium	5.0		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 16:29	5
Potassium	1.1		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 16:29	5
Magnesium	14		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 16:29	5

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 17:17	5
Barium, Dissolved	0.064		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 17:17	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 17:17	5
Chromium, Dissolved	0.0012	J	0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 17:17	5
Cobalt, Dissolved	0.0043		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 17:17	5
Iron, Dissolved	0.48		0.13	0.053	mg/L		11/09/18 11:00	11/09/18 17:17	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 17:17	5
Lithium, Dissolved	0.0025	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 17:17	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 17:17	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 17:17	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 09:43	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 10:01	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	140		1.0	0.98	mg/L			10/29/18 13:13	1
Bicarbonate Alkalinity as CaCO3	140		1.0	0.98	mg/L			10/29/18 13:13	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 13:13	1
Total Dissolved Solids	150		5.0	3.4	mg/L			10/23/18 11:59	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-25I**

**Date Collected: 10/17/18 11:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-43**

**Matrix: Water**

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.147	U	0.164	0.164	1.00	0.263	pCi/L	10/26/18 10:06	11/20/18 05:34	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	37.8	X	40 - 110					10/26/18 10:06	11/20/18 05:34	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.843	U G	0.676	0.681	1.00	1.07	pCi/L	10/26/18 10:46	11/14/18 16:11	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	37.8	X	40 - 110					10/26/18 10:46	11/14/18 16:11	1
Y Carrier	75.5		40 - 110					10/26/18 10:46	11/14/18 16:11	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.989	U	0.696	0.700	5.00	1.07	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-39S**

**Date Collected: 10/17/18 13:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-44**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.3		1.0	0.89	mg/L			11/05/18 23:09	1
Fluoride	0.087	J	0.20	0.082	mg/L			11/05/18 23:09	1
Sulfate	4.0		1.0	0.70	mg/L			11/05/18 23:09	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0011	J	0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:33	5
Barium	0.020		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:33	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:33	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 16:33	5
Calcium	22		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 16:33	5
Chromium	0.0027		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:33	5
Cobalt	0.00051	J	0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:33	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:33	5
Lithium	0.0027	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:33	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:33	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:33	5
Sodium	8.0		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 16:33	5
Potassium	1.9		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 16:33	5
Magnesium	7.4		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 16:33	5

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	0.0019		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 15:57	5
Barium, Dissolved	0.017		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 17:21	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 17:21	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 17:21	5
Cobalt, Dissolved	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 17:21	5
Iron, Dissolved	0.48		0.13	0.053	mg/L		11/09/18 11:00	11/09/18 17:21	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 17:21	5
Lithium, Dissolved	0.0015	J	0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 17:21	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 17:21	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 17:21	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 09:45	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 10:03	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	98		1.0	0.98	mg/L			10/29/18 13:20	1
Bicarbonate Alkalinity as CaCO3	98		1.0	0.98	mg/L			10/29/18 13:20	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 13:20	1
Total Dissolved Solids	140		5.0	3.4	mg/L			10/23/18 11:59	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-39S**

**Date Collected: 10/17/18 13:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-44**

**Matrix: Water**

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.196		0.100	0.102	1.00	0.121	pCi/L	10/29/18 11:40	11/20/18 11:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.2		40 - 110					10/29/18 11:40	11/20/18 11:17	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.134	U	0.251	0.251	1.00	0.484	pCi/L	10/29/18 11:58	11/12/18 16:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	80.2		40 - 110					10/29/18 11:58	11/12/18 16:30	1
Y Carrier	75.1		40 - 110					10/29/18 11:58	11/12/18 16:30	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.0623	U	0.270	0.271	5.00	0.484	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-18**

**Date Collected: 10/18/18 09:05**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-45**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16		5.0	4.5	mg/L			11/05/18 23:31	5
Fluoride	<0.41		1.0	0.41	mg/L			11/05/18 23:31	5

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1200		50	35	mg/L			11/06/18 15:10	50

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0023		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 16:36	5
Barium	0.033		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 16:36	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 16:36	5
Calcium	100		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 16:36	5
Chromium	0.0090		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 16:36	5
Cobalt	0.21		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 16:36	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 16:36	5
Lithium	0.0054		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 16:36	5
Magnesium	62		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 16:36	5
Potassium	4.5		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 16:36	5
Selenium	0.017		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 16:36	5
Thallium	0.00019 J		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 16:36	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	4.9		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 17:35	25
Sodium	290		1.3	0.84	mg/L		11/09/18 11:00	11/09/18 17:35	25

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00024		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:07	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	<0.98		1.0	0.98	mg/L			10/29/18 13:25	1
Bicarbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 13:25	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 13:25	1
Total Dissolved Solids	1200		10	6.8	mg/L			10/25/18 12:27	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.161		0.0806	0.0819	1.00	0.0917	pCi/L	10/29/18 11:40	11/20/18 11:17	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					10/29/18 11:40	11/20/18 11:17	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-18**

**Date Collected: 10/18/18 09:05**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-45**

**Matrix: Water**

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.143	U	0.250	0.250	1.00	0.423	pCi/L	10/29/18 11:58	11/12/18 16:30	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.6		40 - 110					10/29/18 11:58	11/12/18 16:30	1
Y Carrier	77.4		40 - 110					10/29/18 11:58	11/12/18 16:30	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.304	U	0.263	0.263	5.00	0.423	pCi/L		11/26/18 15:23	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Date Collected: 10/18/18 10:35**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-46**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		1.0	0.89	mg/L			11/03/18 05:11	1
Fluoride	0.23	B	0.20	0.082	mg/L			11/03/18 05:11	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	210		5.0	3.5	mg/L			11/05/18 17:03	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 18:17	5
Barium	0.027		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 18:17	5
Beryllium	0.00079	J	0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 18:17	5
Calcium	12		0.25	0.13	mg/L		11/09/18 11:50	11/09/18 18:17	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 18:17	5
Cobalt	0.16		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 18:17	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 18:17	5
Lithium	0.0062	B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 18:17	5
Magnesium	17		0.13	0.032	mg/L		11/09/18 11:50	11/09/18 18:17	5
Potassium	3.4		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 18:17	5
Selenium	0.00049	J	0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 18:17	5
Sodium	54		0.25	0.17	mg/L		11/09/18 11:50	11/09/18 18:17	5
Thallium	0.00018	J	0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 18:17	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.3		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 20:07	25

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:17	5
Barium, Dissolved	0.025		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:17	5
Beryllium, Dissolved	0.00062	J	0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:17	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:17	5
Cobalt, Dissolved	0.13		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:17	5
Iron, Dissolved	<0.053		0.13	0.053	mg/L		11/09/18 11:50	11/09/18 19:17	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:17	5
Lithium, Dissolved	0.0047	J B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:17	5
Selenium, Dissolved	0.00032	J	0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:17	5
Thallium, Dissolved	0.00017	J	0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:17	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:05	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/08/18 13:02	11/13/18 10:39	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	<0.98		1.0	0.98	mg/L			10/29/18 13:28	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Lab Sample ID: 400-160240-46**

**Date Collected: 10/18/18 10:35**

**Matrix: Water**

**Date Received: 10/20/18 08:28**

## General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO <sub>3</sub>	<0.98		1.0	0.98	mg/L			10/29/18 13:28	1
Carbonate Alkalinity as CaCO <sub>3</sub>	<0.98		1.0	0.98	mg/L			10/29/18 13:28	1
<b>Total Dissolved Solids</b>	<b>370</b>		5.0	3.4	mg/L			10/25/18 12:27	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>0.251</b>		0.102	0.105	1.00	0.103	pCi/L	10/25/18 10:04	11/20/18 07:54	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	91.4		40 - 110					10/25/18 10:04	11/20/18 07:54	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.148	U	0.230	0.231	1.00	0.388	pCi/L	10/25/18 10:33	11/13/18 13:42	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	91.4		40 - 110					10/25/18 10:33	11/13/18 13:42	1
Y Carrier	87.1		40 - 110					10/25/18 10:33	11/13/18 13:42	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Combined Radium 226 + 228</b>	<b>0.399</b>		0.252	0.254	5.00	0.388	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FD-2**

**Date Collected: 10/18/18 00:00**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-47**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	16		1.0	0.89	mg/L			11/03/18 05:34	1
Fluoride	0.087	J B	0.20	0.082	mg/L			11/03/18 05:34	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1200		100	70	mg/L			11/05/18 18:12	100

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0025		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 18:53	5
Barium	0.035		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 18:53	5
Beryllium	0.00038	J	0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 18:53	5
Calcium	100		0.25	0.13	mg/L		11/09/18 11:50	11/09/18 18:53	5
Chromium	0.0095		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 18:53	5
Cobalt	0.22		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 18:53	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 18:53	5
Lithium	0.0060	B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 18:53	5
Magnesium	63		0.13	0.032	mg/L		11/09/18 11:50	11/09/18 18:53	5
Potassium	4.6		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 18:53	5
Selenium	0.017		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 18:53	5
Thallium	0.00021	J	0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 18:53	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	4.6		0.50	0.21	mg/L		11/09/18 11:50	11/13/18 10:50	50
Sodium	310		2.5	1.7	mg/L		11/09/18 11:50	11/13/18 10:50	50

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	0.0024		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:21	5
Barium, Dissolved	0.034		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:21	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:21	5
Chromium, Dissolved	0.0091		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:21	5
Cobalt, Dissolved	0.21		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:21	5
Iron, Dissolved	<0.053		0.13	0.053	mg/L		11/09/18 11:50	11/09/18 19:21	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:21	5
Lithium, Dissolved	0.0063	B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:21	5
Selenium, Dissolved	0.016		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:21	5
Thallium, Dissolved	0.00020	J	0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:21	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00025		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:09	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	0.00012	J	0.00020	0.000070	mg/L		11/09/18 09:03	11/12/18 15:00	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	<0.98		1.0	0.98	mg/L			10/29/18 13:33	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FD-2**

**Date Collected: 10/18/18 00:00**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-47**

**Matrix: Water**

## General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO <sub>3</sub>	<0.98		1.0	0.98	mg/L			10/29/18 13:33	1
Carbonate Alkalinity as CaCO <sub>3</sub>	<0.98		1.0	0.98	mg/L			10/29/18 13:33	1
<b>Total Dissolved Solids</b>	<b>1600</b>		10	6.8	mg/L			10/23/18 11:59	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
<b>Radium-226</b>	<b>0.207</b>		0.0955	0.0973	1.00	0.107	pCi/L	10/25/18 10:04	11/20/18 07:54	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	94.4		40 - 110					10/25/18 10:04	11/20/18 07:54	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.133	U	0.257	0.257	1.00	0.437	pCi/L	10/25/18 10:33	11/13/18 13:42	1
<b>Carrier</b>	<b>%Yield</b>	<b>Qualifier</b>	<b>Limits</b>					<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	94.4		40 - 110					10/25/18 10:33	11/13/18 13:42	1
Y Carrier	77.4		40 - 110					10/25/18 10:33	11/13/18 13:42	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.340	U	0.274	0.275	5.00	0.437	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FB-2**

**Date Collected: 10/18/18 10:30**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-48**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/03/18 05:57	1
Fluoride	<0.082		0.20	0.082	mg/L			11/03/18 05:57	1
Sulfate	<0.70		1.0	0.70	mg/L			11/03/18 05:57	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 17:24	5
Barium	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 17:24	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 17:24	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 17:24	5
Calcium	<0.13		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 17:24	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 17:24	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 17:24	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 17:24	5
Lithium	<0.0011		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 17:24	5
Magnesium	<0.032		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 17:24	5
Potassium	<0.11		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 17:24	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 17:24	5
Sodium	<0.17		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 17:24	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 17:24	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:10	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	<0.98		1.0	0.98	mg/L			10/29/18 13:38	1
Bicarbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 13:38	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 13:38	1
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/25/18 12:27	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.148		0.0866	0.0876	1.00	0.107	pCi/L	10/25/18 10:04	11/20/18 07:54	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					10/25/18 10:04	11/20/18 07:54	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.339	U	0.273	0.275	1.00	0.433	pCi/L	10/25/18 10:33	11/13/18 13:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	89.1		40 - 110					10/25/18 10:33	11/13/18 13:42	1
Y Carrier	77.8		40 - 110					10/25/18 10:33	11/13/18 13:42	1

TestAmerica Pensacola

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FB-2**

**Date Collected: 10/18/18 10:30**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-48**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.487		0.286	0.289	5.00	0.433	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-421**  
**Date Collected: 10/18/18 12:15**  
**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-49**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12		1.0	0.89	mg/L			11/05/18 18:35	1
Fluoride	0.083	J	0.20	0.082	mg/L			11/05/18 18:35	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	250		10	7.0	mg/L			11/06/18 15:55	10

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 18:56	5
Barium	0.10		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 18:56	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 18:56	5
Calcium	64		0.25	0.13	mg/L		11/09/18 11:50	11/09/18 18:56	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 18:56	5
Cobalt	0.0064		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 18:56	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 18:56	5
Lithium	0.0040	J B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 18:56	5
Magnesium	27		0.13	0.032	mg/L		11/09/18 11:50	11/09/18 18:56	5
Potassium	4.7		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 18:56	5
Selenium	0.00026	J	0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 18:56	5
Sodium	24		0.25	0.17	mg/L		11/09/18 11:50	11/09/18 18:56	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 18:56	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	2.6		0.25	0.11	mg/L		11/09/18 11:50	11/13/18 10:54	25

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:24	5
Barium, Dissolved	0.096		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:24	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:24	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:24	5
Cobalt, Dissolved	0.0060		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:24	5
Iron, Dissolved	1.7		0.13	0.053	mg/L		11/09/18 11:50	11/09/18 19:24	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:24	5
Lithium, Dissolved	0.0047	J B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:24	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:24	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:24	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:12	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/09/18 09:03	11/12/18 15:07	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	84		1.0	0.98	mg/L			10/29/18 13:44	1

TestAmerica Pensacola



# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-421**

**Date Collected: 10/18/18 12:15**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-49**

**Matrix: Water**

## General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO <sub>3</sub>	84		1.0	0.98	mg/L			10/29/18 13:44	1
Carbonate Alkalinity as CaCO <sub>3</sub>	<0.98		1.0	0.98	mg/L			10/29/18 13:44	1
Total Dissolved Solids	440		5.0	3.4	mg/L			10/25/18 12:27	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.126		0.0765	0.0774	1.00	0.0981	pCi/L	10/25/18 10:04	11/20/18 07:55	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					10/25/18 10:04	11/20/18 07:55	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0615	U	0.233	0.233	1.00	0.409	pCi/L	10/25/18 10:33	11/13/18 13:42	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	93.2		40 - 110					10/25/18 10:33	11/13/18 13:42	1
Y Carrier	78.9		40 - 110					10/25/18 10:33	11/13/18 13:42	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.188	U	0.245	0.246	5.00	0.409	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: EB-2**

**Date Collected: 10/18/18 15:30**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-50**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/05/18 19:43	1
Fluoride	<0.082		0.20	0.082	mg/L			11/05/18 19:43	1
Sulfate	<0.70		1.0	0.70	mg/L			11/05/18 19:43	1

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:00	5
Barium	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:00	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:00	5
Boron	0.039	J	0.050	0.021	mg/L		11/09/18 11:50	11/09/18 19:00	5
Calcium	<0.13		0.25	0.13	mg/L		11/09/18 11:50	11/09/18 19:00	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:00	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:00	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:00	5
Lithium	<0.0011		0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:00	5
Magnesium	<0.032		0.13	0.032	mg/L		11/09/18 11:50	11/09/18 19:00	5
Potassium	<0.11		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 19:00	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:00	5
Sodium	<0.17		0.25	0.17	mg/L		11/09/18 11:50	11/09/18 19:00	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:00	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:14	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	5.5		1.0	0.98	mg/L			10/29/18 14:11	1
Bicarbonate Alkalinity as CaCO <sub>3</sub>	5.5		1.0	0.98	mg/L			10/29/18 14:11	1
Carbonate Alkalinity as CaCO <sub>3</sub>	<0.98		1.0	0.98	mg/L			10/29/18 14:11	1
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/25/18 12:27	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.150		0.0836	0.0847	1.00	0.100	pCi/L	10/25/18 10:07	11/20/18 05:48	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110					10/25/18 10:07	11/20/18 05:48	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.259	U	0.290	0.291	1.00	0.476	pCi/L	10/25/18 11:56	11/12/18 15:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.3		40 - 110					10/25/18 11:56	11/12/18 15:00	1
Y Carrier	81.5		40 - 110					10/25/18 11:56	11/12/18 15:00	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: EB-2**

**Date Collected: 10/18/18 15:30**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-50**

**Matrix: Water**

**Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228**

Analyte	Result	Qualifier	Count Uncert. (2 $\sigma$ +/-)	Total Uncert. (2 $\sigma$ +/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.409	U	0.302	0.303	5.00	0.476	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-41S**

**Date Collected: 10/18/18 13:50**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-51**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.8		1.0	0.89	mg/L			11/05/18 20:06	1
Fluoride	<0.082		0.20	0.082	mg/L			11/05/18 20:06	1
Sulfate	550		20	14	mg/L			11/07/18 17:49	20

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:03	5
Barium	0.059		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:03	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:03	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:03	5
Cobalt	0.0092		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:03	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:03	5
Lithium	0.0029	J B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:03	5
Magnesium	43		0.13	0.032	mg/L		11/09/18 11:50	11/09/18 19:03	5
Potassium	3.7		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 19:03	5
Selenium	0.0045		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:03	5
Sodium	79		0.25	0.17	mg/L		11/09/18 11:50	11/09/18 19:03	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:03	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.5		0.25	0.11	mg/L		11/09/18 11:50	11/13/18 10:58	25
Calcium	120		1.3	0.63	mg/L		11/09/18 11:50	11/13/18 10:58	25

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:46	5
Barium, Dissolved	0.058		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:46	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:46	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:46	5
Cobalt, Dissolved	0.0093		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:46	5
Iron, Dissolved	0.92		0.13	0.053	mg/L		11/09/18 11:50	11/09/18 19:46	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:46	5
Lithium, Dissolved	0.0030	J B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:46	5
Selenium, Dissolved	0.0050		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:46	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:46	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:16	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/09/18 09:03	11/12/18 15:09	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	39		1.0	0.98	mg/L			10/29/18 14:02	1
Bicarbonate Alkalinity as CaCO3	39		1.0	0.98	mg/L			10/29/18 14:02	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 14:02	1
Total Dissolved Solids	670		5.0	3.4	mg/L			10/25/18 12:27	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.151		0.0800	0.0812	1.00	0.0900	pCi/L	10/25/18 10:07	11/20/18 05:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.9		40 - 110					10/25/18 10:07	11/20/18 05:49	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.547		0.303	0.307	1.00	0.457	pCi/L	10/25/18 11:56	11/12/18 15:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	92.9		40 - 110					10/25/18 11:56	11/12/18 15:00	1
Y Carrier	84.5		40 - 110					10/25/18 11:56	11/12/18 15:00	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.698		0.313	0.318	5.00	0.457	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-171**

**Date Collected: 10/18/18 09:10**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-52**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.5		1.0	0.89	mg/L			11/03/18 10:08	1
Fluoride	<0.082		0.20	0.082	mg/L			11/03/18 10:08	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	92		2.0	1.4	mg/L			11/05/18 14:46	2

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:07	5
Barium	0.055		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:07	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:07	5
Boron	0.067		0.050	0.021	mg/L		11/09/18 11:50	11/09/18 19:07	5
Calcium	33		0.25	0.13	mg/L		11/09/18 11:50	11/09/18 19:07	5
Chromium	0.0049		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:07	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:07	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:07	5
Lithium	0.0017	J B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:07	5
Magnesium	15		0.13	0.032	mg/L		11/09/18 11:50	11/09/18 19:07	5
Potassium	2.0		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 19:07	5
Selenium	0.00047	J	0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:07	5
Sodium	11		0.25	0.17	mg/L		11/09/18 11:50	11/09/18 19:07	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:07	5

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:49	5
Barium, Dissolved	0.055		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:49	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:49	5
Chromium, Dissolved	0.0037		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:49	5
Cobalt, Dissolved	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:49	5
Iron, Dissolved	<0.053		0.13	0.053	mg/L		11/09/18 11:50	11/09/18 19:49	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:49	5
Lithium, Dissolved	0.0020	J B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:49	5
Selenium, Dissolved	0.00047	J	0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:49	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:49	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:32	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/09/18 09:03	11/12/18 15:11	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	66		1.0	0.98	mg/L			10/29/18 14:16	1
Bicarbonate Alkalinity as CaCO3	66		1.0	0.98	mg/L			10/29/18 14:16	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 14:16	1
Total Dissolved Solids	260		5.0	3.4	mg/L			10/25/18 12:27	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.144		0.0781	0.0792	1.00	0.0886	pCi/L	10/25/18 10:07	11/20/18 05:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110					10/25/18 10:07	11/20/18 05:49	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.738		0.466	0.471	1.00	0.725	pCi/L	10/25/18 11:56	11/12/18 15:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	91.2		40 - 110					10/25/18 11:56	11/12/18 15:00	1
Y Carrier	63.9		40 - 110					10/25/18 11:56	11/12/18 15:00	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.882		0.472	0.478	5.00	0.725	pCi/L		11/26/18 15:23	1



# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-43S**

**Date Collected: 10/18/18 15:20**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-53**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.3		1.0	0.89	mg/L			11/05/18 20:29	1
Fluoride	<0.082		0.20	0.082	mg/L			11/05/18 20:29	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	140		5.0	3.5	mg/L			11/06/18 14:47	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:10	5
Barium	0.12		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:10	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:10	5
Boron	0.82		0.050	0.021	mg/L		11/09/18 11:50	11/09/18 19:10	5
Calcium	44		0.25	0.13	mg/L		11/09/18 11:50	11/09/18 19:10	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:10	5
Cobalt	0.0086		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:10	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:10	5
Lithium	0.0015	J B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:10	5
Magnesium	14		0.13	0.032	mg/L		11/09/18 11:50	11/09/18 19:10	5
Potassium	3.6		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 19:10	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:10	5
Sodium	12		0.25	0.17	mg/L		11/09/18 11:50	11/09/18 19:10	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:10	5

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:53	5
Barium, Dissolved	0.13		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:53	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:53	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:53	5
Cobalt, Dissolved	0.0091		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:53	5
Iron, Dissolved	0.97		0.13	0.053	mg/L		11/09/18 11:50	11/09/18 19:53	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:53	5
Lithium, Dissolved	0.0027	J B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:53	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:53	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:53	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:34	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/09/18 09:03	11/12/18 15:13	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	63		1.0	0.98	mg/L			10/29/18 14:21	1
Bicarbonate Alkalinity as CaCO3	63		1.0	0.98	mg/L			10/29/18 14:21	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 14:21	1
Total Dissolved Solids	230		5.0	3.4	mg/L			10/25/18 12:27	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.362		0.118	0.123	1.00	0.0955	pCi/L	10/25/18 10:07	11/20/18 05:49	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.9		40 - 110					10/25/18 10:07	11/20/18 05:49	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.27		0.409	0.426	1.00	0.560	pCi/L	10/25/18 11:56	11/12/18 15:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	90.9		40 - 110					10/25/18 11:56	11/12/18 15:00	1
Y Carrier	79.6		40 - 110					10/25/18 11:56	11/12/18 15:00	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.64		0.426	0.443	5.00	0.560	pCi/L		11/26/18 15:23	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-40I**

**Date Collected: 10/18/18 14:05**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-54**

**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	9.3		1.0	0.89	mg/L			11/05/18 21:37	1
Fluoride	<0.082		0.20	0.082	mg/L			11/05/18 21:37	1

## Method: 300.0 - Anions, Ion Chromatography - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	570		20	14	mg/L			11/06/18 20:30	20

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:14	5
Barium	0.089		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:14	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:14	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:14	5
Cobalt	0.0076		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:14	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:14	5
Lithium	0.015	B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:14	5
Magnesium	47		0.13	0.032	mg/L		11/09/18 11:50	11/09/18 19:14	5
Potassium	9.4		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 19:14	5
Selenium	0.00059	J	0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:14	5
Sodium	37		0.25	0.17	mg/L		11/09/18 11:50	11/09/18 19:14	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:14	5

## Method: 6020 - Metals (ICP/MS) - Total Recoverable - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	3.8		0.25	0.11	mg/L		11/09/18 11:50	11/13/18 11:03	25
Calcium	120		1.3	0.63	mg/L		11/09/18 11:50	11/13/18 11:03	25

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 19:56	5
Barium, Dissolved	0.089		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 19:56	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 19:56	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 19:56	5
Cobalt, Dissolved	0.0078		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 19:56	5
Iron, Dissolved	3.8		0.13	0.053	mg/L		11/09/18 11:50	11/09/18 19:56	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 19:56	5
Lithium, Dissolved	0.015	B	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 19:56	5
Selenium, Dissolved	0.00062	J	0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 19:56	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 19:56	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:53	11/13/18 10:36	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/09/18 09:03	11/12/18 15:35	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	55		1.0	0.98	mg/L			10/29/18 14:26	1

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-40I**

**Date Collected: 10/18/18 14:05**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-54**

**Matrix: Water**

## General Chemistry (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bicarbonate Alkalinity as CaCO <sub>3</sub>	55		1.0	0.98	mg/L			10/29/18 14:26	1
Carbonate Alkalinity as CaCO <sub>3</sub>	<0.98		1.0	0.98	mg/L			10/29/18 14:26	1
Total Dissolved Solids	840		5.0	3.4	mg/L			10/25/18 12:27	1

## Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.360		0.136	0.140	1.00	0.135	pCi/L	10/25/18 10:07	11/20/18 05:52	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.2		40 - 110					10/25/18 10:07	11/20/18 05:52	1

## Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	1.23		0.437	0.451	1.00	0.599	pCi/L	10/25/18 11:56	11/12/18 15:00	1
Carrier	%Yield	Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	75.2		40 - 110					10/25/18 11:56	11/12/18 15:00	1
Y Carrier	80.4		40 - 110					10/25/18 11:56	11/12/18 15:00	1

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.59		0.458	0.472	5.00	0.599	pCi/L		11/26/18 15:23	1

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Qualifiers

### HPLC/IC

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.
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.

### 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.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
F1	MS and/or MSD Recovery is outside acceptance limits.

### General Chemistry

Qualifier	Qualifier Description
F3	Duplicate RPD exceeds the control limit

### Rad

Qualifier	Qualifier Description
U	Result is less than the sample detection limit.
X	Carrier is outside acceptance limits.
G	The Sample MDC is greater than the requested RL.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

## Definitions/Glossary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

### Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEQ	Toxicity Equivalent Quotient (Dioxin)

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# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Date Collected: 10/16/18 10:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-31**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418094	11/02/18 18:54	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 15:29	DRE	TAL PEN
Total/NA	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419038	11/09/18 15:42	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417274	10/28/18 09:36	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416446	10/22/18 14:36	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401802	11/20/18 05:47	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 14:58	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-15**

**Date Collected: 10/16/18 15:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-32**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418094	11/02/18 19:17	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 15:47	DRE	TAL PEN
Total/NA	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419038	11/09/18 15:44	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417274	10/28/18 10:18	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416446	10/22/18 14:36	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401802	11/20/18 05:47	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 14:59	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: FD-1**

**Date Collected: 10/16/18 00:00**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-33**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418361	11/05/18 22:23	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 15:50	DRE	TAL PEN
Total/NA	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419038	11/09/18 15:46	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417140	10/26/18 14:35	BAB	TAL PEN

TestAmerica Pensacola



# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FD-1**

**Date Collected: 10/16/18 00:00**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-33**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	416446	10/22/18 14:36	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401802	11/20/18 05:47	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 14:59	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: PZ-44I**

**Date Collected: 10/16/18 13:45**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-34**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418094	11/02/18 19:40	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 16:12	DRE	TAL PEN
Total/NA	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419038	11/09/18 15:48	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417274	10/28/18 10:25	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416446	10/22/18 14:36	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401802	11/20/18 05:47	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 14:59	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: PZ-25S**

**Date Collected: 10/16/18 10:40**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-35**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418094	11/02/18 20:03	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 16:15	DRE	TAL PEN
Total/NA	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419038	11/09/18 16:11	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417274	10/28/18 10:30	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416446	10/22/18 14:36	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401874	11/20/18 05:47	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 14:59	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: EB-1**

**Date Collected: 10/16/18 16:50**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-36**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418094	11/02/18 20:26	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 16:19	DRE	TAL PEN
Total/NA	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419038	11/09/18 16:13	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417274	10/28/18 10:35	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416446	10/22/18 14:36	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401874	11/20/18 05:48	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 14:59	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: FB-1**

**Date Collected: 10/16/18 13:30**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-37**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418094	11/02/18 20:48	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 16:22	DRE	TAL PEN
Total/NA	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419038	11/09/18 16:15	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417274	10/28/18 10:40	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416446	10/22/18 14:36	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401874	11/20/18 05:48	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 14:59	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-11**

**Date Collected: 10/17/18 12:30**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-38**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 16:40	DRE	TAL PEN
Dissolved	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419038	11/09/18 16:17	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Lab Sample ID: 400-160240-39**

**Date Collected: 10/17/18 15:00**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 16:43	DRE	TAL PEN
Dissolved	Prep	7470A			418701	11/08/18 10:02	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419038	11/09/18 16:19	JAP	TAL PEN

**Client Sample ID: PZ-44I**

**Lab Sample ID: 400-160240-40**

**Date Collected: 10/17/18 13:50**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 17:05	DRE	TAL PEN
Dissolved	Prep	7470A			418848	11/08/18 12:35	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419409	11/13/18 09:47	JAP	TAL PEN

**Client Sample ID: PZ-25S**

**Lab Sample ID: 400-160240-41**

**Date Collected: 10/17/18 09:50**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 17:08	DRE	TAL PEN
Dissolved	Prep	7470A			418848	11/08/18 12:35	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419409	11/13/18 09:48	JAP	TAL PEN

**Client Sample ID: PZ-36S**

**Lab Sample ID: 400-160240-42**

**Date Collected: 10/17/18 09:35**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418361	11/05/18 22:00	BAW	TAL PEN
Dissolved	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 17:12	DRE	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 16:26	DRE	TAL PEN
Dissolved	Prep	7470A			418848	11/08/18 12:35	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419409	11/13/18 09:59	JAP	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:35	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 09:35	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 13:08	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416581	10/23/18 11:59	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397461	10/26/18 10:06	JLC	TAL SL
Total/NA	Analysis	9315		1	401803	11/20/18 05:34	CDR	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-36S**

**Date Collected: 10/17/18 09:35**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-42**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			397471	10/26/18 10:46	JLC	TAL SL
Total/NA	Analysis	9320		1	400864	11/14/18 16:11	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: PZ-25I**

**Date Collected: 10/17/18 11:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-43**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418361	11/05/18 22:46	BAW	TAL PEN
Dissolved	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 17:17	DRE	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 16:29	DRE	TAL PEN
Dissolved	Prep	7470A			418848	11/08/18 12:35	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419409	11/13/18 10:01	JAP	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:35	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 09:43	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 13:13	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416581	10/23/18 11:59	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397461	10/26/18 10:06	JLC	TAL SL
Total/NA	Analysis	9315		1	401803	11/20/18 05:34	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397471	10/26/18 10:46	JLC	TAL SL
Total/NA	Analysis	9320		1	400864	11/14/18 16:11	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: PZ-39S**

**Date Collected: 10/17/18 13:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-44**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418361	11/05/18 23:09	BAW	TAL PEN
Dissolved	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 17:21	DRE	TAL PEN
Dissolved	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Dissolved	Analysis	6020		5	420409	11/20/18 15:57	DRE	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 16:33	DRE	TAL PEN
Dissolved	Prep	7470A			418848	11/08/18 12:35	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419409	11/13/18 10:03	JAP	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:35	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 09:45	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 13:20	BAB	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	416581	10/23/18 11:59	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			398027	10/29/18 11:40	JLC	TAL SL
Total/NA	Analysis	9315		1	401803	11/20/18 11:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			398030	10/29/18 11:58	JLC	TAL SL
Total/NA	Analysis	9320		1	400470	11/12/18 16:30	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-18**

**Lab Sample ID: 400-160240-45**

**Date Collected: 10/18/18 09:05**

**Matrix: Water**

**Date Received: 10/20/18 08:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	418361	11/05/18 23:31	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	50	418474	11/06/18 15:10	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 16:36	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020	DL	25	419210	11/09/18 17:35	DRE	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:07	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 13:25	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			398027	10/29/18 11:40	JLC	TAL SL
Total/NA	Analysis	9315		1	401803	11/20/18 11:17	CDR	TAL SL
Total/NA	Prep	PrecSep_0			398030	10/29/18 11:58	JLC	TAL SL
Total/NA	Analysis	9320		1	400470	11/12/18 16:30	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: SGWC-20**

**Lab Sample ID: 400-160240-46**

**Date Collected: 10/18/18 10:35**

**Matrix: Water**

**Date Received: 10/20/18 08:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418296	11/03/18 05:11	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	418361	11/05/18 17:03	BAW	TAL PEN
Dissolved	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 19:17	DRE	TAL PEN
Total Recoverable	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 18:17	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020	DL	25	419210	11/09/18 20:07	DRE	TAL PEN
Dissolved	Prep	7470A			418848	11/08/18 13:02	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419409	11/13/18 10:39	JAP	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:05	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 13:28	BAB	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: SGWC-20**

**Lab Sample ID: 400-160240-46**

**Date Collected: 10/18/18 10:35**

**Matrix: Water**

**Date Received: 10/20/18 08:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397276	10/25/18 10:04	JLC	TAL SL
Total/NA	Analysis	9315		1	401803	11/20/18 07:54	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397294	10/25/18 10:33	JLC	TAL SL
Total/NA	Analysis	9320		1	400703	11/13/18 13:42	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: FD-2**

**Lab Sample ID: 400-160240-47**

**Date Collected: 10/18/18 00:00**

**Matrix: Water**

**Date Received: 10/20/18 08:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418296	11/03/18 05:34	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	100	418361	11/05/18 18:12	BAW	TAL PEN
Dissolved	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 19:21	DRE	TAL PEN
Total Recoverable	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 18:53	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020	DL	50	419485	11/13/18 10:50	DRE	TAL PEN
Dissolved	Prep	7470A			418938	11/09/18 09:03	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419267	11/12/18 15:00	JAP	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:09	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 13:33	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416581	10/23/18 11:59	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397276	10/25/18 10:04	JLC	TAL SL
Total/NA	Analysis	9315		1	401803	11/20/18 07:54	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397294	10/25/18 10:33	JLC	TAL SL
Total/NA	Analysis	9320		1	400703	11/13/18 13:42	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: FB-2**

**Lab Sample ID: 400-160240-48**

**Date Collected: 10/18/18 10:30**

**Matrix: Water**

**Date Received: 10/20/18 08:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418296	11/03/18 05:57	BAW	TAL PEN
Total Recoverable	Prep	3005A			418952	11/09/18 11:00	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 17:24	DRE	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:10	JAP	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: FB-2**

**Date Collected: 10/18/18 10:30**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-48**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 13:38	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397276	10/25/18 10:04	JLC	TAL SL
Total/NA	Analysis	9315		1	401803	11/20/18 07:54	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397294	10/25/18 10:33	JLC	TAL SL
Total/NA	Analysis	9320		1	400703	11/13/18 13:42	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: PZ-42I**

**Date Collected: 10/18/18 12:15**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-49**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418361	11/05/18 18:35	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	10	418474	11/06/18 15:55	BAW	TAL PEN
Dissolved	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 19:24	DRE	TAL PEN
Total Recoverable	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 18:56	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020	DL	25	419485	11/13/18 10:54	DRE	TAL PEN
Dissolved	Prep	7470A			418938	11/09/18 09:03	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419267	11/12/18 15:07	JAP	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:12	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 13:44	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397276	10/25/18 10:04	JLC	TAL SL
Total/NA	Analysis	9315		1	401802	11/20/18 07:55	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397294	10/25/18 10:33	JLC	TAL SL
Total/NA	Analysis	9320		1	400703	11/13/18 13:42	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: EB-2**

**Date Collected: 10/18/18 15:30**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-50**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418361	11/05/18 19:43	BAW	TAL PEN
Total Recoverable	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 19:00	DRE	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN

TestAmerica Pensacola



# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: EB-2**

**Date Collected: 10/18/18 15:30**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-50**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7470A		1	419409	11/13/18 10:14	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 14:11	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401874	11/20/18 05:48	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 15:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: PZ-41S**

**Date Collected: 10/18/18 13:50**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-51**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418361	11/05/18 20:06	BAW	TAL PEN
Total/NA	Analysis	300.0		20	418663	11/07/18 17:49	BAW	TAL PEN
Dissolved	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 19:46	DRE	TAL PEN
Total Recoverable	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 19:03	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020	DL	25	419485	11/13/18 10:58	DRE	TAL PEN
Dissolved	Prep	7470A			418938	11/09/18 09:03	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419267	11/12/18 15:09	JAP	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:16	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 14:02	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401874	11/20/18 05:49	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 15:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: PZ-17I**

**Date Collected: 10/18/18 09:10**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-52**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418296	11/03/18 10:08	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	2	418361	11/05/18 14:46	BAW	TAL PEN
Dissolved	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-17I**

**Date Collected: 10/18/18 09:10**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-52**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6020		5	419210	11/09/18 19:49	DRE	TAL PEN
Total Recoverable	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 19:07	DRE	TAL PEN
Dissolved	Prep	7470A			418938	11/09/18 09:03	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419267	11/12/18 15:11	JAP	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:32	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 14:16	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401874	11/20/18 05:49	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 15:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

**Client Sample ID: PZ-43S**

**Date Collected: 10/18/18 15:20**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-53**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418361	11/05/18 20:29	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	5	418474	11/06/18 14:47	BAW	TAL PEN
Dissolved	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 19:53	DRE	TAL PEN
Total Recoverable	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 19:10	DRE	TAL PEN
Dissolved	Prep	7470A			418938	11/09/18 09:03	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419267	11/12/18 15:13	JAP	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:34	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 14:21	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401874	11/20/18 05:49	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 15:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

**Client Sample ID: PZ-40I**

**Date Collected: 10/18/18 14:05**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-54**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	418361	11/05/18 21:37	BAW	TAL PEN
Total/NA	Analysis	300.0	DL	20	418589	11/06/18 20:30	BAW	TAL PEN
Dissolved	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Dissolved	Analysis	6020		5	419210	11/09/18 19:56	DRE	TAL PEN
Total Recoverable	Prep	3005A			418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020		5	419210	11/09/18 19:14	DRE	TAL PEN
Total Recoverable	Prep	3005A	DL		418964	11/09/18 11:50	KWN	TAL PEN
Total Recoverable	Analysis	6020	DL	25	419485	11/13/18 11:03	DRE	TAL PEN
Dissolved	Prep	7470A			418938	11/09/18 09:03	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419267	11/12/18 15:35	JAP	TAL PEN
Total/NA	Prep	7470A			418848	11/08/18 12:53	JAP	TAL PEN
Total/NA	Analysis	7470A		1	419409	11/13/18 10:36	JAP	TAL PEN
Total/NA	Analysis	SM 2320B		1	417450	10/29/18 14:26	BAB	TAL PEN
Total/NA	Analysis	SM 2540C		1	416940	10/25/18 12:27	CLB	TAL PEN
Total/NA	Prep	PrecSep-21			397279	10/25/18 10:07	JLC	TAL SL
Total/NA	Analysis	9315		1	401873	11/20/18 05:52	CDR	TAL SL
Total/NA	Prep	PrecSep_0			397318	10/25/18 11:56	JLC	TAL SL
Total/NA	Analysis	9320		1	400469	11/12/18 15:00	CDR	TAL SL
Total/NA	Analysis	Ra226_Ra228		1	402686	11/26/18 15:23	RTM	TAL SL

## Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TAL SL = TestAmerica St. Louis, 13715 Rider Trail North, Earth City, MO 63045, TEL (314)298-8566

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## HPLC/IC

### Analysis Batch: 418094

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	300.0	
400-160240-32	SGWC-15	Total/NA	Water	300.0	
400-160240-34	PZ-44I	Total/NA	Water	300.0	
400-160240-35	PZ-25S	Total/NA	Water	300.0	
400-160240-36	EB-1	Total/NA	Water	300.0	
400-160240-37	FB-1	Total/NA	Water	300.0	
MB 400-418094/4	Method Blank	Total/NA	Water	300.0	
LCS 400-418094/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-418094/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-161260-E-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-161260-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 418296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-46	SGWC-20	Total/NA	Water	300.0	
400-160240-47	FD-2	Total/NA	Water	300.0	
400-160240-48	FB-2	Total/NA	Water	300.0	
400-160240-52	PZ-17I	Total/NA	Water	300.0	
MB 400-418296/40	Method Blank	Total/NA	Water	300.0	
LCS 400-418296/46	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-418296/47	Lab Control Sample Dup	Total/NA	Water	300.0	
400-161260-E-3 MS	Matrix Spike	Total/NA	Water	300.0	
400-161260-E-3 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 418361

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-33	FD-1	Total/NA	Water	300.0	
400-160240-42	PZ-36S	Total/NA	Water	300.0	
400-160240-43	PZ-25I	Total/NA	Water	300.0	
400-160240-44	PZ-39S	Total/NA	Water	300.0	
400-160240-45	SGWC-18	Total/NA	Water	300.0	
400-160240-46 - DL	SGWC-20	Total/NA	Water	300.0	
400-160240-47 - DL	FD-2	Total/NA	Water	300.0	
400-160240-49	PZ-42I	Total/NA	Water	300.0	
400-160240-50	EB-2	Total/NA	Water	300.0	
400-160240-51	PZ-41S	Total/NA	Water	300.0	
400-160240-52 - DL	PZ-17I	Total/NA	Water	300.0	
400-160240-53	PZ-43S	Total/NA	Water	300.0	
400-160240-54	PZ-40I	Total/NA	Water	300.0	
MB 400-418361/4	Method Blank	Total/NA	Water	300.0	
LCS 400-418361/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-418361/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-161340-H-3 MS	Matrix Spike	Total/NA	Water	300.0	
400-161340-H-3 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 418474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45 - DL	SGWC-18	Total/NA	Water	300.0	
400-160240-49 - DL	PZ-42I	Total/NA	Water	300.0	
400-160240-53 - DL	PZ-43S	Total/NA	Water	300.0	
MB 400-418474/4	Method Blank	Total/NA	Water	300.0	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## HPLC/IC (Continued)

### Analysis Batch: 418474 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-418474/5	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-418474/6	Lab Control Sample Dup	Total/NA	Water	300.0	
400-161490-V-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-161490-V-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	
400-160240-35 DU	PZ-25S	Total/NA	Water	300.0	

### Analysis Batch: 418589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-54 - DL	PZ-40I	Total/NA	Water	300.0	
MB 400-418589/37	Method Blank	Total/NA	Water	300.0	
LCS 400-418589/38	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-418589/39	Lab Control Sample Dup	Total/NA	Water	300.0	
400-161634-H-1 MS	Matrix Spike	Total/NA	Water	300.0	
400-161634-H-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

### Analysis Batch: 418663

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-51	PZ-41S	Total/NA	Water	300.0	
MB 400-418663/22	Method Blank	Total/NA	Water	300.0	
LCS 400-418663/23	Lab Control Sample	Total/NA	Water	300.0	
LCSD 400-418663/24	Lab Control Sample Dup	Total/NA	Water	300.0	
660-90567-E-1 MS	Matrix Spike	Total/NA	Water	300.0	
660-90567-E-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

## Metals

### Prep Batch: 418701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	7470A	
400-160240-32	SGWC-15	Total/NA	Water	7470A	
400-160240-33	FD-1	Total/NA	Water	7470A	
400-160240-34	PZ-44I	Total/NA	Water	7470A	
400-160240-35	PZ-25S	Total/NA	Water	7470A	
400-160240-36	EB-1	Total/NA	Water	7470A	
400-160240-37	FB-1	Total/NA	Water	7470A	
400-160240-38	SGWC-11	Dissolved	Water	7470A	
400-160240-39	SGWC-15	Dissolved	Water	7470A	
MB 400-418701/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-418701/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-161395-A-3-B MS	Matrix Spike	Total/NA	Water	7470A	
400-161395-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Prep Batch: 418848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-40	PZ-44I	Dissolved	Water	7470A	
400-160240-41	PZ-25S	Dissolved	Water	7470A	
400-160240-42	PZ-36S	Dissolved	Water	7470A	
400-160240-42	PZ-36S	Total/NA	Water	7470A	
400-160240-43	PZ-25I	Dissolved	Water	7470A	
400-160240-43	PZ-25I	Total/NA	Water	7470A	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Metals (Continued)

### Prep Batch: 418848 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-44	PZ-39S	Dissolved	Water	7470A	
400-160240-44	PZ-39S	Total/NA	Water	7470A	
400-160240-45	SGWC-18	Total/NA	Water	7470A	
400-160240-46	SGWC-20	Dissolved	Water	7470A	
400-160240-46	SGWC-20	Total/NA	Water	7470A	
400-160240-47	FD-2	Total/NA	Water	7470A	
400-160240-48	FB-2	Total/NA	Water	7470A	
400-160240-49	PZ-42I	Total/NA	Water	7470A	
400-160240-50	EB-2	Total/NA	Water	7470A	
400-160240-51	PZ-41S	Total/NA	Water	7470A	
400-160240-52	PZ-17I	Total/NA	Water	7470A	
400-160240-53	PZ-43S	Total/NA	Water	7470A	
400-160240-54	PZ-40I	Total/NA	Water	7470A	
MB 400-418848/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-418848/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-160240-42 MS	PZ-36S	Total/NA	Water	7470A	
400-160240-42 MSD	PZ-36S	Total/NA	Water	7470A	

### Prep Batch: 418938

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-47	FD-2	Dissolved	Water	7470A	
400-160240-49	PZ-42I	Dissolved	Water	7470A	
400-160240-51	PZ-41S	Dissolved	Water	7470A	
400-160240-52	PZ-17I	Dissolved	Water	7470A	
400-160240-53	PZ-43S	Dissolved	Water	7470A	
400-160240-54	PZ-40I	Dissolved	Water	7470A	
MB 400-418938/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-418938/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-160240-47 MS	FD-2	Dissolved	Water	7470A	
400-160240-47 MSD	FD-2	Dissolved	Water	7470A	

### Prep Batch: 418952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total Recoverable	Water	3005A	
400-160240-32	SGWC-15	Total Recoverable	Water	3005A	
400-160240-33	FD-1	Total Recoverable	Water	3005A	
400-160240-34	PZ-44I	Total Recoverable	Water	3005A	
400-160240-35	PZ-25S	Total Recoverable	Water	3005A	
400-160240-36	EB-1	Total Recoverable	Water	3005A	
400-160240-37	FB-1	Total Recoverable	Water	3005A	
400-160240-38	SGWC-11	Dissolved	Water	3005A	
400-160240-39	SGWC-15	Dissolved	Water	3005A	
400-160240-40	PZ-44I	Dissolved	Water	3005A	
400-160240-41	PZ-25S	Dissolved	Water	3005A	
400-160240-42	PZ-36S	Dissolved	Water	3005A	
400-160240-42	PZ-36S	Total Recoverable	Water	3005A	
400-160240-43	PZ-25I	Dissolved	Water	3005A	
400-160240-43	PZ-25I	Total Recoverable	Water	3005A	
400-160240-44	PZ-39S	Dissolved	Water	3005A	
400-160240-44	PZ-39S	Total Recoverable	Water	3005A	
400-160240-45 - DL	SGWC-18	Total Recoverable	Water	3005A	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Metals (Continued)

### Prep Batch: 418952 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Total Recoverable	Water	3005A	
400-160240-48	FB-2	Total Recoverable	Water	3005A	
MB 400-418952/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-418952/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-160240-31 MS	SGWC-11	Total Recoverable	Water	3005A	
400-160240-31 MSD	SGWC-11	Total Recoverable	Water	3005A	

### Prep Batch: 418964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-46	SGWC-20	Dissolved	Water	3005A	
400-160240-46 - DL	SGWC-20	Total Recoverable	Water	3005A	
400-160240-46	SGWC-20	Total Recoverable	Water	3005A	
400-160240-47	FD-2	Dissolved	Water	3005A	
400-160240-47	FD-2	Total Recoverable	Water	3005A	
400-160240-47 - DL	FD-2	Total Recoverable	Water	3005A	
400-160240-49	PZ-42I	Dissolved	Water	3005A	
400-160240-49	PZ-42I	Total Recoverable	Water	3005A	
400-160240-49 - DL	PZ-42I	Total Recoverable	Water	3005A	
400-160240-50	EB-2	Total Recoverable	Water	3005A	
400-160240-51	PZ-41S	Dissolved	Water	3005A	
400-160240-51	PZ-41S	Total Recoverable	Water	3005A	
400-160240-51 - DL	PZ-41S	Total Recoverable	Water	3005A	
400-160240-52	PZ-17I	Dissolved	Water	3005A	
400-160240-52	PZ-17I	Total Recoverable	Water	3005A	
400-160240-53	PZ-43S	Dissolved	Water	3005A	
400-160240-53	PZ-43S	Total Recoverable	Water	3005A	
400-160240-54	PZ-40I	Dissolved	Water	3005A	
400-160240-54	PZ-40I	Total Recoverable	Water	3005A	
400-160240-54 - DL	PZ-40I	Total Recoverable	Water	3005A	
MB 400-418964/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-418964/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-160240-46 MS	SGWC-20	Total Recoverable	Water	3005A	
400-160240-46 MSD	SGWC-20	Total Recoverable	Water	3005A	

### Analysis Batch: 419038

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	7470A	418701
400-160240-32	SGWC-15	Total/NA	Water	7470A	418701
400-160240-33	FD-1	Total/NA	Water	7470A	418701
400-160240-34	PZ-44I	Total/NA	Water	7470A	418701
400-160240-35	PZ-25S	Total/NA	Water	7470A	418701
400-160240-36	EB-1	Total/NA	Water	7470A	418701
400-160240-37	FB-1	Total/NA	Water	7470A	418701
400-160240-38	SGWC-11	Dissolved	Water	7470A	418701
400-160240-39	SGWC-15	Dissolved	Water	7470A	418701
MB 400-418701/14-A	Method Blank	Total/NA	Water	7470A	418701
LCS 400-418701/15-A	Lab Control Sample	Total/NA	Water	7470A	418701
400-161395-A-3-B MS	Matrix Spike	Total/NA	Water	7470A	418701
400-161395-A-3-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	418701

TestAmerica Pensacola



# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 419210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total Recoverable	Water	6020	418952
400-160240-32	SGWC-15	Total Recoverable	Water	6020	418952
400-160240-33	FD-1	Total Recoverable	Water	6020	418952
400-160240-34	PZ-44I	Total Recoverable	Water	6020	418952
400-160240-35	PZ-25S	Total Recoverable	Water	6020	418952
400-160240-36	EB-1	Total Recoverable	Water	6020	418952
400-160240-37	FB-1	Total Recoverable	Water	6020	418952
400-160240-38	SGWC-11	Dissolved	Water	6020	418952
400-160240-39	SGWC-15	Dissolved	Water	6020	418952
400-160240-40	PZ-44I	Dissolved	Water	6020	418952
400-160240-41	PZ-25S	Dissolved	Water	6020	418952
400-160240-42	PZ-36S	Dissolved	Water	6020	418952
400-160240-42	PZ-36S	Total Recoverable	Water	6020	418952
400-160240-43	PZ-25I	Dissolved	Water	6020	418952
400-160240-43	PZ-25I	Total Recoverable	Water	6020	418952
400-160240-44	PZ-39S	Dissolved	Water	6020	418952
400-160240-44	PZ-39S	Total Recoverable	Water	6020	418952
400-160240-45	SGWC-18	Total Recoverable	Water	6020	418952
400-160240-45 - DL	SGWC-18	Total Recoverable	Water	6020	418952
400-160240-46	SGWC-20	Dissolved	Water	6020	418964
400-160240-46	SGWC-20	Total Recoverable	Water	6020	418964
400-160240-46 - DL	SGWC-20	Total Recoverable	Water	6020	418964
400-160240-47	FD-2	Dissolved	Water	6020	418964
400-160240-47	FD-2	Total Recoverable	Water	6020	418964
400-160240-48	FB-2	Total Recoverable	Water	6020	418952
400-160240-49	PZ-42I	Dissolved	Water	6020	418964
400-160240-49	PZ-42I	Total Recoverable	Water	6020	418964
400-160240-50	EB-2	Total Recoverable	Water	6020	418964
400-160240-51	PZ-41S	Dissolved	Water	6020	418964
400-160240-51	PZ-41S	Total Recoverable	Water	6020	418964
400-160240-52	PZ-17I	Dissolved	Water	6020	418964
400-160240-52	PZ-17I	Total Recoverable	Water	6020	418964
400-160240-53	PZ-43S	Dissolved	Water	6020	418964
400-160240-53	PZ-43S	Total Recoverable	Water	6020	418964
400-160240-54	PZ-40I	Dissolved	Water	6020	418964
400-160240-54	PZ-40I	Total Recoverable	Water	6020	418964
MB 400-418952/1-A ^5	Method Blank	Total Recoverable	Water	6020	418952
MB 400-418964/1-A ^5	Method Blank	Total Recoverable	Water	6020	418964
LCS 400-418952/2-A	Lab Control Sample	Total Recoverable	Water	6020	418952
LCS 400-418964/2-A	Lab Control Sample	Total Recoverable	Water	6020	418964
400-160240-31 MS	SGWC-11	Total Recoverable	Water	6020	418952
400-160240-31 MSD	SGWC-11	Total Recoverable	Water	6020	418952
400-160240-46 MS	SGWC-20	Total Recoverable	Water	6020	418964
400-160240-46 MSD	SGWC-20	Total Recoverable	Water	6020	418964

### Analysis Batch: 419267

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-47	FD-2	Dissolved	Water	7470A	418938
400-160240-49	PZ-42I	Dissolved	Water	7470A	418938
400-160240-51	PZ-41S	Dissolved	Water	7470A	418938
400-160240-52	PZ-17I	Dissolved	Water	7470A	418938

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 419267 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-53	PZ-43S	Dissolved	Water	7470A	418938
400-160240-54	PZ-40I	Dissolved	Water	7470A	418938
MB 400-418938/14-A	Method Blank	Total/NA	Water	7470A	418938
LCS 400-418938/15-A	Lab Control Sample	Total/NA	Water	7470A	418938
400-160240-47 MS	FD-2	Dissolved	Water	7470A	418938
400-160240-47 MSD	FD-2	Dissolved	Water	7470A	418938

### Analysis Batch: 419409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-40	PZ-44I	Dissolved	Water	7470A	418848
400-160240-41	PZ-25S	Dissolved	Water	7470A	418848
400-160240-42	PZ-36S	Dissolved	Water	7470A	418848
400-160240-42	PZ-36S	Total/NA	Water	7470A	418848
400-160240-43	PZ-25I	Dissolved	Water	7470A	418848
400-160240-43	PZ-25I	Total/NA	Water	7470A	418848
400-160240-44	PZ-39S	Dissolved	Water	7470A	418848
400-160240-44	PZ-39S	Total/NA	Water	7470A	418848
400-160240-45	SGWC-18	Total/NA	Water	7470A	418848
400-160240-46	SGWC-20	Dissolved	Water	7470A	418848
400-160240-46	SGWC-20	Total/NA	Water	7470A	418848
400-160240-47	FD-2	Total/NA	Water	7470A	418848
400-160240-48	FB-2	Total/NA	Water	7470A	418848
400-160240-49	PZ-42I	Total/NA	Water	7470A	418848
400-160240-50	EB-2	Total/NA	Water	7470A	418848
400-160240-51	PZ-41S	Total/NA	Water	7470A	418848
400-160240-52	PZ-17I	Total/NA	Water	7470A	418848
400-160240-53	PZ-43S	Total/NA	Water	7470A	418848
400-160240-54	PZ-40I	Total/NA	Water	7470A	418848
MB 400-418848/14-A	Method Blank	Total/NA	Water	7470A	418848
LCS 400-418848/15-A	Lab Control Sample	Total/NA	Water	7470A	418848
400-160240-42 MS	PZ-36S	Total/NA	Water	7470A	418848
400-160240-42 MSD	PZ-36S	Total/NA	Water	7470A	418848

### Analysis Batch: 419485

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-47 - DL	FD-2	Total Recoverable	Water	6020	418964
400-160240-49 - DL	PZ-42I	Total Recoverable	Water	6020	418964
400-160240-51 - DL	PZ-41S	Total Recoverable	Water	6020	418964
400-160240-54 - DL	PZ-40I	Total Recoverable	Water	6020	418964

### Prep Batch: 420195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-44	PZ-39S	Dissolved	Water	3005A	
MB 400-420195/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-420195/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-160141-G-3-D MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-160141-G-3-E MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Analysis Batch: 420409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-44	PZ-39S	Dissolved	Water	6020	420195

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 420409 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 400-420195/1-A ^5	Method Blank	Total Recoverable	Water	6020	420195
LCS 400-420195/2-A	Lab Control Sample	Total Recoverable	Water	6020	420195
400-160141-G-3-D MS ^5	Matrix Spike	Total Recoverable	Water	6020	420195
400-160141-G-3-E MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	420195

## General Chemistry

### Analysis Batch: 416446

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	SM 2540C	
400-160240-32	SGWC-15	Total/NA	Water	SM 2540C	
400-160240-33	FD-1	Total/NA	Water	SM 2540C	
400-160240-34	PZ-44I	Total/NA	Water	SM 2540C	
400-160240-35	PZ-25S	Total/NA	Water	SM 2540C	
400-160240-36	EB-1	Total/NA	Water	SM 2540C	
400-160240-37	FB-1	Total/NA	Water	SM 2540C	
MB 400-416446/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-416446/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-160742-E-4 MSD	Matrix Spike Duplicate	Total/NA	Water	SM 2540C	
400-160240-32 DU	SGWC-15	Total/NA	Water	SM 2540C	

### Analysis Batch: 416581

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-42	PZ-36S	Total/NA	Water	SM 2540C	
400-160240-43	PZ-25I	Total/NA	Water	SM 2540C	
400-160240-44	PZ-39S	Total/NA	Water	SM 2540C	
400-160240-47	FD-2	Total/NA	Water	SM 2540C	
MB 400-416581/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-416581/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-160738-A-4 DU	Duplicate	Total/NA	Water	SM 2540C	

### Analysis Batch: 416940

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Total/NA	Water	SM 2540C	
400-160240-46	SGWC-20	Total/NA	Water	SM 2540C	
400-160240-48	FB-2	Total/NA	Water	SM 2540C	
400-160240-49	PZ-42I	Total/NA	Water	SM 2540C	
400-160240-50	EB-2	Total/NA	Water	SM 2540C	
400-160240-51	PZ-41S	Total/NA	Water	SM 2540C	
400-160240-52	PZ-17I	Total/NA	Water	SM 2540C	
400-160240-53	PZ-43S	Total/NA	Water	SM 2540C	
400-160240-54	PZ-40I	Total/NA	Water	SM 2540C	
MB 400-416940/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 400-416940/2	Lab Control Sample	Total/NA	Water	SM 2540C	
400-160240-54 DU	PZ-40I	Total/NA	Water	SM 2540C	

### Analysis Batch: 417140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-33	FD-1	Total/NA	Water	SM 2320B	
MB 400-417140/4	Method Blank	Total/NA	Water	SM 2320B	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## General Chemistry (Continued)

### Analysis Batch: 417140 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-417140/5	Lab Control Sample	Total/NA	Water	SM 2320B	
400-160645-A-4 DU	Duplicate	Total/NA	Water	SM 2320B	

### Analysis Batch: 417274

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	SM 2320B	
400-160240-32	SGWC-15	Total/NA	Water	SM 2320B	
400-160240-34	PZ-44I	Total/NA	Water	SM 2320B	
400-160240-35	PZ-25S	Total/NA	Water	SM 2320B	
400-160240-36	EB-1	Total/NA	Water	SM 2320B	
400-160240-37	FB-1	Total/NA	Water	SM 2320B	
MB 400-417274/4	Method Blank	Total/NA	Water	SM 2320B	
LCS 400-417274/5	Lab Control Sample	Total/NA	Water	SM 2320B	
400-160645-A-3 DU	Duplicate	Total/NA	Water	SM 2320B	
400-160944-C-1 DU	Duplicate	Total/NA	Water	SM 2320B	

### Analysis Batch: 417450

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-42	PZ-36S	Total/NA	Water	SM 2320B	
400-160240-43	PZ-25I	Total/NA	Water	SM 2320B	
400-160240-44	PZ-39S	Total/NA	Water	SM 2320B	
400-160240-45	SGWC-18	Total/NA	Water	SM 2320B	
400-160240-46	SGWC-20	Total/NA	Water	SM 2320B	
400-160240-47	FD-2	Total/NA	Water	SM 2320B	
400-160240-48	FB-2	Total/NA	Water	SM 2320B	
400-160240-49	PZ-42I	Total/NA	Water	SM 2320B	
400-160240-50	EB-2	Total/NA	Water	SM 2320B	
400-160240-51	PZ-41S	Total/NA	Water	SM 2320B	
400-160240-52	PZ-17I	Total/NA	Water	SM 2320B	
400-160240-53	PZ-43S	Total/NA	Water	SM 2320B	
400-160240-54	PZ-40I	Total/NA	Water	SM 2320B	
MB 400-417450/4	Method Blank	Total/NA	Water	SM 2320B	
LCS 400-417450/5	Lab Control Sample	Total/NA	Water	SM 2320B	
400-160240-51 DU	PZ-41S	Total/NA	Water	SM 2320B	

## Rad

### Prep Batch: 397276

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-46	SGWC-20	Total/NA	Water	PrecSep-21	
400-160240-47	FD-2	Total/NA	Water	PrecSep-21	
400-160240-48	FB-2	Total/NA	Water	PrecSep-21	
400-160240-49	PZ-42I	Total/NA	Water	PrecSep-21	
MB 160-397276/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-397276/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-160832-A-8-A DU	Duplicate	Total/NA	Water	PrecSep-21	

### Prep Batch: 397279

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	PrecSep-21	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Rad (Continued)

### Prep Batch: 397279 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-32	SGWC-15	Total/NA	Water	PrecSep-21	
400-160240-33	FD-1	Total/NA	Water	PrecSep-21	
400-160240-34	PZ-44I	Total/NA	Water	PrecSep-21	
400-160240-35	PZ-25S	Total/NA	Water	PrecSep-21	
400-160240-36	EB-1	Total/NA	Water	PrecSep-21	
400-160240-37	FB-1	Total/NA	Water	PrecSep-21	
400-160240-50	EB-2	Total/NA	Water	PrecSep-21	
400-160240-51	PZ-41S	Total/NA	Water	PrecSep-21	
400-160240-52	PZ-17I	Total/NA	Water	PrecSep-21	
400-160240-53	PZ-43S	Total/NA	Water	PrecSep-21	
400-160240-54	PZ-40I	Total/NA	Water	PrecSep-21	
MB 160-397279/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-397279/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
400-160240-35 DU	PZ-25S	Total/NA	Water	PrecSep-21	
400-160240-52 DU	PZ-17I	Total/NA	Water	PrecSep-21	

### Prep Batch: 397294

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-46	SGWC-20	Total/NA	Water	PrecSep_0	
400-160240-47	FD-2	Total/NA	Water	PrecSep_0	
400-160240-48	FB-2	Total/NA	Water	PrecSep_0	
400-160240-49	PZ-42I	Total/NA	Water	PrecSep_0	
MB 160-397294/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-397294/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-160832-A-8-B DU	Duplicate	Total/NA	Water	PrecSep_0	

### Prep Batch: 397318

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	PrecSep_0	
400-160240-32	SGWC-15	Total/NA	Water	PrecSep_0	
400-160240-33	FD-1	Total/NA	Water	PrecSep_0	
400-160240-34	PZ-44I	Total/NA	Water	PrecSep_0	
400-160240-35	PZ-25S	Total/NA	Water	PrecSep_0	
400-160240-36	EB-1	Total/NA	Water	PrecSep_0	
400-160240-37	FB-1	Total/NA	Water	PrecSep_0	
400-160240-50	EB-2	Total/NA	Water	PrecSep_0	
400-160240-51	PZ-41S	Total/NA	Water	PrecSep_0	
400-160240-52	PZ-17I	Total/NA	Water	PrecSep_0	
400-160240-53	PZ-43S	Total/NA	Water	PrecSep_0	
400-160240-54	PZ-40I	Total/NA	Water	PrecSep_0	
MB 160-397318/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-397318/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-160240-35 DU	PZ-25S	Total/NA	Water	PrecSep_0	
400-160240-52 DU	PZ-17I	Total/NA	Water	PrecSep_0	

### Prep Batch: 397461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-42	PZ-36S	Total/NA	Water	PrecSep-21	
400-160240-43	PZ-25I	Total/NA	Water	PrecSep-21	
MB 160-397461/24-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-397461/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

TestAmerica Pensacola

## QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

### Rad (Continued)

#### Prep Batch: 397461 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160930-A-6-B DU	Duplicate	Total/NA	Water	PrecSep-21	

#### Prep Batch: 397471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-42	PZ-36S	Total/NA	Water	PrecSep_0	
400-160240-43	PZ-25I	Total/NA	Water	PrecSep_0	
MB 160-397471/24-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-397471/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
400-160930-A-6-D DU	Duplicate	Total/NA	Water	PrecSep_0	

#### Prep Batch: 398027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-44	PZ-39S	Total/NA	Water	PrecSep-21	
400-160240-45	SGWC-18	Total/NA	Water	PrecSep-21	
MB 160-398027/11-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-398027/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-398027/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

#### Prep Batch: 398030

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-44	PZ-39S	Total/NA	Water	PrecSep_0	
400-160240-45	SGWC-18	Total/NA	Water	PrecSep_0	
MB 160-398030/11-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-398030/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-398030/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 400-418094/4

Matrix: Water

Analysis Batch: 418094

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/02/18 07:05	1
Fluoride	0.0951	J	0.20	0.082	mg/L			11/02/18 07:05	1
Sulfate	<0.70		1.0	0.70	mg/L			11/02/18 07:05	1

Lab Sample ID: LCS 400-418094/5

Matrix: Water

Analysis Batch: 418094

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.95		mg/L		100	90 - 110
Fluoride	10.0	9.95		mg/L		99	90 - 110
Sulfate	10.0	10.8		mg/L		108	90 - 110

Lab Sample ID: LCSD 400-418094/6

Matrix: Water

Analysis Batch: 418094

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.95		mg/L		99	90 - 110	0	15
Fluoride	10.0	9.96		mg/L		100	90 - 110	0	15
Sulfate	10.0	11.0		mg/L		110	90 - 110	2	15

Lab Sample ID: 400-161260-E-1 MS

Matrix: Water

Analysis Batch: 418094

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.1		10.0	16.8		mg/L		97	80 - 120
Fluoride	<0.082		10.0	9.67		mg/L		97	80 - 120
Sulfate	9.6		10.0	20.0		mg/L		104	80 - 120

Lab Sample ID: 400-161260-E-1 MSD

Matrix: Water

Analysis Batch: 418094

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	7.1		10.0	17.2		mg/L		100	80 - 120	2	20
Fluoride	<0.082		10.0	9.97		mg/L		100	80 - 120	3	20
Sulfate	9.6		10.0	20.7		mg/L		110	80 - 120	3	20

Lab Sample ID: MB 400-418296/40

Matrix: Water

Analysis Batch: 418296

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/02/18 21:57	1
Fluoride	0.0932	J	0.20	0.082	mg/L			11/02/18 21:57	1
Sulfate	<0.70		1.0	0.70	mg/L			11/02/18 21:57	1

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 400-418296/46

Matrix: Water

Analysis Batch: 418296

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.88		mg/L		99	90 - 110
Fluoride	10.0	9.80		mg/L		98	90 - 110
Sulfate	10.0	10.7		mg/L		107	90 - 110

Lab Sample ID: LCSD 400-418296/47

Matrix: Water

Analysis Batch: 418296

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.86		mg/L		99	90 - 110	0	15
Fluoride	10.0	9.87		mg/L		99	90 - 110	1	15
Sulfate	10.0	10.7		mg/L		107	90 - 110	0	15

Lab Sample ID: 400-161260-E-3 MS

Matrix: Water

Analysis Batch: 418296

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.9		10.0	12.9		mg/L		101	80 - 120
Fluoride	<0.082		10.0	10.1		mg/L		101	80 - 120
Sulfate	<0.70		10.0	11.3		mg/L		113	80 - 120

Lab Sample ID: 400-161260-E-3 MSD

Matrix: Water

Analysis Batch: 418296

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.9		10.0	12.8		mg/L		100	80 - 120	1	20
Fluoride	<0.082		10.0	10.1		mg/L		101	80 - 120	0	20
Sulfate	<0.70		10.0	11.2		mg/L		112	80 - 120	1	20

Lab Sample ID: MB 400-418361/4

Matrix: Water

Analysis Batch: 418361

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/05/18 12:03	1
Fluoride	<0.082		0.20	0.082	mg/L			11/05/18 12:03	1
Sulfate	<0.70		1.0	0.70	mg/L			11/05/18 12:03	1

Lab Sample ID: LCS 400-418361/5

Matrix: Water

Analysis Batch: 418361

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.93		mg/L		99	90 - 110
Fluoride	10.0	9.88		mg/L		99	90 - 110
Sulfate	10.0	10.7		mg/L		107	90 - 110

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 400-418361/6

Matrix: Water

Analysis Batch: 418361

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.76		mg/L		98	90 - 110	2	15
Fluoride	10.0	10.2		mg/L		102	90 - 110	3	15
Sulfate	10.0	10.6		mg/L		106	90 - 110	0	15

Lab Sample ID: 400-161340-H-3 MS

Matrix: Water

Analysis Batch: 418361

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100		50.0	150		mg/L		95	80 - 120		
Fluoride	0.45	J	50.0	53.9		mg/L		107	80 - 120		
Sulfate	140		50.0	190		mg/L		104	80 - 120		

Lab Sample ID: 400-161340-H-3 MSD

Matrix: Water

Analysis Batch: 418361

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	100		50.0	152		mg/L		99	80 - 120	1	20
Fluoride	0.45	J	50.0	53.9		mg/L		107	80 - 120	0	20
Sulfate	140		50.0	193		mg/L		111	80 - 120	2	20

Lab Sample ID: MB 400-418474/4

Matrix: Water

Analysis Batch: 418474

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/06/18 04:28	1
Fluoride	<0.082		0.20	0.082	mg/L			11/06/18 04:28	1
Sulfate	<0.70		1.0	0.70	mg/L			11/06/18 04:28	1

Lab Sample ID: LCS 400-418474/5

Matrix: Water

Analysis Batch: 418474

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.87		mg/L		99	90 - 110		
Fluoride	10.0	10.0		mg/L		100	90 - 110		
Sulfate	10.0	10.7		mg/L		107	90 - 110		

Lab Sample ID: LCSD 400-418474/6

Matrix: Water

Analysis Batch: 418474

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.85		mg/L		98	90 - 110	0	15
Fluoride	10.0	10.1		mg/L		101	90 - 110	1	15
Sulfate	10.0	10.5		mg/L		105	90 - 110	2	15

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 400-161490-V-1 MS

Matrix: Water

Analysis Batch: 418474

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	22		10.0	31.6		mg/L		92	80 - 120
Fluoride	<0.082		10.0	10.2		mg/L		102	80 - 120
Sulfate	4.4		10.0	15.9		mg/L		115	80 - 120

Lab Sample ID: 400-161490-V-1 MSD

Matrix: Water

Analysis Batch: 418474

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	22		10.0	31.7		mg/L		93	80 - 120	0	20
Fluoride	<0.082		10.0	10.3		mg/L		103	80 - 120	1	20
Sulfate	4.4		10.0	16.3		mg/L		118	80 - 120	2	20

Lab Sample ID: 400-160240-35 DU

Matrix: Water

Analysis Batch: 418474

Client Sample ID: PZ-25S

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	4.7		4.68		mg/L		1	20
Fluoride	<0.082		<0.082		mg/L		NC	20

Lab Sample ID: MB 400-418589/37

Matrix: Water

Analysis Batch: 418589

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/06/18 18:13	1
Fluoride	<0.082		0.20	0.082	mg/L			11/06/18 18:13	1
Sulfate	<0.70		1.0	0.70	mg/L			11/06/18 18:13	1

Lab Sample ID: LCS 400-418589/38

Matrix: Water

Analysis Batch: 418589

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.71		mg/L		97	90 - 110
Fluoride	10.0	9.86		mg/L		99	90 - 110
Sulfate	10.0	10.6		mg/L		106	90 - 110

Lab Sample ID: LCSD 400-418589/39

Matrix: Water

Analysis Batch: 418589

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.70		mg/L		97	90 - 110	0	15
Fluoride	10.0	10.0		mg/L		100	90 - 110	2	15
Sulfate	10.0	10.6		mg/L		106	90 - 110	0	15

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 400-161634-H-1 MS

Matrix: Water

Analysis Batch: 418589

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1500		1000	2420		mg/L		90	80 - 120
Fluoride	<8.2		1000	968		mg/L		97	80 - 120
Sulfate	<70		1000	1050		mg/L		105	80 - 120

Lab Sample ID: 400-161634-H-1 MSD

Matrix: Water

Analysis Batch: 418589

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1500		1000	2450		mg/L		93	80 - 120	1	20
Fluoride	<8.2		1000	989		mg/L		99	80 - 120	2	20
Sulfate	<70		1000	1050		mg/L		105	80 - 120	0	20

Lab Sample ID: MB 400-418663/22

Matrix: Water

Analysis Batch: 418663

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.89		1.0	0.89	mg/L			11/07/18 12:06	1
Fluoride	<0.082		0.20	0.082	mg/L			11/07/18 12:06	1
Sulfate	<0.70		1.0	0.70	mg/L			11/07/18 12:06	1

Lab Sample ID: LCS 400-418663/23

Matrix: Water

Analysis Batch: 418663

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	10.0	9.73		mg/L		97	90 - 110
Fluoride	10.0	9.83		mg/L		98	90 - 110
Sulfate	10.0	10.6		mg/L		106	90 - 110

Lab Sample ID: LCSD 400-418663/24

Matrix: Water

Analysis Batch: 418663

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	10.0	9.74		mg/L		97	90 - 110	0	15
Fluoride	10.0	10.0		mg/L		100	90 - 110	2	15
Sulfate	10.0	10.5		mg/L		105	90 - 110	1	15

Lab Sample ID: 660-90567-E-1 MS

Matrix: Water

Analysis Batch: 418663

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	12		10.0	23.4		mg/L		116	80 - 120
Fluoride	0.77	F1	10.0	13.1	F1	mg/L		123	80 - 120
Sulfate	220	E	10.0	238	E 4	mg/L		159	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 660-90567-E-1 MSD

Matrix: Water

Analysis Batch: 418663

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12		10.0	21.3		mg/L		96	80 - 120	9	20
Fluoride	0.77	F1	10.0	11.1		mg/L		103	80 - 120	17	20
Sulfate	220	E	10.0	236	E 4	mg/L		142	80 - 120	1	20

## Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-418952/1-A ^5

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 15:18	5
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:00	11/09/18 15:18	5
Barium	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 15:18	5
Barium, Dissolved	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:00	11/09/18 15:18	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:18	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:00	11/09/18 15:18	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:00	11/09/18 15:18	5
Iron, Dissolved	<0.053		0.13	0.053	mg/L		11/09/18 11:00	11/09/18 15:18	5
Calcium	<0.13		0.25	0.13	mg/L		11/09/18 11:00	11/09/18 15:18	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 15:18	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:00	11/09/18 15:18	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 15:18	5
Cobalt, Dissolved	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:00	11/09/18 15:18	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 15:18	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:00	11/09/18 15:18	5
Lithium	<0.0011		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 15:18	5
Lithium, Dissolved	<0.0011		0.0050	0.0011	mg/L		11/09/18 11:00	11/09/18 15:18	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 15:18	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:00	11/09/18 15:18	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 15:18	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:00	11/09/18 15:18	5
Sodium	<0.17		0.25	0.17	mg/L		11/09/18 11:00	11/09/18 15:18	5
Potassium	<0.11		0.25	0.11	mg/L		11/09/18 11:00	11/09/18 15:18	5
Magnesium	<0.032		0.13	0.032	mg/L		11/09/18 11:00	11/09/18 15:18	5

Lab Sample ID: LCS 400-418952/2-A

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0500	0.0484		mg/L		97	80 - 120
Arsenic, Dissolved	0.0500	0.0484		mg/L		97	80 - 120
Barium	0.0500	0.0484		mg/L		97	80 - 120
Barium, Dissolved	0.0500	0.0484		mg/L		97	80 - 120
Beryllium	0.0500	0.0520		mg/L		104	80 - 120
Beryllium, Dissolved	0.0500	0.0520		mg/L		104	80 - 120
Boron	0.100	0.102		mg/L		102	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 400-418952/2-A

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	5.00	4.87		mg/L		97	80 - 120
Calcium	5.00	4.91		mg/L		98	80 - 120
Chromium	0.0500	0.0471		mg/L		94	80 - 120
Chromium, Dissolved	0.0500	0.0471		mg/L		94	80 - 120
Cobalt	0.0500	0.0493		mg/L		99	80 - 120
Cobalt, Dissolved	0.0500	0.0493		mg/L		99	80 - 120
Lead	0.0500	0.0500		mg/L		100	80 - 120
Lead, Dissolved	0.0500	0.0500		mg/L		100	80 - 120
Lithium	0.0500	0.0522		mg/L		104	80 - 120
Lithium, Dissolved	0.0500	0.0522		mg/L		104	80 - 120
Selenium	0.0500	0.0473		mg/L		95	80 - 120
Selenium, Dissolved	0.0500	0.0473		mg/L		95	80 - 120
Thallium	0.0100	0.00975		mg/L		98	80 - 120
Thallium, Dissolved	0.0100	0.00975		mg/L		98	80 - 120
Sodium	5.00	4.99		mg/L		100	80 - 120
Potassium	5.00	4.92		mg/L		98	80 - 120
Magnesium	5.00	4.97		mg/L		99	80 - 120

Lab Sample ID: 400-160240-31 MS

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-11

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00046		0.0500	0.0484		mg/L		97	75 - 125
Arsenic, Dissolved	<0.00046		0.0500	0.0484		mg/L		97	75 - 125
Barium	0.037		0.0500	0.0850		mg/L		96	75 - 125
Barium, Dissolved	0.037		0.0500	0.0850		mg/L		96	75 - 125
Beryllium	<0.00034		0.0500	0.0513		mg/L		103	75 - 125
Beryllium, Dissolved	<0.00034		0.0500	0.0513		mg/L		103	75 - 125
Boron	0.35		0.100	0.447		mg/L		97	75 - 125
Iron, Dissolved	1.1		5.00	5.97		mg/L		98	75 - 125
Calcium	1.8		5.00	6.67		mg/L		97	75 - 125
Chromium	<0.0011		0.0500	0.0471		mg/L		94	75 - 125
Chromium, Dissolved	<0.0011		0.0500	0.0471		mg/L		94	75 - 125
Cobalt	0.023		0.0500	0.0719		mg/L		99	75 - 125
Cobalt, Dissolved	0.023		0.0500	0.0719		mg/L		99	75 - 125
Lead	<0.00035		0.0500	0.0496		mg/L		99	75 - 125
Lead, Dissolved	<0.00035		0.0500	0.0496		mg/L		99	75 - 125
Lithium	0.0031	J	0.0500	0.0564		mg/L		107	75 - 125
Lithium, Dissolved	0.0031	J	0.0500	0.0564		mg/L		107	75 - 125
Selenium	0.00046	J	0.0500	0.0490		mg/L		97	75 - 125
Selenium, Dissolved	0.00046	J	0.0500	0.0490		mg/L		97	75 - 125
Thallium	<0.000085		0.0100	0.00970		mg/L		97	75 - 125
Thallium, Dissolved	<0.000085		0.0100	0.00970		mg/L		97	75 - 125
Sodium	7.7		5.00	12.5		mg/L		96	75 - 125
Potassium	0.30		5.00	5.20		mg/L		98	75 - 125
Magnesium	1.5		5.00	6.36		mg/L		98	75 - 125

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-160240-31 MSD

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-11

Prep Type: Total Recoverable

Prep Batch: 418952

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00046		0.0500	0.0504		mg/L		101	75 - 125	4	20
Arsenic, Dissolved	<0.00046		0.0500	0.0504		mg/L		101	75 - 125	4	20
Barium	0.037		0.0500	0.0884		mg/L		103	75 - 125	4	20
Barium, Dissolved	0.037		0.0500	0.0884		mg/L		103	75 - 125	4	20
Beryllium	<0.00034		0.0500	0.0529		mg/L		106	75 - 125	3	20
Beryllium, Dissolved	<0.00034		0.0500	0.0529		mg/L		106	75 - 125	3	20
Boron	0.35		0.100	0.467		mg/L		117	75 - 125	4	20
Iron, Dissolved	1.1		5.00	6.17		mg/L		102	75 - 125	3	20
Calcium	1.8		5.00	6.97		mg/L		103	75 - 125	4	20
Chromium	<0.0011		0.0500	0.0492		mg/L		98	75 - 125	4	20
Chromium, Dissolved	<0.0011		0.0500	0.0492		mg/L		98	75 - 125	4	20
Cobalt	0.023		0.0500	0.0751		mg/L		105	75 - 125	4	20
Cobalt, Dissolved	0.023		0.0500	0.0751		mg/L		105	75 - 125	4	20
Lead	<0.00035		0.0500	0.0513		mg/L		103	75 - 125	3	20
Lead, Dissolved	<0.00035		0.0500	0.0513		mg/L		103	75 - 125	3	20
Lithium	0.0031	J	0.0500	0.0582		mg/L		110	75 - 125	3	20
Lithium, Dissolved	0.0031	J	0.0500	0.0582		mg/L		110	75 - 125	3	20
Selenium	0.00046	J	0.0500	0.0503		mg/L		100	75 - 125	3	20
Selenium, Dissolved	0.00046	J	0.0500	0.0503		mg/L		100	75 - 125	3	20
Thallium	<0.000085		0.0100	0.00997		mg/L		100	75 - 125	3	20
Thallium, Dissolved	<0.000085		0.0100	0.00997		mg/L		100	75 - 125	3	20
Sodium	7.7		5.00	13.1		mg/L		106	75 - 125	4	20
Potassium	0.30		5.00	5.46		mg/L		103	75 - 125	5	20
Magnesium	1.5		5.00	6.67		mg/L		104	75 - 125	5	20

Lab Sample ID: MB 400-418964/1-A ^5

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 17:59	5
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/09/18 11:50	11/09/18 17:59	5
Barium	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 17:59	5
Barium, Dissolved	<0.00049		0.0025	0.00049	mg/L		11/09/18 11:50	11/09/18 17:59	5
Beryllium	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 17:59	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/09/18 11:50	11/09/18 17:59	5
Boron	<0.021		0.050	0.021	mg/L		11/09/18 11:50	11/09/18 17:59	5
Iron, Dissolved	<0.053		0.13	0.053	mg/L		11/09/18 11:50	11/09/18 17:59	5
Calcium	<0.13		0.25	0.13	mg/L		11/09/18 11:50	11/09/18 17:59	5
Chromium	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 17:59	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/09/18 11:50	11/09/18 17:59	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 17:59	5
Cobalt, Dissolved	<0.00040		0.0025	0.00040	mg/L		11/09/18 11:50	11/09/18 17:59	5
Lead	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 17:59	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/09/18 11:50	11/09/18 17:59	5
Lithium	0.00119	J	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 17:59	5
Lithium, Dissolved	0.00119	J	0.0050	0.0011	mg/L		11/09/18 11:50	11/09/18 17:59	5
Selenium	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 17:59	5

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 400-418964/1-A ^5

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/09/18 11:50	11/09/18 17:59	5
Thallium	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 17:59	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/09/18 11:50	11/09/18 17:59	5
Sodium	<0.17		0.25	0.17	mg/L		11/09/18 11:50	11/09/18 17:59	5
Potassium	<0.11		0.25	0.11	mg/L		11/09/18 11:50	11/09/18 17:59	5
Magnesium	<0.032		0.13	0.032	mg/L		11/09/18 11:50	11/09/18 17:59	5

Lab Sample ID: LCS 400-418964/2-A

Matrix: Water

Analysis Batch: 419210

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0500	0.0495		mg/L		99	80 - 120
Arsenic, Dissolved	0.0500	0.0495		mg/L		99	80 - 120
Barium	0.0500	0.0491		mg/L		98	80 - 120
Barium, Dissolved	0.0500	0.0491		mg/L		98	80 - 120
Beryllium	0.0500	0.0533		mg/L		107	80 - 120
Beryllium, Dissolved	0.0500	0.0533		mg/L		107	80 - 120
Boron	0.100	0.105		mg/L		105	80 - 120
Iron, Dissolved	5.00	4.98		mg/L		100	80 - 120
Calcium	5.00	5.07		mg/L		101	80 - 120
Chromium	0.0500	0.0485		mg/L		97	80 - 120
Chromium, Dissolved	0.0500	0.0485		mg/L		97	80 - 120
Cobalt	0.0500	0.0506		mg/L		101	80 - 120
Cobalt, Dissolved	0.0500	0.0506		mg/L		101	80 - 120
Lead	0.0500	0.0519		mg/L		104	80 - 120
Lead, Dissolved	0.0500	0.0519		mg/L		104	80 - 120
Lithium	0.0500	0.0524		mg/L		105	80 - 120
Lithium, Dissolved	0.0500	0.0524		mg/L		105	80 - 120
Selenium	0.0500	0.0487		mg/L		97	80 - 120
Selenium, Dissolved	0.0500	0.0487		mg/L		97	80 - 120
Thallium	0.0100	0.0100		mg/L		100	80 - 120
Thallium, Dissolved	0.0100	0.0100		mg/L		100	80 - 120
Sodium	5.00	5.13		mg/L		103	80 - 120
Potassium	5.00	5.07		mg/L		101	80 - 120
Magnesium	5.00	5.11		mg/L		102	80 - 120

Lab Sample ID: 400-160240-46 MS

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-20

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00046		0.0500	0.0509		mg/L		102	75 - 125
Arsenic, Dissolved	<0.00046		0.0500	0.0509		mg/L		102	75 - 125
Barium	0.027		0.0500	0.0755		mg/L		97	75 - 125
Barium, Dissolved	0.027		0.0500	0.0755		mg/L		97	75 - 125
Beryllium	0.00079	J	0.0500	0.0546		mg/L		108	75 - 125
Beryllium, Dissolved	0.00079	J	0.0500	0.0546		mg/L		108	75 - 125
Boron	2.3	E	0.100	2.23	E 4	mg/L		-52	75 - 125

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-160240-46 MS

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-20

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron, Dissolved	<0.053		5.00	5.09		mg/L		102	75 - 125
Calcium	12		5.00	16.9		mg/L		99	75 - 125
Chromium	<0.0011		0.0500	0.0493		mg/L		99	75 - 125
Chromium, Dissolved	<0.0011		0.0500	0.0493		mg/L		99	75 - 125
Cobalt	0.16		0.0500	0.212		mg/L		96	75 - 125
Cobalt, Dissolved	0.16		0.0500	0.212		mg/L		96	75 - 125
Lead	<0.00035		0.0500	0.0510		mg/L		102	75 - 125
Lead, Dissolved	<0.00035		0.0500	0.0510		mg/L		102	75 - 125
Lithium	0.0062	B	0.0500	0.0615		mg/L		110	75 - 125
Lithium, Dissolved	0.0062	B	0.0500	0.0615		mg/L		110	75 - 125
Selenium	0.00049	J	0.0500	0.0503		mg/L		100	75 - 125
Selenium, Dissolved	0.00049	J	0.0500	0.0503		mg/L		100	75 - 125
Thallium	0.00018	J	0.0100	0.00997		mg/L		98	75 - 125
Thallium, Dissolved	0.00018	J	0.0100	0.00997		mg/L		98	75 - 125
Sodium	54		5.00	58.6	4	mg/L		83	75 - 125
Potassium	3.4		5.00	8.36		mg/L		100	75 - 125
Magnesium	17		5.00	22.1		mg/L		95	75 - 125

Lab Sample ID: 400-160240-46 MSD

Matrix: Water

Analysis Batch: 419210

Client Sample ID: SGWC-20

Prep Type: Total Recoverable

Prep Batch: 418964

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00046		0.0500	0.0497		mg/L		99	75 - 125	2	20
Arsenic, Dissolved	<0.00046		0.0500	0.0497		mg/L		99	75 - 125	2	20
Barium	0.027		0.0500	0.0728		mg/L		92	75 - 125	4	20
Barium, Dissolved	0.027		0.0500	0.0728		mg/L		92	75 - 125	4	20
Beryllium	0.00079	J	0.0500	0.0553		mg/L		109	75 - 125	1	20
Beryllium, Dissolved	0.00079	J	0.0500	0.0553		mg/L		109	75 - 125	1	20
Boron	2.3	E	0.100	2.20	E 4	mg/L		-82	75 - 125	1	20
Iron, Dissolved	<0.053		5.00	5.03		mg/L		101	75 - 125	1	20
Calcium	12		5.00	16.5		mg/L		92	75 - 125	2	20
Chromium	<0.0011		0.0500	0.0490		mg/L		98	75 - 125	1	20
Chromium, Dissolved	<0.0011		0.0500	0.0490		mg/L		98	75 - 125	1	20
Cobalt	0.16		0.0500	0.211		mg/L		93	75 - 125	1	20
Cobalt, Dissolved	0.16		0.0500	0.211		mg/L		93	75 - 125	1	20
Lead	<0.00035		0.0500	0.0502		mg/L		100	75 - 125	2	20
Lead, Dissolved	<0.00035		0.0500	0.0502		mg/L		100	75 - 125	2	20
Lithium	0.0062	B	0.0500	0.0620		mg/L		112	75 - 125	1	20
Lithium, Dissolved	0.0062	B	0.0500	0.0620		mg/L		112	75 - 125	1	20
Selenium	0.00049	J	0.0500	0.0490		mg/L		97	75 - 125	3	20
Selenium, Dissolved	0.00049	J	0.0500	0.0490		mg/L		97	75 - 125	3	20
Thallium	0.00018	J	0.0100	0.00960		mg/L		94	75 - 125	4	20
Thallium, Dissolved	0.00018	J	0.0100	0.00960		mg/L		94	75 - 125	4	20
Sodium	54		5.00	58.5	4	mg/L		80	75 - 125	0	20
Potassium	3.4		5.00	8.28		mg/L		98	75 - 125	1	20
Magnesium	17		5.00	21.9		mg/L		90	75 - 125	1	20

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 400-420195/1-A ^5

Matrix: Water

Analysis Batch: 420409

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 420195

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 14:57	5
Barium, Dissolved	<0.00049		0.0025	0.00049	mg/L		11/20/18 08:56	11/20/18 14:57	5
Beryllium, Dissolved	<0.00034		0.0025	0.00034	mg/L		11/20/18 08:56	11/20/18 14:57	5
Iron, Dissolved	<0.053		0.13	0.053	mg/L		11/20/18 08:56	11/20/18 14:57	5
Chromium, Dissolved	<0.0011		0.0025	0.0011	mg/L		11/20/18 08:56	11/20/18 14:57	5
Cobalt, Dissolved	<0.00040		0.0025	0.00040	mg/L		11/20/18 08:56	11/20/18 14:57	5
Lead, Dissolved	<0.00035		0.0013	0.00035	mg/L		11/20/18 08:56	11/20/18 14:57	5
Lithium, Dissolved	<0.0011		0.0050	0.0011	mg/L		11/20/18 08:56	11/20/18 14:57	5
Selenium, Dissolved	<0.00024		0.0013	0.00024	mg/L		11/20/18 08:56	11/20/18 14:57	5
Thallium, Dissolved	<0.000085		0.00050	0.000085	mg/L		11/20/18 08:56	11/20/18 14:57	5

Lab Sample ID: LCS 400-420195/2-A

Matrix: Water

Analysis Batch: 420409

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 420195

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic, Dissolved	0.0500	0.0504		mg/L		101	80 - 120
Barium, Dissolved	0.0500	0.0532		mg/L		106	80 - 120
Beryllium, Dissolved	0.0500	0.0514		mg/L		103	80 - 120
Iron, Dissolved	5.00	5.17		mg/L		103	80 - 120
Chromium, Dissolved	0.0500	0.0523		mg/L		105	80 - 120
Cobalt, Dissolved	0.0500	0.0536		mg/L		107	80 - 120
Lead, Dissolved	0.0500	0.0533		mg/L		107	80 - 120
Lithium, Dissolved	0.0500	0.0520		mg/L		104	80 - 120
Selenium, Dissolved	0.0500	0.0492		mg/L		98	80 - 120
Thallium, Dissolved	0.0100	0.00967		mg/L		97	80 - 120

Lab Sample ID: 400-160141-G-3-D MS ^5

Matrix: Water

Analysis Batch: 420409

Client Sample ID: Matrix Spike

Prep Type: Total Recoverable

Prep Batch: 420195

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic, Dissolved	<0.00046		0.0500	0.0512		mg/L		102	75 - 125
Barium, Dissolved	0.069		0.0500	0.116		mg/L		96	75 - 125
Beryllium, Dissolved	<0.00034		0.0500	0.0506		mg/L		101	75 - 125
Iron, Dissolved	0.27		5.00	5.39		mg/L		102	75 - 125
Chromium, Dissolved	<0.0011		0.0500	0.0503		mg/L		101	75 - 125
Cobalt, Dissolved	<0.00040		0.0500	0.0520		mg/L		104	75 - 125
Lead, Dissolved	<0.00035		0.0500	0.0521		mg/L		104	75 - 125
Lithium, Dissolved	<0.0011		0.0500	0.0514		mg/L		103	75 - 125
Selenium, Dissolved	0.00081	J	0.0500	0.0495		mg/L		97	75 - 125
Thallium, Dissolved	<0.000085		0.0100	0.00961		mg/L		96	75 - 125

Lab Sample ID: 400-160141-G-3-E MSD ^5

Matrix: Water

Analysis Batch: 420409

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total Recoverable

Prep Batch: 420195

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic, Dissolved	<0.00046		0.0500	0.0506		mg/L		101	75 - 125	1	20

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-160141-G-3-E MSD ^5

Matrix: Water

Analysis Batch: 420409

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total Recoverable

Prep Batch: 420195

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium, Dissolved	0.069		0.0500	0.114		mg/L		91	75 - 125	2	20
Beryllium, Dissolved	<0.00034		0.0500	0.0503		mg/L		101	75 - 125	1	20
Iron, Dissolved	0.27		5.00	5.33		mg/L		101	75 - 125	1	20
Chromium, Dissolved	<0.0011		0.0500	0.0501		mg/L		100	75 - 125	0	20
Cobalt, Dissolved	<0.00040		0.0500	0.0519		mg/L		104	75 - 125	0	20
Lead, Dissolved	<0.00035		0.0500	0.0527		mg/L		105	75 - 125	1	20
Lithium, Dissolved	<0.0011		0.0500	0.0527		mg/L		105	75 - 125	3	20
Selenium, Dissolved	0.00081	J	0.0500	0.0483		mg/L		95	75 - 125	3	20
Thallium, Dissolved	<0.000085		0.0100	0.00940		mg/L		94	75 - 125	2	20

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 400-418701/14-A

Matrix: Water

Analysis Batch: 419038

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 418701

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.0000845	J	0.00020	0.000070	mg/L		11/07/18 13:53	11/09/18 14:47	1
Mercury, Dissolved	0.0000845	J	0.00020	0.000070	mg/L		11/07/18 13:53	11/09/18 14:47	1

Lab Sample ID: LCS 400-418701/15-A

Matrix: Water

Analysis Batch: 419038

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 418701

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.00103		mg/L		103	80 - 120
Mercury, Dissolved	0.00101	0.00103		mg/L		103	80 - 120

Lab Sample ID: 400-161395-A-3-B MS

Matrix: Water

Analysis Batch: 419038

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 418701

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00014	J F1 B	0.00201	0.00153	F1	mg/L		69	80 - 120
Mercury, Dissolved	0.00014	J F1 B	0.00201	0.00153	F1	mg/L		69	80 - 120

Lab Sample ID: 400-161395-A-3-C MSD

Matrix: Water

Analysis Batch: 419038

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 418701

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	0.00014	J F1 B	0.00201	0.00149	F1	mg/L		67	80 - 120	3	20
Mercury, Dissolved	0.00014	J F1 B	0.00201	0.00149	F1	mg/L		67	80 - 120	3	20

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: MB 400-418848/14-A

Matrix: Water

Analysis Batch: 419409

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 418848

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 09:32	1
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 09:32	1

Lab Sample ID: LCS 400-418848/15-A

Matrix: Water

Analysis Batch: 419409

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 418848

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.000957		mg/L		95	80 - 120
Mercury, Dissolved	0.00101	0.000957		mg/L		95	80 - 120

Lab Sample ID: 400-160240-42 MS

Matrix: Water

Analysis Batch: 419409

Client Sample ID: PZ-36S

Prep Type: Total/NA

Prep Batch: 418848

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070		0.00201	0.00190		mg/L		94	80 - 120
Mercury, Dissolved	<0.000070		0.00201	0.00190		mg/L		94	80 - 120

Lab Sample ID: 400-160240-42 MSD

Matrix: Water

Analysis Batch: 419409

Client Sample ID: PZ-36S

Prep Type: Total/NA

Prep Batch: 418848

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Mercury	<0.000070		0.00201	0.00184		mg/L		92	80 - 120	3	20
Mercury, Dissolved	<0.000070		0.00201	0.00184		mg/L		92	80 - 120	3	20

Lab Sample ID: MB 400-418938/14-A

Matrix: Water

Analysis Batch: 419267

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 418938

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/09/18 09:02	11/12/18 14:56	1

Lab Sample ID: LCS 400-418938/15-A

Matrix: Water

Analysis Batch: 419267

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 418938

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury, Dissolved	0.00101	0.000899		mg/L		89	80 - 120

Lab Sample ID: 400-160240-47 MS

Matrix: Water

Analysis Batch: 419267

Client Sample ID: FD-2

Prep Type: Dissolved

Prep Batch: 418938

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury, Dissolved	0.00012	J	0.00201	0.00191		mg/L		89	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 400-160240-47 MSD  
Matrix: Water  
Analysis Batch: 419267

Client Sample ID: FD-2  
Prep Type: Dissolved  
Prep Batch: 418938

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury, Dissolved	0.00012	J	0.00201	0.00185		mg/L		86	80 - 120	3	20

## Method: SM 2320B - Alkalinity

Lab Sample ID: MB 400-417140/4  
Matrix: Water  
Analysis Batch: 417140

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	<0.98		1.0	0.98	mg/L			10/26/18 12:46	1
Bicarbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/26/18 12:46	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/26/18 12:46	1

Lab Sample ID: LCS 400-417140/5  
Matrix: Water  
Analysis Batch: 417140

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	100	101		mg/L		101	80 - 120

Lab Sample ID: 400-160645-A-4 DU  
Matrix: Water  
Analysis Batch: 417140

Client Sample ID: Duplicate  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	Prepared	RPD	RPD Limit
Alkalinity, Total	50		50.9		mg/L			2	20
Bicarbonate Alkalinity as CaCO3	50		50.9		mg/L			2	20
Carbonate Alkalinity as CaCO3	<0.98		<0.98		mg/L			NC	20

Lab Sample ID: MB 400-417274/4  
Matrix: Water  
Analysis Batch: 417274

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	<0.98		1.0	0.98	mg/L			10/28/18 08:21	1
Bicarbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 08:21	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/28/18 08:21	1

Lab Sample ID: LCS 400-417274/5  
Matrix: Water  
Analysis Batch: 417274

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity, Total	100	100		mg/L		100	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: 400-160645-A-3 DU

Matrix: Water

Analysis Batch: 417274

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Alkalinity, Total	52		40.1	F3	mg/L		25	20
Bicarbonate Alkalinity as CaCO3	52		40.1	F3	mg/L		25	20
Carbonate Alkalinity as CaCO3	<0.98		<0.98		mg/L		NC	20

Lab Sample ID: 400-160944-C-1 DU

Matrix: Water

Analysis Batch: 417274

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Alkalinity, Total	21		21.2		mg/L		0.2	20
Bicarbonate Alkalinity as CaCO3	21		21.2		mg/L		0.2	20
Carbonate Alkalinity as CaCO3	<0.98		<0.98		mg/L		NC	20

Lab Sample ID: MB 400-417450/4

Matrix: Water

Analysis Batch: 417450

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity, Total	<0.98		1.0	0.98	mg/L			10/29/18 12:37	1
Bicarbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 12:37	1
Carbonate Alkalinity as CaCO3	<0.98		1.0	0.98	mg/L			10/29/18 12:37	1

Lab Sample ID: LCS 400-417450/5

Matrix: Water

Analysis Batch: 417450

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Alkalinity, Total	100	100		mg/L		100	80 - 120

Lab Sample ID: 400-160240-51 DU

Matrix: Water

Analysis Batch: 417450

Client Sample ID: PZ-41S

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Alkalinity, Total	39		40.5		mg/L		3	20
Bicarbonate Alkalinity as CaCO3	39		40.5		mg/L		3	20
Carbonate Alkalinity as CaCO3	<0.98		<0.98		mg/L		NC	20

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 400-416446/1

Matrix: Water

Analysis Batch: 416446

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/22/18 14:36	1

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: SM 2540C - Solids, Total Dissolved (TDS) (Continued)

Lab Sample ID: LCS 400-416446/2

Matrix: Water

Analysis Batch: 416446

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	328		mg/L		112	78 - 122

Lab Sample ID: 400-160240-32 DU

Matrix: Water

Analysis Batch: 416446

Client Sample ID: SGWC-15

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	350		348		mg/L		0.6	5

Lab Sample ID: MB 400-416581/1

Matrix: Water

Analysis Batch: 416581

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/23/18 11:59	1

Lab Sample ID: LCS 400-416581/2

Matrix: Water

Analysis Batch: 416581

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	276		mg/L		94	78 - 122

Lab Sample ID: 400-160738-A-4 DU

Matrix: Water

Analysis Batch: 416581

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	250		248		mg/L		0	5

Lab Sample ID: MB 400-416940/1

Matrix: Water

Analysis Batch: 416940

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<3.4		5.0	3.4	mg/L			10/25/18 12:27	1

Lab Sample ID: LCS 400-416940/2

Matrix: Water

Analysis Batch: 416940

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	293	234		mg/L		80	78 - 122

Lab Sample ID: 400-160240-54 DU

Matrix: Water

Analysis Batch: 416940

Client Sample ID: PZ-40I

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	840		842		mg/L		0.2	5

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-397276/23-A

Matrix: Water

Analysis Batch: 401802

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 397276

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1769		0.0810	0.0826	1.00	0.0796	pCi/L	10/25/18 10:04	11/20/18 07:55	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					10/25/18 10:04	11/20/18 07:55	1

Lab Sample ID: LCS 160-397276/1-A

Matrix: Water

Analysis Batch: 401873

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 397276

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.4	12.62		1.31	1.00	0.127	pCi/L	111	68 - 137
Carrier	LCS %Yield	LCS Qualifier	Limits							
Ba Carrier	99.7		40 - 110							

Lab Sample ID: 400-160832-A-8-A DU

Matrix: Water

Analysis Batch: 401803

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 397276

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.207		0.2120		0.0952	1.00	0.0985	pCi/L	0.03	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	95.0		40 - 110							

Lab Sample ID: MB 160-397279/24-A

Matrix: Water

Analysis Batch: 401873

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 397279

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.1764		0.0941	0.0955	1.00	0.115	pCi/L	10/26/18 08:34	11/20/18 07:43	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					10/26/18 08:34	11/20/18 07:43	1

Lab Sample ID: LCS 160-397279/1-A

Matrix: Water

Analysis Batch: 401802

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 397279

Analyte		Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226		11.4	10.06		1.06	1.00	0.0998	pCi/L	89	68 - 137

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: LCS 160-397279/1-A  
Matrix: Water  
Analysis Batch: 401802

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 397279

	LCS	LCS	
Carrier	%Yield	Qualifier	Limits
Ba Carrier	97.9		40 - 110

Lab Sample ID: 400-160240-35 DU  
Matrix: Water  
Analysis Batch: 401874

Client Sample ID: PZ-25S  
Prep Type: Total/NA  
Prep Batch: 397279

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.143		0.1438		0.0776	1.00	0.0879	pCi/L	0.01	1
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	101		40 - 110							

Lab Sample ID: 400-160240-52 DU  
Matrix: Water  
Analysis Batch: 401874

Client Sample ID: PZ-17I  
Prep Type: Total/NA  
Prep Batch: 397279

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-226	0.144		0.1575		0.0789	1.00	0.0813	pCi/L	0.08	1
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	96.5		40 - 110							

Lab Sample ID: MB 160-397461/24-A  
Matrix: Water  
Analysis Batch: 401802

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 397461

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.2816		0.127	0.129	1.00	0.136	pCi/L	10/26/18 10:06	11/20/18 05:38	1
Carrier	%Yield	Qualifier	Limits							
Ba Carrier	95.9		40 - 110							

Lab Sample ID: LCS 160-397461/1-A  
Matrix: Water  
Analysis Batch: 401803

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 397461

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	15.1	14.30		1.52	1.00	0.155	pCi/L	94	68 - 137
Carrier	%Yield	Qualifier	Limits						
Ba Carrier	89.4		40 - 110						

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 9315 - Radium-226 (GFPC) (Continued)

Lab Sample ID: 400-160930-A-6-B DU  
Matrix: Water  
Analysis Batch: 401803

Client Sample ID: Duplicate  
Prep Type: Total/NA  
Prep Batch: 397461

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	Limit
Radium-226	0.229		0.3474		0.147	1.00	0.151	pCi/L	0.42	1
<b>Carrier</b>	<b>%Yield</b>	<b>DU Qualifier</b>	<b>Limits</b>							
Ba Carrier	97.1		40 - 110							

Lab Sample ID: MB 160-398027/11-A  
Matrix: Water  
Analysis Batch: 401803

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 398027

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.2707		0.172	0.174	1.00	0.234	pCi/L	10/29/18 11:40	11/20/18 11:18	1
<b>Carrier</b>	<b>%Yield</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>		<b>Analyzed</b>	<b>Dil Fac</b>
Ba Carrier	95.9		40 - 110				10/29/18 11:40		11/20/18 11:18	1

Lab Sample ID: LCS 160-398027/1-A  
Matrix: Water  
Analysis Batch: 401803

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 398027

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-226	22.7	21.18		2.22	1.00	0.203	pCi/L	93	68 - 137
<b>Carrier</b>	<b>%Yield</b>	<b>LCS Qualifier</b>	<b>Limits</b>						
Ba Carrier	90.9		40 - 110						

Lab Sample ID: LCSD 160-398027/2-A  
Matrix: Water  
Analysis Batch: 401803

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 398027

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	Limit
Radium-226	22.7	22.04		2.32	1.00	0.216	pCi/L	97	68 - 137	0.19	1
<b>Carrier</b>	<b>%Yield</b>	<b>LCSD Qualifier</b>	<b>Limits</b>								
Ba Carrier	90.6		40 - 110								

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-397294/23-A

Matrix: Water

Analysis Batch: 400703

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 397294

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1355	U	0.230	0.230	1.00	0.389	pCi/L	10/25/18 10:33	11/13/18 13:43	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	94.1		40 - 110					10/25/18 10:33	11/13/18 13:43	1
Y Carrier	83.7		40 - 110					10/25/18 10:33	11/13/18 13:43	1

Lab Sample ID: LCS 160-397294/1-A

Matrix: Water

Analysis Batch: 400703

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 397294

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	9.22	9.166		1.08	1.00	0.399	pCi/L	99	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	99.7		40 - 110						
Y Carrier	77.4		40 - 110						

Lab Sample ID: 400-160832-A-8-B DU

Matrix: Water

Analysis Batch: 400703

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 397294

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.413	U	0.0000	U	0.231	1.00	0.414	pCi/L	0.82	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	95.0		40 - 110							
Y Carrier	81.5		40 - 110							

Lab Sample ID: MB 160-397318/24-A

Matrix: Water

Analysis Batch: 400469

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 397318

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.8277		0.403	0.410	1.00	0.586	pCi/L	10/26/18 08:49	11/12/18 14:58	1
Carrier	MB %Yield	MB Qualifier	Limits					Prepared	Analyzed	Dil Fac
Ba Carrier	97.3		40 - 110					10/26/18 08:49	11/12/18 14:58	1
Y Carrier	56.4		40 - 110					10/26/18 08:49	11/12/18 14:58	1

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-397318/1-A

Matrix: Water

Analysis Batch: 400469

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 397318

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	9.22	8.223		0.987	1.00	0.386	pCi/L	89	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	97.9		40 - 110						
Y Carrier	89.3		40 - 110						

Lab Sample ID: 400-160240-35 DU

Matrix: Water

Analysis Batch: 400469

Client Sample ID: PZ-25S

Prep Type: Total/NA

Prep Batch: 397318

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.497		0.6104		0.299	1.00	0.430	pCi/L	0.19	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	101		40 - 110							
Y Carrier	80.4		40 - 110							

Lab Sample ID: 400-160240-52 DU

Matrix: Water

Analysis Batch: 400469

Client Sample ID: PZ-17I

Prep Type: Total/NA

Prep Batch: 397318

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.738		0.2920	U	0.325	1.00	0.531	pCi/L	0.56	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	96.5		40 - 110							
Y Carrier	79.3		40 - 110							

Lab Sample ID: MB 160-397471/24-A

Matrix: Water

Analysis Batch: 400864

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 397471

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3213	U	0.337	0.338	1.00	0.549	pCi/L	10/26/18 10:46	11/14/18 16:14	1
Carrier	MB %Yield	MB Qualifier	Limits							
Ba Carrier	95.9		40 - 110							
Y Carrier	80.0		40 - 110							

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCS 160-397471/1-A

Matrix: Water

Analysis Batch: 400864

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 397471

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	12.3	12.62		1.54	1.00	0.643	pCi/L	103	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	89.4		40 - 110						
Y Carrier	75.5		40 - 110						

Lab Sample ID: 400-160930-A-6-D DU

Matrix: Water

Analysis Batch: 400864

Client Sample ID: Duplicate

Prep Type: Total/NA

Prep Batch: 397471

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Radium-228	0.0843	U	0.7933		0.402	1.00	0.584	pCi/L	0.95	1
Carrier	DU %Yield	DU Qualifier	Limits							
Ba Carrier	97.1		40 - 110							
Y Carrier	79.6		40 - 110							

Lab Sample ID: MB 160-398030/11-A

Matrix: Water

Analysis Batch: 400470

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 398030

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.3114	U	0.522	0.523	1.00	0.883	pCi/L	10/29/18 11:58	11/12/18 16:29	1
Carrier	MB %Yield	MB Qualifier	Limits							
Ba Carrier	95.9		40 - 110							
Y Carrier	74.0		40 - 110							
								Prepared	Analyzed	Dil Fac
								10/29/18 11:58	11/12/18 16:29	1
								10/29/18 11:58	11/12/18 16:29	1

Lab Sample ID: LCS 160-398030/1-A

Matrix: Water

Analysis Batch: 400470

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 398030

Analyte	Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits
Radium-228	18.4	19.82		2.34	1.00	0.710	pCi/L	107	56 - 140
Carrier	LCS %Yield	LCS Qualifier	Limits						
Ba Carrier	90.9		40 - 110						
Y Carrier	77.0		40 - 110						

TestAmerica Pensacola



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Method: 9320 - Radium-228 (GFPC) (Continued)

Lab Sample ID: LCSD 160-398030/2-A  
Matrix: Water  
Analysis Batch: 400470

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 398030

Analyte	Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228	18.4	19.28		2.31	1.00	0.844	pCi/L	105	56 - 140	0.12	1
Carrier	LCSD %Yield	LCSD Qualifier	Limits								
Ba Carrier	90.6		40 - 110								
Y Carrier	77.8		40 - 110								

## Method: Ra226\_Ra228 - Combined Radium-226 and Radium-228

Lab Sample ID: 400-160240-35 DU  
Matrix: Water  
Analysis Batch: 402686

Client Sample ID: PZ-25S  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.640		0.7542		0.309	5.00	0.430	pCi/L	0.18	

Lab Sample ID: 400-160240-52 DU  
Matrix: Water  
Analysis Batch: 402686

Client Sample ID: PZ-17I  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qual	DU Result	DU Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	RER	RER Limit
Combined Radium 226 + 228	0.882		0.4495	U	0.334	5.00	0.531	pCi/L	0.53	

[illegible]

## Chain of Custody Record

Client Information				Lab PM:		Carrier Tracking No(s):		COC No:																							
Ben Hodges				Whitmire, Cheyenne R				400-57303-24790																							
Phone:				E-Mail:				Page:																							
Joju Abraham				cheyenne.whitmire@testamericainc.com				2 of 2																							
Company:				Southern Company				Job #:																							
Address:				Due Date Requested:		Analysis Requested		Preservation Codes:																							
2241 Ralph McGill Blvd SE B10185				TAT Requested (days):				A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:																							
City:				PO #:				M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO4 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)																							
State, Zip:				WO #:																											
GA, 30308				Project #:																											
Phone:				40007041																											
Email:				SSOW#:																											
JAbraham@southernco.com																															
Project Name:																															
CCR - Scherer																															
Site:																															
Ash Pond																															
Sample Identification				Sample Date		Sample Time		Sample Type (C=Comp, G=grab)		Matrix (W=water, S=solid, O=oxidized, BT=Tissue, AS=air)		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		Mg, K, Na, HCO3, CO3		300_ORGM_28D-Fluoride, 2540C TDS, B, Ca, CL		6020-As, Ba, Be, Cr, Co, Pb, Li, Se, Th, 7470A-Hg		9315_Ra226, 9320_Ra228, Ra226Ra228_GFPc		9320-Disolved As, Ba, Be, Cr, Co, Pb, Li, Se, Th, 7470A-Hg, Dissolved Fe(II)/Fe(III)		SO4		Total Number of containers		Special Instructions/Note:	
PZ-25I				10/17/18		1115		G		Water		N		X		N		1		1		1		1		1		4			
PZ-39S				10/17/18		1315		G		Water		N		X		N		1		1		1		1		1		4			

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- 2
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## Chain of Custody Record

<b>Client Information</b> Client Contact: <b>Ben Hodges</b> Phone: Email: <b>cheyenne.whitmire@testamerica.com</b>		Lab PM: <b>Whitmire, Cheyenne R</b> E-Mail: <b>cheyenne.whitmire@testamerica.com</b>		Carrier Tracking No(s): COC No: <b>400-57303-24790</b> Page: 1 of 1										
Company: <b>Southern Company</b> Address: <b>241 Ralph McGill Blvd SE B10185</b> City: <b>Atlanta</b> State: <b>GA</b> Zip: <b>30308</b> Phone: Email: <b>JAbraham@southernco.com</b> Project Name: <b>CCR - Scherer</b> Site: <b>Ash Pond</b>		<b>Analysis Requested</b> Due Date Requested: TAT Requested (days): PO #: WO #: Project #: <b>40007041</b> SSOW#:		Job #: <b>160240-2</b> Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsMeO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)										
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Solid, Dewatered, Other)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Mg, K, Na, HCO3, CO3	300, ORGFM, 280-Fluoride, 2540C TDS, B, Ca, Cl	6020-As, Ba, Be, Cd, Cr, Co, Pb, Li, Se, Th, 7470A-Hg	9315, Ra226, 9320, Ra228, Ra226Ra228, GPPC	6020-Dissolved Fe(II)/Fe(III)	504	Total Number of Containers	Special Instructions/Note:
SGWC-18	10/18/18	0905	G	Water	N	N	1	1	1	1	1	N	4	
SGWC-20	10/18/18	1035	G	Water	N	N	1	1	1	1	1	N	4	
FD-2	10/18/18	-	G	Water	N	N	1	1	1	1	1	N	4	
FB-2	10/18/18	1030	G	Water	N	N	1	1	1	1	1	N	3	
PZ-421	10/18/18	1215	G	Water	N	N	1	1	1	1	1	N	4	
EB-2	10/18/18	1530	G	Water	N	N	1	1	1	1	1	N	3	
PZ-41S	10/18/18	1350	G	Water	N	N	1	1	1	1	1	N	4	
PZ-171	10/18/18	0910	G	Water	N	N	1	1	1	2	1	N	5	Extra Radium
PZ-43S	10/18/18	1520	G	Water	N	N	1	1	1	1	1	N	4	
PZ-401	10/18/18	1405	G	Water	N	N	1	1	1	1	1	N	4	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)														
<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months														
Special Instructions/QC Requirements: Equi Golder_Rad UDS and Equi Golder UDS Equis EDDs/Please rep														
<b>Empty Kit Relinquished by:</b> _____ Date: _____ Time: _____ Method of Shipment: _____														
<b>Relinquished by:</b> <i>Kay, Mace</i> Date: <i>10-19-18</i> Time: <i>1048</i> Company: <i>GA</i>														
<b>Relinquished by:</b> _____ Date: <i>10/19/18</i> Time: <i>16:10</i> Company: <i>GA</i>														
<b>Relinquished by:</b> _____ Date: _____ Time: _____ Company: _____														
Custody Seal No.: <i>572668</i>														

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-160240-2

SDG Number: Ash Pond

**Login Number: 160240**

**List Number: 1**

**Creator: Conrady, Hank W**

**List Source: TestAmerica Pensacola**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.2°C 4.3°C IR-7, 2.6°C, 1.5°C IR-7, 5.7°C, IR-8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-160240-2

SDG Number: Ash Pond

**Login Number: 160240**

**List Number: 2**

**Creator: McKinney, Gerrod E**

**List Source: TestAmerica St. Louis**

**List Creation: 10/08/18 06:17 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	20.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-160240-2

SDG Number: Ash Pond

**Login Number: 160240**

**List Number: 3**

**Creator: McKinney, Gerrod E**

**List Source: TestAmerica St. Louis**

**List Creation: 10/10/18 05:29 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	21.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

## Laboratory: TestAmerica Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-18 *
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA180023	12-31-18
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

## Laboratory: TestAmerica St. Louis

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD ELAP		L2305	04-06-19
Arizona	State Program	9	AZ0813	12-08-18 *
California	State Program	9	2886	06-30-19
Connecticut	State Program	1	PH-0241	03-31-19
Florida	NELAP	4	E87689	06-30-19
Illinois	NELAP	5	200023	11-30-18 *
Iowa	State Program	7	373	12-01-18 *
Kansas	NELAP	7	E-10236	10-31-18 *
Kentucky (DW)	State Program	4	90125	12-31-18
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA180017	12-31-18 *
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-18 *
Missouri	State Program	7	780	06-30-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pensacola

## Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-2  
SDG: Ash Pond

### Laboratory: TestAmerica St. Louis (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19
New York	NELAP	2	11616	03-31-19
North Dakota	State Program	8	R207	06-30-19
NRC	NRC		24-24817-01	12-31-22
Oklahoma	State Program	6	9997	08-31-19
Pennsylvania	NELAP	3	68-00540	02-28-19
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-12	07-31-19
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-17-0028	02-02-20
Utah	NELAP	8	MO000542018-10	07-31-19
Virginia	NELAP	3	460230	06-14-19
Washington	State Program	10	C592	08-30-19
West Virginia DEP	State Program	3	381	08-31-19

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-160240-3

TestAmerica Sample Delivery Group: Ash Pond

Client Project/Site: CCR - Plant Scherer

For:

Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

11/23/2018 8:55:28 AM

Mark Swafford, Project Manager I

(850)471-6207

[mark.swafford@testamericainc.com](mailto:mark.swafford@testamericainc.com)

Designee for

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

Review your project  
results through

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*The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.*

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Detection Summary . . . . .	4
Method Summary . . . . .	8
Sample Summary . . . . .	9
Client Sample Results . . . . .	10
Definitions . . . . .	43
Chronicle . . . . .	44
QC Association . . . . .	50
QC Sample Results . . . . .	53
Chain of Custody . . . . .	56
Receipt Checklists . . . . .	61
Certification Summary . . . . .	62



Case Narrative

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

Job ID: 400-160240-3

Laboratory: TestAmerica Pensacola

Narrative

Job Narrative  
400-160240-3

Metals

Method(s) 7470A: Reanalysis of the following samples were performed outside of the analytical holding time due to client request for re-analysis: SGWC-11 (400-160240-31), SGWC-15 (400-160240-32), SGWC-11 (400-160240-38), SGWC-15 (400-160240-39), SGWC-18 (400-160240-45) and FD-2 (400-160240-47).

1
2
3
4
5
6
7
8
9
10
11
12
13
14

## Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

### Client Sample ID: SGWA-1

Lab Sample ID: 400-160240-1

No Detections.

### Client Sample ID: EB-1(AP)

Lab Sample ID: 400-160240-4

No Detections.

### Client Sample ID: SGWA-3

Lab Sample ID: 400-160240-5

No Detections.

### Client Sample ID: SGWC-22

Lab Sample ID: 400-160240-7

No Detections.

### Client Sample ID: SGWC-23

Lab Sample ID: 400-160240-8

No Detections.

### Client Sample ID: EB-2(AP)

Lab Sample ID: 400-160240-9

No Detections.

### Client Sample ID: SGWC-21

Lab Sample ID: 400-160240-10

No Detections.

### Client Sample ID: SGWC-7

Lab Sample ID: 400-160240-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00057	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-8

Lab Sample ID: 400-160240-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00053	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-9

Lab Sample ID: 400-160240-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00068	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-10

Lab Sample ID: 400-160240-14

No Detections.

### Client Sample ID: SGWC-19

Lab Sample ID: 400-160240-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00058	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

### Client Sample ID: FD-3(AP)

Lab Sample ID: 400-160240-16

No Detections.

### Client Sample ID: FB-3(AP)

Lab Sample ID: 400-160240-17

No Detections.

### Client Sample ID: EB-3(AP)

Lab Sample ID: 400-160240-18

No Detections.

### Client Sample ID: SGWA-25

Lab Sample ID: 400-160240-19

No Detections.

### Client Sample ID: SGWA-4

Lab Sample ID: 400-160240-20

No Detections.

### Client Sample ID: SGWA-5

Lab Sample ID: 400-160240-21

No Detections.

### Client Sample ID: SGWC-6

Lab Sample ID: 400-160240-22

No Detections.

### Client Sample ID: SGWC-12

Lab Sample ID: 400-160240-23

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00070	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-13

Lab Sample ID: 400-160240-25

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00069	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-14

Lab Sample ID: 400-160240-26

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00070	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-16

Lab Sample ID: 400-160240-27

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00054	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-17

Lab Sample ID: 400-160240-28

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola



## Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

### Client Sample ID: SGWC-17 (Continued)

Lab Sample ID: 400-160240-28

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00075	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: FD-1(AP)

Lab Sample ID: 400-160240-29

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00078	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: FD-2(AP)

Lab Sample ID: 400-160240-30

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00091	J	0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-11

Lab Sample ID: 400-160240-31

No Detections.

### Client Sample ID: SGWC-15

Lab Sample ID: 400-160240-32

No Detections.

### Client Sample ID: SGWC-11

Lab Sample ID: 400-160240-38

No Detections.

### Client Sample ID: SGWC-15

Lab Sample ID: 400-160240-39

No Detections.

### Client Sample ID: PZ-39S

Lab Sample ID: 400-160240-44

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0019		0.0013	0.00046	mg/L	5		6020	Total Recoverable

### Client Sample ID: SGWC-18

Lab Sample ID: 400-160240-45

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0031		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Arsenic, Dissolved	0.0024		0.0013	0.00046	mg/L	5		6020	Dissolved
Mercury	0.00021	H	0.00020	0.000070	mg/L	1		7470A	Total/NA
Mercury, Dissolved	0.00014	J	0.00020	0.000070	mg/L	1		7470A	Dissolved
Mercury, Dissolved	0.000080	J H	0.00020	0.000070	mg/L	1		7470A	Dissolved

### Client Sample ID: FD-2

Lab Sample ID: 400-160240-47

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0027		0.0013	0.00046	mg/L	5		6020	Total Recoverable
Arsenic, Dissolved	0.0023		0.0013	0.00046	mg/L	5		6020	Dissolved

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

# Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

Client Sample ID: FD-2 (Continued)

Lab Sample ID: 400-160240-47

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Mercury	0.00020	H	0.00020	0.000070	mg/L	1		7470A	Total/NA
Mercury, Dissolved	0.00024	H	0.00020	0.000070	mg/L	1		7470A	Dissolved

## Method Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL PEN
7470A	Mercury (CVAA)	SW846	TAL PEN
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PEN
7470A	Preparation, Mercury	SW846	TAL PEN

### Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Sample Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-160240-1	SGWA-1	Water	10/05/18 09:00	10/06/18 08:31
400-160240-4	EB-1(AP)	Water	10/05/18 11:15	10/06/18 08:31
400-160240-5	SGWA-3	Water	10/05/18 09:45	10/06/18 08:31
400-160240-7	SGWC-22	Water	10/08/18 14:20	10/10/18 08:58
400-160240-8	SGWC-23	Water	10/08/18 15:50	10/10/18 08:58
400-160240-9	EB-2(AP)	Water	10/08/18 16:30	10/10/18 08:58
400-160240-10	SGWC-21	Water	10/08/18 12:05	10/10/18 08:58
400-160240-11	SGWC-7	Water	10/09/18 09:25	10/10/18 08:58
400-160240-12	SGWC-8	Water	10/09/18 10:35	10/10/18 08:58
400-160240-13	SGWC-9	Water	10/09/18 10:20	10/10/18 08:58
400-160240-14	SGWC-10	Water	10/09/18 09:10	10/10/18 08:58
400-160240-15	SGWC-19	Water	10/09/18 08:50	10/10/18 08:58
400-160240-16	FD-3(AP)	Water	10/09/18 00:00	10/10/18 08:58
400-160240-17	FB-3(AP)	Water	10/09/18 08:45	10/10/18 08:58
400-160240-18	EB-3(AP)	Water	10/09/18 11:30	10/10/18 08:58
400-160240-19	SGWA-25	Water	10/08/18 14:20	10/10/18 08:58
400-160240-20	SGWA-4	Water	10/08/18 13:15	10/10/18 08:58
400-160240-21	SGWA-5	Water	10/08/18 10:45	10/10/18 08:58
400-160240-22	SGWC-6	Water	10/08/18 15:25	10/10/18 08:58
400-160240-23	SGWC-12	Water	10/08/18 10:40	10/10/18 08:58
400-160240-25	SGWC-13	Water	10/08/18 12:25	10/10/18 08:58
400-160240-26	SGWC-14	Water	10/08/18 13:30	10/10/18 08:58
400-160240-27	SGWC-16	Water	10/08/18 14:40	10/10/18 08:58
400-160240-28	SGWC-17	Water	10/08/18 10:30	10/10/18 08:58
400-160240-29	FD-1(AP)	Water	10/08/18 00:00	10/10/18 08:58
400-160240-30	FD-2(AP)	Water	10/08/18 00:00	10/10/18 08:58
400-160240-31	SGWC-11	Water	10/16/18 10:50	10/19/18 09:04
400-160240-32	SGWC-15	Water	10/16/18 15:15	10/19/18 09:04
400-160240-38	SGWC-11	Water	10/17/18 12:30	10/19/18 09:04
400-160240-39	SGWC-15	Water	10/17/18 15:00	10/19/18 09:04
400-160240-44	PZ-39S	Water	10/17/18 13:15	10/19/18 09:04
400-160240-45	SGWC-18	Water	10/18/18 09:05	10/20/18 08:28
400-160240-47	FD-2	Water	10/18/18 00:00	10/20/18 08:28

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWA-1**

**Date Collected: 10/05/18 09:00**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-1**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 16:04	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: EB-1(AP)**

**Date Collected: 10/05/18 11:15**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-4**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 16:10	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWA-3**

**Date Collected: 10/05/18 09:45**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-5**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 16:31	5



## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-22**

**Date Collected: 10/08/18 14:20**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-7**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 16:35	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-23**

**Date Collected: 10/08/18 15:50**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-8**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 16:39	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: EB-2(AP)**

**Date Collected: 10/08/18 16:30**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-9**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 16:44	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-21**

**Date Collected: 10/08/18 12:05**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-10**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 16:47	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-7**

**Date Collected: 10/09/18 09:25**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-11**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00057	J	0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 16:51	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-8**

**Date Collected: 10/09/18 10:35**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-12**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00053	J	0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 16:54	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-9**

**Date Collected: 10/09/18 10:20**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-13**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00068	J	0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 17:00	5



## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-10**

**Date Collected: 10/09/18 09:10**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-14**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 17:03	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-19**

**Date Collected: 10/09/18 08:50**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-15**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00058	J	0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 17:07	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: FD-3(AP)**

**Date Collected: 10/09/18 00:00**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-16**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 17:35	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: FB-3(AP)**

**Date Collected: 10/09/18 08:45**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-17**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 17:39	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: EB-3(AP)**

**Date Collected: 10/09/18 11:30**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-18**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 17:57	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWA-25**

**Date Collected: 10/08/18 14:20**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-19**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:00	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWA-4**

**Date Collected: 10/08/18 13:15**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-20**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:21	5



## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWA-5**

**Date Collected: 10/08/18 10:45**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-21**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:25	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-6**

**Date Collected: 10/08/18 15:25**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-22**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:28	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-12**

**Date Collected: 10/08/18 10:40**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-23**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00070	J	0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:32	5

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-13**

**Date Collected: 10/08/18 12:25**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-25**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00069	J	0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:35	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-14**

**Date Collected: 10/08/18 13:30**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-26**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00070	J	0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:39	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-16**

**Date Collected: 10/08/18 14:40**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-27**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00054	J	0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:43	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-17**

**Date Collected: 10/08/18 10:30**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-28**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00075	J	0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:46	5



## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: FD-1(AP)**

**Date Collected: 10/08/18 00:00**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-29**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00078	J	0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:50	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: FD-2(AP)**

**Date Collected: 10/08/18 00:00**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-30**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00091	J	0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 18:53	5

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Lab Sample ID: 400-160240-31**

**Date Collected: 10/16/18 10:50**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 19:14	5

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070	H	0.00020	0.000070	mg/L		11/19/18 10:59	11/21/18 16:14	1

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Lab Sample ID: 400-160240-32**

**Date Collected: 10/16/18 15:15**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 19:18	5

**Method: 7470A - Mercury (CVAA)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070	H	0.00020	0.000070	mg/L		11/19/18 10:59	11/21/18 16:16	1

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-11**

**Date Collected: 10/17/18 12:30**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-38**

**Matrix: Water**

**Method: 7470A - Mercury (CVAA) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070	H	0.00020	0.000070	mg/L	—	11/19/18 10:59	11/21/18 16:00	1

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Date Collected: 10/17/18 15:00**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-39**

**Matrix: Water**

**Method: 7470A - Mercury (CVAA) - Dissolved**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070	H	0.00020	0.000070	mg/L	—	11/19/18 10:59	11/21/18 15:58	1

## Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: PZ-39S**

**Date Collected: 10/17/18 13:15**

**Date Received: 10/19/18 09:04**

**Lab Sample ID: 400-160240-44**

**Matrix: Water**

**Method: 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0019		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 19:21	5



# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-18**

**Lab Sample ID: 400-160240-45**

Date Collected: 10/18/18 09:05

Matrix: Water

Date Received: 10/20/18 08:28

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0031		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 19:25	5

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	0.0024		0.0013	0.00046	mg/L		11/14/18 10:20	11/14/18 21:59	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00021	H	0.00020	0.000070	mg/L		11/19/18 10:59	11/21/18 16:02	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	0.00014	J	0.00020	0.000070	mg/L		11/08/18 13:02	11/13/18 10:38	1
Mercury, Dissolved	0.000080	J H	0.00020	0.000070	mg/L		11/19/18 10:59	11/21/18 16:20	1

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: FD-2**

**Date Collected: 10/18/18 00:00**

**Date Received: 10/20/18 08:28**

**Lab Sample ID: 400-160240-47**

**Matrix: Water**

## Method: 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0027		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 19:29	5

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	0.0023		0.0013	0.00046	mg/L		11/14/18 10:20	11/14/18 22:02	5

## Method: 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00020	H	0.00020	0.000070	mg/L		11/19/18 10:59	11/21/18 16:18	1

## Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	0.00024	H	0.00020	0.000070	mg/L		11/19/18 10:59	11/21/18 16:21	1

## Definitions/Glossary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

### 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.
H	Sample was prepped or analyzed beyond the specified holding time

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWA-1**

**Date Collected: 10/05/18 09:00**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 16:04	DRE	TAL PEN

**Client Sample ID: EB-1(AP)**

**Date Collected: 10/05/18 11:15**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 16:10	DRE	TAL PEN

**Client Sample ID: SGWA-3**

**Date Collected: 10/05/18 09:45**

**Date Received: 10/06/18 08:31**

**Lab Sample ID: 400-160240-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 16:31	DRE	TAL PEN

**Client Sample ID: SGWC-22**

**Date Collected: 10/08/18 14:20**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-7**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 16:35	DRE	TAL PEN

**Client Sample ID: SGWC-23**

**Date Collected: 10/08/18 15:50**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-8**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 16:39	DRE	TAL PEN

**Client Sample ID: EB-2(AP)**

**Date Collected: 10/08/18 16:30**

**Date Received: 10/10/18 08:58**

**Lab Sample ID: 400-160240-9**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 16:44	DRE	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-21**

**Lab Sample ID: 400-160240-10**

**Date Collected: 10/08/18 12:05**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 16:47	DRE	TAL PEN

**Client Sample ID: SGWC-7**

**Lab Sample ID: 400-160240-11**

**Date Collected: 10/09/18 09:25**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 16:51	DRE	TAL PEN

**Client Sample ID: SGWC-8**

**Lab Sample ID: 400-160240-12**

**Date Collected: 10/09/18 10:35**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 16:54	DRE	TAL PEN

**Client Sample ID: SGWC-9**

**Lab Sample ID: 400-160240-13**

**Date Collected: 10/09/18 10:20**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 17:00	DRE	TAL PEN

**Client Sample ID: SGWC-10**

**Lab Sample ID: 400-160240-14**

**Date Collected: 10/09/18 09:10**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 17:03	DRE	TAL PEN

**Client Sample ID: SGWC-19**

**Lab Sample ID: 400-160240-15**

**Date Collected: 10/09/18 08:50**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420195	11/20/18 08:56	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 17:07	DRE	TAL PEN

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: FD-3(AP)**

**Lab Sample ID: 400-160240-16**

Date Collected: 10/09/18 00:00

Matrix: Water

Date Received: 10/10/18 08:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 17:35	DRE	TAL PEN

**Client Sample ID: FB-3(AP)**

**Lab Sample ID: 400-160240-17**

Date Collected: 10/09/18 08:45

Matrix: Water

Date Received: 10/10/18 08:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 17:39	DRE	TAL PEN

**Client Sample ID: EB-3(AP)**

**Lab Sample ID: 400-160240-18**

Date Collected: 10/09/18 11:30

Matrix: Water

Date Received: 10/10/18 08:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 17:57	DRE	TAL PEN

**Client Sample ID: SGWA-25**

**Lab Sample ID: 400-160240-19**

Date Collected: 10/08/18 14:20

Matrix: Water

Date Received: 10/10/18 08:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:00	DRE	TAL PEN

**Client Sample ID: SGWA-4**

**Lab Sample ID: 400-160240-20**

Date Collected: 10/08/18 13:15

Matrix: Water

Date Received: 10/10/18 08:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:21	DRE	TAL PEN

**Client Sample ID: SGWA-5**

**Lab Sample ID: 400-160240-21**

Date Collected: 10/08/18 10:45

Matrix: Water

Date Received: 10/10/18 08:58

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:25	DRE	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-6**

**Lab Sample ID: 400-160240-22**

**Date Collected: 10/08/18 15:25**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:28	DRE	TAL PEN

**Client Sample ID: SGWC-12**

**Lab Sample ID: 400-160240-23**

**Date Collected: 10/08/18 10:40**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:32	DRE	TAL PEN

**Client Sample ID: SGWC-13**

**Lab Sample ID: 400-160240-25**

**Date Collected: 10/08/18 12:25**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:35	DRE	TAL PEN

**Client Sample ID: SGWC-14**

**Lab Sample ID: 400-160240-26**

**Date Collected: 10/08/18 13:30**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:39	DRE	TAL PEN

**Client Sample ID: SGWC-16**

**Lab Sample ID: 400-160240-27**

**Date Collected: 10/08/18 14:40**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:43	DRE	TAL PEN

**Client Sample ID: SGWC-17**

**Lab Sample ID: 400-160240-28**

**Date Collected: 10/08/18 10:30**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:46	DRE	TAL PEN

TestAmerica Pensacola



## Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: FD-1(AP)**

**Lab Sample ID: 400-160240-29**

**Date Collected: 10/08/18 00:00**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:50	DRE	TAL PEN

**Client Sample ID: FD-2(AP)**

**Lab Sample ID: 400-160240-30**

**Date Collected: 10/08/18 00:00**

**Matrix: Water**

**Date Received: 10/10/18 08:58**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 18:53	DRE	TAL PEN

**Client Sample ID: SGWC-11**

**Lab Sample ID: 400-160240-31**

**Date Collected: 10/16/18 10:50**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 19:14	DRE	TAL PEN
Total/NA	Prep	7470A			420037	11/19/18 10:59	JAP	TAL PEN
Total/NA	Analysis	7470A		1	420492	11/21/18 16:14	JAP	TAL PEN

**Client Sample ID: SGWC-15**

**Lab Sample ID: 400-160240-32**

**Date Collected: 10/16/18 15:15**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 19:18	DRE	TAL PEN
Total/NA	Prep	7470A			420037	11/19/18 10:59	JAP	TAL PEN
Total/NA	Analysis	7470A		1	420492	11/21/18 16:16	JAP	TAL PEN

**Client Sample ID: SGWC-11**

**Lab Sample ID: 400-160240-38**

**Date Collected: 10/17/18 12:30**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	7470A			420037	11/19/18 10:59	JAP	TAL PEN
Dissolved	Analysis	7470A		1	420492	11/21/18 16:00	JAP	TAL PEN

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

**Client Sample ID: SGWC-15**

**Lab Sample ID: 400-160240-39**

**Date Collected: 10/17/18 15:00**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	7470A			420037	11/19/18 10:59	JAP	TAL PEN
Dissolved	Analysis	7470A		1	420492	11/21/18 15:58	JAP	TAL PEN

**Client Sample ID: PZ-39S**

**Lab Sample ID: 400-160240-44**

**Date Collected: 10/17/18 13:15**

**Matrix: Water**

**Date Received: 10/19/18 09:04**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 19:21	DRE	TAL PEN

**Client Sample ID: SGWC-18**

**Lab Sample ID: 400-160240-45**

**Date Collected: 10/18/18 09:05**

**Matrix: Water**

**Date Received: 10/20/18 08:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			419476	11/14/18 10:20	KWN	TAL PEN
Dissolved	Analysis	6020		5	419700	11/14/18 21:59	DRE	TAL PEN
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 19:25	DRE	TAL PEN
Dissolved	Prep	7470A			418848	11/08/18 13:02	JAP	TAL PEN
Dissolved	Analysis	7470A		1	419409	11/13/18 10:38	JAP	TAL PEN
Dissolved	Prep	7470A			420037	11/19/18 10:59	JAP	TAL PEN
Dissolved	Analysis	7470A		1	420492	11/21/18 16:20	JAP	TAL PEN
Total/NA	Prep	7470A			420037	11/19/18 10:59	JAP	TAL PEN
Total/NA	Analysis	7470A		1	420492	11/21/18 16:02	JAP	TAL PEN

**Client Sample ID: FD-2**

**Lab Sample ID: 400-160240-47**

**Date Collected: 10/18/18 00:00**

**Matrix: Water**

**Date Received: 10/20/18 08:28**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			419476	11/14/18 10:20	KWN	TAL PEN
Dissolved	Analysis	6020		5	419700	11/14/18 22:02	DRE	TAL PEN
Total Recoverable	Prep	3005A			420196	11/20/18 09:05	DRE	TAL PEN
Total Recoverable	Analysis	6020		5	420409	11/20/18 19:29	DRE	TAL PEN
Dissolved	Prep	7470A			420037	11/19/18 10:59	JAP	TAL PEN
Dissolved	Analysis	7470A		1	420492	11/21/18 16:21	JAP	TAL PEN
Total/NA	Prep	7470A			420037	11/19/18 10:59	JAP	TAL PEN
Total/NA	Analysis	7470A		1	420492	11/21/18 16:18	JAP	TAL PEN

## Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

## Metals

### Prep Batch: 418848

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Dissolved	Water	7470A	
MB 400-418848/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-418848/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-160240-B-42-B MS	400-160240-B-42-B MS	Total/NA	Water	7470A	
400-160240-B-42-C MSD	400-160240-B-42-C MSD	Total/NA	Water	7470A	

### Analysis Batch: 419409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Dissolved	Water	7470A	418848
MB 400-418848/14-A	Method Blank	Total/NA	Water	7470A	418848
LCS 400-418848/15-A	Lab Control Sample	Total/NA	Water	7470A	418848
400-160240-B-42-B MS	400-160240-B-42-B MS	Total/NA	Water	7470A	418848
400-160240-B-42-C MSD	400-160240-B-42-C MSD	Total/NA	Water	7470A	418848

### Prep Batch: 419476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Dissolved	Water	3005A	
400-160240-47	FD-2	Dissolved	Water	3005A	
MB 400-419476/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-419476/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-161935-I-10-B MS ^5	Matrix Spike	Dissolved	Water	3005A	
400-161935-I-10-C MSD ^5	Matrix Spike Duplicate	Dissolved	Water	3005A	

### Analysis Batch: 419700

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-45	SGWC-18	Dissolved	Water	6020	419476
400-160240-47	FD-2	Dissolved	Water	6020	419476
MB 400-419476/1-A ^5	Method Blank	Total Recoverable	Water	6020	419476
LCS 400-419476/2-A	Lab Control Sample	Total Recoverable	Water	6020	419476
400-161935-I-10-B MS ^5	Matrix Spike	Dissolved	Water	6020	419476
400-161935-I-10-C MSD ^5	Matrix Spike Duplicate	Dissolved	Water	6020	419476

### Prep Batch: 420037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	7470A	
400-160240-32	SGWC-15	Total/NA	Water	7470A	
400-160240-38	SGWC-11	Dissolved	Water	7470A	
400-160240-39	SGWC-15	Dissolved	Water	7470A	
400-160240-45	SGWC-18	Dissolved	Water	7470A	
400-160240-45	SGWC-18	Total/NA	Water	7470A	
400-160240-47	FD-2	Dissolved	Water	7470A	
400-160240-47	FD-2	Total/NA	Water	7470A	
MB 400-420037/14-A	Method Blank	Total/NA	Water	7470A	
LCS 400-420037/15-A	Lab Control Sample	Total/NA	Water	7470A	
400-161490-AA-1-B MS	Matrix Spike	Total/NA	Water	7470A	
400-161490-AA-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	

### Prep Batch: 420195

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-1	SGWA-1	Total Recoverable	Water	3005A	
400-160240-4	EB-1(AP)	Total Recoverable	Water	3005A	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

## Metals (Continued)

### Prep Batch: 420195 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-5	SGWA-3	Total Recoverable	Water	3005A	
400-160240-7	SGWC-22	Total Recoverable	Water	3005A	
400-160240-8	SGWC-23	Total Recoverable	Water	3005A	
400-160240-9	EB-2(AP)	Total Recoverable	Water	3005A	
400-160240-10	SGWC-21	Total Recoverable	Water	3005A	
400-160240-11	SGWC-7	Total Recoverable	Water	3005A	
400-160240-12	SGWC-8	Total Recoverable	Water	3005A	
400-160240-13	SGWC-9	Total Recoverable	Water	3005A	
400-160240-14	SGWC-10	Total Recoverable	Water	3005A	
400-160240-15	SGWC-19	Total Recoverable	Water	3005A	
MB 400-420195/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-420195/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-160141-G-3-D MS ^5	Matrix Spike	Total Recoverable	Water	3005A	
400-160141-G-3-E MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	3005A	

### Prep Batch: 420196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-16	FD-3(AP)	Total Recoverable	Water	3005A	
400-160240-17	FB-3(AP)	Total Recoverable	Water	3005A	
400-160240-18	EB-3(AP)	Total Recoverable	Water	3005A	
400-160240-19	SGWA-25	Total Recoverable	Water	3005A	
400-160240-20	SGWA-4	Total Recoverable	Water	3005A	
400-160240-21	SGWA-5	Total Recoverable	Water	3005A	
400-160240-22	SGWC-6	Total Recoverable	Water	3005A	
400-160240-23	SGWC-12	Total Recoverable	Water	3005A	
400-160240-25	SGWC-13	Total Recoverable	Water	3005A	
400-160240-26	SGWC-14	Total Recoverable	Water	3005A	
400-160240-27	SGWC-16	Total Recoverable	Water	3005A	
400-160240-28	SGWC-17	Total Recoverable	Water	3005A	
400-160240-29	FD-1(AP)	Total Recoverable	Water	3005A	
400-160240-30	FD-2(AP)	Total Recoverable	Water	3005A	
400-160240-31	SGWC-11	Total Recoverable	Water	3005A	
400-160240-32	SGWC-15	Total Recoverable	Water	3005A	
400-160240-44	PZ-39S	Total Recoverable	Water	3005A	
400-160240-45	SGWC-18	Total Recoverable	Water	3005A	
400-160240-47	FD-2	Total Recoverable	Water	3005A	
MB 400-420196/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-420196/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
400-160240-17 MS	FB-3(AP)	Total Recoverable	Water	3005A	
400-160240-17 MSD	FB-3(AP)	Total Recoverable	Water	3005A	

### Analysis Batch: 420409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-1	SGWA-1	Total Recoverable	Water	6020	420195
400-160240-4	EB-1(AP)	Total Recoverable	Water	6020	420195
400-160240-5	SGWA-3	Total Recoverable	Water	6020	420195
400-160240-7	SGWC-22	Total Recoverable	Water	6020	420195
400-160240-8	SGWC-23	Total Recoverable	Water	6020	420195
400-160240-9	EB-2(AP)	Total Recoverable	Water	6020	420195
400-160240-10	SGWC-21	Total Recoverable	Water	6020	420195
400-160240-11	SGWC-7	Total Recoverable	Water	6020	420195

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

## Metals (Continued)

### Analysis Batch: 420409 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-12	SGWC-8	Total Recoverable	Water	6020	420195
400-160240-13	SGWC-9	Total Recoverable	Water	6020	420195
400-160240-14	SGWC-10	Total Recoverable	Water	6020	420195
400-160240-15	SGWC-19	Total Recoverable	Water	6020	420195
400-160240-16	FD-3(AP)	Total Recoverable	Water	6020	420196
400-160240-17	FB-3(AP)	Total Recoverable	Water	6020	420196
400-160240-18	EB-3(AP)	Total Recoverable	Water	6020	420196
400-160240-19	SGWA-25	Total Recoverable	Water	6020	420196
400-160240-20	SGWA-4	Total Recoverable	Water	6020	420196
400-160240-21	SGWA-5	Total Recoverable	Water	6020	420196
400-160240-22	SGWC-6	Total Recoverable	Water	6020	420196
400-160240-23	SGWC-12	Total Recoverable	Water	6020	420196
400-160240-25	SGWC-13	Total Recoverable	Water	6020	420196
400-160240-26	SGWC-14	Total Recoverable	Water	6020	420196
400-160240-27	SGWC-16	Total Recoverable	Water	6020	420196
400-160240-28	SGWC-17	Total Recoverable	Water	6020	420196
400-160240-29	FD-1(AP)	Total Recoverable	Water	6020	420196
400-160240-30	FD-2(AP)	Total Recoverable	Water	6020	420196
400-160240-31	SGWC-11	Total Recoverable	Water	6020	420196
400-160240-32	SGWC-15	Total Recoverable	Water	6020	420196
400-160240-44	PZ-39S	Total Recoverable	Water	6020	420196
400-160240-45	SGWC-18	Total Recoverable	Water	6020	420196
400-160240-47	FD-2	Total Recoverable	Water	6020	420196
MB 400-420195/1-A ^5	Method Blank	Total Recoverable	Water	6020	420195
MB 400-420196/1-A ^5	Method Blank	Total Recoverable	Water	6020	420196
LCS 400-420195/2-A	Lab Control Sample	Total Recoverable	Water	6020	420195
LCS 400-420196/2-A	Lab Control Sample	Total Recoverable	Water	6020	420196
400-160141-G-3-D MS ^5	Matrix Spike	Total Recoverable	Water	6020	420195
400-160141-G-3-E MSD ^5	Matrix Spike Duplicate	Total Recoverable	Water	6020	420195
400-160240-17 MS	FB-3(AP)	Total Recoverable	Water	6020	420196
400-160240-17 MSD	FB-3(AP)	Total Recoverable	Water	6020	420196

### Analysis Batch: 420492

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-160240-31	SGWC-11	Total/NA	Water	7470A	420037
400-160240-32	SGWC-15	Total/NA	Water	7470A	420037
400-160240-38	SGWC-11	Dissolved	Water	7470A	420037
400-160240-39	SGWC-15	Dissolved	Water	7470A	420037
400-160240-45	SGWC-18	Dissolved	Water	7470A	420037
400-160240-45	SGWC-18	Total/NA	Water	7470A	420037
400-160240-47	FD-2	Dissolved	Water	7470A	420037
400-160240-47	FD-2	Total/NA	Water	7470A	420037
MB 400-420037/14-A	Method Blank	Total/NA	Water	7470A	420037
LCS 400-420037/15-A	Lab Control Sample	Total/NA	Water	7470A	420037
400-161490-AA-1-B MS	Matrix Spike	Total/NA	Water	7470A	420037
400-161490-AA-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	7470A	420037

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

## Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-419476/1-A ^5  
Matrix: Water  
Analysis Batch: 419700

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 419476

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic, Dissolved	<0.00046		0.0013	0.00046	mg/L		11/14/18 10:20	11/14/18 18:26	5

Lab Sample ID: LCS 400-419476/2-A  
Matrix: Water  
Analysis Batch: 419700

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 419476

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic, Dissolved	0.0500	0.0486		mg/L		97	80 - 120

Lab Sample ID: MB 400-420195/1-A ^5  
Matrix: Water  
Analysis Batch: 420409

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 420195

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 08:56	11/20/18 14:57	5

Lab Sample ID: LCS 400-420195/2-A  
Matrix: Water  
Analysis Batch: 420409

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 420195

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0500	0.0504		mg/L		101	80 - 120

Lab Sample ID: 400-160141-G-3-D MS ^5  
Matrix: Water  
Analysis Batch: 420409

Client Sample ID: Matrix Spike  
Prep Type: Total Recoverable  
Prep Batch: 420195

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00046		0.0500	0.0512		mg/L		102	75 - 125

Lab Sample ID: 400-160141-G-3-E MSD ^5  
Matrix: Water  
Analysis Batch: 420409

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Total Recoverable  
Prep Batch: 420195

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00046		0.0500	0.0506		mg/L		101	75 - 125	1	20

Lab Sample ID: MB 400-420196/1-A ^5  
Matrix: Water  
Analysis Batch: 420409

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 420196

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		11/20/18 09:05	11/20/18 17:28	5

Lab Sample ID: LCS 400-420196/2-A  
Matrix: Water  
Analysis Batch: 420409

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 420196

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0500	0.0483		mg/L		97	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

Lab Sample ID: 400-160240-17 MS  
Matrix: Water  
Analysis Batch: 420409

Client Sample ID: FB-3(AP)  
Prep Type: Total Recoverable  
Prep Batch: 420196

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00046		0.0500	0.0488		mg/L		98	75 - 125

Lab Sample ID: 400-160240-17 MSD  
Matrix: Water  
Analysis Batch: 420409

Client Sample ID: FB-3(AP)  
Prep Type: Total Recoverable  
Prep Batch: 420196

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00046		0.0500	0.0488		mg/L		98	75 - 125	0	20

Lab Sample ID: 400-161935-I-10-B MS ^5  
Matrix: Water  
Analysis Batch: 419700

Client Sample ID: Matrix Spike  
Prep Type: Dissolved  
Prep Batch: 419476

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic, Dissolved	0.0031		0.0500	0.0545		mg/L		103	75 - 125

Lab Sample ID: 400-161935-I-10-C MSD ^5  
Matrix: Water  
Analysis Batch: 419700

Client Sample ID: Matrix Spike Duplicate  
Prep Type: Dissolved  
Prep Batch: 419476

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic, Dissolved	0.0031		0.0500	0.0530		mg/L		100	75 - 125	3	20

## Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 400-418848/14-A  
Matrix: Water  
Analysis Batch: 419409

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 418848

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/08/18 12:35	11/13/18 09:32	1

Lab Sample ID: LCS 400-418848/15-A  
Matrix: Water  
Analysis Batch: 419409

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 418848

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury, Dissolved	0.00101	0.000957		mg/L		95	80 - 120

Lab Sample ID: 400-160240-B-42-B MS  
Matrix: Water  
Analysis Batch: 419409

Client Sample ID: 400-160240-B-42-B MS  
Prep Type: Total/NA  
Prep Batch: 418848

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury, Dissolved	<0.000070		0.00201	0.00190		mg/L		94	80 - 120



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

## Method: 7470A - Mercury (CVAA) (Continued)

Lab Sample ID: 400-160240-B-42-C MSD

Matrix: Water

Analysis Batch: 419409

Client Sample ID: 400-160240-B-42-C MSD

Prep Type: Total/NA

Prep Batch: 418848

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury, Dissolved	<0.000070		0.00201	0.00184		mg/L		92	80 - 120	3	20

Lab Sample ID: MB 400-420037/14-A

Matrix: Water

Analysis Batch: 420492

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 420037

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000070		0.00020	0.000070	mg/L		11/19/18 10:23	11/21/18 15:23	1
Mercury, Dissolved	<0.000070		0.00020	0.000070	mg/L		11/19/18 10:23	11/21/18 15:23	1

Lab Sample ID: LCS 400-420037/15-A

Matrix: Water

Analysis Batch: 420492

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 420037

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00101	0.00105		mg/L		104	80 - 120
Mercury, Dissolved	0.00101	0.00105		mg/L		104	80 - 120

Lab Sample ID: 400-161490-AA-1-B MS

Matrix: Water

Analysis Batch: 420492

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 420037

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.000070		0.00201	0.00192		mg/L		95	80 - 120
Mercury, Dissolved	<0.000070		0.00201	0.00192		mg/L		95	80 - 120

Lab Sample ID: 400-161490-AA-1-C MSD

Matrix: Water

Analysis Batch: 420492

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 420037

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000070		0.00201	0.00204		mg/L		101	80 - 120	6	20
Mercury, Dissolved	<0.000070		0.00201	0.00204		mg/L		101	80 - 120	6	20

## Chain of Custody Record

154761 2128

Client Information		Lab PM:		Carrier Tracking No(s):	
Client Contact:		Whitmore, Cheyenne R		400-57303-24790	
Client Name:		Whitmore, Cheyenne R		Page: 1 of 1	
Company:		Whitmore, Cheyenne R		Job #:	
Southern Company		Whitmore, Cheyenne R		Job #:	
Address:		241 Ralph McGill Blvd SE B10185		Job #:	
City:		Atlanta		Job #:	
State, Zip:		GA, 30308		Job #:	
Phone:				Job #:	
Email:		JAbraham@southernco.com		Job #:	
Project Name:		CCR - Scherer		Job #:	
Site:		Ash Pond		Job #:	
Due Date Requested:		TAT Requested (days):		Job #:	
PO #:		WO #:		Job #:	
Project #:		40007041		Job #:	
SSOW#:				Job #:	
Sample Identification		Sample Date		Sample Time	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	
SGWA-24		10/5/18		1115	
Sample Type		Sample Time		Sample Date	
SGWA-1		10/5/18		0900	
FB-1(AP)		10/5/18		0840	
SGWA-2		10/5/18		1015	
EB-1(AP)		10/5/18		1115	
SGWA-3		10/5/18		0945	

# Chain of Custody Record

<b>Client Information</b>		Lab PM: Whitmire, Chyenne R		Carrier Tracking No(s):		COC No: 400-57303-24790	
Client Contact: Ben Hodges		Phone:		E-Mail: cheyenne.whitmire@testamericainc.com		Page: 2 of 2	
Company: Southern Company		Due Date Requested:		Analysis Requested		Job #: 160240	
Address: 241 Ralph McGill Blvd SE B10185		TAT Requested (days):		Field Filtered Sample (Yes or No)		Total Number of Containers	
City: Atlanta		PO #:		Perform MS/MSD (Yes or No)		Preservation Codes:	
State, Zip: GA, 30308		IWO #:		300_ORGFM_28D-Fluoride		A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:	
Phone:		Project #:		6020-Sb,As,Ba,Cd,Cr,Cu,Pb,LI,Mo,Se,Tl, 7470A-Hg		M - Hexane N - None O - AsNeO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - ph 4-5 Z - other (specify)	
Email: JAbraham@southernco.com		SSOW#:		9315_Ra226, 9320_Ra228,Ra228Ra228_GFPc		Other:	
Project Name: CCR - Scherer		Sample Date		Sample Time		Sample Matrix	
Site: Ash Pond		Sample Date		Sample Time		Sample Matrix	
Sample Identification		Sample Date		Sample Time		Sample Matrix	
SGWC-22		10/8/18		1420		Water	
SGWC-23		10/8/18		1550		Water	
EB-2(AP)		10/8/18		1630		Water	
SGWC-21		10/8/18		1205		Water	
SGWC-7		10/9/18		0925		Water	
SGWC-8		10/9/18		1035		Water	
SGWC-9		10/9/18		1020		Water	
SGWC-10		10/9/18		0910		Water	
SGWC-19		10/9/18		0850		Water	
FD-3(AP)		10/9/18		--		Water	
FB-3(AP)		10/9/18		0845		Water	
EB-3(AP)		10/9/18		1130		Water	
Possible Hazard Identification		Sample Date		Sample Time		Sample Matrix	
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological		Sample Date		Sample Time		Sample Matrix	
Deliverable Requested: I, II, III, IV, Other (specify)		Sample Date		Sample Time		Sample Matrix	
Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: [Signature]		Date: 10-9-18/1422		Time:		Company: TA	
Relinquished by: [Signature]		Date: 10/9/18		Time: 16:10		Company: TA	
Relinquished by: [Signature]		Date: 10/9/18		Time:		Company: TA	
Custody Seal No.: Δ Yes Δ No		Custody Seal No.: 1.20c, 1.50c, 0.00c IR-7		Cooler Temperature(s) °C and Other Remarks:		Cooler Temperature(s) °C and Other Remarks:	

## Chain of Custody Record

Client Information		Sampler:		Lab PM:		Carrier Tracking No(s):		COC No:			
Client Contact: Joju Abraham		Ben Hodges		Whitmore, Cheyenne R				400-57303-24790			
Company: Southern Company		Phone:		E-Mail: cheyanne.whitmore@testamerica.com				Page: 1 of 1			
Address: 241 Ralph McGill Blvd SE B10185		Due Date Requested:		Analysis Requested				Job #:			
City: Atlanta		TAT Requested (days):						Preservation Codes:			
State, Zip: GA, 30308		PO #:						A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
Email: JAbraham@southernco.com		WO #:						M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)			
Project Name: CCR - Scherer		Project #: 40007041									
Site: Ash Pond		SSOW#:									
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (Water, Seawater, O=water, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300_ORGM_28D-Fluoride	6020-Sb,As,Ba,Be,Cd,Cr,Cu,Pb,LI,Mo,Se,Te,Tl,7470A-Hg	9316_Ra226, 9320_Ra228, Ra226Ra228_GFPc	Total Number of containers	Special Instructions/Note:
SGWA-25	10/8/18	1420	G	Water	N	N	1	1	1	3	
SGWA-4	10/8/18	1315	G	Water	N	N	1	1	1	3	
SGWA-5	10/8/18	1045	G	Water	N	N	1	1	2	4	Extra Radium
SGWC-6	10/8/18	1525	G	Water	N	N	1	1	1	3	
SGWC-12	10/8/18	1040	G	Water	N	N	1	1	1	3	
FB-2(AP)	10/8/18	1015	G	Water	N	N	1	1	1	3	
SGWC-13	10/8/18	1225	G	Water	N	N	1	1	1	3	
SGWC-14	10/8/18	1330	G	Water	N	N	1	1	1	3	
SGWC-16	10/8/18	1440	G	Water	N	N	1	1	1	3	
SGWC-17	10/8/18	1030	G	Water	N	N	1	1	1	3	
FD-1(AP)	10/8/18	--	G	Water	N	N	1	1	1	3	
FD-2(AP)	10/8/18	--	G	Water	N	N	1	1	1	3	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological											
Deliverable Requested: I, II, III, IV, Other (specify)											
Empty Kit Relinquished by:											
Relinquished by: <i>[Signature]</i> Date: 10-9-18/1422 Company: <i>[Signature]</i> Date: 10/9/18											
Relinquished by: <i>[Signature]</i> Date: 10/9/18 Company: <i>[Signature]</i> Date: 10/9/18											
Relinquished by: <i>[Signature]</i> Date: 10/9/18 Company: <i>[Signature]</i> Date: 10/9/18											
Custody Seal Intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No											
Custody Seal No.:											
Cooler Temperature(s) °C and Other Remarks:											



# Chain of Custody Record

<b>Client Information</b> Client Contact: Ben Hodges Client: Joji Abraham Company: Southern Company		Lab PM: Whitmire, Cheyenne R E-Mail: cheyenne.whitmire@testamericainc.com		Carrier Tracking No(s): COC No: 400-57303-24790 Page: 1 of 1	
Address: 241 Ralph McGill Blvd SE B10185 City: Atlanta State, Zip: GA, 30308 Phone: Email: JAbraham@southernco.com Project Name: CCR - Scherer Site: Ash Pond		<b>Analysis Requested</b> Due Date Requested: TAT Requested (days): PO #: WO #: Project #: 40007041 SSOW#:			
Sample Identification Sample Date Sample Time Sample Type (C=comp, G=grab) Matrix (W=water, B=solid, O=wastefl, S=Trunk, A=Air) Preservation Code:		Field Filtered Sample (Yes or No) Perform MS/MSD (Yes or No) 300 ORGFM, 280-Fluoride, 2540C TDS, B, Ca, Cl, SO4 6020-Ag, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Ti, 7470A-Hg 9315_Ra226, 9320_Ra228, Ra226Ra228_GFPc			
SGWC-11 SGWC-15		10/16/18 1050 G Water		N 1 1 1	
SGWC-15 10/16/18 1515 G Water		N 1 1 1		3 3	
Special Instructions/Note: Total Number of containers		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O4 S - H2SO4 T - TSP Dodecylhydrate U - Acetone V - MCAA W - ph 4-5 X - EDA Z - other (specify) Other:			
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					
Deliverable Requested: I, II, III, IV, Other (specify)					
Empty Kit Relinquished by:					
Relinquished by:		Date: 10/18/18 07:50		Company: Equilizer	
Relinquished by:		Date: 10/18/18 09:40		Company: TA	
Relinquished by:		Date: 10/19/18 09:04		Company: TA	
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Cooler Temperature(s) °C and Other Remarks:					

## Chain of Custody Record

<b>Client Information</b> Client Contact: <b>Ben Hodges</b> Phone: Company: <b>Southern Company</b> Address: <b>241 Ralph McGill Blvd SE B10185</b> City: <b>Atlanta</b> State: <b>GA</b> Zip: <b>30308</b> PO #: Email: <b>JAbraham@southernco.com</b> Project Name: <b>CCR - Scherer</b> Site: <b>Ash Pond</b>		Lab PM: <b>Whitire, Cheyenne R</b> E-Mail: <b>cheyenne.whitire@testamericainc.com</b> Carrier Tracking No(s): Job #: <b>100240-1</b>		COC No: <b>400-57303-24790</b> Page: 1 of 1	
<b>Due Date Requested:</b> TAT Requested (days): PO #: WO #: Project #: <b>40007041</b> SSOW#: Sample Identification		<b>Analysis Requested</b> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> 300_ORGFM_280-Fluoride, 2540C TDS, B, Ca, Cl, SO4 <input checked="" type="checkbox"/> 6020-As, Ba, Be, Cd, Cr, Co, Pb, Li, Mo, Se, Tl, 7470A-Hg <input checked="" type="checkbox"/> 9315_Ra226, 9320_Ra228, Ra226Ra228_GFPc <input checked="" type="checkbox"/>			
Sample Date Sample Time Sample Type (C=Comp, G=Grab) Matrix (W=Water, S=solid, O=soil, B=Bottom, A=Air) Preservation Code:		Total Number of containers			
SGWC-18 SGWC-20		10/18/18 0905 G Water		3	
10/16/18 1035 G Water		1 1 1 1		3	
Special Instructions/Note:		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					
Deliverable Requested: I, II, III, IV, Other (specify)					
Empty Kit Relinquished by:					
Relinquished by: <b>Karin Miller</b> Date/Time: <b>10/19/18 1048</b>		Relinquished by: <b>[Signature]</b> Date/Time: <b>10/19/18</b>		Relinquished by: <b>[Signature]</b> Date/Time: <b>10/19/18</b>	
Relinquished by: <b>[Signature]</b> Date/Time: <b>10/19/18</b>		Relinquished by: <b>[Signature]</b> Date/Time: <b>10/19/18</b>		Relinquished by: <b>[Signature]</b> Date/Time: <b>10/19/18</b>	
Custody Seal No. <b>Δ Yes Δ No</b>		Cooler Temperature(s) °C and Other Remarks: <b>S. 7026163</b>			

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-160240-3

SDG Number: Ash Pond

**Login Number: 160240**

**List Source: TestAmerica Pensacola**

**List Number: 1**

**Creator: Conrady, Hank W**

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.2°C 4.3°C IR-7, 2.6°C, 1.5°C IR-7, 5.7°C, IR-8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-160240-3  
SDG: Ash Pond

### Laboratory: TestAmerica Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-19
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-18 *
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA180023	12-31-18
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pensacola

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pittsburgh

301 Alpha Drive

RIDC Park

Pittsburgh, PA 15238

Tel: (412)963-7058

TestAmerica Job ID: 180-85444-1

Client Project/Site: CCR - Plant Scherer

For:

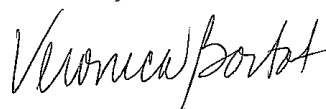
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

1/11/2019 5:11:33 PM

Veronica Bortot, Senior Project Manager

(412)963-2435

[veronica.bortot@testamericainc.com](mailto:veronica.bortot@testamericainc.com)

Designee for

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

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[www.testamericainc.com](http://www.testamericainc.com)

*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

1

2

3

4

5

6

7

8

9

10

11

12

13

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Definitions/Glossary . . . . .	4
Certification Summary . . . . .	5
Sample Summary . . . . .	7
Method Summary . . . . .	8
Lab Chronicle . . . . .	9
Client Sample Results . . . . .	10
QC Sample Results . . . . .	11
QC Association Summary . . . . .	13
Chain of Custody . . . . .	14
Receipt Checklists . . . . .	16



## Case Narrative

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

**Job ID: 180-85444-1**

**Laboratory: TestAmerica Pittsburgh**

### Narrative

**Job Narrative**  
**180-85444-1**

### Comments

No additional comments.

### Receipt

The samples were received on 1/5/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 1.0° C and 3.1° C.

### Anions

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

## Definitions/Glossary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

## Laboratory: TestAmerica Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-19
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-19
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19
Texas	NELAP	6	T104704528-15-2	03-31-19
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-19
Wisconsin	State Program	5	998027800	08-31-19

## Laboratory: TestAmerica Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-19
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-19
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA017	12-31-19
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-19
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-19
South Carolina	State Program	4	96026	06-30-19

TestAmerica Pittsburgh

## Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

### Laboratory: TestAmerica Pensacola (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19



## Sample Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-85444-1	SGWC-18	Water	01/02/19 12:25	01/05/19 09:30

## Method Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

Method	Method Description	Protocol	Laboratory
EPA 300.0 R2.1	Anions, Ion Chromatography	EPA	TAL PIT
EPA 6020	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
SM 2540C	Solids, Total Dissolved (TDS)	SM	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

### Protocol References:

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 = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

**Client Sample ID: SGWC-18**

**Date Collected: 01/02/19 12:25**

**Date Received: 01/05/19 09:30**

**Lab Sample ID: 180-85444-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1 Instrument ID: CHICS2100B		1			267251	01/08/19 13:11	MJH	TAL PIT
Total/NA	Analysis	EPA 300.0 R2.1 Instrument ID: CHICS2100B		10			267251	01/08/19 13:27	MJH	TAL PIT
Total Recoverable	Prep	3005A			50 mL	50 mL	267302	01/08/19 11:42	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020 Instrument ID: X		1			267572	01/10/19 00:20	WTR	TAL PIT
Total/NA	Prep	7470A			50 mL	50 mL	267213	01/07/19 11:26	KA	TAL PIT
Total/NA	Analysis	EPA 7470A Instrument ID: HGY		1			267249	01/07/19 18:45	KA	TAL PIT
Total/NA	Analysis	SM 2540C Instrument ID: NOEQUIP		1	100 mL	100 mL	267240	01/07/19 14:47	JAS	TAL PIT

## Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

## Analyst References:

Lab: TAL PIT

Batch Type: Prep

KA = Kayla Kalamasz

NAM = Nicole Marfisi

Batch Type: Analysis

JAS = Joshua Schmidt

KA = Kayla Kalamasz

MJH = Matthew Hartman

WTR = Bill Reinheimer

TestAmerica Pittsburgh

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

**Client Sample ID: SGWC-18**

**Date Collected: 01/02/19 12:25**

**Date Received: 01/05/19 09:30**

**Lab Sample ID: 180-85444-1**

**Matrix: Water**

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	18		1.0		mg/L			01/08/19 13:11	1
Fluoride	ND		0.20		mg/L			01/08/19 13:11	1
Sulfate	1100		10		mg/L			01/08/19 13:27	10

## Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0013		mg/L		01/08/19 11:42	01/10/19 00:20	1
Barium	0.027		0.0025		mg/L		01/08/19 11:42	01/10/19 00:20	1
Beryllium	ND		0.0025		mg/L		01/08/19 11:42	01/10/19 00:20	1
Boron	4.1		0.050		mg/L		01/08/19 11:42	01/10/19 00:20	1
Chromium	0.0078		0.0025		mg/L		01/08/19 11:42	01/10/19 00:20	1
Calcium	98		0.25		mg/L		01/08/19 11:42	01/10/19 00:20	1
Cobalt	0.11		0.0025		mg/L		01/08/19 11:42	01/10/19 00:20	1
Lead	ND		0.0010		mg/L		01/08/19 11:42	01/10/19 00:20	1
Selenium	0.0034		0.0013		mg/L		01/08/19 11:42	01/10/19 00:20	1
Thallium	ND		0.00050		mg/L		01/08/19 11:42	01/10/19 00:20	1
Molybdenum	ND		0.015		mg/L		01/08/19 11:42	01/10/19 00:20	1
Lithium	0.0055		0.0020		mg/L		01/08/19 11:42	01/10/19 00:20	1

## Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.00024		0.00020		mg/L		01/07/19 11:26	01/07/19 18:45	1

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	1600		10		mg/L			01/07/19 14:47	1

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

## Method: EPA 300.0 R2.1 - Anions, Ion Chromatography

Lab Sample ID: MB 180-267251/6

Matrix: Water

Analysis Batch: 267251

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		1.0		mg/L			01/08/19 06:09	1
Fluoride	ND		0.20		mg/L			01/08/19 06:09	1
Sulfate	ND		1.0		mg/L			01/08/19 06:09	1

Lab Sample ID: LCS 180-267251/5

Matrix: Water

Analysis Batch: 267251

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	24.9		mg/L		99	90 - 110
Fluoride	1.25	1.25		mg/L		100	90 - 110
Sulfate	25.0	24.5		mg/L		98	90 - 110

## Method: EPA 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-267302/1-A

Matrix: Water

Analysis Batch: 267572

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 267302

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		0.0013		mg/L		01/08/19 11:42	01/09/19 23:19	1
Barium	ND		0.0025		mg/L		01/08/19 11:42	01/09/19 23:19	1
Beryllium	ND		0.0025		mg/L		01/08/19 11:42	01/09/19 23:19	1
Boron	ND		0.050		mg/L		01/08/19 11:42	01/09/19 23:19	1
Chromium	ND		0.0025		mg/L		01/08/19 11:42	01/09/19 23:19	1
Calcium	ND		0.25		mg/L		01/08/19 11:42	01/09/19 23:19	1
Cobalt	ND		0.0025		mg/L		01/08/19 11:42	01/09/19 23:19	1
Lead	ND		0.0010		mg/L		01/08/19 11:42	01/09/19 23:19	1
Selenium	ND		0.0013		mg/L		01/08/19 11:42	01/09/19 23:19	1
Thallium	ND		0.00050		mg/L		01/08/19 11:42	01/09/19 23:19	1
Molybdenum	ND		0.015		mg/L		01/08/19 11:42	01/09/19 23:19	1
Lithium	ND		0.0020		mg/L		01/08/19 11:42	01/09/19 23:19	1

Lab Sample ID: LCS 180-267302/2-A

Matrix: Water

Analysis Batch: 267572

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 267302

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0400	0.0404		mg/L		101	80 - 120
Barium	2.00	1.83		mg/L		92	80 - 120
Beryllium	0.0500	0.0493		mg/L		99	80 - 120
Boron	1.00	0.937		mg/L		94	80 - 120
Chromium	0.200	0.190		mg/L		95	80 - 120
Calcium	50.0	48.2		mg/L		96	80 - 120
Cobalt	0.500	0.453		mg/L		91	80 - 120
Lead	0.0200	0.0214		mg/L		107	80 - 120
Selenium	0.0100	0.00820		mg/L		82	80 - 120
Thallium	0.0500	0.0519		mg/L		104	80 - 120

TestAmerica Pittsburgh

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

## Method: EPA 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 180-267302/2-A  
Matrix: Water  
Analysis Batch: 267572

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 267302

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Molybdenum	1.00	1.15		mg/L		115	80 - 120
Lithium	0.0500	0.0536		mg/L		107	80 - 120

## Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-267213/1-A  
Matrix: Water  
Analysis Batch: 267249

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 267213

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.00020		mg/L		01/07/19 11:26	01/07/19 18:19	1

Lab Sample ID: LCS 180-267213/2-A  
Matrix: Water  
Analysis Batch: 267249

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 267213

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00266		mg/L		106	80 - 120

## Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 180-267240/2  
Matrix: Water  
Analysis Batch: 267240

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	ND		10		mg/L			01/07/19 14:46	1

Lab Sample ID: LCS 180-267240/1  
Matrix: Water  
Analysis Batch: 267240

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	204	230		mg/L		113	80 - 120

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85444-1

## HPLC/IC

### Analysis Batch: 267251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-85444-1	SGWC-18	Total/NA	Water	EPA 300.0 R2.1	
180-85444-1	SGWC-18	Total/NA	Water	EPA 300.0 R2.1	
MB 180-267251/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-267251/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

## Metals

### Prep Batch: 267213

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-85444-1	SGWC-18	Total/NA	Water	7470A	
MB 180-267213/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-267213/2-A	Lab Control Sample	Total/NA	Water	7470A	

### Analysis Batch: 267249

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-85444-1	SGWC-18	Total/NA	Water	EPA 7470A	267213
MB 180-267213/1-A	Method Blank	Total/NA	Water	EPA 7470A	267213
LCS 180-267213/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	267213

### Prep Batch: 267302

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-85444-1	SGWC-18	Total Recoverable	Water	3005A	
MB 180-267302/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-267302/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

### Analysis Batch: 267572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-85444-1	SGWC-18	Total Recoverable	Water	EPA 6020	267302
MB 180-267302/1-A	Method Blank	Total Recoverable	Water	EPA 6020	267302
LCS 180-267302/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	267302

## General Chemistry

### Analysis Batch: 267240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-85444-1	SGWC-18	Total/NA	Water	SM 2540C	
MB 180-267240/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-267240/1	Lab Control Sample	Total/NA	Water	SM 2540C	





TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING

ca TESTING

TE: 04JAN19  
69.80 LB  
9116/CAFE3211

PIPIENT

FedEx  
Express

SAT  
PRIORIT

edEx  
PS# 4651 0080 1293

AGCA

Uncorrected temp  
Thermometer ID

CF 10 Initials TS

PT-WI-SR-001 effective 11/8/18



180-85444 Waybill

TestAmerica

TestAmerica

ENVIRONMENTAL TESTING

SHIP DATE: 04JAN19  
ACTING: 69.80 LB  
CAD: 959116/CAFE3211

BILL RECIPIENT

878) 966-9991

ATLANTA  
3H DRIVE

GA 30093  
ATES US

PLE RECEIVING  
PITTSBURGH  
ALPHA DRIVE

PITTSBURGH PA 15238

7058

ORDER

FedEx  
Express

SATURDAY 12:00P  
PRIORITY OVERNIGHT

15238  
PA-US PIT

1 of 2  
351 0080 1282  
ITER #

AGCA

Uncorrected temp  
Thermometer ID

CF 0 Initials TS

PT-WI-SR-001 effective 11/8/18



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-85444-1

Login Number: 85444

List Number: 1

Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# ANALYTICAL DATA REPORTS PIEZOMETER

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pensacola

3355 McLemore Drive

Pensacola, FL 32514

Tel: (850)474-1001

TestAmerica Job ID: 400-162919-1

Client Project/Site: CCR - Plant Scherer

For:

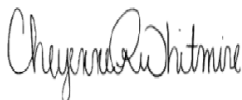
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

12/12/2018 5:15:42 PM

Cheyenne Whitmire, Project Manager II

(850)471-6222

[cheyenne.whitmire@testamericainc.com](mailto:cheyenne.whitmire@testamericainc.com)

### LINKS

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*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14

# Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Detection Summary . . . . .	4
Method Summary . . . . .	6
Sample Summary . . . . .	7
Client Sample Results . . . . .	8
Definitions . . . . .	11
Chronicle . . . . .	12
QC Association . . . . .	16
QC Sample Results . . . . .	19
Chain of Custody . . . . .	22
Receipt Checklists . . . . .	23
Certification Summary . . . . .	24



# Case Narrative

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

**Job ID: 400-162919-1**

**Laboratory: TestAmerica Pensacola**

## Narrative

### Job Narrative 400-162919-1

#### Metals

Method(s) 6020: The following sample was diluted to bring the concentration of target analytes within the calibration range: PZ-44I (29.5') (400-162919-6). Elevated reporting limits (RLs) are provided.

Method(s) 6020: The continuing calibration verification (CCV) associated with batch 422726 recovered above the upper control limit for Cobalt. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following sample is impacted: (LB 400-422409/1-B ^5).



# Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

## Client Sample ID: PZ-36S (31.5')

## Lab Sample ID: 400-162919-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Cobalt	24		0.49	0.075	mg/Kg	10		✱	6020	Total/NA
Iron	14000		25	3.9	mg/Kg	10		✱	6020	Total/NA
Manganese	330		2.5	0.62	mg/Kg	10		✱	6020	Total/NA
Iron	0.056	J	0.13	0.053	mg/L	5			6020	SPLP East

## Client Sample ID: PZ-9I (67.3')

## Lab Sample ID: 400-162919-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Cobalt	9.8		0.48	0.073	mg/Kg	10		✱	6020	Total/NA
Iron	9900		24	3.8	mg/Kg	10		✱	6020	Total/NA
Manganese	100		2.4	0.60	mg/Kg	10		✱	6020	Total/NA
Cobalt	0.0058		0.0025	0.00040	mg/L	5			6020	SPLP East
Iron - RA	7.6		0.13	0.053	mg/L	5			6020	SPLP East
Manganese - RA	0.052		0.013	0.0054	mg/L	5			6020	SPLP East

## Client Sample ID: PZ-40I (43.5')

## Lab Sample ID: 400-162919-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Cobalt	36		0.49	0.075	mg/Kg	10		✱	6020	Total/NA
Iron	29000		25	3.9	mg/Kg	10		✱	6020	Total/NA
Manganese	1300		2.5	0.62	mg/Kg	10		✱	6020	Total/NA
Cobalt	0.0052		0.0025	0.00040	mg/L	5			6020	SPLP East
Manganese - RA	0.036		0.013	0.0054	mg/L	5			6020	SPLP East

## Client Sample ID: PZ-42I (37.5')

## Lab Sample ID: 400-162919-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Cobalt	42		0.53	0.081	mg/Kg	10		✱	6020	Total/NA
Iron	45000		27	4.2	mg/Kg	10		✱	6020	Total/NA
Manganese	1100		2.7	0.67	mg/Kg	10		✱	6020	Total/NA
Cobalt	0.0011	J	0.0025	0.00040	mg/L	5			6020	SPLP East

## Client Sample ID: PZ-42I (92.0')

## Lab Sample ID: 400-162919-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Cobalt	3.5		0.49	0.074	mg/Kg	10		✱	6020	Total/NA
Iron	12000		24	3.9	mg/Kg	10		✱	6020	Total/NA
Manganese	220		2.4	0.61	mg/Kg	10		✱	6020	Total/NA
Cobalt	0.0018	J	0.0025	0.00040	mg/L	5			6020	SPLP East
Iron - RA	5.2		0.13	0.053	mg/L	5			6020	SPLP East
Manganese - RA	0.097		0.013	0.0054	mg/L	5			6020	SPLP East

## Client Sample ID: PZ-44I (29.5')

## Lab Sample ID: 400-162919-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Cobalt	94		0.54	0.081	mg/Kg	10		✱	6020	Total/NA
Iron - DL	44000		130	21	mg/Kg	50		✱	6020	Total/NA
Manganese - DL	2800		13	3.4	mg/Kg	50		✱	6020	Total/NA

## Client Sample ID: PZ-44I (51.5')

## Lab Sample ID: 400-162919-7

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Detection Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

### Client Sample ID: PZ-44I (51.5') (Continued)

### Lab Sample ID: 400-162919-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Cobalt	21		0.50	0.076	mg/Kg	10		✱	6020	Total/NA
Iron	25000		25	4.0	mg/Kg	10		✱	6020	Total/NA
Manganese	640		2.5	0.63	mg/Kg	10		✱	6020	Total/NA
Cobalt	0.00082	J	0.0025	0.00040	mg/L	5			6020	SPLP East
Iron - RA	1.8		0.13	0.053	mg/L	5			6020	SPLP East
Manganese - RA	0.035		0.013	0.0054	mg/L	5			6020	SPLP East

### Client Sample ID: PZ-44I (106')

### Lab Sample ID: 400-162919-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Cobalt	2.3		0.46	0.071	mg/Kg	10		✱	6020	Total/NA
Iron	4000		23	3.7	mg/Kg	10		✱	6020	Total/NA
Manganese	80		2.3	0.59	mg/Kg	10		✱	6020	Total/NA
Cobalt	0.00090	J	0.0025	0.00040	mg/L	5			6020	SPLP East
Iron - RA	1.6		0.13	0.053	mg/L	5			6020	SPLP East
Manganese - RA	0.025		0.013	0.0054	mg/L	5			6020	SPLP East

This Detection Summary does not include radiochemical test results.

TestAmerica Pensacola

## Method Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

Method	Method Description	Protocol	Laboratory
6020	Metals (ICP/MS)	SW846	TAL PEN
Moisture	Percent Moisture	EPA	TAL PEN
1312	SPLP Extraction	SW846	TAL PEN
3010A	Preparation, Total Metals	SW846	TAL PEN
3050B	Preparation, Metals	SW846	TAL PEN

### Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

# Sample Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
400-162919-1	PZ-36S (31.5')	Solid	11/29/18 09:00	12/04/18 09:16
400-162919-2	PZ-9I (67.3')	Solid	11/29/18 09:00	12/04/18 09:16
400-162919-3	PZ-40I (43.5')	Solid	11/29/18 09:00	12/04/18 09:16
400-162919-4	PZ-42I (37.5')	Solid	11/29/18 09:00	12/04/18 09:16
400-162919-5	PZ-42I (92.0')	Solid	11/29/18 09:00	12/04/18 09:16
400-162919-6	PZ-44I (29.5')	Solid	11/29/18 09:00	12/04/18 09:16
400-162919-7	PZ-44I (51.5')	Solid	11/29/18 09:00	12/04/18 09:16
400-162919-8	PZ-44I (106')	Solid	11/29/18 09:00	12/04/18 09:16

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

## Client Sample ID: PZ-36S (31.5')

Date Collected: 11/29/18 09:00

Date Received: 12/04/18 09:16

## Lab Sample ID: 400-162919-1

Matrix: Solid

Percent Solids: 98.7

### Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	24		0.49	0.075	mg/Kg	☼	12/06/18 10:47	12/07/18 04:25	10
Iron	14000		25	3.9	mg/Kg	☼	12/06/18 10:47	12/07/18 04:25	10
Manganese	330		2.5	0.62	mg/Kg	☼	12/06/18 10:47	12/07/18 04:25	10

### Method: 6020 - Metals (ICP/MS) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.056	J	0.13	0.053	mg/L	—	12/10/18 08:59	12/10/18 16:57	5
Manganese	<0.0054		0.013	0.0054	mg/L	—	12/10/18 08:59	12/10/18 16:57	5

### Method: 6020 - Metals (ICP/MS) - SPLP East - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.00040		0.0025	0.00040	mg/L	—	12/10/18 08:59	12/11/18 10:39	5

## Client Sample ID: PZ-9I (67.3')

Date Collected: 11/29/18 09:00

Date Received: 12/04/18 09:16

## Lab Sample ID: 400-162919-2

Matrix: Solid

Percent Solids: 99.3

### Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	9.8		0.48	0.073	mg/Kg	☼	12/06/18 10:47	12/07/18 04:43	10
Iron	9900		24	3.8	mg/Kg	☼	12/06/18 10:47	12/07/18 04:43	10
Manganese	100		2.4	0.60	mg/Kg	☼	12/06/18 10:47	12/07/18 04:43	10

### Method: 6020 - Metals (ICP/MS) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.0058		0.0025	0.00040	mg/L	—	12/10/18 08:59	12/10/18 19:09	5

### Method: 6020 - Metals (ICP/MS) - SPLP East - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	7.6		0.13	0.053	mg/L	—	12/10/18 08:59	12/11/18 10:43	5
Manganese	0.052		0.013	0.0054	mg/L	—	12/10/18 08:59	12/11/18 10:43	5

## Client Sample ID: PZ-40I (43.5')

Date Collected: 11/29/18 09:00

Date Received: 12/04/18 09:16

## Lab Sample ID: 400-162919-3

Matrix: Solid

Percent Solids: 97.4

### Method: 6020 - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	36		0.49	0.075	mg/Kg	☼	12/06/18 10:47	12/07/18 05:05	10
Iron	29000		25	3.9	mg/Kg	☼	12/06/18 10:47	12/07/18 05:05	10
Manganese	1300		2.5	0.62	mg/Kg	☼	12/06/18 10:47	12/07/18 05:05	10

### Method: 6020 - Metals (ICP/MS) - SPLP East

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.0052		0.0025	0.00040	mg/L	—	12/10/18 08:59	12/10/18 19:12	5

### Method: 6020 - Metals (ICP/MS) - SPLP East - RA

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.053		0.13	0.053	mg/L	—	12/10/18 08:59	12/11/18 10:46	5
Manganese	0.036		0.013	0.0054	mg/L	—	12/10/18 08:59	12/11/18 10:46	5

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

**Client Sample ID: PZ-42I (37.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-4**

**Matrix: Solid**

**Percent Solids: 93.8**

**Method: 6020 - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	42		0.53	0.081	mg/Kg	☼	12/06/18 10:47	12/07/18 05:08	10
Iron	45000		27	4.2	mg/Kg	☼	12/06/18 10:47	12/07/18 05:08	10
Manganese	1100		2.7	0.67	mg/Kg	☼	12/06/18 10:47	12/07/18 05:08	10

**Method: 6020 - Metals (ICP/MS) - SPLP East**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.0011	J	0.0025	0.00040	mg/L	—	12/10/18 08:59	12/10/18 19:16	5

**Method: 6020 - Metals (ICP/MS) - SPLP East - RA**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.053		0.13	0.053	mg/L	—	12/10/18 08:59	12/11/18 10:50	5
Manganese	<0.0054		0.013	0.0054	mg/L	—	12/10/18 08:59	12/11/18 10:50	5

**Client Sample ID: PZ-42I (92.0')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-5**

**Matrix: Solid**

**Percent Solids: 99.6**

**Method: 6020 - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	3.5		0.49	0.074	mg/Kg	☼	12/06/18 10:47	12/07/18 05:12	10
Iron	12000		24	3.9	mg/Kg	☼	12/06/18 10:47	12/07/18 05:12	10
Manganese	220		2.4	0.61	mg/Kg	☼	12/06/18 10:47	12/07/18 05:12	10

**Method: 6020 - Metals (ICP/MS) - SPLP East**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.0018	J	0.0025	0.00040	mg/L	—	12/10/18 08:59	12/10/18 19:19	5

**Method: 6020 - Metals (ICP/MS) - SPLP East - RA**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	5.2		0.13	0.053	mg/L	—	12/10/18 08:59	12/11/18 10:53	5
Manganese	0.097		0.013	0.0054	mg/L	—	12/10/18 08:59	12/11/18 10:53	5

**Client Sample ID: PZ-44I (29.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-6**

**Matrix: Solid**

**Percent Solids: 93.3**

**Method: 6020 - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	94		0.54	0.081	mg/Kg	☼	12/06/18 10:47	12/07/18 05:16	10

**Method: 6020 - Metals (ICP/MS) - DL**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	44000		130	21	mg/Kg	☼	12/06/18 10:47	12/07/18 12:38	50
Manganese	2800		13	3.4	mg/Kg	☼	12/06/18 10:47	12/07/18 12:38	50

**Method: 6020 - Metals (ICP/MS) - SPLP East**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.00040		0.0025	0.00040	mg/L	—	12/10/18 08:59	12/10/18 19:23	5

**Method: 6020 - Metals (ICP/MS) - SPLP East - RA**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	<0.053		0.13	0.053	mg/L	—	12/10/18 08:59	12/11/18 10:57	5

TestAmerica Pensacola

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

**Client Sample ID: PZ-44I (29.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-6**

**Matrix: Solid**

**Percent Solids: 93.3**

**Method: 6020 - Metals (ICP/MS) - SPLP East - RA (Continued)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	<0.0054		0.013	0.0054	mg/L	—	12/10/18 08:59	12/11/18 10:57	5

**Client Sample ID: PZ-44I (51.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-7**

**Matrix: Solid**

**Percent Solids: 97.5**

**Method: 6020 - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	21		0.50	0.076	mg/Kg	☼	12/06/18 10:47	12/07/18 05:19	10
Iron	25000		25	4.0	mg/Kg	☼	12/06/18 10:47	12/07/18 05:19	10
Manganese	640		2.5	0.63	mg/Kg	☼	12/06/18 10:47	12/07/18 05:19	10

**Method: 6020 - Metals (ICP/MS) - SPLP East**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00082	J	0.0025	0.00040	mg/L	—	12/10/18 08:59	12/10/18 19:26	5

**Method: 6020 - Metals (ICP/MS) - SPLP East - RA**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.8		0.13	0.053	mg/L	—	12/10/18 08:59	12/11/18 11:01	5
Manganese	0.035		0.013	0.0054	mg/L	—	12/10/18 08:59	12/11/18 11:01	5

**Client Sample ID: PZ-44I (106')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-8**

**Matrix: Solid**

**Percent Solids: 99.3**

**Method: 6020 - Metals (ICP/MS)**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	2.3		0.46	0.071	mg/Kg	☼	12/06/18 10:47	12/07/18 05:23	10
Iron	4000		23	3.7	mg/Kg	☼	12/06/18 10:47	12/07/18 05:23	10
Manganese	80		2.3	0.59	mg/Kg	☼	12/06/18 10:47	12/07/18 05:23	10

**Method: 6020 - Metals (ICP/MS) - SPLP East**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00090	J	0.0025	0.00040	mg/L	—	12/10/18 08:59	12/10/18 19:30	5

**Method: 6020 - Metals (ICP/MS) - SPLP East - RA**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.6		0.13	0.053	mg/L	—	12/10/18 08:59	12/11/18 11:04	5
Manganese	0.025		0.013	0.0054	mg/L	—	12/10/18 08:59	12/11/18 11:04	5

TestAmerica Pensacola



# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

**Client Sample ID: PZ-36S (31.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-1**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			422409	12/07/18 17:51	SLB	TAL PEN
SPLP East	Prep	3010A			422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020		5	422726	12/10/18 16:57	DRE	TAL PEN
SPLP East	Leach	1312	RA		422409	12/07/18 17:51	SLB	TAL PEN
SPLP East	Prep	3010A	RA		422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020	RA	5	422857	12/11/18 10:39	DRE	TAL PEN
Total/NA	Analysis	Moisture		1	422240	12/06/18 16:52	KRA	TAL PEN

**Client Sample ID: PZ-36S (31.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-1**

**Matrix: Solid**

**Percent Solids: 98.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			422148	12/06/18 10:47	DRE	TAL PEN
Total/NA	Analysis	6020		10	422290	12/07/18 04:25	DRE	TAL PEN

**Client Sample ID: PZ-9I (67.3')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-2**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A			422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020		5	422726	12/10/18 19:09	DRE	TAL PEN
SPLP East	Leach	1312	RA		422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A	RA		422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020	RA	5	422857	12/11/18 10:43	DRE	TAL PEN
Total/NA	Analysis	Moisture		1	422240	12/06/18 16:52	KRA	TAL PEN

**Client Sample ID: PZ-9I (67.3')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-2**

**Matrix: Solid**

**Percent Solids: 99.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			422148	12/06/18 10:47	DRE	TAL PEN
Total/NA	Analysis	6020		10	422290	12/07/18 04:43	DRE	TAL PEN

**Client Sample ID: PZ-40I (43.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-3**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			422453	12/08/18 12:34	SLB	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

**Client Sample ID: PZ-40I (43.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-3**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Prep	3010A			422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020		5	422726	12/10/18 19:12	DRE	TAL PEN
SPLP East	Leach	1312	RA		422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A	RA		422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020	RA	5	422857	12/11/18 10:46	DRE	TAL PEN
Total/NA	Analysis	Moisture		1	422240	12/06/18 16:52	KRA	TAL PEN

**Client Sample ID: PZ-40I (43.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-3**

**Matrix: Solid**

**Percent Solids: 97.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			422148	12/06/18 10:47	DRE	TAL PEN
Total/NA	Analysis	6020		10	422290	12/07/18 05:05	DRE	TAL PEN

**Client Sample ID: PZ-42I (37.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-4**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A			422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020		5	422726	12/10/18 19:16	DRE	TAL PEN
SPLP East	Leach	1312	RA		422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A	RA		422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020	RA	5	422857	12/11/18 10:50	DRE	TAL PEN
Total/NA	Analysis	Moisture		1	422240	12/06/18 16:52	KRA	TAL PEN

**Client Sample ID: PZ-42I (37.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-4**

**Matrix: Solid**

**Percent Solids: 93.8**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			422148	12/06/18 10:47	DRE	TAL PEN
Total/NA	Analysis	6020		10	422290	12/07/18 05:08	DRE	TAL PEN

**Client Sample ID: PZ-42I (92.0')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-5**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A			422517	12/10/18 08:59	DRE	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

**Client Sample ID: PZ-42I (92.0')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-5**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Analysis	6020		5	422726	12/10/18 19:19	DRE	TAL PEN
SPLP East	Leach	1312	RA		422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A	RA		422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020	RA	5	422857	12/11/18 10:53	DRE	TAL PEN
Total/NA	Analysis	Moisture		1	422240	12/06/18 16:52	KRA	TAL PEN

**Client Sample ID: PZ-42I (92.0')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-5**

**Matrix: Solid**

**Percent Solids: 99.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			422148	12/06/18 10:47	DRE	TAL PEN
Total/NA	Analysis	6020		10	422290	12/07/18 05:12	DRE	TAL PEN

**Client Sample ID: PZ-44I (29.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-6**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A			422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020		5	422726	12/10/18 19:23	DRE	TAL PEN
SPLP East	Leach	1312	RA		422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A	RA		422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020	RA	5	422857	12/11/18 10:57	DRE	TAL PEN
Total/NA	Analysis	Moisture		1	422240	12/06/18 16:52	KRA	TAL PEN

**Client Sample ID: PZ-44I (29.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-6**

**Matrix: Solid**

**Percent Solids: 93.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			422148	12/06/18 10:47	DRE	TAL PEN
Total/NA	Analysis	6020		10	422290	12/07/18 05:16	DRE	TAL PEN
Total/NA	Prep	3050B	DL		422148	12/06/18 10:47	DRE	TAL PEN
Total/NA	Analysis	6020	DL	50	422382	12/07/18 12:38	DRE	TAL PEN

**Client Sample ID: PZ-44I (51.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-7**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			422453	12/08/18 12:34	SLB	TAL PEN

TestAmerica Pensacola

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

**Client Sample ID: PZ-44I (51.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-7**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Prep	3010A			422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020		5	422726	12/10/18 19:26	DRE	TAL PEN
SPLP East	Leach	1312	RA		422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A	RA		422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020	RA	5	422857	12/11/18 11:01	DRE	TAL PEN
Total/NA	Analysis	Moisture		1	422240	12/06/18 16:52	KRA	TAL PEN

**Client Sample ID: PZ-44I (51.5')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-7**

**Matrix: Solid**

**Percent Solids: 97.5**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			422148	12/06/18 10:47	DRE	TAL PEN
Total/NA	Analysis	6020		10	422290	12/07/18 05:19	DRE	TAL PEN

**Client Sample ID: PZ-44I (106')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-8**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
SPLP East	Leach	1312			422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A			422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020		5	422726	12/10/18 19:30	DRE	TAL PEN
SPLP East	Leach	1312	RA		422453	12/08/18 12:34	SLB	TAL PEN
SPLP East	Prep	3010A	RA		422517	12/10/18 08:59	DRE	TAL PEN
SPLP East	Analysis	6020	RA	5	422857	12/11/18 11:04	DRE	TAL PEN
Total/NA	Analysis	Moisture		1	422240	12/06/18 16:52	KRA	TAL PEN

**Client Sample ID: PZ-44I (106')**

**Date Collected: 11/29/18 09:00**

**Date Received: 12/04/18 09:16**

**Lab Sample ID: 400-162919-8**

**Matrix: Solid**

**Percent Solids: 99.3**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			422148	12/06/18 10:47	DRE	TAL PEN
Total/NA	Analysis	6020		10	422290	12/07/18 05:23	DRE	TAL PEN

## Laboratory References:

TAL PEN = TestAmerica Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

## Metals

### Prep Batch: 422148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-1	PZ-36S (31.5')	Total/NA	Solid	3050B	
400-162919-2	PZ-9I (67.3')	Total/NA	Solid	3050B	
400-162919-3	PZ-40I (43.5')	Total/NA	Solid	3050B	
400-162919-4	PZ-42I (37.5')	Total/NA	Solid	3050B	
400-162919-5	PZ-42I (92.0')	Total/NA	Solid	3050B	
400-162919-6	PZ-44I (29.5')	Total/NA	Solid	3050B	
400-162919-6 - DL	PZ-44I (29.5')	Total/NA	Solid	3050B	
400-162919-7	PZ-44I (51.5')	Total/NA	Solid	3050B	
400-162919-8	PZ-44I (106')	Total/NA	Solid	3050B	
MB 400-422148/1-A ^10	Method Blank	Total/NA	Solid	3050B	
LCS 400-422148/2-A ^10	Lab Control Sample	Total/NA	Solid	3050B	
400-162919-1 MS	PZ-36S (31.5')	Total/NA	Solid	3050B	
400-162919-1 MSD	PZ-36S (31.5')	Total/NA	Solid	3050B	

### Analysis Batch: 422290

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-1	PZ-36S (31.5')	Total/NA	Solid	6020	422148
400-162919-2	PZ-9I (67.3')	Total/NA	Solid	6020	422148
400-162919-3	PZ-40I (43.5')	Total/NA	Solid	6020	422148
400-162919-4	PZ-42I (37.5')	Total/NA	Solid	6020	422148
400-162919-5	PZ-42I (92.0')	Total/NA	Solid	6020	422148
400-162919-6	PZ-44I (29.5')	Total/NA	Solid	6020	422148
400-162919-7	PZ-44I (51.5')	Total/NA	Solid	6020	422148
400-162919-8	PZ-44I (106')	Total/NA	Solid	6020	422148
MB 400-422148/1-A ^10	Method Blank	Total/NA	Solid	6020	422148
LCS 400-422148/2-A ^10	Lab Control Sample	Total/NA	Solid	6020	422148
400-162919-1 MS	PZ-36S (31.5')	Total/NA	Solid	6020	422148
400-162919-1 MSD	PZ-36S (31.5')	Total/NA	Solid	6020	422148

### Analysis Batch: 422382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-6 - DL	PZ-44I (29.5')	Total/NA	Solid	6020	422148

### Leach Batch: 422409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-1	PZ-36S (31.5')	SPLP East	Solid	1312	
400-162919-1 - RA	PZ-36S (31.5')	SPLP East	Solid	1312	
LB 400-422409/1-B ^5	Method Blank	SPLP East	Solid	1312	
LB 400-422409/1-B ^5 - RA	Method Blank	SPLP East	Solid	1312	
400-160641-E-5-C MS ^5	Matrix Spike	SPLP East	Solid	1312	
400-160641-E-5-D MSD ^5	Matrix Spike Duplicate	SPLP East	Solid	1312	

### Leach Batch: 422452

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB 400-422452/1-C ^5	Method Blank	SPLP East	Solid	1311	
400-163121-I-3-D MS ^5	Matrix Spike	TCLP	Solid	1311	
400-163121-I-3-E MSD ^5	Matrix Spike Duplicate	TCLP	Solid	1311	

### Leach Batch: 422453

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-2	PZ-9I (67.3')	SPLP East	Solid	1312	

TestAmerica Pensacola

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

## Metals (Continued)

### Leach Batch: 422453 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-2 - RA	PZ-9I (67.3')	SPLP East	Solid	1312	
400-162919-3 - RA	PZ-40I (43.5')	SPLP East	Solid	1312	
400-162919-3	PZ-40I (43.5')	SPLP East	Solid	1312	
400-162919-4	PZ-42I (37.5')	SPLP East	Solid	1312	
400-162919-4 - RA	PZ-42I (37.5')	SPLP East	Solid	1312	
400-162919-5	PZ-42I (92.0')	SPLP East	Solid	1312	
400-162919-5 - RA	PZ-42I (92.0')	SPLP East	Solid	1312	
400-162919-6	PZ-44I (29.5')	SPLP East	Solid	1312	
400-162919-6 - RA	PZ-44I (29.5')	SPLP East	Solid	1312	
400-162919-7 - RA	PZ-44I (51.5')	SPLP East	Solid	1312	
400-162919-7	PZ-44I (51.5')	SPLP East	Solid	1312	
400-162919-8	PZ-44I (106')	SPLP East	Solid	1312	
400-162919-8 - RA	PZ-44I (106')	SPLP East	Solid	1312	
LB 400-422453/1-B ^5 - RA	Method Blank	SPLP East	Solid	1312	
LB 400-422453/1-B ^5	Method Blank	SPLP East	Solid	1312	

### Prep Batch: 422517

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-1	PZ-36S (31.5')	SPLP East	Solid	3010A	422409
400-162919-1 - RA	PZ-36S (31.5')	SPLP East	Solid	3010A	422409
400-162919-2	PZ-9I (67.3')	SPLP East	Solid	3010A	422453
400-162919-2 - RA	PZ-9I (67.3')	SPLP East	Solid	3010A	422453
400-162919-3	PZ-40I (43.5')	SPLP East	Solid	3010A	422453
400-162919-3 - RA	PZ-40I (43.5')	SPLP East	Solid	3010A	422453
400-162919-4	PZ-42I (37.5')	SPLP East	Solid	3010A	422453
400-162919-4 - RA	PZ-42I (37.5')	SPLP East	Solid	3010A	422453
400-162919-5	PZ-42I (92.0')	SPLP East	Solid	3010A	422453
400-162919-5 - RA	PZ-42I (92.0')	SPLP East	Solid	3010A	422453
400-162919-6 - RA	PZ-44I (29.5')	SPLP East	Solid	3010A	422453
400-162919-6	PZ-44I (29.5')	SPLP East	Solid	3010A	422453
400-162919-7	PZ-44I (51.5')	SPLP East	Solid	3010A	422453
400-162919-7 - RA	PZ-44I (51.5')	SPLP East	Solid	3010A	422453
400-162919-8	PZ-44I (106')	SPLP East	Solid	3010A	422453
400-162919-8 - RA	PZ-44I (106')	SPLP East	Solid	3010A	422453
LB 400-422409/1-B ^5	Method Blank	SPLP East	Solid	3010A	422409
LB 400-422409/1-B ^5 - RA	Method Blank	SPLP East	Solid	3010A	422409
LB 400-422452/1-C ^5	Method Blank	SPLP East	Solid	3010A	422452
LB 400-422453/1-B ^5 - RA	Method Blank	SPLP East	Solid	3010A	422453
LB 400-422453/1-B ^5	Method Blank	SPLP East	Solid	3010A	422453
LCS 400-422517/20-A ^5	Lab Control Sample	Total/NA	Solid	3010A	
LCS 400-422517/2-A ^5 - RA	Lab Control Sample	Total/NA	Solid	3010A	
LCS 400-422517/2-A ^5	Lab Control Sample	Total/NA	Solid	3010A	
400-160641-E-5-C MS ^5	Matrix Spike	SPLP East	Solid	3010A	422409
400-160641-E-5-D MSD ^5	Matrix Spike Duplicate	SPLP East	Solid	3010A	422409
400-163121-I-3-D MS ^5	Matrix Spike	TCLP	Solid	3010A	422452
400-163121-I-3-E MSD ^5	Matrix Spike Duplicate	TCLP	Solid	3010A	422452

### Analysis Batch: 422726

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-1	PZ-36S (31.5')	SPLP East	Solid	6020	422517
400-162919-2	PZ-9I (67.3')	SPLP East	Solid	6020	422517

TestAmerica Pensacola



# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

## Metals (Continued)

### Analysis Batch: 422726 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-3	PZ-40I (43.5')	SPLP East	Solid	6020	422517
400-162919-4	PZ-42I (37.5')	SPLP East	Solid	6020	422517
400-162919-5	PZ-42I (92.0')	SPLP East	Solid	6020	422517
400-162919-6	PZ-44I (29.5')	SPLP East	Solid	6020	422517
400-162919-7	PZ-44I (51.5')	SPLP East	Solid	6020	422517
400-162919-8	PZ-44I (106')	SPLP East	Solid	6020	422517
LB 400-422409/1-B ^5	Method Blank	SPLP East	Solid	6020	422517
LB 400-422452/1-C ^5	Method Blank	SPLP East	Solid	6020	422517
LB 400-422453/1-B ^5	Method Blank	SPLP East	Solid	6020	422517
LCS 400-422517/20-A ^5	Lab Control Sample	Total/NA	Solid	6020	422517
LCS 400-422517/2-A ^5	Lab Control Sample	Total/NA	Solid	6020	422517
400-160641-E-5-C MS ^5	Matrix Spike	SPLP East	Solid	6020	422517
400-160641-E-5-D MSD ^5	Matrix Spike Duplicate	SPLP East	Solid	6020	422517
400-163121-I-3-D MS ^5	Matrix Spike	TCLP	Solid	6020	422517
400-163121-I-3-E MSD ^5	Matrix Spike Duplicate	TCLP	Solid	6020	422517

### Analysis Batch: 422857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-1 - RA	PZ-36S (31.5')	SPLP East	Solid	6020	422517
400-162919-2 - RA	PZ-9I (67.3')	SPLP East	Solid	6020	422517
400-162919-3 - RA	PZ-40I (43.5')	SPLP East	Solid	6020	422517
400-162919-4 - RA	PZ-42I (37.5')	SPLP East	Solid	6020	422517
400-162919-5 - RA	PZ-42I (92.0')	SPLP East	Solid	6020	422517
400-162919-6 - RA	PZ-44I (29.5')	SPLP East	Solid	6020	422517
400-162919-7 - RA	PZ-44I (51.5')	SPLP East	Solid	6020	422517
400-162919-8 - RA	PZ-44I (106')	SPLP East	Solid	6020	422517
LB 400-422409/1-B ^5 - RA	Method Blank	SPLP East	Solid	6020	422517
LB 400-422453/1-B ^5 - RA	Method Blank	SPLP East	Solid	6020	422517
LCS 400-422517/2-A ^5 - RA	Lab Control Sample	Total/NA	Solid	6020	422517

## General Chemistry

### Analysis Batch: 422240

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
400-162919-1	PZ-36S (31.5')	Total/NA	Solid	Moisture	
400-162919-2	PZ-9I (67.3')	Total/NA	Solid	Moisture	
400-162919-3	PZ-40I (43.5')	Total/NA	Solid	Moisture	
400-162919-4	PZ-42I (37.5')	Total/NA	Solid	Moisture	
400-162919-5	PZ-42I (92.0')	Total/NA	Solid	Moisture	
400-162919-6	PZ-44I (29.5')	Total/NA	Solid	Moisture	
400-162919-7	PZ-44I (51.5')	Total/NA	Solid	Moisture	
400-162919-8	PZ-44I (106')	Total/NA	Solid	Moisture	
400-162919-8 DU	PZ-44I (106')	Total/NA	Solid	Moisture	

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

## Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-422148/1-A ^10

Matrix: Solid

Analysis Batch: 422290

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 422148

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.074		0.49	0.074	mg/Kg		12/06/18 10:47	12/07/18 04:18	10
Iron	<3.9		24	3.9	mg/Kg		12/06/18 10:47	12/07/18 04:18	10
Manganese	<0.61		2.4	0.61	mg/Kg		12/06/18 10:47	12/07/18 04:18	10

Lab Sample ID: LCS 400-422148/2-A ^10

Matrix: Solid

Analysis Batch: 422290

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 422148

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	9.45	10.6		mg/Kg		113	80 - 120
Iron	945	965		mg/Kg		102	80 - 120
Manganese	94.5	106		mg/Kg		112	80 - 120

Lab Sample ID: 400-162919-1 MS

Matrix: Solid

Analysis Batch: 422290

Client Sample ID: PZ-36S (31.5')

Prep Type: Total/NA

Prep Batch: 422148

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	24		4.96	28.2	4	mg/Kg	☼	76	75 - 125
Iron	14000		496	14900	4	mg/Kg	☼	110	75 - 125
Manganese	330		49.6	350	4	mg/Kg	☼	49	75 - 125

Lab Sample ID: 400-162919-1 MSD

Matrix: Solid

Analysis Batch: 422290

Client Sample ID: PZ-36S (31.5')

Prep Type: Total/NA

Prep Batch: 422148

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Cobalt	24		5.01	32.2	4	mg/Kg	☼	156	75 - 125	13	20
Iron	14000		501	16000	4	mg/Kg	☼	320	75 - 125	7	20
Manganese	330		50.1	406	4	mg/Kg	☼	160	75 - 125	15	20

Lab Sample ID: LCS 400-422517/20-A ^5

Matrix: Solid

Analysis Batch: 422726

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 422517

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	2.50	2.61		mg/L		104	80 - 120

Lab Sample ID: LCS 400-422517/2-A ^5

Matrix: Solid

Analysis Batch: 422726

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 422517

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	5.35		mg/L		107	80 - 120
Manganese	0.500	0.535		mg/L		107	80 - 120

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-163121-I-3-D MS ^5

Matrix: Solid

Analysis Batch: 422726

Client Sample ID: Matrix Spike

Prep Type: TCLP

Prep Batch: 422517

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	0.044	^	0.250	0.333	^	mg/L		116	75 - 125
Iron	7.1		25.0	32.1		mg/L		100	75 - 125
Manganese	1.4		2.50	3.97		mg/L		104	75 - 125

Lab Sample ID: 400-163121-I-3-E MSD ^5

Matrix: Solid

Analysis Batch: 422726

Client Sample ID: Matrix Spike Duplicate

Prep Type: TCLP

Prep Batch: 422517

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cobalt	0.044	^	0.250	0.340	^	mg/L		119	75 - 125	2	20
Iron	7.1		25.0	31.8		mg/L		99	75 - 125	1	20
Manganese	1.4		2.50	3.94		mg/L		103	75 - 125	1	20

Lab Sample ID: LB 400-422409/1-B ^5

Matrix: Solid

Analysis Batch: 422726

Client Sample ID: Method Blank

Prep Type: SPLP East

Prep Batch: 422517

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.00040	^	0.0025	0.00040	mg/L		12/10/18 08:59	12/10/18 16:50	5
Iron	<0.053		0.13	0.053	mg/L		12/10/18 08:59	12/10/18 16:50	5
Manganese	<0.0054		0.013	0.0054	mg/L		12/10/18 08:59	12/10/18 16:50	5

Lab Sample ID: LB 400-422452/1-C ^5

Matrix: Solid

Analysis Batch: 422726

Client Sample ID: Method Blank

Prep Type: SPLP East

Prep Batch: 422517

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.0020	^	0.013	0.0020	mg/L		12/10/18 08:59	12/10/18 18:04	5

Lab Sample ID: LB 400-422453/1-B ^5

Matrix: Solid

Analysis Batch: 422726

Client Sample ID: Method Blank

Prep Type: SPLP East

Prep Batch: 422517

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.00040		0.0025	0.00040	mg/L		12/10/18 08:59	12/10/18 19:05	5

Lab Sample ID: 400-160641-E-5-C MS ^5

Matrix: Solid

Analysis Batch: 422726

Client Sample ID: Matrix Spike

Prep Type: SPLP East

Prep Batch: 422517

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	0.010	^	0.0500	0.0689	^	mg/L		117	75 - 125
Iron	3.5		5.00	8.92		mg/L		109	75 - 125
Manganese	8.5		0.500	8.97	4	mg/L		96	75 - 125

TestAmerica Pensacola

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 400-160641-E-5-D MSD ^5

Matrix: Solid

Analysis Batch: 422726

Client Sample ID: Matrix Spike Duplicate

Prep Type: SPLP East

Prep Batch: 422517

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cobalt	0.010	^	0.0500	0.0674	^	mg/L		114	75 - 125	2	20
Iron	3.5		5.00	8.41		mg/L		99	75 - 125	6	20
Manganese	8.5		0.500	8.73	4	mg/L		49	75 - 125	3	20

## Method: 6020 - Metals (ICP/MS) - RA

Lab Sample ID: LCS 400-422517/2-A ^5

Matrix: Solid

Analysis Batch: 422857

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 422517

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt - RA	0.0500	0.0494		mg/L		99	80 - 120
Iron - RA	5.00	5.29		mg/L		106	80 - 120
Manganese - RA	0.500	0.504		mg/L		101	80 - 120

Lab Sample ID: LB 400-422409/1-B ^5

Matrix: Solid

Analysis Batch: 422857

Client Sample ID: Method Blank

Prep Type: SPLP East

Prep Batch: 422517

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt - RA	<0.00040		0.0025	0.00040	mg/L		12/10/18 08:59	12/11/18 13:36	5
Iron - RA	<0.053		0.13	0.053	mg/L		12/10/18 08:59	12/11/18 13:36	5
Manganese - RA	<0.0054		0.013	0.0054	mg/L		12/10/18 08:59	12/11/18 13:36	5

Lab Sample ID: LB 400-422453/1-B ^5

Matrix: Solid

Analysis Batch: 422857

Client Sample ID: Method Blank

Prep Type: SPLP East

Prep Batch: 422517

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt - RA	<0.00040		0.0025	0.00040	mg/L		12/10/18 08:59	12/11/18 10:32	5
Iron - RA	<0.053		0.13	0.053	mg/L		12/10/18 08:59	12/11/18 10:32	5
Manganese - RA	<0.0054		0.013	0.0054	mg/L		12/10/18 08:59	12/11/18 10:32	5

TestAmerica Pensacola



Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

<b>Client Contact</b> Company Name: <u>Goldor Associates</u> Address: <u>27200 Haggerty Ave B12</u> City/State/Zip: <u>Farmington Hills MI 48331</u> Phone: <u>248.214.6971</u> Fax: _____ Project Name: <u>GRC Plant Scherer</u> Site: _____ P O # _____		<b>Project Manager:</b> <u>Cheyenne Whitman</u> Tel/Fax: <u>850 471 8222</u>		<b>Site Contact:</b> _____ Lab Contact: <u>Cheyenne</u>		<b>Date:</b> _____ <b>Carrier:</b> _____		<b>COC No:</b> _____ of _____ COCs									
<b>Analysis Turnaround Time</b> <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input type="checkbox"/> 2 weeks <input checked="" type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		<b>Sample Date</b> 11/29/18 9 am 11/29/18 9 am 11/29/18 9 am 11/29/18 9 am 11/29/18 9 am 11/29/18 9 am 11/29/18 9 am 11/29/18 9 am		<b>Sample Time</b> 9 am 9 am 9 am 9 am 9 am 9 am 9 am 9 am		<b>Sample Type</b> G G G G G G G G		<b>Matrix</b> S S S S S S S S		<b># of Cont.</b> 1 1 1 1 1 1 1 1		<b>Filtered Sample (Y/N)</b> / / / / / / / /		<b>Perform MS / MSD (Y/N)</b> / / / / / / /		<b>Sample Specific Notes:</b> 400-162919 COC SPAP (Co, Fe, Mn)	
<b>Sample Identification</b> PZ-365 (31.5') PZ-91 (67.3') PZ-401 (43.5') PZ-421 (37.5') PZ-421 (92.0') PZ-441 (29.5') PZ-441 (51.5') PZ-441 (100')																	
<b>Preservation Used:</b> 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other _____ <b>Possible Hazard Identification:</b> Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown																	
<b>Special Instructions/QC Requirements &amp; Comments:</b> Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input checked="" type="checkbox"/> Archive for _____ Months <u>1</u> then inquire before disposal																	
<b>Custody Seals Intact:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No Relinquished by: <u>Sam L. Pull</u> Relinquished by: <u>Dayna Kent</u> Relinquished by: <u>Sam Harlin</u>																	
<b>Received by:</b> <u>Dayna Kent</u> Company: <u>Goldor</u> Date/Time: <u>12/20/18 1400</u> <b>Received by:</b> <u>Sam Harlin</u> Company: <u>TAL</u> Date/Time: <u>12/3/18 930</u> <b>Received in Laboratory by:</b> <u>TAL</u> Company: <u>TAL</u> Date/Time: <u>12/4/18 0914</u>																	

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 400-162919-1

Login Number: 162919

List Number: 1

Creator: Perez, Trina M

List Source: TestAmerica Pensacola

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.0°C IR-8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

## Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 400-162919-1

### Laboratory: TestAmerica Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	12-31-18
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-18
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA180023	12-31-18
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-18
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-19
Rhode Island	State Program	1	LAO00307	12-30-18
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	06-30-19



## APPENDIX B

# Statistical Analyses

## APPENDIX III PREDICTION LIMIT ANALYSES JUNE 2018

# Prediction Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 1:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	SGWC-10	0.0109	n/a	6/6/2018	0.07	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-11	0.0109	n/a	6/6/2018	0.37	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-13	0.0109	n/a	6/7/2018	0.45	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-14	0.0109	n/a	6/7/2018	1.6	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-15	0.0109	n/a	6/7/2018	1.7	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-16	0.0109	n/a	6/7/2018	0.59	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-17	0.0109	n/a	6/7/2018	0.35	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-18	0.0109	n/a	6/8/2018	4.3	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-19	0.0109	n/a	6/8/2018	1.8	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-20	0.0109	n/a	6/7/2018	2.1	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-21	0.0109	n/a	6/7/2018	1.4	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-22	0.0109	n/a	6/7/2018	0.41	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-23	0.0109	n/a	6/7/2018	0.71	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-8	0.0109	n/a	6/6/2018	0.059	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-9	0.0109	n/a	6/6/2018	1.8	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Calcium (mg/L)	SGWC-12	19	n/a	6/6/2018	22	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-14	19	n/a	6/7/2018	44	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-17	19	n/a	6/7/2018	49	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-18	19	n/a	6/8/2018	90	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-19	19	n/a	6/8/2018	37	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-21	19	n/a	6/7/2018	29	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-22	19	n/a	6/7/2018	26	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-23	19	n/a	6/7/2018	25	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-8	19	n/a	6/6/2018	51	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-9	19	n/a	6/6/2018	54	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Chloride (mg/L)	SGWC-10	3.186	n/a	6/6/2018	8.6	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-11	3.186	n/a	6/6/2018	7.5	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-12	3.186	n/a	6/6/2018	8.8	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-13	3.186	n/a	6/7/2018	6.2	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-14	3.186	n/a	6/7/2018	10	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-15	3.186	n/a	6/7/2018	9.3	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-16	3.186	n/a	6/7/2018	7.7	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-17	3.186	n/a	6/7/2018	8	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-18	3.186	n/a	6/8/2018	9	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-19	3.186	n/a	6/8/2018	7.2	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-20	3.186	n/a	6/7/2018	9.9	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-21	3.186	n/a	6/7/2018	8.6	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-22	3.186	n/a	6/7/2018	10	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-23	3.186	n/a	6/7/2018	10	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-7	3.186	n/a	6/6/2018	4.6	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-8	3.186	n/a	6/6/2018	11	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-9	3.186	n/a	6/6/2018	12	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Fluoride (mg/L)	SGWC-20	0.108	n/a	6/7/2018	0.21	Yes	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-7	0.108	n/a	6/6/2018	0.2	Yes	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-8	0.108	n/a	6/6/2018	0.4	Yes	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
pH (S.U.)	SGWC-15	7.096	4.978	6/7/2018	4.62	Yes	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-18	7.096	4.978	6/8/2018	4.69	Yes	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-20	7.096	4.978	6/7/2018	4.26	Yes	68	0	No	0.000209	Param Inter 1 of 2
Sulfate (mg/L)	SGWC-12	3.75	n/a	6/6/2018	41	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-13	3.75	n/a	6/7/2018	69	Yes	70	50	n/a	0.000...	NP Inter (normality) ...

# Prediction Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 1:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Sulfate (mg/L)	SGWC-14	3.75	n/a	6/7/2018	190	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-15	3.75	n/a	6/7/2018	190	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-16	3.75	n/a	6/7/2018	25	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-17	3.75	n/a	6/7/2018	170	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-18	3.75	n/a	6/8/2018	870	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-19	3.75	n/a	6/8/2018	220	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-20	3.75	n/a	6/7/2018	210	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-21	3.75	n/a	6/7/2018	79	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-22	3.75	n/a	6/7/2018	94	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-23	3.75	n/a	6/7/2018	100	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-7	3.75	n/a	6/6/2018	14	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-8	3.75	n/a	6/6/2018	74	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-9	3.75	n/a	6/6/2018	320	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Total Dissolved Solids (mg/L)	SGWC-12	141.6	n/a	6/6/2018	260	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-13	141.6	n/a	6/7/2018	190	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-14	141.6	n/a	6/7/2018	340	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-15	141.6	n/a	6/7/2018	310	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-17	141.6	n/a	6/7/2018	360	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-18	141.6	n/a	6/8/2018	820	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-19	141.6	n/a	6/8/2018	320	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-20	141.6	n/a	6/7/2018	320	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-21	141.6	n/a	6/7/2018	260	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-22	141.6	n/a	6/7/2018	210	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-23	141.6	n/a	6/7/2018	220	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-7	141.6	n/a	6/6/2018	210	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-8	141.6	n/a	6/6/2018	410	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-9	141.6	n/a	6/6/2018	590	Yes	70	2.857	No	0.000418	Param Inter 1 of 2

# Prediction Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 1:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	SGWC-10	0.0109	n/a	6/6/2018	0.07	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-11	0.0109	n/a	6/6/2018	0.37	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-12	0.0109	n/a	6/6/2018	0.0105ND	No	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-13	0.0109	n/a	6/7/2018	0.45	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-14	0.0109	n/a	6/7/2018	1.6	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-15	0.0109	n/a	6/7/2018	1.7	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-16	0.0109	n/a	6/7/2018	0.59	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-17	0.0109	n/a	6/7/2018	0.35	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-18	0.0109	n/a	6/8/2018	4.3	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-19	0.0109	n/a	6/8/2018	1.8	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-20	0.0109	n/a	6/7/2018	2.1	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-21	0.0109	n/a	6/7/2018	1.4	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-22	0.0109	n/a	6/7/2018	0.41	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-23	0.0109	n/a	6/7/2018	0.71	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-6	0.0109	n/a	6/6/2018	0.0105ND	No	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-7	0.0109	n/a	6/6/2018	0.0105ND	No	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-8	0.0109	n/a	6/6/2018	0.059	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-9	0.0109	n/a	6/6/2018	1.8	Yes	70	95.71	n/a	0.000...	NP Inter (NDs) 1 of 2
Calcium (mg/L)	SGWC-10	19	n/a	6/6/2018	1.2	No	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-11	19	n/a	6/6/2018	1.8	No	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-12	19	n/a	6/6/2018	22	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-13	19	n/a	6/7/2018	15	No	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-14	19	n/a	6/7/2018	44	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-15	19	n/a	6/7/2018	16	No	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-16	19	n/a	6/7/2018	0.84	No	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-17	19	n/a	6/7/2018	49	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-18	19	n/a	6/8/2018	90	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-19	19	n/a	6/8/2018	37	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-20	19	n/a	6/7/2018	11	No	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-21	19	n/a	6/7/2018	29	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-22	19	n/a	6/7/2018	26	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-23	19	n/a	6/7/2018	25	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-6	19	n/a	6/6/2018	4.2	No	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-7	19	n/a	6/6/2018	19	No	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-8	19	n/a	6/6/2018	51	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Calcium (mg/L)	SGWC-9	19	n/a	6/6/2018	54	Yes	67	0	n/a	0.000...	NP Inter (normality) ...
Chloride (mg/L)	SGWC-10	3.186	n/a	6/6/2018	8.6	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-11	3.186	n/a	6/6/2018	7.5	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-12	3.186	n/a	6/6/2018	8.8	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-13	3.186	n/a	6/7/2018	6.2	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-14	3.186	n/a	6/7/2018	10	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-15	3.186	n/a	6/7/2018	9.3	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-16	3.186	n/a	6/7/2018	7.7	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-17	3.186	n/a	6/7/2018	8	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-18	3.186	n/a	6/8/2018	9	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-19	3.186	n/a	6/8/2018	7.2	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-20	3.186	n/a	6/7/2018	9.9	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-21	3.186	n/a	6/7/2018	8.6	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-22	3.186	n/a	6/7/2018	10	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-23	3.186	n/a	6/7/2018	10	Yes	68	0	x^(1/3)	0.000418	Param Inter 1 of 2

# Prediction Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 1:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Chloride (mg/L)	SGWC-6	3.186	n/a	6/6/2018	1.3	No	68	0	x^(1/3)	0.000418	Param Inter 1 of 2
<b>Chloride (mg/L)</b>	<b>SGWC-7</b>	<b>3.186</b>	<b>n/a</b>	<b>6/6/2018</b>	<b>4.6</b>	<b>Yes</b>	<b>68</b>	<b>0</b>	<b>x^(1/3)</b>	<b>0.000418</b>	<b>Param Inter 1 of 2</b>
<b>Chloride (mg/L)</b>	<b>SGWC-8</b>	<b>3.186</b>	<b>n/a</b>	<b>6/6/2018</b>	<b>11</b>	<b>Yes</b>	<b>68</b>	<b>0</b>	<b>x^(1/3)</b>	<b>0.000418</b>	<b>Param Inter 1 of 2</b>
<b>Chloride (mg/L)</b>	<b>SGWC-9</b>	<b>3.186</b>	<b>n/a</b>	<b>6/6/2018</b>	<b>12</b>	<b>Yes</b>	<b>68</b>	<b>0</b>	<b>x^(1/3)</b>	<b>0.000418</b>	<b>Param Inter 1 of 2</b>
Fluoride (mg/L)	SGWC-10	0.108	n/a	6/6/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-11	0.108	n/a	6/6/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-12	0.108	n/a	6/6/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-13	0.108	n/a	6/7/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-14	0.108	n/a	6/7/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-15	0.108	n/a	6/7/2018	0.14	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-16	0.108	n/a	6/7/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-17	0.108	n/a	6/7/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-18	0.108	n/a	6/8/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-19	0.108	n/a	6/8/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
<b>Fluoride (mg/L)</b>	<b>SGWC-20</b>	<b>0.108</b>	<b>n/a</b>	<b>6/7/2018</b>	<b>0.21</b>	<b>Yes</b>	<b>77</b>	<b>83.12</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
Fluoride (mg/L)	SGWC-21	0.108	n/a	6/7/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-22	0.108	n/a	6/7/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-23	0.108	n/a	6/7/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-6	0.108	n/a	6/6/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
<b>Fluoride (mg/L)</b>	<b>SGWC-7</b>	<b>0.108</b>	<b>n/a</b>	<b>6/6/2018</b>	<b>0.2</b>	<b>Yes</b>	<b>77</b>	<b>83.12</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
<b>Fluoride (mg/L)</b>	<b>SGWC-8</b>	<b>0.108</b>	<b>n/a</b>	<b>6/6/2018</b>	<b>0.4</b>	<b>Yes</b>	<b>77</b>	<b>83.12</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
Fluoride (mg/L)	SGWC-9	0.108	n/a	6/6/2018	0.041ND	No	77	83.12	n/a	0.000...	NP Inter (NDs) 1 of 2
pH (S.U.)	SGWC-10	7.096	4.978	6/6/2018	5.43	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-11	7.096	4.978	6/6/2018	5.32	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-12	7.096	4.978	6/6/2018	6.1	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-13	7.096	4.978	6/7/2018	5.93	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-14	7.096	4.978	6/7/2018	5.81	No	68	0	No	0.000209	Param Inter 1 of 2
<b>pH (S.U.)</b>	<b>SGWC-15</b>	<b>7.096</b>	<b>4.978</b>	<b>6/7/2018</b>	<b>4.62</b>	<b>Yes</b>	<b>68</b>	<b>0</b>	<b>No</b>	<b>0.000209</b>	<b>Param Inter 1 of 2</b>
pH (S.U.)	SGWC-16	7.096	4.978	6/7/2018	5.26	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-17	7.096	4.978	6/7/2018	6.21	No	68	0	No	0.000209	Param Inter 1 of 2
<b>pH (S.U.)</b>	<b>SGWC-18</b>	<b>7.096</b>	<b>4.978</b>	<b>6/8/2018</b>	<b>4.69</b>	<b>Yes</b>	<b>68</b>	<b>0</b>	<b>No</b>	<b>0.000209</b>	<b>Param Inter 1 of 2</b>
pH (S.U.)	SGWC-19	7.096	4.978	6/8/2018	5.52	No	68	0	No	0.000209	Param Inter 1 of 2
<b>pH (S.U.)</b>	<b>SGWC-20</b>	<b>7.096</b>	<b>4.978</b>	<b>6/7/2018</b>	<b>4.26</b>	<b>Yes</b>	<b>68</b>	<b>0</b>	<b>No</b>	<b>0.000209</b>	<b>Param Inter 1 of 2</b>
pH (S.U.)	SGWC-21	7.096	4.978	6/7/2018	6.1	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-22	7.096	4.978	6/7/2018	5.66	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-23	7.096	4.978	6/7/2018	5.97	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-6	7.096	4.978	6/6/2018	5.99	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-7	7.096	4.978	6/6/2018	6.56	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-8	7.096	4.978	6/6/2018	6.42	No	68	0	No	0.000209	Param Inter 1 of 2
pH (S.U.)	SGWC-9	7.096	4.978	6/6/2018	6.12	No	68	0	No	0.000209	Param Inter 1 of 2
Sulfate (mg/L)	SGWC-10	3.75	n/a	6/6/2018	2.9	No	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-11	3.75	n/a	6/6/2018	0.89	No	70	50	n/a	0.000...	NP Inter (normality) ...
<b>Sulfate (mg/L)</b>	<b>SGWC-12</b>	<b>3.75</b>	<b>n/a</b>	<b>6/6/2018</b>	<b>41</b>	<b>Yes</b>	<b>70</b>	<b>50</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (normality) ...</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-13</b>	<b>3.75</b>	<b>n/a</b>	<b>6/7/2018</b>	<b>69</b>	<b>Yes</b>	<b>70</b>	<b>50</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (normality) ...</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-14</b>	<b>3.75</b>	<b>n/a</b>	<b>6/7/2018</b>	<b>190</b>	<b>Yes</b>	<b>70</b>	<b>50</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (normality) ...</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-15</b>	<b>3.75</b>	<b>n/a</b>	<b>6/7/2018</b>	<b>190</b>	<b>Yes</b>	<b>70</b>	<b>50</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (normality) ...</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-16</b>	<b>3.75</b>	<b>n/a</b>	<b>6/7/2018</b>	<b>25</b>	<b>Yes</b>	<b>70</b>	<b>50</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (normality) ...</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-17</b>	<b>3.75</b>	<b>n/a</b>	<b>6/7/2018</b>	<b>170</b>	<b>Yes</b>	<b>70</b>	<b>50</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (normality) ...</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-18</b>	<b>3.75</b>	<b>n/a</b>	<b>6/8/2018</b>	<b>870</b>	<b>Yes</b>	<b>70</b>	<b>50</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (normality) ...</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-19</b>	<b>3.75</b>	<b>n/a</b>	<b>6/8/2018</b>	<b>220</b>	<b>Yes</b>	<b>70</b>	<b>50</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (normality) ...</b>

# Prediction Limit

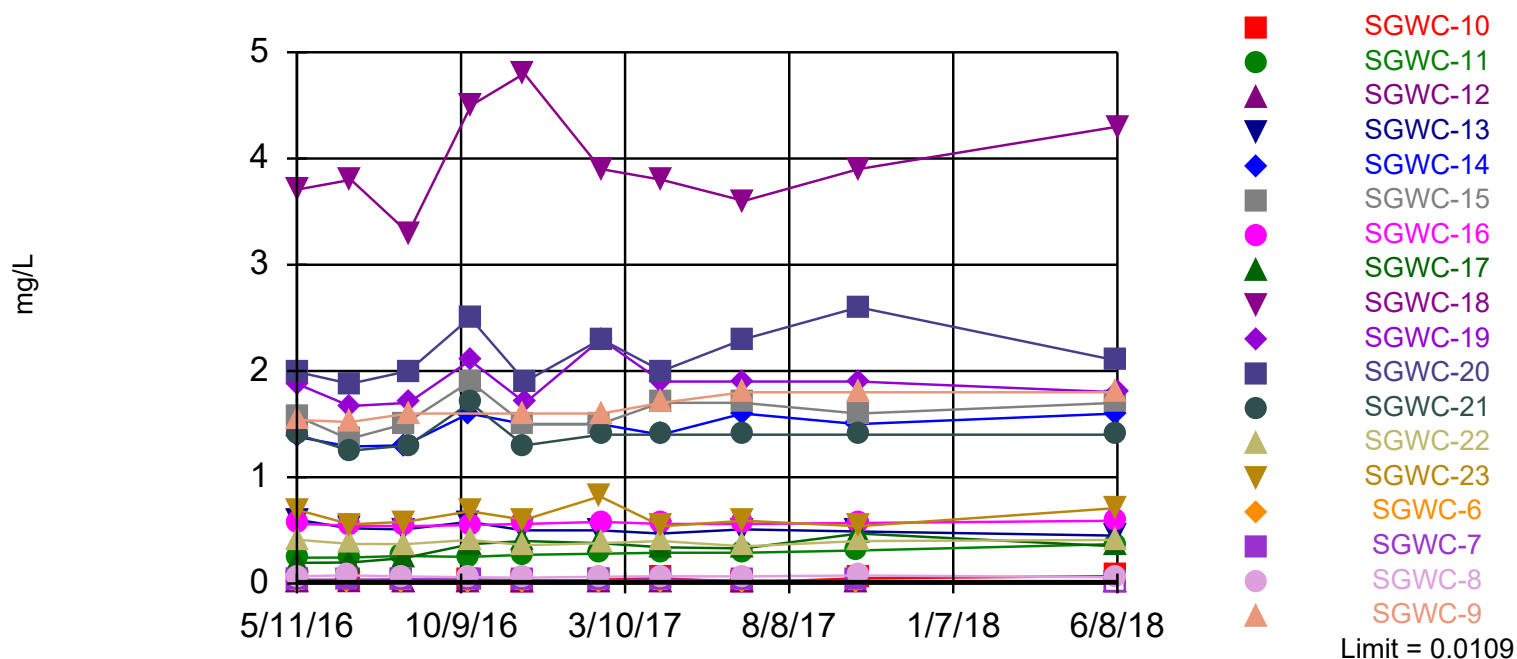
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 1:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Sulfate (mg/L)	SGWC-20	3.75	n/a	6/7/2018	210	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-21	3.75	n/a	6/7/2018	79	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-22	3.75	n/a	6/7/2018	94	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-23	3.75	n/a	6/7/2018	100	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-6	3.75	n/a	6/6/2018	0.35ND	No	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-7	3.75	n/a	6/6/2018	14	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-8	3.75	n/a	6/6/2018	74	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-9	3.75	n/a	6/6/2018	320	Yes	70	50	n/a	0.000...	NP Inter (normality) ...
Total Dissolved Solids (mg/L)	SGWC-10	141.6	n/a	6/6/2018	50ND	No	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-11	141.6	n/a	6/6/2018	50ND	No	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-12	141.6	n/a	6/6/2018	260	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-13	141.6	n/a	6/7/2018	190	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-14	141.6	n/a	6/7/2018	340	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-15	141.6	n/a	6/7/2018	310	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-16	141.6	n/a	6/7/2018	74	No	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-17	141.6	n/a	6/7/2018	360	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-18	141.6	n/a	6/8/2018	820	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-19	141.6	n/a	6/8/2018	320	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-20	141.6	n/a	6/7/2018	320	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-21	141.6	n/a	6/7/2018	260	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-22	141.6	n/a	6/7/2018	210	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-23	141.6	n/a	6/7/2018	220	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-6	141.6	n/a	6/6/2018	50ND	No	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-7	141.6	n/a	6/6/2018	210	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-8	141.6	n/a	6/6/2018	410	Yes	70	2.857	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-9	141.6	n/a	6/6/2018	590	Yes	70	2.857	No	0.000418	Param Inter 1 of 2



Exceeds Limit: SGWC-10, SGWC-11,  
SGWC-13, SGWC-14, SGWC-15, SGWC-16

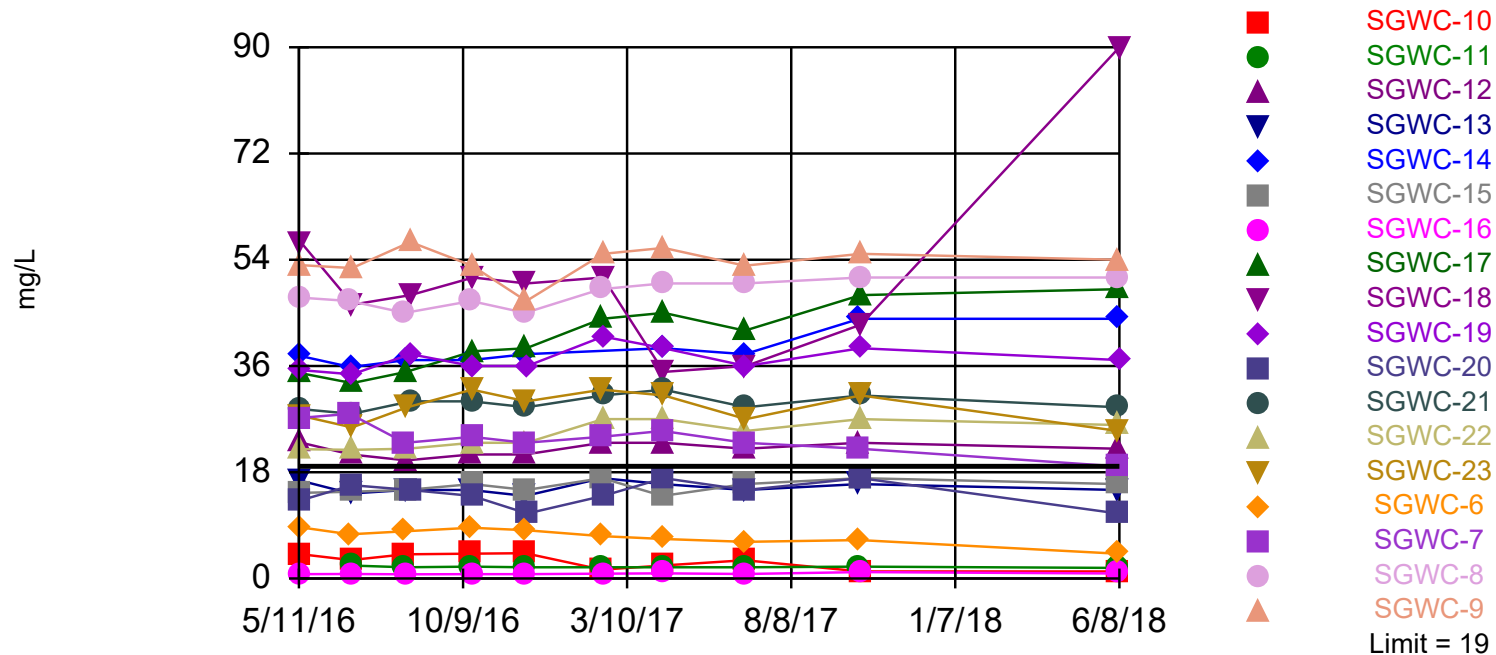
## Prediction Limit Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 70 background values. 95.71% NDs. Annual per-constituent alpha = 0.01356. Individual comparison alpha = 0.0003792 (1 of 2). Comparing 18 points to limit.

Exceeds Limit: SGWC-12, SGWC-14,  
SGWC-17, SGWC-18, SGWC-19, SGWC-21

## Prediction Limit Interwell Non-parametric

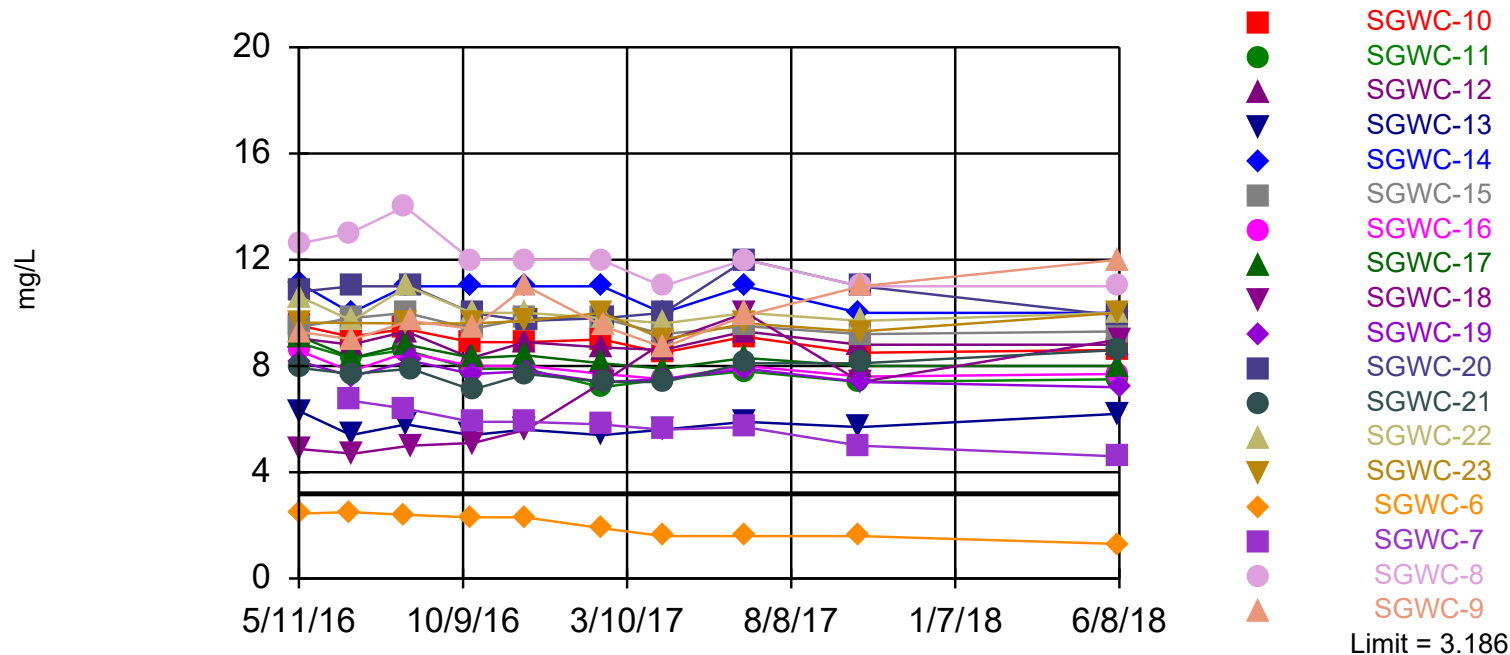


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 67 background values. Annual per-constituent alpha = 0.01493. Individual comparison alpha = 0.0004177 (1 of 2). Comparing 18 points to limit.

Constituent: Calcium Analysis Run 1/11/2019 1:00 PM View: App III  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

Exceeds Limit: SGWC-10, SGWC-11,  
SGWC-12, SGWC-13, SGWC-14, SGWC-15

## Prediction Limit Interwell Parametric

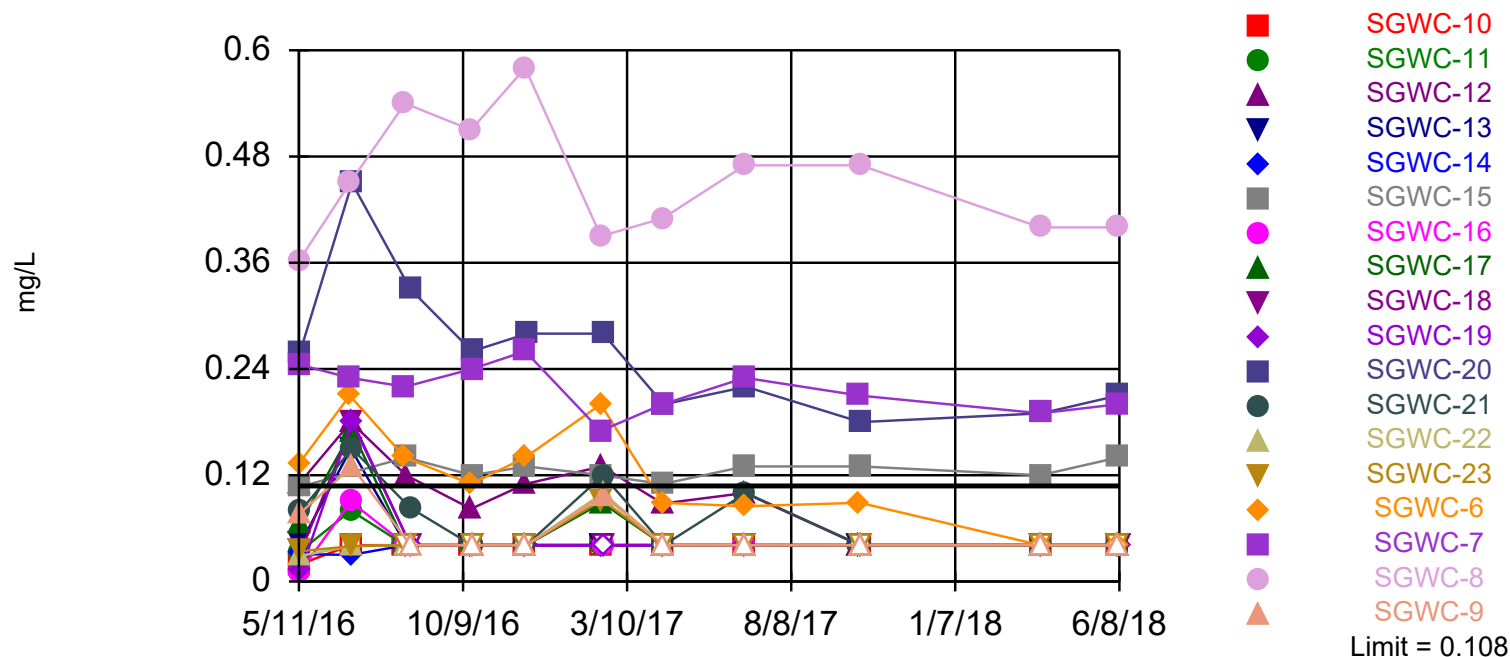


Background Data Summary (based on cube root transformation): Mean=1.23, Std. Dev.=0.1127, n=68. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9529, critical = 0.95. Kappa = 2.142 (c=7, w=18, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.000418. Comparing 18 points to limit.

Constituent: Chloride Analysis Run 1/11/2019 1:00 PM View: App III  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

Exceeds Limit: SGWC-20, SGWC-7, SGWC-8  
-8

## Prediction Limit Interwell Non-parametric

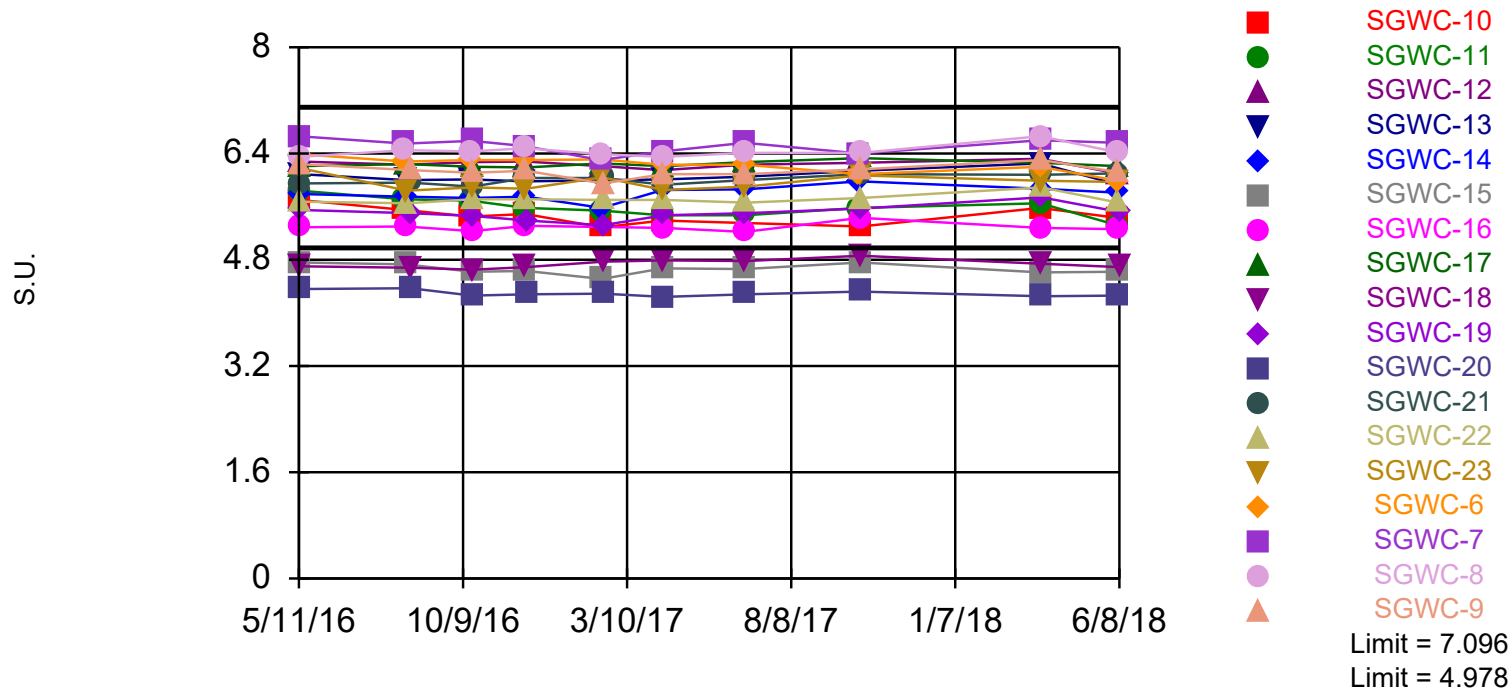


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 77 background values. 83.12% NDs. Annual per-constituent alpha = 0.01144. Individual comparison alpha = 0.0003194 (1 of 2). Comparing 18 points to limit.

Constituent: Fluoride Analysis Run 1/11/2019 1:00 PM View: App III  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

Exceeds Limits: SGWC-15, SGWC-18,  
SGWC-20

## Prediction Limit Interwell Parametric

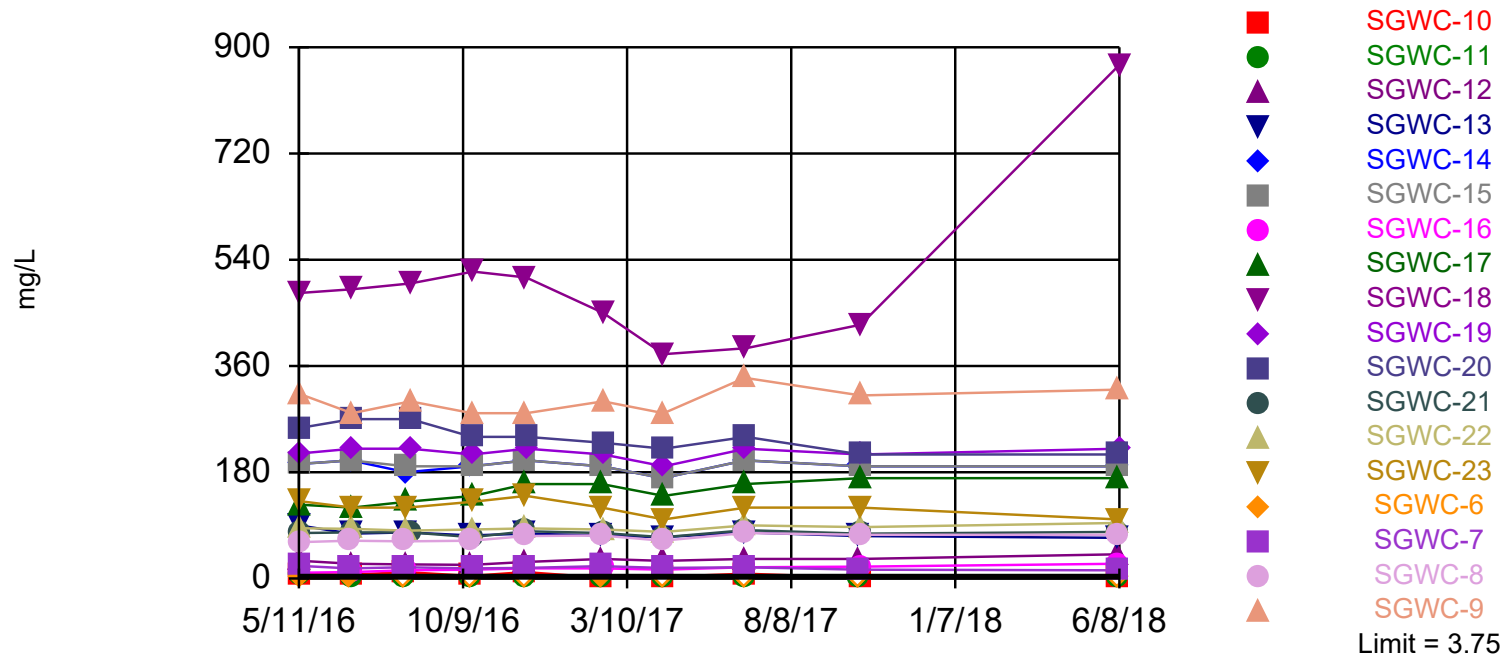


Background Data Summary: Mean=6.037, Std. Dev.=0.4944, n=68. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9509, critical = 0.95. Kappa = 2.142 (c=7, w=18, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.000209. Comparing 18 points to limit.

Constituent: pH Analysis Run 1/11/2019 1:00 PM View: App III  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

Exceeds Limit: SGWC-12, SGWC-13,  
SGWC-14, SGWC-15, SGWC-16, SGWC-17

## Prediction Limit Interwell Non-parametric



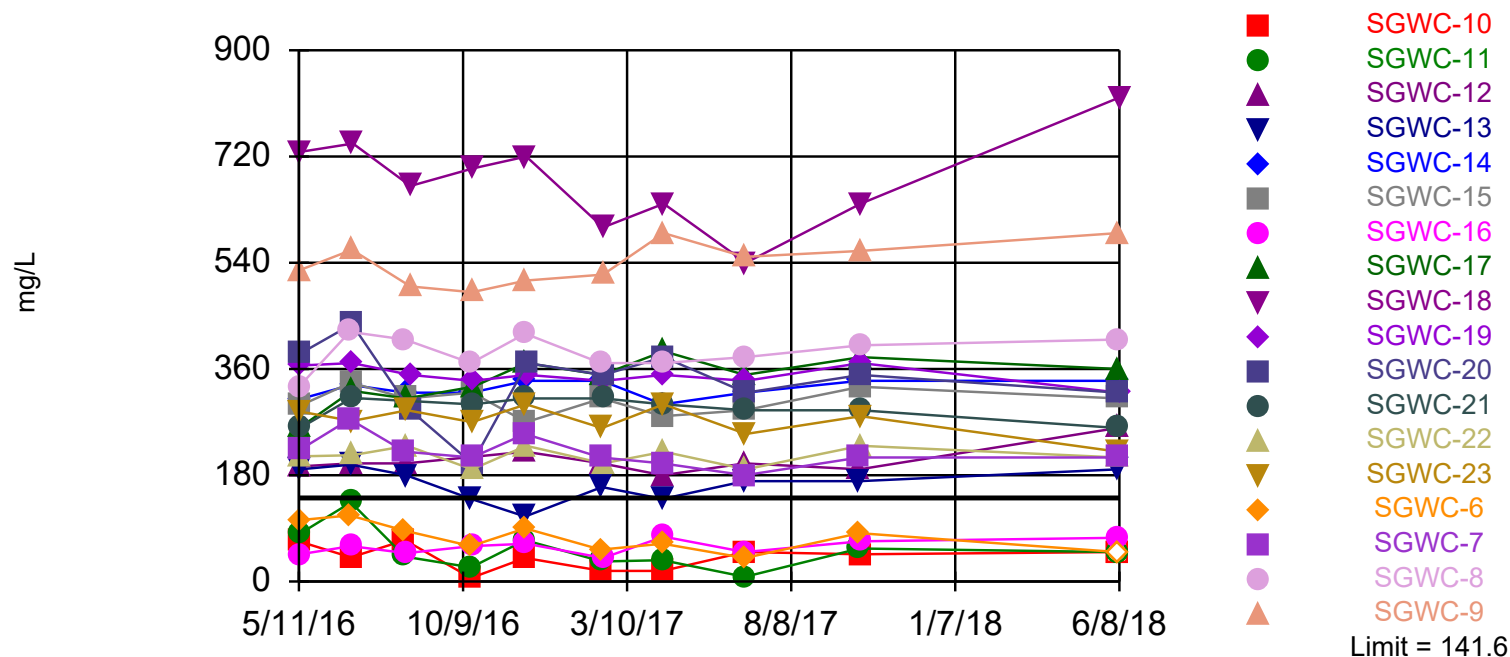
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 70 background values. 50% NDs. Annual per-constituent alpha = 0.01356. Individual comparison alpha = 0.0003792 (1 of 2). Comparing 18 points to limit.

Constituent: Sulfate Analysis Run 1/11/2019 1:00 PM View: App III

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

Exceeds Limit: SGWC-12, SGWC-13,  
SGWC-14, SGWC-15, SGWC-17, SGWC-18

## Prediction Limit Interwell Parametric



Background Data Summary: Mean=76.7, Std. Dev.=30.34, n=70, 2.857% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9721, critical = 0.952. Kappa = 2.139 (c=7, w=18, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.000418. Comparing 18 points to limit.

Constituent: Total Dissolved Solids Analysis Run 1/11/2019 1:00 PM View: App III  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



# UPPER TOLERANCE LIMITS JUNE 2018

# Tolerance Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	n/a	0.0021	n/a	n/a	n/a	55	89.09	n/a	0.05954	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.0025	n/a	n/a	n/a	56	67.86	n/a	0.05656	NP Inter(normal...
Barium (mg/L)	n/a	0.06308	n/a	n/a	n/a	56	0	No	0.05	Inter
Beryllium (mg/L)	n/a	0.0015	n/a	n/a	n/a	56	98.21	n/a	0.05656	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.00125	n/a	n/a	n/a	56	96.43	n/a	0.05656	NP Inter(NDs)
Chromium (mg/L)	n/a	0.0142	n/a	n/a	n/a	56	39.29	n/a	0.05656	NP Inter(Cohens...
Cobalt (mg/L)	n/a	0.02	n/a	n/a	n/a	55	61.82	n/a	0.05954	NP Inter(normal...
Combined Radium 226 + 228 (pCi/L)	n/a	1.2	n/a	n/a	n/a	55	0	n/a	0.05954	NP Inter(normal...
Fluoride (mg/L)	n/a	0.15	n/a	n/a	n/a	56	76.79	n/a	0.05656	NP Inter(NDs)
Lead (mg/L)	n/a	0.0025	n/a	n/a	n/a	56	98.21	n/a	0.05656	NP Inter(NDs)
Lithium (mg/L)	n/a	0.0125	n/a	n/a	n/a	56	98.21	n/a	0.05656	NP Inter(NDs)
Mercury (mg/L)	n/a	0.00025	n/a	n/a	n/a	56	85.71	n/a	0.05656	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.0075	n/a	n/a	n/a	56	85.71	n/a	0.05656	NP Inter(NDs)
Selenium (mg/L)	n/a	0.005	n/a	n/a	n/a	56	96.43	n/a	0.05656	NP Inter(NDs)
Thallium (mg/L)	n/a	0.0005	n/a	n/a	n/a	56	94.64	n/a	0.05656	NP Inter(NDs)

# CONFIDENCE INTERVALS JUNE 2018

# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/18/2019, 10:31 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt (mg/L)	SGWC-11	0.03203	0.02757	0.02	Yes	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-15	0.2805	0.2599	0.02	Yes	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-18	0.143	0.1064	0.02	Yes	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-20	0.2445	0.2077	0.02	Yes	10	0	No	0.05	Param.

# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/18/2019, 10:31 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	SGWA-1 (bg)	0.0012	0.0004	0.006	No	9	77.78	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-2 (bg)	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-24 (bg)	0.0005	0.0003	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-25 (bg)	0.0005	0.0003	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-3 (bg)	0.0021	0.0005	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-4 (bg)	0.0007	0.0005	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-5 (bg)	0.0005	0.0005	0.006	No	8	100	No	0.004	NP (NDs)
Antimony (mg/L)	SGWC-10	0.0014	0.0005	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-11	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-12	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-13	0.0005	0.0004	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-14	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-15	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-16	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-17	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-18	0.0012	0.0005	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-19	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-20	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-21	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-22	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-23	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-6	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-7	0.0005	0.0004	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-8	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-9	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Arsenic (mg/L)	SGWA-1 (bg)	0.00065	0.00023	0.01	No	10	70	No	0.011	NP (normality)
Arsenic (mg/L)	SGWA-2 (bg)	0.0005	0.00023	0.01	No	10	70	No	0.011	NP (normality)
Arsenic (mg/L)	SGWA-24 (bg)	0.00057	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWA-25 (bg)	0.0009539	0.0004171	0.01	No	10	30	No	0.05	Param.
Arsenic (mg/L)	SGWA-3 (bg)	0.00023	0.00023	0.01	No	10	90	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWA-4 (bg)	0.00055	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWA-5 (bg)	0.00023	0.00023	0.01	No	10	90	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-10	0.0005	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-11	0.0011	0.00023	0.01	No	10	20	No	0.011	NP (normality)
Arsenic (mg/L)	SGWC-12	0.001	0.00023	0.01	No	10	50	No	0.011	NP (normality)
Arsenic (mg/L)	SGWC-13	0.00047	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-14	0.00057	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-15	0.001452	0.0003631	0.01	No	10	30	No	0.05	Param.
Arsenic (mg/L)	SGWC-16	0.00023	0.00023	0.01	No	10	90	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-17	0.00075	0.00023	0.01	No	10	60	No	0.011	NP (normality)
Arsenic (mg/L)	SGWC-18	0.002009	0.001051	0.01	No	10	0	sqrt(x)	0.05	Param.
Arsenic (mg/L)	SGWC-19	0.00023	0.00023	0.01	No	10	90	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-20	0.001	0.00023	0.01	No	10	60	No	0.011	NP (normality)
Arsenic (mg/L)	SGWC-21	0.00023	0.00023	0.01	No	10	90	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-22	0.0006	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-23	0.00061	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-6	0.00046	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-7	0.0006	0.00023	0.01	No	10	60	No	0.011	NP (normality)
Arsenic (mg/L)	SGWC-8	0.0005	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-9	0.0007759	0.0003833	0.01	No	10	40	No	0.05	Param.

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/18/2019, 10:31 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Barium (mg/L)	SGWA-1 (bg)	0.05742	0.04954	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-2 (bg)	0.0392	0.03582	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-24 (bg)	0.02207	0.02049	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-25 (bg)	0.02398	0.02114	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-3 (bg)	0.03511	0.03255	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-4 (bg)	0.05489	0.04861	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-5 (bg)	0.01074	0.009881	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-10	0.03041	0.02753	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-11	0.03896	0.0357	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-12	0.03993	0.03297	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-13	0.02834	0.02338	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-14	0.06338	0.05908	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-15	0.04154	0.03796	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-16	0.022	0.0163	2	No	9	0	No	0.002	NP (normality)
Barium (mg/L)	SGWC-17	0.0196	0.01736	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-18	0.029	0.012	2	No	10	0	No	0.011	NP (normality)
Barium (mg/L)	SGWC-19	0.04483	0.03841	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-20	0.03926	0.03138	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-21	0.09317	0.08977	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-22	0.09663	0.08969	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-23	0.09211	0.08421	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-6	0.09138	0.04968	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-7	0.3213	0.2803	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-8	0.205	0.16	2	No	10	0	No	0.011	NP (normality)
Barium (mg/L)	SGWC-9	0.06192	0.0519	2	No	10	0	ln(x)	0.05	Param.
Beryllium (mg/L)	SGWA-1 (bg)	0.00017	0.00017	0.004	No	10	90	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-2 (bg)	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-24 (bg)	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-25 (bg)	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-3 (bg)	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-4 (bg)	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-5 (bg)	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-10	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-11	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-12	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-13	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-14	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-15	0.0004	0.00017	0.004	No	10	30	No	0.011	NP (Cohens/xfrm)
Beryllium (mg/L)	SGWC-16	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-17	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-18	0.00035	0.00017	0.004	No	10	70	No	0.011	NP (normality)
Beryllium (mg/L)	SGWC-19	0.00017	0.00017	0.004	No	10	90	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-20	0.0008333	0.0007271	0.004	No	10	0	No	0.05	Param.
Beryllium (mg/L)	SGWC-21	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-22	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-23	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-6	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-7	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-8	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-9	0.00017	0.00017	0.004	No	10	100	No	0.011	NP (NDs)

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/18/2019, 10:31 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Cadmium (mg/L)	SGWA-1 (bg)	0.00017	0.000156	0.005	No	9	88.89	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-2 (bg)	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-24 (bg)	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-25 (bg)	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-3 (bg)	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-4 (bg)	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-5 (bg)	0.0011	0.00017	0.005	No	9	88.89	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-10	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-11	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-12	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-13	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-14	0.00017	0.000136	0.005	No	9	88.89	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-15	0.00044	0.00017	0.005	No	9	66.67	No	0.002	NP (normality)
Cadmium (mg/L)	SGWC-16	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-17	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-18	0.0002	0.00016	0.005	No	9	77.78	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-19	0.00036	0.00017	0.005	No	9	88.89	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-20	0.00017	0.0001	0.005	No	9	77.78	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-21	0.00039	0.00017	0.005	No	9	88.89	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-22	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-23	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-6	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-7	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-8	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-9	0.00017	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Chromium (mg/L)	SGWA-1 (bg)	0.00055	0.00055	0.1	No	10	90	No	0.011	NP (NDs)
Chromium (mg/L)	SGWA-2 (bg)	0.014	0.0043	0.1	No	10	0	No	0.011	NP (normality)
Chromium (mg/L)	SGWA-24 (bg)	0.004122	0.003304	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWA-25 (bg)	0.00055	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWA-3 (bg)	0.01068	0.006948	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWA-4 (bg)	0.004745	0.002669	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWA-5 (bg)	0.0012	0.00055	0.1	No	10	80	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-10	0.00055	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-11	0.00055	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-12	0.00055	0.00055	0.1	No	10	90	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-13	0.00055	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-14	0.0012	0.00055	0.1	No	10	70	No	0.011	NP (normality)
Chromium (mg/L)	SGWC-15	0.03391	0.03197	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWC-16	0.009674	0.008892	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWC-17	0.005437	0.003313	0.1	No	10	0	sqrt(x)	0.05	Param.
Chromium (mg/L)	SGWC-18	0.007546	0.006496	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWC-19	0.01524	0.014	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWC-20	0.00055	0.00055	0.1	No	10	90	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-21	0.00055	0.00055	0.1	No	10	90	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-22	0.00055	0.00055	0.1	No	10	90	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-23	0.0025	0.00055	0.1	No	9	55.56	No	0.002	NP (normality)
Chromium (mg/L)	SGWC-6	0.00055	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-7	0.00055	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-8	0.0012	0.00055	0.1	No	10	70	No	0.011	NP (normality)
Chromium (mg/L)	SGWC-9	0.00055	0.00055	0.1	No	10	100	No	0.011	NP (NDs)



## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/18/2019, 10:31 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Cobalt (mg/L)	SGWA-1 (bg)	0.01595	0.009457	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWA-2 (bg)	0.0002	0.0002	0.02	No	10	90	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWA-24 (bg)	0.0004	0.0002	0.02	No	10	80	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWA-25 (bg)	0.01454	0.01094	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWA-3 (bg)	0.00051	0.0002	0.02	No	9	88.89	No	0.002	NP (NDs)
Cobalt (mg/L)	SGWA-4 (bg)	0.0002	0.0002	0.02	No	10	90	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWA-5 (bg)	0.0002	0.0002	0.02	No	10	100	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWC-10	0.03339	0.01947	0.02	No	10	0	No	0.05	Param.
<b>Cobalt (mg/L)</b>	<b>SGWC-11</b>	<b>0.03203</b>	<b>0.02757</b>	<b>0.02</b>	<b>Yes</b>	<b>10</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-12	0.004619	0.003536	0.02	No	10	0	sqrt(x)	0.05	Param.
Cobalt (mg/L)	SGWC-13	0.01017	0.006355	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-14	0.01261	0.006705	0.02	No	10	0	No	0.05	Param.
<b>Cobalt (mg/L)</b>	<b>SGWC-15</b>	<b>0.2805</b>	<b>0.2599</b>	<b>0.02</b>	<b>Yes</b>	<b>10</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-16	0.003495	0.003111	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-17	0.0006892	0.0004288	0.02	No	9	22.22	No	0.05	Param.
<b>Cobalt (mg/L)</b>	<b>SGWC-18</b>	<b>0.143</b>	<b>0.1064</b>	<b>0.02</b>	<b>Yes</b>	<b>10</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-19	0.00078	0.0002	0.02	No	10	50	No	0.011	NP (normality)
<b>Cobalt (mg/L)</b>	<b>SGWC-20</b>	<b>0.2445</b>	<b>0.2077</b>	<b>0.02</b>	<b>Yes</b>	<b>10</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-21	0.0002	0.0002	0.02	No	10	100	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWC-22	0.004449	0.002939	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-23	0.0002	0.0002	0.02	No	9	100	No	0.002	NP (NDs)
Cobalt (mg/L)	SGWC-6	0.002916	0.001464	0.02	No	10	10	No	0.05	Param.
Cobalt (mg/L)	SGWC-7	0.01331	0.007511	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-8	0.0012	0.0002	0.02	No	10	70	No	0.011	NP (normality)
Cobalt (mg/L)	SGWC-9	0.01542	0.01146	0.02	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-1 (bg)	0.3546	0.1956	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-2 (bg)	0.4268	0.143	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-24 (bg)	0.2907	0.06359	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-25 (bg)	0.3657	0.06644	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-3 (bg)	0.345	-0.026	5	No	10	0	No	0.011	NP (normality)
Combined Radium 226 + 228 (pCi/L)	SGWA-4 (bg)	0.2418	0.0521	5	No	9	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-5 (bg)	0.3948	0.2169	5	No	10	0	ln(x)	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-10	0.548	-0.0725	5	No	10	0	No	0.011	NP (normality)
Combined Radium 226 + 228 (pCi/L)	SGWC-11	0.4835	0.1865	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-12	0.3209	0.1068	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-13	0.4395	0.08482	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-14	0.4345	0.1203	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-15	0.3963	0.1794	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-16	0.3112	0.1309	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-17	0.3778	0.1572	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-18	0.4267	0.192	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-19	0.2756	0.05208	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-20	0.6679	0.3185	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-21	0.498	0.208	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-22	0.297	0.1666	5	No	9	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-23	0.7208	0.4908	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-6	0.3675	0.1195	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-7	0.518	0.3068	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-8	2.468	1.992	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-9	0.4219	0.1804	5	No	10	0	No	0.05	Param.

# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/18/2019, 10:31 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Fluoride (mg/L)	SGWA-1 (bg)	0.041	0.041	4	No	11	100	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWA-2 (bg)	0.041	0.03	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWA-24 (bg)	0.05	0.041	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWA-25 (bg)	0.041	0.03	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWA-3 (bg)	0.041	0.0192	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWA-4 (bg)	0.1	0.041	4	No	11	63.64	No	0.006	NP (normality)
Fluoride (mg/L)	SGWA-5 (bg)	0.041	0.0188	4	No	11	90.91	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-10	0.041	0.019	4	No	11	90.91	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-11	0.041	0.033	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-12	0.12	0.07825	4	No	11	27.27	No	0.05	Param.
Fluoride (mg/L)	SGWC-13	0.042	0.041	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-14	0.041	0.03	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-15	0.1312	0.1182	4	No	10	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-16	0.041	0.011	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-17	0.089	0.041	4	No	11	72.73	No	0.006	NP (normality)
Fluoride (mg/L)	SGWC-18	0.041	0.0343	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-19	0.041	0.0126	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-20	0.3025	0.2173	4	No	11	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-21	0.12	0.041	4	No	11	54.55	No	0.006	NP (normality)
Fluoride (mg/L)	SGWC-22	0.041	0.029	4	No	11	72.73	No	0.006	NP (normality)
Fluoride (mg/L)	SGWC-23	0.041	0.0341	4	No	11	72.73	No	0.006	NP (normality)
Fluoride (mg/L)	SGWC-6	0.1473	0.08814	4	No	11	18.18	No	0.05	Param.
Fluoride (mg/L)	SGWC-7	0.2323	0.2032	4	No	11	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-8	0.4905	0.4153	4	No	11	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-9	0.097	0.041	4	No	11	72.73	No	0.006	NP (normality)
Lead (mg/L)	SGWA-1 (bg)	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-2 (bg)	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-24 (bg)	0.000175	0.0001	0.015	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-25 (bg)	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-3 (bg)	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-4 (bg)	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-5 (bg)	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-10	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-11	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-12	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-13	0.000175	0.000175	0.015	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-14	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-15	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-16	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-17	0.000175	0.000175	0.015	No	9	100	No	0.002	NP (NDs)
Lead (mg/L)	SGWC-18	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-19	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-20	0.00041	0.000175	0.015	No	10	70	No	0.011	NP (normality)
Lead (mg/L)	SGWC-21	0.000175	0.00009	0.015	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-22	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-23	0.000175	0.00009	0.015	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-6	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-7	0.000175	0.000175	0.015	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-8	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-9	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/18/2019, 10:31 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Lithium (mg/L)	SGWA-1 (bg)	0.0018	0.00055	0.04	No	10	70	No	0.011	NP (normality)
Lithium (mg/L)	SGWA-2 (bg)	0.00055	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWA-24 (bg)	0.00055	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWA-25 (bg)	0.00055	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWA-3 (bg)	0.00055	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWA-4 (bg)	0.00055	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWA-5 (bg)	0.00055	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-10	0.00055	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-11	0.0017	0.00055	0.04	No	10	70	No	0.011	NP (normality)
Lithium (mg/L)	SGWC-12	0.00055	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-13	0.00055	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-14	0.000925	0.00055	0.04	No	9	88.89	No	0.002	NP (NDs)
Lithium (mg/L)	SGWC-15	0.003	0.00055	0.04	No	10	70	No	0.011	NP (normality)
Lithium (mg/L)	SGWC-16	0.00055	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-17	0.00055	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-18	0.0042	0.00055	0.04	No	10	60	No	0.011	NP (normality)
Lithium (mg/L)	SGWC-19	0.00055	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-20	0.004491	0.003324	0.04	No	9	11.11	x^2	0.05	Param.
Lithium (mg/L)	SGWC-21	0.00055	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-22	0.00055	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-23	0.003784	0.001835	0.04	No	9	22.22	No	0.05	Param.
Lithium (mg/L)	SGWC-6	0.00055	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-7	0.004846	0.003688	0.04	No	9	0	No	0.05	Param.
Lithium (mg/L)	SGWC-8	0.0018	0.00055	0.04	No	10	70	No	0.011	NP (normality)
Lithium (mg/L)	SGWC-9	0.00055	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-1 (bg)	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-2 (bg)	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-24 (bg)	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-25 (bg)	0.000075	0.000035	0.002	No	10	80	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-3 (bg)	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-4 (bg)	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-5 (bg)	0.000072	0.000035	0.002	No	10	80	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-10	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-11	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-12	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-13	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-14	0.000089	0.000035	0.002	No	10	80	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-15	0.0001178	0.00006635	0.002	No	10	30	No	0.05	Param.
Mercury (mg/L)	SGWC-16	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-17	0.00011	0.000035	0.002	No	10	80	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-18	0.00014	0.000035	0.002	No	10	50	No	0.011	NP (normality)
Mercury (mg/L)	SGWC-19	0.000035	0.000035	0.002	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-20	0.000073	0.000035	0.002	No	10	80	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-21	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-22	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-23	0.00011	0.000035	0.002	No	10	70	No	0.011	NP (normality)
Mercury (mg/L)	SGWC-6	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-7	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-8	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-9	0.000035	0.000035	0.002	No	10	90	No	0.011	NP (NDs)

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/18/2019, 10:31 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Molybdenum (mg/L)	SGWA-1 (bg)	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWA-2 (bg)	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWA-24 (bg)	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWA-25 (bg)	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWA-3 (bg)	0.0011	0.000425	0.0075	No	9	88.89	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWA-4 (bg)	0.001897	0.0008935	0.0075	No	9	22.22	No	0.05	Param.
Molybdenum (mg/L)	SGWA-5 (bg)	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-10	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-11	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-12	0.0012	0.000425	0.0075	No	9	77.78	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-13	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-14	0.003	0.000425	0.0075	No	9	88.89	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-15	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-16	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-17	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-18	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-19	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-20	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-21	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-22	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-23	0.000425	0.000425	0.0075	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-6	0.00099	0.000425	0.0075	No	9	77.78	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-7	0.002752	0.001191	0.0075	No	9	22.22	No	0.05	Param.
Molybdenum (mg/L)	SGWC-8	0.0008	0.000425	0.0075	No	9	88.89	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-9	0.0021	0.000425	0.0075	No	9	44.44	No	0.002	NP (normality)
Selenium (mg/L)	SGWA-1 (bg)	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-2 (bg)	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-24 (bg)	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-25 (bg)	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-3 (bg)	0.00065	0.00029	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-4 (bg)	0.00065	0.00041	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-5 (bg)	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-10	0.00065	0.00065	0.05	No	9	100	No	0.002	NP (NDs)
Selenium (mg/L)	SGWC-11	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-12	0.00065	0.00031	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-13	0.00065	0.0003	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-14	0.00065	0.00065	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-15	0.00965	0.00065	0.05	No	10	20	No	0.011	NP (normality)
Selenium (mg/L)	SGWC-16	0.001	0.00053	0.05	No	10	70	No	0.011	NP (normality)
Selenium (mg/L)	SGWC-17	0.00065	0.00024	0.05	No	9	88.89	No	0.002	NP (NDs)
Selenium (mg/L)	SGWC-18	0.023	0.0047	0.05	No	10	0	No	0.011	NP (normality)
Selenium (mg/L)	SGWC-19	0.00065	0.00065	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-20	0.00396	0.00064	0.05	No	10	60	No	0.011	NP (normality)
Selenium (mg/L)	SGWC-21	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-22	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-23	0.00065	0.00033	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-6	0.00065	0.00034	0.05	No	10	80	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-7	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-8	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-9	0.00065	0.00065	0.05	No	10	100	No	0.011	NP (NDs)

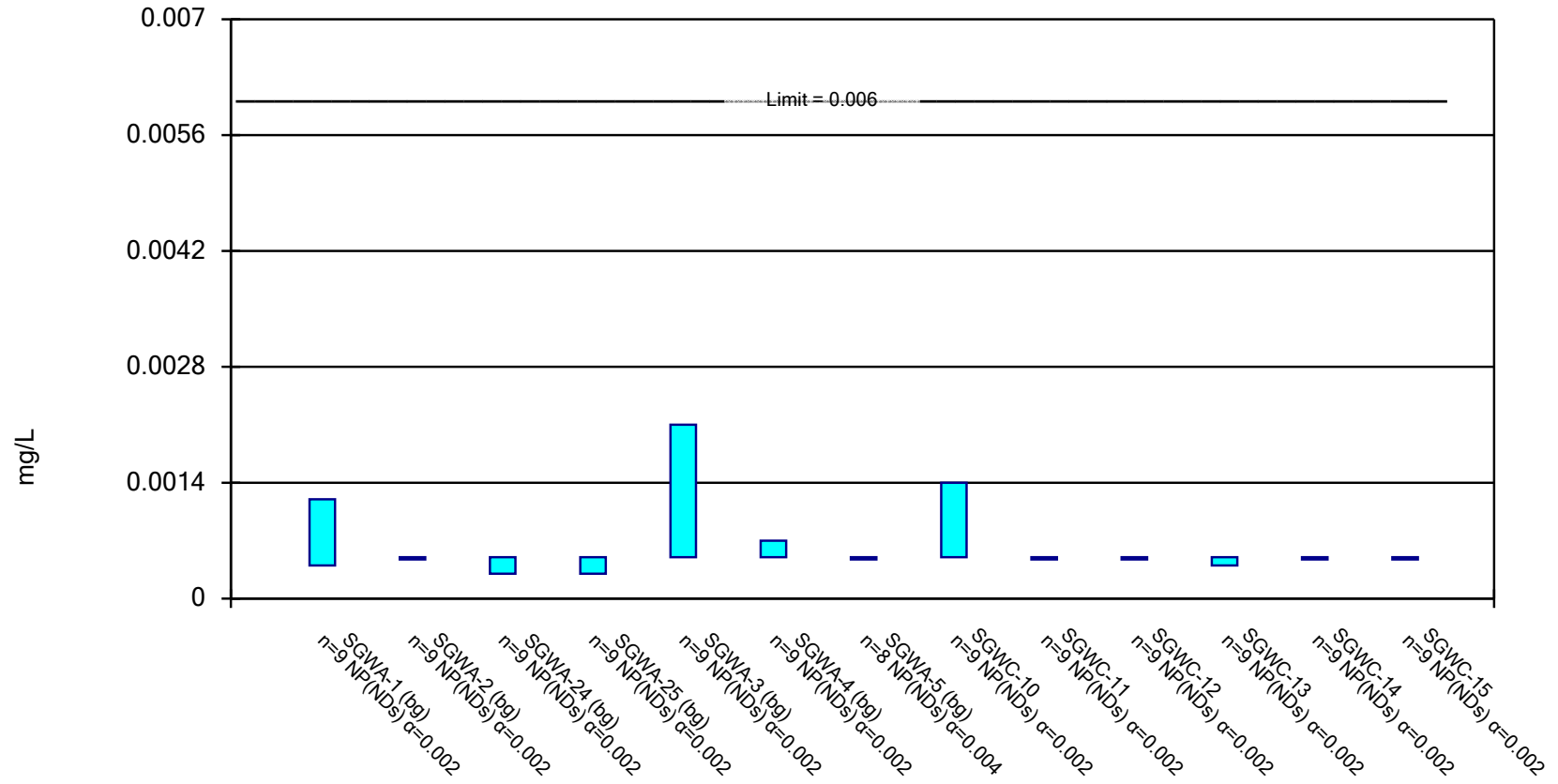
# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/18/2019, 10:31 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Thallium (mg/L)	SGWA-1 (bg)	0.00008	0.0000425	0.002	No	10	80	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-2 (bg)	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-24 (bg)	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-25 (bg)	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-3 (bg)	0.0000425	0.0000425	0.002	No	10	90	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-4 (bg)	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-5 (bg)	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-10	0.0000425	0.0000425	0.002	No	10	90	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-11	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-12	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-13	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-14	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-15	0.000095	0.0000425	0.002	No	10	60	No	0.011	NP (normality)
Thallium (mg/L)	SGWC-16	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-17	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-18	0.0001604	0.0001163	0.002	No	9	0	No	0.05	Param.
Thallium (mg/L)	SGWC-19	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-20	0.0001815	0.0001296	0.002	No	9	0	No	0.05	Param.
Thallium (mg/L)	SGWC-21	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-22	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-23	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-6	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-7	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-8	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-9	0.0000425	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

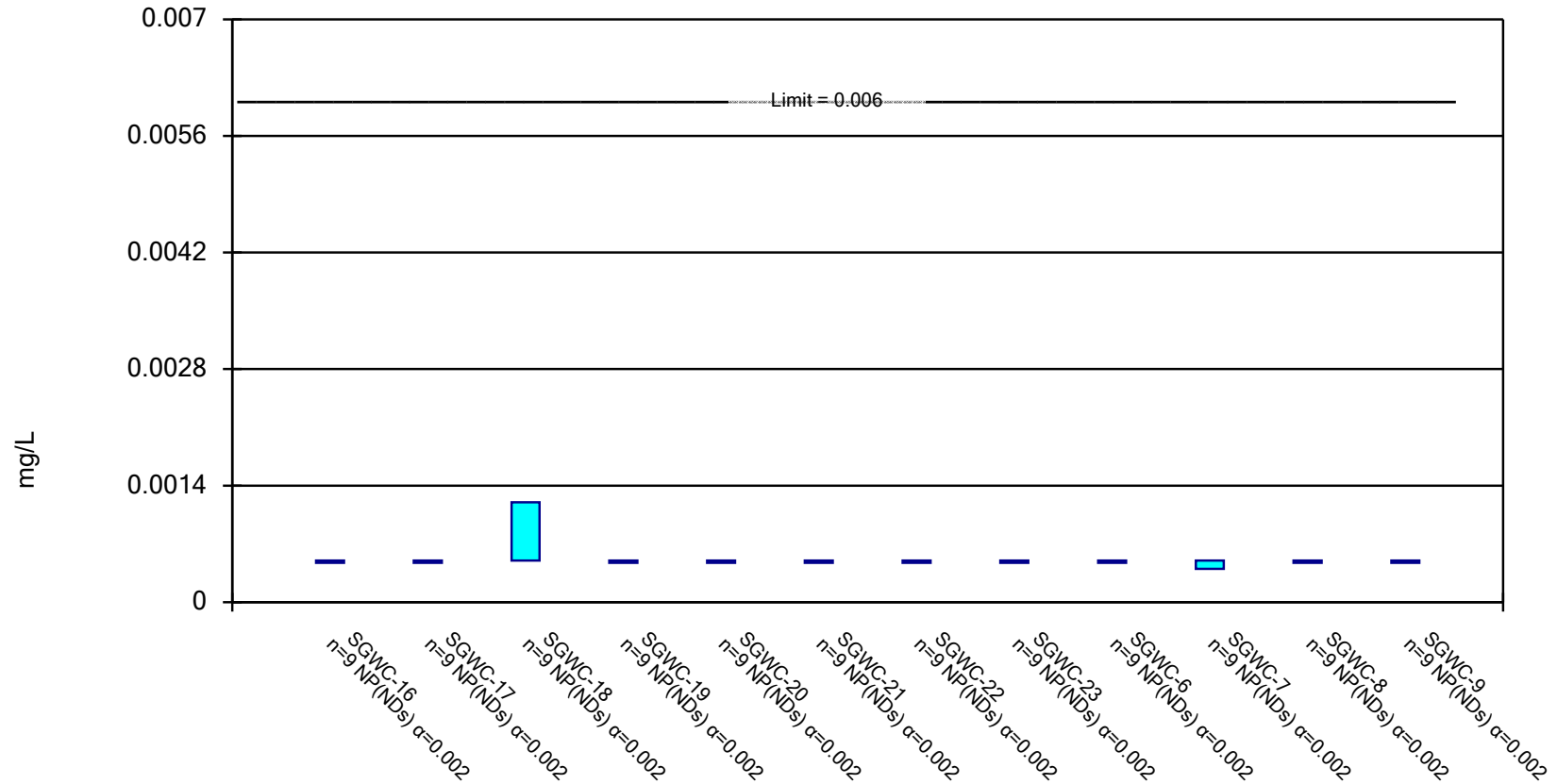


Constituent: Antimony Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



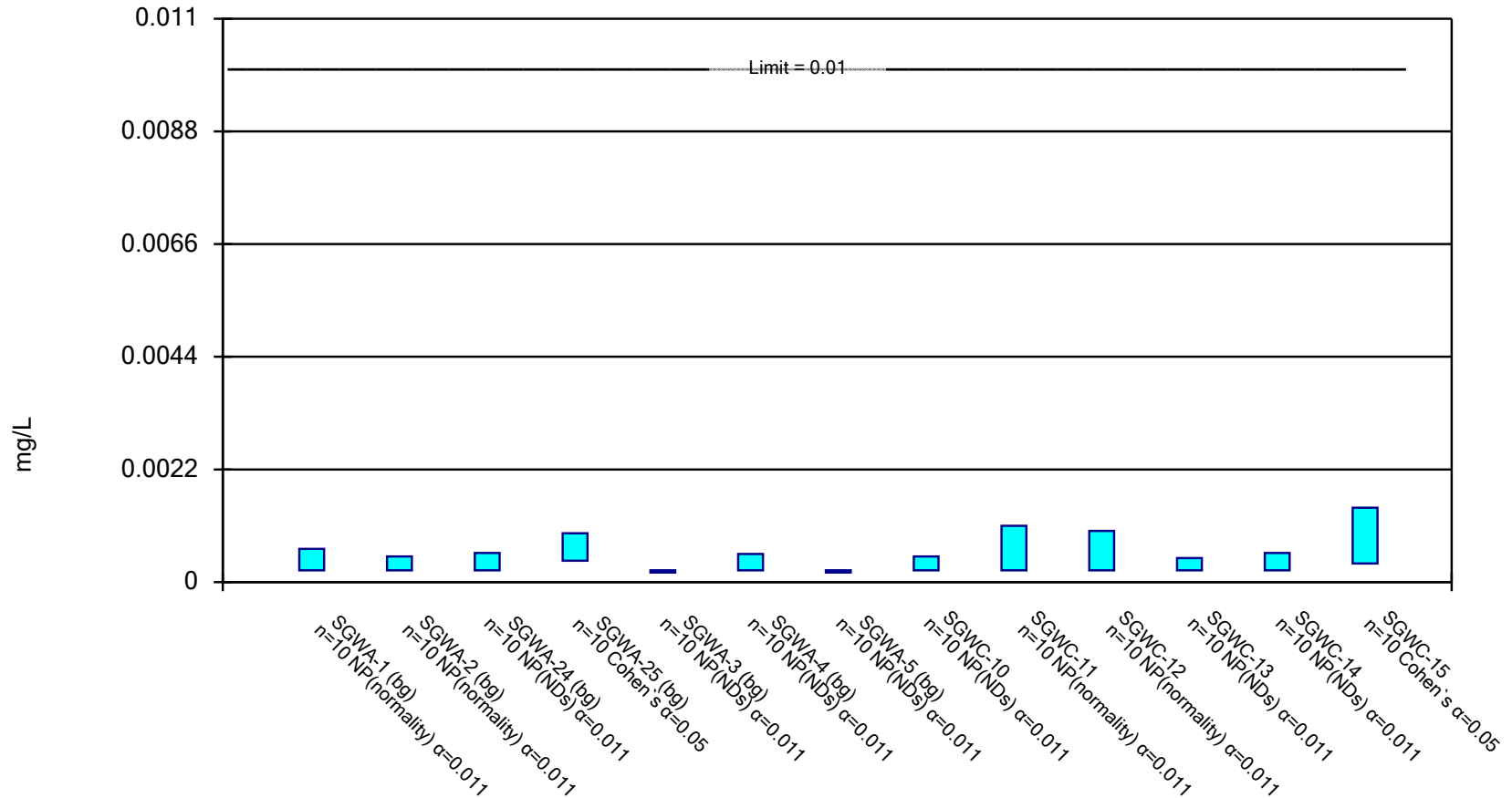
Constituent: Antimony Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

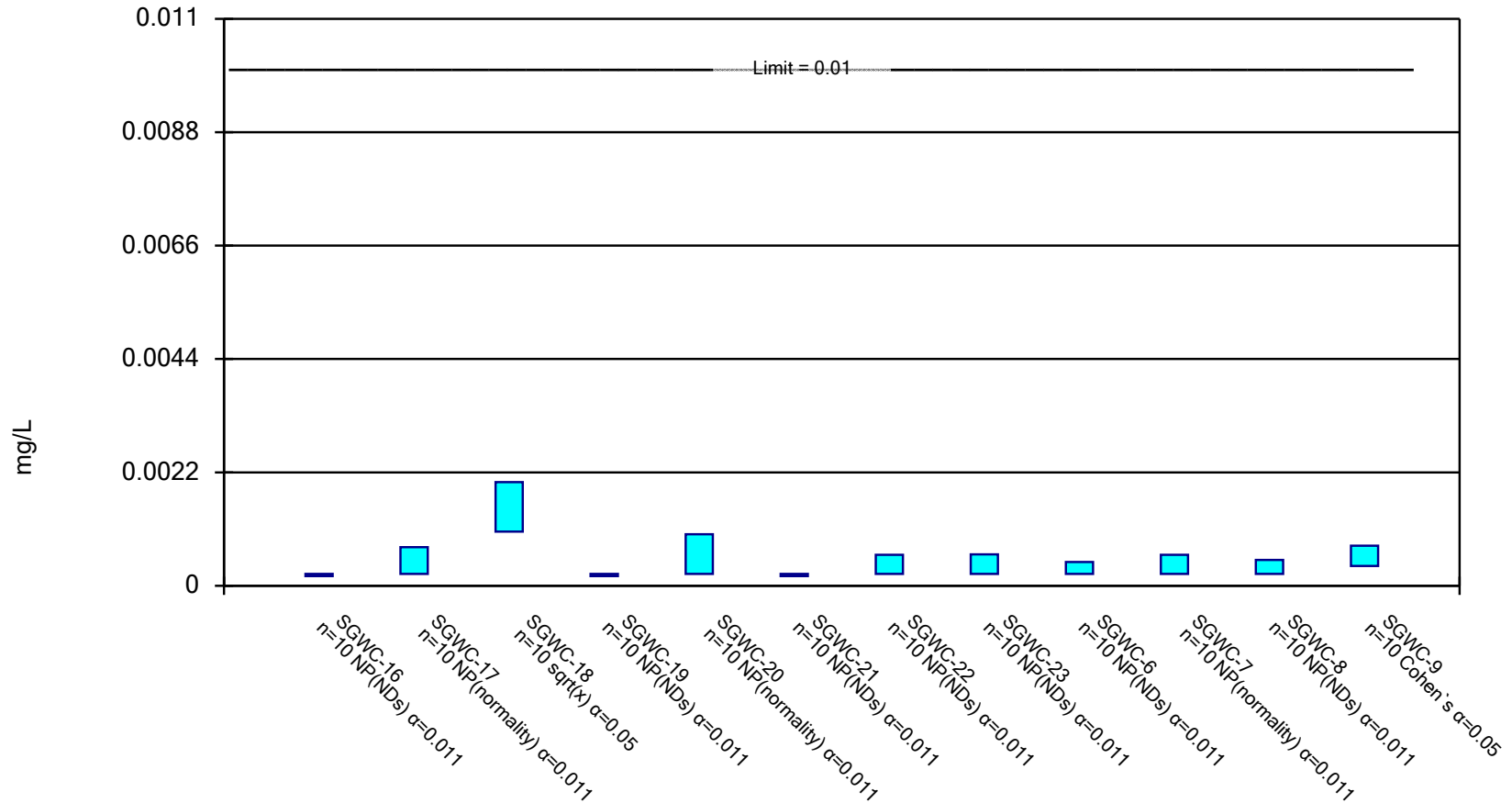


Constituent: Arsenic Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

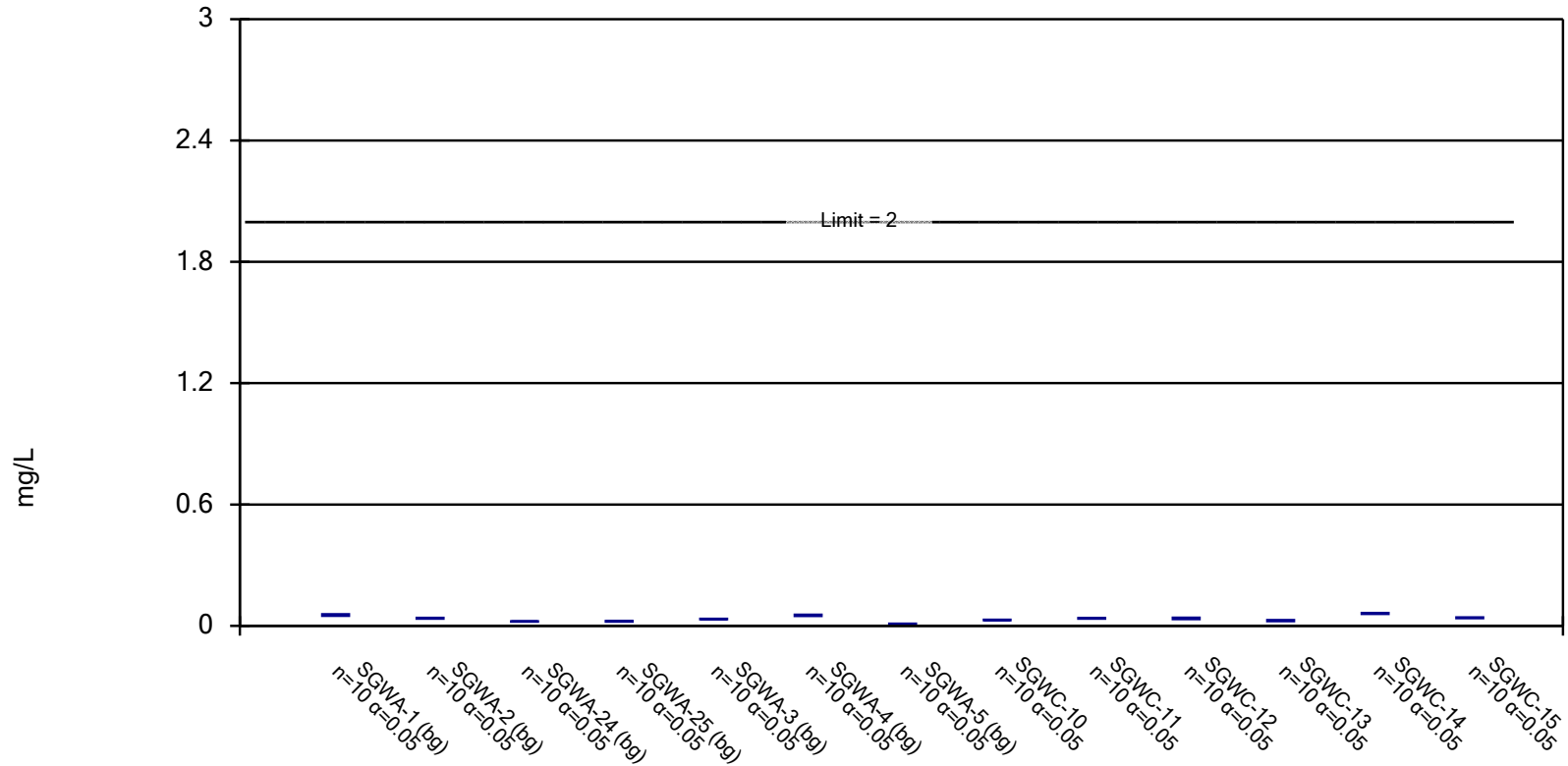


Constituent: Arsenic Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric Confidence Interval

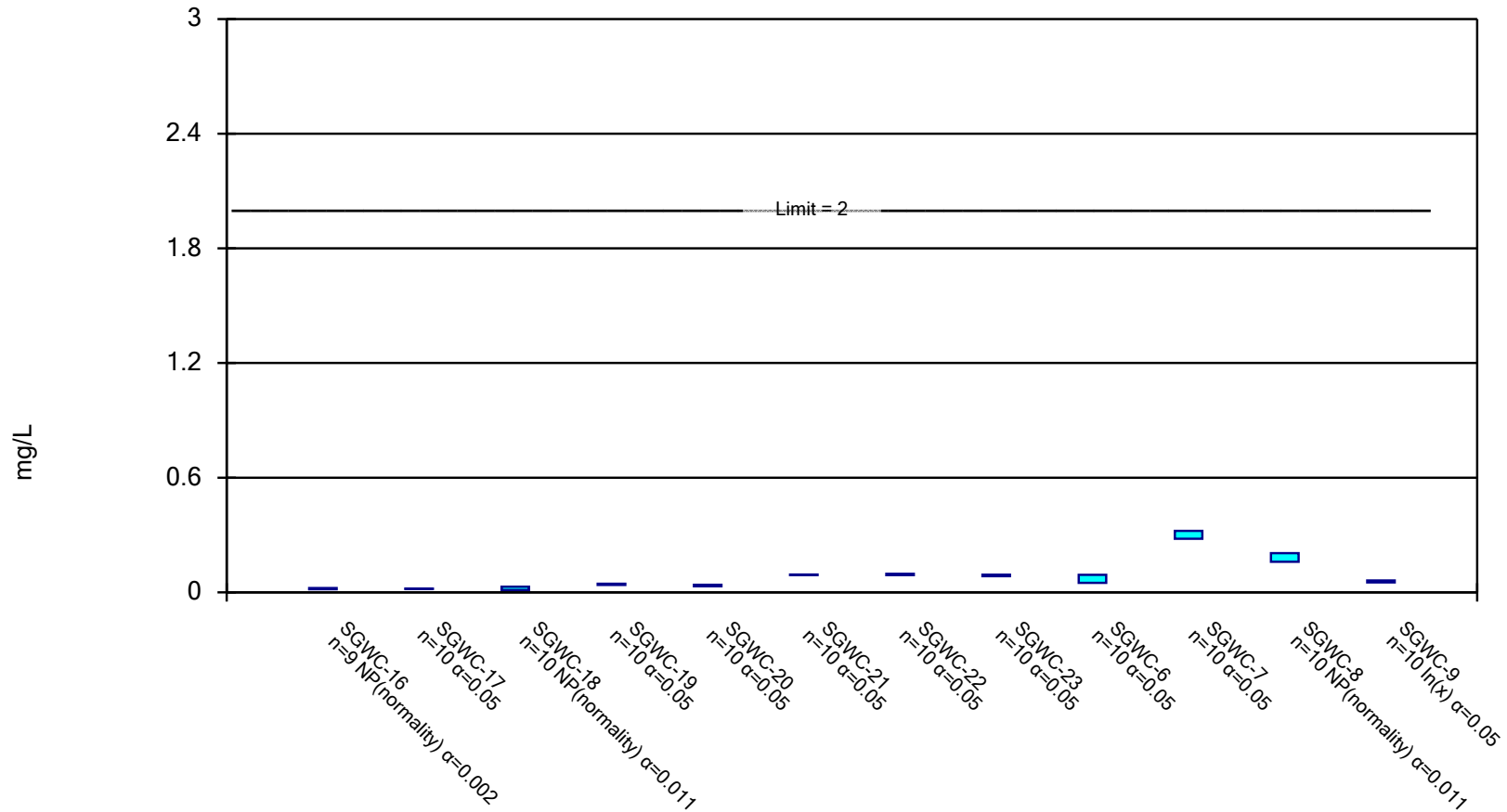
Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium    Analysis Run 1/18/2019 10:16 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

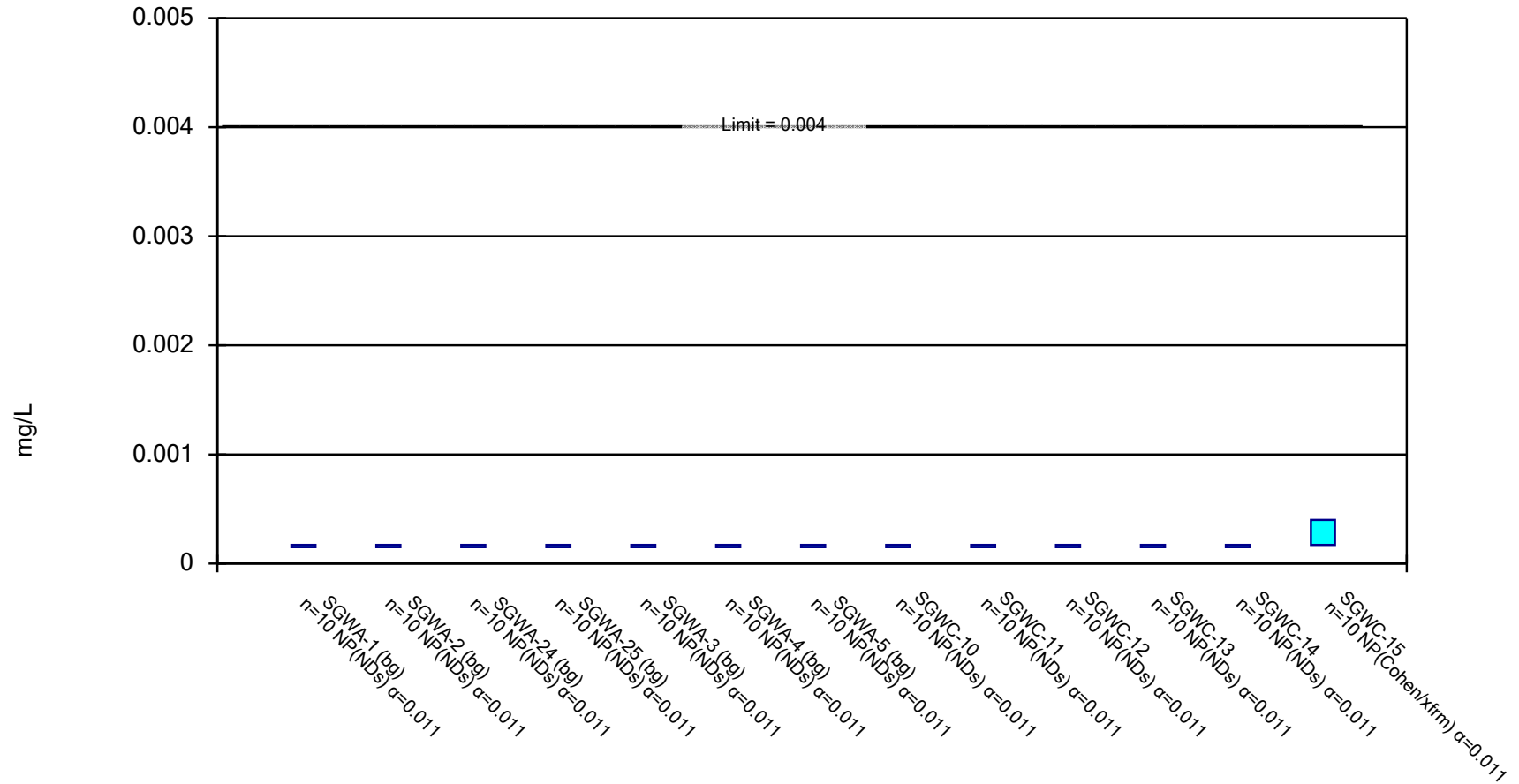


Constituent: Barium Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

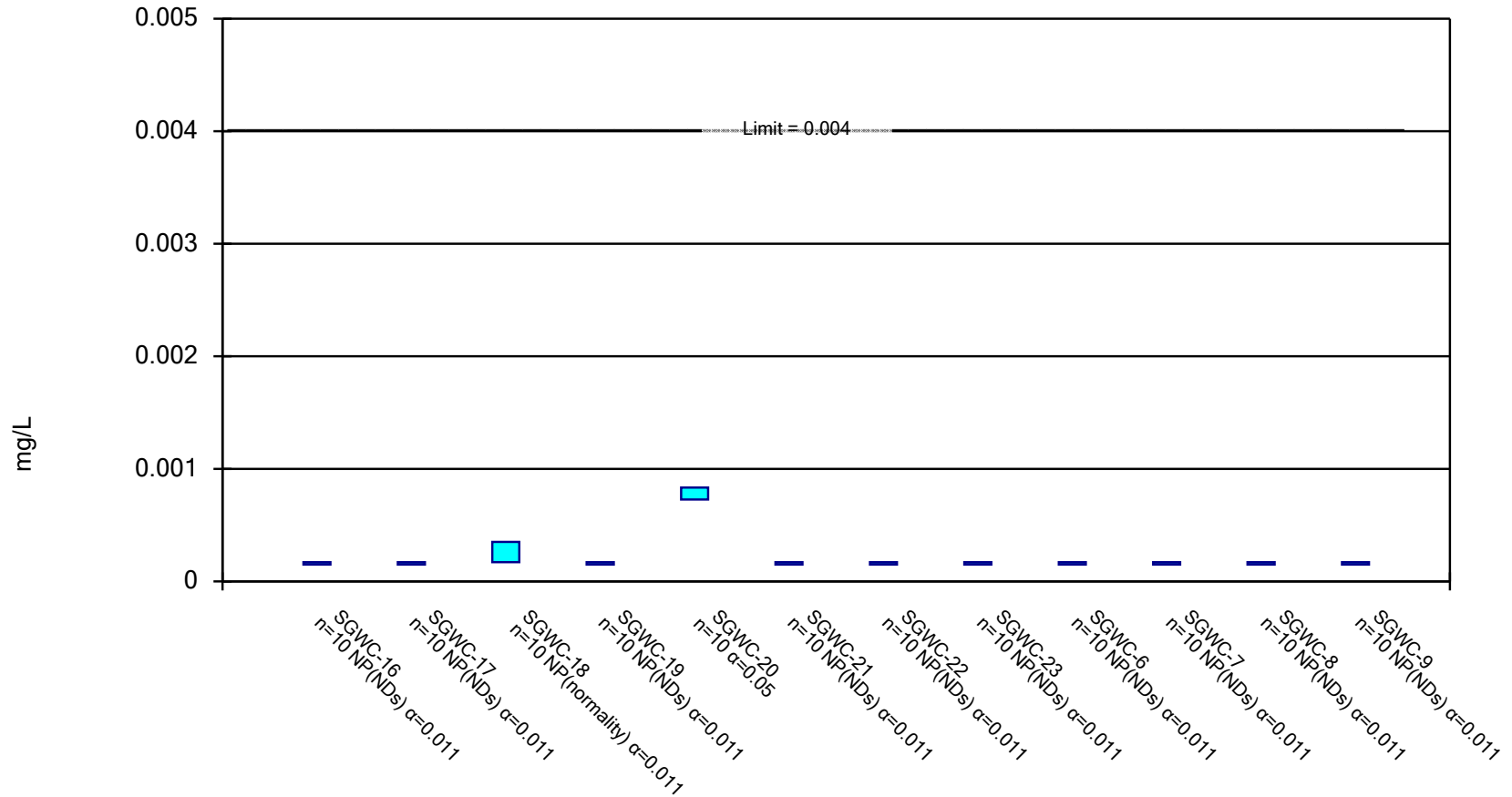
Compliance Limit is not exceeded.



Constituent: Beryllium    Analysis Run 1/18/2019 10:16 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

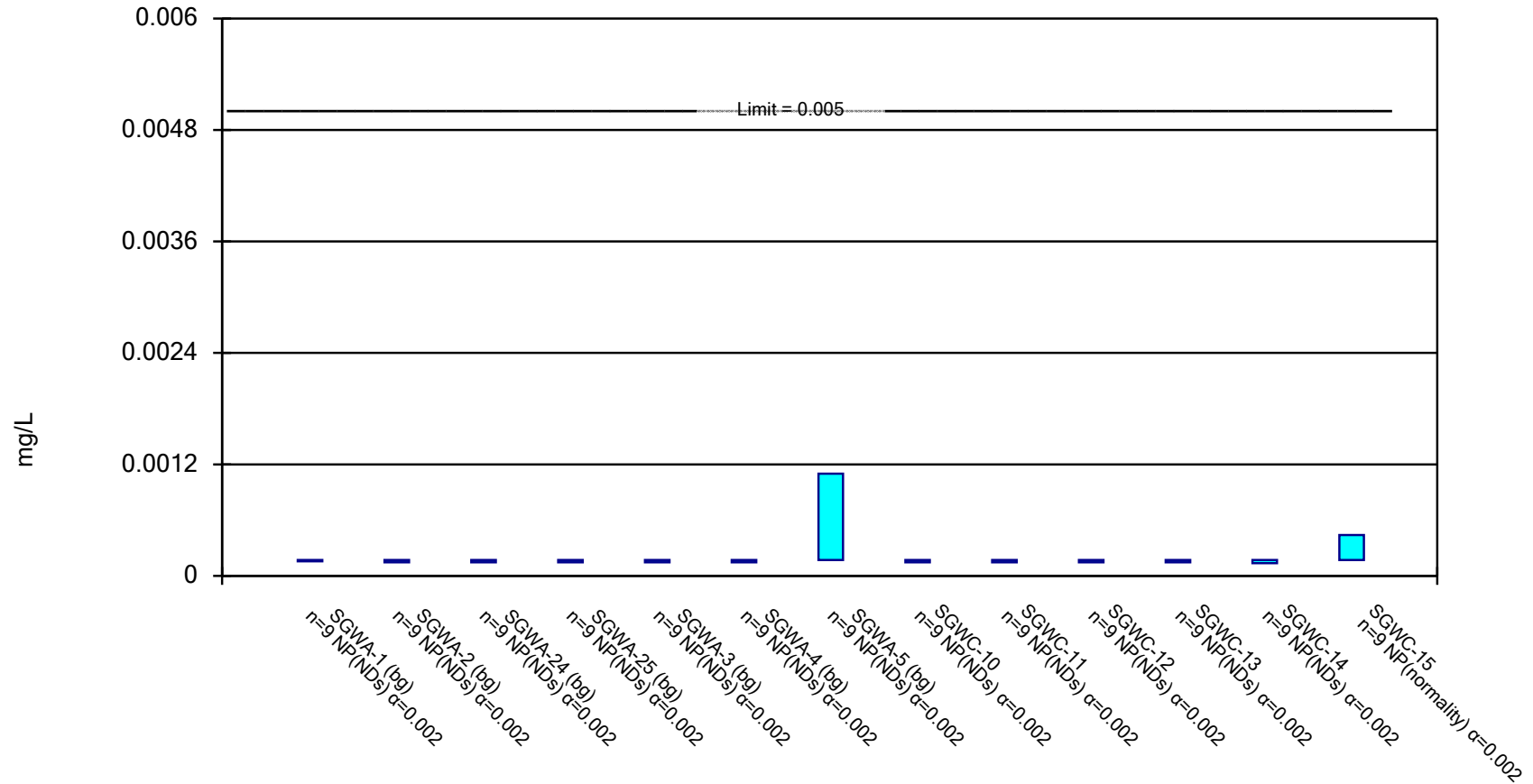
Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Beryllium Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

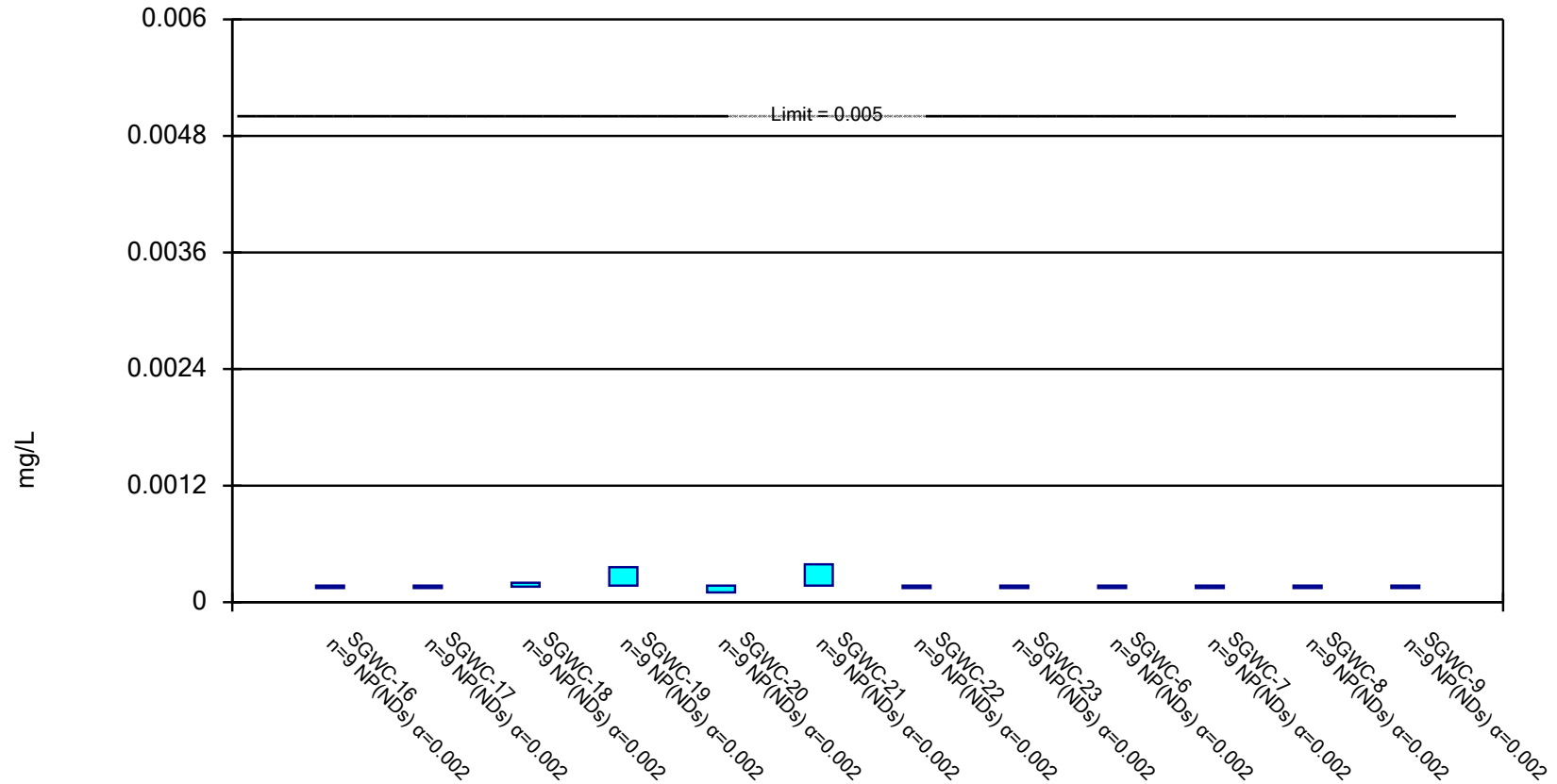


Constituent: Cadmium Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



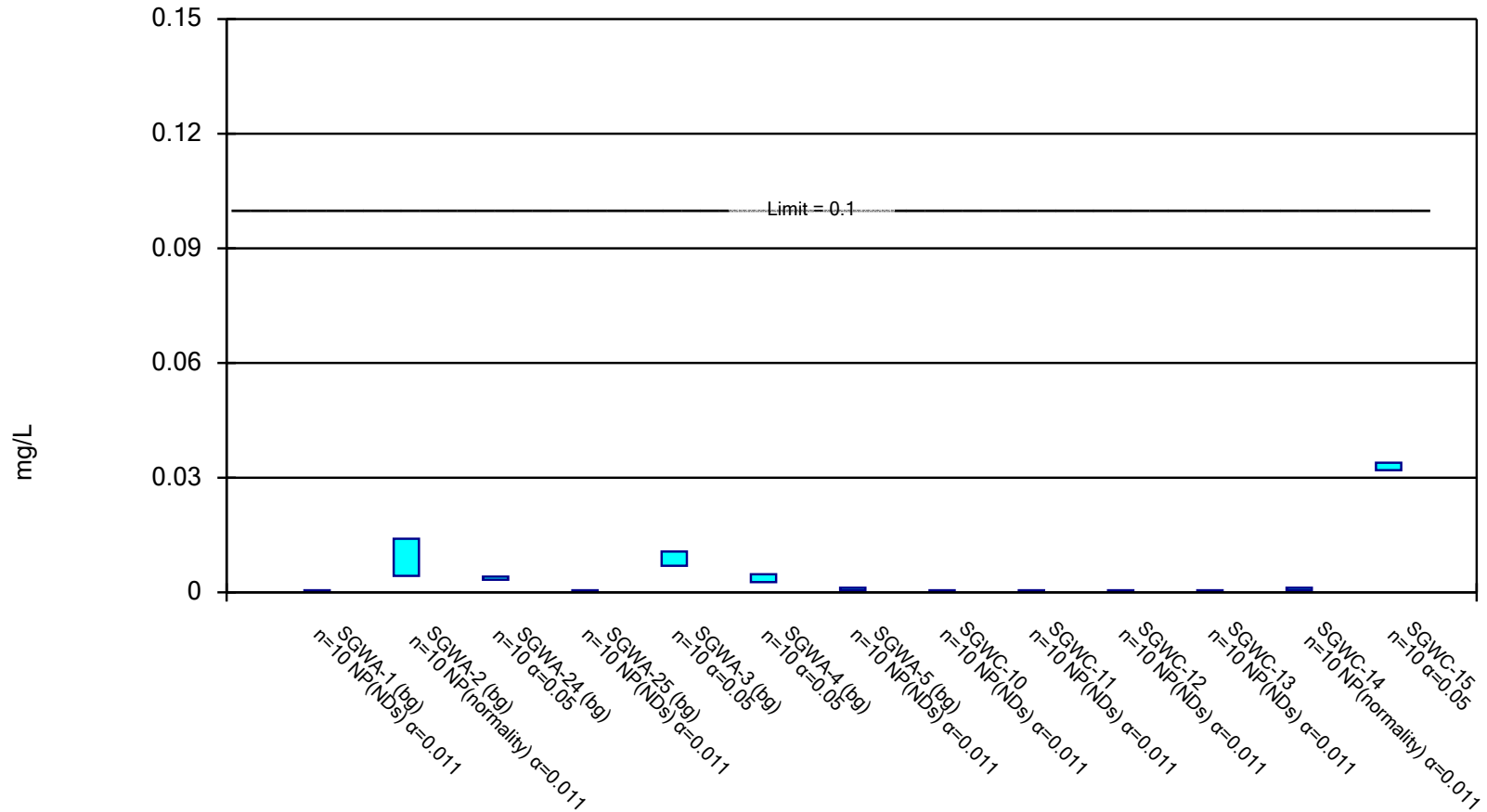
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Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

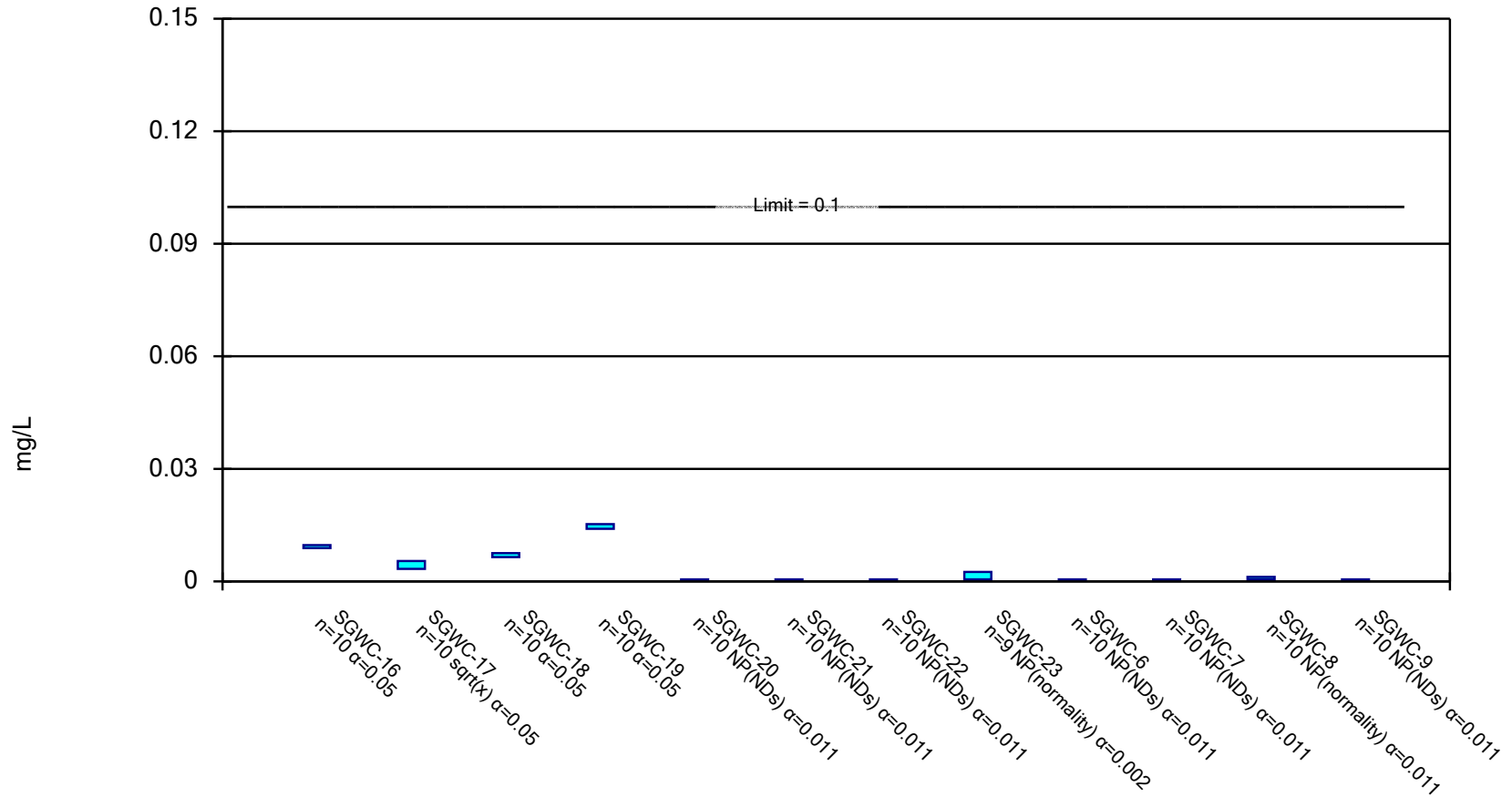


Constituent: Chromium Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

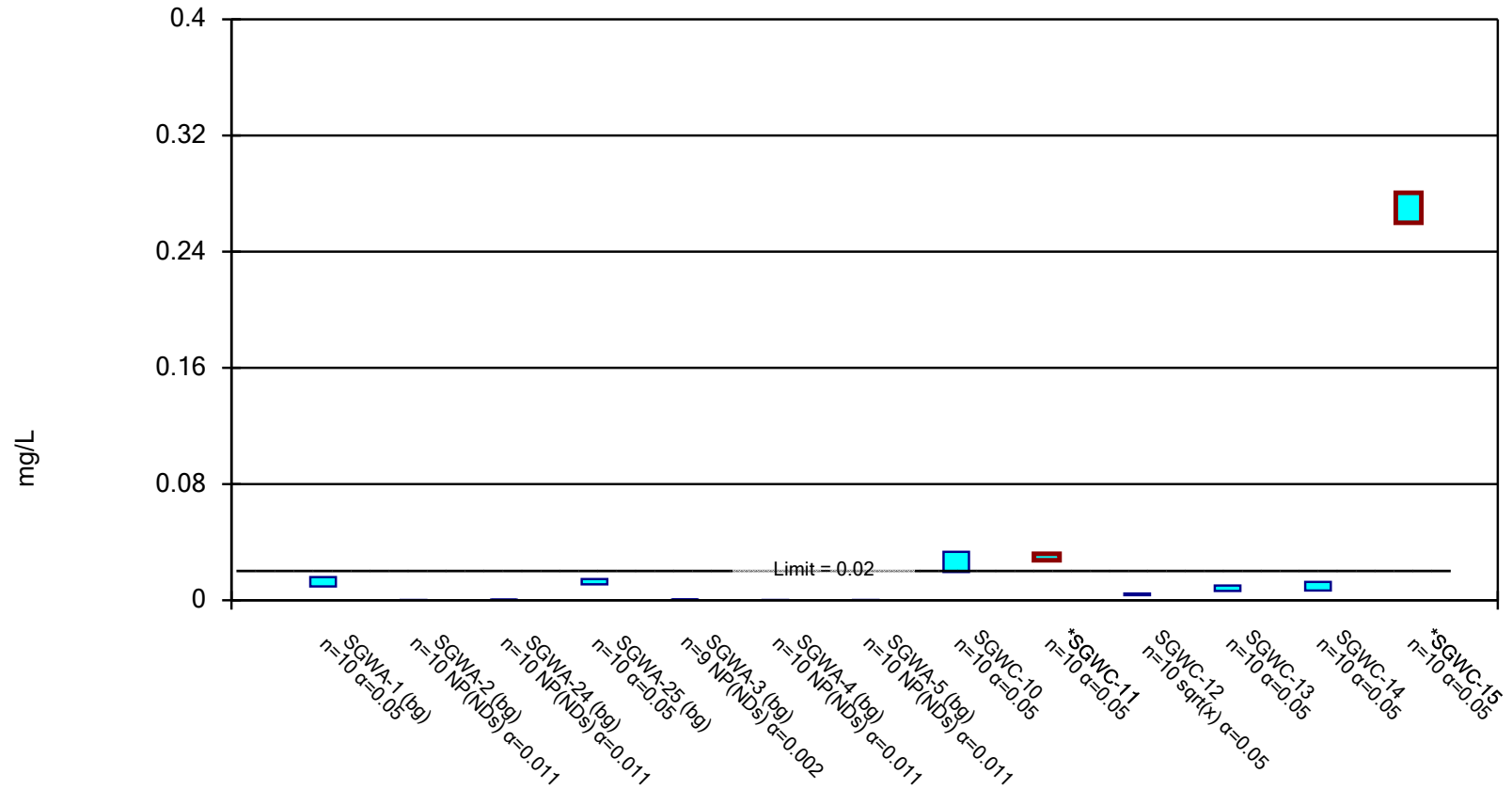


Constituent: Chromium Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

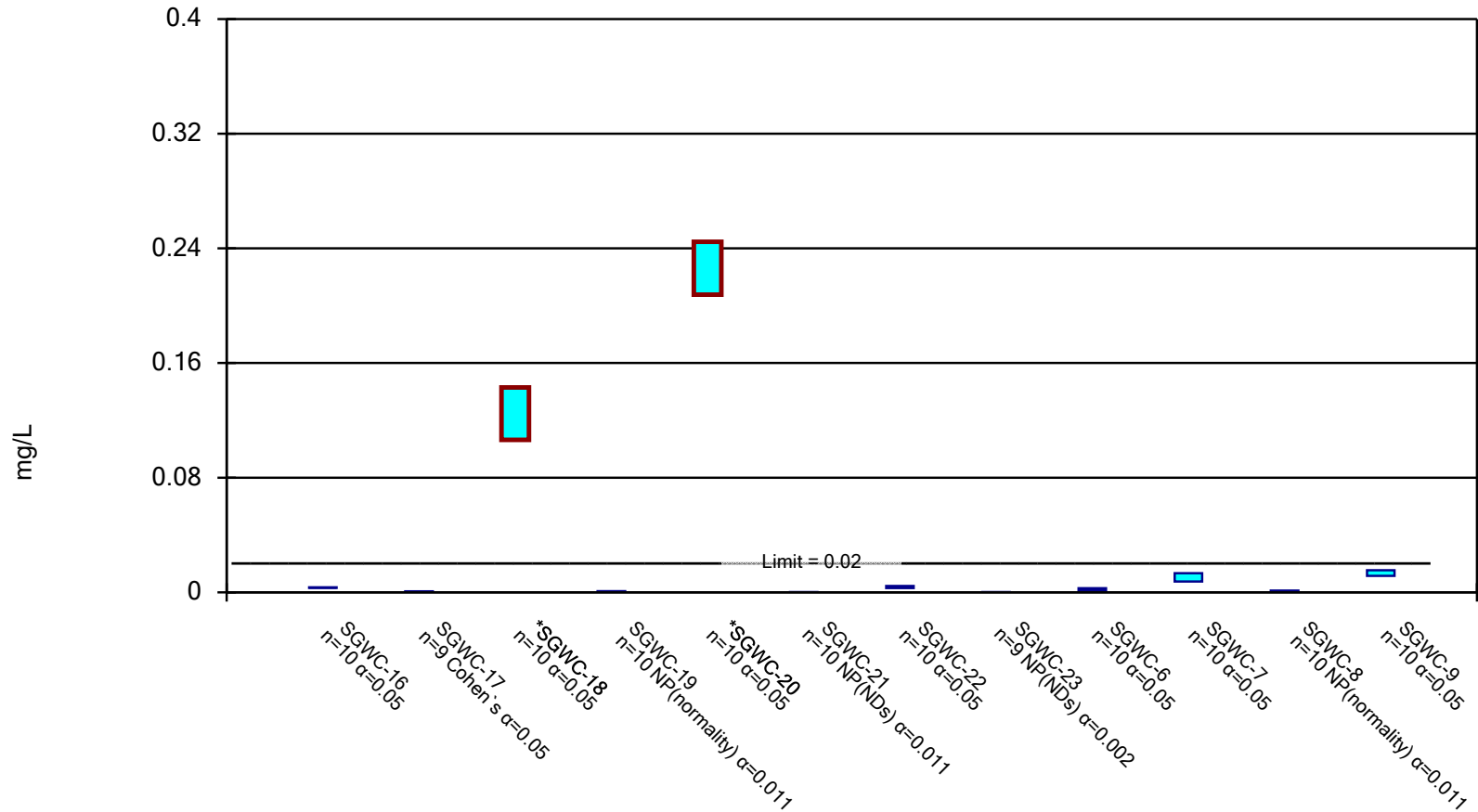
Compliance limit is exceeded.\* Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt    Analysis Run 1/18/2019 10:16 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

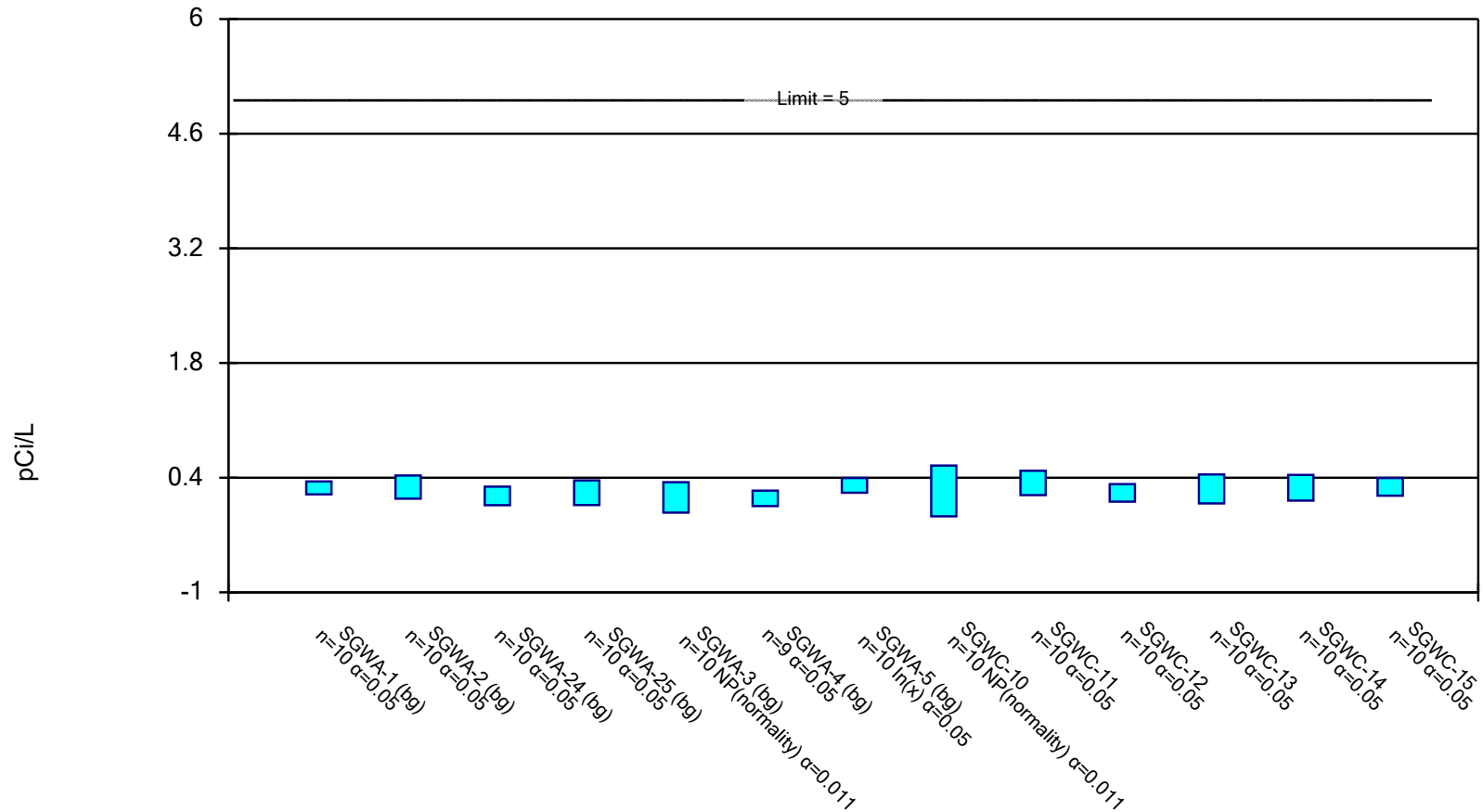
Compliance limit is exceeded.\* Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cobalt    Analysis Run 1/18/2019 10:16 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

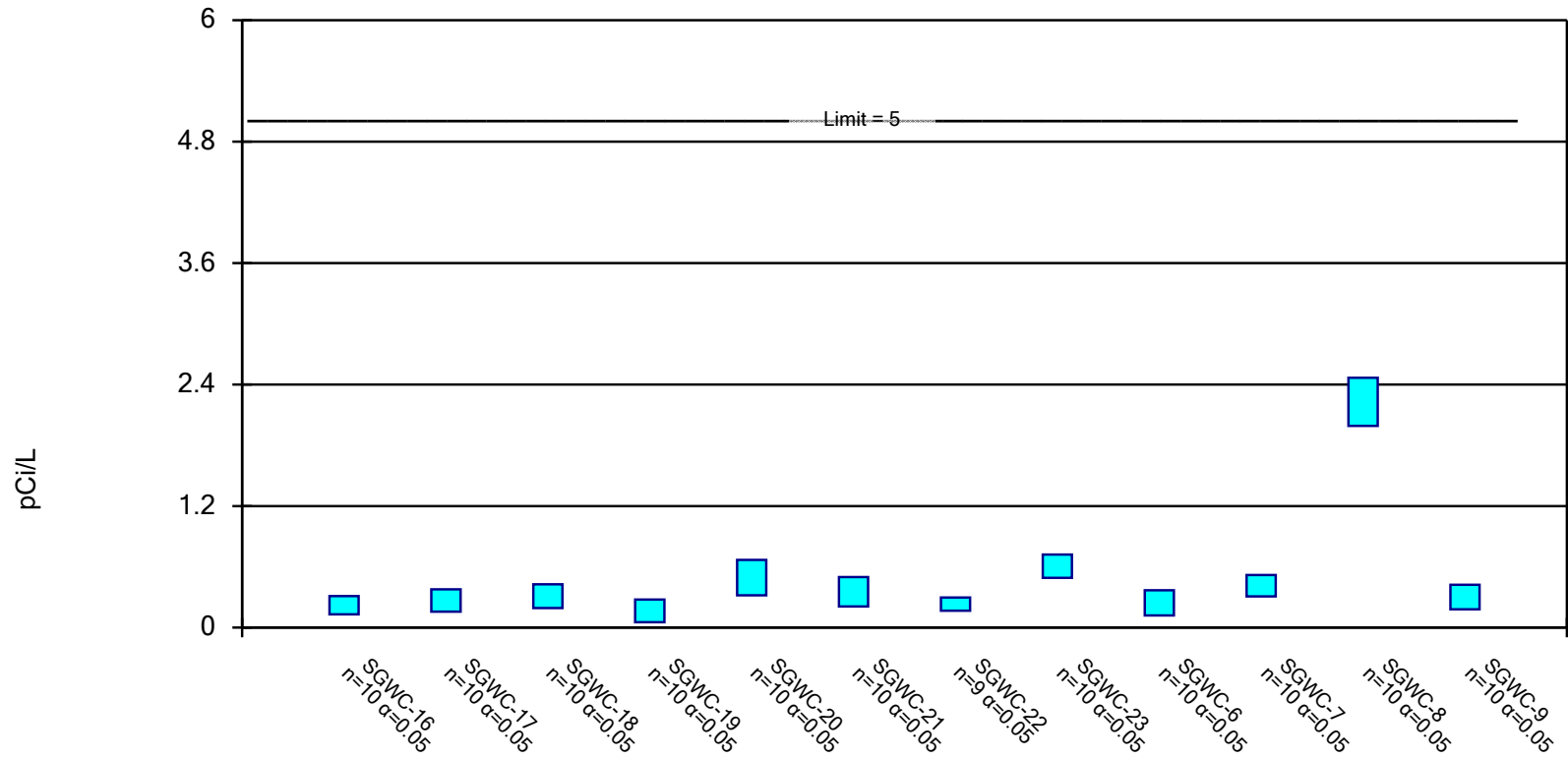


Constituent: Combined Radium 226 + 228 Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence I

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

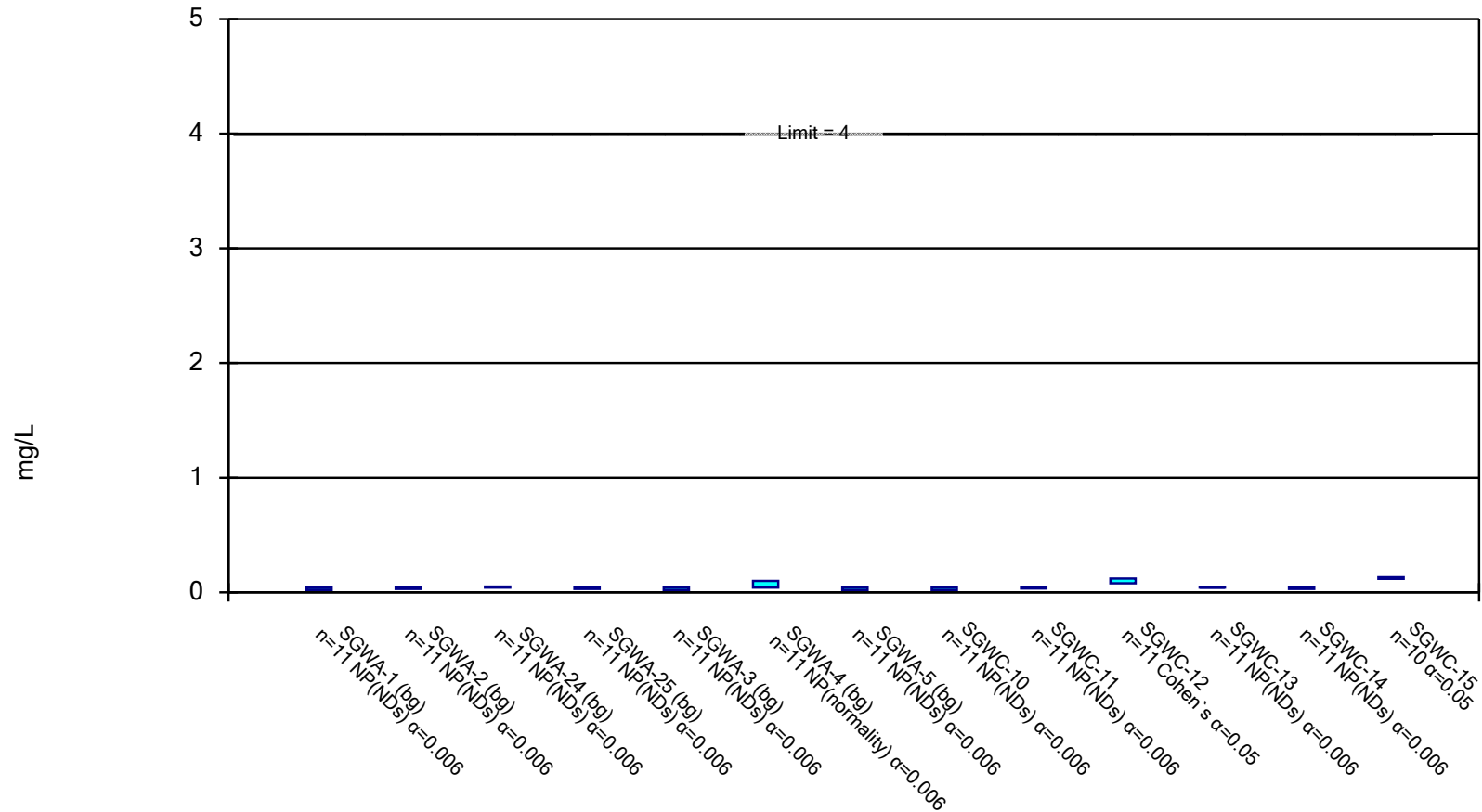


Constituent: Combined Radium 226 + 228 Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence I

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

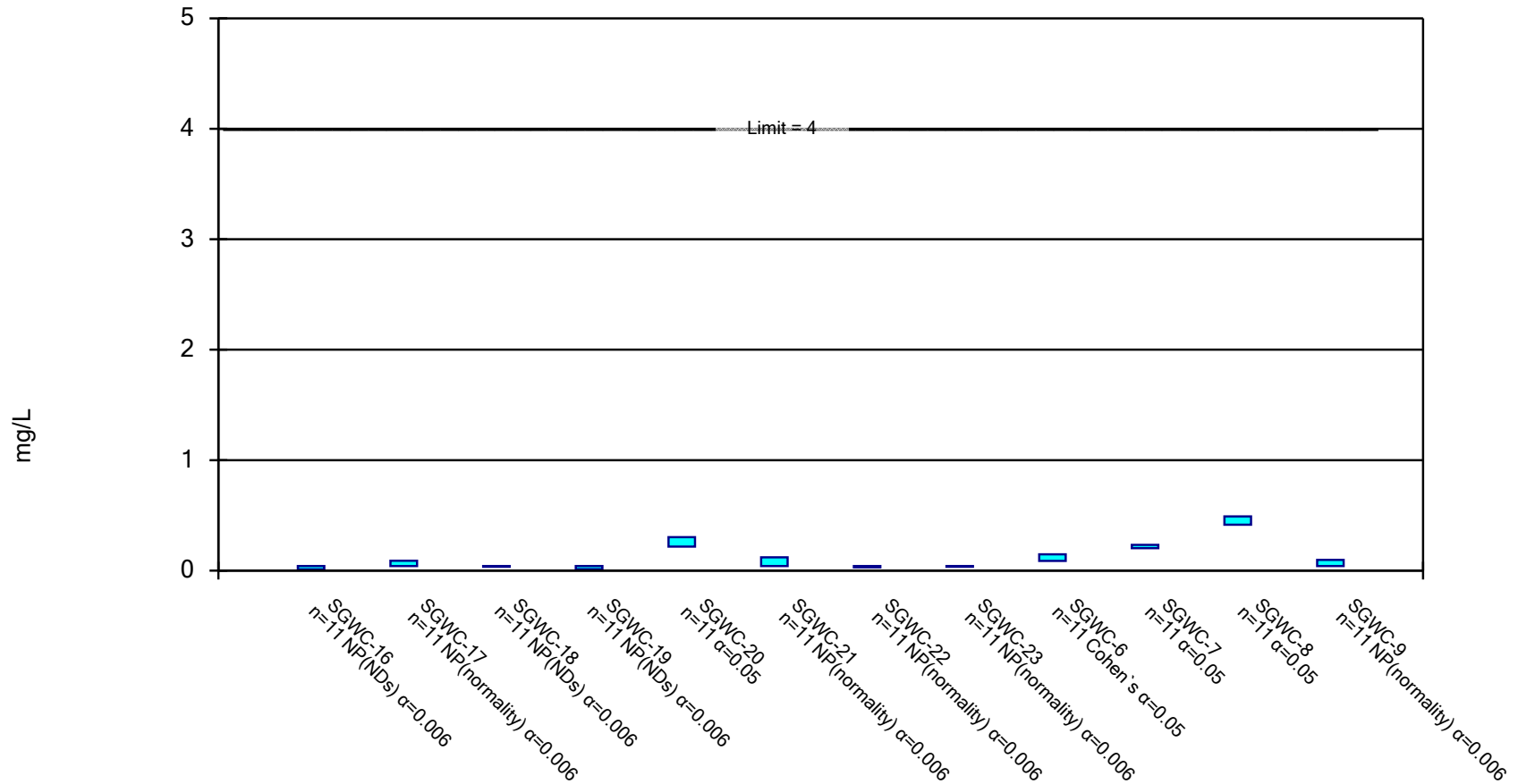


Constituent: Fluoride Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



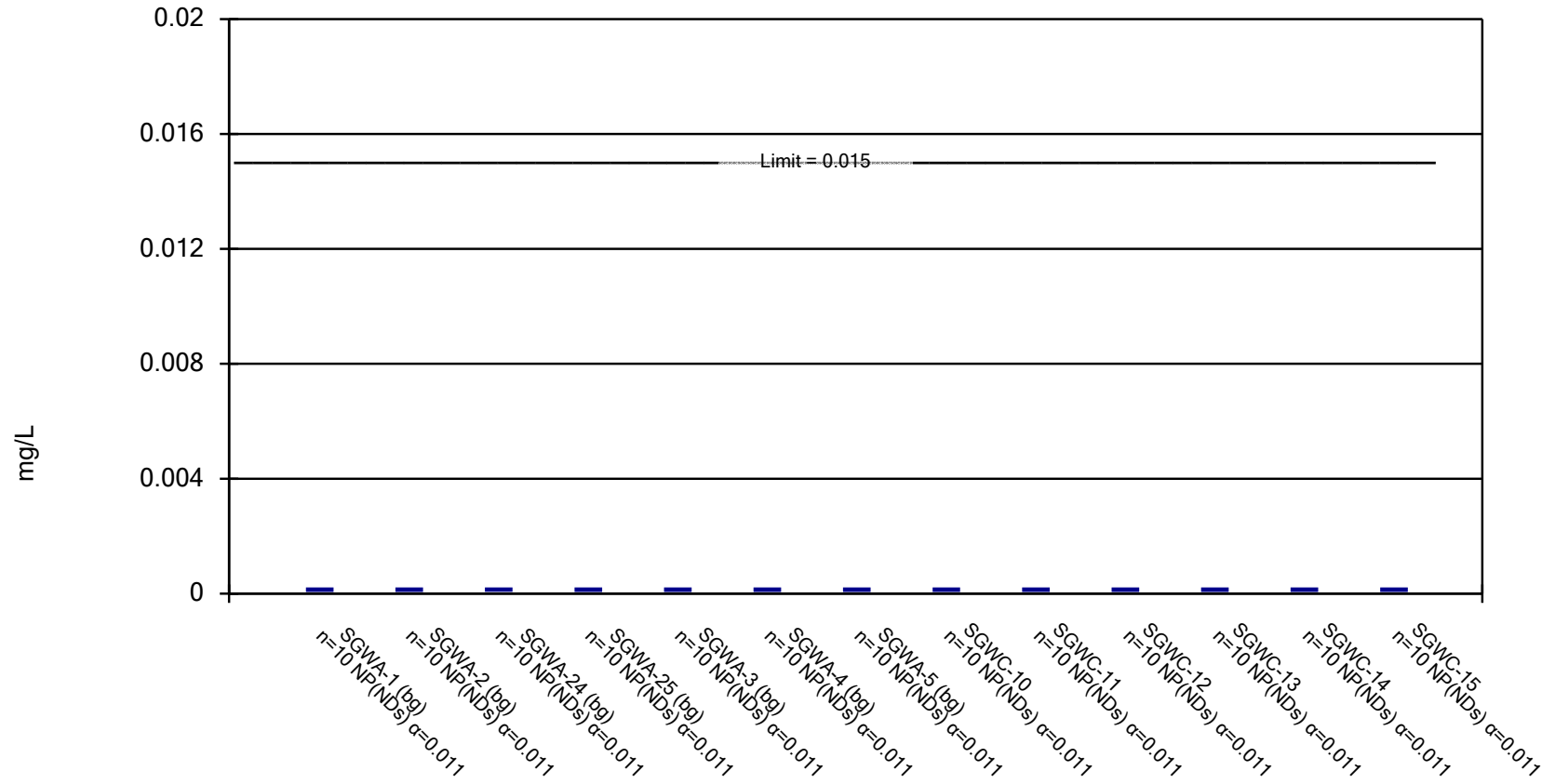
Constituent: Fluoride Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

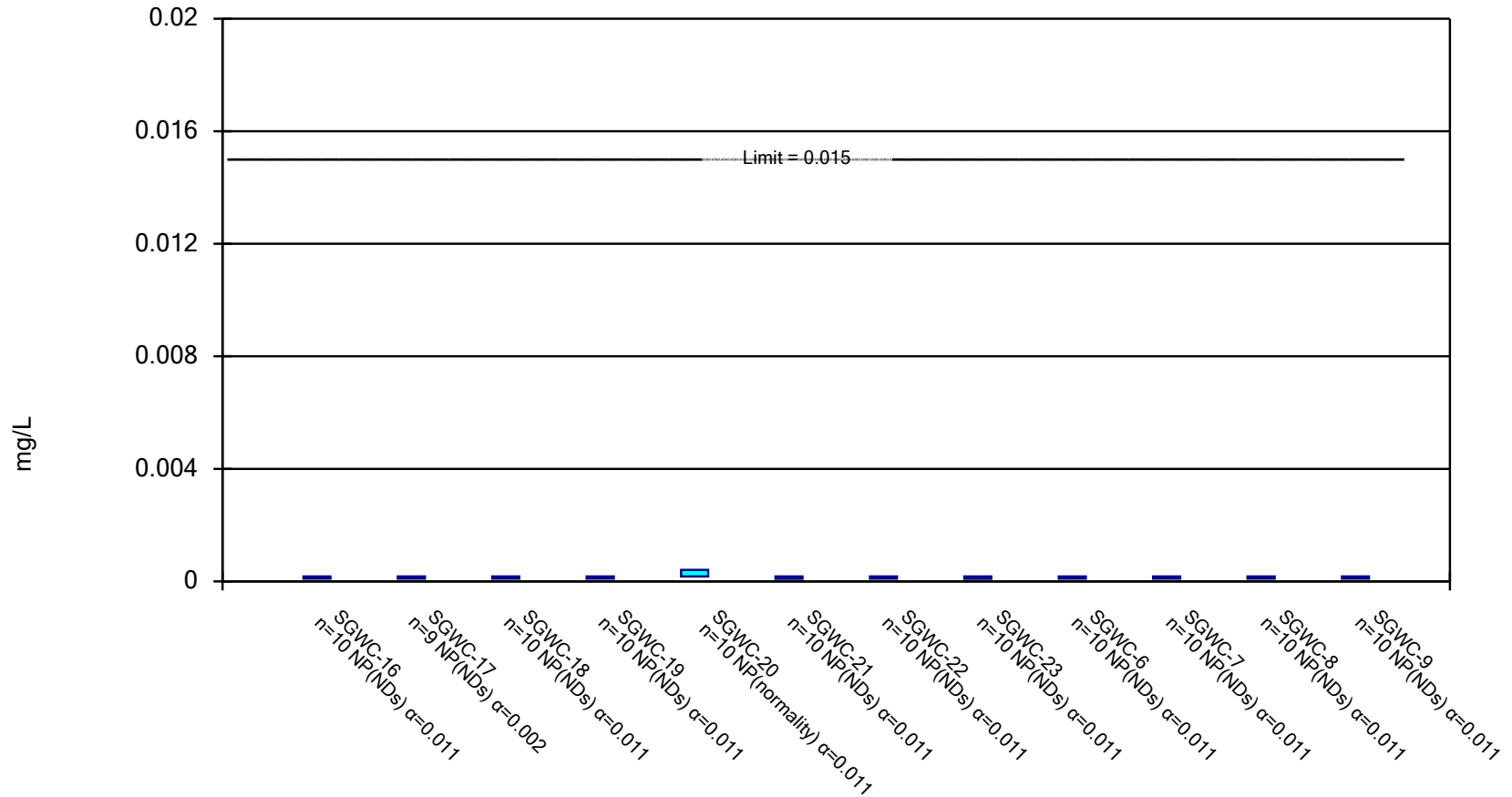


Constituent: Lead Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

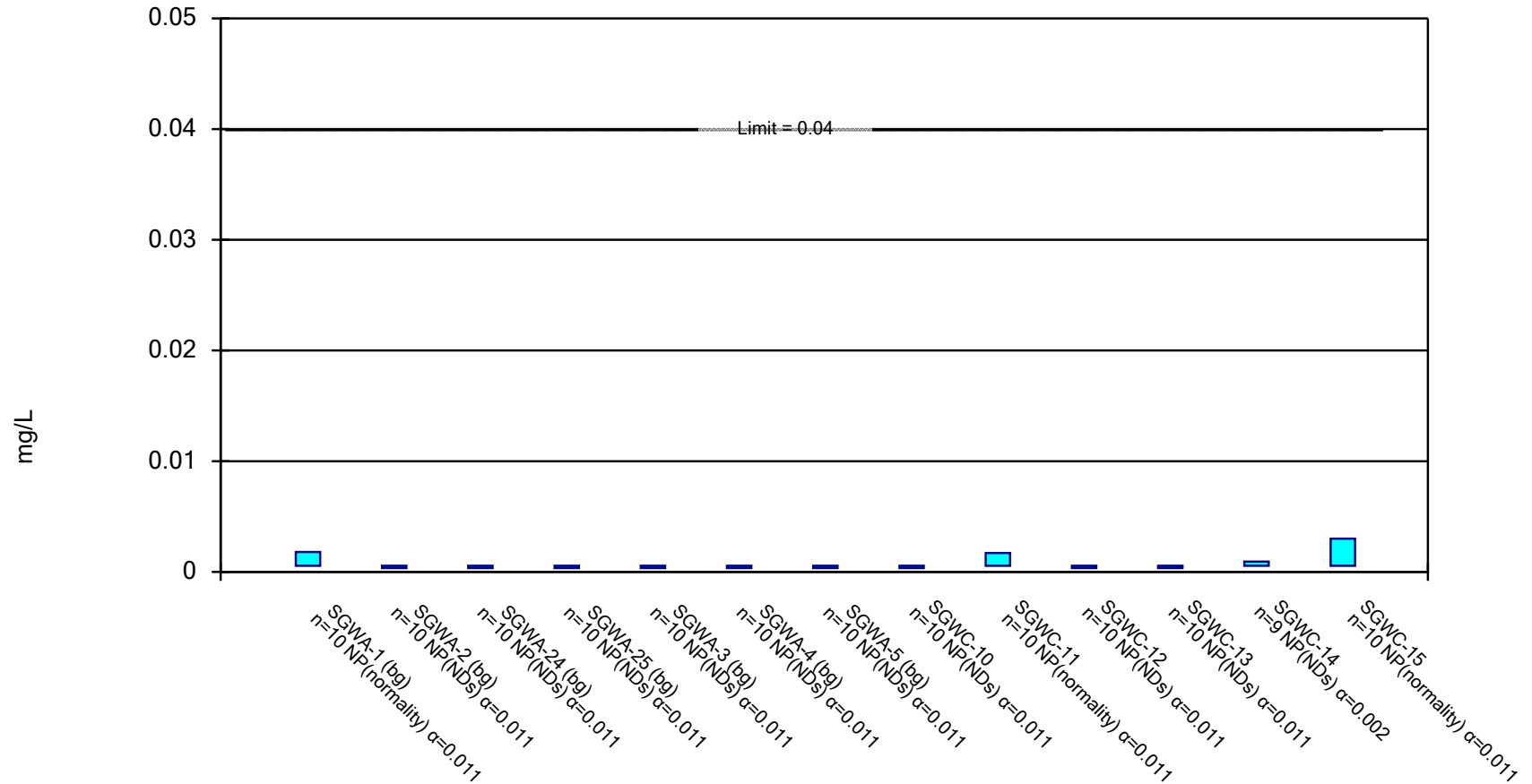


Constituent: Lead Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

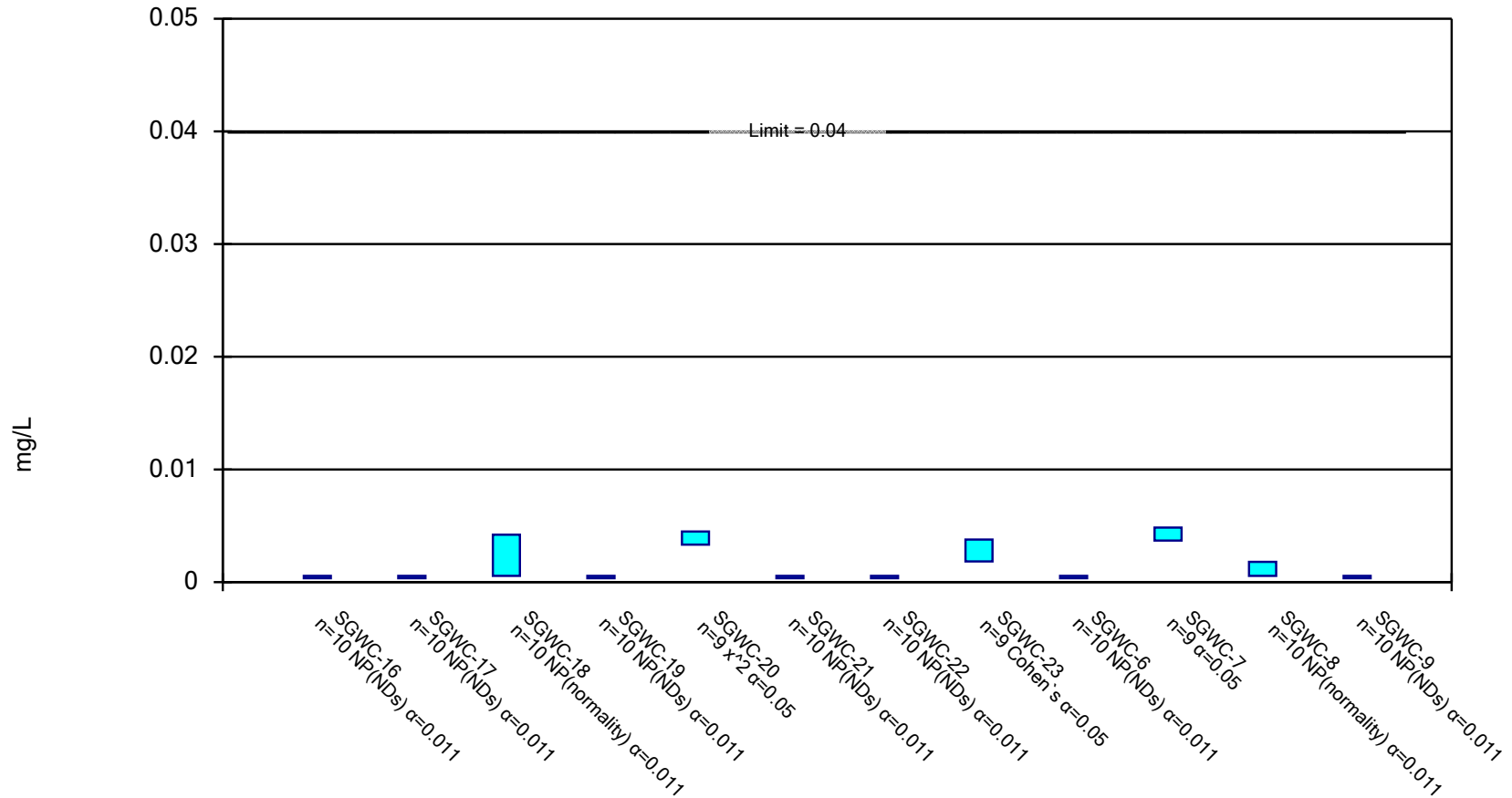


Constituent: Lithium    Analysis Run 1/18/2019 10:16 AM    View: Interwell Confidence Interval

Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

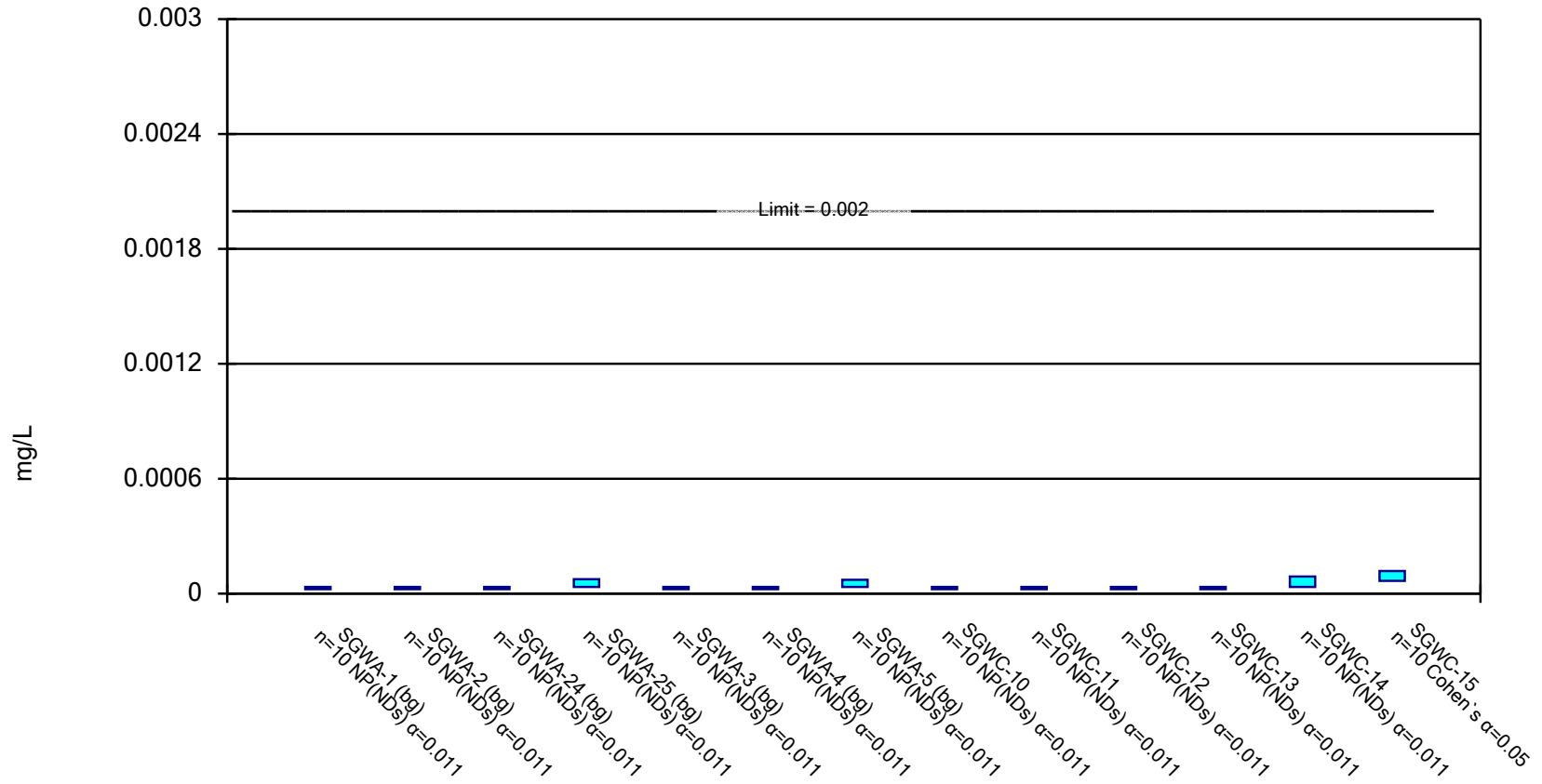


Constituent: Lithium Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

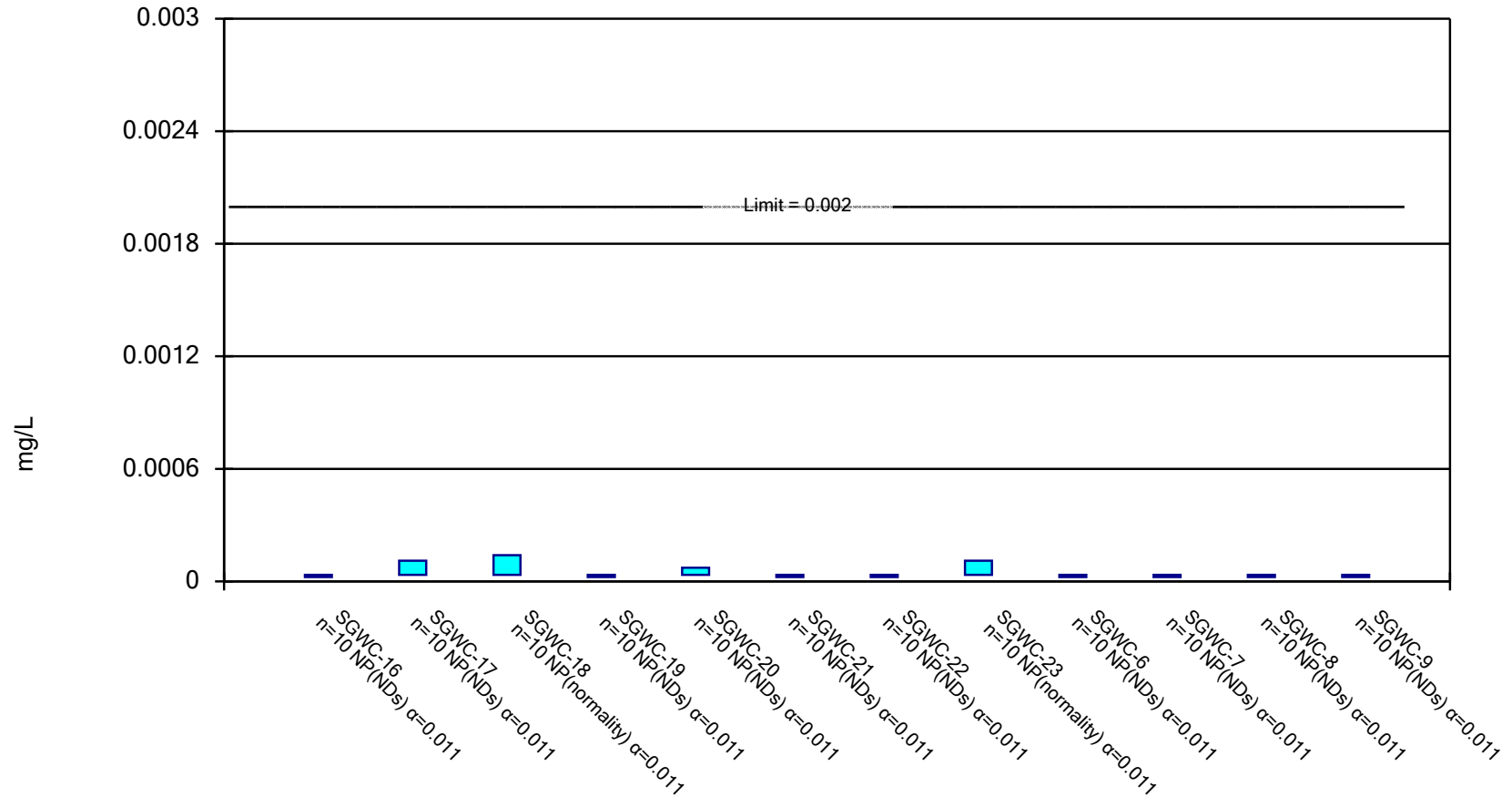


Constituent: Mercury Analysis Run 1/18/2019 10:16 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

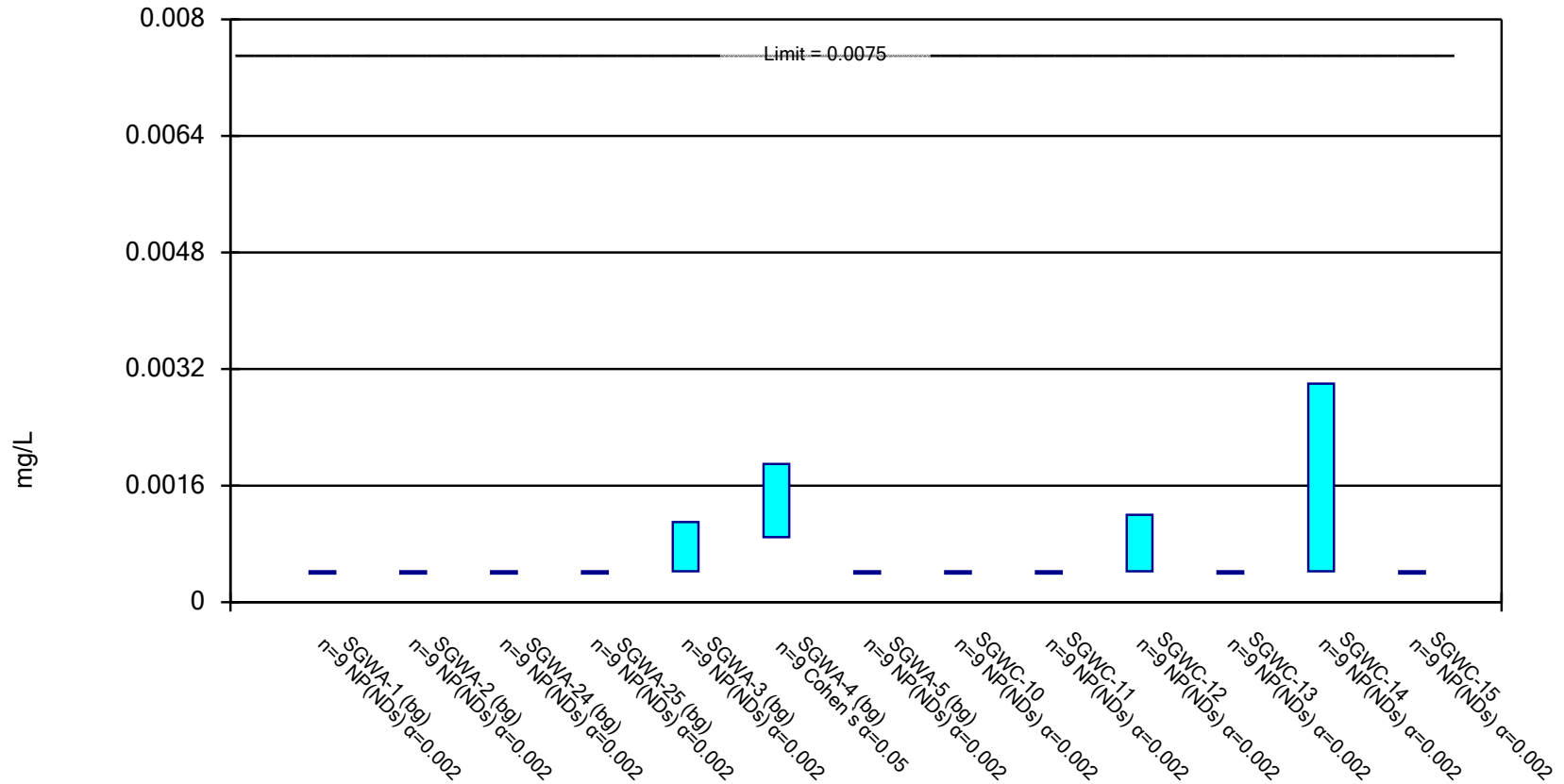
Compliance Limit is not exceeded.



Constituent: Mercury    Analysis Run 1/18/2019 10:17 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

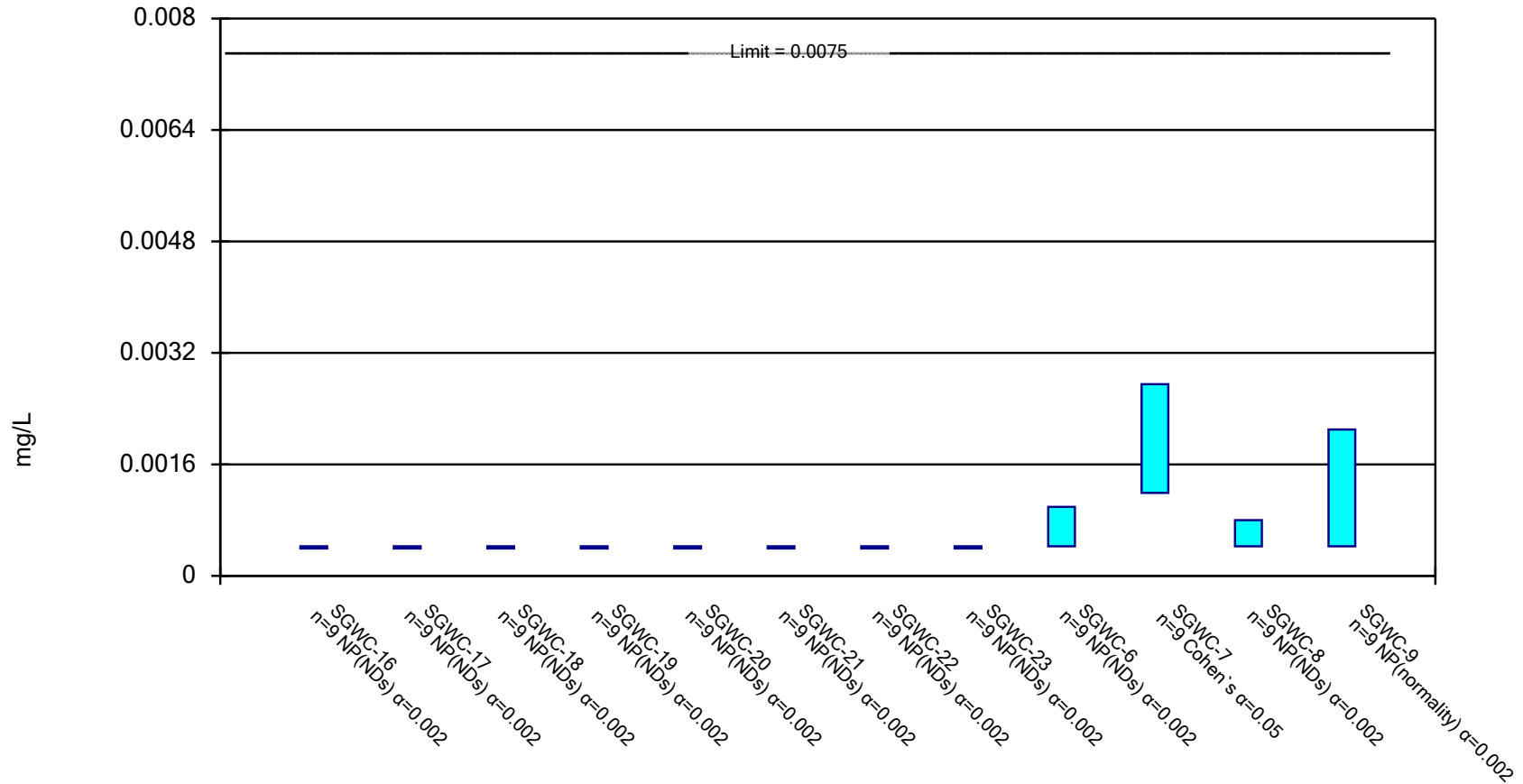


Constituent: Molybdenum Analysis Run 1/18/2019 10:17 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



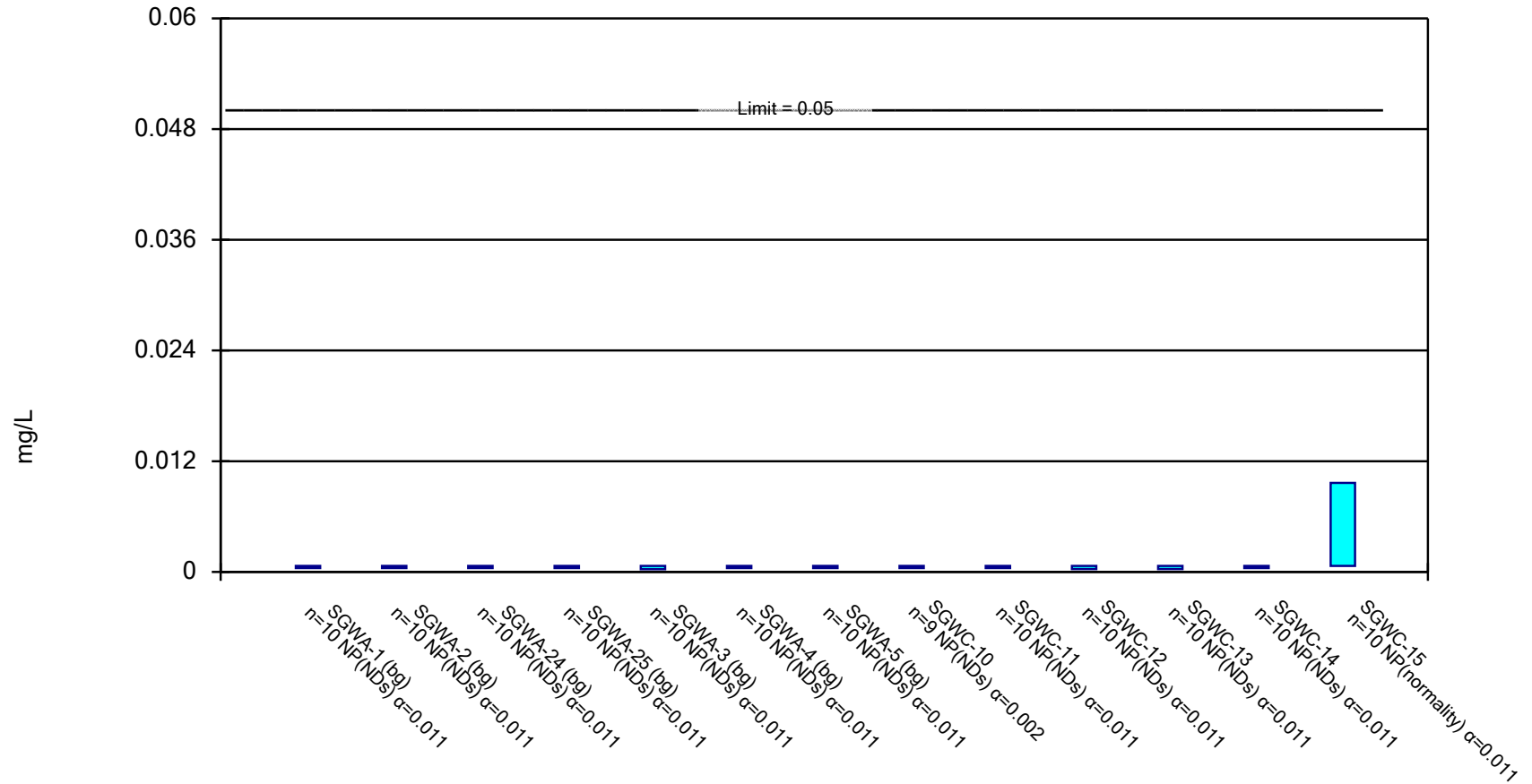
Constituent: Molybdenum Analysis Run 1/18/2019 10:17 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

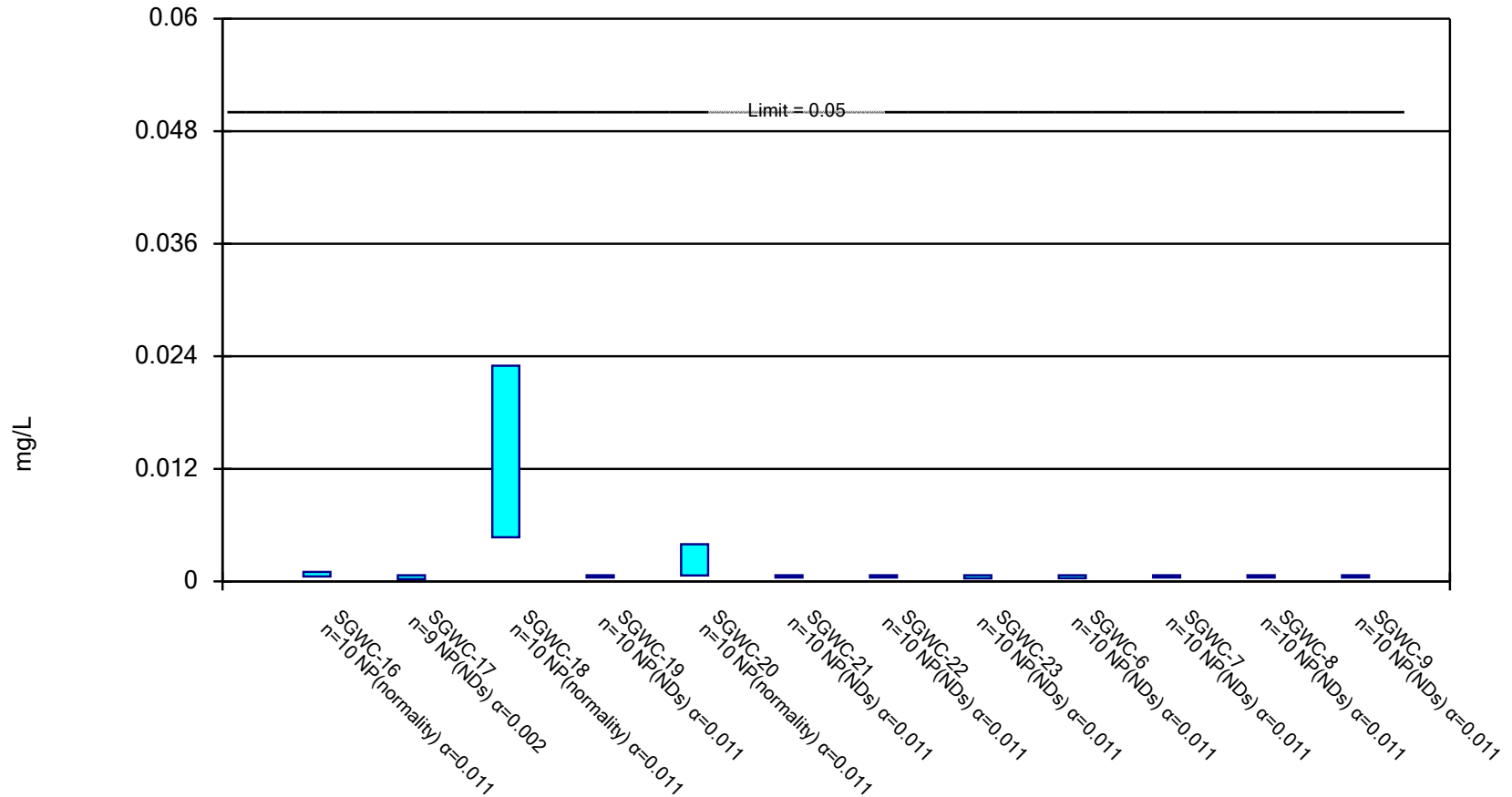


Constituent: Selenium Analysis Run 1/18/2019 10:17 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

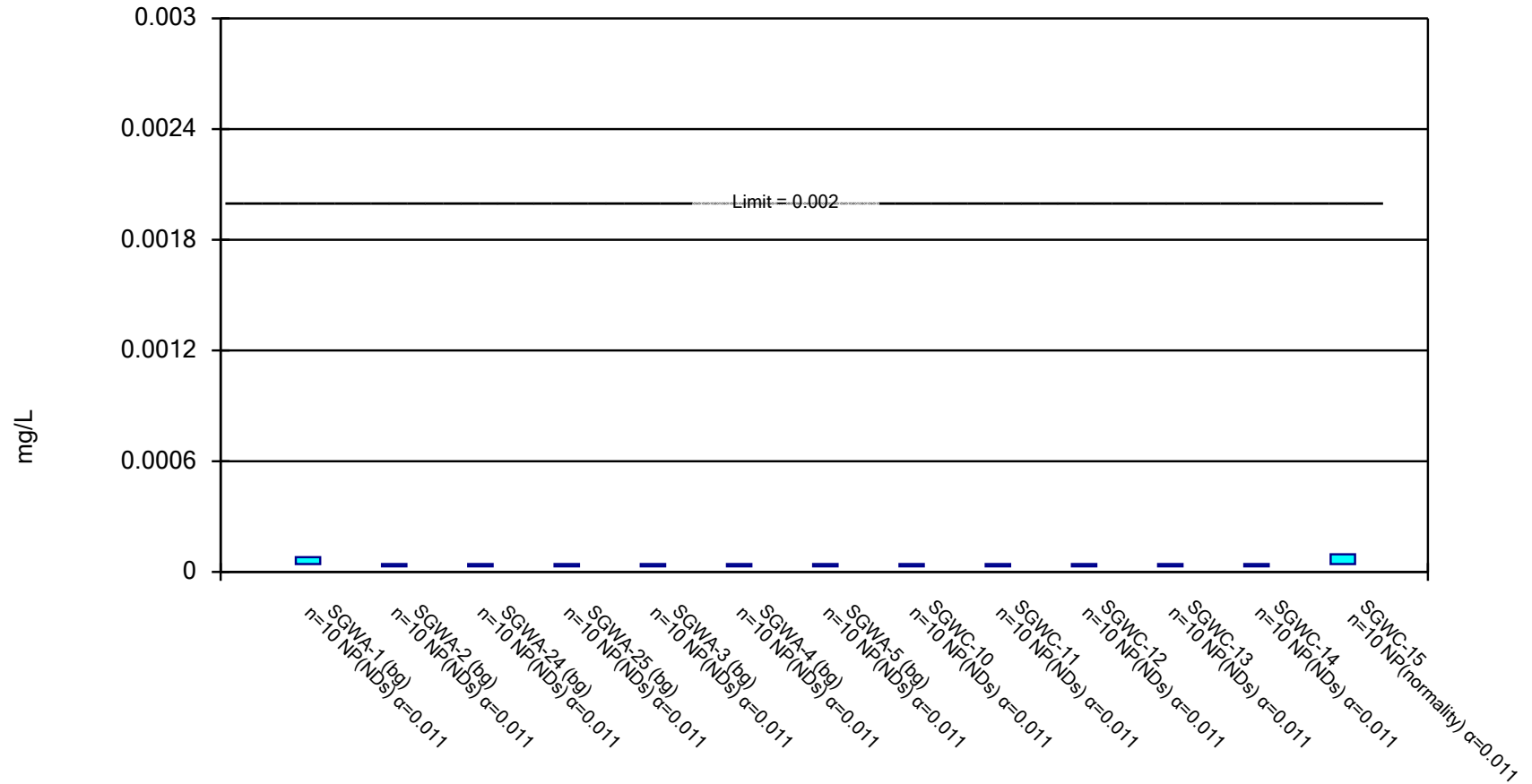


Constituent: Selenium Analysis Run 1/18/2019 10:17 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

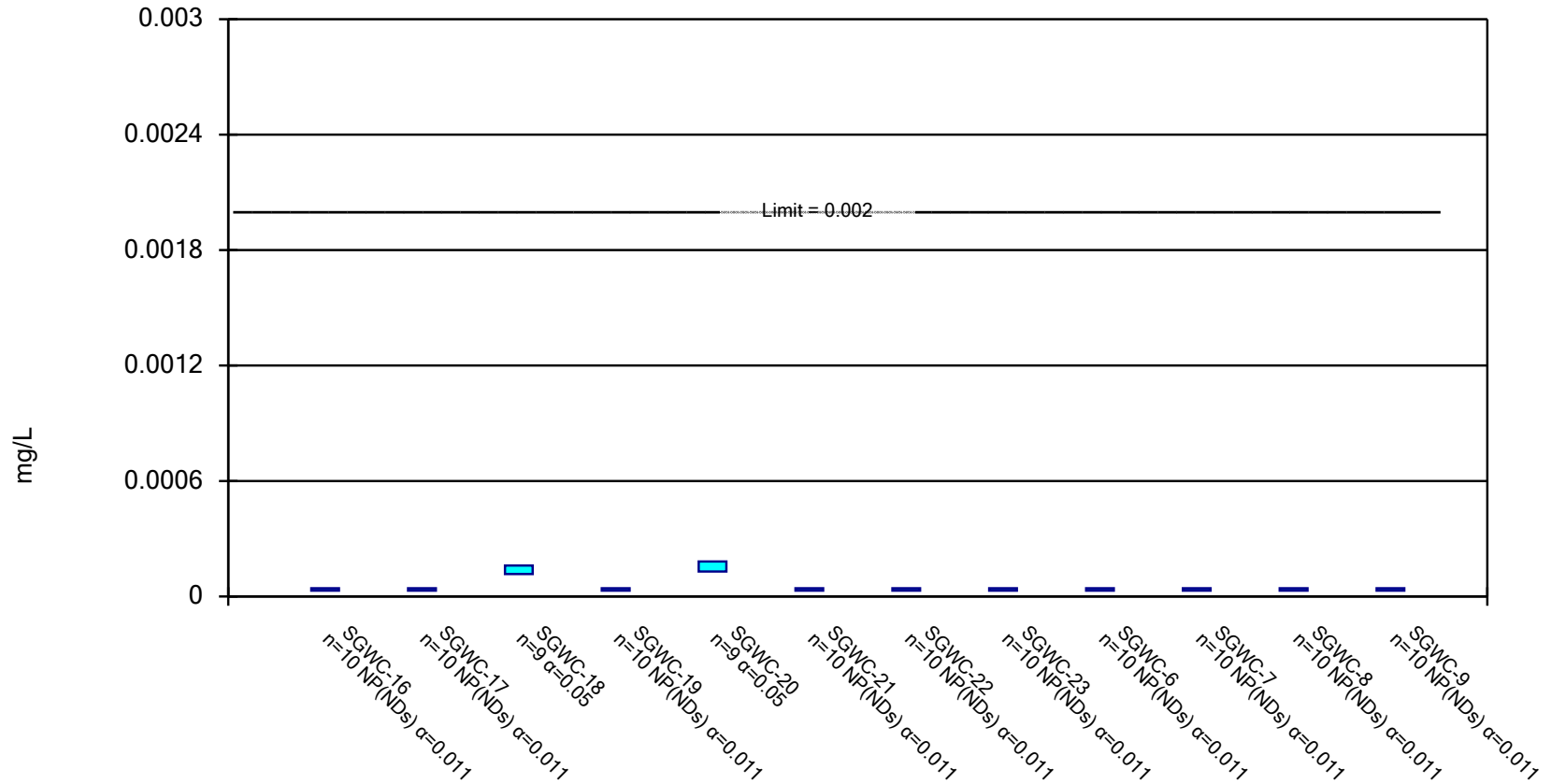
Compliance Limit is not exceeded.



Constituent: Thallium    Analysis Run 1/18/2019 10:17 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

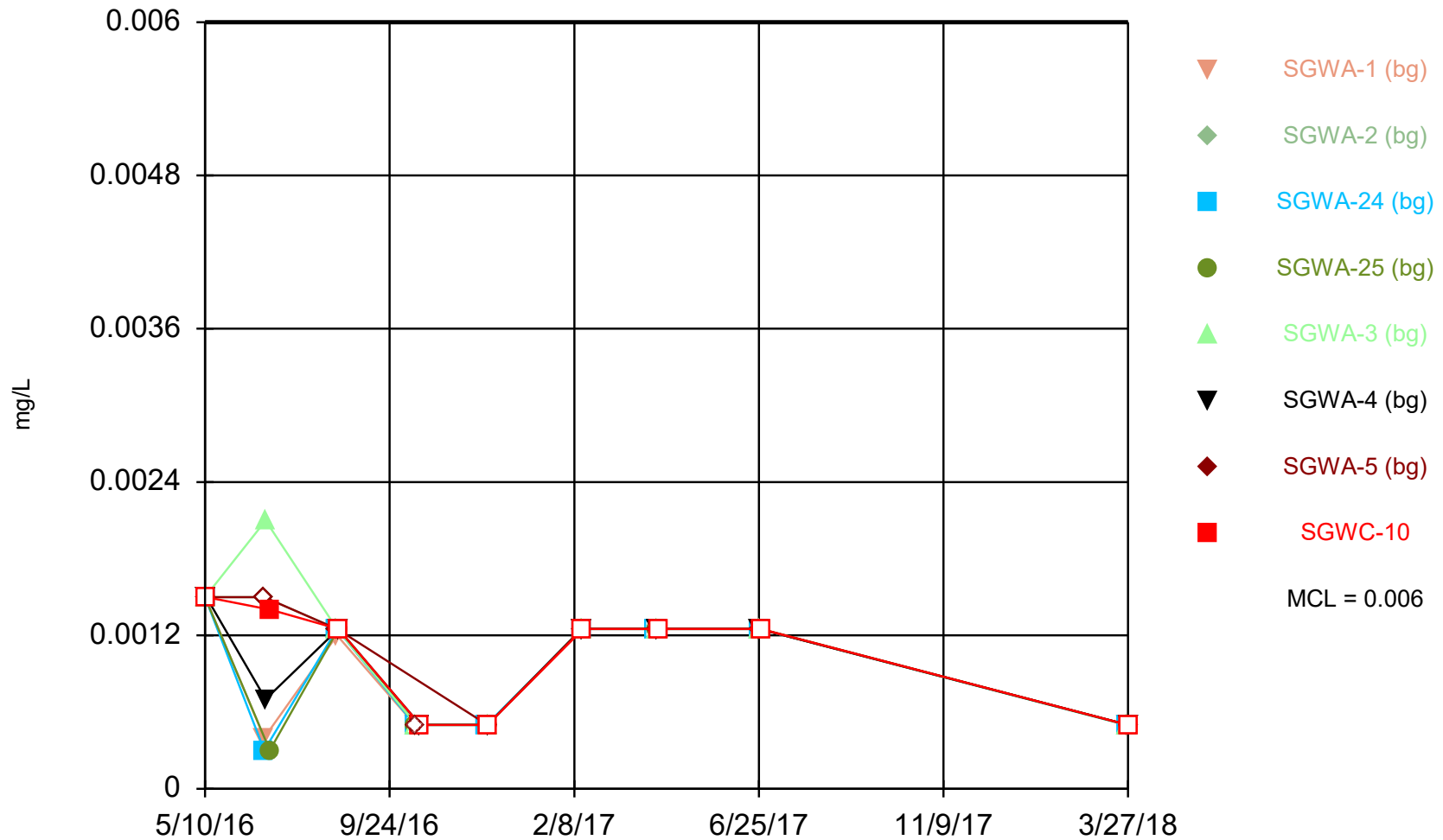


Constituent: Thallium Analysis Run 1/18/2019 10:17 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

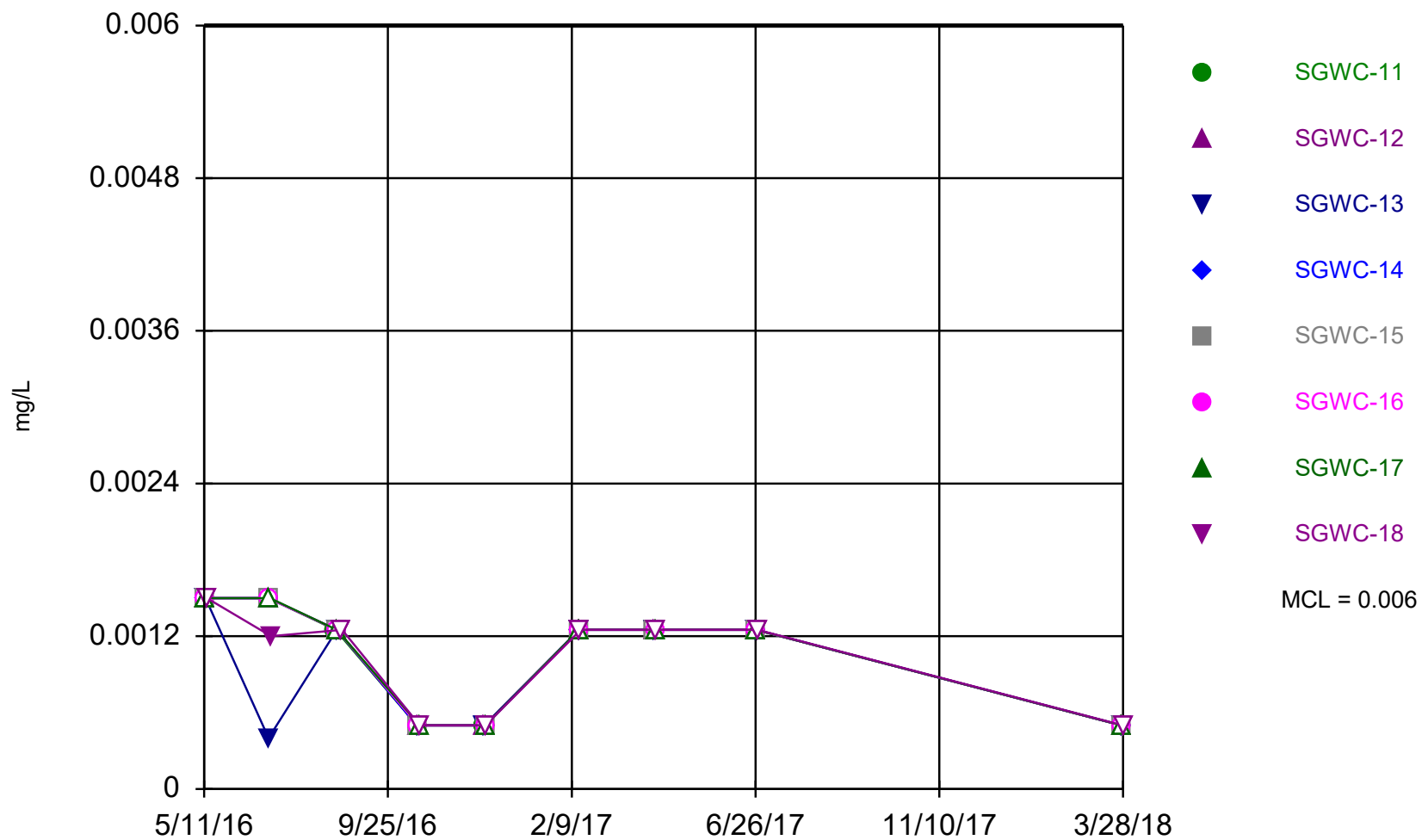
# TIME SERIES PLOTS JUNE 2018

## Time Series



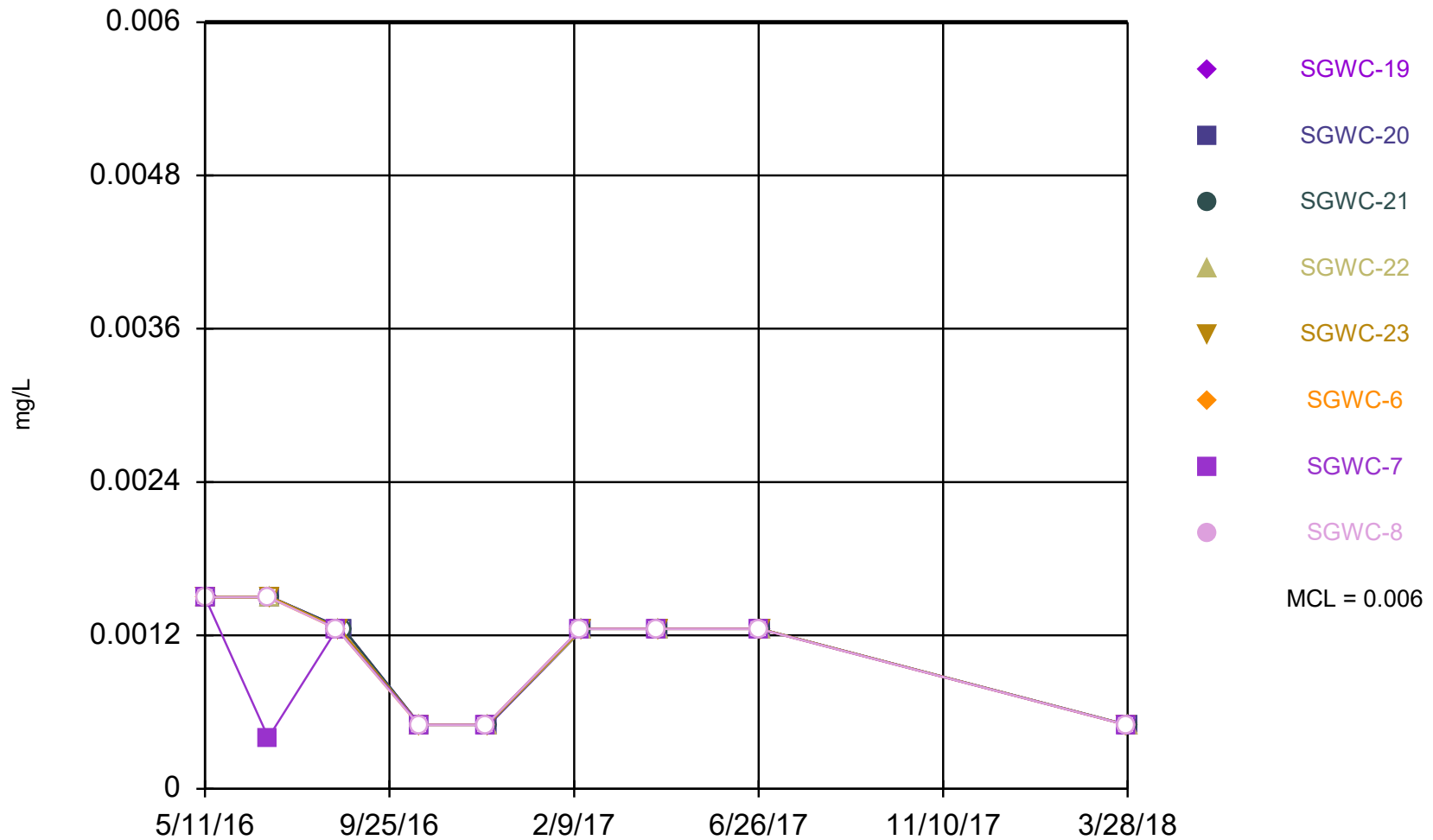
Constituent: Antimony Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Antimony Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

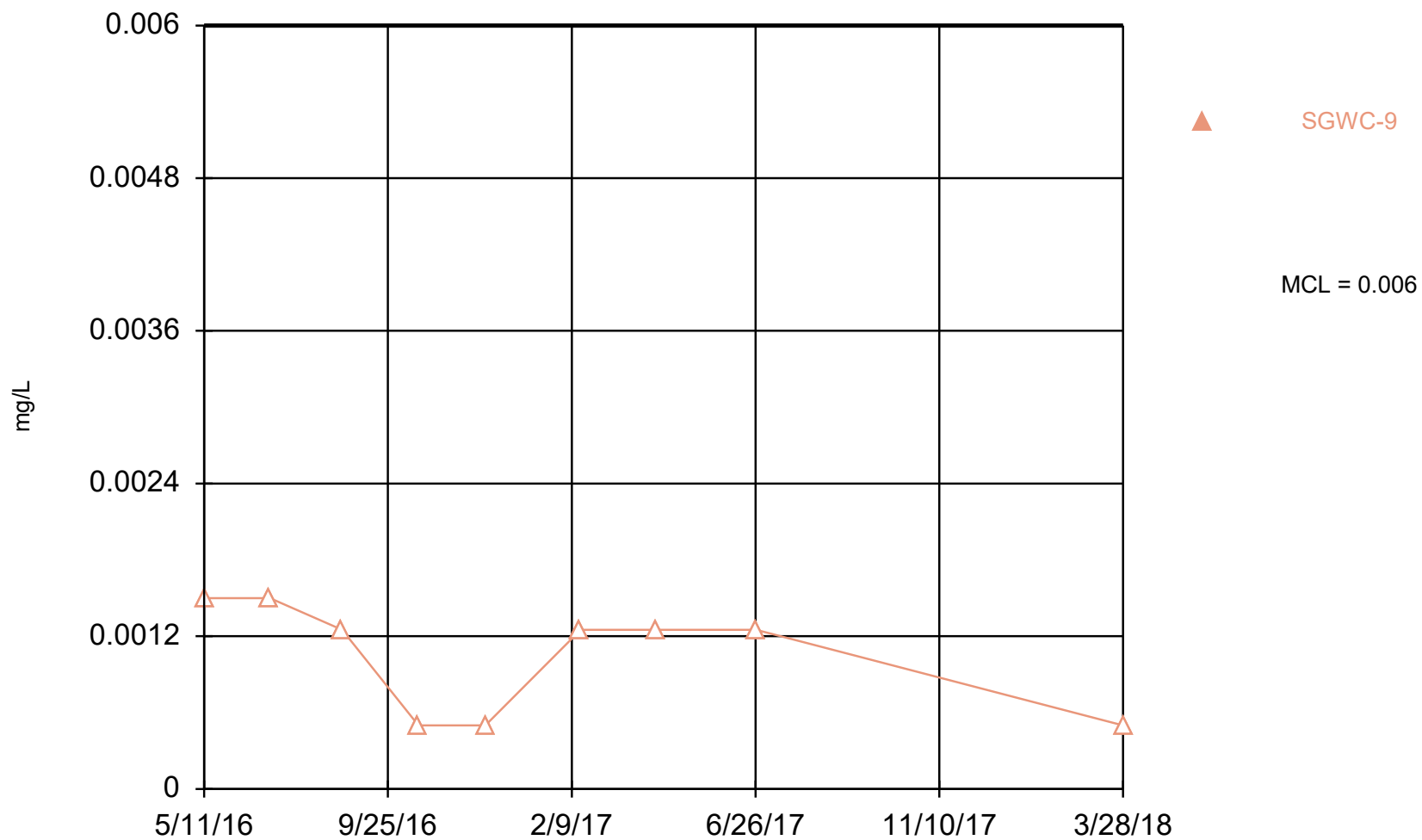
## Time Series



Constituent: Antimony    Analysis Run 10/11/2018 12:24 PM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

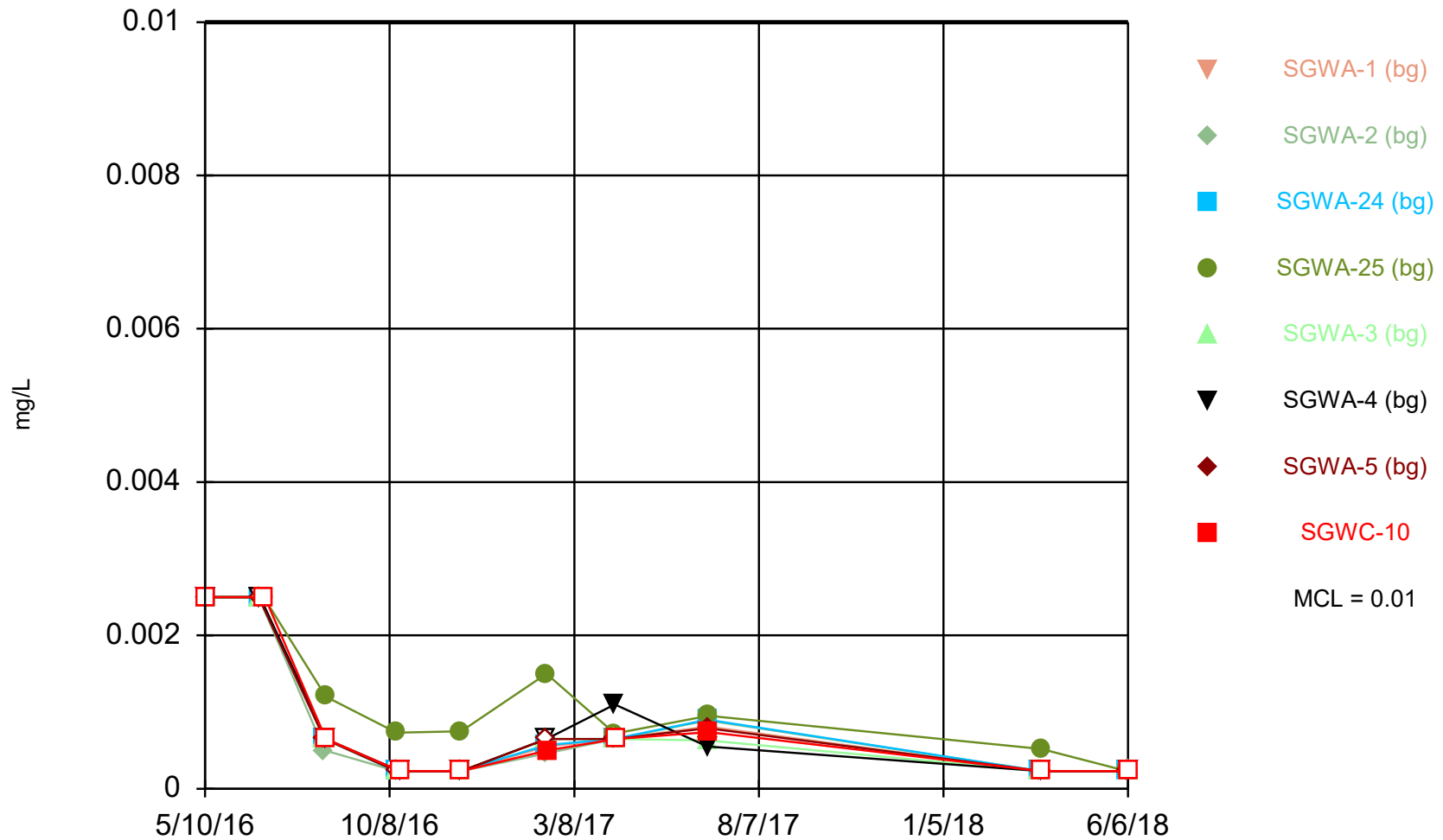


## Time Series



Constituent: Antimony    Analysis Run 10/11/2018 12:24 PM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

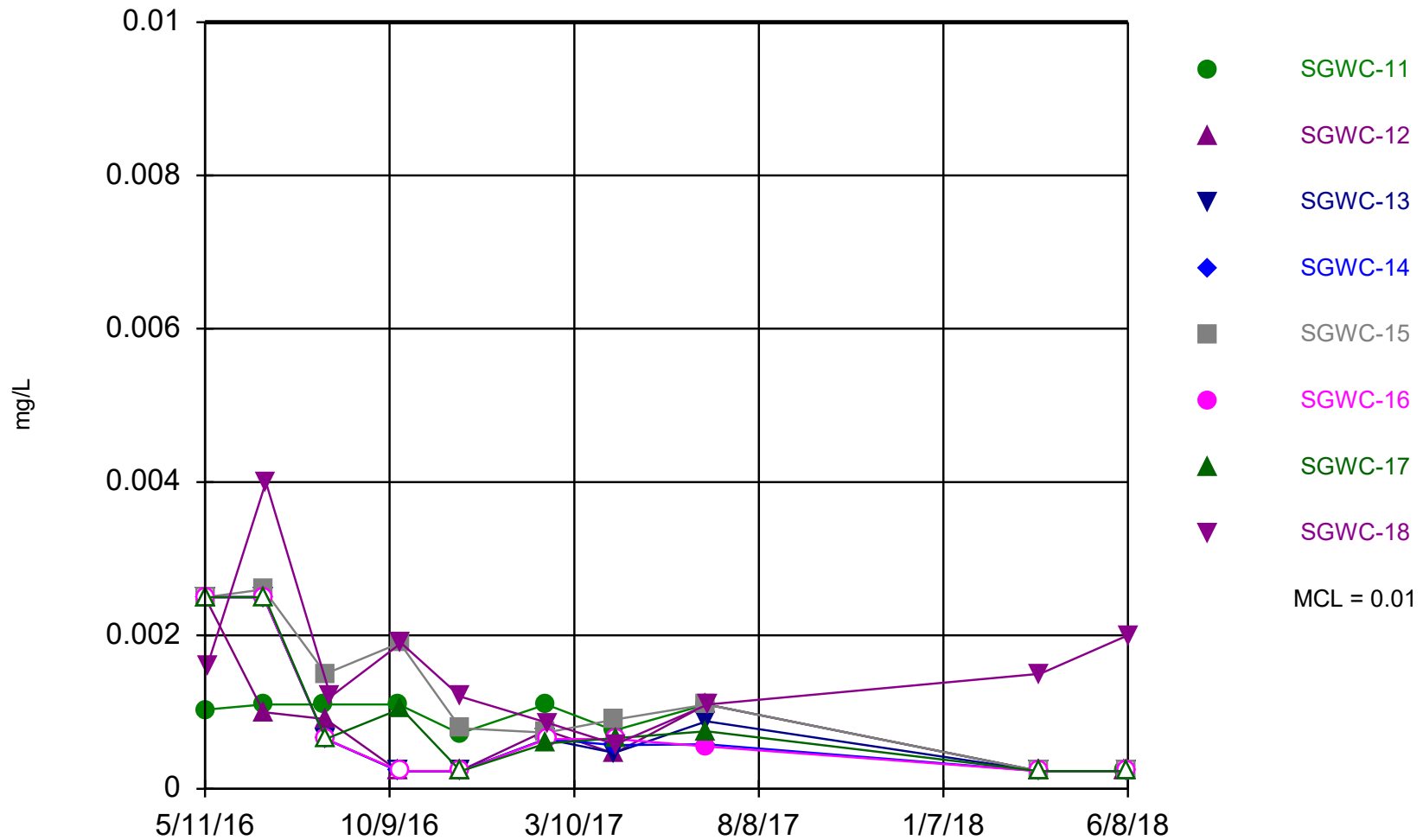
## Time Series



Constituent: Arsenic Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval

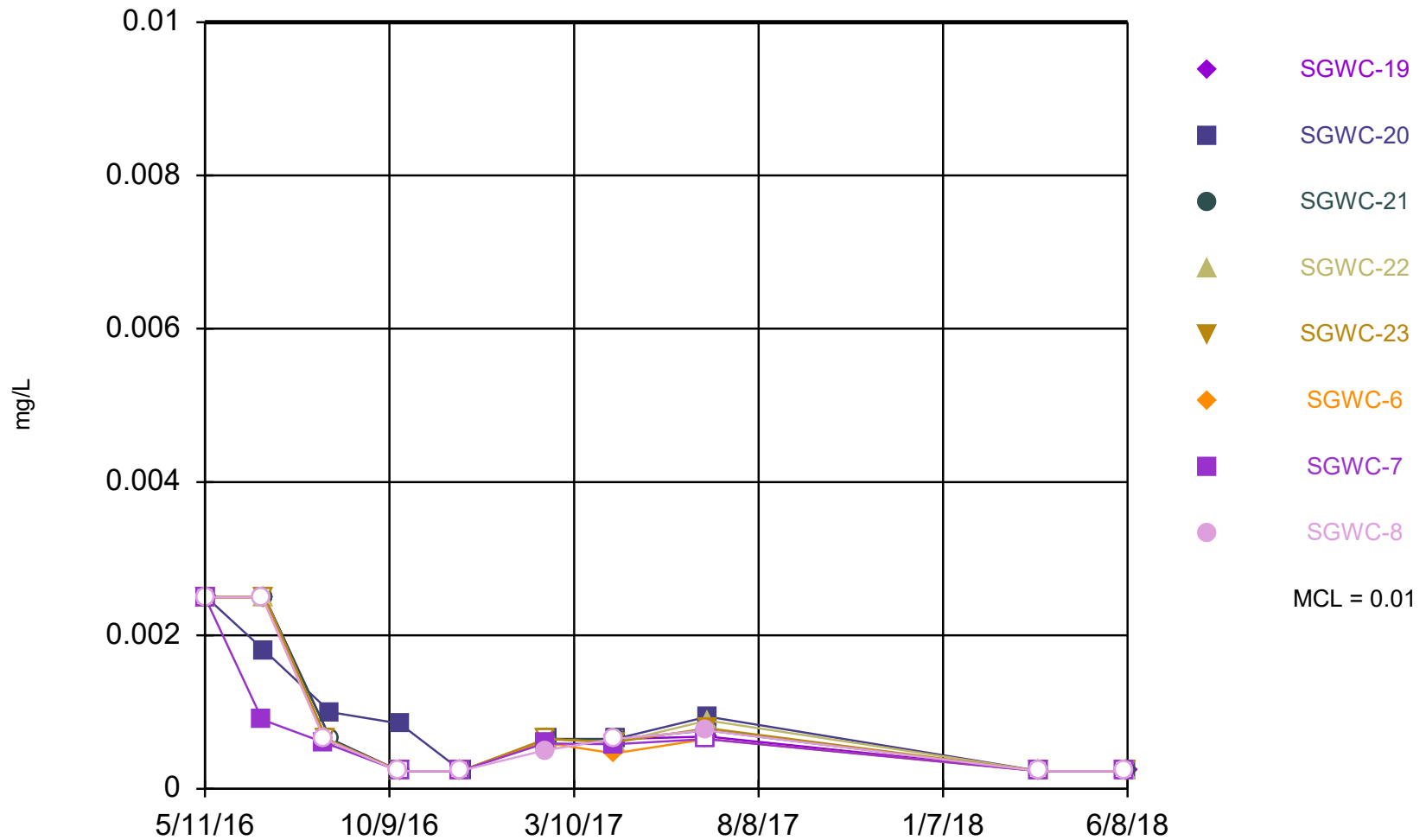
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



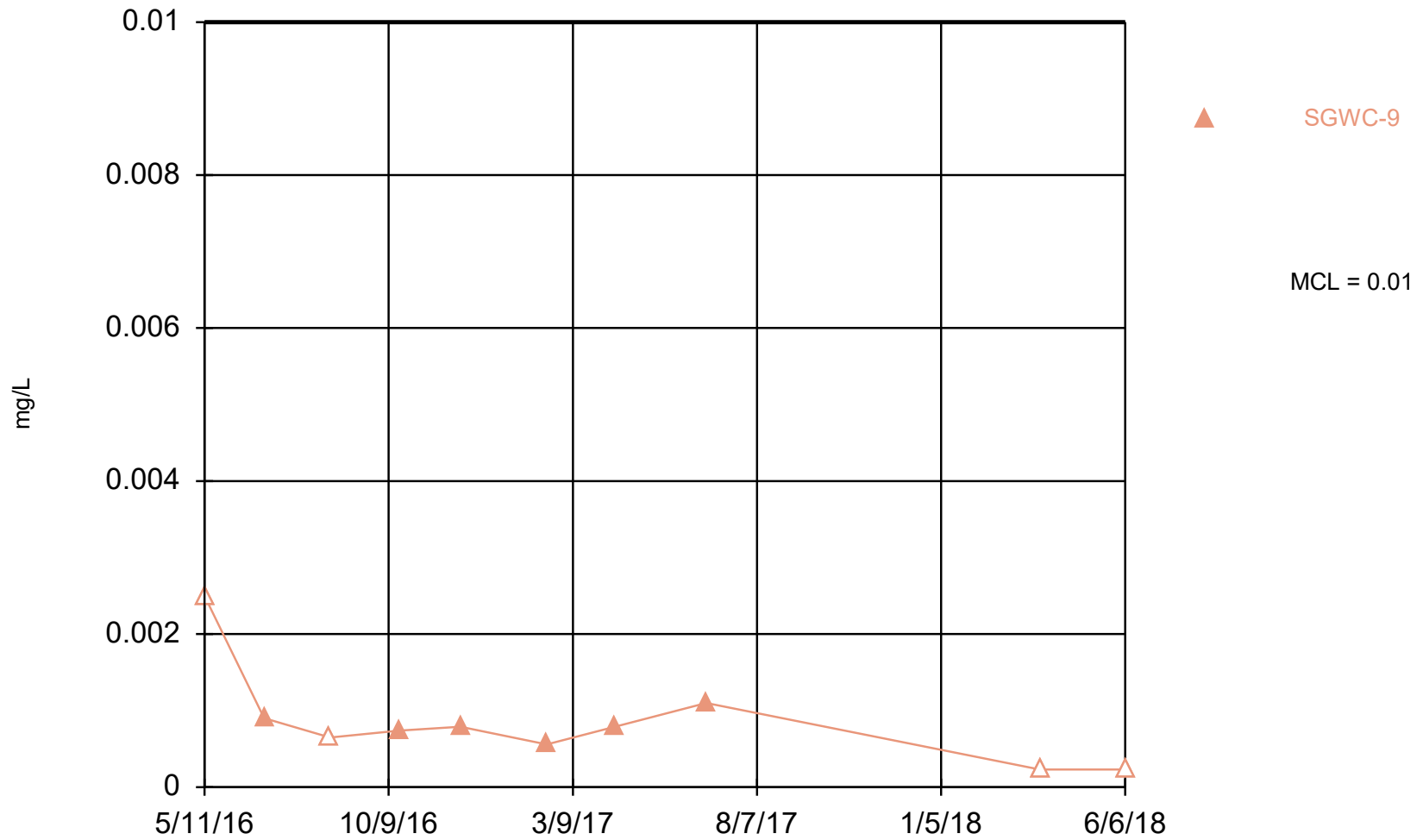
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Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



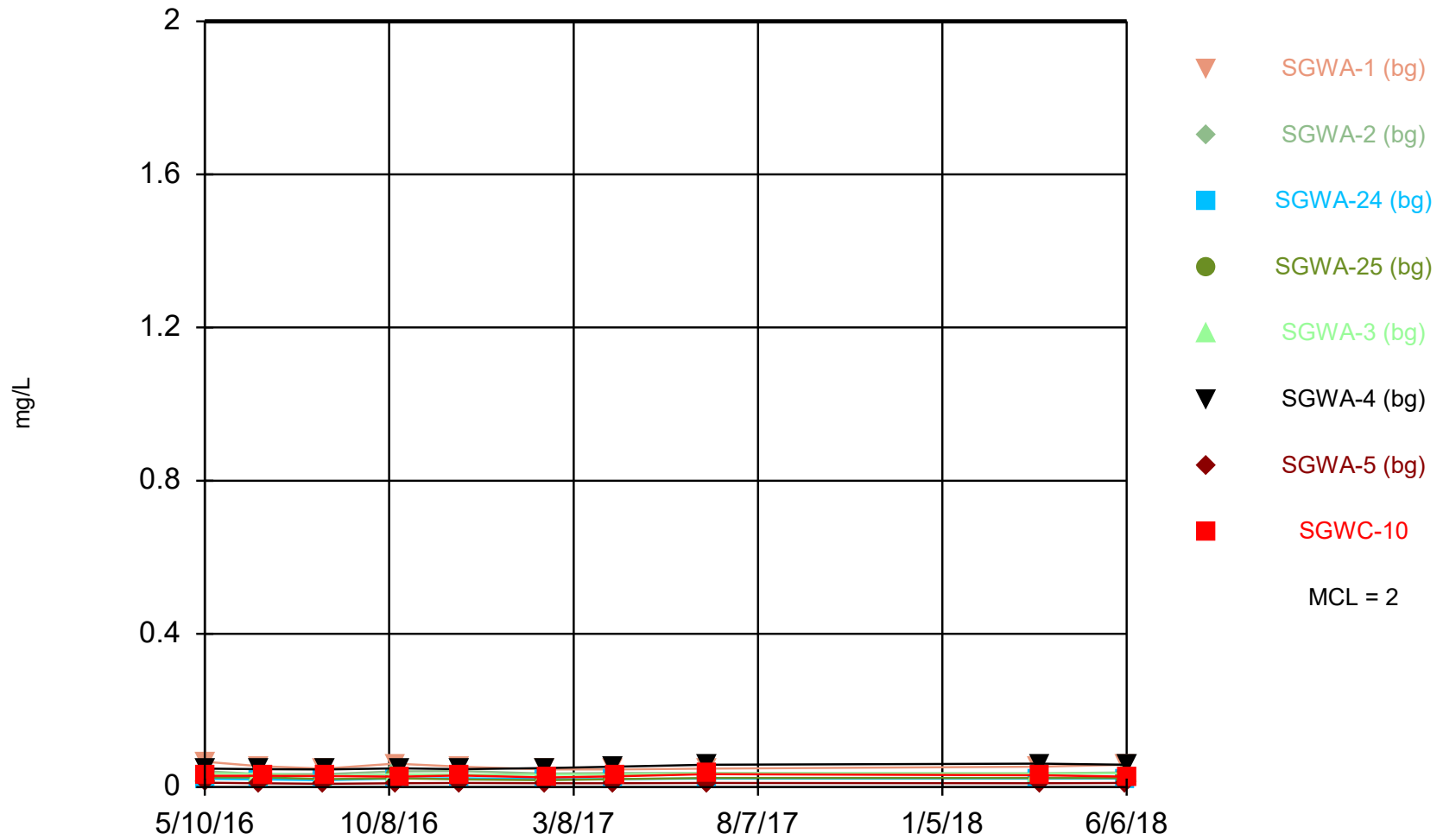
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Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



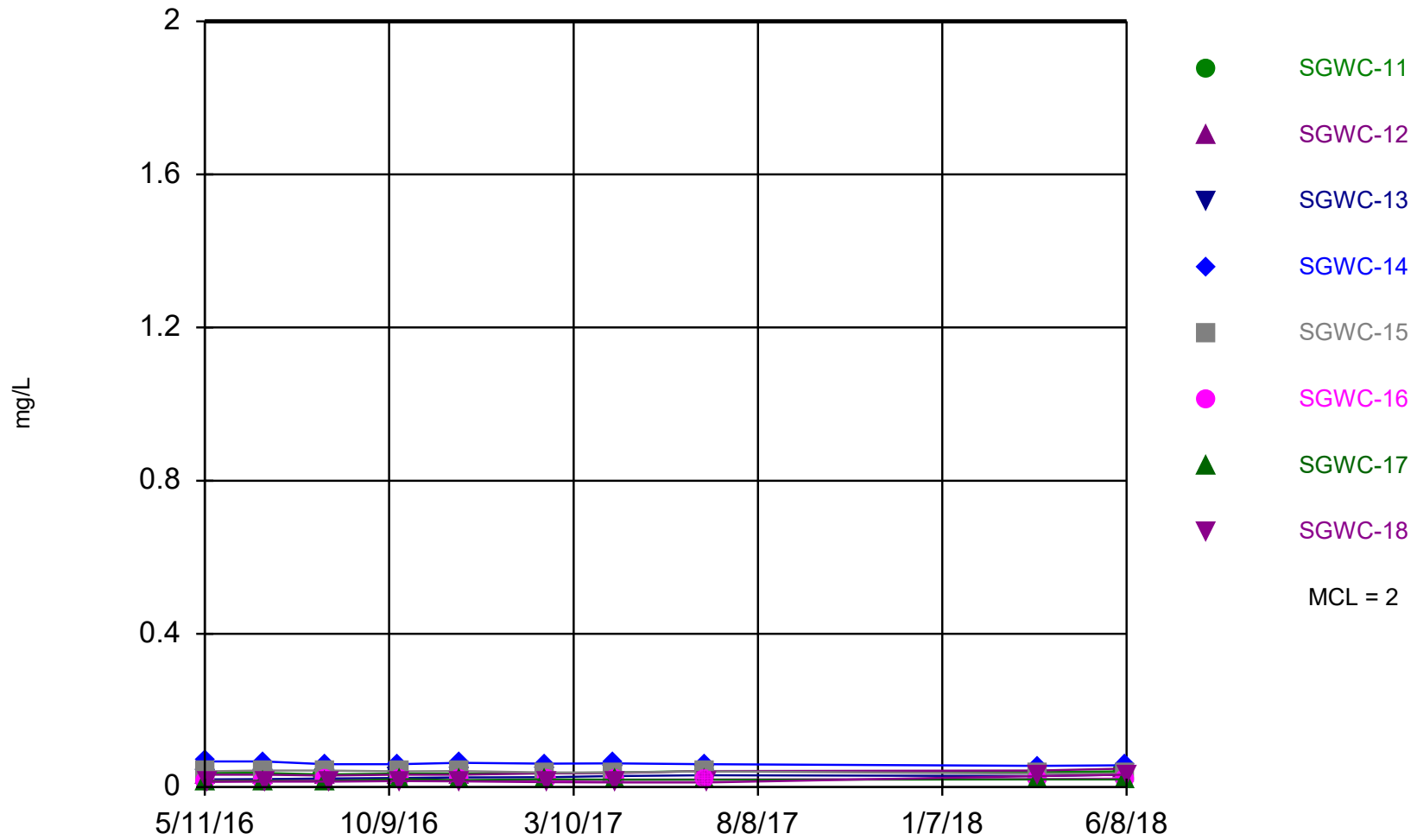
Constituent: Arsenic   Analysis Run 10/11/2018 12:24 PM   View: Interwell Confidence Interval  
Scherer   Client: Golder Associates   Data: Scherer Ash Pond\_CCR

## Time Series



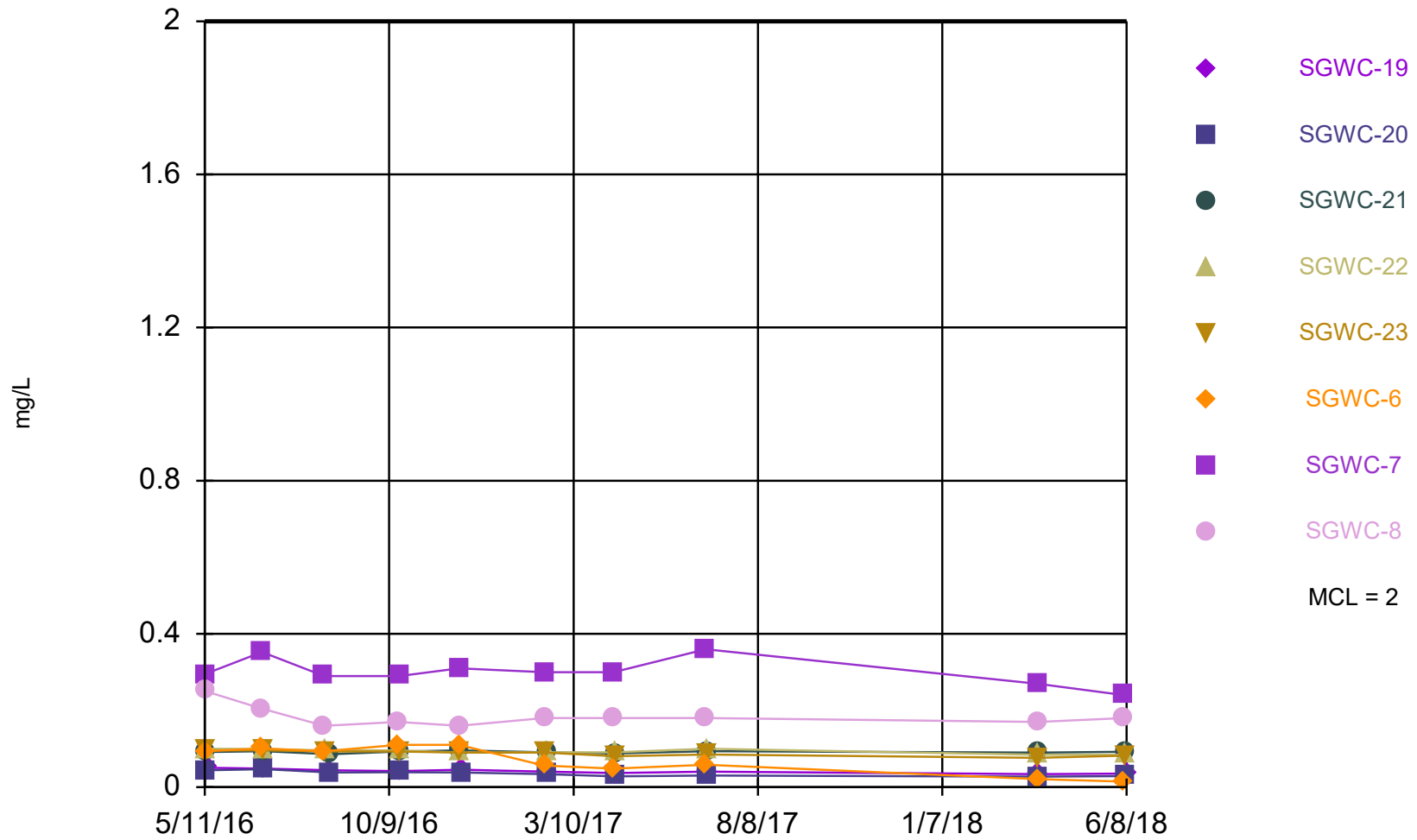
Constituent: Barium Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Barium    Analysis Run 10/11/2018 12:24 PM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

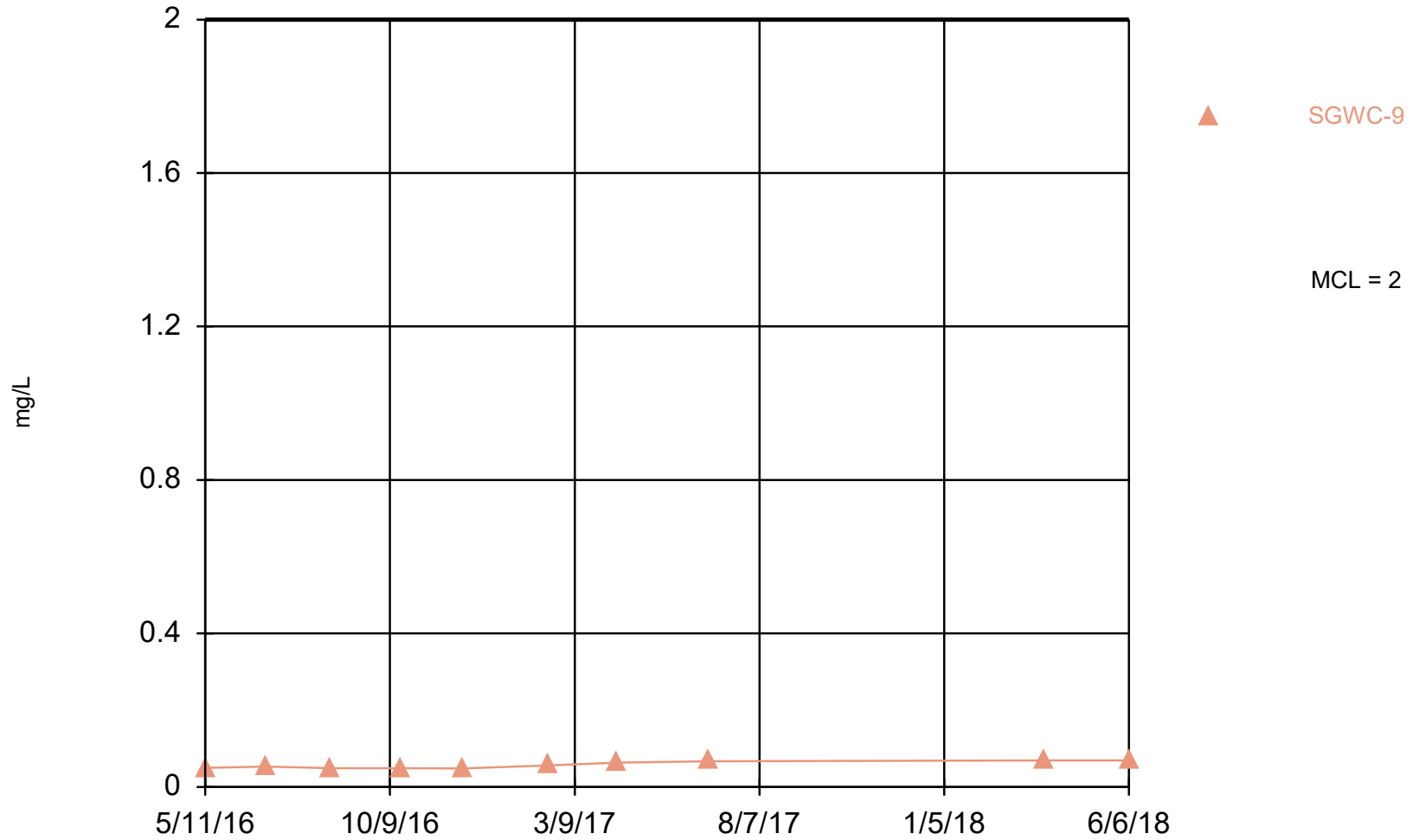
## Time Series



Constituent: Barium Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

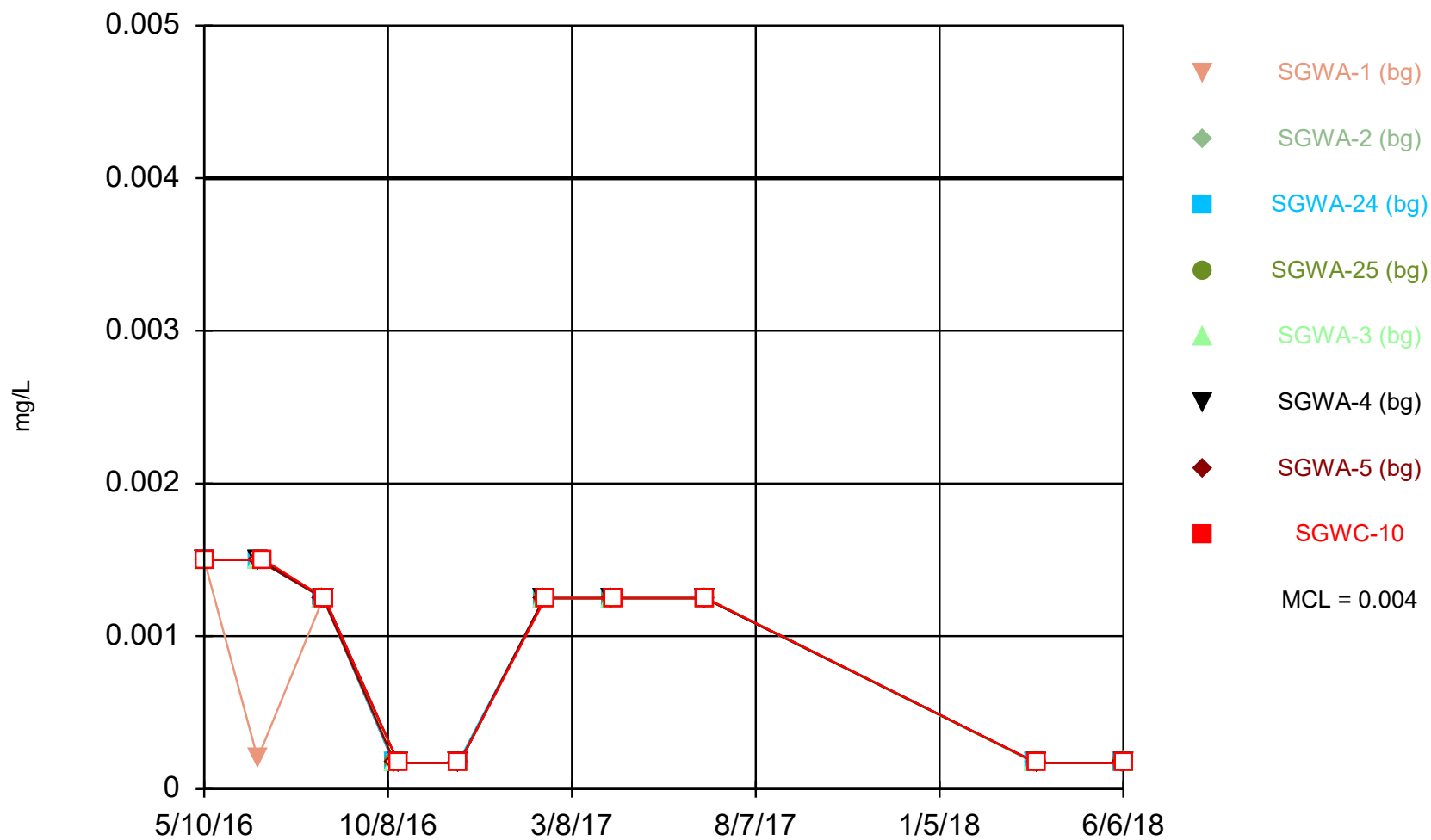


## Time Series



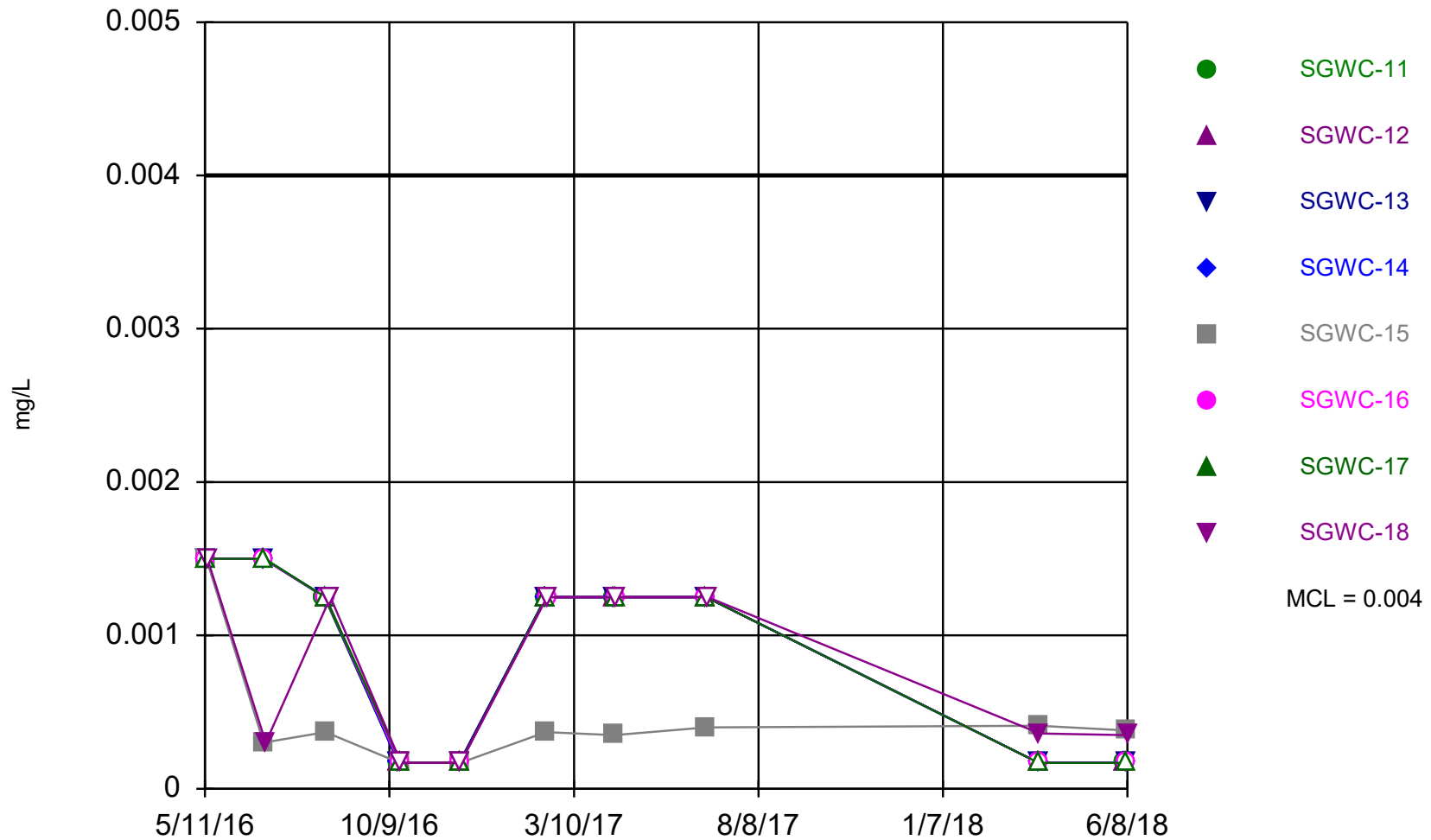
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Scherer   Client: Golder Associates   Data: Scherer Ash Pond\_CCR

## Time Series



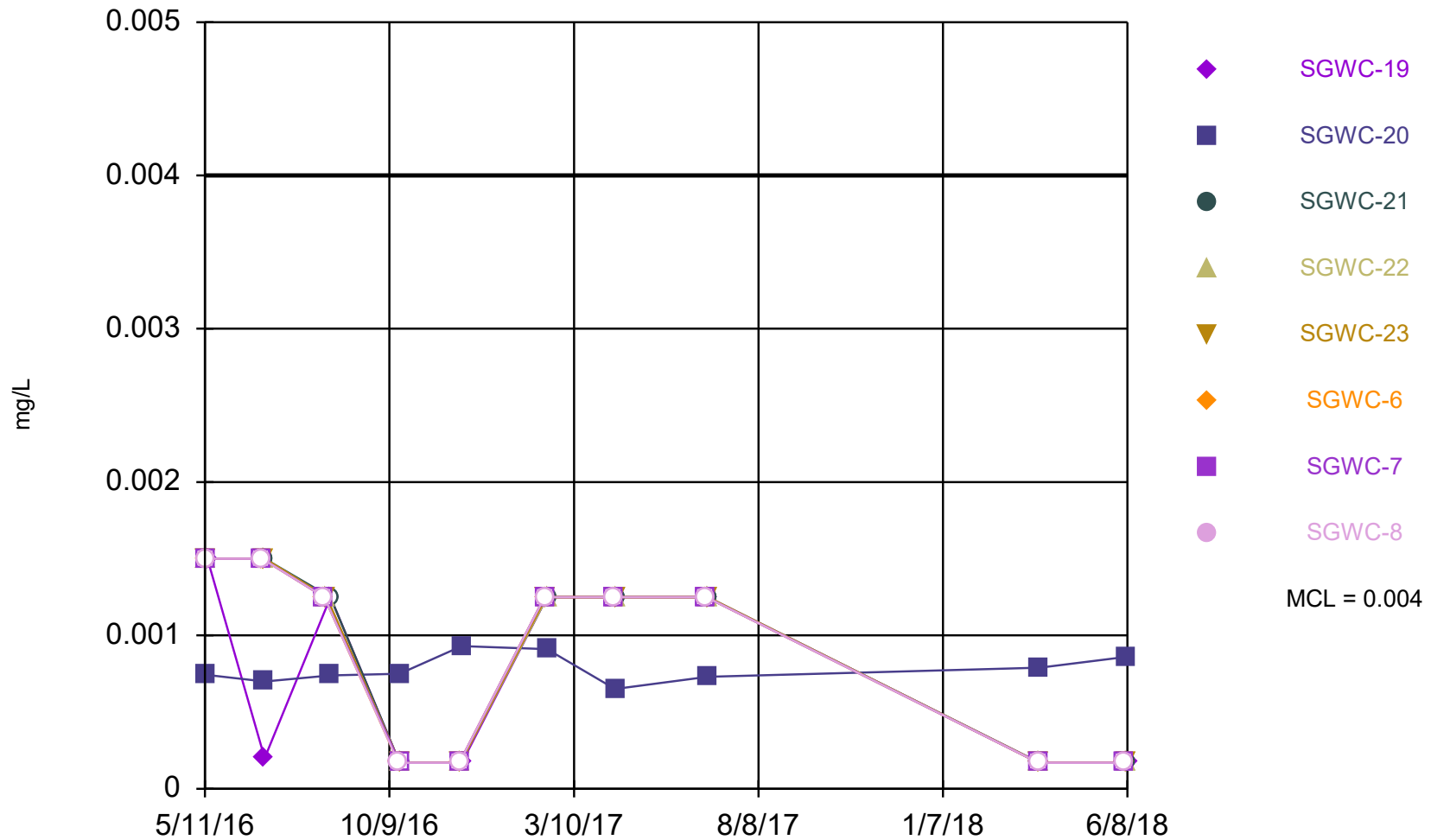
Constituent: Beryllium Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



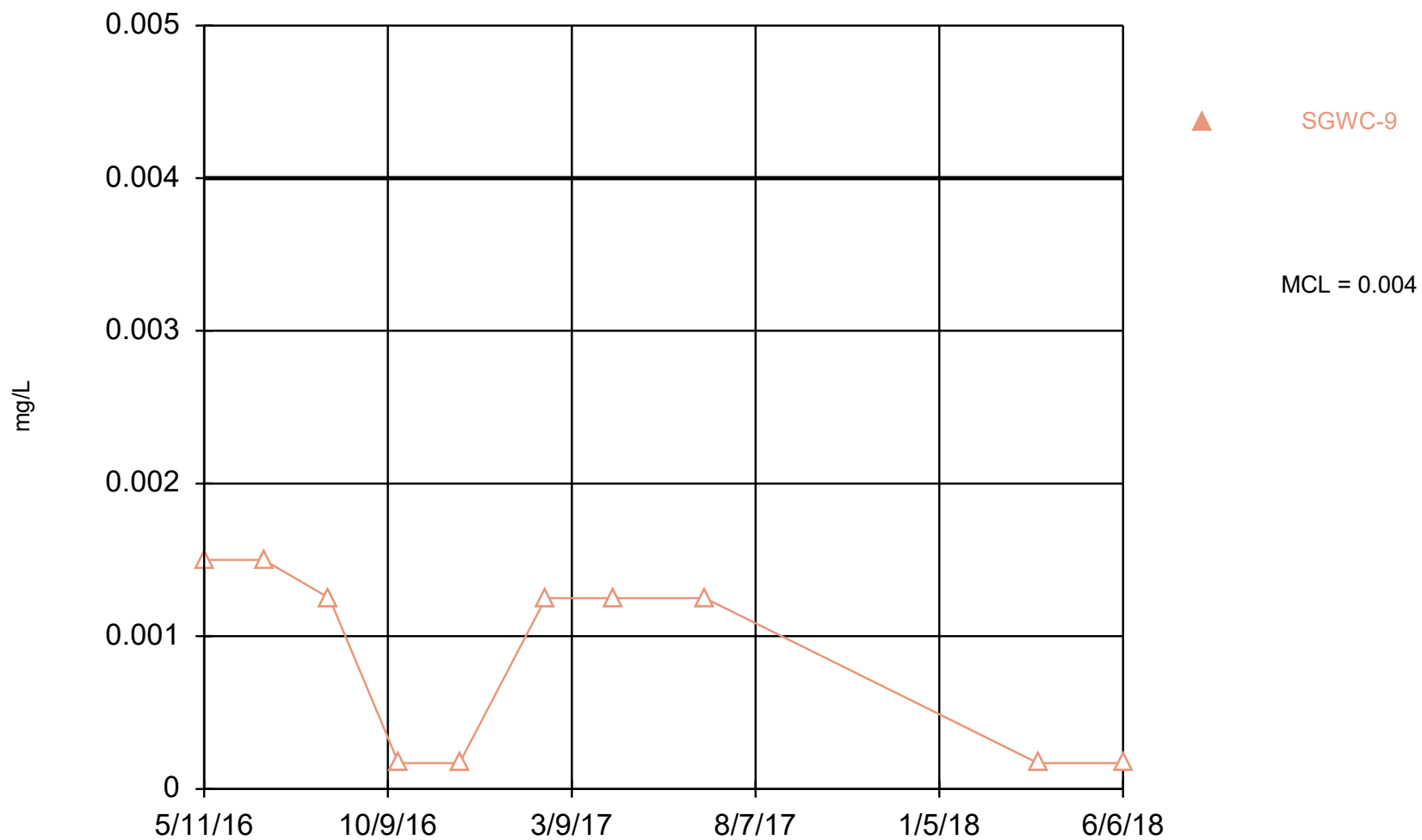
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Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



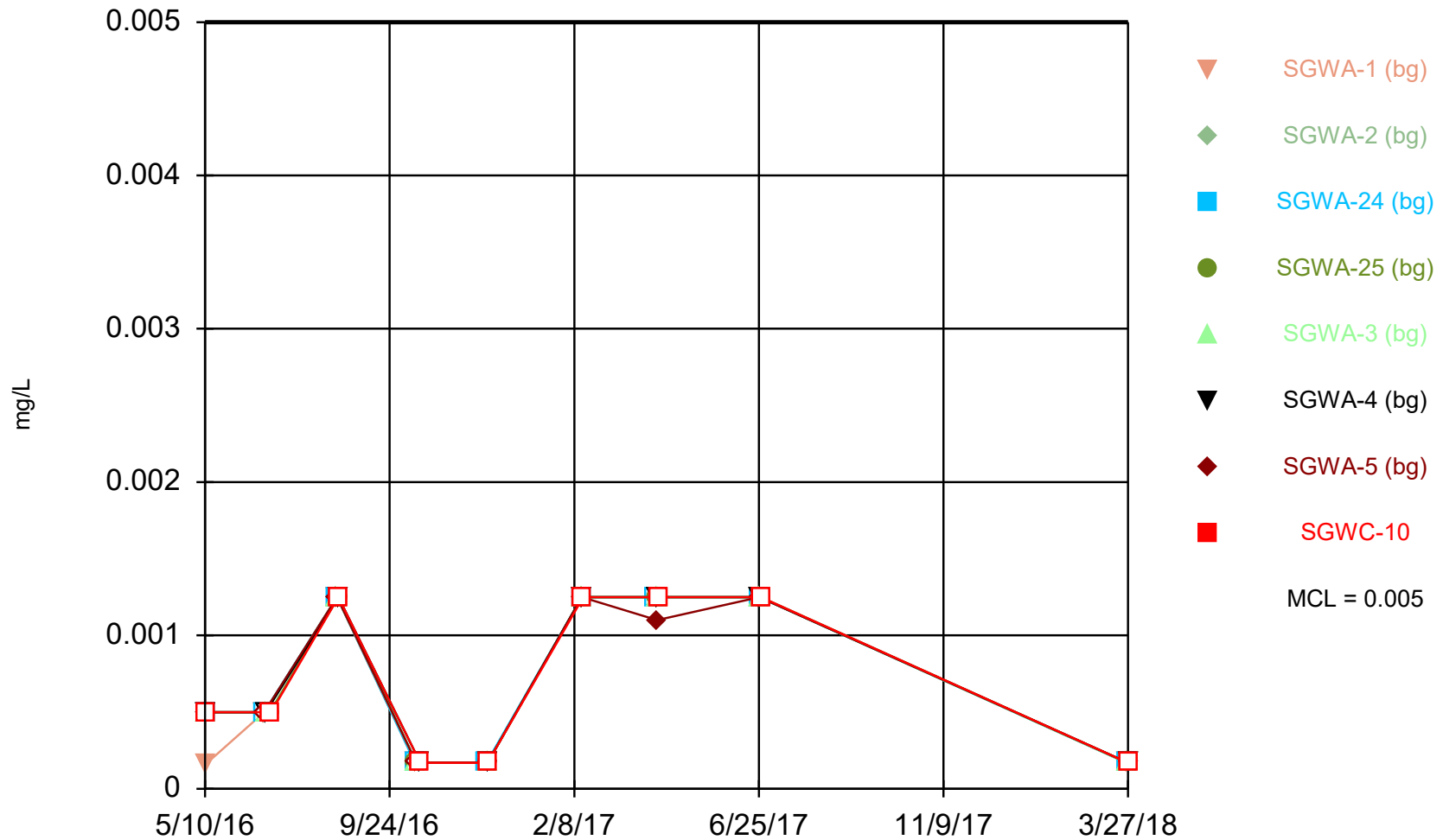
Constituent: Beryllium Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



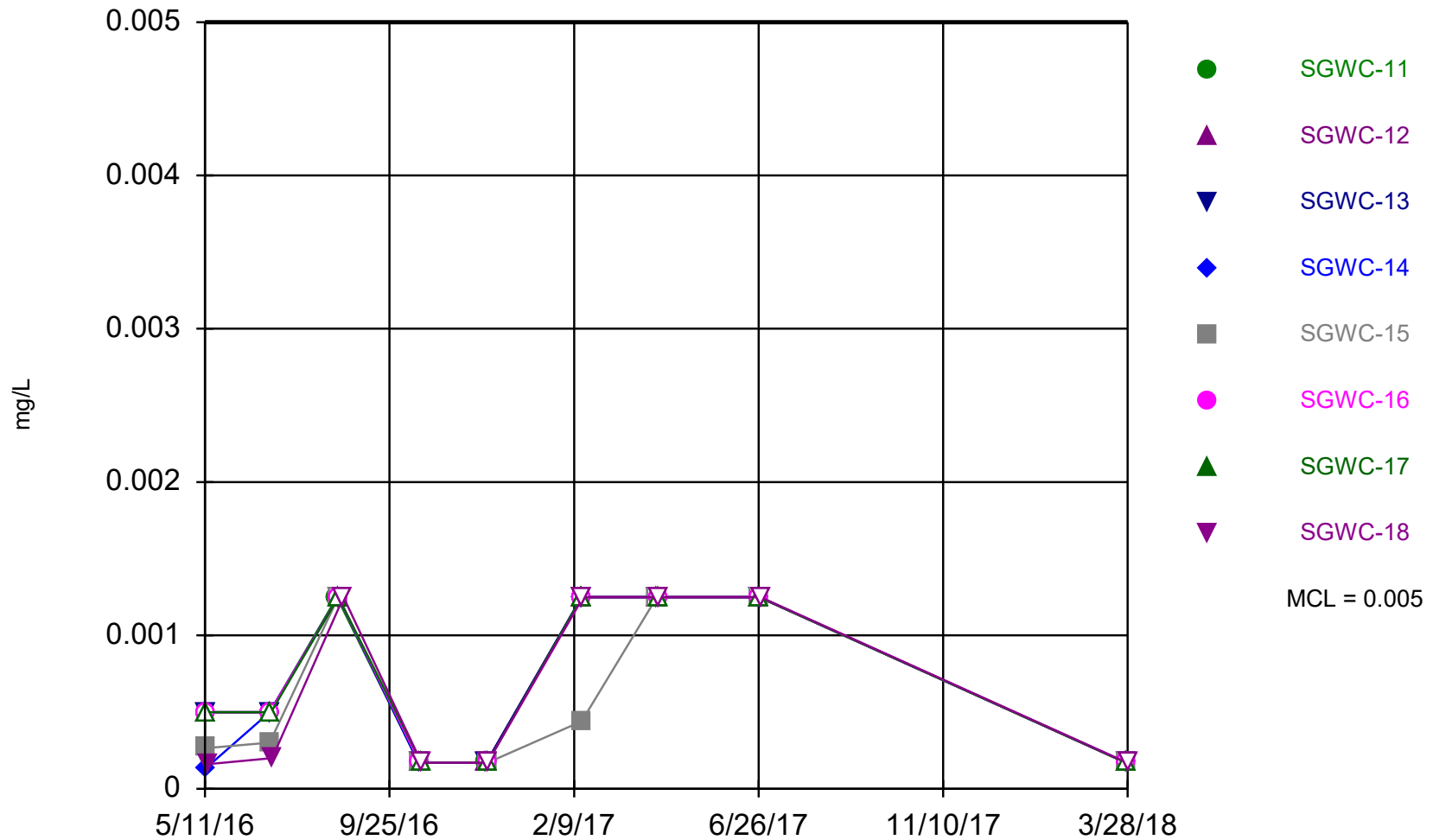
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Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



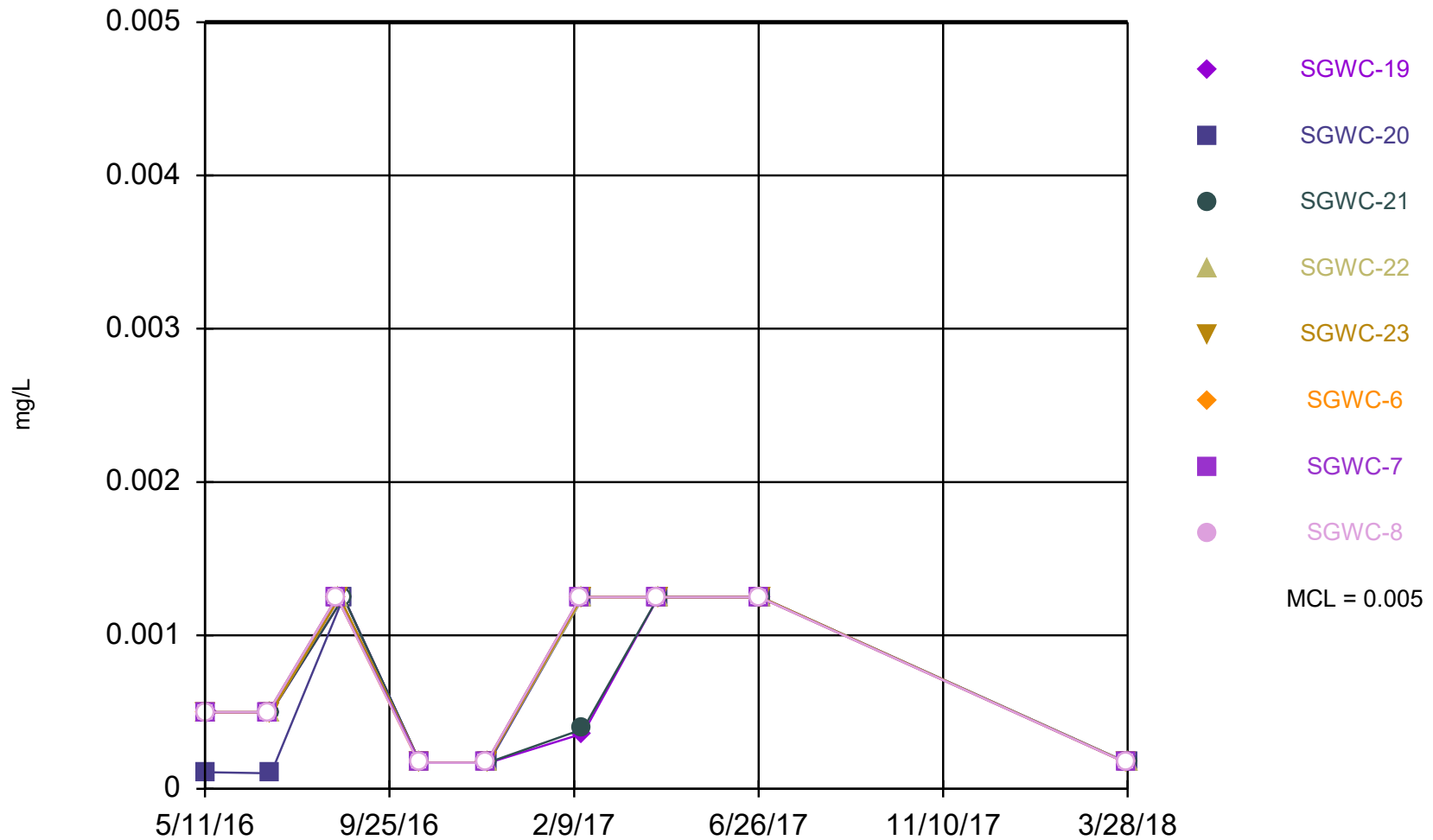
Constituent: Cadmium Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Cadmium Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

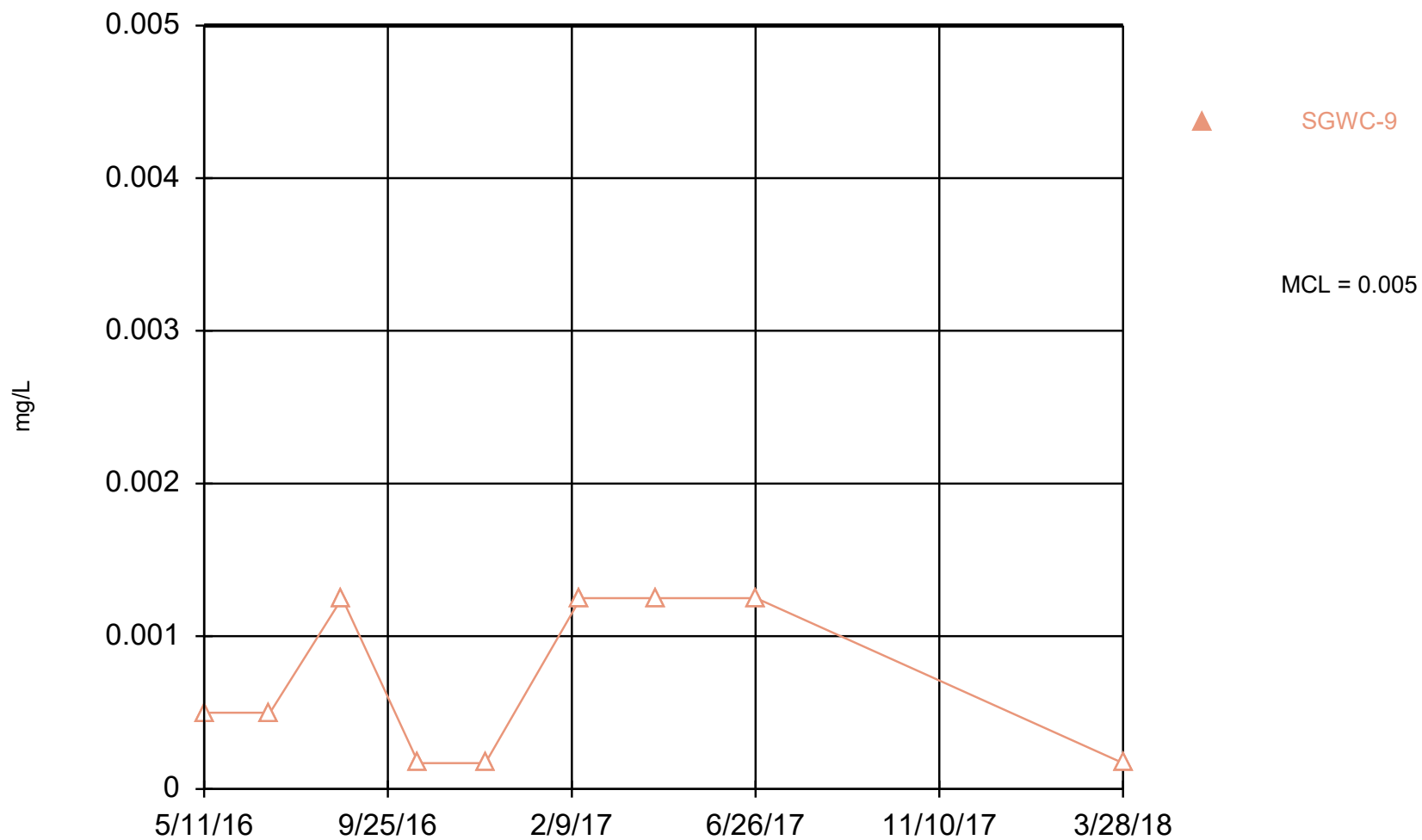
## Time Series



Constituent: Cadmium Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

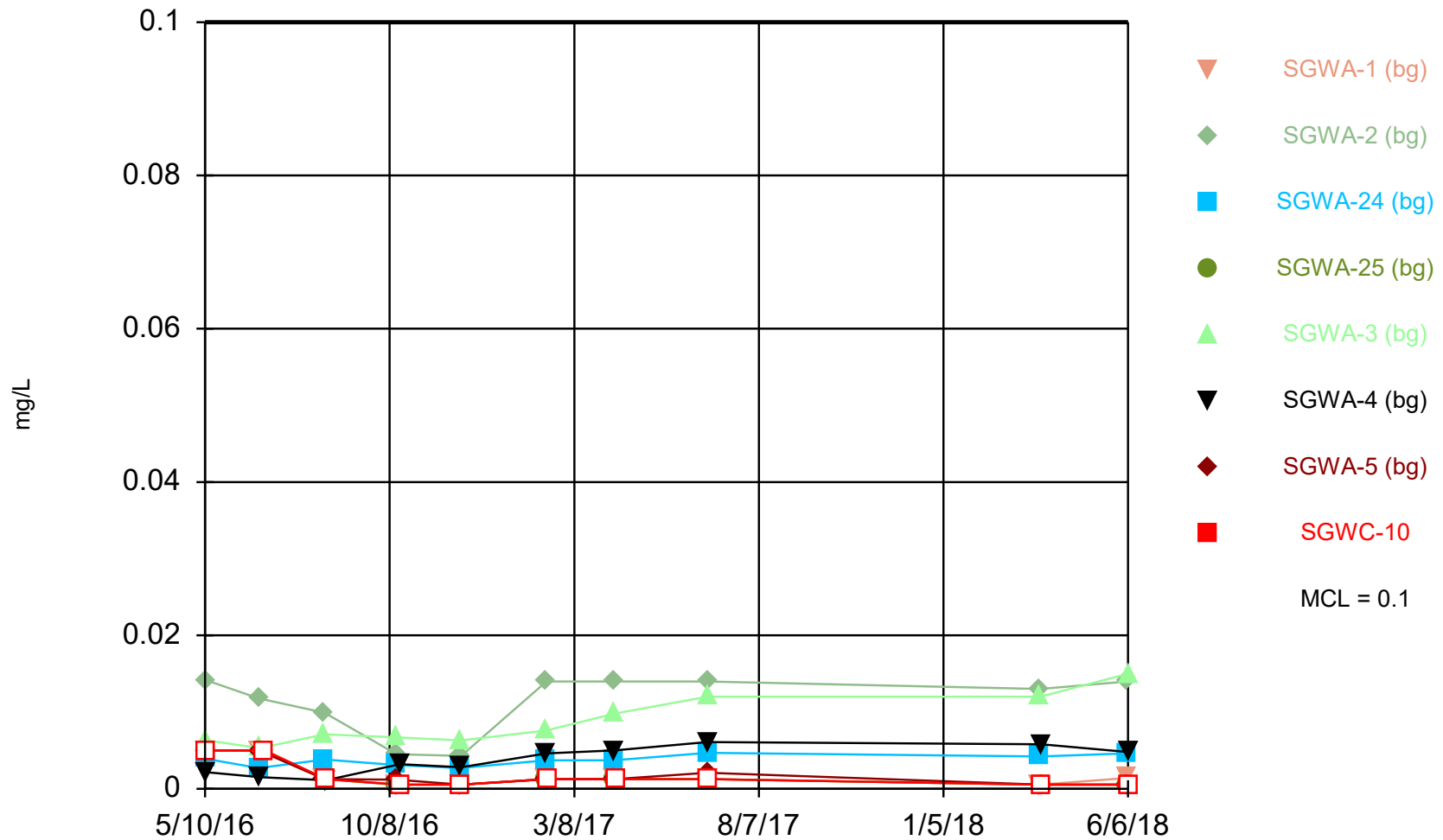


## Time Series



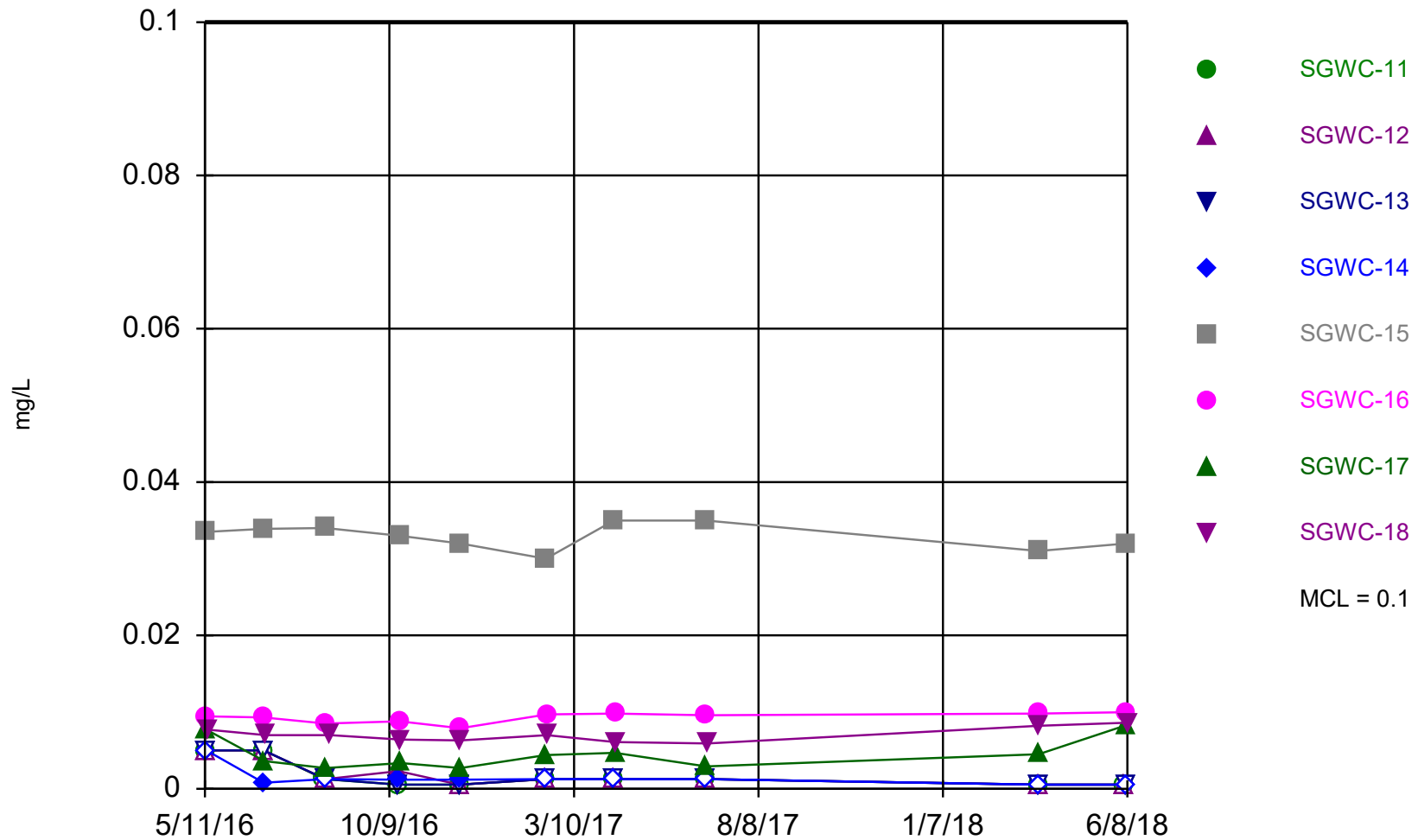
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Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



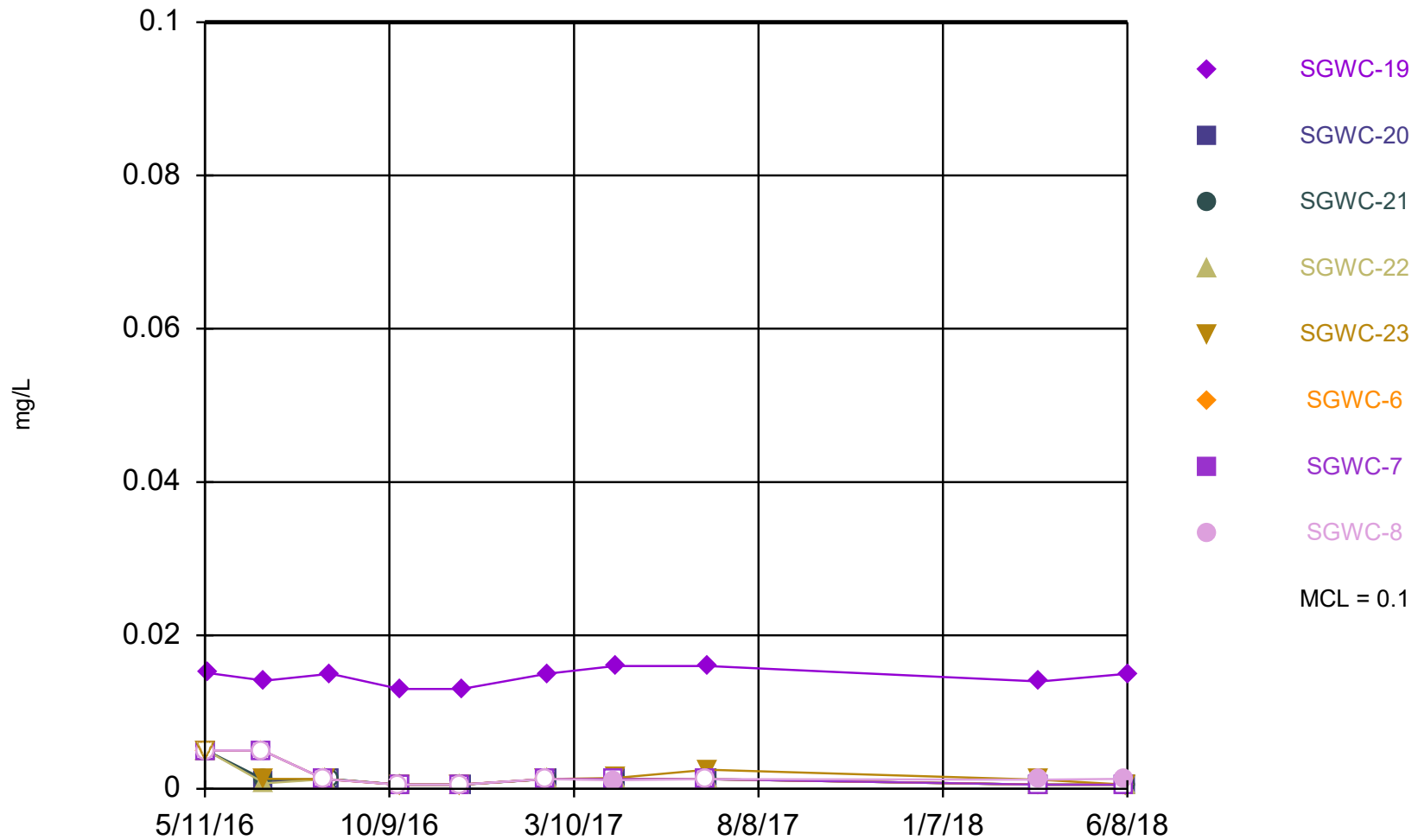
Constituent: Chromium Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



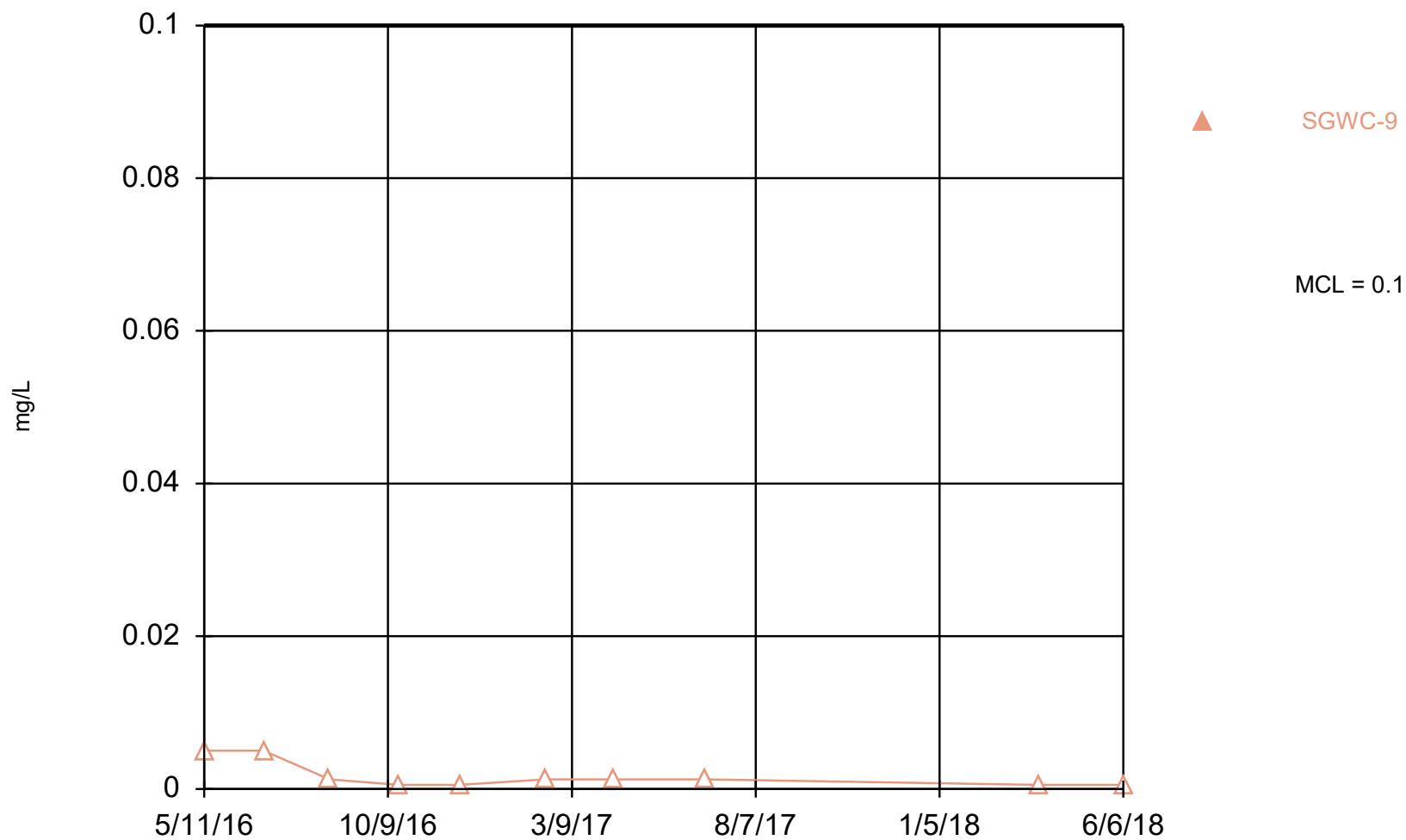
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Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



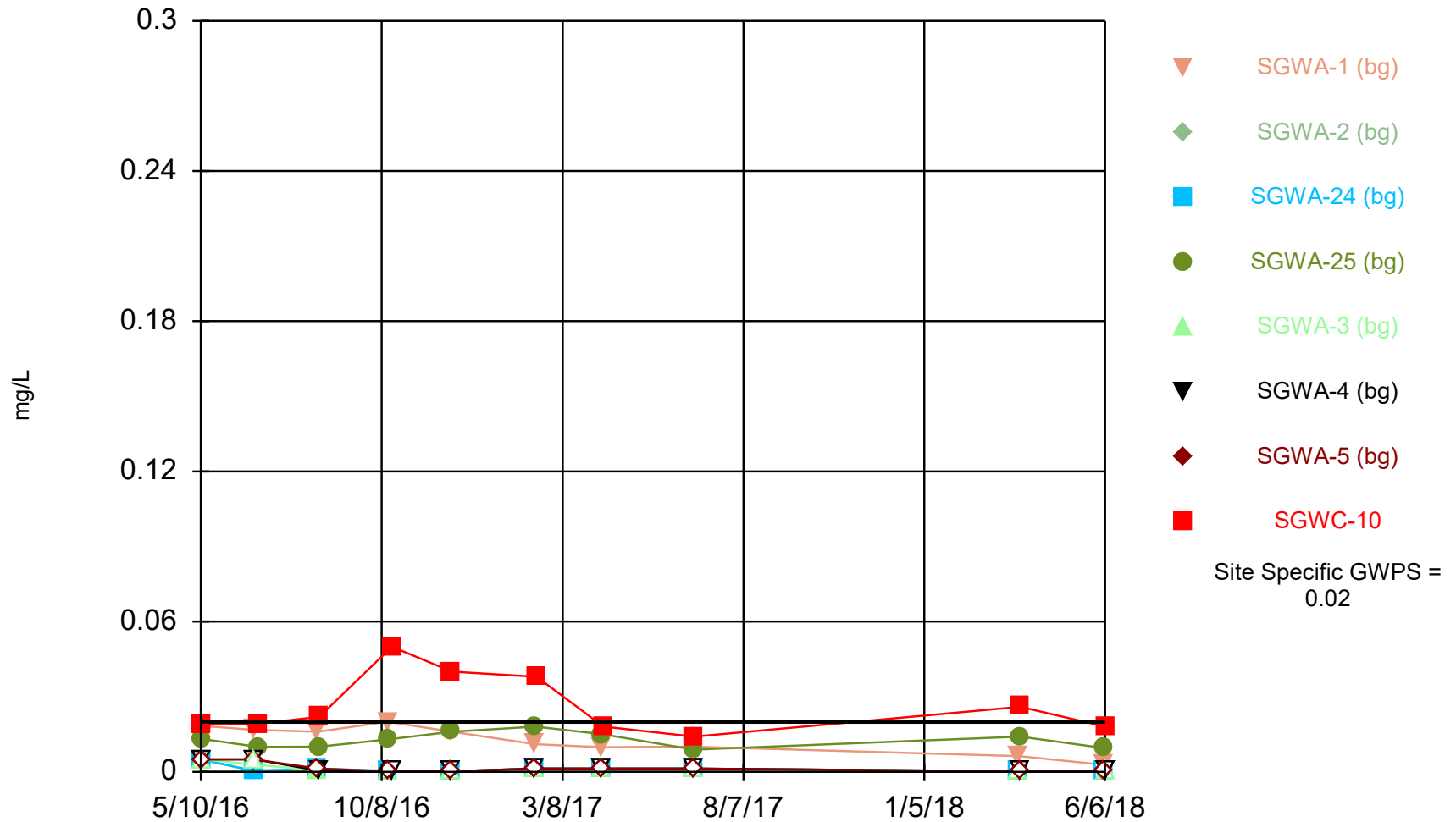
Constituent: Chromium Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Chromium Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

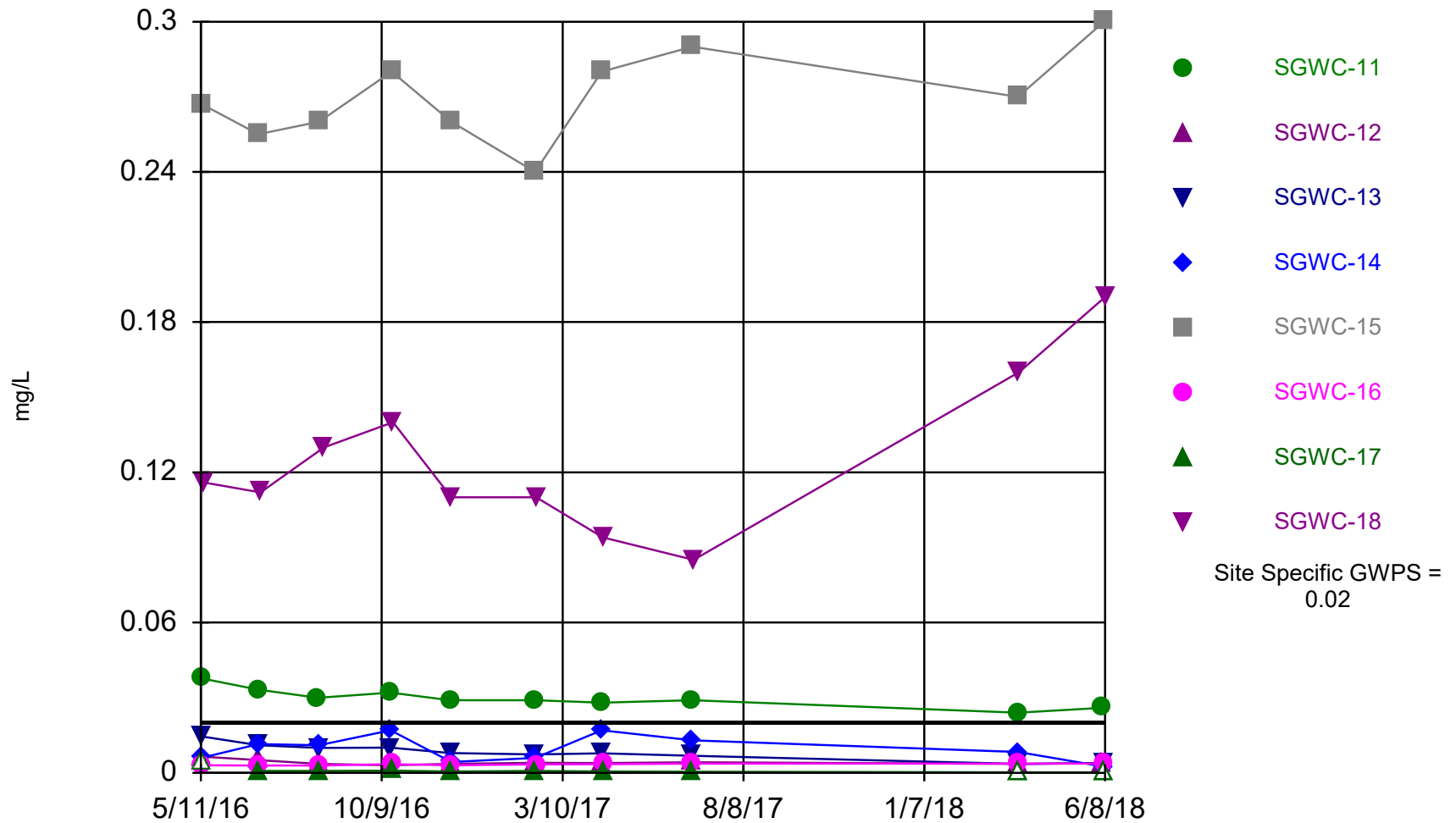
## Time Series



Constituent: Cobalt Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

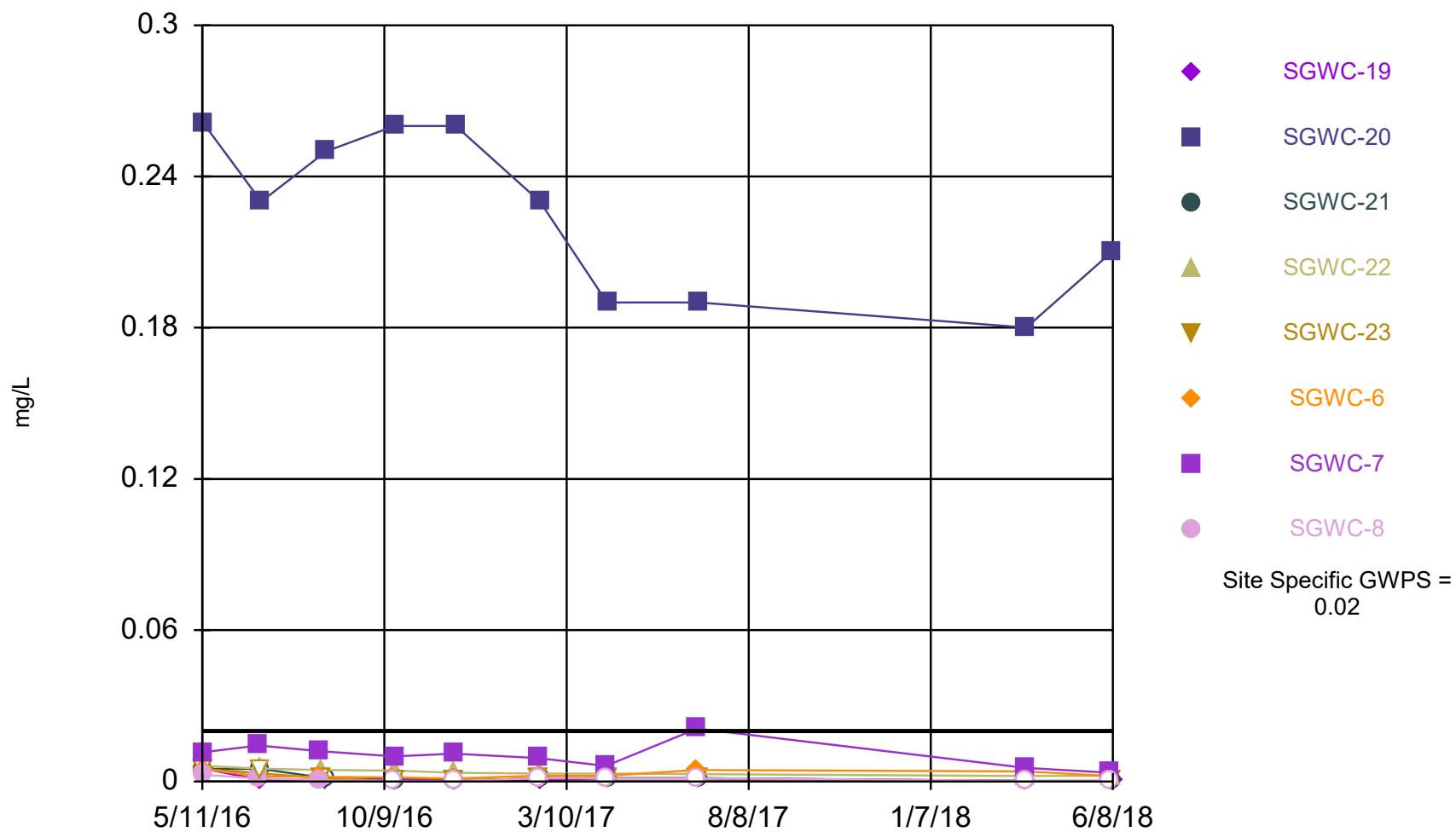
## Time Series



Constituent: Cobalt Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

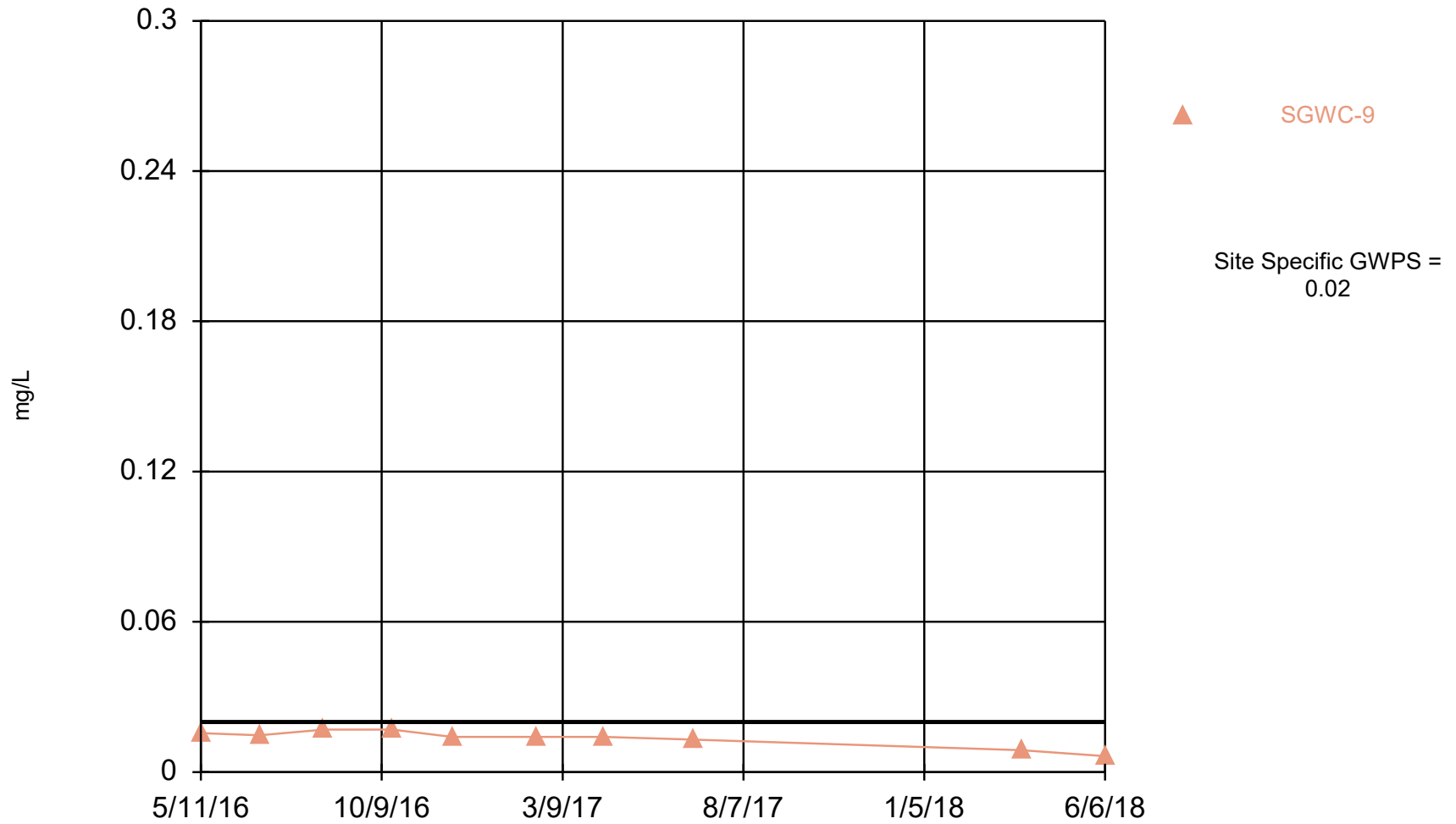
## Time Series



Constituent: Cobalt Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

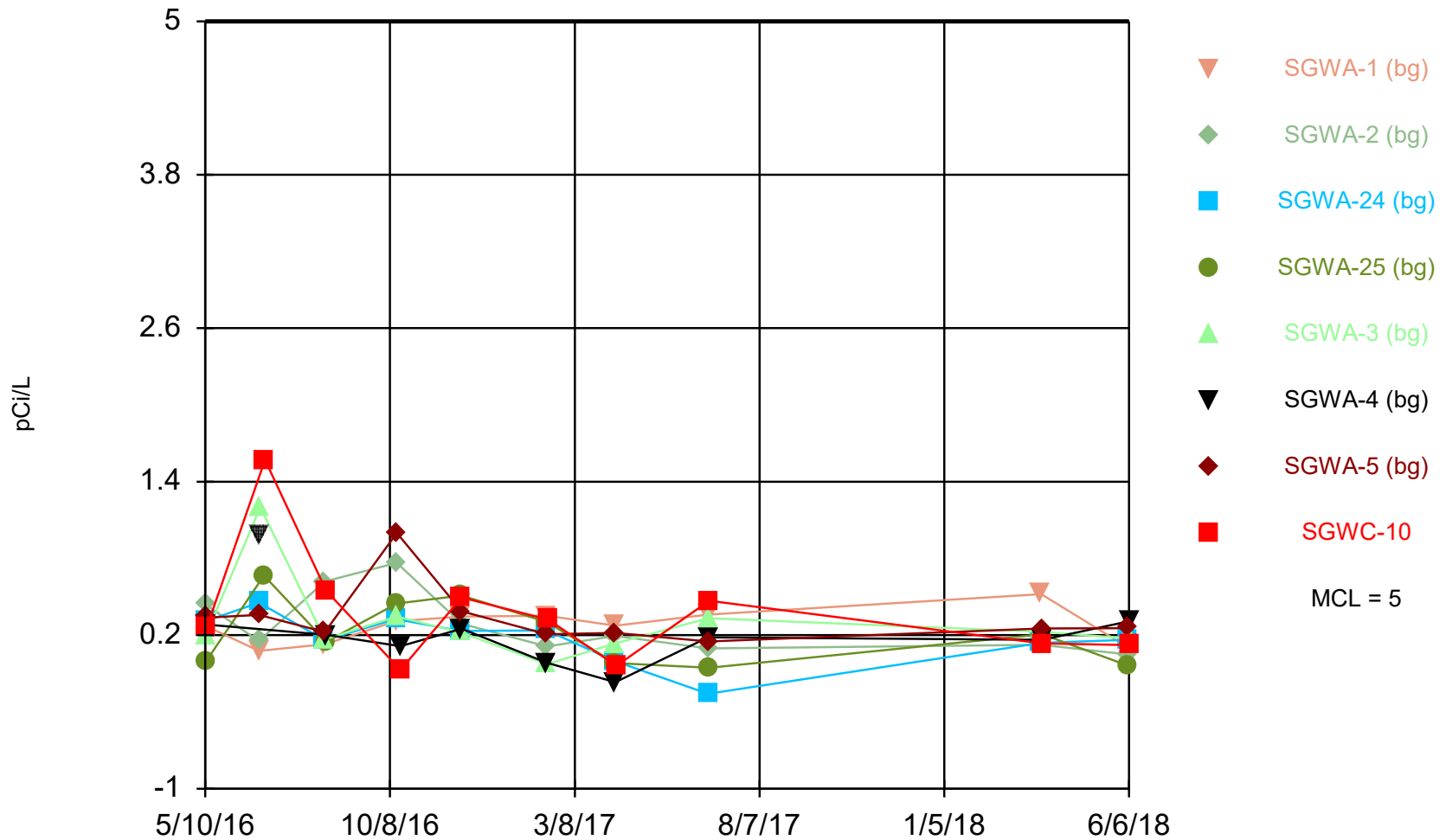


## Time Series



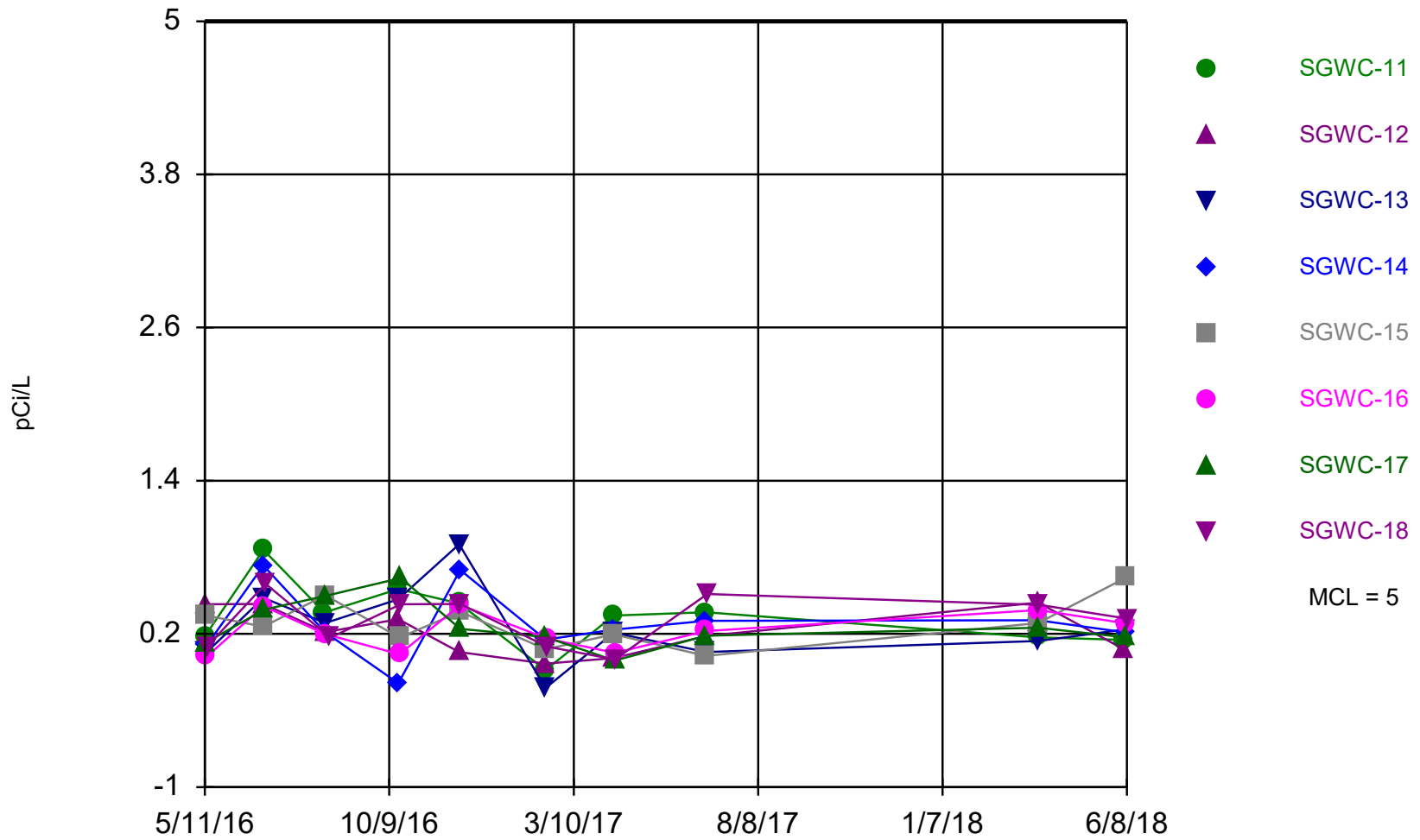
Constituent: Cobalt   Analysis Run 10/11/2018 12:24 PM   View: Interwell Confidence Interval  
Scherer   Client: Golder Associates   Data: Scherer Ash Pond\_CCR

## Time Series



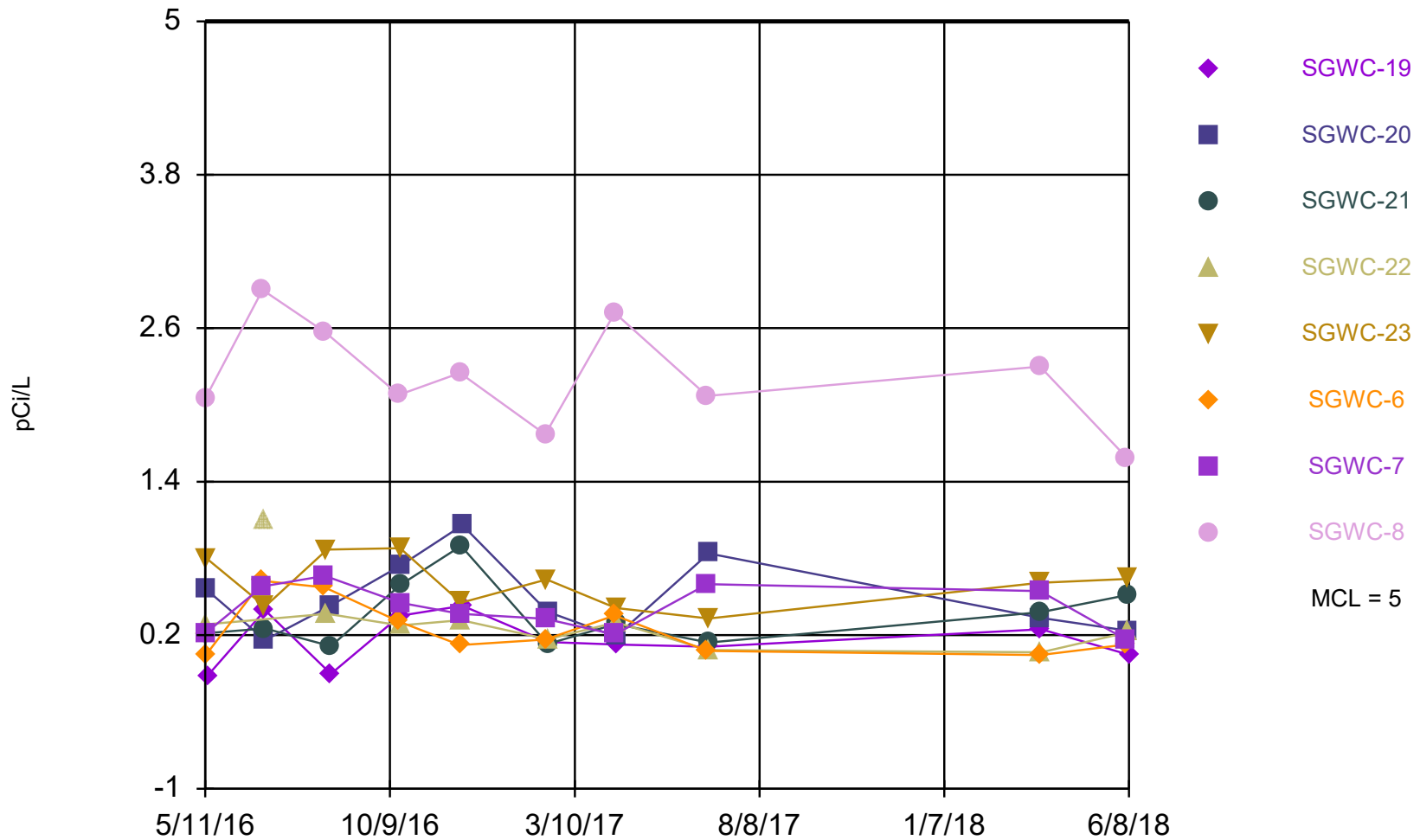
Constituent: Combined Radium 226 + 228 Analysis Run 10/11/2018 12:24 PM View: Interwell Confidence  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

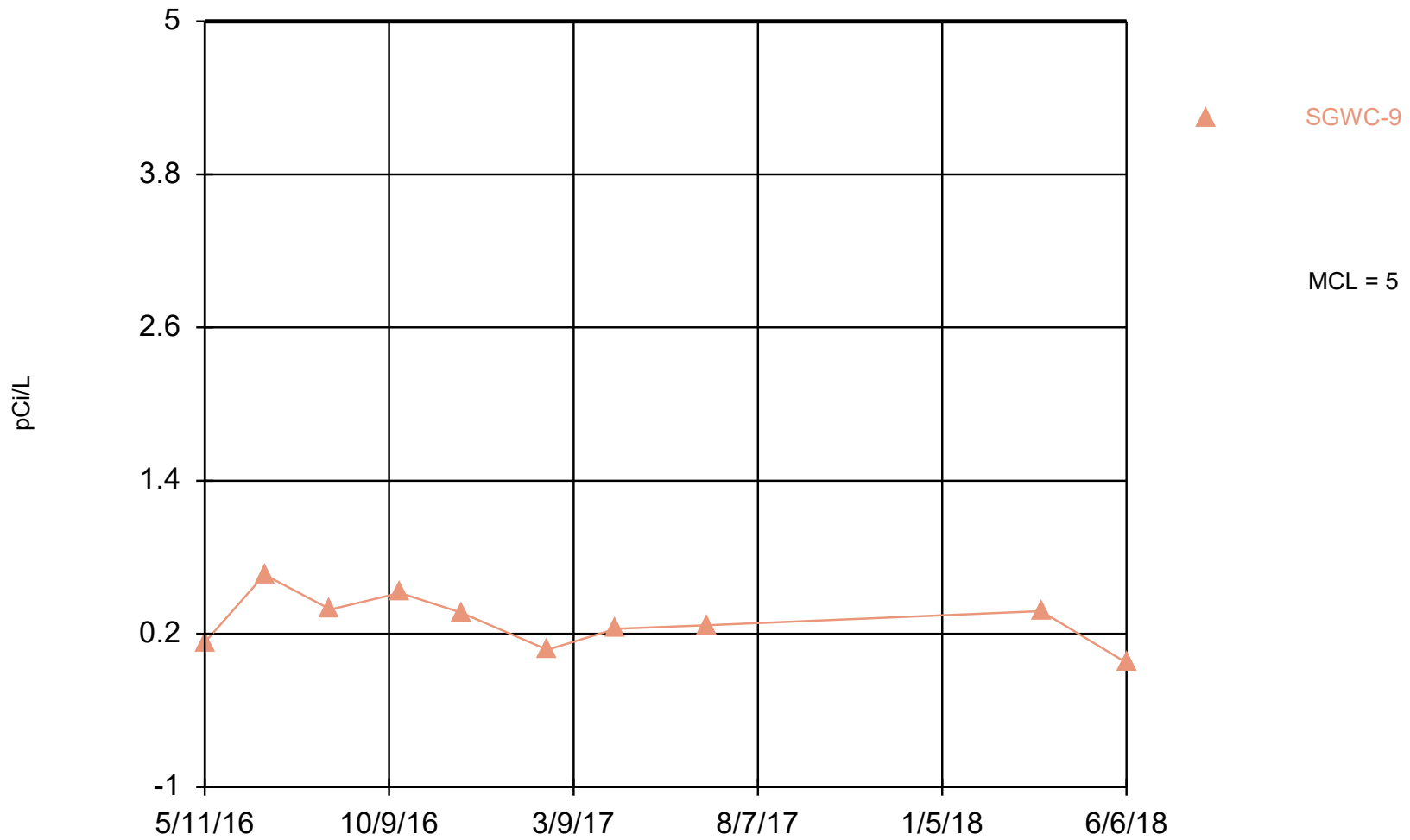
## Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence

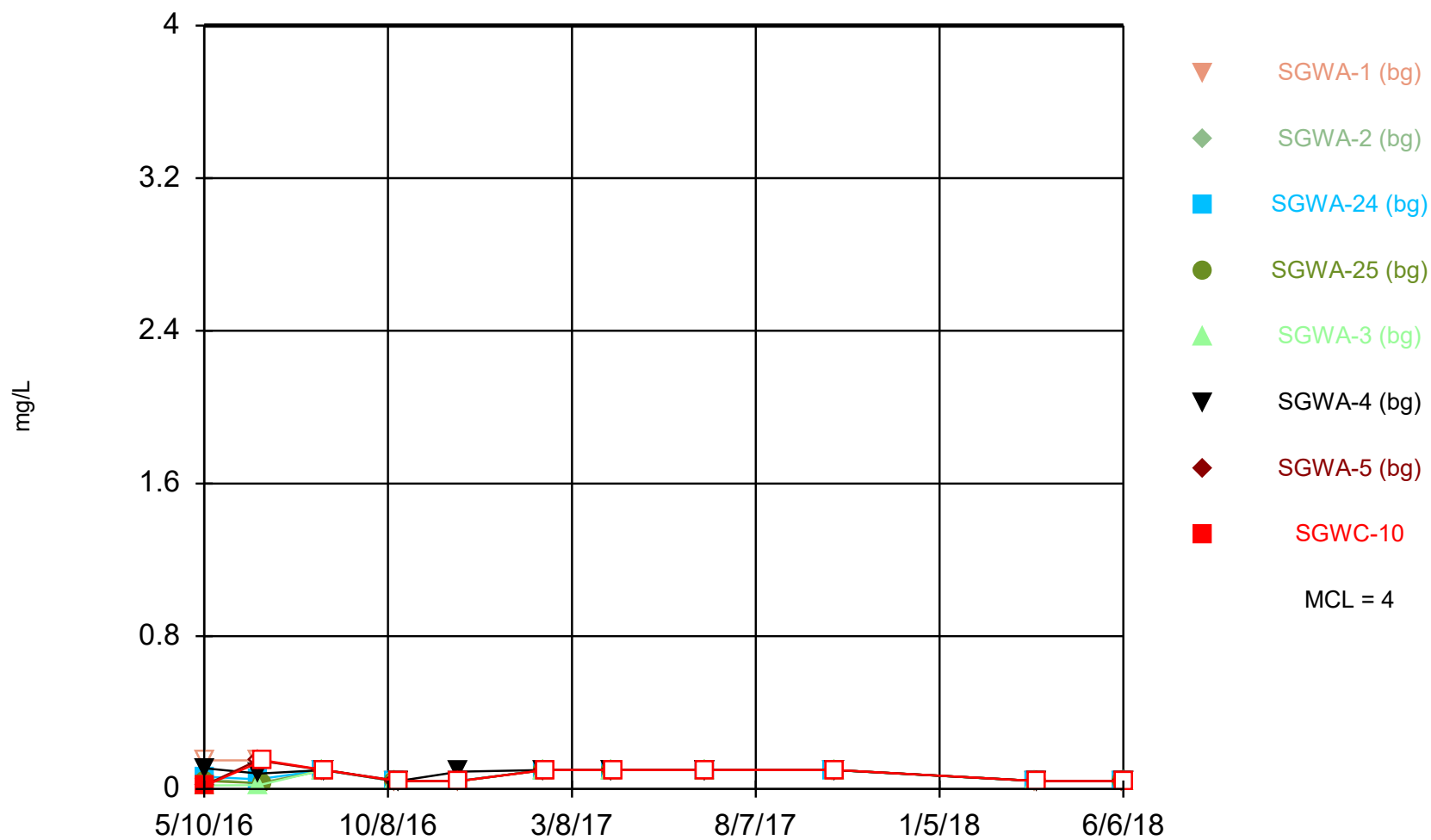
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



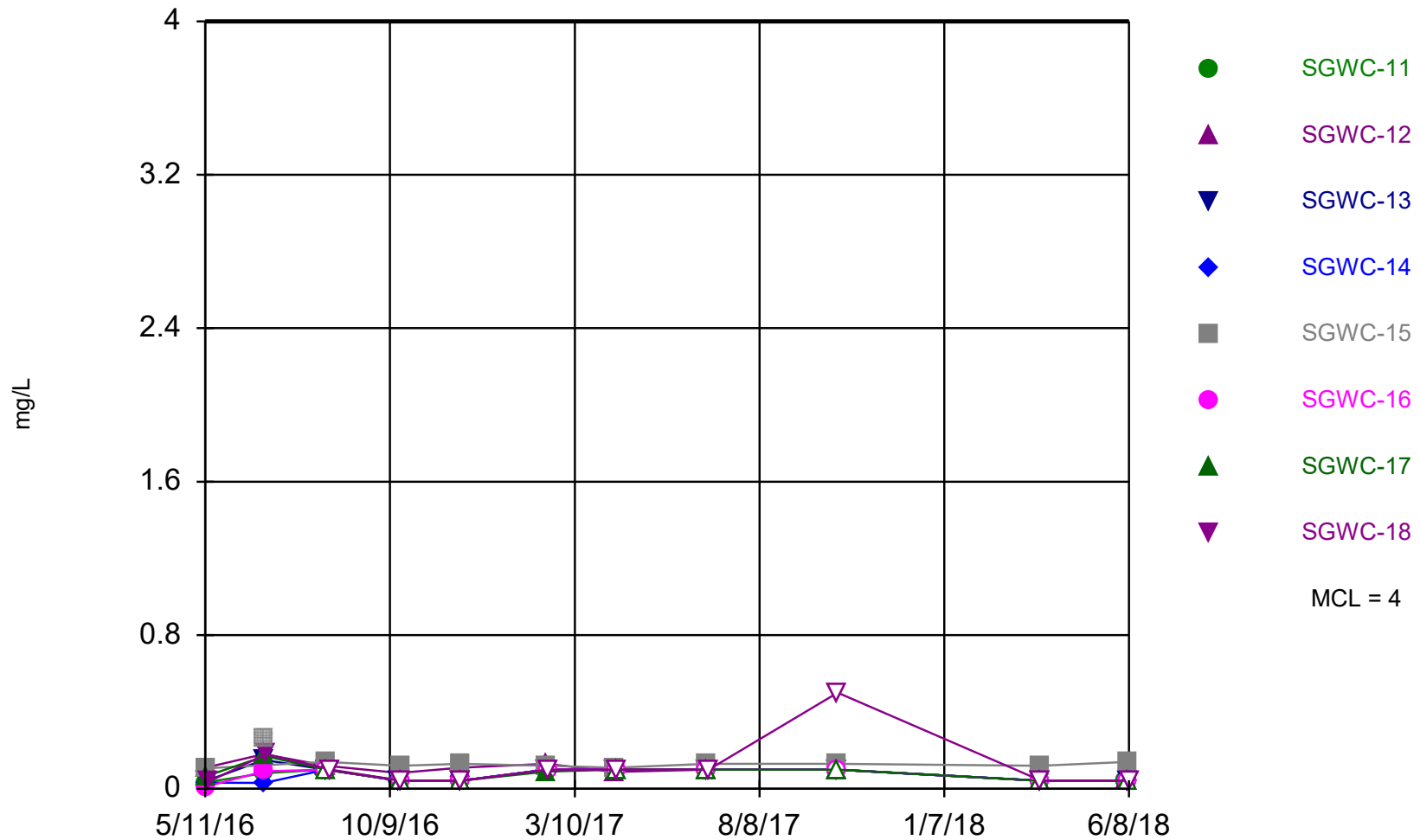
Constituent: Combined Radium 226 + 228 Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



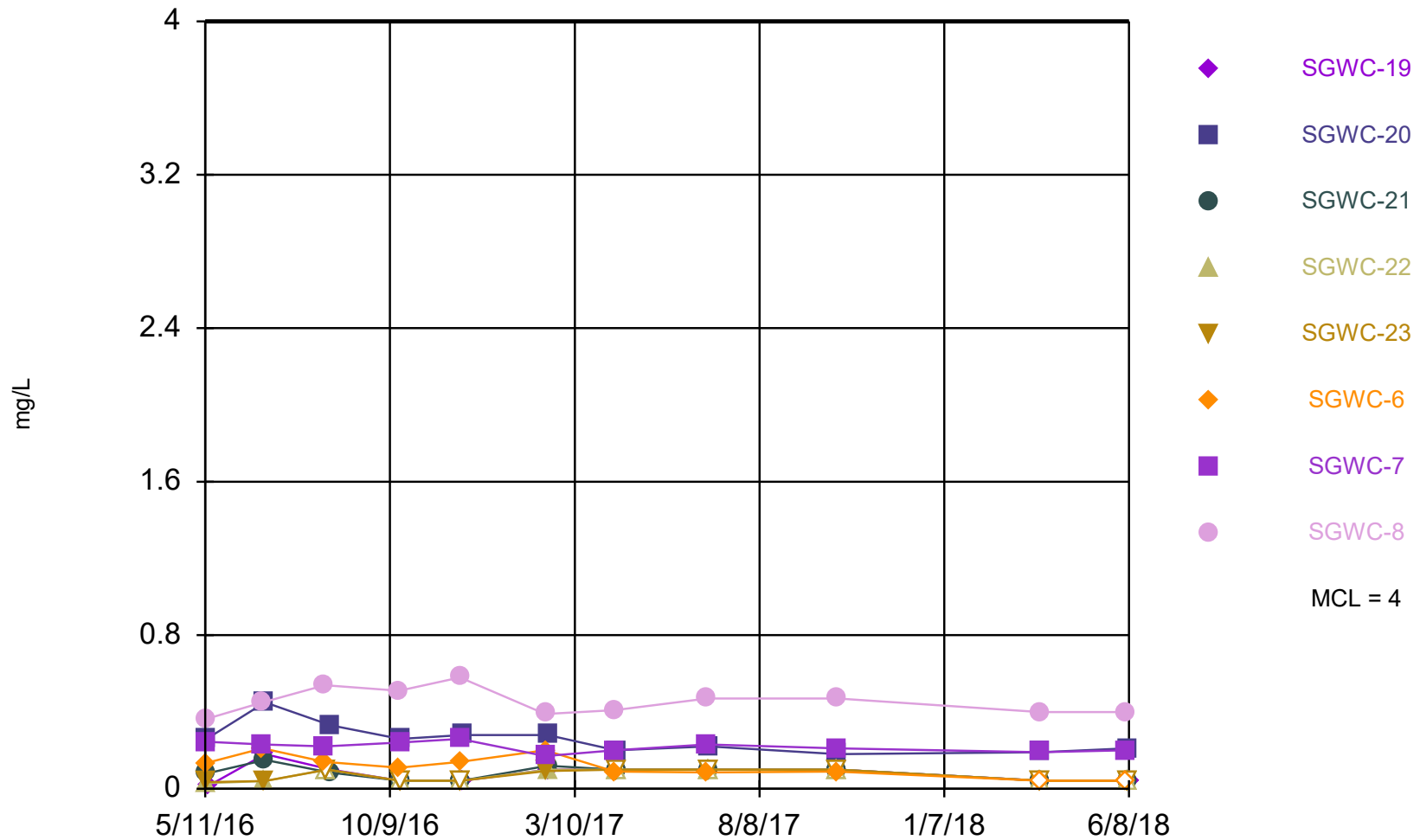
Constituent: Fluoride Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Fluoride Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

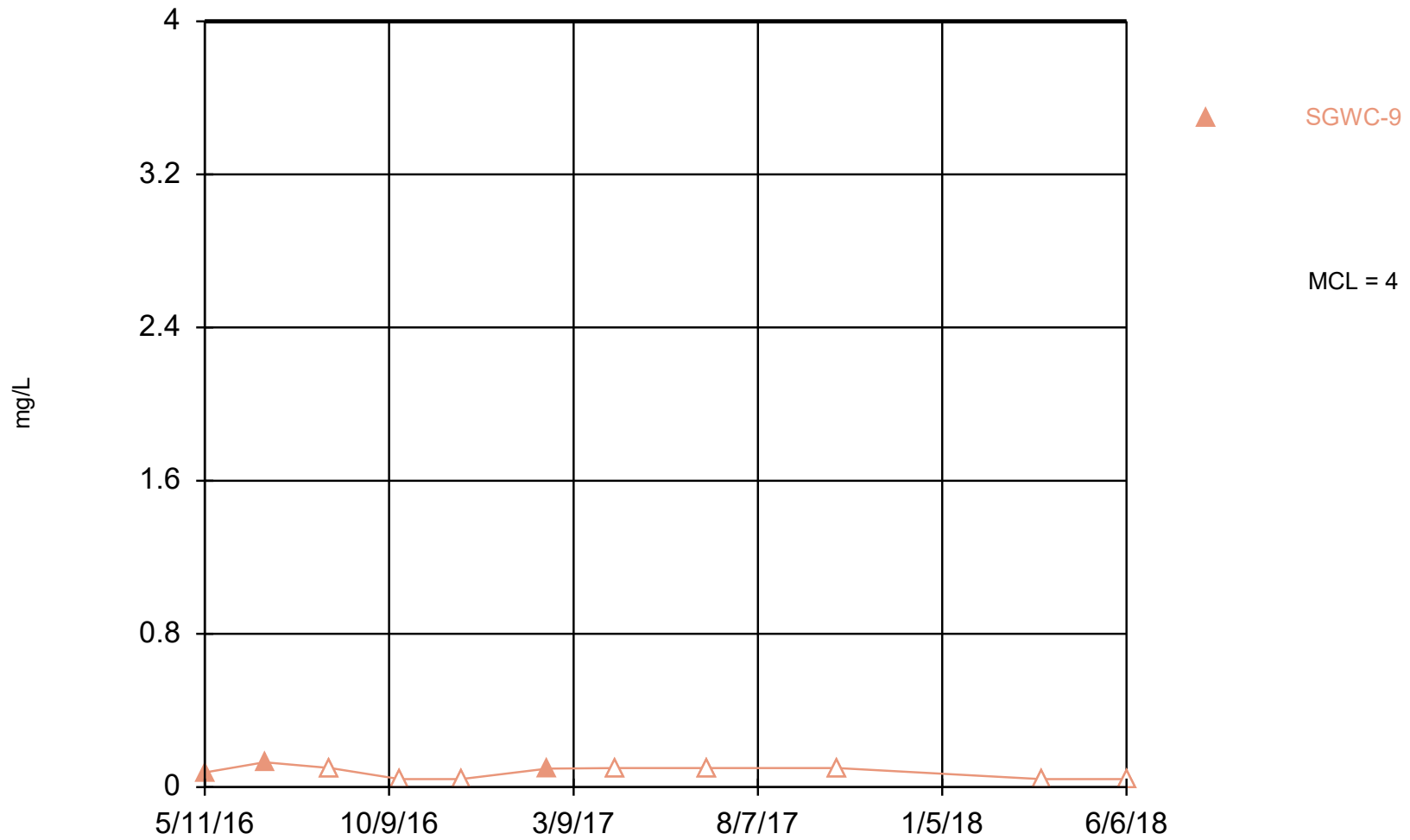
## Time Series



Constituent: Fluoride Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

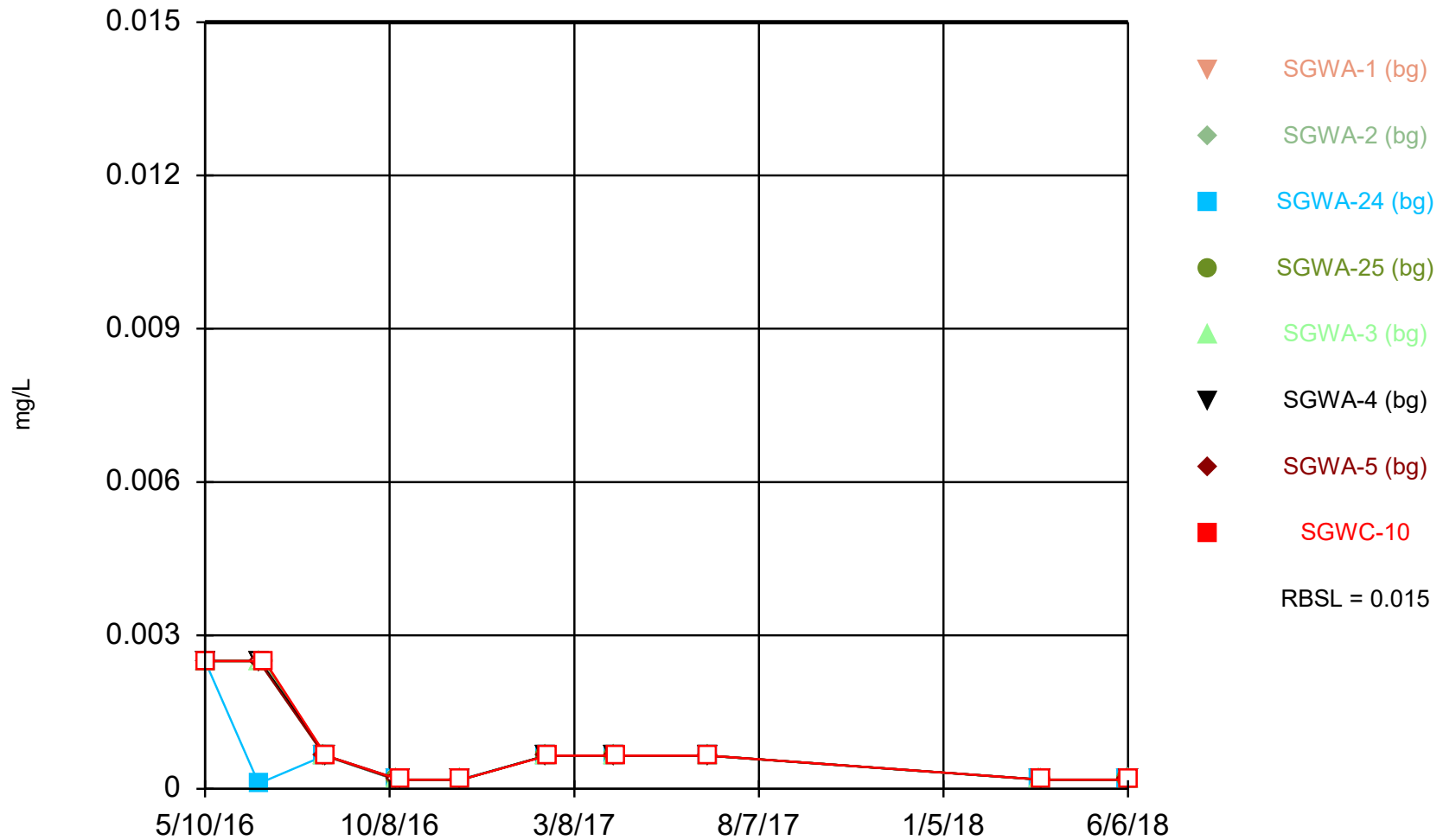


## Time Series



Constituent: Fluoride   Analysis Run 10/11/2018 12:25 PM   View: Interwell Confidence Interval  
Scherer   Client: Golder Associates   Data: Scherer Ash Pond\_CCR

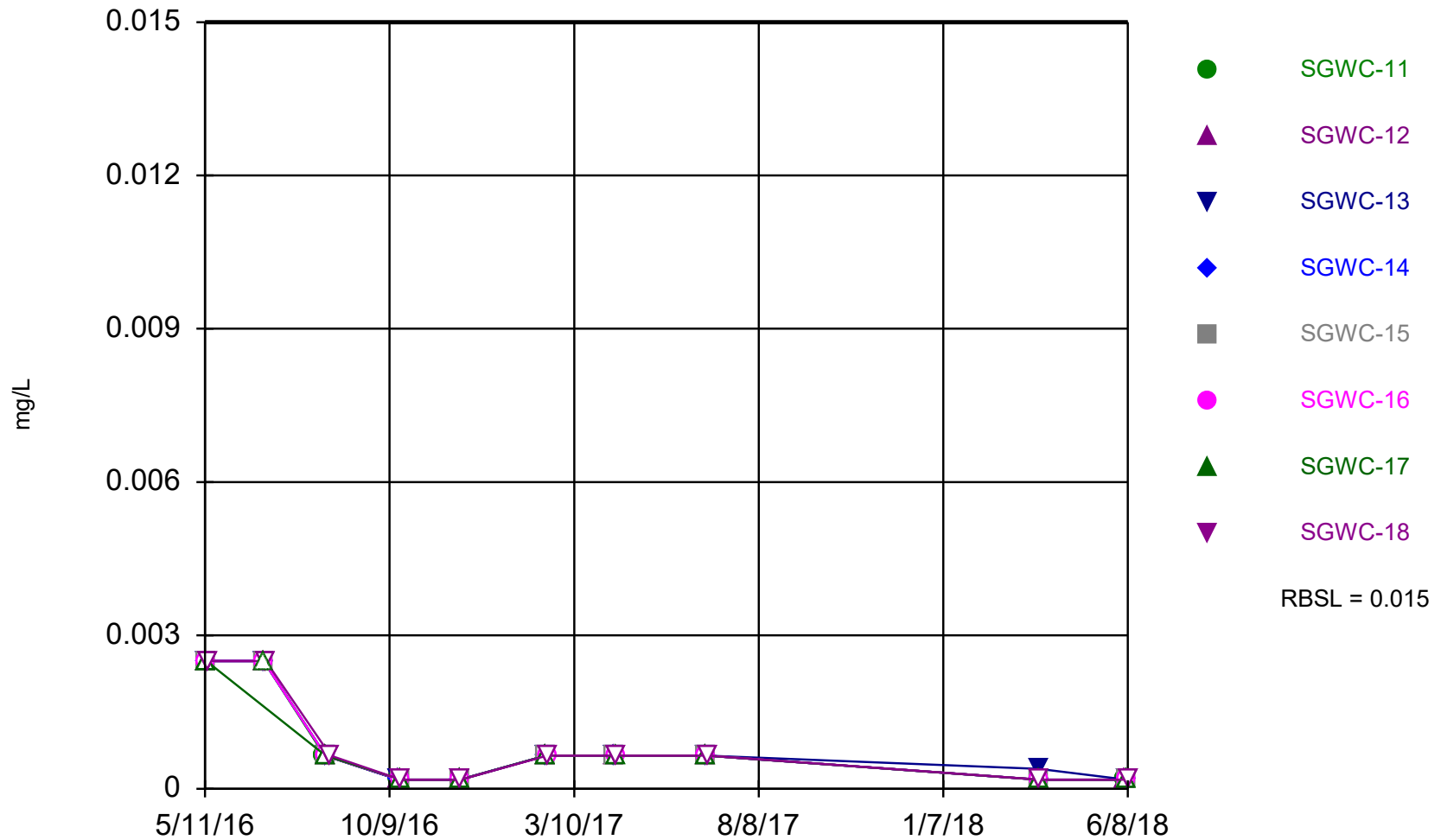
## Time Series



Constituent: Lead Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

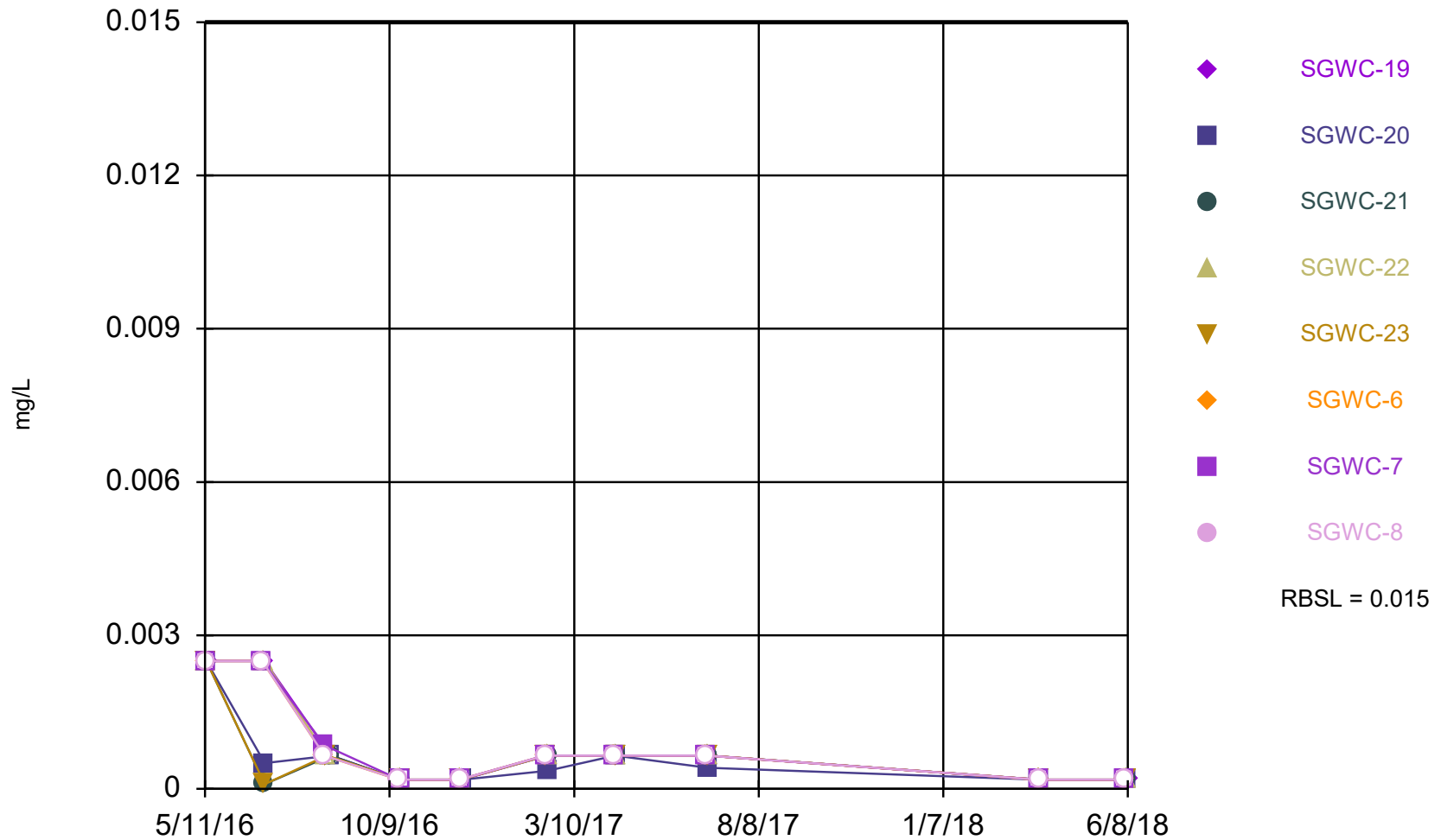
## Time Series



Constituent: Lead Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval

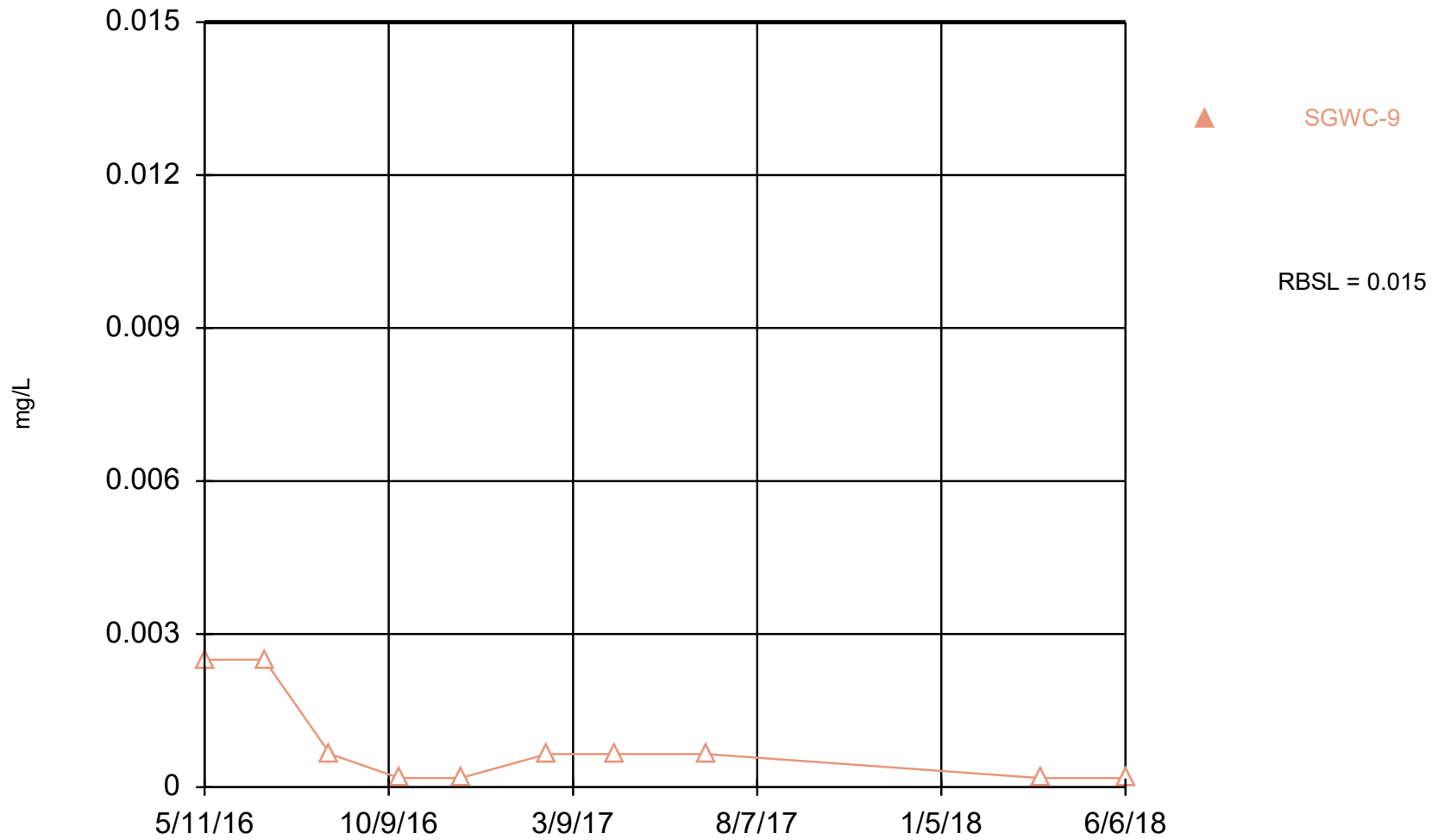
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



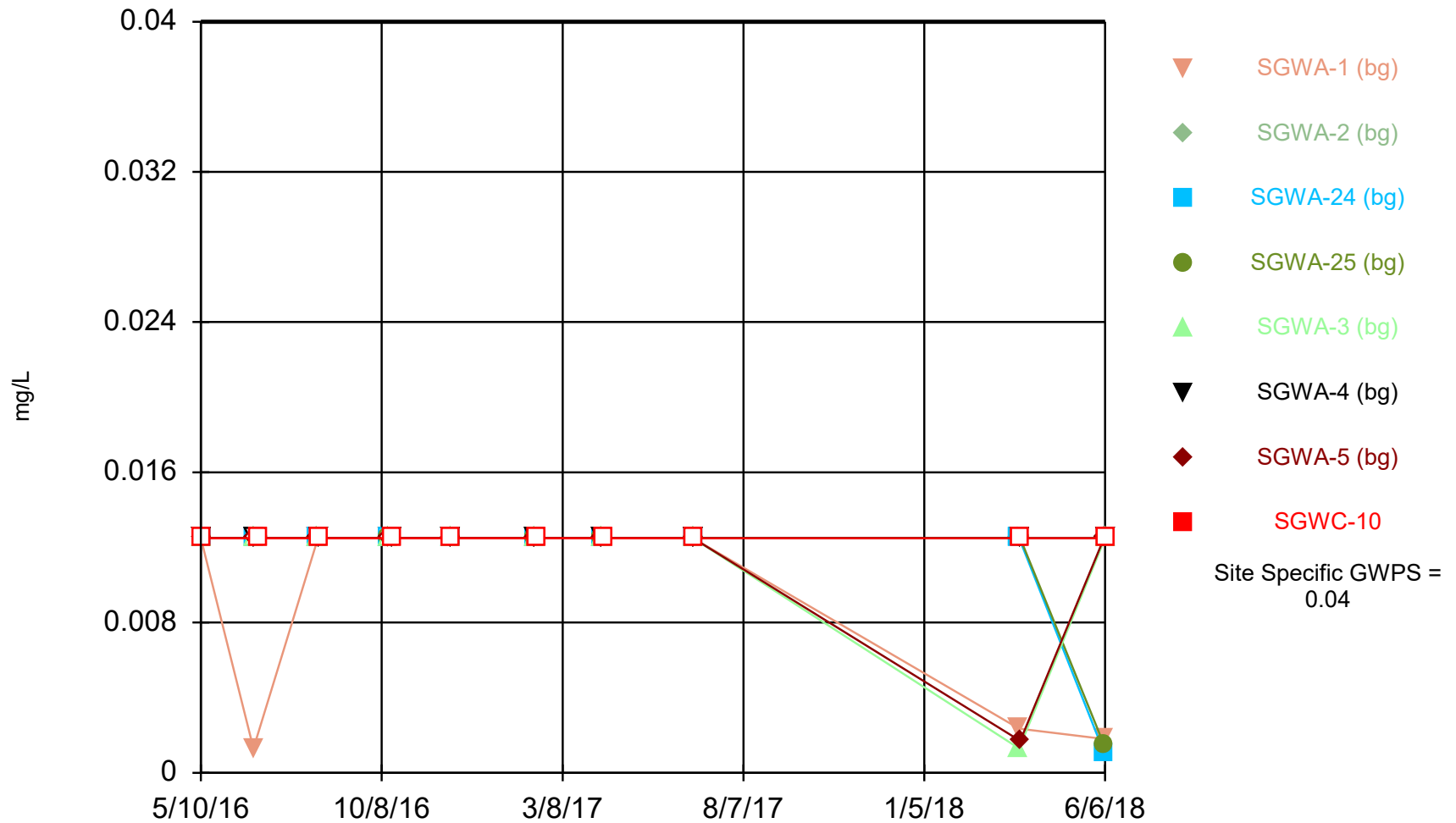
Constituent: Lead Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Lead Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

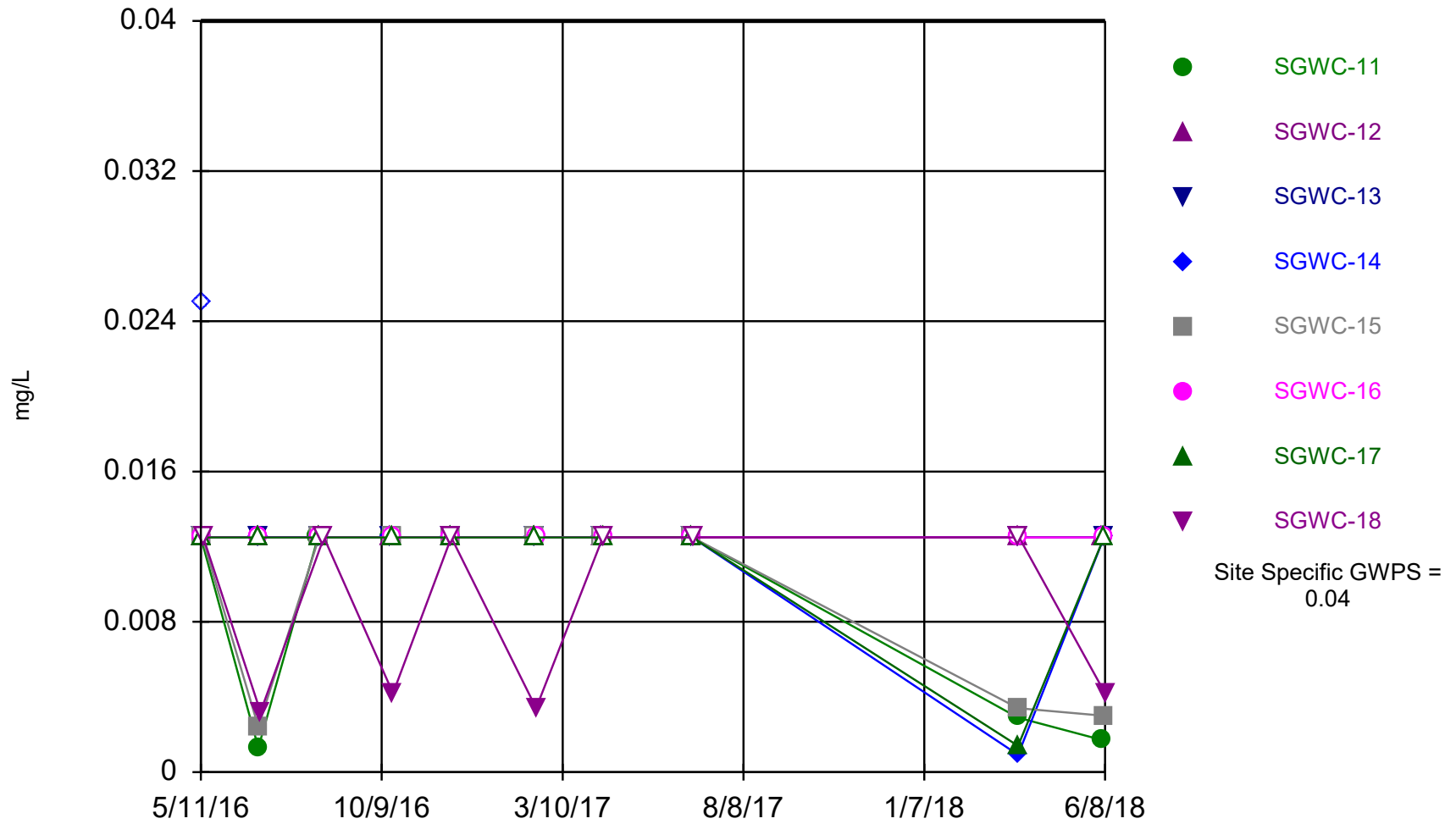
## Time Series



Constituent: Lithium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval

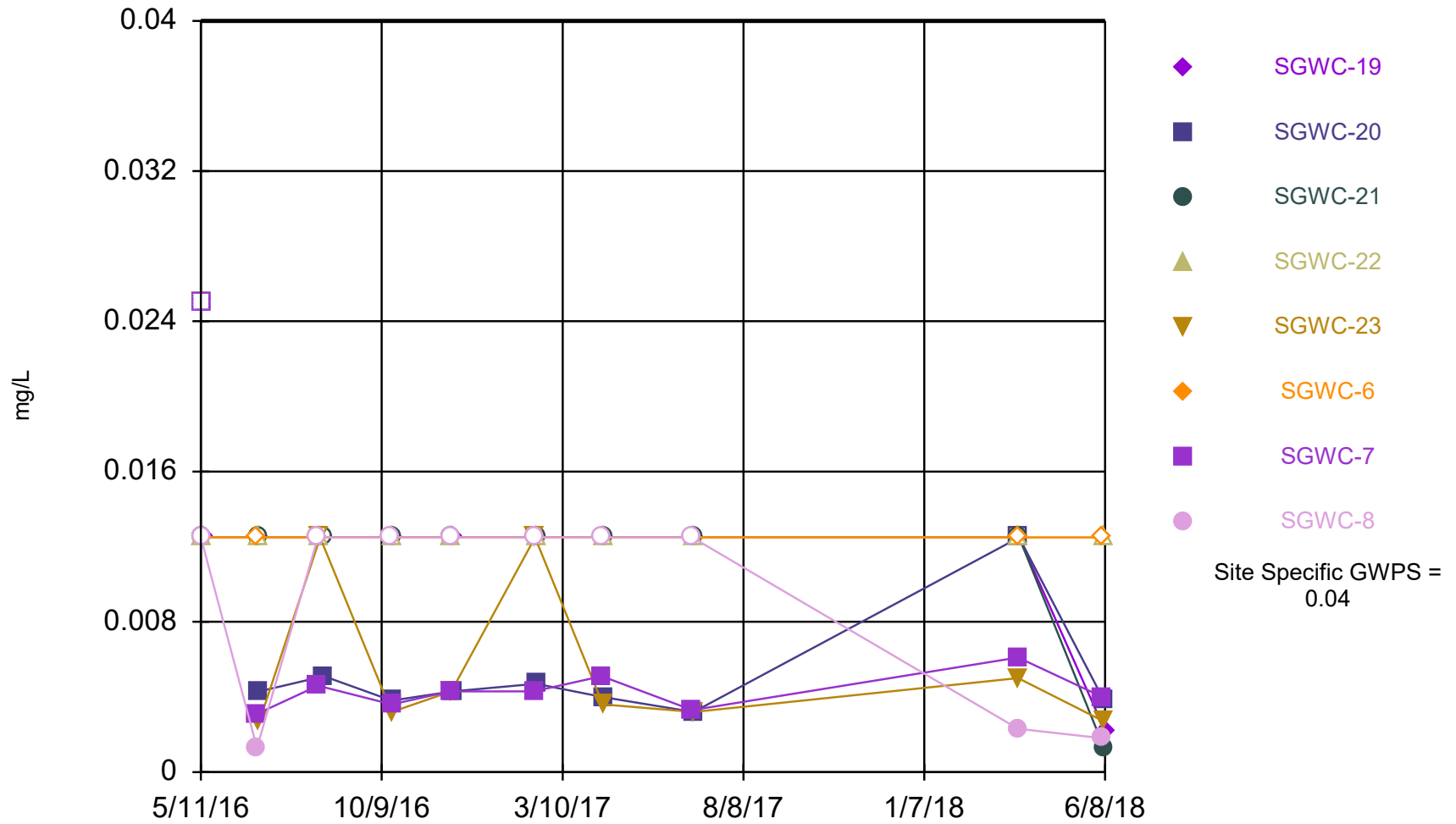
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Lithium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

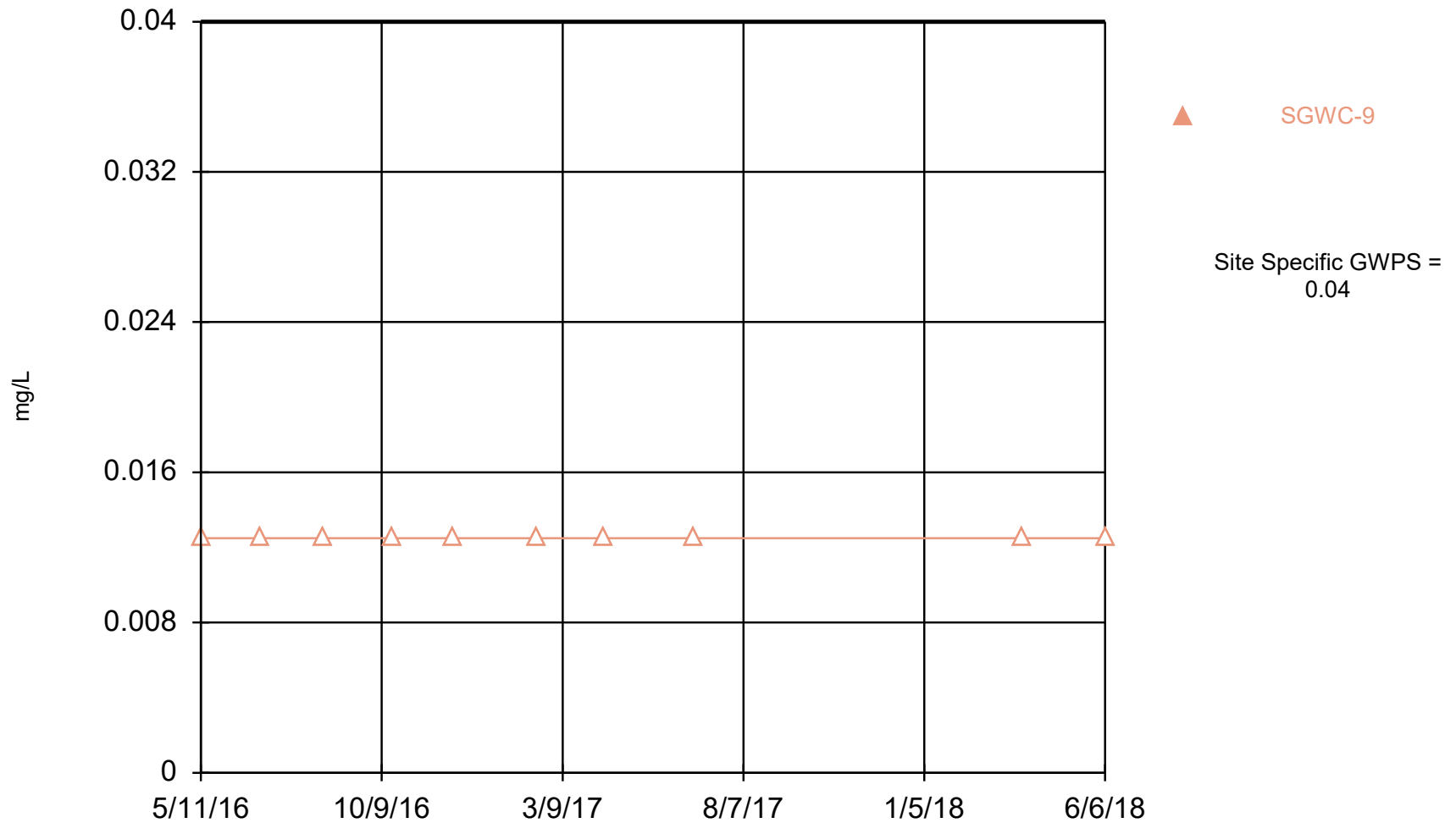
## Time Series



Constituent: Lithium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

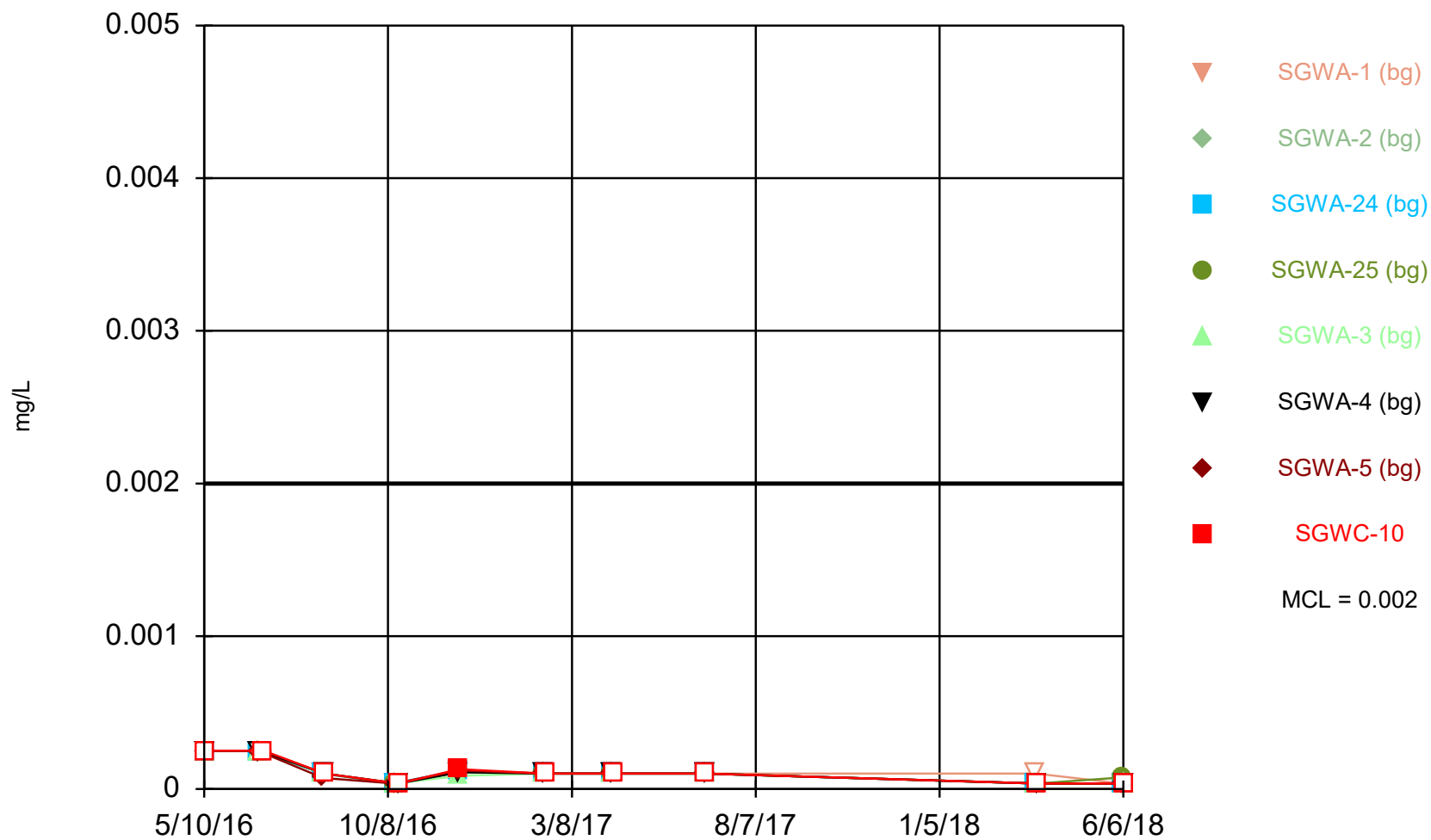


## Time Series



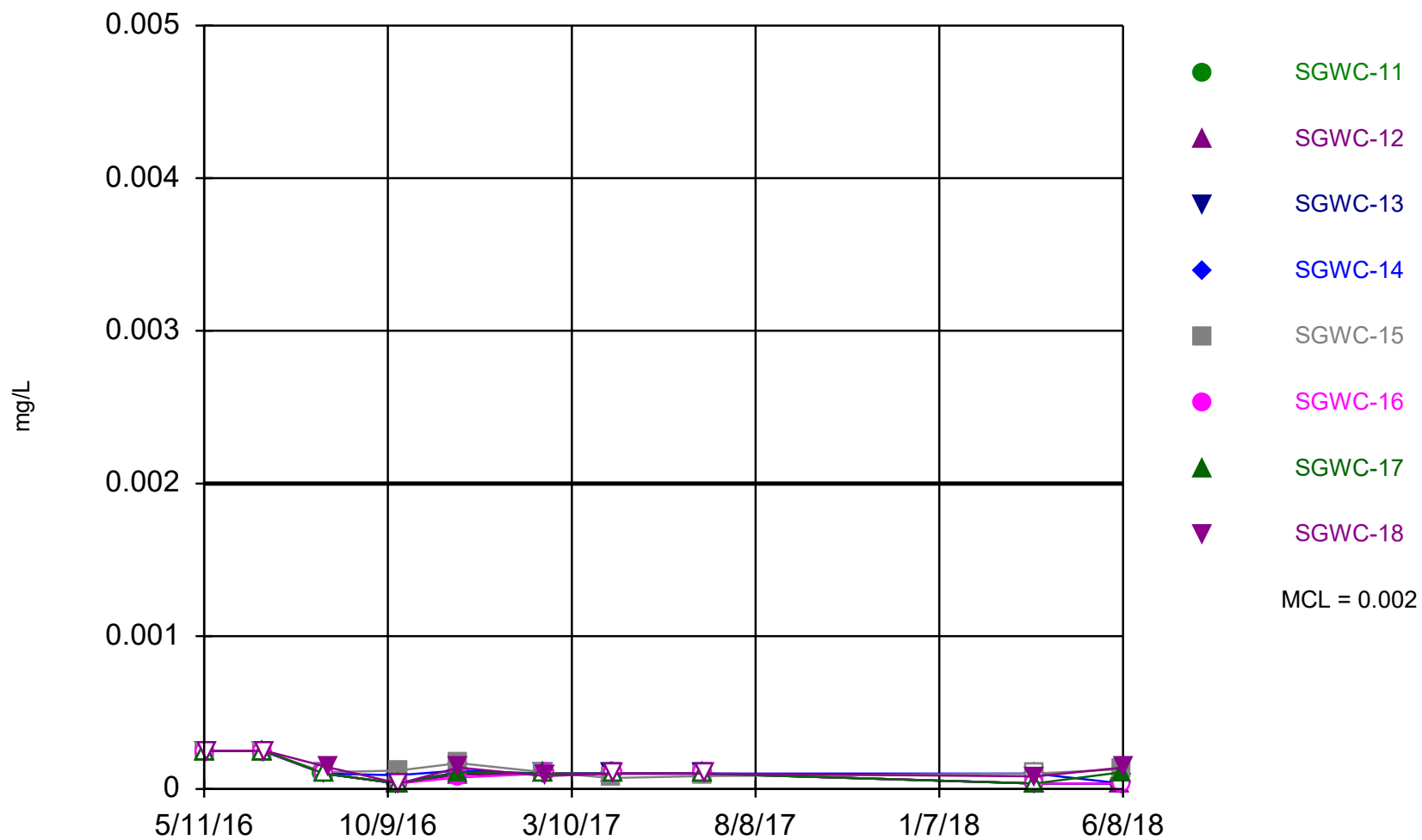
Constituent: Lithium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



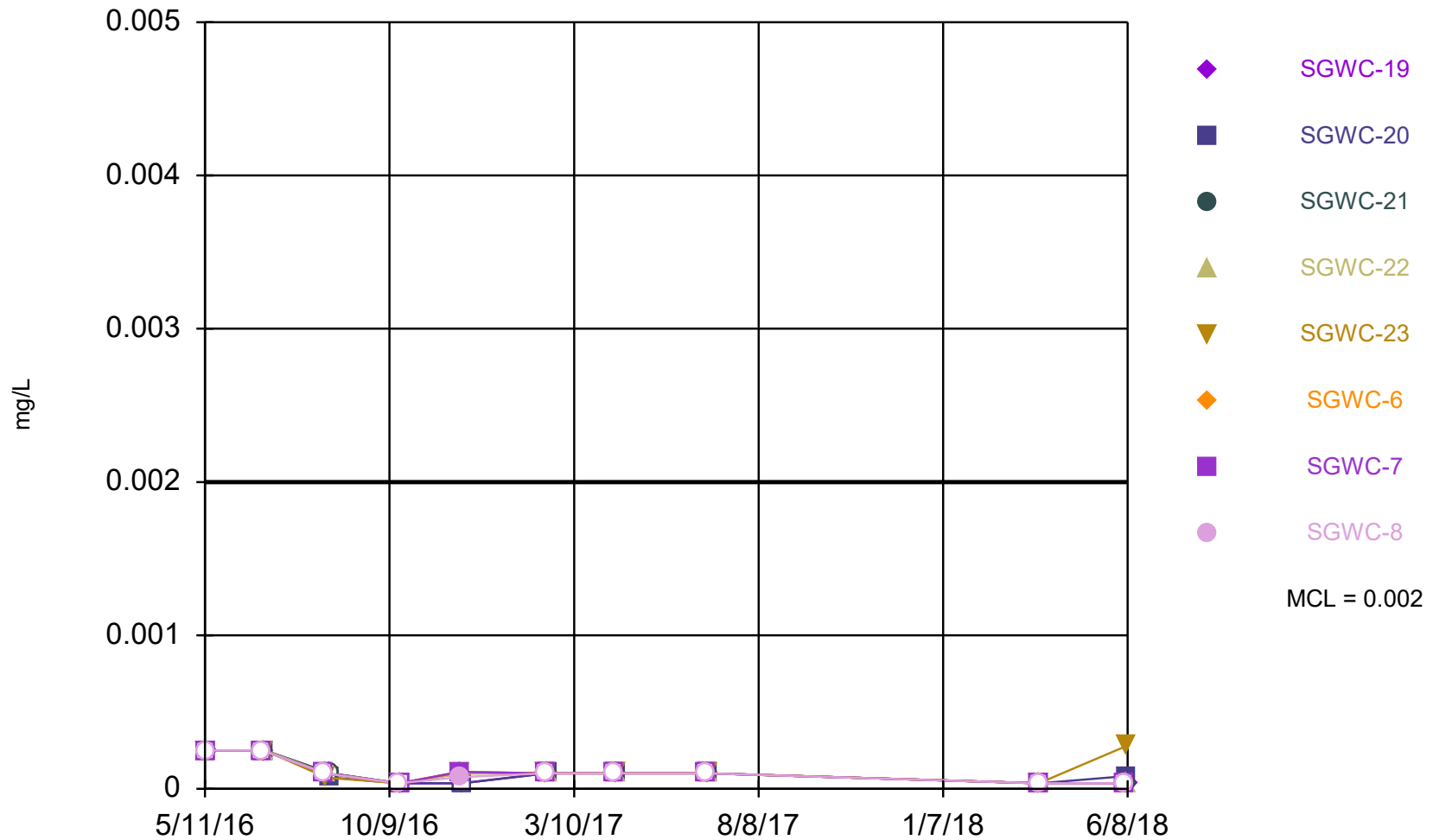
Constituent: Mercury Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



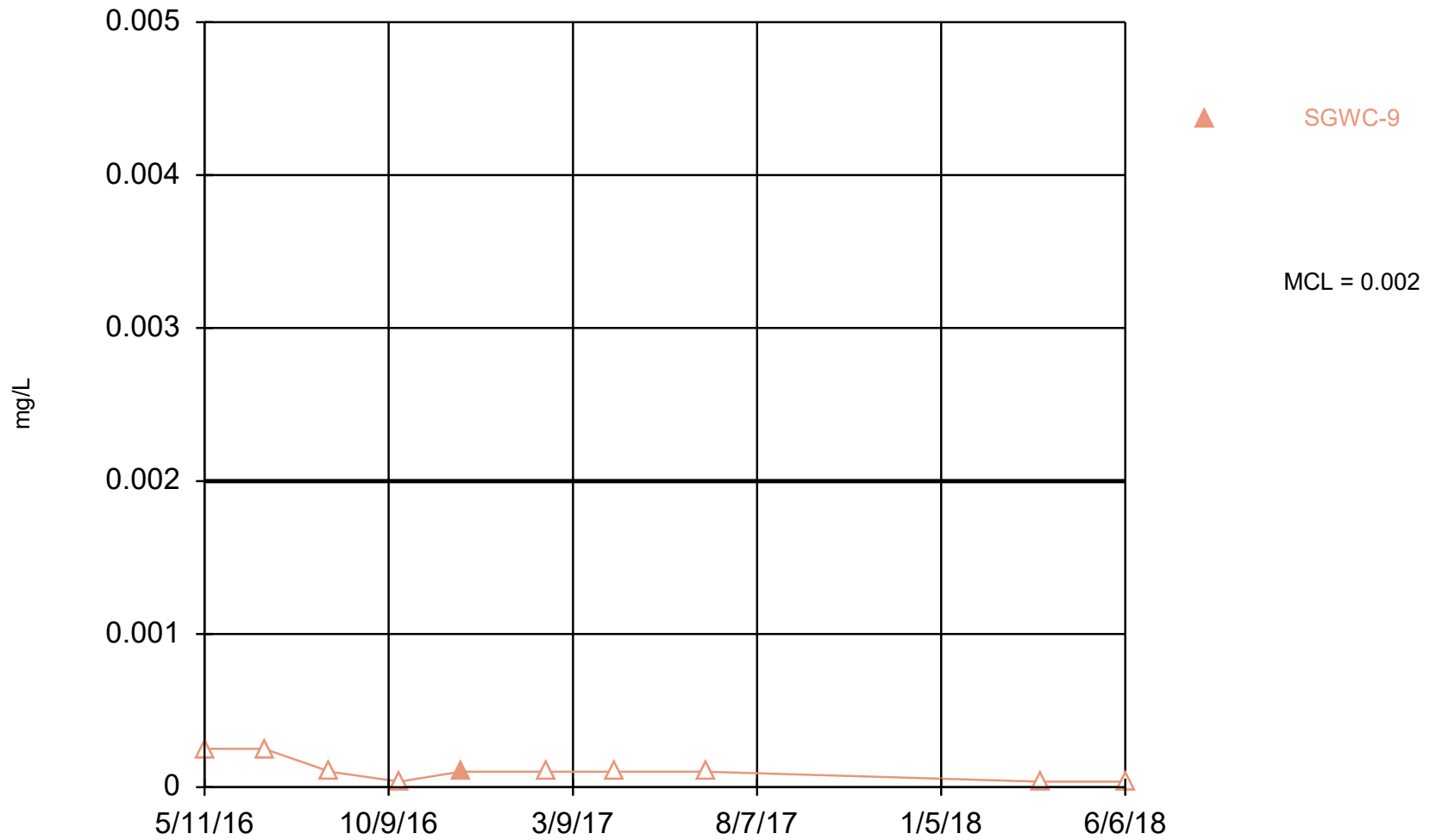
Constituent: Mercury Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



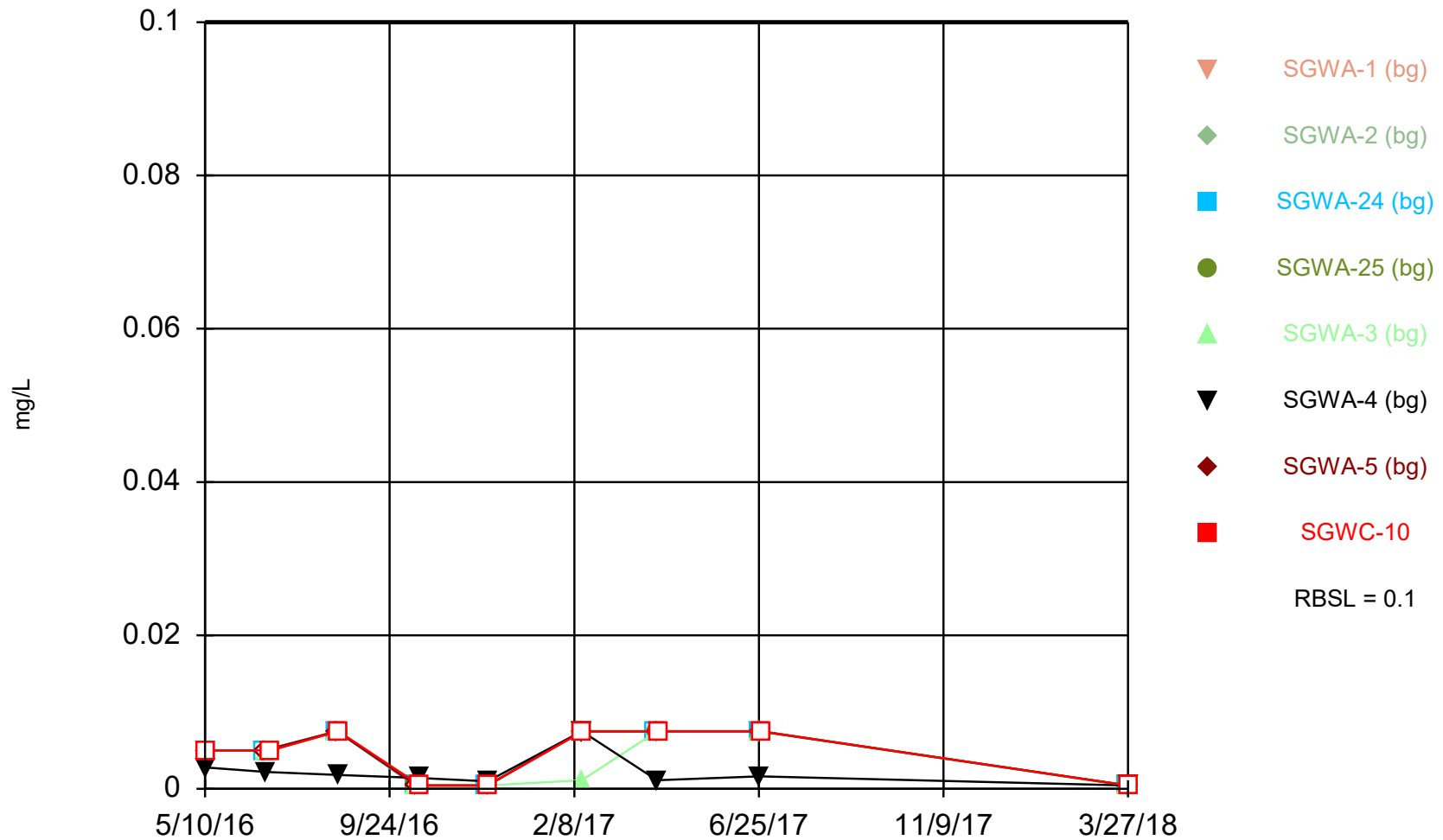
Constituent: Mercury Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Mercury Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

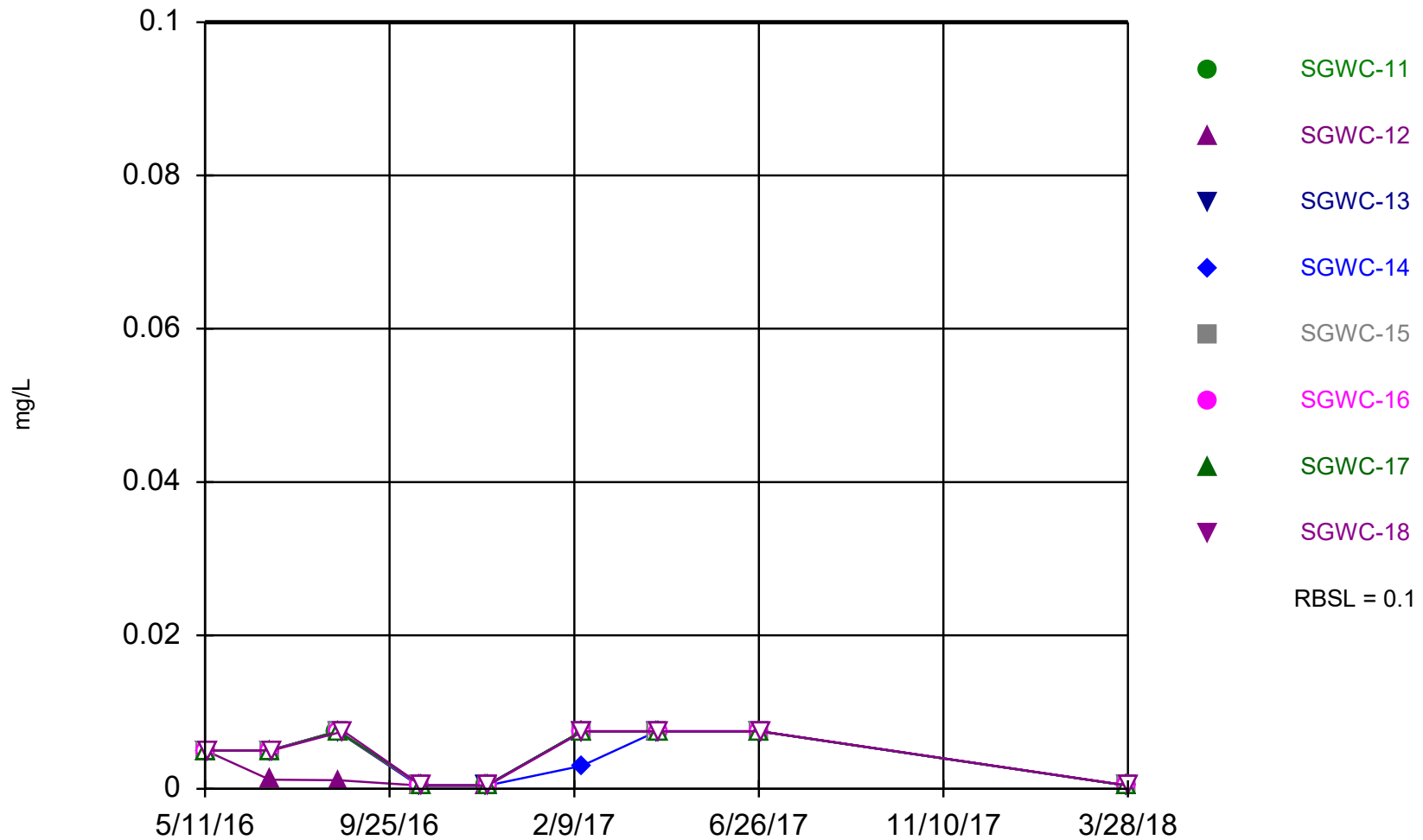
## Time Series



Constituent: Molybdenum Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval

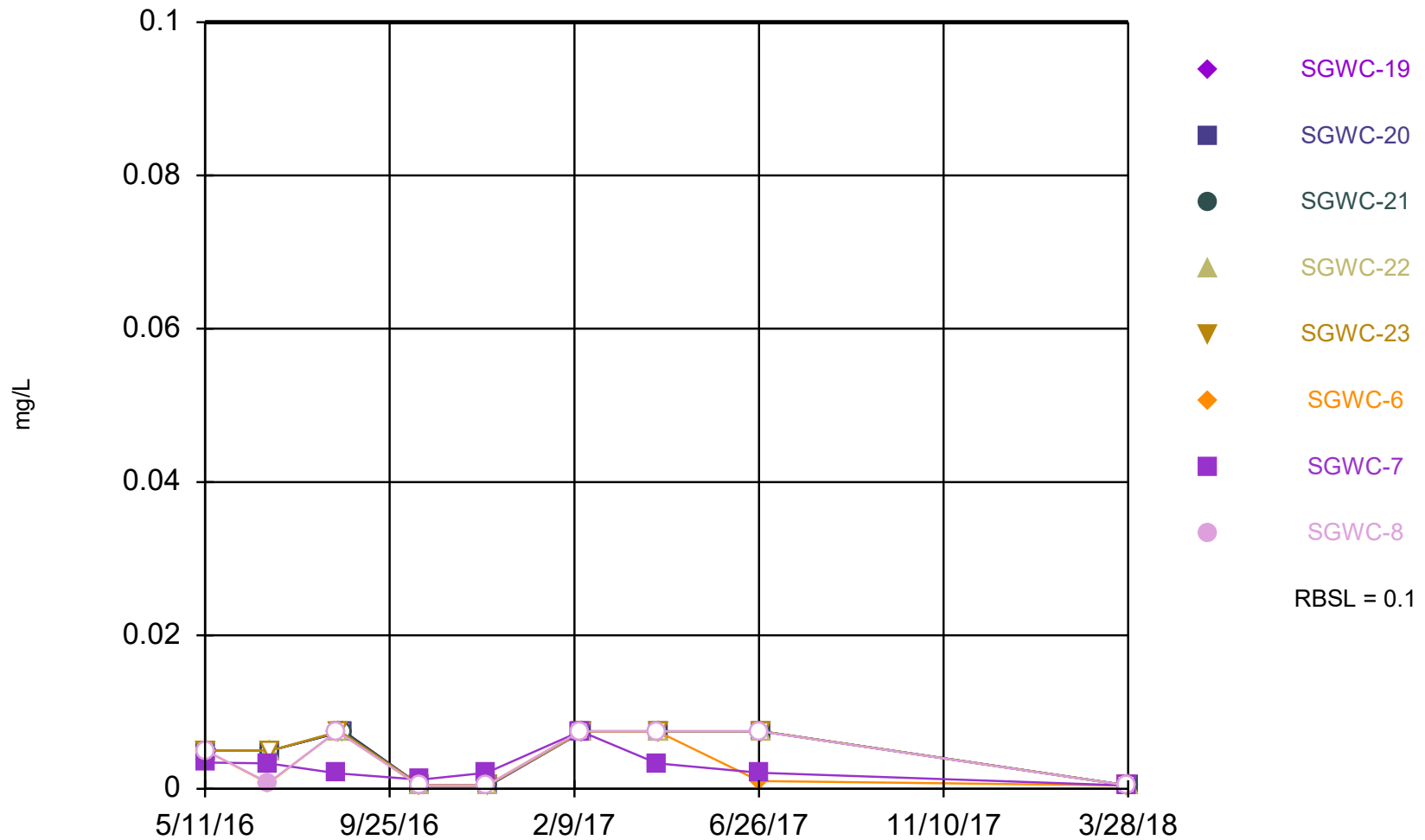
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Molybdenum Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

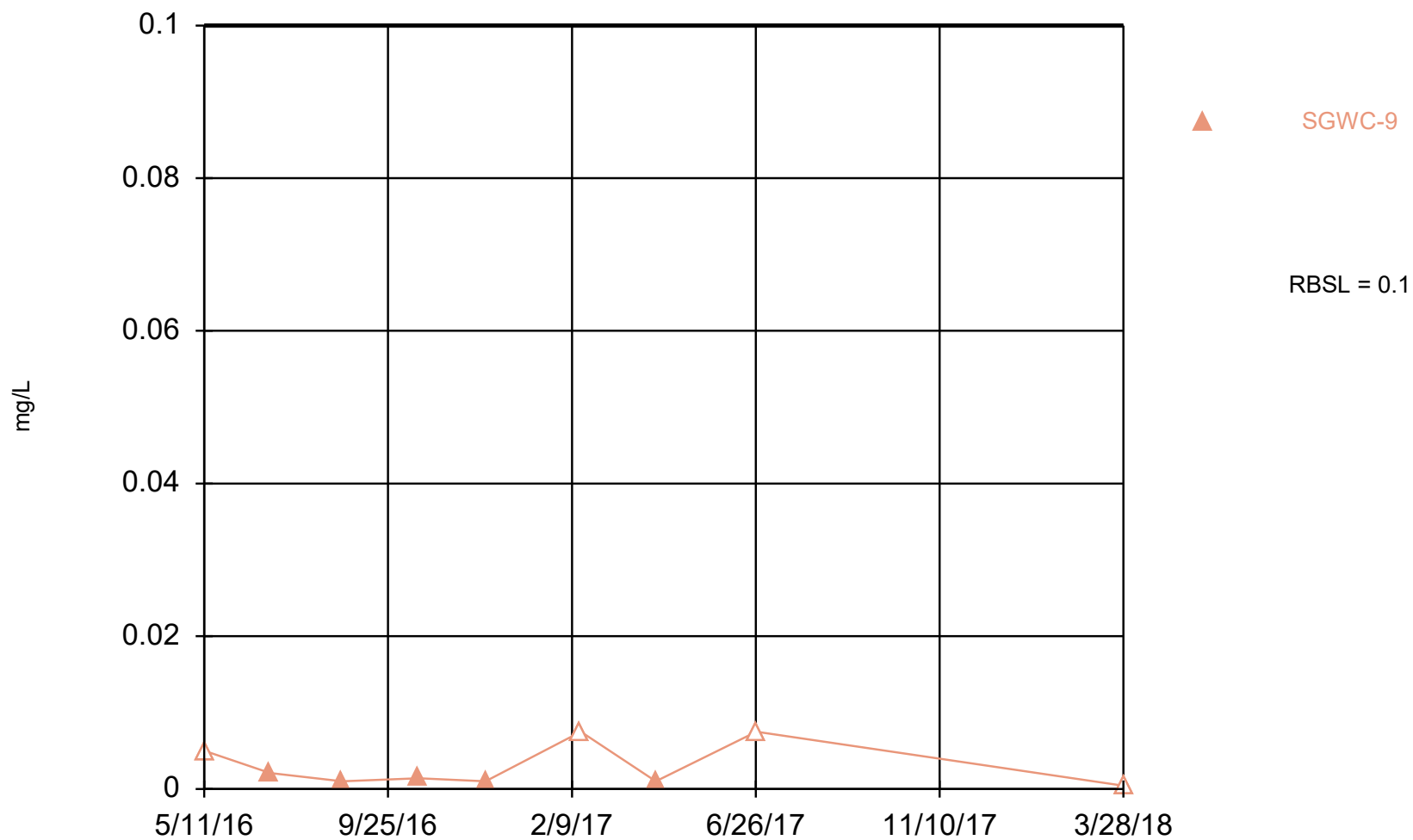
## Time Series



Constituent: Molybdenum Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

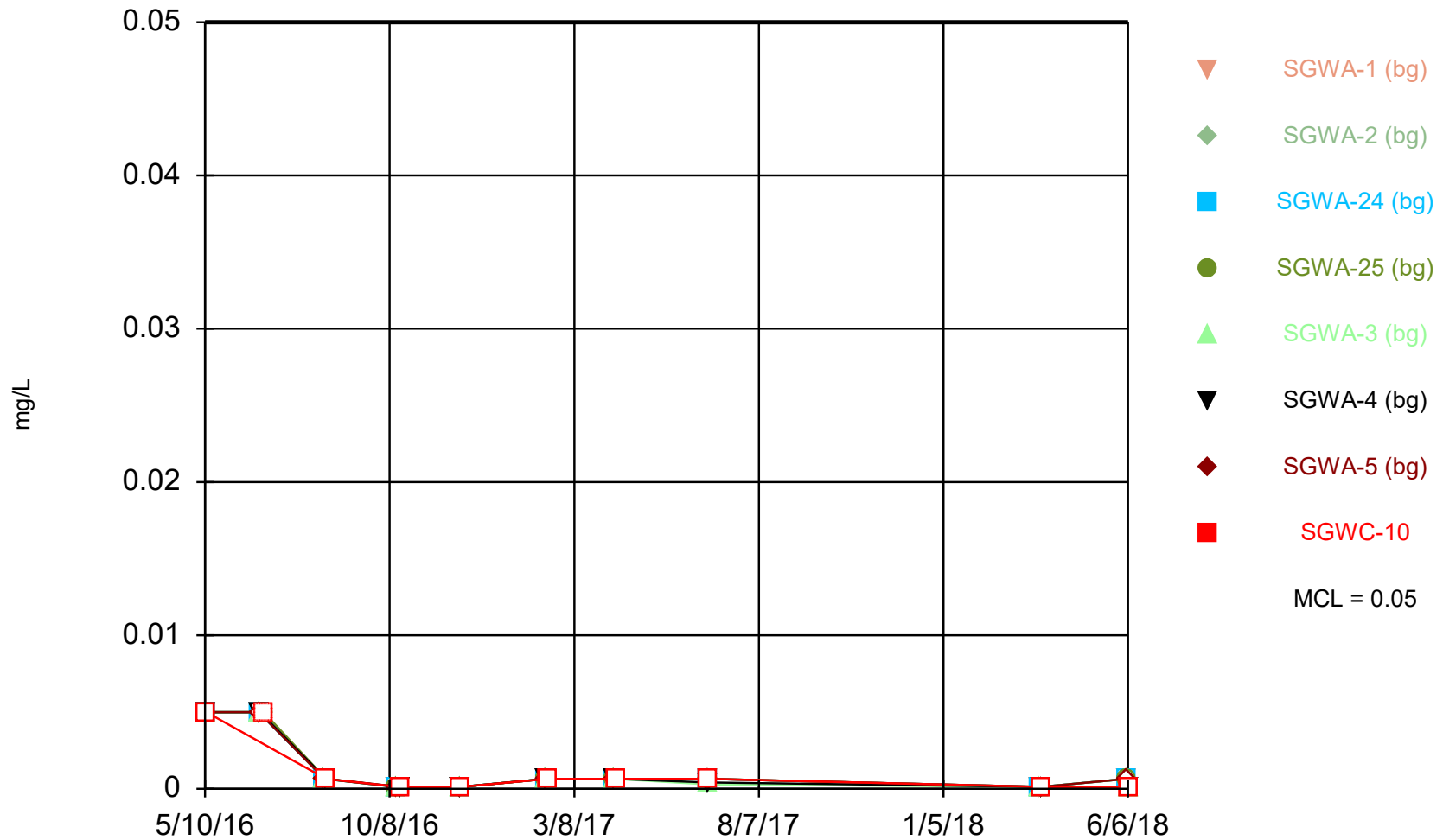


## Time Series



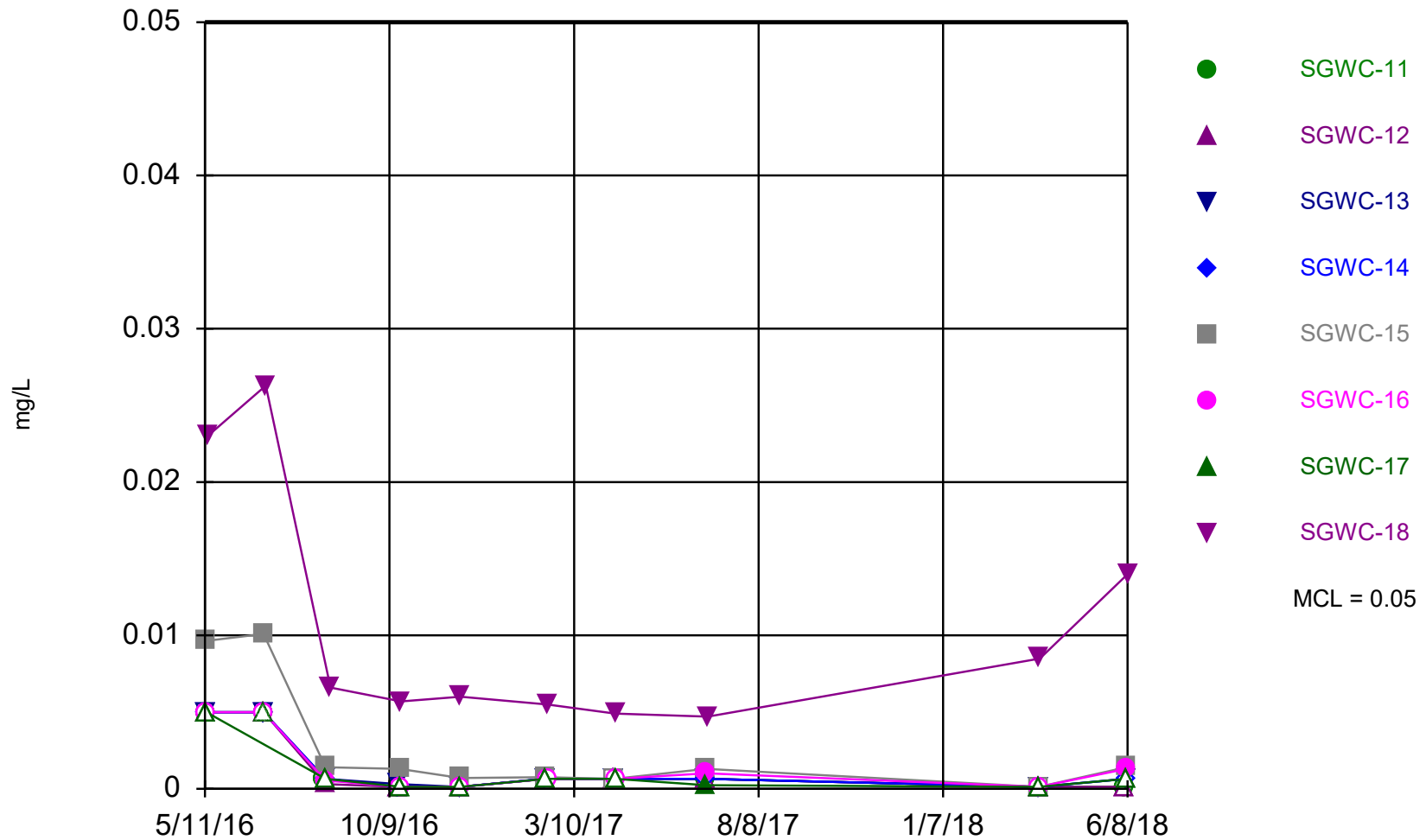
Constituent: Molybdenum Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



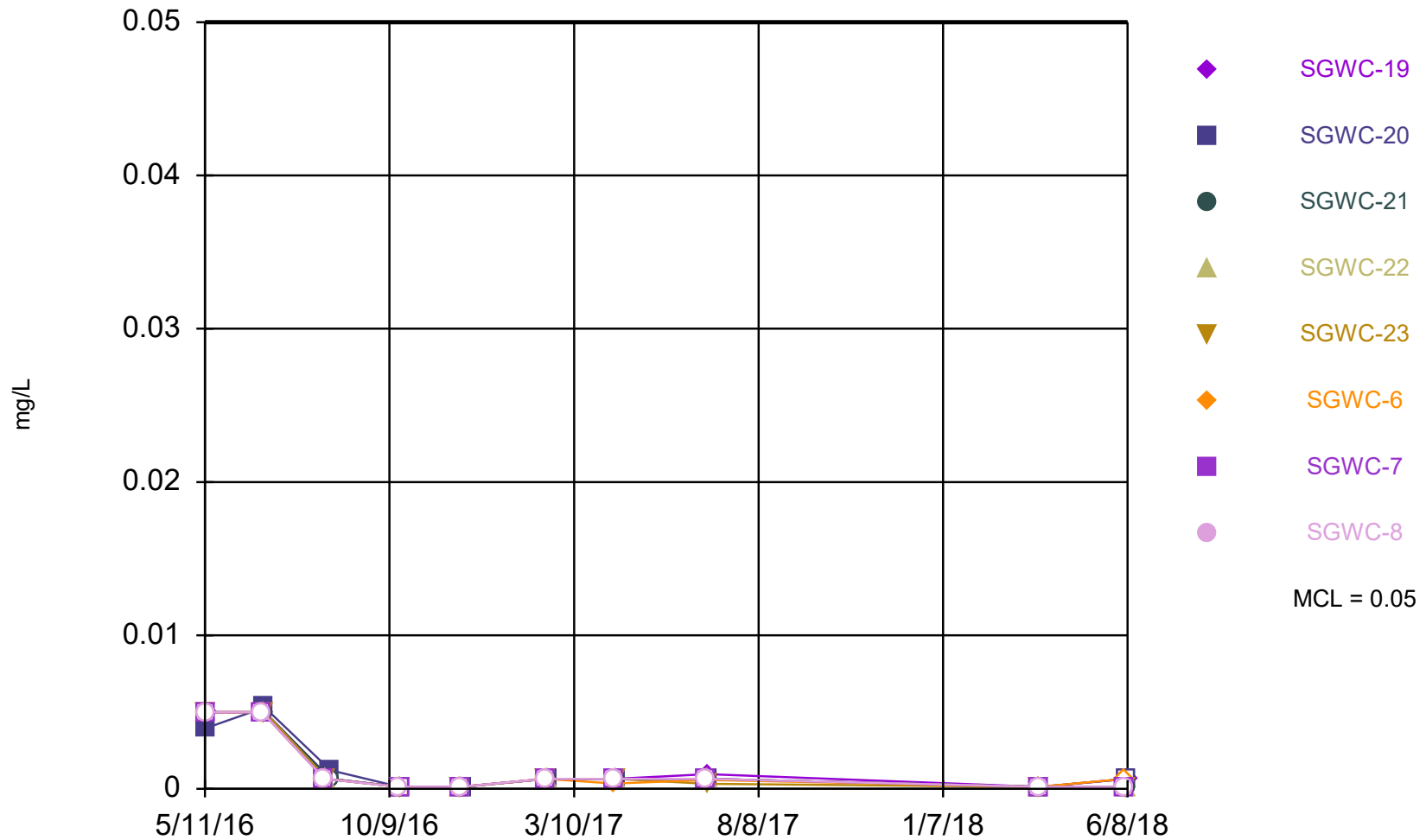
Constituent: Selenium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



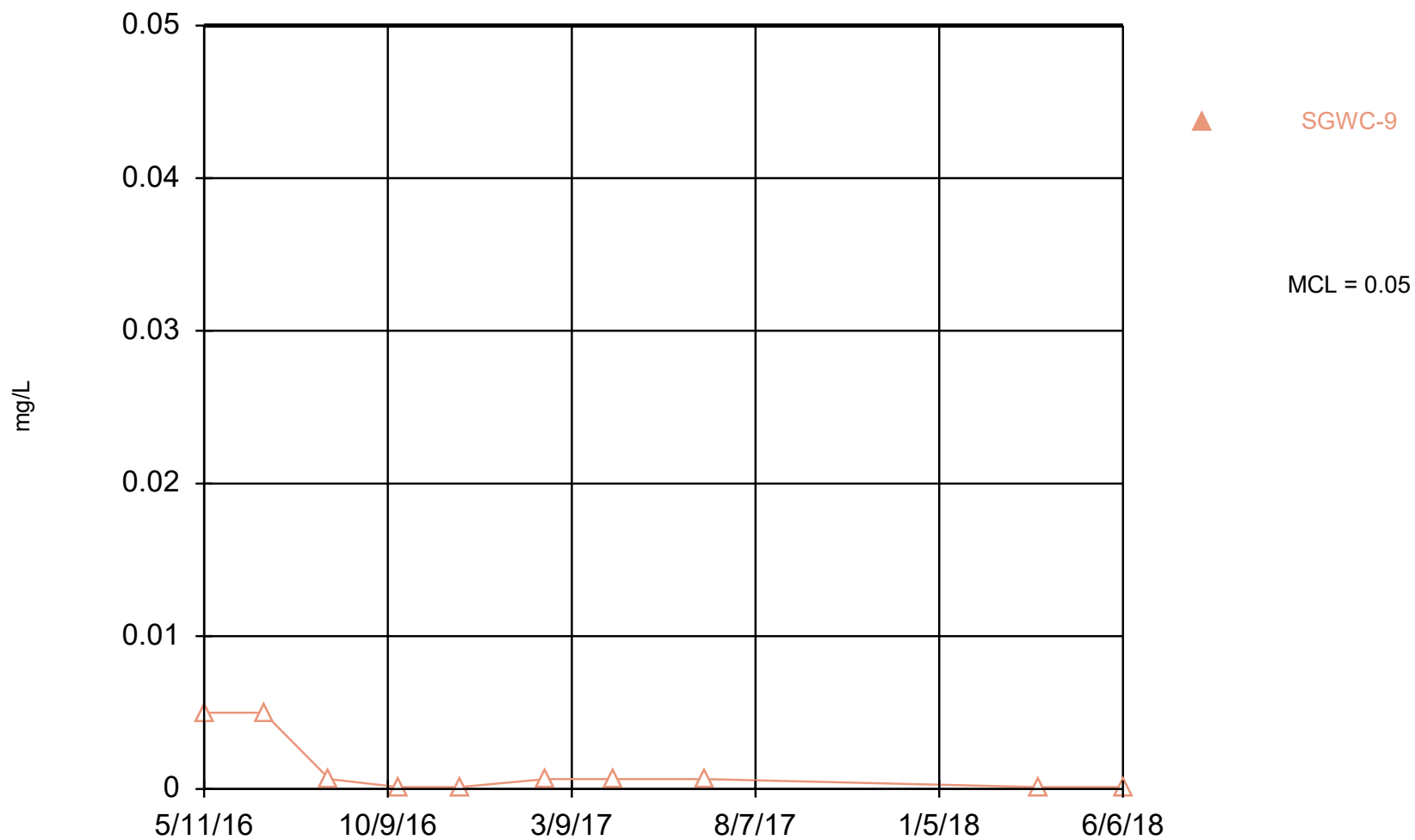
Constituent: Selenium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



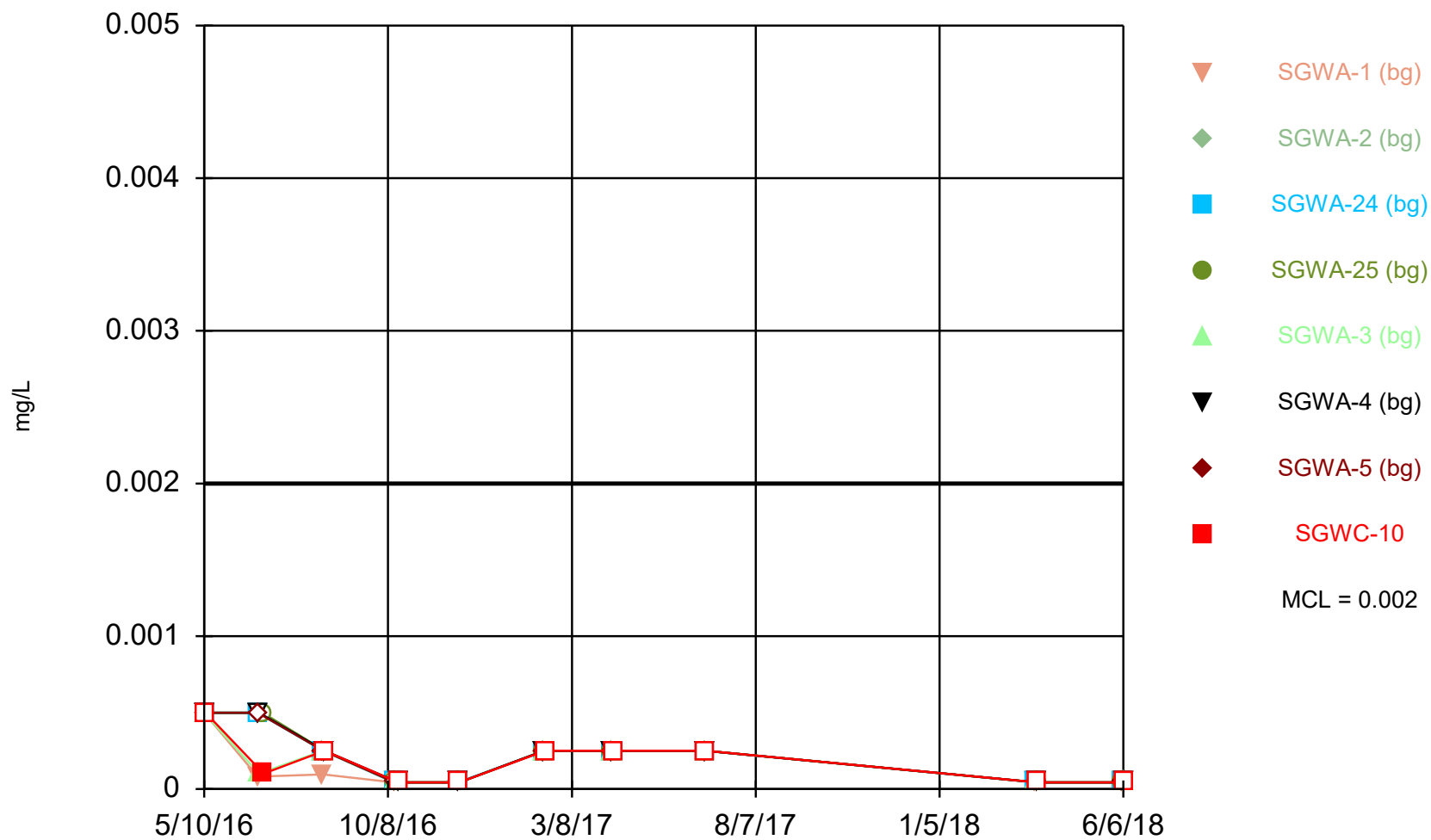
Constituent: Selenium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



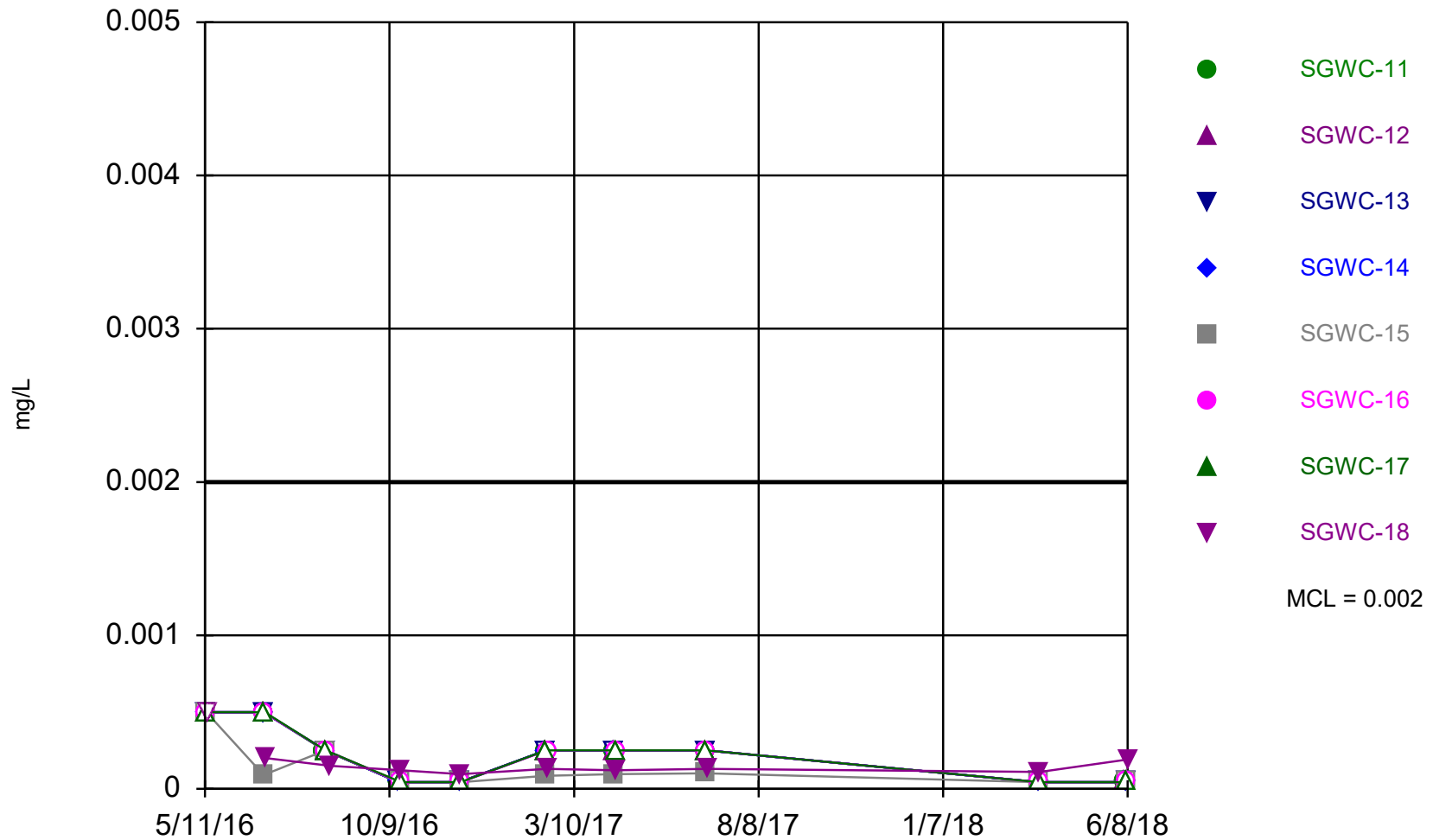
Constituent: Selenium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



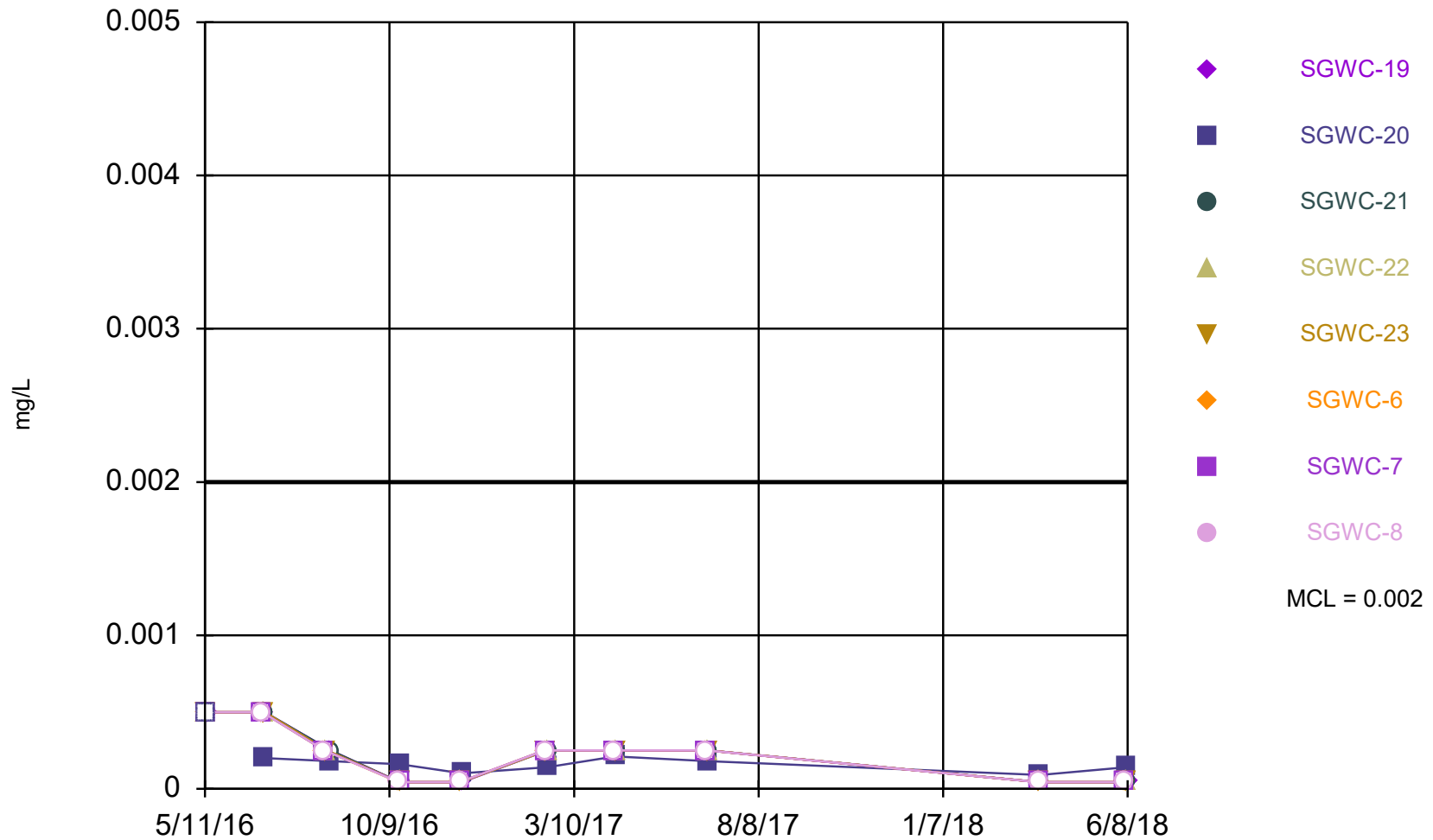
Constituent: Thallium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Thallium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

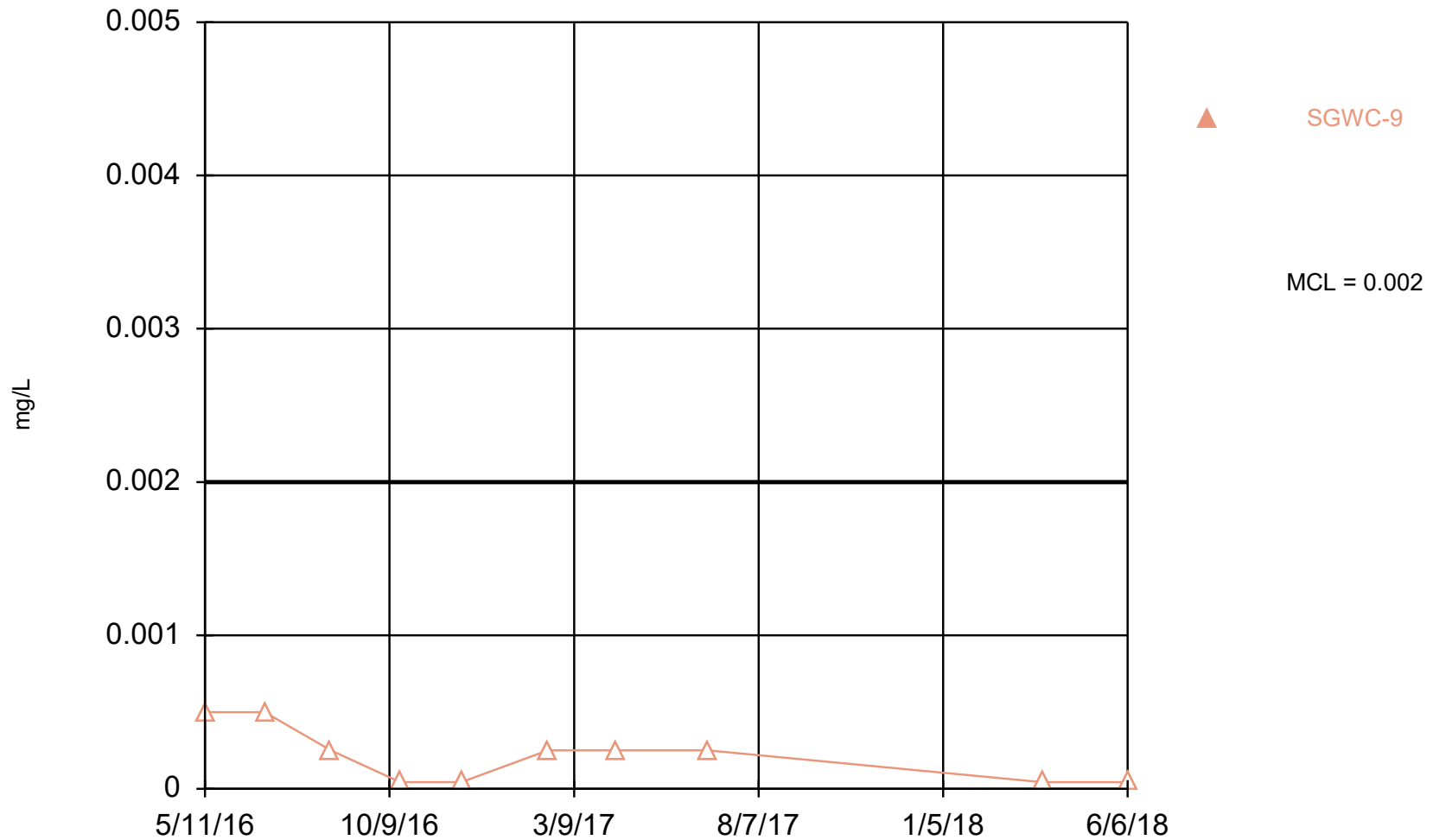
## Time Series



Constituent: Thallium Analysis Run 10/11/2018 12:25 PM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



## Time Series



Constituent: Thallium    Analysis Run 10/11/2018 12:25 PM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## APPENDIX III PREDICTION LIMIT ANALYSES OCTOBER 2018

# Prediction Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 1:03 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	SGWC-10	0.0109	n/a	12/17/2018	0.098	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-11	0.0109	n/a	10/16/2018	0.35	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-13	0.0109	n/a	12/14/2018	0.47	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-14	0.0109	n/a	12/14/2018	1.4	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-15	0.0109	n/a	10/16/2018	1.5	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-16	0.0109	n/a	12/17/2018	0.55	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-17	0.0109	n/a	12/14/2018	0.44	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-18	0.0109	n/a	10/18/2018	4.9	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-19	0.0109	n/a	12/17/2018	1.8	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-20	0.0109	n/a	10/18/2018	2.3	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-21	0.0109	n/a	12/17/2018	1.2	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-22	0.0109	n/a	12/17/2018	0.4	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-23	0.0109	n/a	12/17/2018	0.6	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-8	0.0109	n/a	12/14/2018	0.064	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-9	0.0109	n/a	12/17/2018	1.6	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Calcium (mg/L)	SGWC-12	19	n/a	12/14/2018	21	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-14	19	n/a	12/14/2018	37	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-17	19	n/a	12/14/2018	46	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-18	19	n/a	10/18/2018	100	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-19	19	n/a	12/17/2018	42	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-21	19	n/a	12/17/2018	29	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-22	19	n/a	12/17/2018	28	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-23	19	n/a	12/17/2018	24	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-8	19	n/a	12/14/2018	46	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-9	19	n/a	12/17/2018	55	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Chloride (mg/L)	SGWC-10	3.203	n/a	12/17/2018	8.6	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-11	3.203	n/a	10/16/2018	7.8	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-12	3.203	n/a	12/14/2018	9.1	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-13	3.203	n/a	12/14/2018	7.5	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-14	3.203	n/a	12/14/2018	10	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-15	3.203	n/a	10/16/2018	10	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-16	3.203	n/a	12/17/2018	8.1	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-17	3.203	n/a	12/14/2018	8.1	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-18	3.203	n/a	10/18/2018	16	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-19	3.203	n/a	12/17/2018	7.3	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-20	3.203	n/a	10/18/2018	11	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-21	3.203	n/a	12/17/2018	9.3	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-22	3.203	n/a	12/17/2018	10	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-23	3.203	n/a	12/17/2018	9.9	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-7	3.203	n/a	12/14/2018	4.2	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-8	3.203	n/a	12/14/2018	11	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-9	3.203	n/a	12/17/2018	13	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Fluoride (mg/L)	SGWC-20	0.205	n/a	10/18/2018	0.23	Yes	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-8	0.205	n/a	10/9/2018	0.47	Yes	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
pH (S.U.)	SGWC-15	6.87	5.21	10/16/2018	4.59	Yes	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-18	6.87	5.21	10/18/2018	4.7	Yes	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-20	6.87	5.21	10/18/2018	4.3	Yes	75	0	n/a	0.000673	NP Inter (normality) ...
Sulfate (mg/L)	SGWC-10	3.75	n/a	12/17/2018	16	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-12	3.75	n/a	12/14/2018	43	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-13	3.75	n/a	12/14/2018	74	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2

# Prediction Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 1:03 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Sulfate (mg/L)	SGWC-14	3.75	n/a	12/14/2018	190	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-15	3.75	n/a	10/16/2018	200	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-16	3.75	n/a	12/17/2018	28	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-17	3.75	n/a	12/14/2018	180	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-18	3.75	n/a	10/18/2018	1200	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-19	3.75	n/a	12/17/2018	270	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-20	3.75	n/a	10/18/2018	210	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-21	3.75	n/a	12/17/2018	88	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-22	3.75	n/a	12/17/2018	99	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-23	3.75	n/a	12/17/2018	96	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-7	3.75	n/a	12/14/2018	10	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-8	3.75	n/a	12/14/2018	72	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-9	3.75	n/a	12/17/2018	330	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Total Dissolved Solids (mg/L)	SGWC-12	143.7	n/a	12/14/2018	190	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-14	143.7	n/a	12/14/2018	280	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-15	143.7	n/a	10/16/2018	350	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-17	143.7	n/a	12/14/2018	390	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-18	143.7	n/a	10/18/2018	1200	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-19	143.7	n/a	12/17/2018	250	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-20	143.7	n/a	10/18/2018	370	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-21	143.7	n/a	12/17/2018	310	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-22	143.7	n/a	12/17/2018	260	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-7	143.7	n/a	12/14/2018	170	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-8	143.7	n/a	12/14/2018	390	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-9	143.7	n/a	12/17/2018	510	Yes	77	2.597	No	0.000418	Param Inter 1 of 2

# Prediction Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 1:03 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	SGWC-10	0.0109	n/a	12/17/2018	0.098	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-11	0.0109	n/a	10/16/2018	0.35	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-12	0.0109	n/a	12/14/2018	0.0105ND	No	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-13	0.0109	n/a	12/14/2018	0.47	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-14	0.0109	n/a	12/14/2018	1.4	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-15	0.0109	n/a	10/16/2018	1.5	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-16	0.0109	n/a	12/17/2018	0.55	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-17	0.0109	n/a	12/14/2018	0.44	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-18	0.0109	n/a	10/18/2018	4.9	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-19	0.0109	n/a	12/17/2018	1.8	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-20	0.0109	n/a	10/18/2018	2.3	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-21	0.0109	n/a	12/17/2018	1.2	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-22	0.0109	n/a	12/17/2018	0.4	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-23	0.0109	n/a	12/17/2018	0.6	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-6	0.0109	n/a	12/14/2018	0.0105ND	No	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-7	0.0109	n/a	12/14/2018	0.0105ND	No	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-8	0.0109	n/a	12/14/2018	0.064	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Boron (mg/L)	SGWC-9	0.0109	n/a	12/17/2018	1.6	Yes	77	96.1	n/a	0.000...	NP Inter (NDs) 1 of 2
Calcium (mg/L)	SGWC-10	19	n/a	12/17/2018	4	No	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-11	19	n/a	10/16/2018	1.8	No	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-12	19	n/a	12/14/2018	21	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-13	19	n/a	12/14/2018	16	No	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-14	19	n/a	12/14/2018	37	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-15	19	n/a	10/16/2018	16	No	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-16	19	n/a	12/17/2018	0.94	No	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-17	19	n/a	12/14/2018	46	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-18	19	n/a	10/18/2018	100	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-19	19	n/a	12/17/2018	42	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-20	19	n/a	10/18/2018	12	No	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-21	19	n/a	12/17/2018	29	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-22	19	n/a	12/17/2018	28	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-23	19	n/a	12/17/2018	24	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-6	19	n/a	12/14/2018	6.5	No	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-7	19	n/a	12/14/2018	16	No	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-8	19	n/a	12/14/2018	46	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Calcium (mg/L)	SGWC-9	19	n/a	12/17/2018	55	Yes	74	0	n/a	0.000345	NP Inter (normality) ...
Chloride (mg/L)	SGWC-10	3.203	n/a	12/17/2018	8.6	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-11	3.203	n/a	10/16/2018	7.8	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-12	3.203	n/a	12/14/2018	9.1	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-13	3.203	n/a	12/14/2018	7.5	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-14	3.203	n/a	12/14/2018	10	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-15	3.203	n/a	10/16/2018	10	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-16	3.203	n/a	12/17/2018	8.1	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-17	3.203	n/a	12/14/2018	8.1	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-18	3.203	n/a	10/18/2018	16	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-19	3.203	n/a	12/17/2018	7.3	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-20	3.203	n/a	10/18/2018	11	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-21	3.203	n/a	12/17/2018	9.3	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-22	3.203	n/a	12/17/2018	10	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2
Chloride (mg/L)	SGWC-23	3.203	n/a	12/17/2018	9.9	Yes	75	0	ln(x)	0.000418	Param Inter 1 of 2

# Prediction Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 1:03 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Chloride (mg/L)	SGWC-6	3.203	n/a	12/14/2018	1.8	No	75	0	ln(x)	0.000418	Param Inter 1 of 2
<b>Chloride (mg/L)</b>	<b>SGWC-7</b>	<b>3.203</b>	<b>n/a</b>	<b>12/14/2018</b>	<b>4.2</b>	<b>Yes</b>	<b>75</b>	<b>0</b>	<b>ln(x)</b>	<b>0.000418</b>	<b>Param Inter 1 of 2</b>
<b>Chloride (mg/L)</b>	<b>SGWC-8</b>	<b>3.203</b>	<b>n/a</b>	<b>12/14/2018</b>	<b>11</b>	<b>Yes</b>	<b>75</b>	<b>0</b>	<b>ln(x)</b>	<b>0.000418</b>	<b>Param Inter 1 of 2</b>
<b>Chloride (mg/L)</b>	<b>SGWC-9</b>	<b>3.203</b>	<b>n/a</b>	<b>12/17/2018</b>	<b>13</b>	<b>Yes</b>	<b>75</b>	<b>0</b>	<b>ln(x)</b>	<b>0.000418</b>	<b>Param Inter 1 of 2</b>
Fluoride (mg/L)	SGWC-10	0.205	n/a	10/9/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-11	0.205	n/a	10/16/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-12	0.205	n/a	10/8/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-13	0.205	n/a	10/8/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-14	0.205	n/a	10/8/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-15	0.205	n/a	10/16/2018	0.14	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-16	0.205	n/a	10/8/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-17	0.205	n/a	10/8/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-18	0.205	n/a	10/18/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-19	0.205	n/a	10/9/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
<b>Fluoride (mg/L)</b>	<b>SGWC-20</b>	<b>0.205</b>	<b>n/a</b>	<b>10/18/2018</b>	<b>0.23</b>	<b>Yes</b>	<b>84</b>	<b>84.52</b>	<b>n/a</b>	<b>0.00027</b>	<b>NP Inter (NDs) 1 of 2</b>
Fluoride (mg/L)	SGWC-21	0.205	n/a	10/8/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-22	0.205	n/a	10/8/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-23	0.205	n/a	10/8/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-6	0.205	n/a	10/8/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
Fluoride (mg/L)	SGWC-7	0.205	n/a	10/9/2018	0.2	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
<b>Fluoride (mg/L)</b>	<b>SGWC-8</b>	<b>0.205</b>	<b>n/a</b>	<b>10/9/2018</b>	<b>0.47</b>	<b>Yes</b>	<b>84</b>	<b>84.52</b>	<b>n/a</b>	<b>0.00027</b>	<b>NP Inter (NDs) 1 of 2</b>
Fluoride (mg/L)	SGWC-9	0.205	n/a	10/9/2018	0.205ND	No	84	84.52	n/a	0.00027	NP Inter (NDs) 1 of 2
pH (S.U.)	SGWC-10	6.87	5.21	10/9/2018	5.29	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-11	6.87	5.21	10/16/2018	5.34	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-12	6.87	5.21	10/8/2018	6.16	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-13	6.87	5.21	10/8/2018	6.02	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-14	6.87	5.21	10/8/2018	5.83	No	75	0	n/a	0.000673	NP Inter (normality) ...
<b>pH (S.U.)</b>	<b>SGWC-15</b>	<b>6.87</b>	<b>5.21</b>	<b>10/16/2018</b>	<b>4.59</b>	<b>Yes</b>	<b>75</b>	<b>0</b>	<b>n/a</b>	<b>0.000673</b>	<b>NP Inter (normality) ...</b>
pH (S.U.)	SGWC-16	6.87	5.21	10/8/2018	5.29	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-17	6.87	5.21	10/8/2018	6.17	No	75	0	n/a	0.000673	NP Inter (normality) ...
<b>pH (S.U.)</b>	<b>SGWC-18</b>	<b>6.87</b>	<b>5.21</b>	<b>10/18/2018</b>	<b>4.7</b>	<b>Yes</b>	<b>75</b>	<b>0</b>	<b>n/a</b>	<b>0.000673</b>	<b>NP Inter (normality) ...</b>
pH (S.U.)	SGWC-19	6.87	5.21	10/9/2018	5.51	No	75	0	n/a	0.000673	NP Inter (normality) ...
<b>pH (S.U.)</b>	<b>SGWC-20</b>	<b>6.87</b>	<b>5.21</b>	<b>10/18/2018</b>	<b>4.3</b>	<b>Yes</b>	<b>75</b>	<b>0</b>	<b>n/a</b>	<b>0.000673</b>	<b>NP Inter (normality) ...</b>
pH (S.U.)	SGWC-21	6.87	5.21	10/8/2018	6.14	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-22	6.87	5.21	10/8/2018	5.74	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-23	6.87	5.21	10/8/2018	5.94	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-6	6.87	5.21	10/8/2018	6.3	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-7	6.87	5.21	10/9/2018	6.56	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-8	6.87	5.21	10/9/2018	6.51	No	75	0	n/a	0.000673	NP Inter (normality) ...
pH (S.U.)	SGWC-9	6.87	5.21	10/9/2018	6.06	No	75	0	n/a	0.000673	NP Inter (normality) ...
<b>Sulfate (mg/L)</b>	<b>SGWC-10</b>	<b>3.75</b>	<b>n/a</b>	<b>12/17/2018</b>	<b>16</b>	<b>Yes</b>	<b>77</b>	<b>51.95</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
Sulfate (mg/L)	SGWC-11	3.75	n/a	10/16/2018	1.3	No	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
<b>Sulfate (mg/L)</b>	<b>SGWC-12</b>	<b>3.75</b>	<b>n/a</b>	<b>12/14/2018</b>	<b>43</b>	<b>Yes</b>	<b>77</b>	<b>51.95</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-13</b>	<b>3.75</b>	<b>n/a</b>	<b>12/14/2018</b>	<b>74</b>	<b>Yes</b>	<b>77</b>	<b>51.95</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-14</b>	<b>3.75</b>	<b>n/a</b>	<b>12/14/2018</b>	<b>190</b>	<b>Yes</b>	<b>77</b>	<b>51.95</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-15</b>	<b>3.75</b>	<b>n/a</b>	<b>10/16/2018</b>	<b>200</b>	<b>Yes</b>	<b>77</b>	<b>51.95</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-16</b>	<b>3.75</b>	<b>n/a</b>	<b>12/17/2018</b>	<b>28</b>	<b>Yes</b>	<b>77</b>	<b>51.95</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-17</b>	<b>3.75</b>	<b>n/a</b>	<b>12/14/2018</b>	<b>180</b>	<b>Yes</b>	<b>77</b>	<b>51.95</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-18</b>	<b>3.75</b>	<b>n/a</b>	<b>10/18/2018</b>	<b>1200</b>	<b>Yes</b>	<b>77</b>	<b>51.95</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>SGWC-19</b>	<b>3.75</b>	<b>n/a</b>	<b>12/17/2018</b>	<b>270</b>	<b>Yes</b>	<b>77</b>	<b>51.95</b>	<b>n/a</b>	<b>0.000...</b>	<b>NP Inter (NDs) 1 of 2</b>

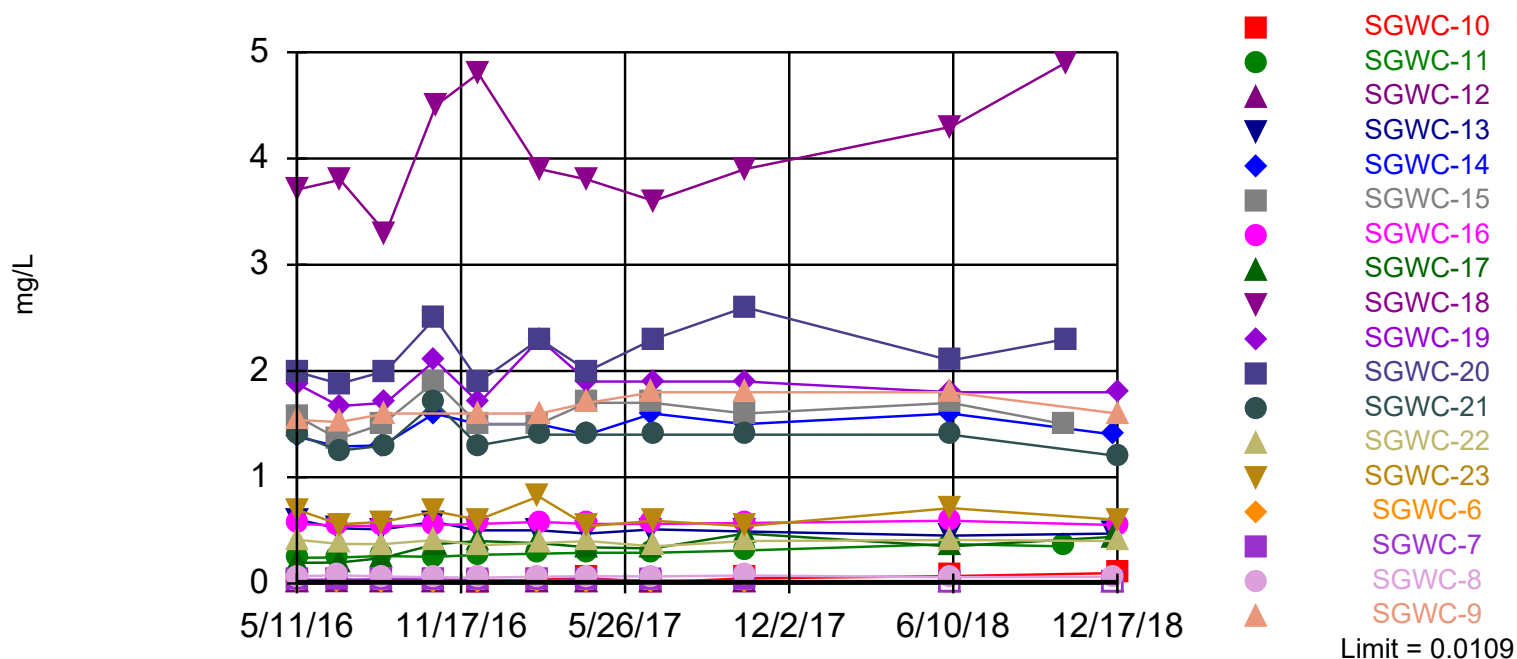
# Prediction Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 1:03 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Sulfate (mg/L)	SGWC-20	3.75	n/a	10/18/2018	210	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-21	3.75	n/a	12/17/2018	88	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-22	3.75	n/a	12/17/2018	99	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-23	3.75	n/a	12/17/2018	96	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-6	3.75	n/a	12/14/2018	0.35ND	No	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-7	3.75	n/a	12/14/2018	10	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-8	3.75	n/a	12/14/2018	72	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Sulfate (mg/L)	SGWC-9	3.75	n/a	12/17/2018	330	Yes	77	51.95	n/a	0.000...	NP Inter (NDs) 1 of 2
Total Dissolved Solids (mg/L)	SGWC-10	143.7	n/a	12/17/2018	38	No	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-11	143.7	n/a	10/16/2018	100	No	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-12	143.7	n/a	12/14/2018	190	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-13	143.7	n/a	12/14/2018	140	No	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-14	143.7	n/a	12/14/2018	280	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-15	143.7	n/a	10/16/2018	350	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-16	143.7	n/a	12/17/2018	42	No	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-17	143.7	n/a	12/14/2018	390	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-18	143.7	n/a	10/18/2018	1200	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-19	143.7	n/a	12/17/2018	250	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-20	143.7	n/a	10/18/2018	370	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-21	143.7	n/a	12/17/2018	310	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-22	143.7	n/a	12/17/2018	260	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-23	143.7	n/a	12/17/2018	30	No	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-6	143.7	n/a	12/14/2018	44	No	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-7	143.7	n/a	12/14/2018	170	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-8	143.7	n/a	12/14/2018	390	Yes	77	2.597	No	0.000418	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	SGWC-9	143.7	n/a	12/17/2018	510	Yes	77	2.597	No	0.000418	Param Inter 1 of 2

Exceeds Limit: SGWC-10, SGWC-11,  
SGWC-13, SGWC-14, SGWC-15, SGWC-16

## Prediction Limit Interwell Non-parametric

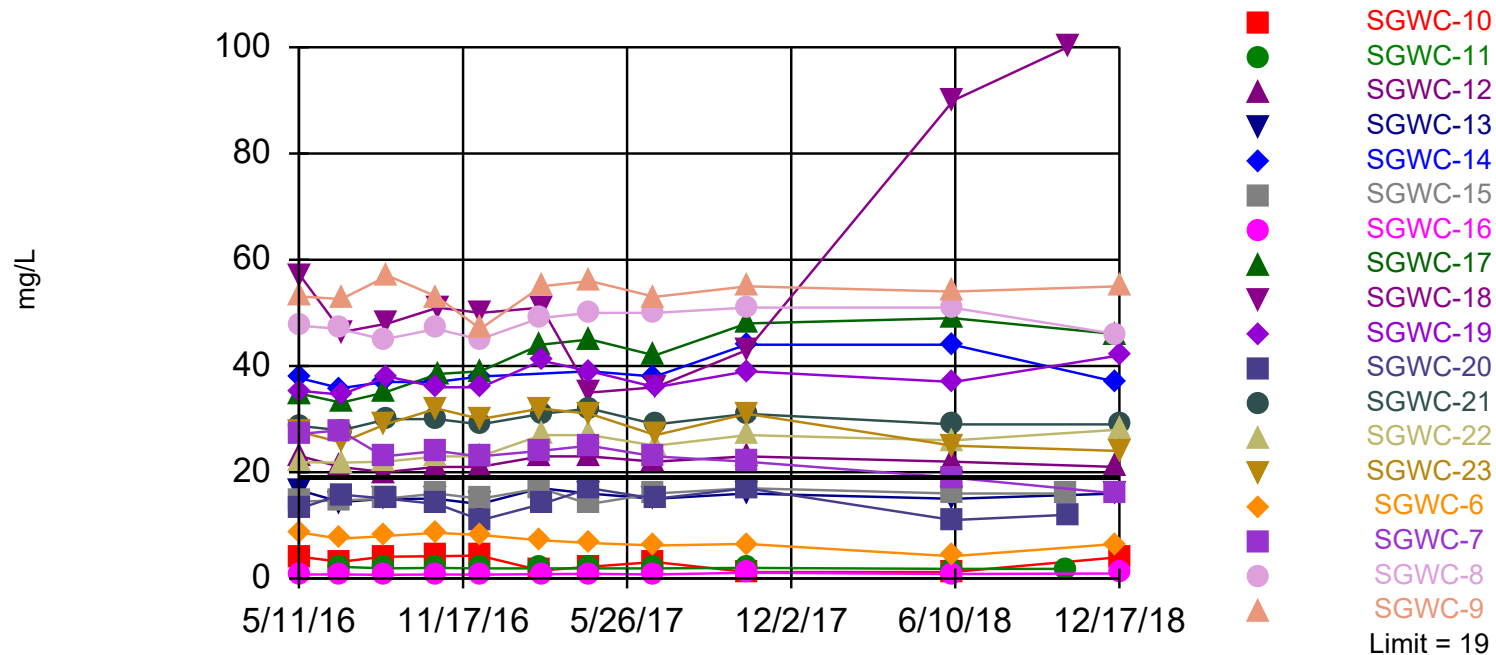


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 77 background values. 96.1% NDs. Annual per-constituent alpha = 0.01144. Individual comparison alpha = 0.0003194 (1 of 2). Comparing 18 points to limit.



Exceeds Limit: SGWC-12, SGWC-14,  
SGWC-17, SGWC-18, SGWC-19, SGWC-21

## Prediction Limit Interwell Non-parametric



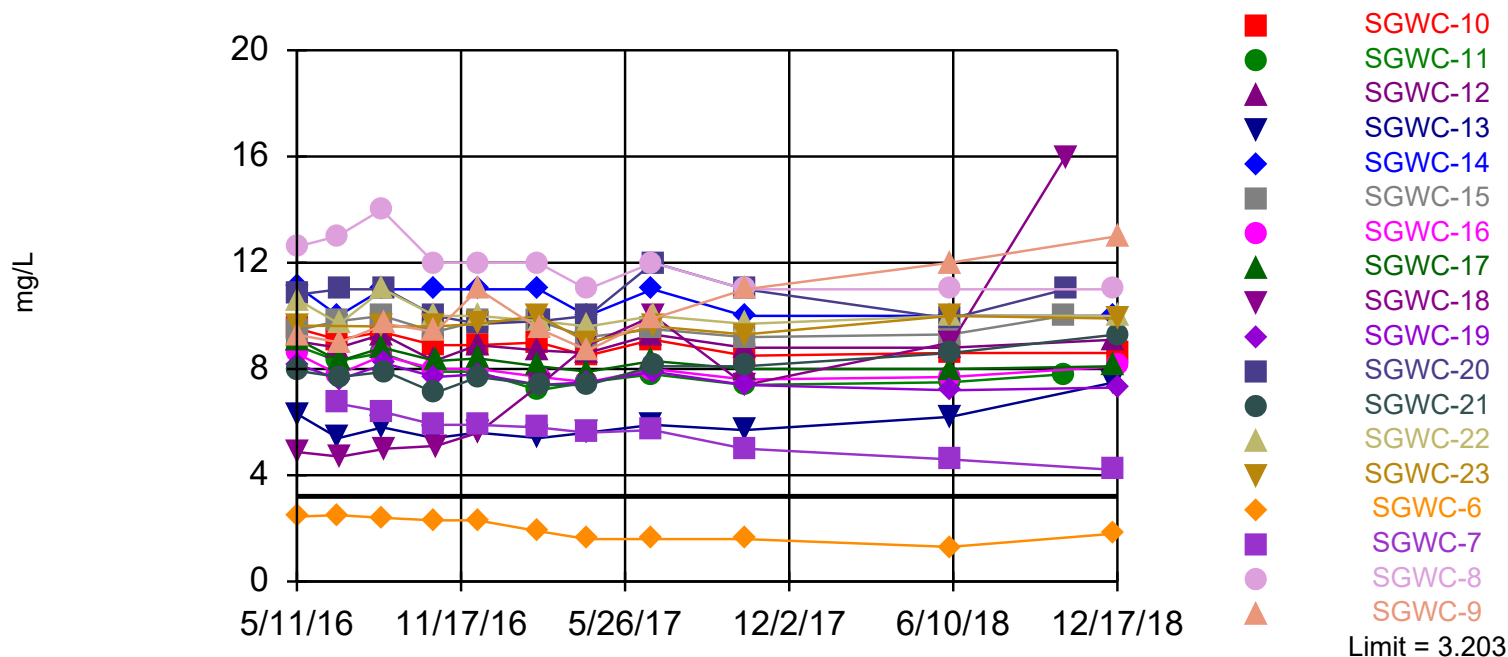
Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 74 background values. Annual per-constituent alpha = 0.01235. Individual comparison alpha = 0.000345 (1 of 2). Comparing 18 points to limit.

Constituent: Calcium Analysis Run 1/11/2019 1:02 PM View: App III

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

Exceeds Limit: SGWC-10, SGWC-11,  
SGWC-12, SGWC-13, SGWC-14, SGWC-15

## Prediction Limit Interwell Parametric

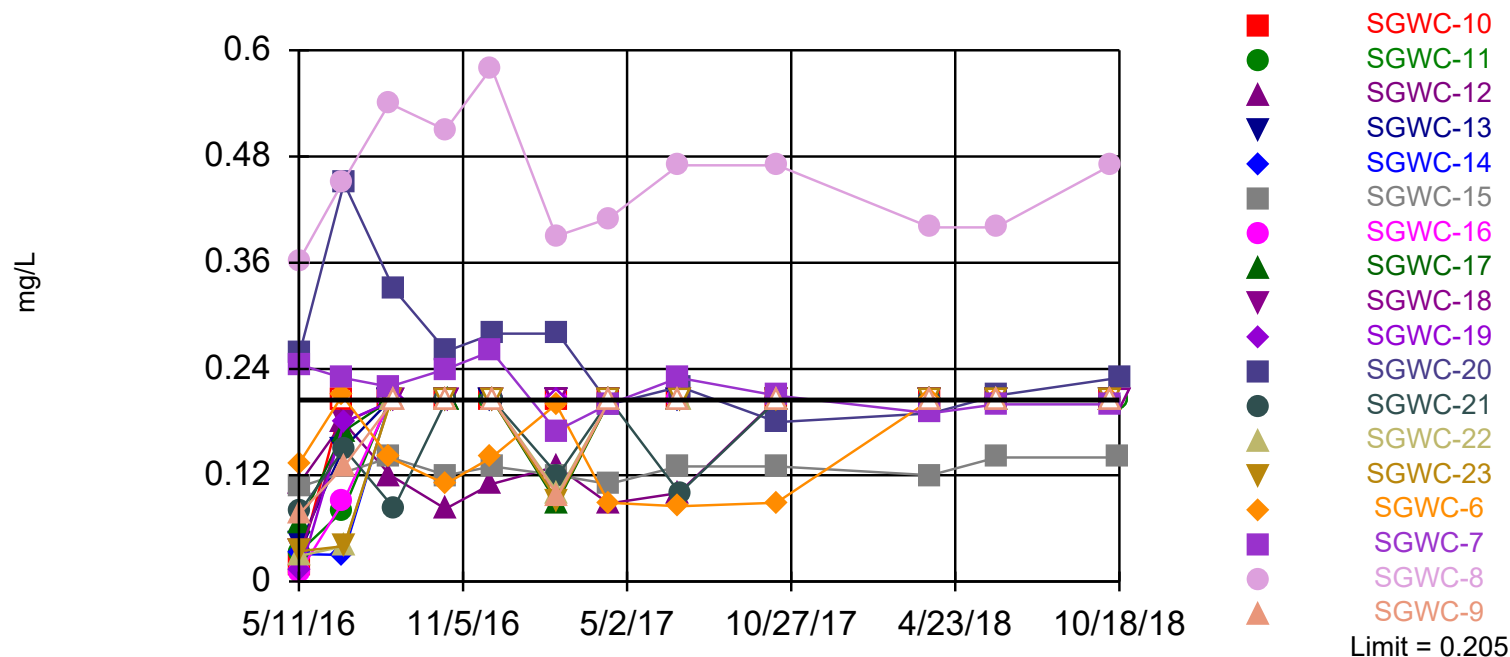


Background Data Summary (based on natural log transformation): Mean=0.5996, Std. Dev.=0.265, n=75. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.965, critical = 0.956. Kappa = 2.131 (c=7, w=18, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.000418. Comparing 18 points to limit.

Constituent: Chloride Analysis Run 1/11/2019 1:02 PM View: App III  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

Exceeds Limit: SGWC-20, SGWC-8

## Prediction Limit Interwell Non-parametric

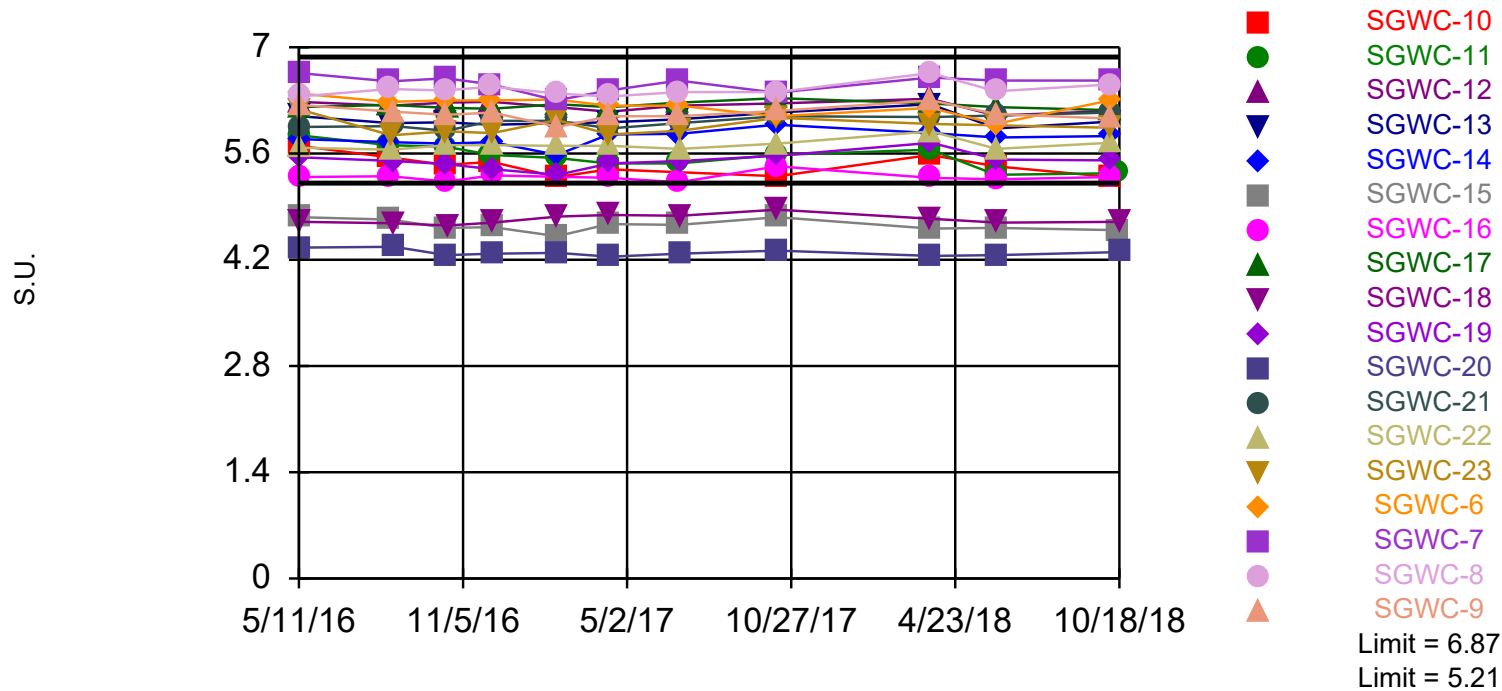


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 84 background values. 84.52% NDs. Annual per-constituent alpha = 0.009675. Individual comparison alpha = 0.00027 (1 of 2). Comparing 18 points to limit.

Constituent: Fluoride Analysis Run 1/11/2019 1:02 PM View: App III  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

Exceeds Limits: SGWC-15, SGWC-18,  
SGWC-20

## Prediction Limit Interwell Non-parametric

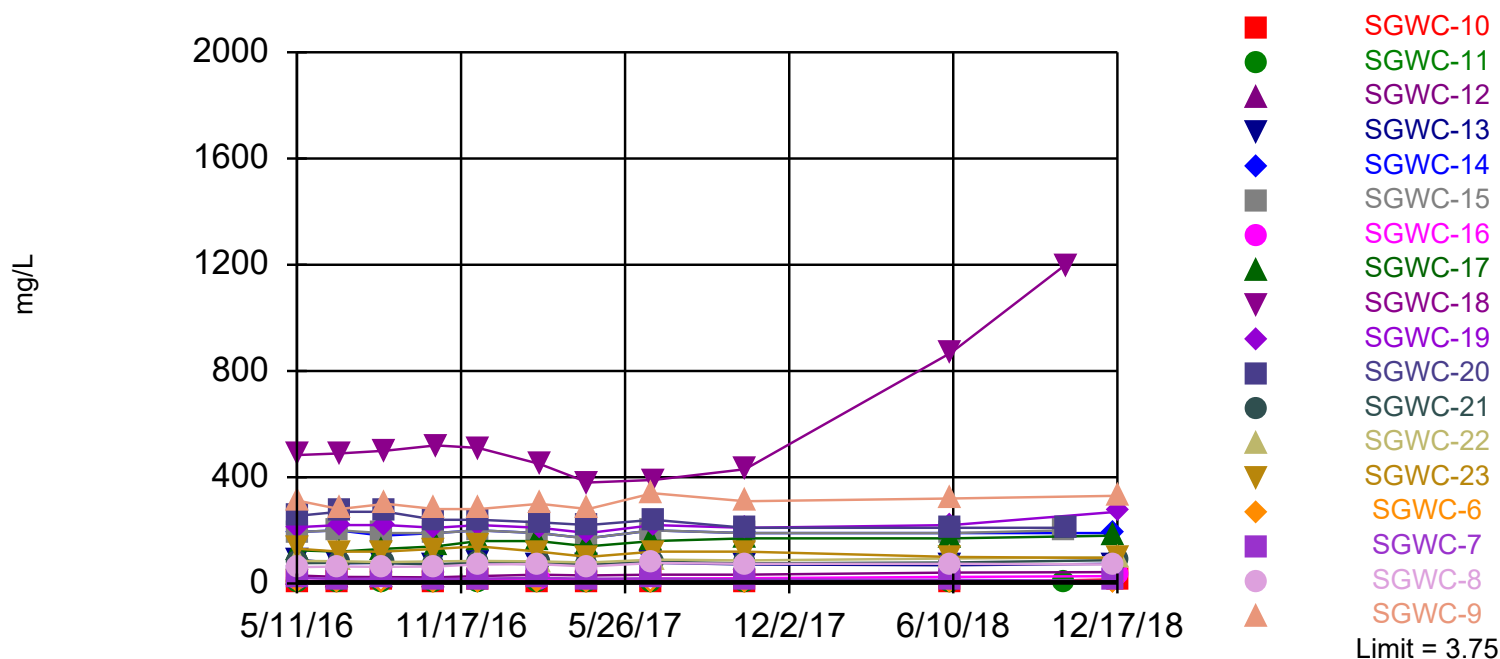


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 75 background values. Annual per-constituent alpha = 0.02409. Individual comparison alpha = 0.000673 (1 of 2). Comparing 18 points to limit.

Constituent: pH Analysis Run 1/11/2019 1:02 PM View: App III  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

Exceeds Limit: SGWC-10, SGWC-12,  
SGWC-13, SGWC-14, SGWC-15, SGWC-16

## Prediction Limit Interwell Non-parametric

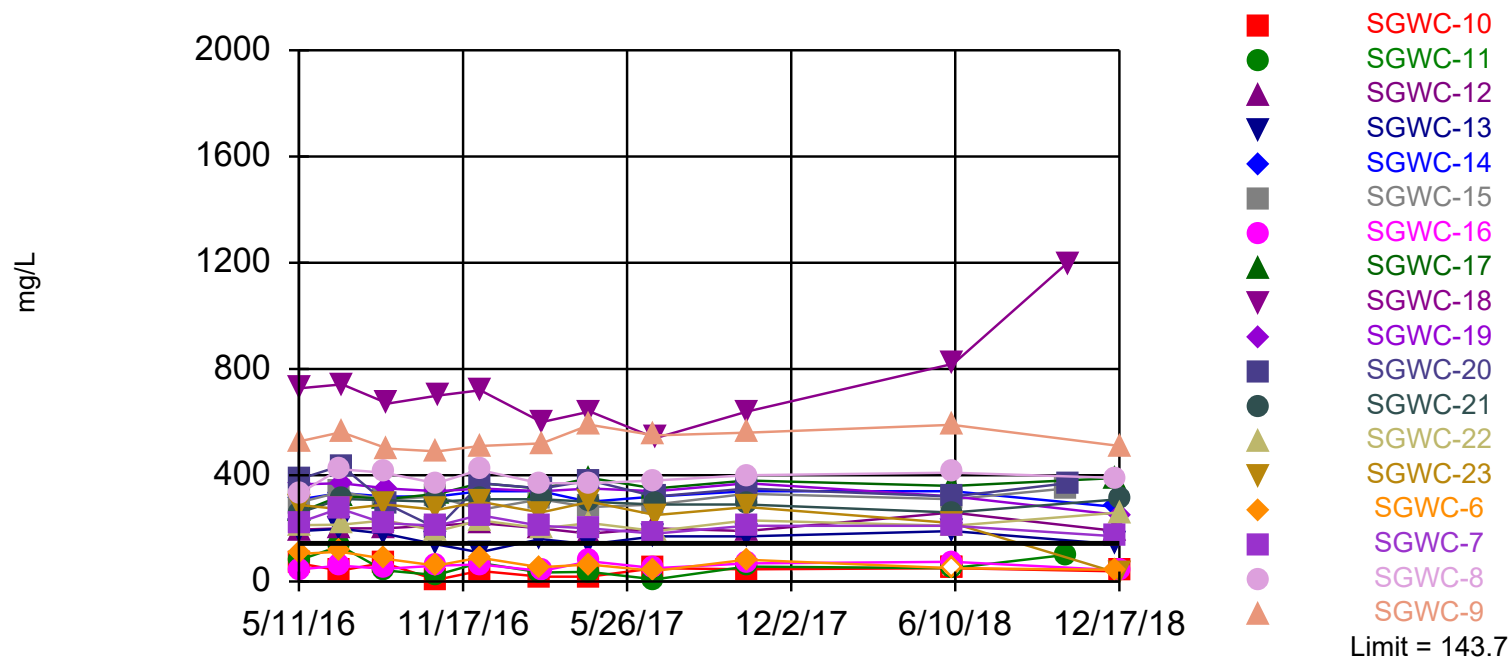


Non-parametric test used in lieu of parametric prediction limit because censored data exceeded 50%. Limit is highest of 77 background values. 51.95% NDs. Annual per-constituent alpha = 0.01144. Individual comparison alpha = 0.0003194 (1 of 2). Comparing 18 points to limit.

Constituent: Sulfate Analysis Run 1/11/2019 1:02 PM View: App III  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

Exceeds Limit: SGWC-12, SGWC-14,  
SGWC-15, SGWC-17, SGWC-18, SGWC-19

## Prediction Limit Interwell Parametric



Background Data Summary: Mean=74.74, Std. Dev.=32.4, n=77, 2.597% NDs. Normality test: Shapiro Francia  
@alpha = 0.01, calculated = 0.9669, critical = 0.957. Kappa = 2.127 (c=7, w=18, 1 of 2, event alpha = 0.05132).  
Report alpha = 0.007498. Individual comparison alpha = 0.000418. Comparing 18 points to limit.

Constituent: Total Dissolved Solids Analysis Run 1/11/2019 1:02 PM View: App III  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

# UPPER TOLERANCE LIMITS OCTOBER 2018

# Tolerance Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/24/2019, 6:54 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	n/a	0.0021	n/a	n/a	n/a	69	91.3	n/a	0.02904	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.0015	n/a	n/a	n/a	77	75.32	n/a	0.01926	NP Inter(NDs)
Barium (mg/L)	n/a	0.06407	n/a	n/a	n/a	77	0	No	0.05	Inter
Beryllium (mg/L)	n/a	0.0002	n/a	n/a	n/a	77	98.7	n/a	0.01926	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.0011	n/a	n/a	n/a	70	97.14	n/a	0.02758	NP Inter(NDs)
Chromium (mg/L)	n/a	0.016	n/a	n/a	n/a	77	36.36	n/a	0.01926	NP Inter(normal...
Cobalt (mg/L)	n/a	0.02	n/a	n/a	n/a	76	63.16	n/a	0.02028	NP Inter(normal...
Combined Radium 226 + 228 (pCi/L)	n/a	1.2	n/a	n/a	n/a	76	0	n/a	0.02028	NP Inter(normal...
Fluoride (mg/L)	n/a	0.108	n/a	n/a	n/a	84	84.52	n/a	0.01345	NP Inter(NDs)
Lead (mg/L)	n/a	0.000175	n/a	n/a	n/a	77	98.7	n/a	0.01926	NP Inter(NDs)
Lithium (mg/L)	n/a	0.00235	n/a	n/a	n/a	77	88.31	n/a	0.01926	NP Inter(NDs)
Mercury (mg/L)	n/a	0.00012	n/a	n/a	n/a	77	88.31	n/a	0.01926	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.00278	n/a	n/a	n/a	70	88.57	n/a	0.02758	NP Inter(NDs)
Selenium (mg/L)	n/a	0.00041	n/a	n/a	n/a	77	92.21	n/a	0.01926	NP Inter(NDs)
Thallium (mg/L)	n/a	0.0001	n/a	n/a	n/a	77	96.1	n/a	0.01926	NP Inter(NDs)



# CONFIDENCE INTERVALS OCTOBER 2018

# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 2:01 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt (mg/L)	SGWC-10	0.033	0.02051	0.02	Yes	11	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-11	0.03147	0.02689	0.02	Yes	11	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-15	0.2794	0.261	0.02	Yes	11	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-18	0.154	0.1109	0.02	Yes	11	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-20	0.2399	0.2003	0.02	Yes	11	0	No	0.05	Param.

# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 2:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	SGWA-1 (bg)	0.0005	0.0004	0.006	No	10	80	No	0.011	NP (NDs)
Antimony (mg/L)	SGWA-2 (bg)	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWA-24 (bg)	0.0005	0.0003	0.006	No	10	90	No	0.011	NP (NDs)
Antimony (mg/L)	SGWA-25 (bg)	0.0005	0.0003	0.006	No	10	90	No	0.011	NP (NDs)
Antimony (mg/L)	SGWA-3 (bg)	0.0005	0.0005	0.006	No	10	90	No	0.011	NP (NDs)
Antimony (mg/L)	SGWA-4 (bg)	0.0005	0.0005	0.006	No	10	90	No	0.011	NP (NDs)
Antimony (mg/L)	SGWA-5 (bg)	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-10	0.0005	0.0005	0.006	No	10	90	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-11	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-12	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-13	0.0005	0.0004	0.006	No	10	90	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-14	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-15	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-16	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-17	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-18	0.0012	0.0005	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-19	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-20	0.0005	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-21	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-22	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-23	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-6	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-7	0.0005	0.0004	0.006	No	10	90	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-8	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Antimony (mg/L)	SGWC-9	0.0005	0.0005	0.006	No	10	100	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWA-1 (bg)	0.00065	0.00023	0.01	No	11	72.73	No	0.006	NP (normality)
Arsenic (mg/L)	SGWA-2 (bg)	0.0005	0.00023	0.01	No	11	72.73	No	0.006	NP (normality)
Arsenic (mg/L)	SGWA-24 (bg)	0.00057	0.00023	0.01	No	11	81.82	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWA-25 (bg)	0.0008918	0.0003533	0.01	No	11	36.36	No	0.05	Param.
Arsenic (mg/L)	SGWA-3 (bg)	0.00023	0.00023	0.01	No	11	90.91	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWA-4 (bg)	0.00055	0.00023	0.01	No	11	81.82	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWA-5 (bg)	0.00023	0.00023	0.01	No	11	90.91	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWC-10	0.0005	0.00023	0.01	No	11	81.82	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWC-11	0.0011	0.00023	0.01	No	11	27.27	No	0.006	NP (normality)
Arsenic (mg/L)	SGWC-12	0.001	0.00023	0.01	No	11	45.45	No	0.006	NP (normality)
Arsenic (mg/L)	SGWC-13	0.00069	0.00023	0.01	No	11	72.73	No	0.006	NP (normality)
Arsenic (mg/L)	SGWC-14	0.00058	0.00023	0.01	No	11	72.73	No	0.006	NP (normality)
Arsenic (mg/L)	SGWC-15	0.001326	0.0002356	0.01	No	11	36.36	No	0.05	Param.
Arsenic (mg/L)	SGWC-16	0.00054	0.00023	0.01	No	11	81.82	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWC-17	0.00075	0.00023	0.01	No	11	54.55	No	0.006	NP (normality)
Arsenic (mg/L)	SGWC-18	0.002222	0.001169	0.01	No	11	0	No	0.05	Param.
Arsenic (mg/L)	SGWC-19	0.00058	0.00023	0.01	No	11	81.82	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWC-20	0.001	0.00023	0.01	No	11	63.64	No	0.006	NP (normality)
Arsenic (mg/L)	SGWC-21	0.00023	0.00023	0.01	No	11	90.91	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWC-22	0.0006	0.00023	0.01	No	11	81.82	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWC-23	0.00061	0.00023	0.01	No	11	81.82	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWC-6	0.00046	0.00023	0.01	No	11	81.82	No	0.006	NP (NDs)
Arsenic (mg/L)	SGWC-7	0.0006	0.00023	0.01	No	11	54.55	No	0.006	NP (normality)
Arsenic (mg/L)	SGWC-8	0.00053	0.00023	0.01	No	11	72.73	No	0.006	NP (normality)
Arsenic (mg/L)	SGWC-9	0.0007673	0.0004315	0.01	No	11	36.36	No	0.05	Param.

# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 2:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Barium (mg/L)	SGWA-1 (bg)	0.05749	0.05029	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWA-2 (bg)	0.0389	0.03584	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWA-24 (bg)	0.02236	0.02069	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWA-25 (bg)	0.02398	0.0214	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWA-3 (bg)	0.0351	0.03278	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWA-4 (bg)	0.05632	0.0494	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWA-5 (bg)	0.011	0.0088	2	No	11	0	No	0.006	NP (normality)
Barium (mg/L)	SGWC-10	0.03062	0.02787	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-11	0.03876	0.03584	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-12	0.04133	0.03386	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-13	0.02902	0.024	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-14	0.06283	0.05813	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-15	0.04111	0.0368	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-16	0.022	0.0163	2	No	10	0	No	0.011	NP (normality)
Barium (mg/L)	SGWC-17	0.01979	0.01762	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-18	0.032	0.012	2	No	11	0	No	0.006	NP (normality)
Barium (mg/L)	SGWC-19	0.04417	0.03823	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-20	0.03835	0.03078	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-21	0.09304	0.09	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-22	0.09578	0.08887	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-23	0.09113	0.08316	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-6	0.08904	0.05175	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-7	0.3175	0.2803	2	No	11	0	No	0.05	Param.
Barium (mg/L)	SGWC-8	0.205	0.16	2	No	11	0	No	0.006	NP (normality)
Barium (mg/L)	SGWC-9	0.0647	0.05347	2	No	11	0	No	0.05	Param.
Beryllium (mg/L)	SGWA-1 (bg)	0.00017	0.00017	0.004	No	11	90.91	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWA-2 (bg)	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWA-24 (bg)	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWA-25 (bg)	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWA-3 (bg)	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWA-4 (bg)	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWA-5 (bg)	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-10	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-11	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-12	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-13	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-14	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-15	0.0004	0.00017	0.004	No	11	27.27	No	0.006	NP (Cohens/xfrm)
Beryllium (mg/L)	SGWC-16	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-17	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-18	0.00035	0.00017	0.004	No	11	72.73	No	0.006	NP (normality)
Beryllium (mg/L)	SGWC-19	0.00017	0.00017	0.004	No	11	90.91	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-20	0.0008286	0.0007335	0.004	No	11	0	No	0.05	Param.
Beryllium (mg/L)	SGWC-21	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-22	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-23	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-6	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-7	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-8	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	SGWC-9	0.00017	0.00017	0.004	No	11	100	No	0.006	NP (NDs)

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 2:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Cadmium (mg/L)	SGWA-1 (bg)	0.00017	0.000156	0.005	No	10	90	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWA-2 (bg)	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWA-24 (bg)	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWA-25 (bg)	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWA-3 (bg)	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWA-4 (bg)	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWA-5 (bg)	0.00017	0.00017	0.005	No	10	90	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-10	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-11	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-12	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-13	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-14	0.00017	0.000136	0.005	No	10	90	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-15	0.0003	0.00017	0.005	No	10	70	No	0.011	NP (normality)
Cadmium (mg/L)	SGWC-16	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-17	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-18	0.00017	0.00016	0.005	No	10	80	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-19	0.00017	0.00017	0.005	No	10	90	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-20	0.00017	0.0001	0.005	No	10	80	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-21	0.00017	0.00017	0.005	No	10	90	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-22	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-23	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-6	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-7	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-8	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Cadmium (mg/L)	SGWC-9	0.00017	0.00017	0.005	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWA-1 (bg)	0.0014	0.00055	0.1	No	11	81.82	No	0.006	NP (NDs)
Chromium (mg/L)	SGWA-2 (bg)	0.01398	0.01054	0.1	No	11	0	x^2	0.05	Param.
Chromium (mg/L)	SGWA-24 (bg)	0.004405	0.003401	0.1	No	11	0	No	0.05	Param.
Chromium (mg/L)	SGWA-25 (bg)	0.00055	0.00055	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	SGWA-3 (bg)	0.01133	0.007421	0.1	No	11	0	No	0.05	Param.
Chromium (mg/L)	SGWA-4 (bg)	0.005629	0.002893	0.1	No	11	0	No	0.05	Param.
Chromium (mg/L)	SGWA-5 (bg)	0.0012	0.00055	0.1	No	11	72.73	No	0.006	NP (normality)
Chromium (mg/L)	SGWC-10	0.00055	0.00055	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	SGWC-11	0.00055	0.00055	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	SGWC-12	0.00055	0.00055	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	SGWC-13	0.00055	0.00055	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	SGWC-14	0.0012	0.00055	0.1	No	11	72.73	No	0.006	NP (normality)
Chromium (mg/L)	SGWC-15	0.03373	0.03198	0.1	No	11	0	No	0.05	Param.
Chromium (mg/L)	SGWC-16	0.01022	0.00892	0.1	No	11	0	ln(x)	0.05	Param.
Chromium (mg/L)	SGWC-17	0.005626	0.003528	0.1	No	11	0	No	0.05	Param.
Chromium (mg/L)	SGWC-18	0.007772	0.00663	0.1	No	11	0	No	0.05	Param.
Chromium (mg/L)	SGWC-19	0.01552	0.01416	0.1	No	11	0	No	0.05	Param.
Chromium (mg/L)	SGWC-20	0.00055	0.00055	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	SGWC-21	0.00055	0.00055	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	SGWC-22	0.0007	0.00055	0.1	No	11	81.82	No	0.006	NP (NDs)
Chromium (mg/L)	SGWC-23	0.0017	0.00055	0.1	No	10	50	No	0.011	NP (normality)
Chromium (mg/L)	SGWC-6	0.00055	0.00055	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	SGWC-7	0.00055	0.00055	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	SGWC-8	0.0013	0.00055	0.1	No	11	63.64	No	0.006	NP (normality)
Chromium (mg/L)	SGWC-9	0.00055	0.00055	0.1	No	11	100	No	0.006	NP (NDs)

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 2:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Cobalt (mg/L)	SGWA-1 (bg)	0.01513	0.008108	0.02	No	11	0	No	0.05	Param.
Cobalt (mg/L)	SGWA-2 (bg)	0.0002	0.0002	0.02	No	11	90.91	No	0.006	NP (NDs)
Cobalt (mg/L)	SGWA-24 (bg)	0.0004	0.0002	0.02	No	11	72.73	No	0.006	NP (normality)
Cobalt (mg/L)	SGWA-25 (bg)	0.01409	0.009924	0.02	No	11	0	No	0.05	Param.
Cobalt (mg/L)	SGWA-3 (bg)	0.0002	0.0002	0.02	No	10	90	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWA-4 (bg)	0.0002	0.0002	0.02	No	11	90.91	No	0.006	NP (NDs)
Cobalt (mg/L)	SGWA-5 (bg)	0.0002	0.0002	0.02	No	11	100	No	0.006	NP (NDs)
<b>Cobalt (mg/L)</b>	<b>SGWC-10</b>	<b>0.033</b>	<b>0.02051</b>	<b>0.02</b>	<b>Yes</b>	<b>11</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
<b>Cobalt (mg/L)</b>	<b>SGWC-11</b>	<b>0.03147</b>	<b>0.02689</b>	<b>0.02</b>	<b>Yes</b>	<b>11</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-12	0.004506	0.003556	0.02	No	11	0	x^(1/3)	0.05	Param.
Cobalt (mg/L)	SGWC-13	0.009705	0.005967	0.02	No	11	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-14	0.01209	0.006751	0.02	No	11	0	No	0.05	Param.
<b>Cobalt (mg/L)</b>	<b>SGWC-15</b>	<b>0.2794</b>	<b>0.261</b>	<b>0.02</b>	<b>Yes</b>	<b>11</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-16	0.003652	0.003154	0.02	No	11	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-17	0.0006661	0.0004348	0.02	No	10	20	No	0.05	Param.
<b>Cobalt (mg/L)</b>	<b>SGWC-18</b>	<b>0.154</b>	<b>0.1109</b>	<b>0.02</b>	<b>Yes</b>	<b>11</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-19	0.00078	0.0002	0.02	No	11	54.55	No	0.006	NP (normality)
<b>Cobalt (mg/L)</b>	<b>SGWC-20</b>	<b>0.2399</b>	<b>0.2003</b>	<b>0.02</b>	<b>Yes</b>	<b>11</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-21	0.0002	0.0002	0.02	No	11	100	No	0.006	NP (NDs)
Cobalt (mg/L)	SGWC-22	0.004274	0.002825	0.02	No	11	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-23	0.0002	0.0002	0.02	No	10	100	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWC-6	0.002719	0.001084	0.02	No	11	18.18	No	0.05	Param.
Cobalt (mg/L)	SGWC-7	0.01327	0.008018	0.02	No	11	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-8	0.0012	0.0002	0.02	No	11	72.73	No	0.006	NP (normality)
Cobalt (mg/L)	SGWC-9	0.01492	0.0104	0.02	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-1 (bg)	0.3794	0.2157	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-2 (bg)	0.4328	0.1714	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-24 (bg)	0.3329	0.09243	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-25 (bg)	0.3805	0.09928	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-3 (bg)	0.5	-0.026	5	No	11	0	No	0.006	NP (normality)
Combined Radium 226 + 228 (pCi/L)	SGWA-4 (bg)	0.2174	0.02764	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-5 (bg)	0.4624	0.2354	5	No	11	0	x^(1/3)	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-10	0.548	-0.0725	5	No	11	0	No	0.006	NP (normality)
Combined Radium 226 + 228 (pCi/L)	SGWC-11	0.5796	0.2222	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-12	0.4168	0.1292	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-13	0.4669	0.1261	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-14	0.4624	0.1576	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-15	0.4495	0.2067	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-16	0.3984	0.1488	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-17	0.4251	0.1852	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-18	0.4138	0.2039	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-19	0.3236	0.08044	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-20	0.6416	0.3277	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-21	0.4846	0.2252	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-22	0.3341	0.183	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-23	0.697	0.4839	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-6	0.4322	0.1505	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-7	0.5044	0.3154	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-8	2.549	2.053	5	No	11	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-9	0.4416	0.2088	5	No	11	0	No	0.05	Param.

# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 2:01 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Fluoride (mg/L)	SGWA-1 (bg)	0.205	0.205	4	No	12	100	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWA-2 (bg)	0.205	0.0537	4	No	12	83.33	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWA-24 (bg)	0.205	0.0648	4	No	12	83.33	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWA-25 (bg)	0.205	0.041	4	No	12	83.33	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWA-3 (bg)	0.205	0.02	4	No	12	83.33	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWA-4 (bg)	0.205	0.1	4	No	12	66.67	No	0.05	NP (normality)
Fluoride (mg/L)	SGWA-5 (bg)	0.205	0.0188	4	No	12	91.67	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWC-10	0.205	0.019	4	No	12	91.67	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWC-11	0.205	0.08	4	No	12	83.33	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWC-12	0.205	0.1	4	No	12	33.33	No	0.05	NP (Cohens/xfrm)
Fluoride (mg/L)	SGWC-13	0.205	0.15	4	No	12	83.33	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWC-14	0.205	0.031	4	No	12	83.33	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWC-15	0.1325	0.1197	4	No	11	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-16	0.205	0.09	4	No	12	83.33	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWC-17	0.205	0.17	4	No	12	75	No	0.05	NP (normality)
Fluoride (mg/L)	SGWC-18	0.205	0.18	4	No	12	83.33	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWC-19	0.205	0.18	4	No	12	83.33	No	0.05	NP (NDs)
Fluoride (mg/L)	SGWC-20	0.2903	0.2184	4	No	12	0	sqrt(x)	0.05	Param.
Fluoride (mg/L)	SGWC-21	0.205	0.1	4	No	12	58.33	No	0.05	NP (normality)
Fluoride (mg/L)	SGWC-22	0.205	0.1	4	No	12	75	No	0.05	NP (normality)
Fluoride (mg/L)	SGWC-23	0.205	0.092	4	No	12	75	No	0.05	NP (normality)
Fluoride (mg/L)	SGWC-6	0.205	0.089	4	No	12	25	No	0.05	NP (normality)
Fluoride (mg/L)	SGWC-7	0.2297	0.2028	4	No	12	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-8	0.4884	0.4203	4	No	12	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-9	0.205	0.13	4	No	12	75	No	0.05	NP (normality)
Lead (mg/L)	SGWA-1 (bg)	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWA-2 (bg)	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWA-24 (bg)	0.000175	0.0001	0.015	No	11	90.91	No	0.006	NP (NDs)
Lead (mg/L)	SGWA-25 (bg)	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWA-3 (bg)	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWA-4 (bg)	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWA-5 (bg)	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-10	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-11	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-12	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-13	0.000175	0.000175	0.015	No	11	90.91	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-14	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-15	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-16	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-17	0.000175	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-18	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-19	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-20	0.00041	0.000175	0.015	No	11	72.73	No	0.006	NP (normality)
Lead (mg/L)	SGWC-21	0.000175	0.00009	0.015	No	11	90.91	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-22	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-23	0.000175	0.00009	0.015	No	11	90.91	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-6	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-7	0.000175	0.000175	0.015	No	11	90.91	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-8	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)
Lead (mg/L)	SGWC-9	0.000175	0.000175	0.015	No	11	100	No	0.006	NP (NDs)

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 2:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Lithium (mg/L)	SGWA-1 (bg)	0.0018	0.00055	0.04	No	11	63.64	No	0.006	NP (normality)
Lithium (mg/L)	SGWA-2 (bg)	0.00055	0.00055	0.04	No	11	100	No	0.006	NP (NDs)
Lithium (mg/L)	SGWA-24 (bg)	0.0011	0.00055	0.04	No	11	81.82	No	0.006	NP (NDs)
Lithium (mg/L)	SGWA-25 (bg)	0.00055	0.00055	0.04	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	SGWA-3 (bg)	0.00055	0.00055	0.04	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	SGWA-4 (bg)	0.00055	0.00055	0.04	No	11	100	No	0.006	NP (NDs)
Lithium (mg/L)	SGWA-5 (bg)	0.00055	0.00055	0.04	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	SGWC-10	0.00055	0.00055	0.04	No	11	100	No	0.006	NP (NDs)
Lithium (mg/L)	SGWC-11	0.0029	0.00055	0.04	No	11	63.64	No	0.006	NP (normality)
Lithium (mg/L)	SGWC-12	0.00055	0.00055	0.04	No	11	100	No	0.006	NP (NDs)
Lithium (mg/L)	SGWC-13	0.00055	0.00055	0.04	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	SGWC-14	0.000925	0.00055	0.04	No	10	80	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-15	0.0034	0.00055	0.04	No	11	63.64	No	0.006	NP (normality)
Lithium (mg/L)	SGWC-16	0.00055	0.00055	0.04	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	SGWC-17	0.00055	0.00055	0.04	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	SGWC-18	0.0042	0.00055	0.04	No	11	54.55	No	0.006	NP (normality)
Lithium (mg/L)	SGWC-19	0.00055	0.00055	0.04	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	SGWC-20	0.004845	0.003145	0.04	No	10	10	No	0.05	Param.
Lithium (mg/L)	SGWC-21	0.0013	0.00055	0.04	No	11	81.82	No	0.006	NP (NDs)
Lithium (mg/L)	SGWC-22	0.00055	0.00055	0.04	No	11	90.91	No	0.006	NP (NDs)
Lithium (mg/L)	SGWC-23	0.003747	0.002051	0.04	No	10	20	No	0.05	Param.
Lithium (mg/L)	SGWC-6	0.00055	0.00055	0.04	No	11	100	No	0.006	NP (NDs)
Lithium (mg/L)	SGWC-7	0.004915	0.003825	0.04	No	10	0	No	0.05	Param.
Lithium (mg/L)	SGWC-8	0.002	0.00055	0.04	No	11	63.64	No	0.006	NP (normality)
Lithium (mg/L)	SGWC-9	0.00055	0.00055	0.04	No	11	100	No	0.006	NP (NDs)
Mercury (mg/L)	SGWA-1 (bg)	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWA-2 (bg)	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWA-24 (bg)	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWA-25 (bg)	0.000075	0.000035	0.002	No	11	81.82	No	0.006	NP (NDs)
Mercury (mg/L)	SGWA-3 (bg)	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWA-4 (bg)	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWA-5 (bg)	0.000072	0.000035	0.002	No	11	81.82	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-10	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-11	0.0000535	0.000035	0.002	No	11	81.82	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-12	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-13	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-14	0.000089	0.000035	0.002	No	11	81.82	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-15	0.0001144	0.00006912	0.002	No	11	27.27	No	0.05	Param.
Mercury (mg/L)	SGWC-16	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-17	0.00011	0.000035	0.002	No	11	81.82	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-18	0.00014	0.000035	0.002	No	11	45.45	No	0.006	NP (normality)
Mercury (mg/L)	SGWC-19	0.000035	0.000035	0.002	No	11	100	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-20	0.000073	0.000035	0.002	No	11	81.82	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-21	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-22	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-23	0.00011	0.000035	0.002	No	11	72.73	No	0.006	NP (normality)
Mercury (mg/L)	SGWC-6	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-7	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-8	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)
Mercury (mg/L)	SGWC-9	0.000035	0.000035	0.002	No	11	90.91	No	0.006	NP (NDs)



## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 2:01 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Molybdenum (mg/L)	SGWA-1 (bg)	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWA-2 (bg)	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWA-24 (bg)	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWA-25 (bg)	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWA-3 (bg)	0.000425	0.000425	0.1	No	10	90	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWA-4 (bg)	0.001775	0.0007627	0.1	No	10	30	No	0.05	Param.
Molybdenum (mg/L)	SGWA-5 (bg)	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-10	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-11	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-12	0.0011	0.000425	0.1	No	10	80	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-13	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-14	0.000425	0.000425	0.1	No	10	90	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-15	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-16	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-17	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-18	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-19	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-20	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-21	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-22	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-23	0.000425	0.000425	0.1	No	10	100	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-6	0.0007	0.000425	0.1	No	10	80	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-7	0.002555	0.0009329	0.1	No	10	30	No	0.05	Param.
Molybdenum (mg/L)	SGWC-8	0.000425	0.000425	0.1	No	10	90	No	0.011	NP (NDs)
Molybdenum (mg/L)	SGWC-9	0.0014	0.000425	0.1	No	10	50	No	0.011	NP (normality)
Selenium (mg/L)	SGWA-1 (bg)	0.00012	0.00012	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	SGWA-2 (bg)	0.00012	0.00012	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	SGWA-24 (bg)	0.00012	0.00012	0.05	No	11	100	No	0.006	NP (NDs)
Selenium (mg/L)	SGWA-25 (bg)	0.00012	0.00012	0.05	No	11	100	No	0.006	NP (NDs)
Selenium (mg/L)	SGWA-3 (bg)	0.00024	0.00012	0.05	No	11	81.82	No	0.006	NP (NDs)
Selenium (mg/L)	SGWA-4 (bg)	0.00041	0.00012	0.05	No	11	81.82	No	0.006	NP (NDs)
Selenium (mg/L)	SGWA-5 (bg)	0.00012	0.00012	0.05	No	11	100	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-10	0.00012	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-11	0.00012	0.00012	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-12	0.00012	0.00012	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-13	0.00012	0.00012	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-14	0.00012	0.00012	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-15	0.00965	0.00012	0.05	No	11	18.18	No	0.006	NP (Cohens/xfrm)
Selenium (mg/L)	SGWC-16	0.0013	0.00012	0.05	No	11	63.64	No	0.006	NP (normality)
Selenium (mg/L)	SGWC-17	0.00024	0.00012	0.05	No	10	80	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-18	0.01292	0.006396	0.05	No	11	0	ln(x)	0.05	Param.
Selenium (mg/L)	SGWC-19	0.0005	0.00012	0.05	No	11	81.82	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-20	0.00396	0.00012	0.05	No	11	54.55	No	0.006	NP (normality)
Selenium (mg/L)	SGWC-21	0.00012	0.00012	0.05	No	11	100	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-22	0.00012	0.00012	0.05	No	11	100	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-23	0.00026	0.00012	0.05	No	11	81.82	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-6	0.00034	0.00012	0.05	No	11	81.82	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-7	0.00012	0.00012	0.05	No	11	90.91	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-8	0.00012	0.00012	0.05	No	11	100	No	0.006	NP (NDs)
Selenium (mg/L)	SGWC-9	0.00012	0.00012	0.05	No	11	100	No	0.006	NP (NDs)

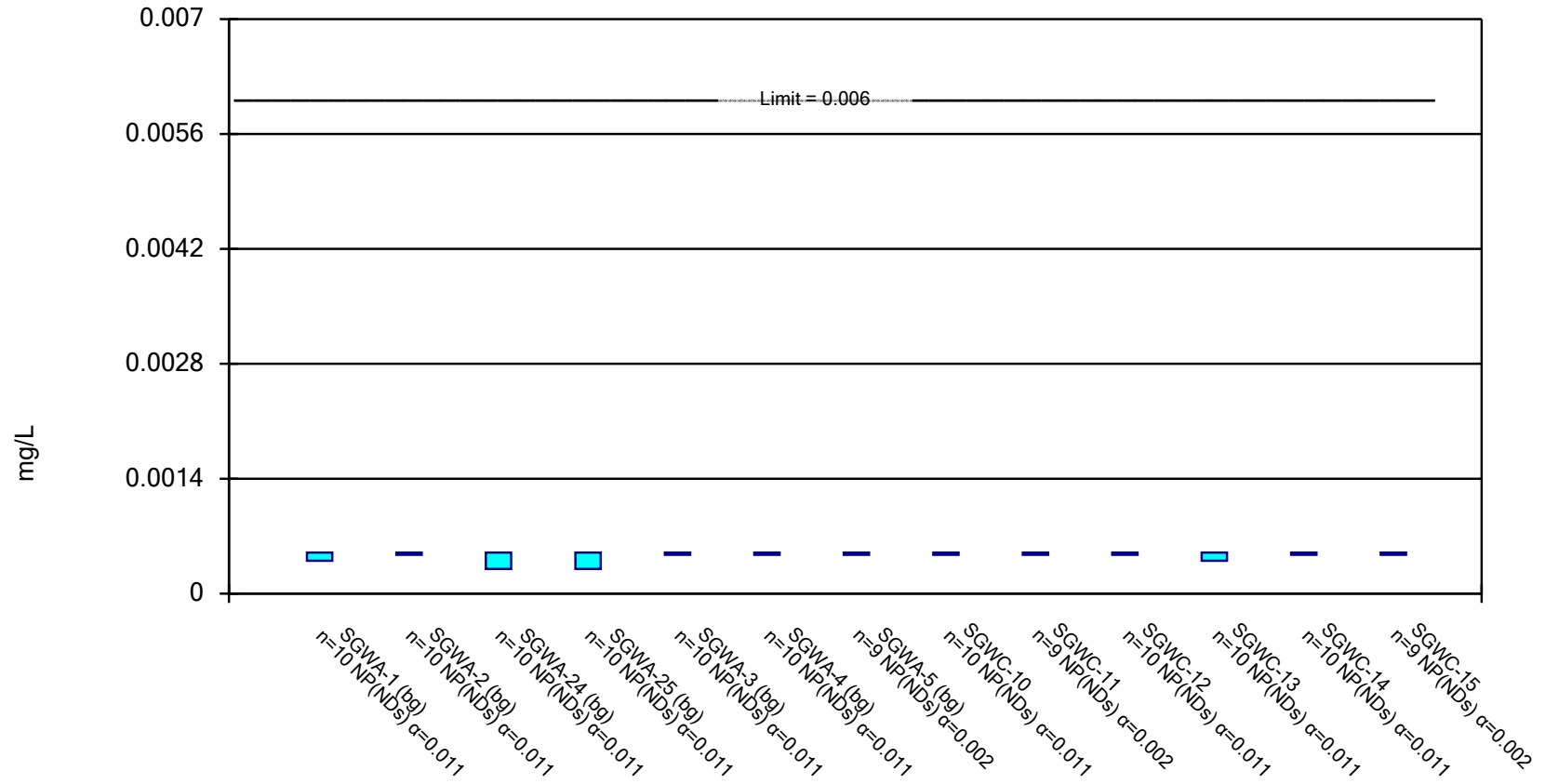
# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 1/11/2019, 2:01 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Thallium (mg/L)	SGWA-1 (bg)	0.00008	0.0000425	0.002	No	11	81.82	No	0.006	NP (NDs)
Thallium (mg/L)	SGWA-2 (bg)	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWA-24 (bg)	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWA-25 (bg)	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWA-3 (bg)	0.0000425	0.0000425	0.002	No	11	90.91	No	0.006	NP (NDs)
Thallium (mg/L)	SGWA-4 (bg)	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWA-5 (bg)	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-10	0.0000425	0.0000425	0.002	No	11	90.91	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-11	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-12	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-13	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-14	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-15	0.0001	0.0000425	0.002	No	11	54.55	No	0.006	NP (normality)
Thallium (mg/L)	SGWC-16	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-17	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-18	0.0001651	0.0001219	0.002	No	10	0	No	0.05	Param.
Thallium (mg/L)	SGWC-19	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-20	0.0001813	0.0001347	0.002	No	10	0	No	0.05	Param.
Thallium (mg/L)	SGWC-21	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-22	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-23	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-6	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-7	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-8	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)
Thallium (mg/L)	SGWC-9	0.0000425	0.0000425	0.002	No	11	100	No	0.006	NP (NDs)

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

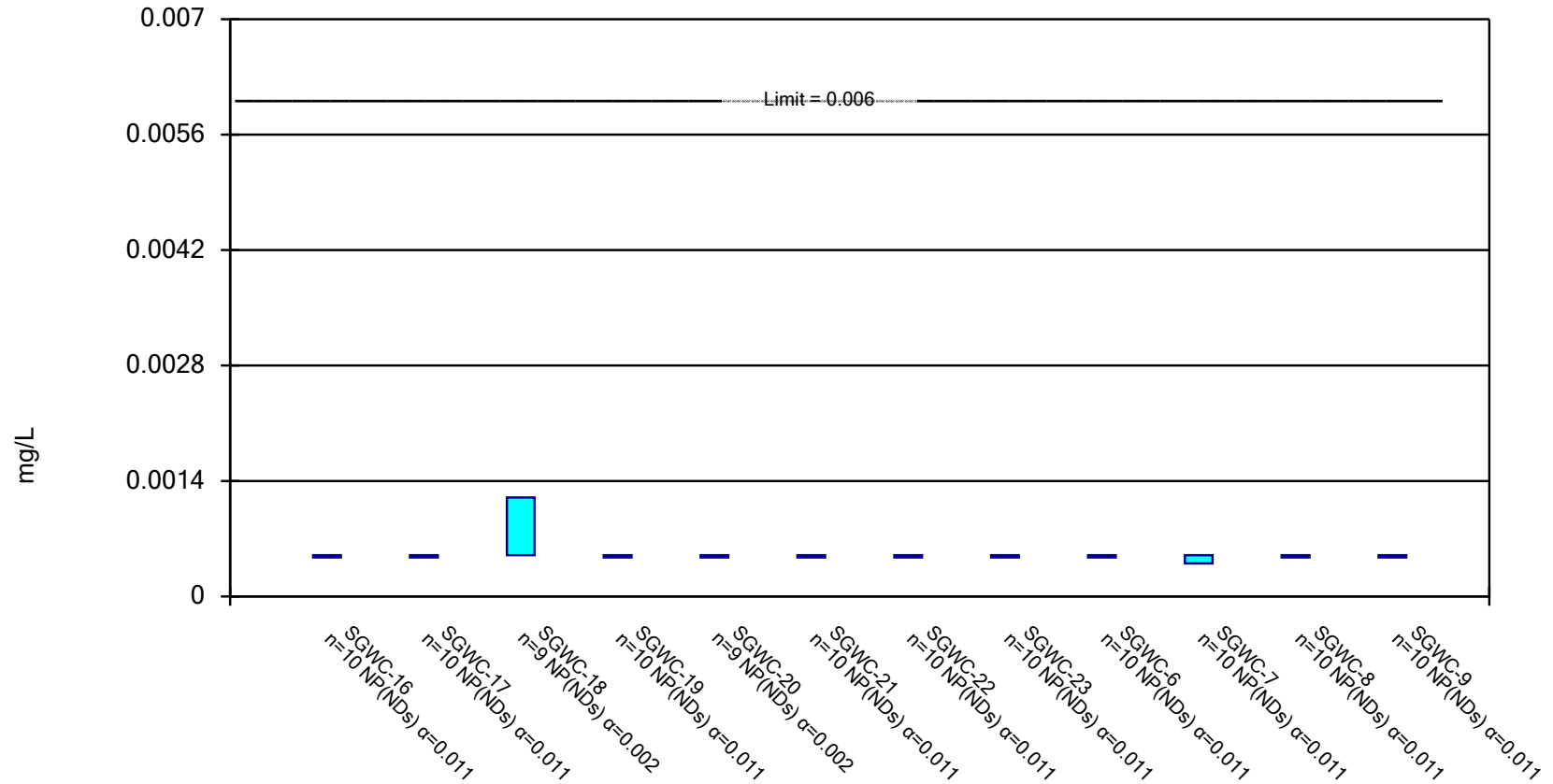


Constituent: Antimony Analysis Run 1/11/2019 1:59 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

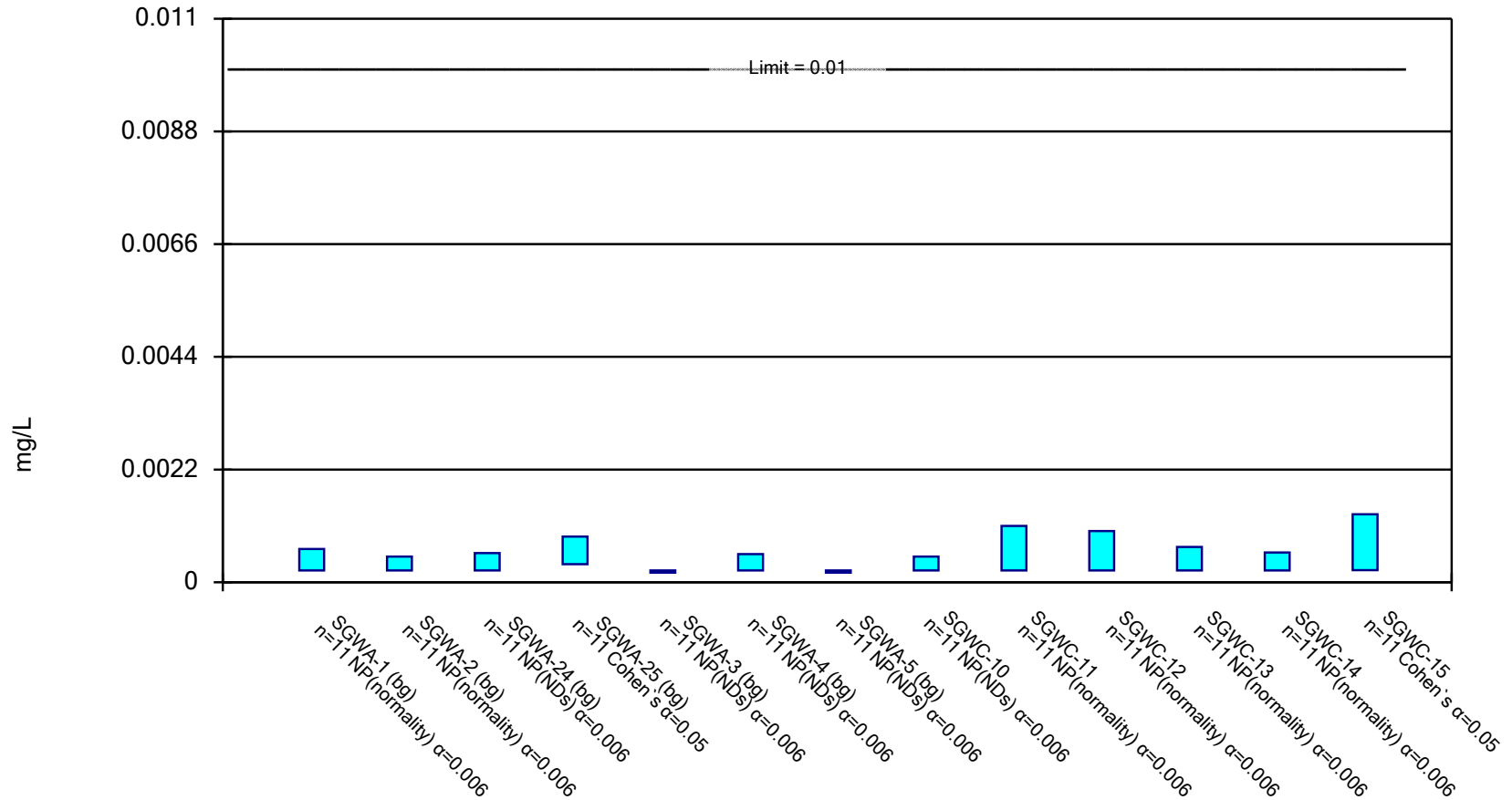


Constituent: Antimony Analysis Run 1/11/2019 1:59 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

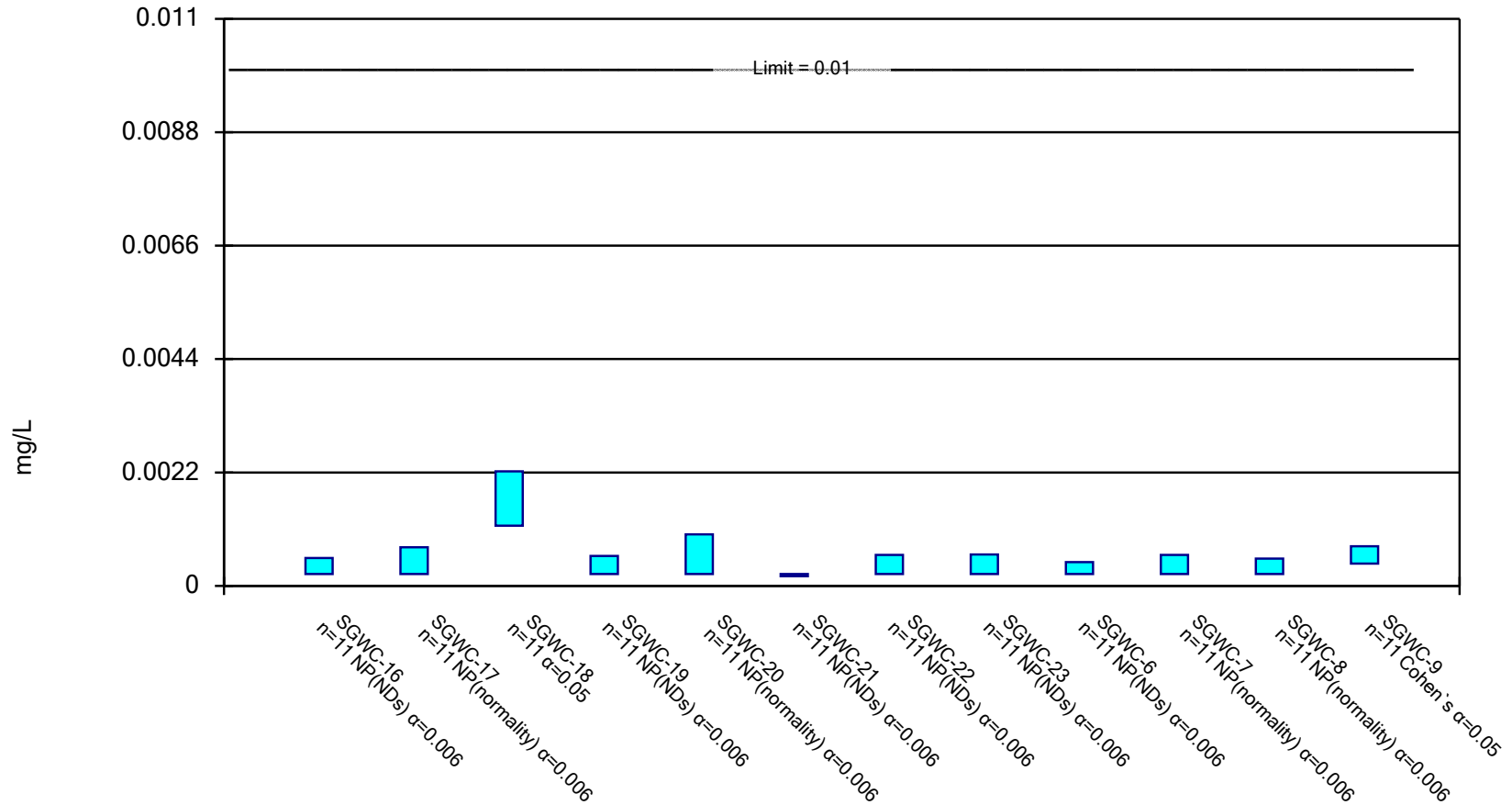


Constituent: Arsenic Analysis Run 1/11/2019 1:59 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

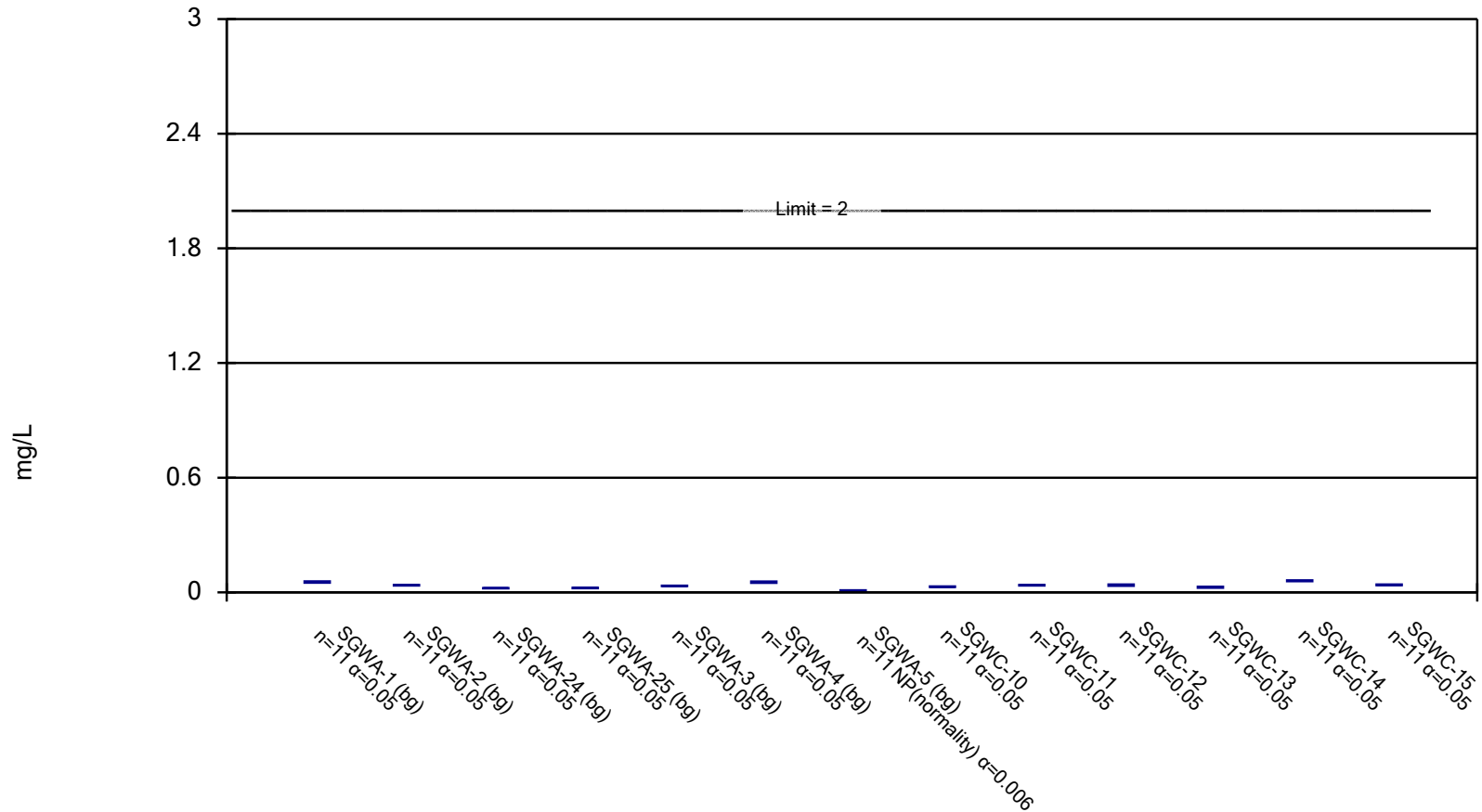


Constituent: Arsenic Analysis Run 1/11/2019 1:59 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

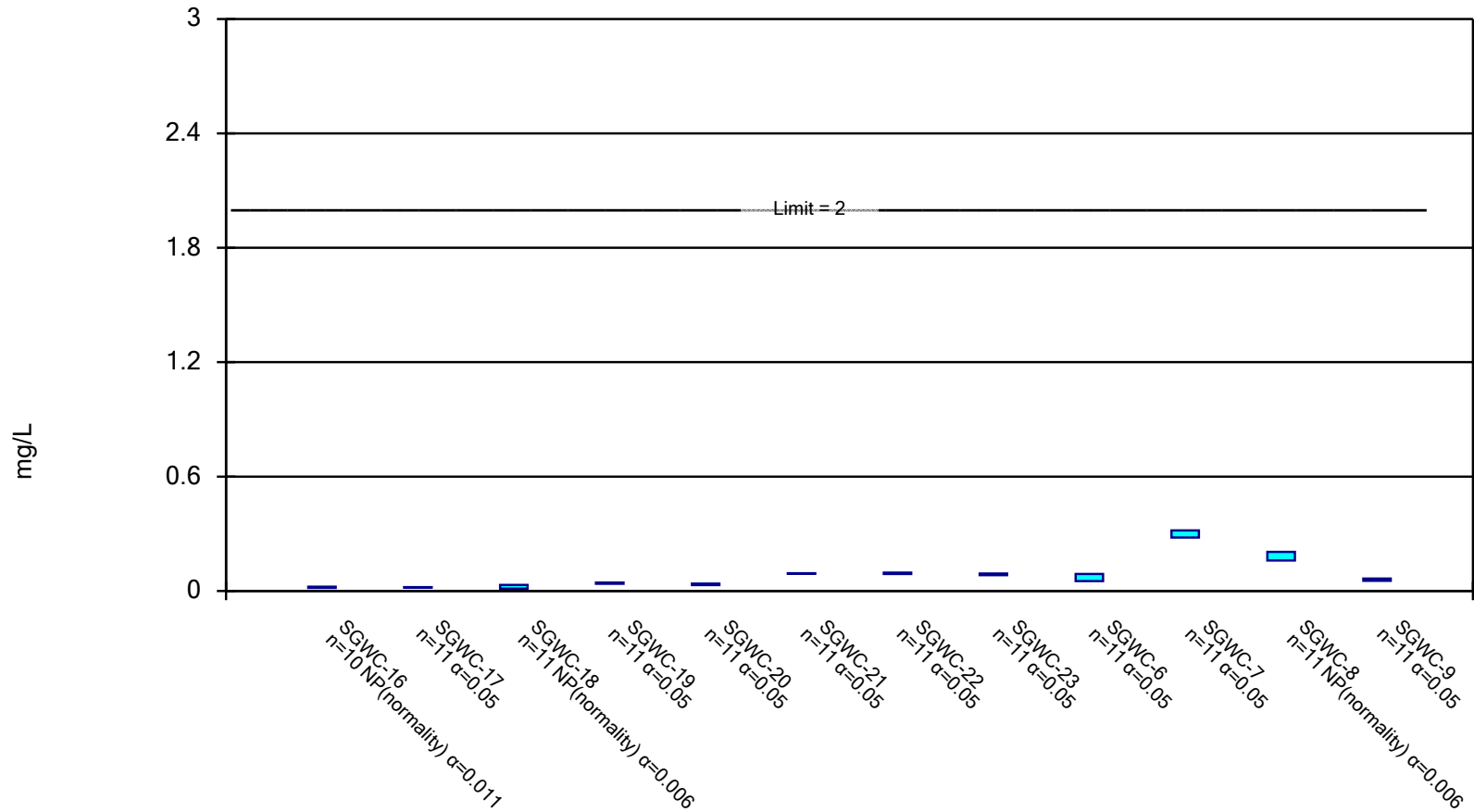
Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium    Analysis Run 1/11/2019 1:59 PM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

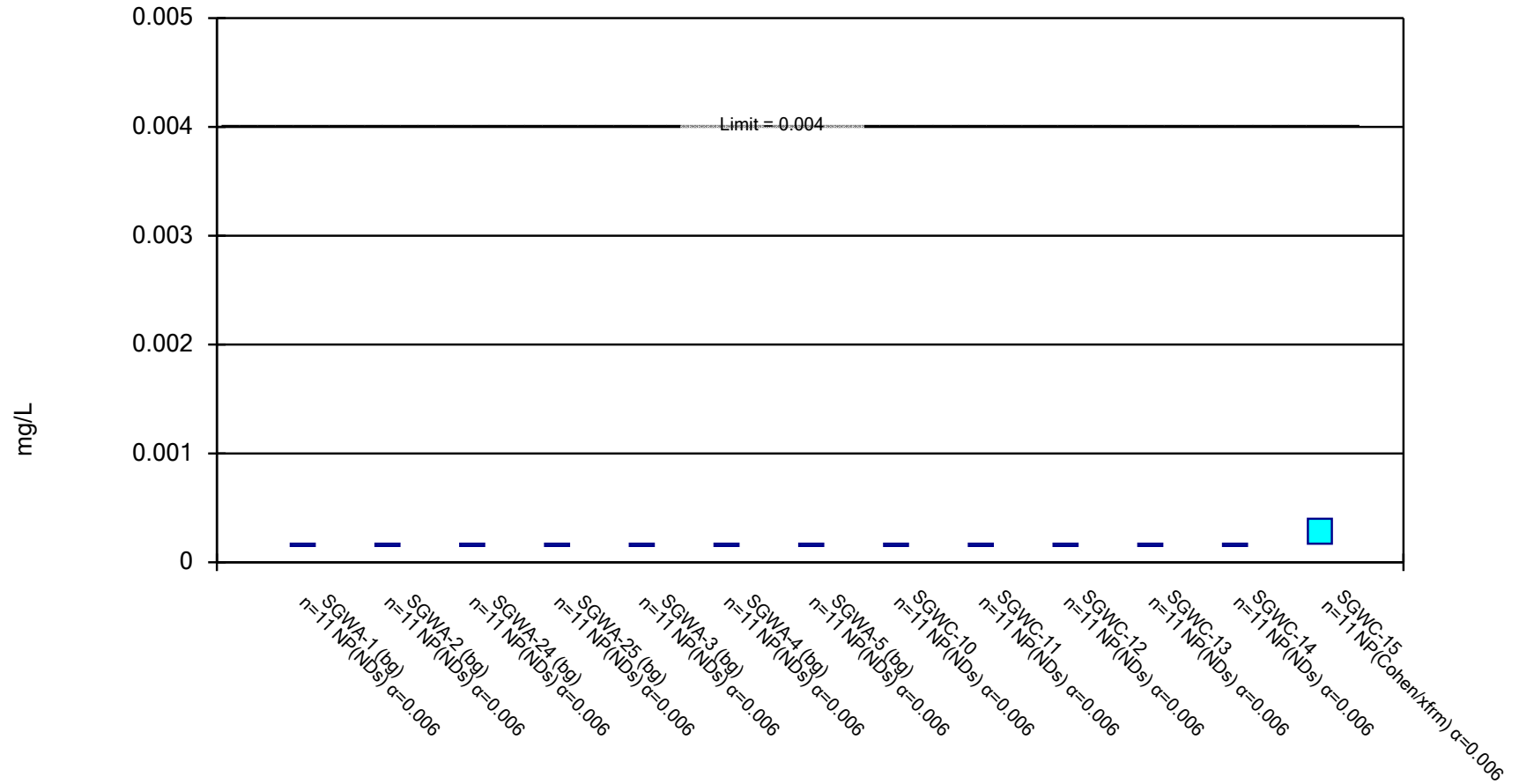


Constituent: Barium    Analysis Run 1/11/2019 1:59 PM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR



## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

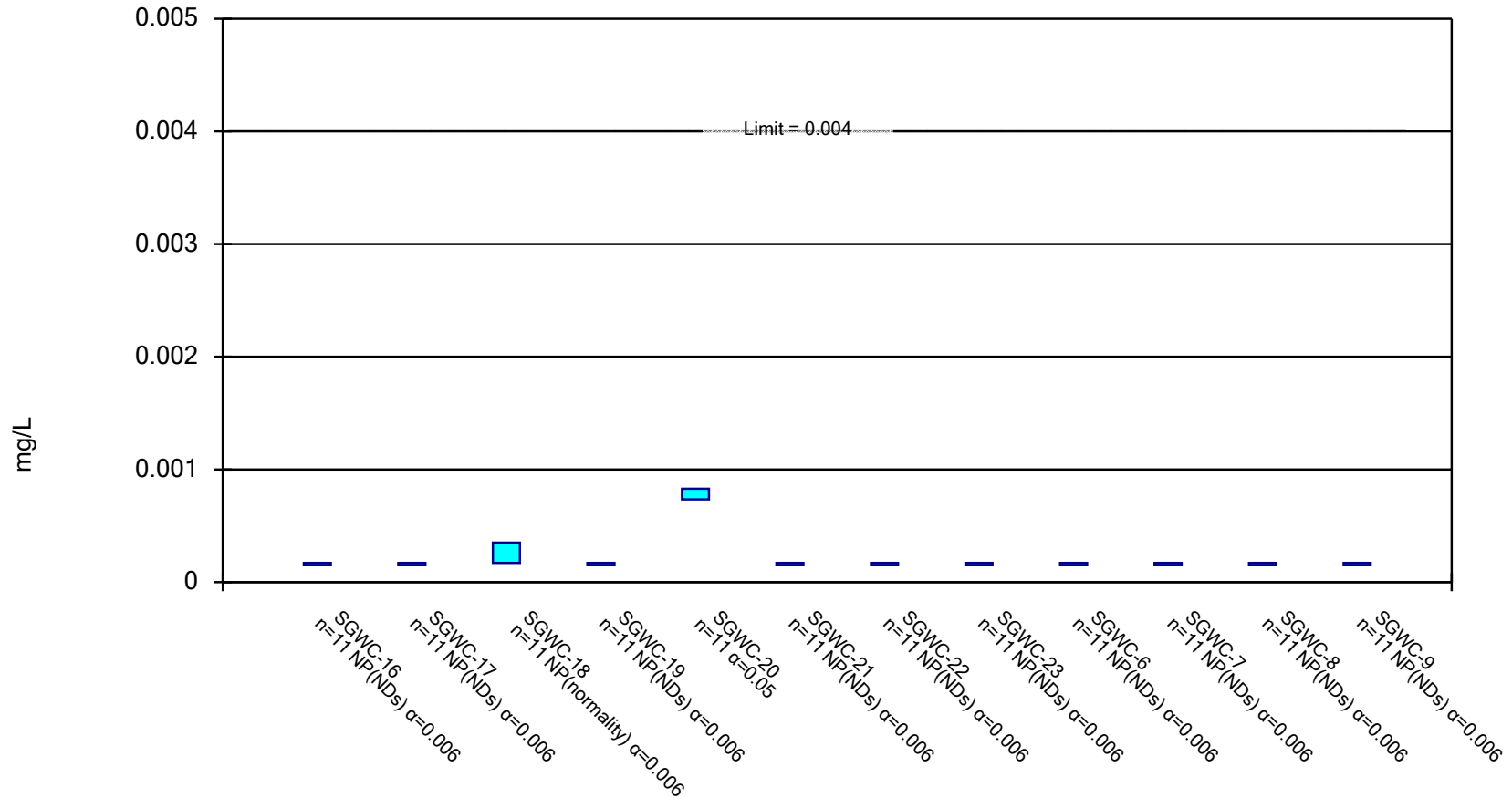


Constituent: Beryllium Analysis Run 1/11/2019 1:59 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

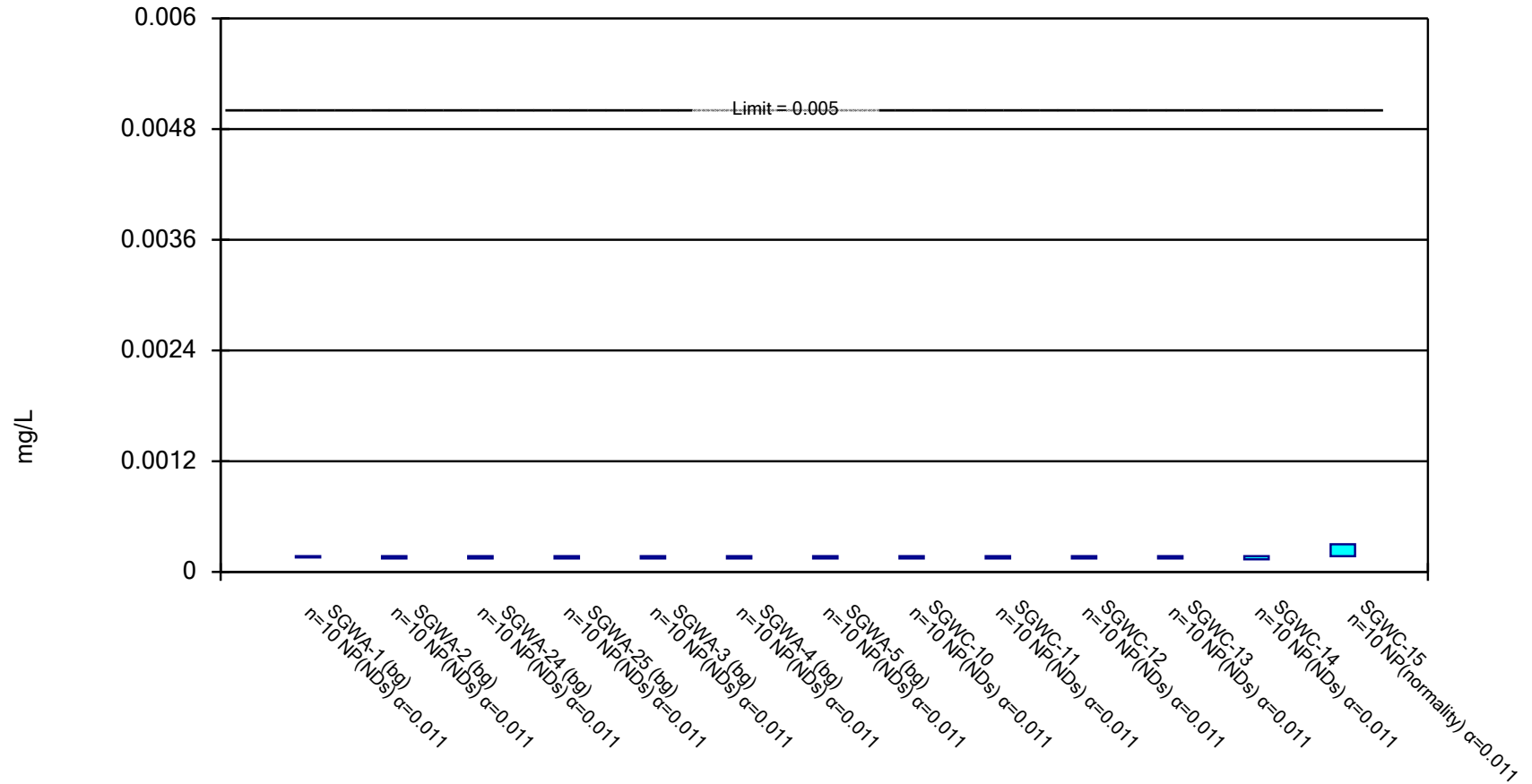


Constituent: Beryllium Analysis Run 1/11/2019 1:59 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

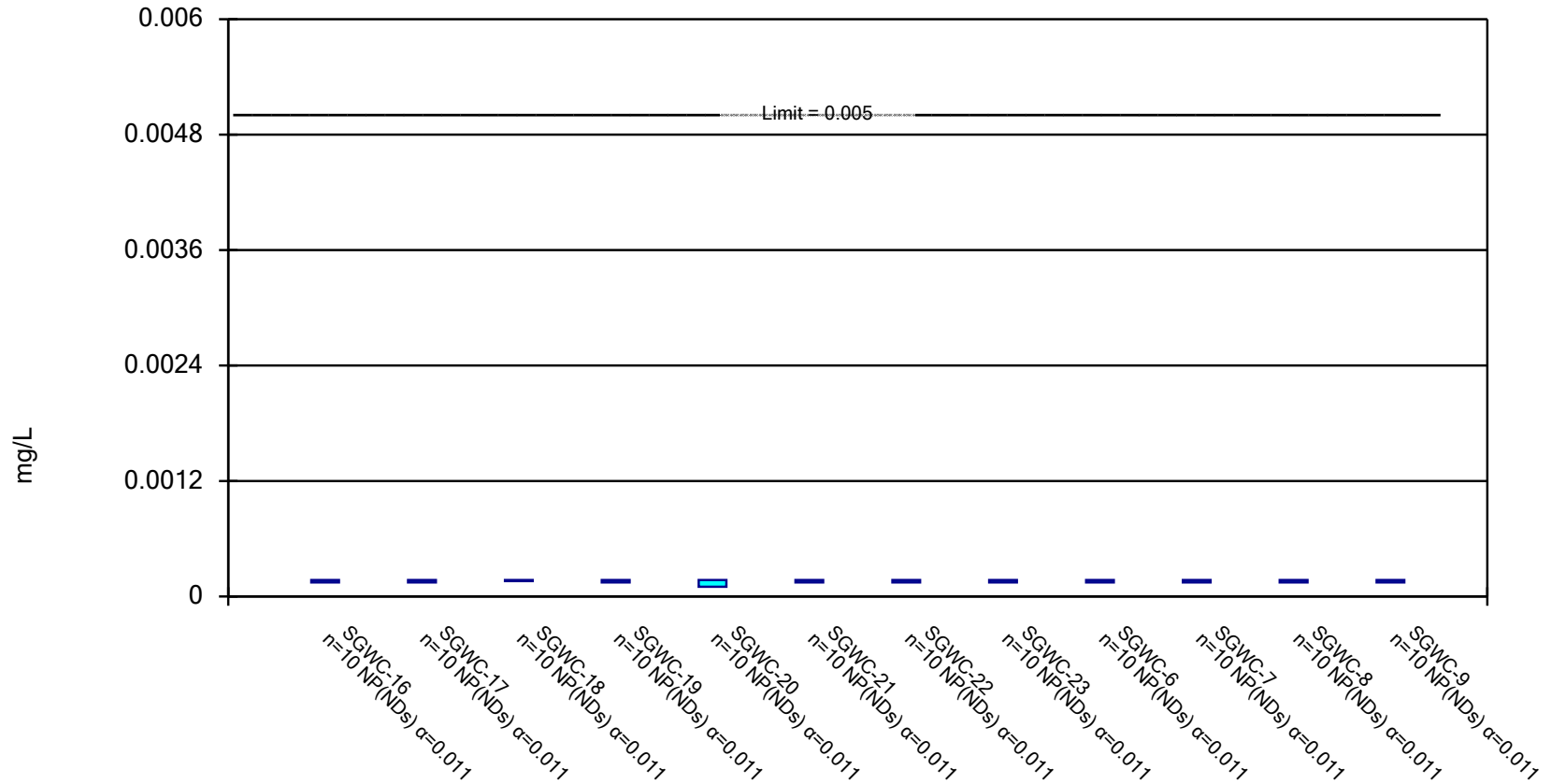


Constituent: Cadmium Analysis Run 1/11/2019 1:59 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

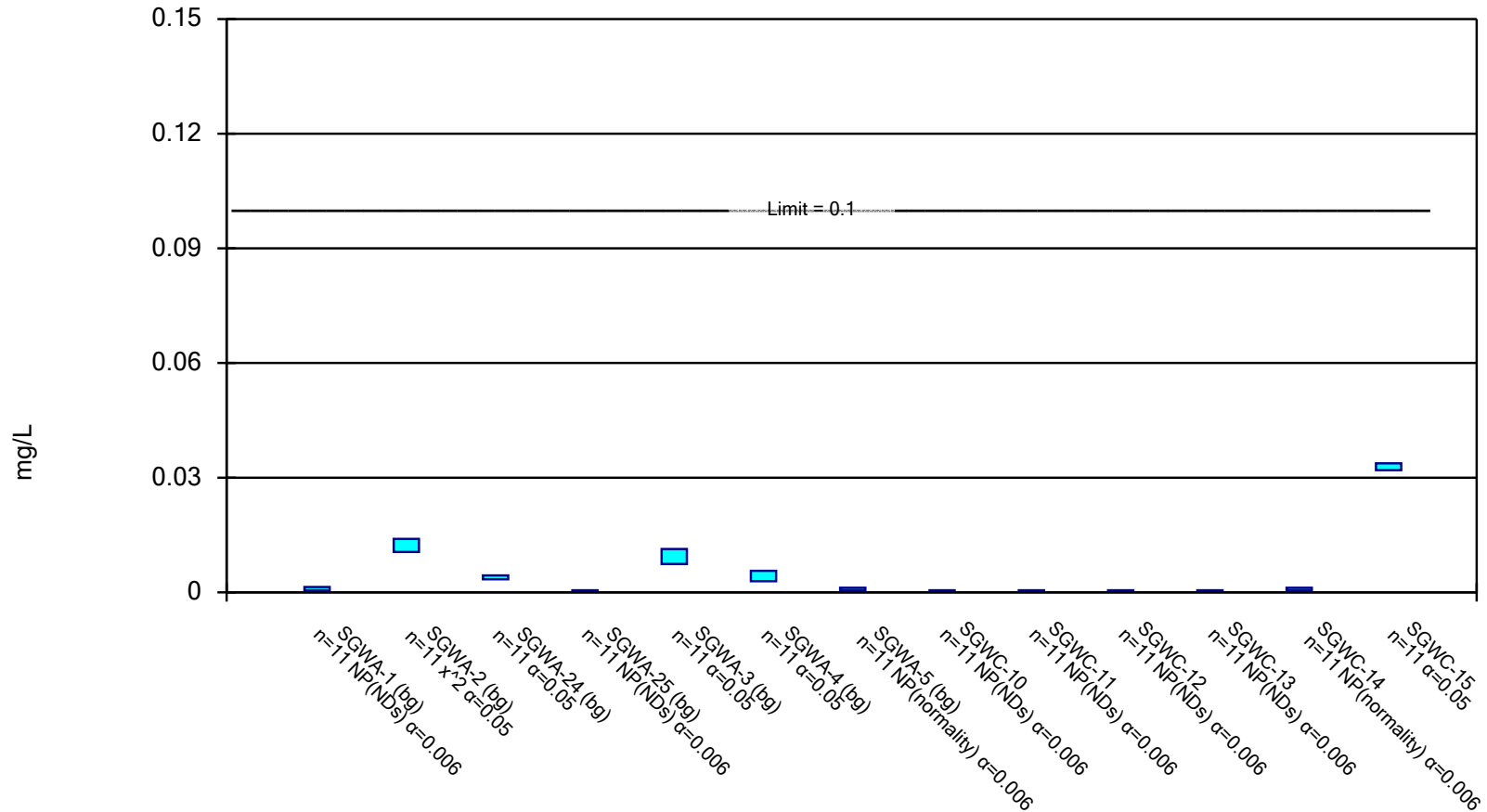
Compliance Limit is not exceeded.



Constituent: Cadmium    Analysis Run 1/11/2019 2:00 PM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

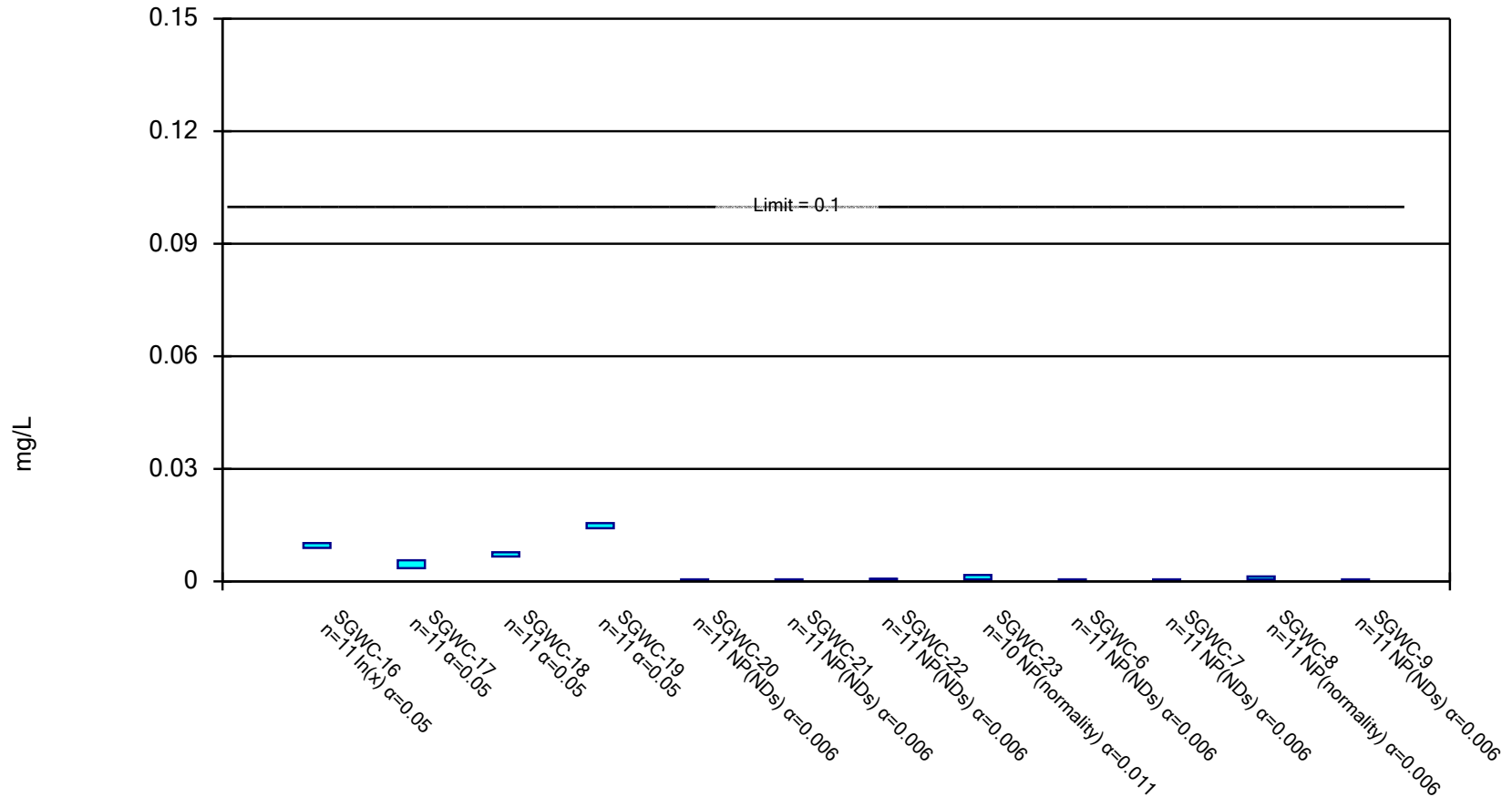


Constituent: Chromium Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

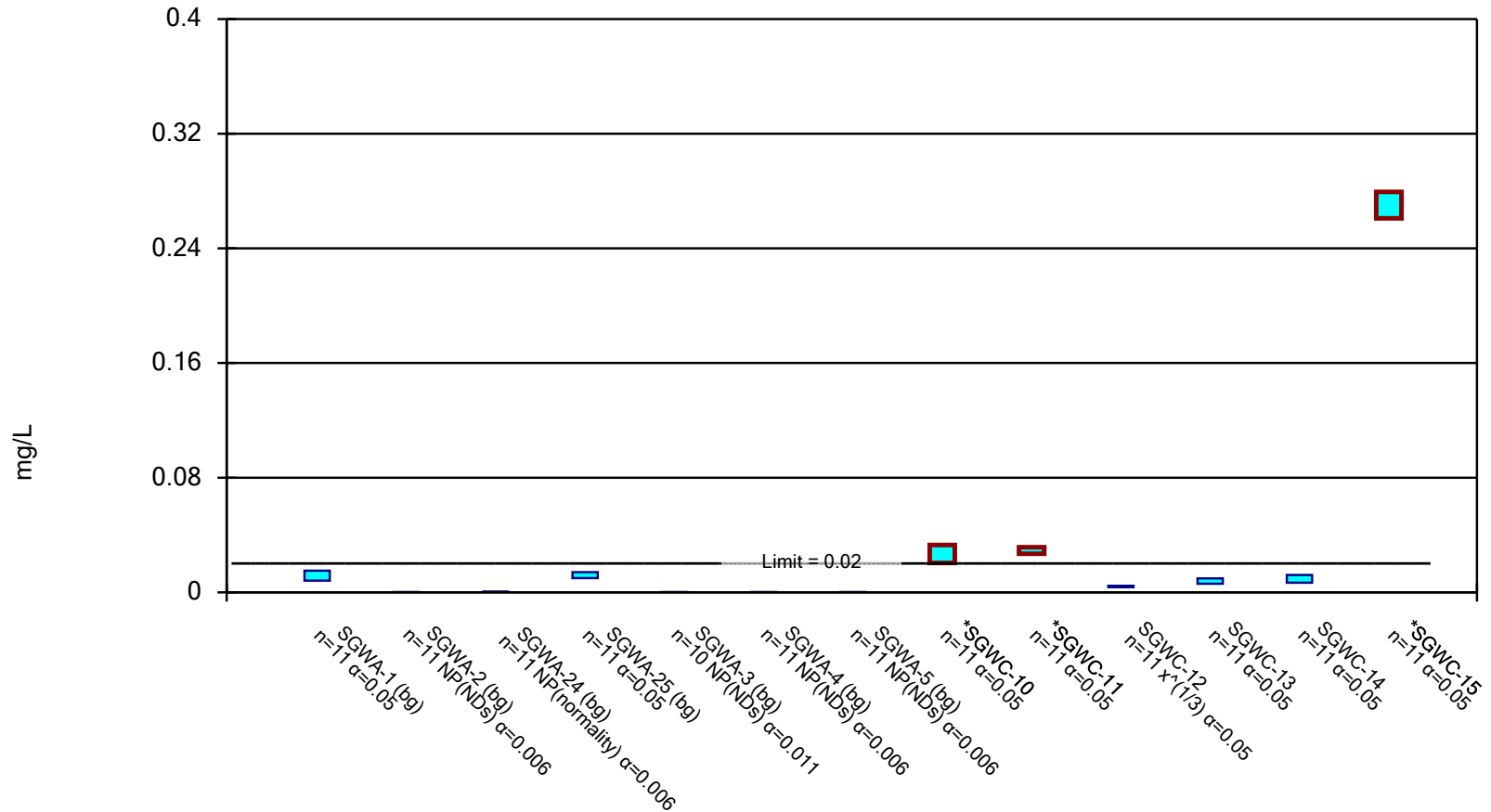


Constituent: Chromium Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Normality Test: Shapiro Wilk, alpha based on n.

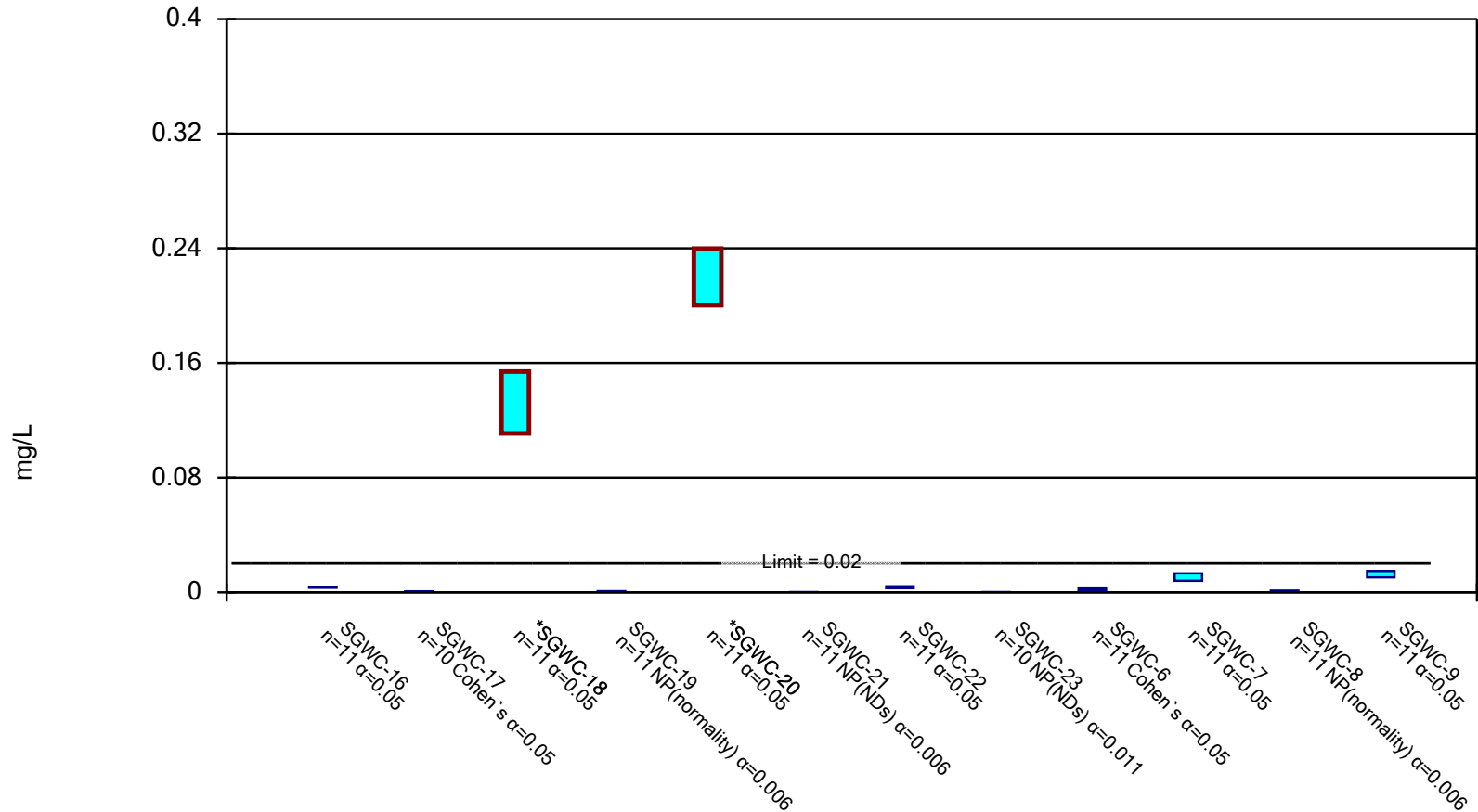


Constituent: Cobalt Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Normality Test: Shapiro Wilk, alpha based on n.



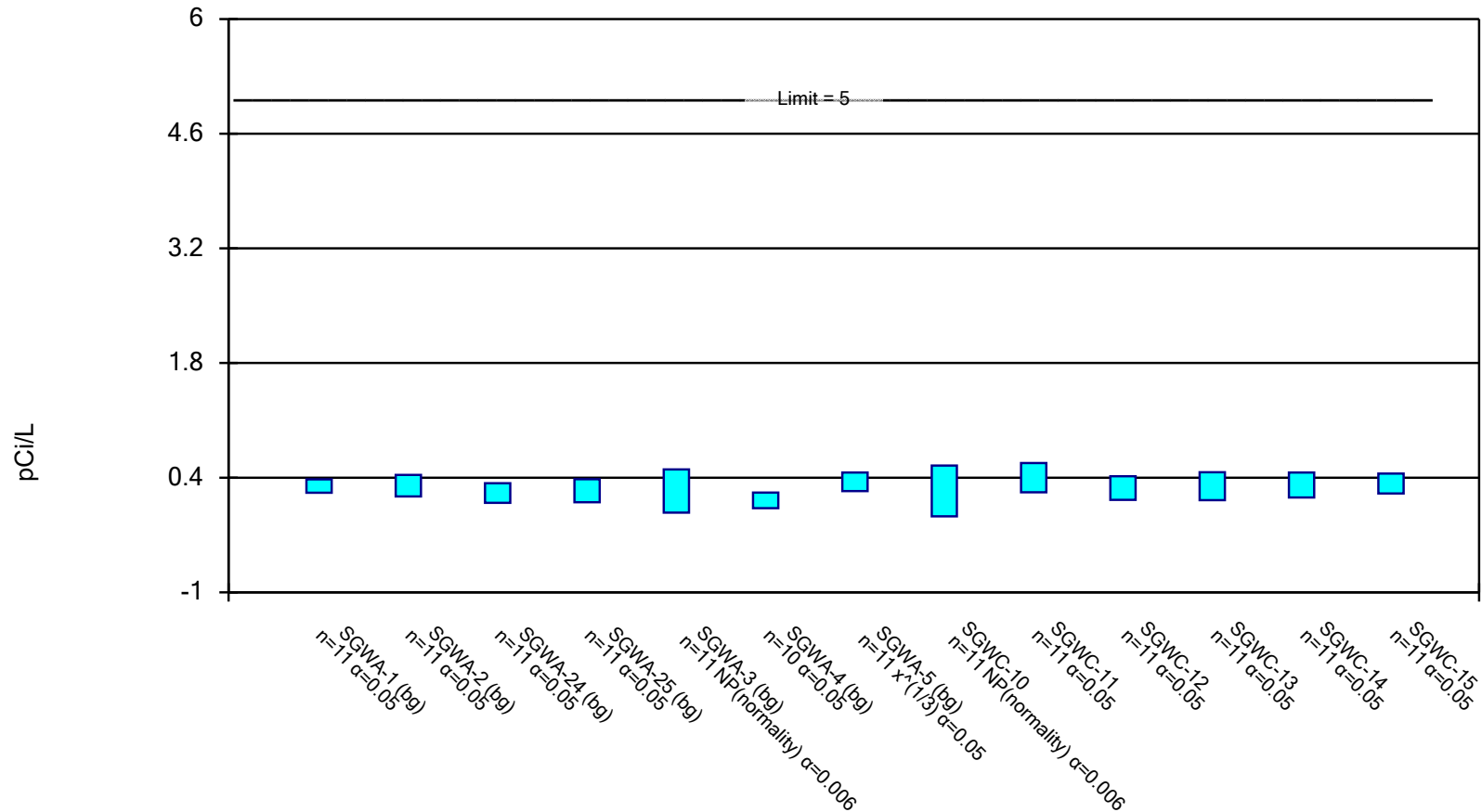
Constituent: Cobalt Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

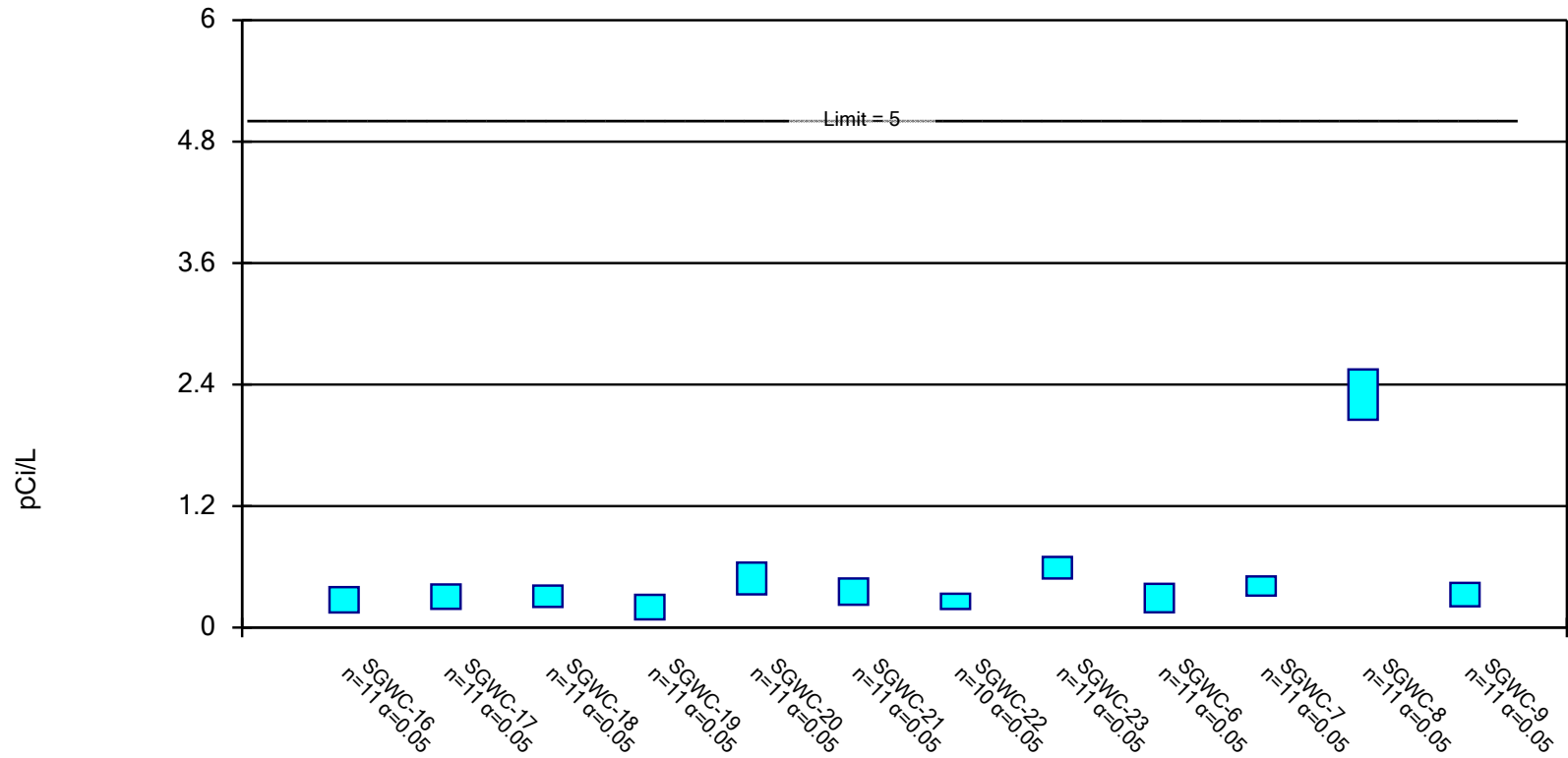


Constituent: Combined Radium 226 + 228 Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Int

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric Confidence Interval

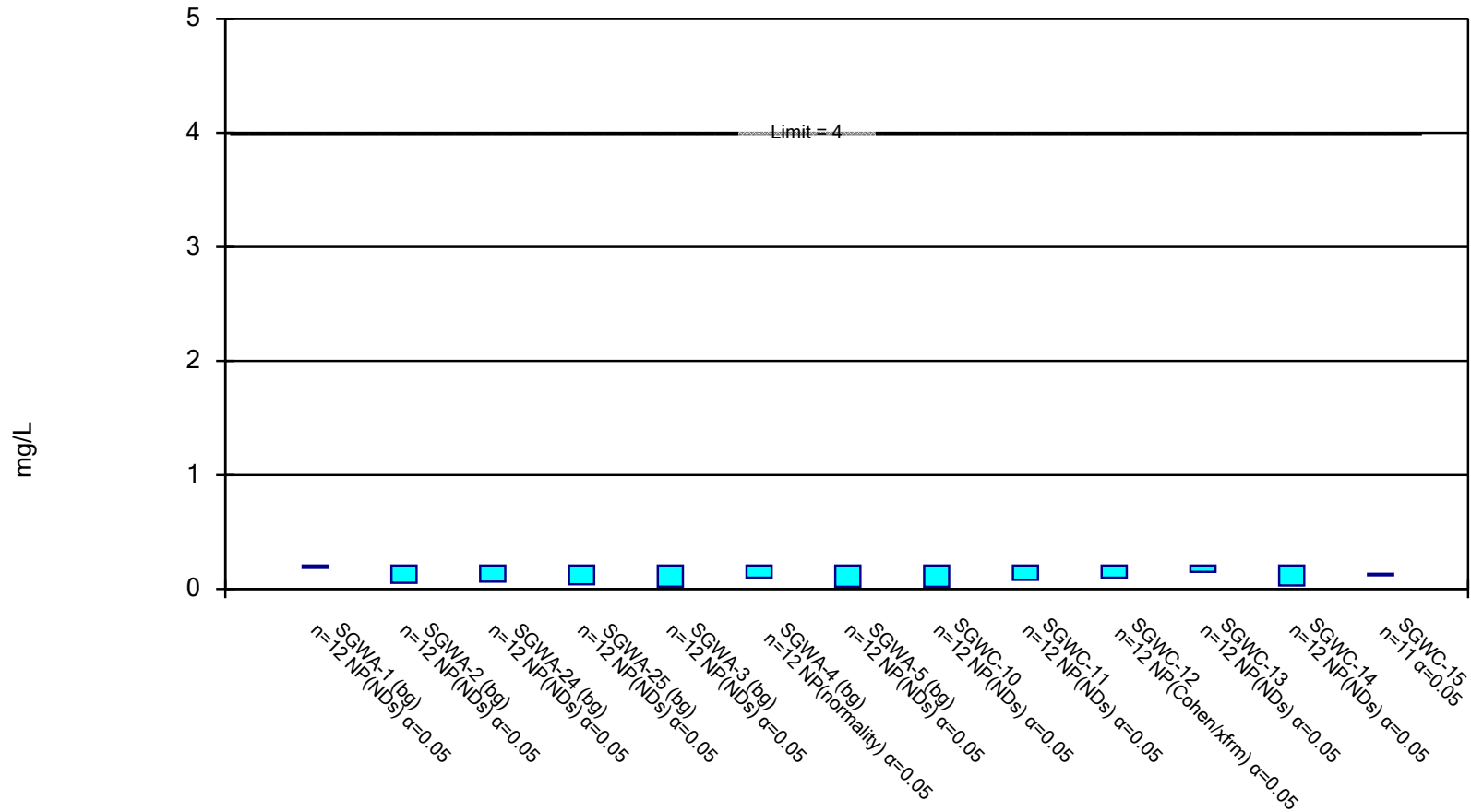
Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228    Analysis Run 1/11/2019 2:00 PM    View: Interwell Confidence Int  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

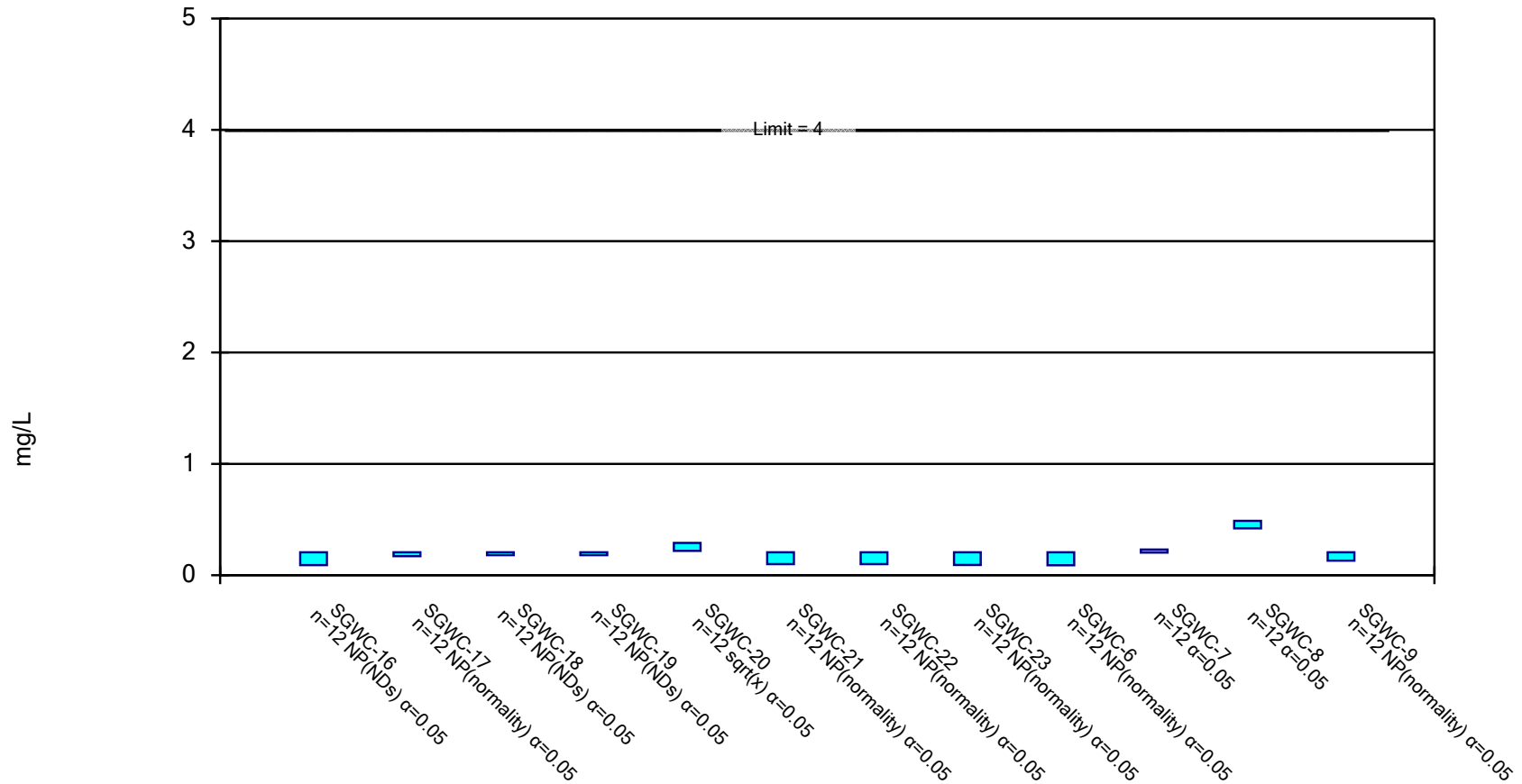


Constituent: Fluoride Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

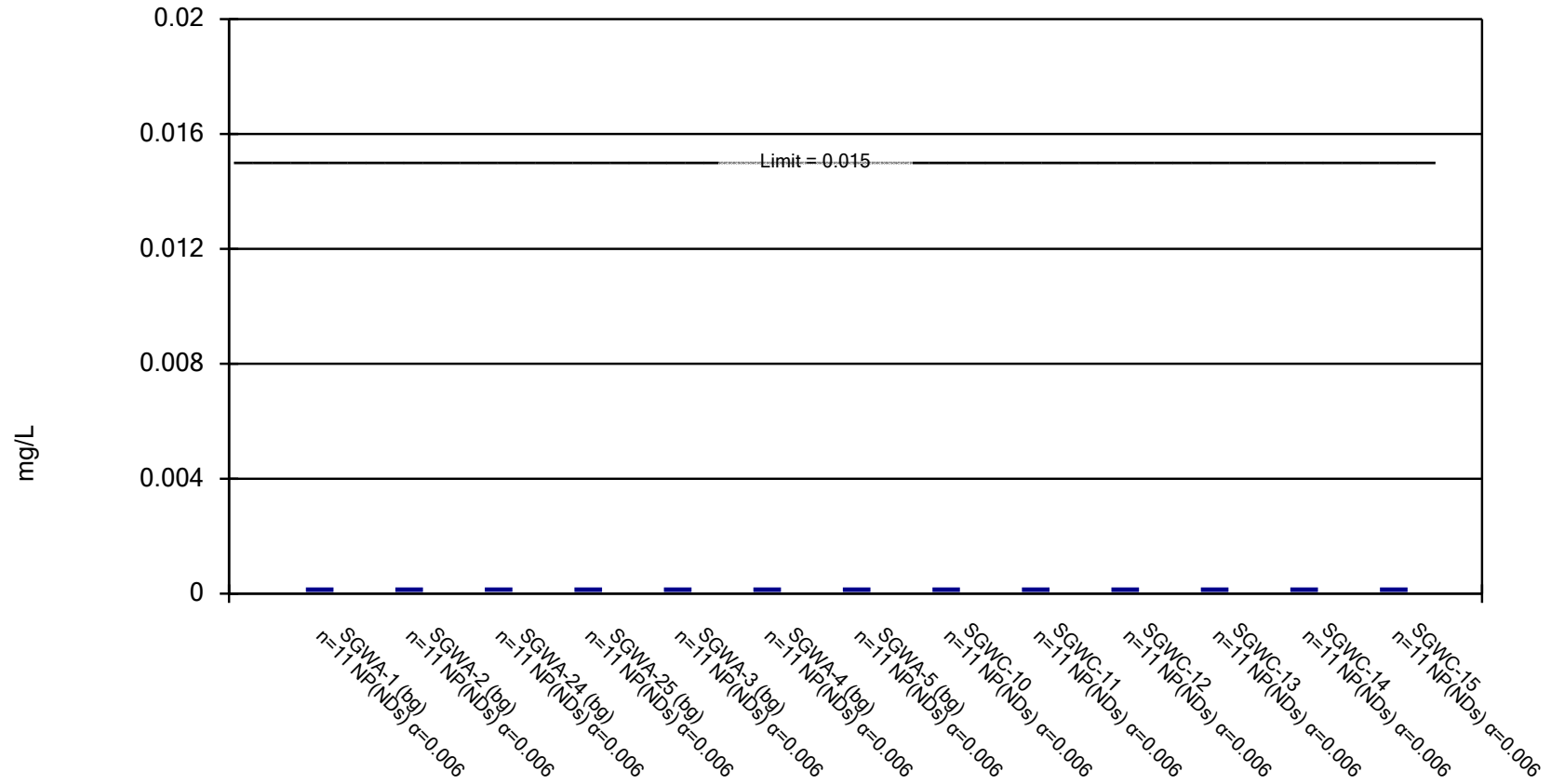


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Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

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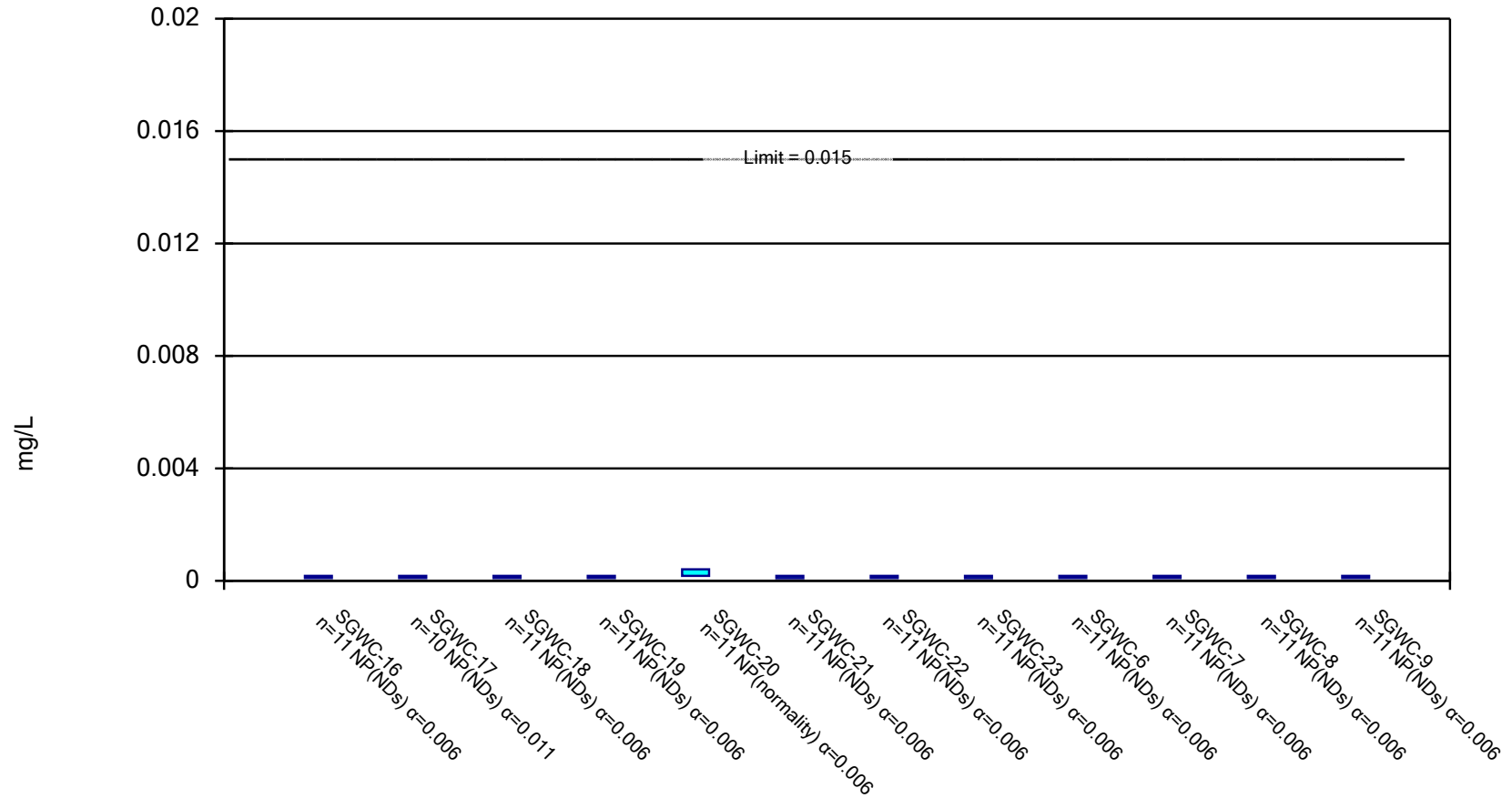


Constituent: Lead Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

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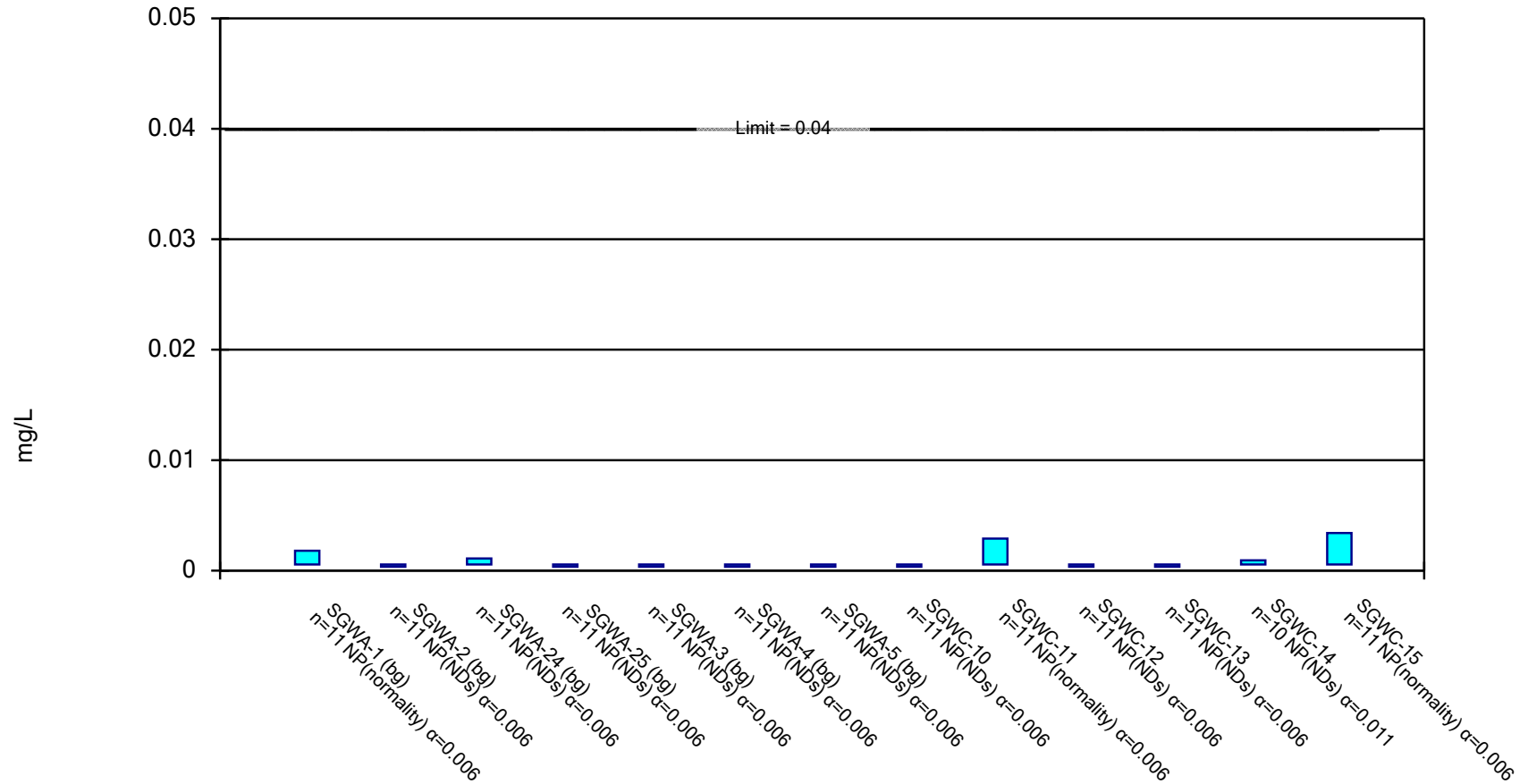


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Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

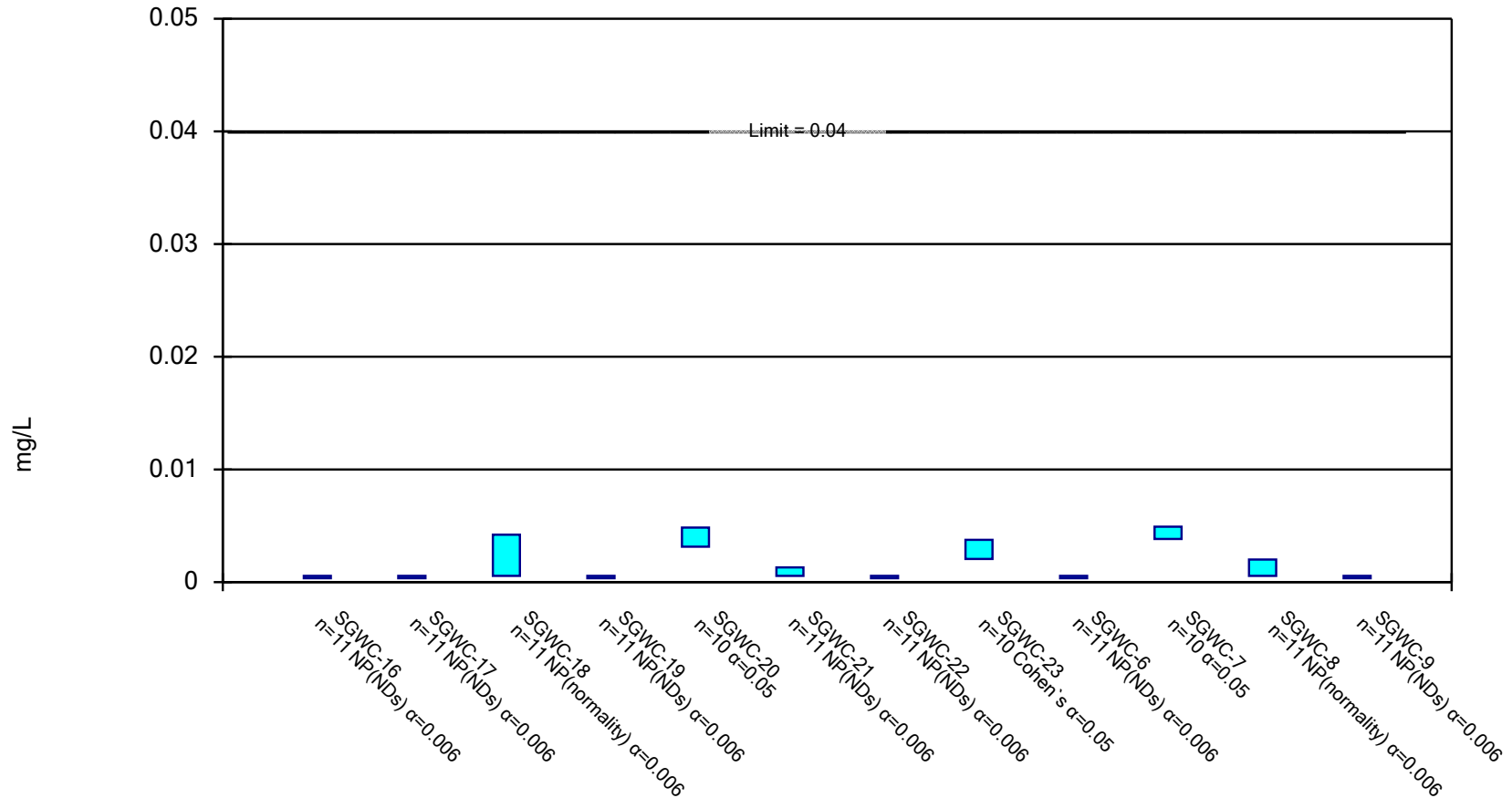
Compliance Limit is not exceeded.



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Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

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Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



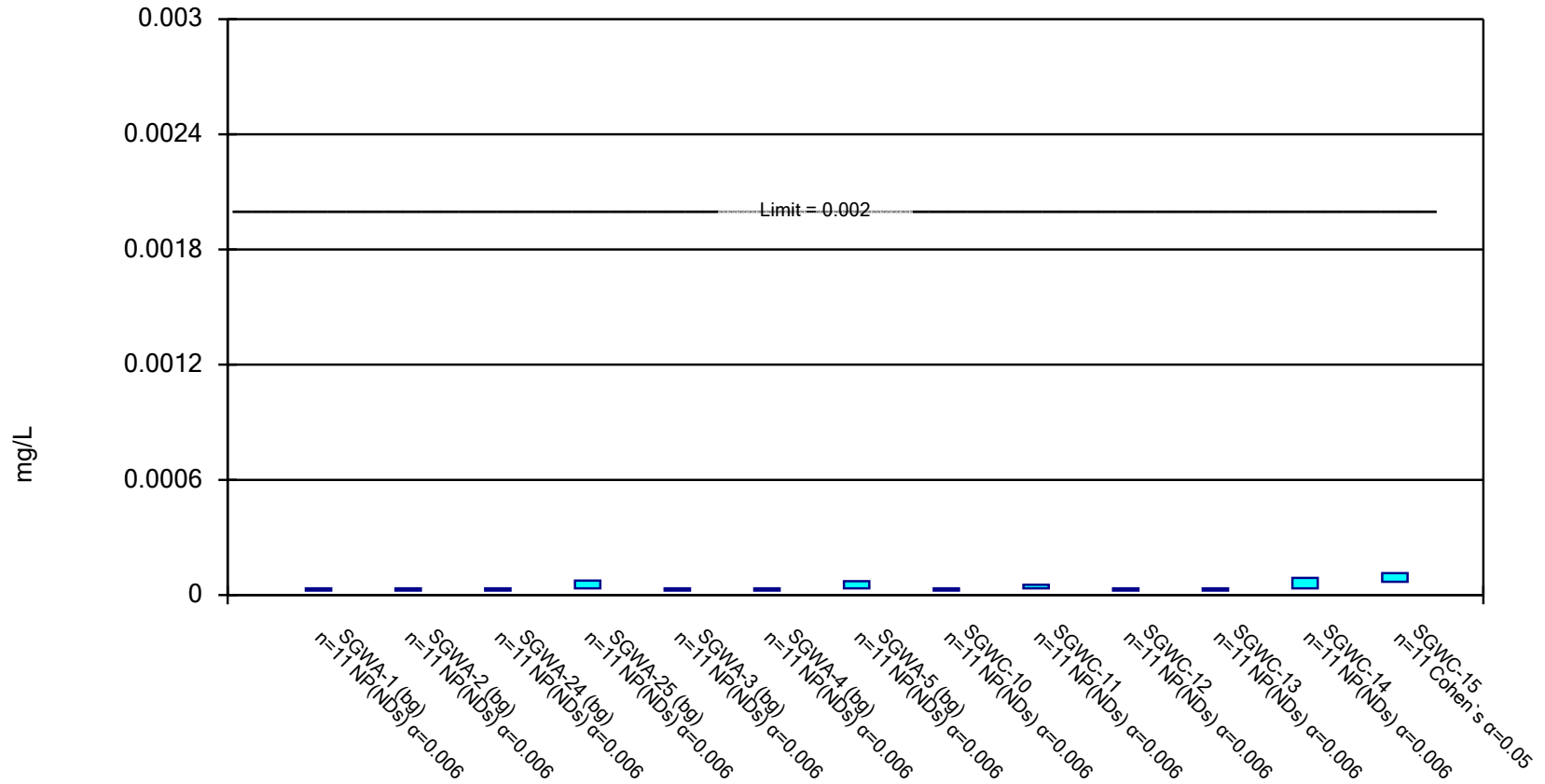
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Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



## Parametric and Non-Parametric (NP) Confidence Interval

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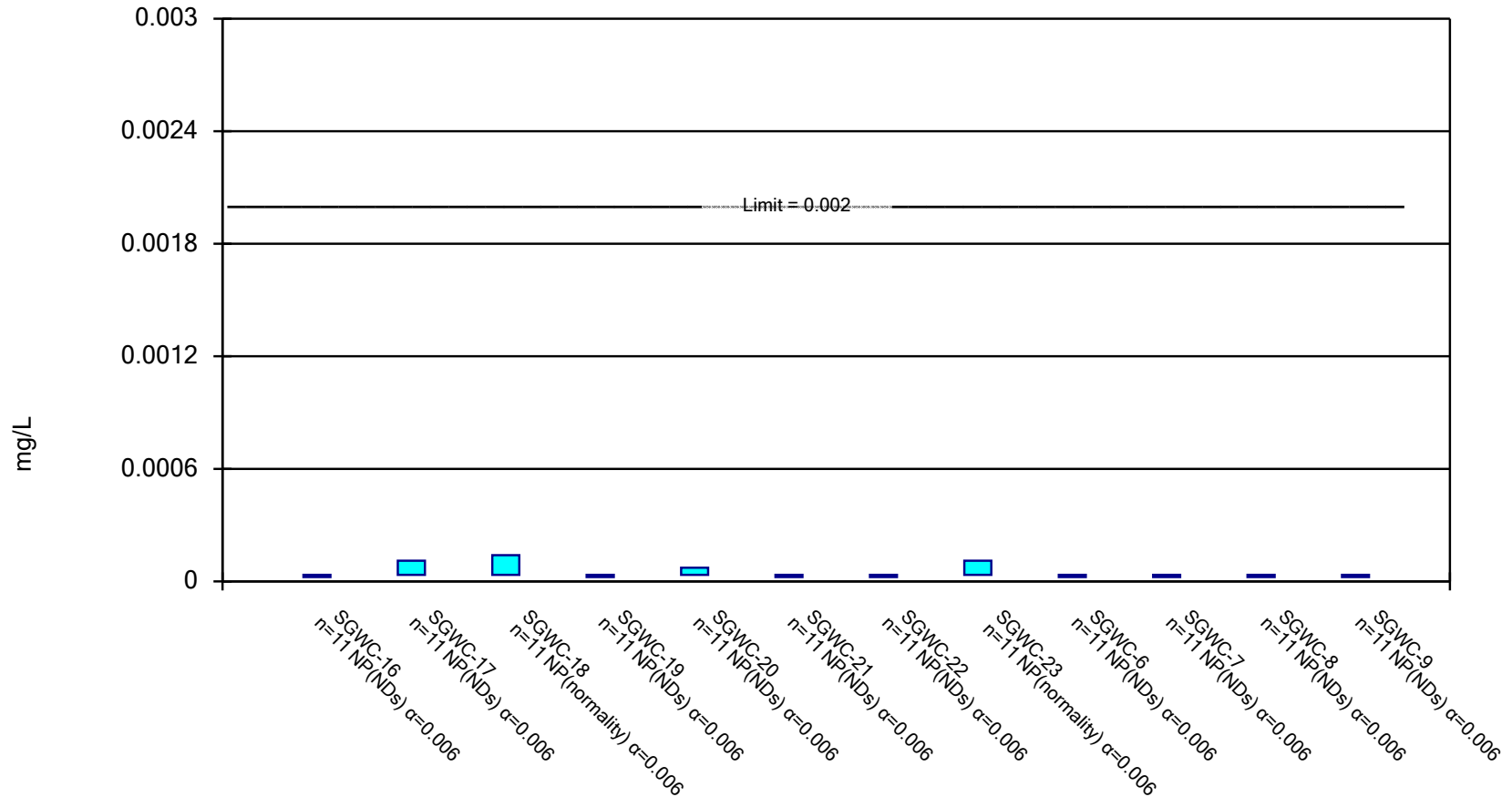


Constituent: Mercury Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

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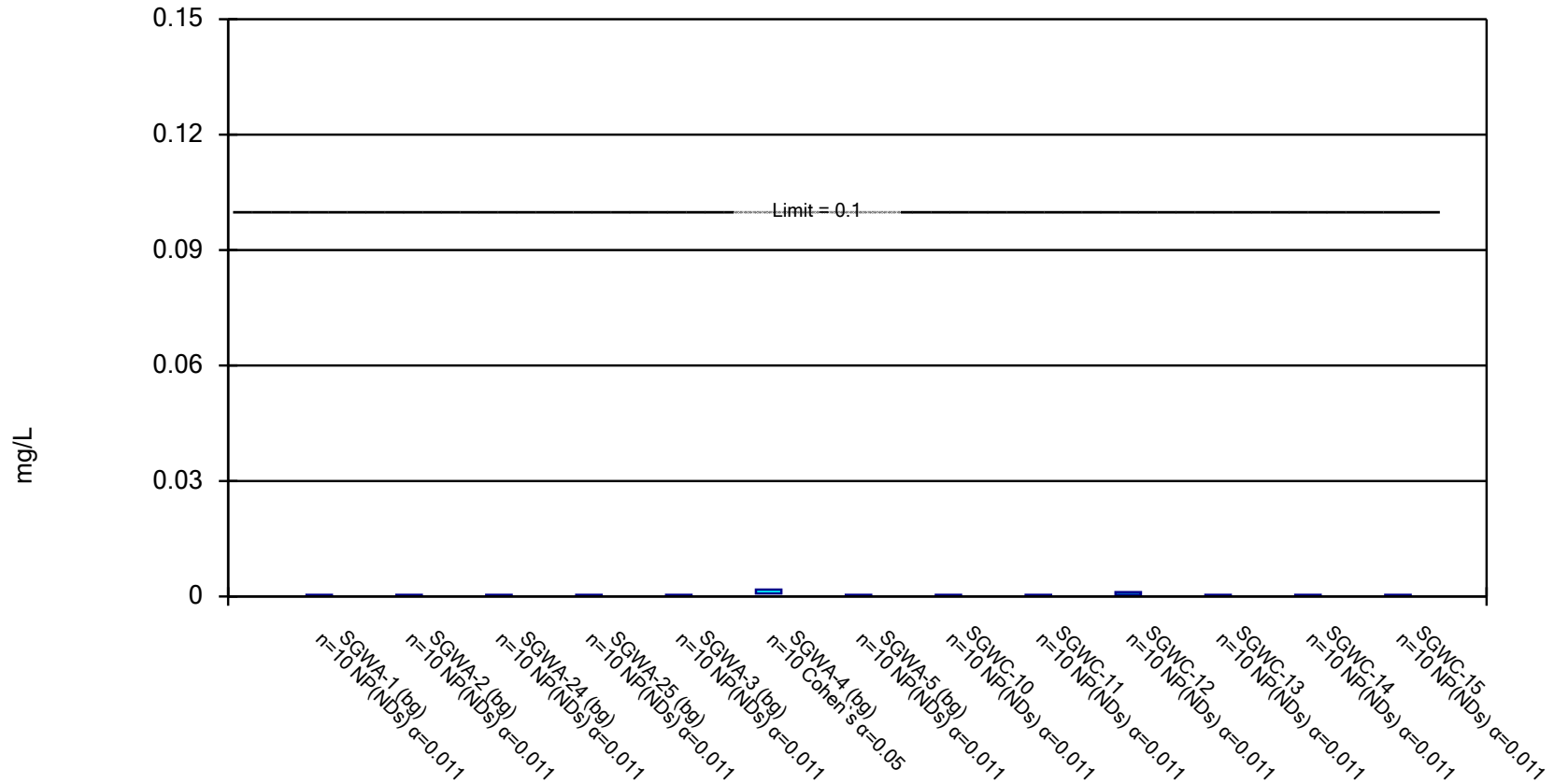


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## Parametric and Non-Parametric (NP) Confidence Interval

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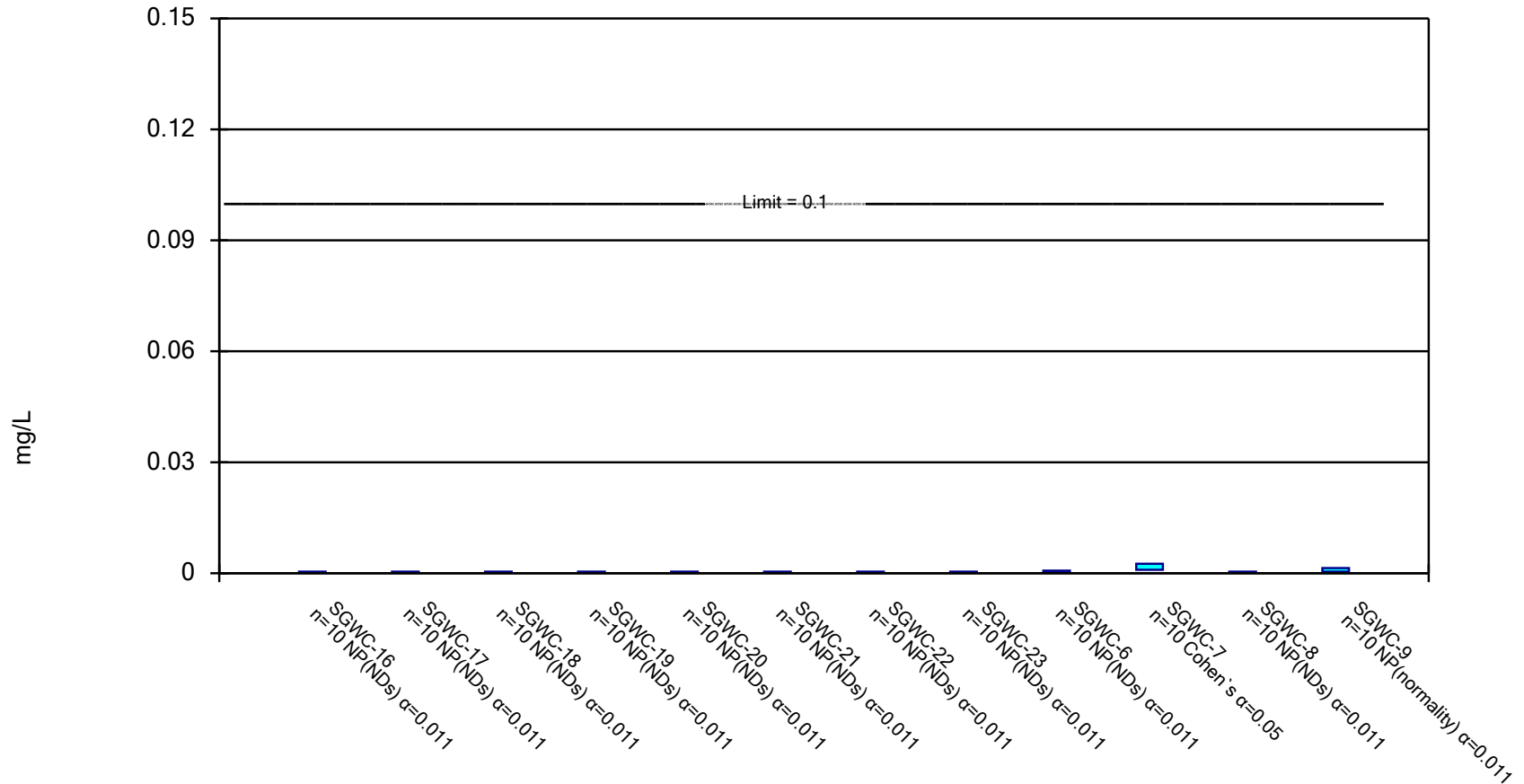


Constituent: Molybdenum Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

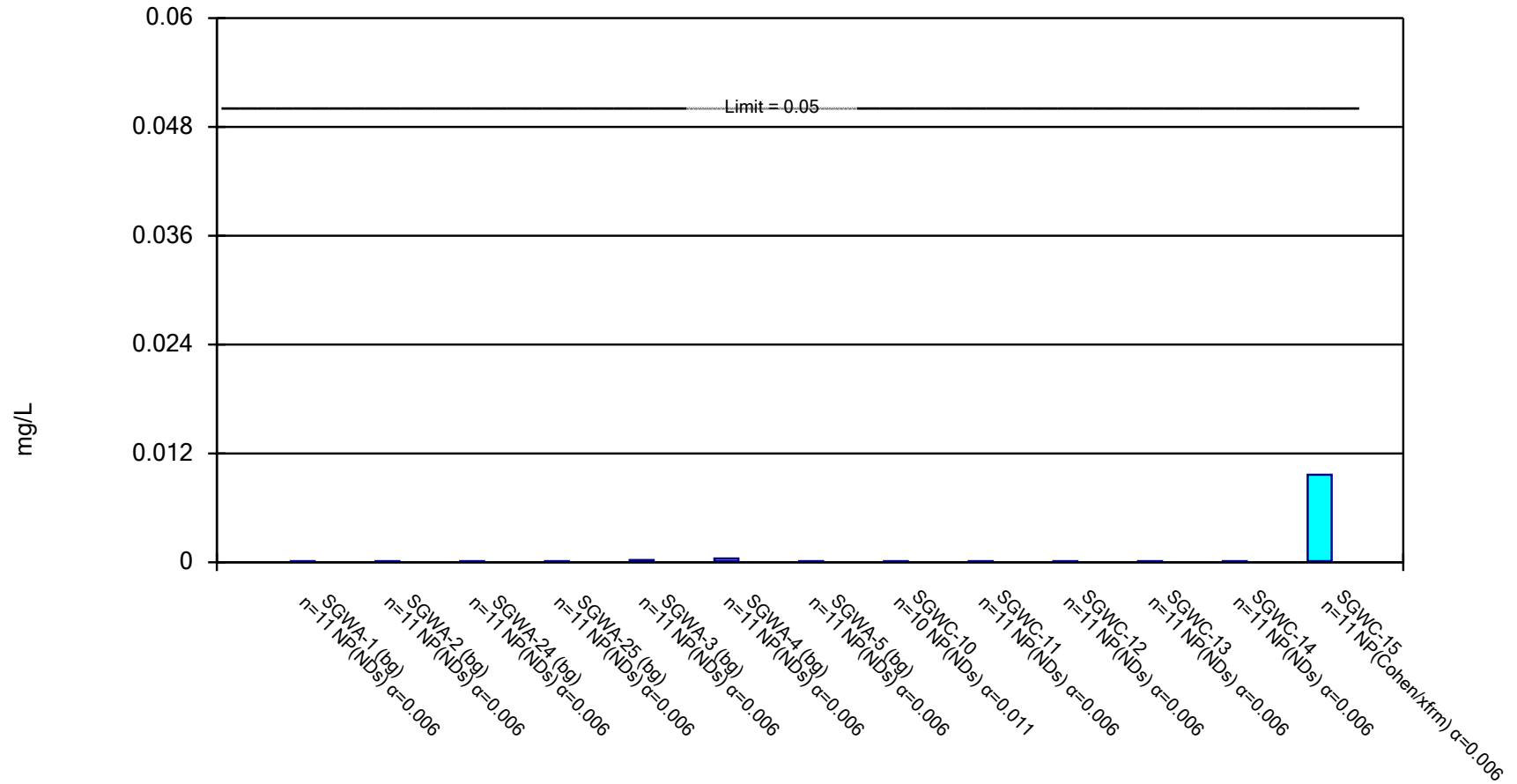


Constituent: Molybdenum Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

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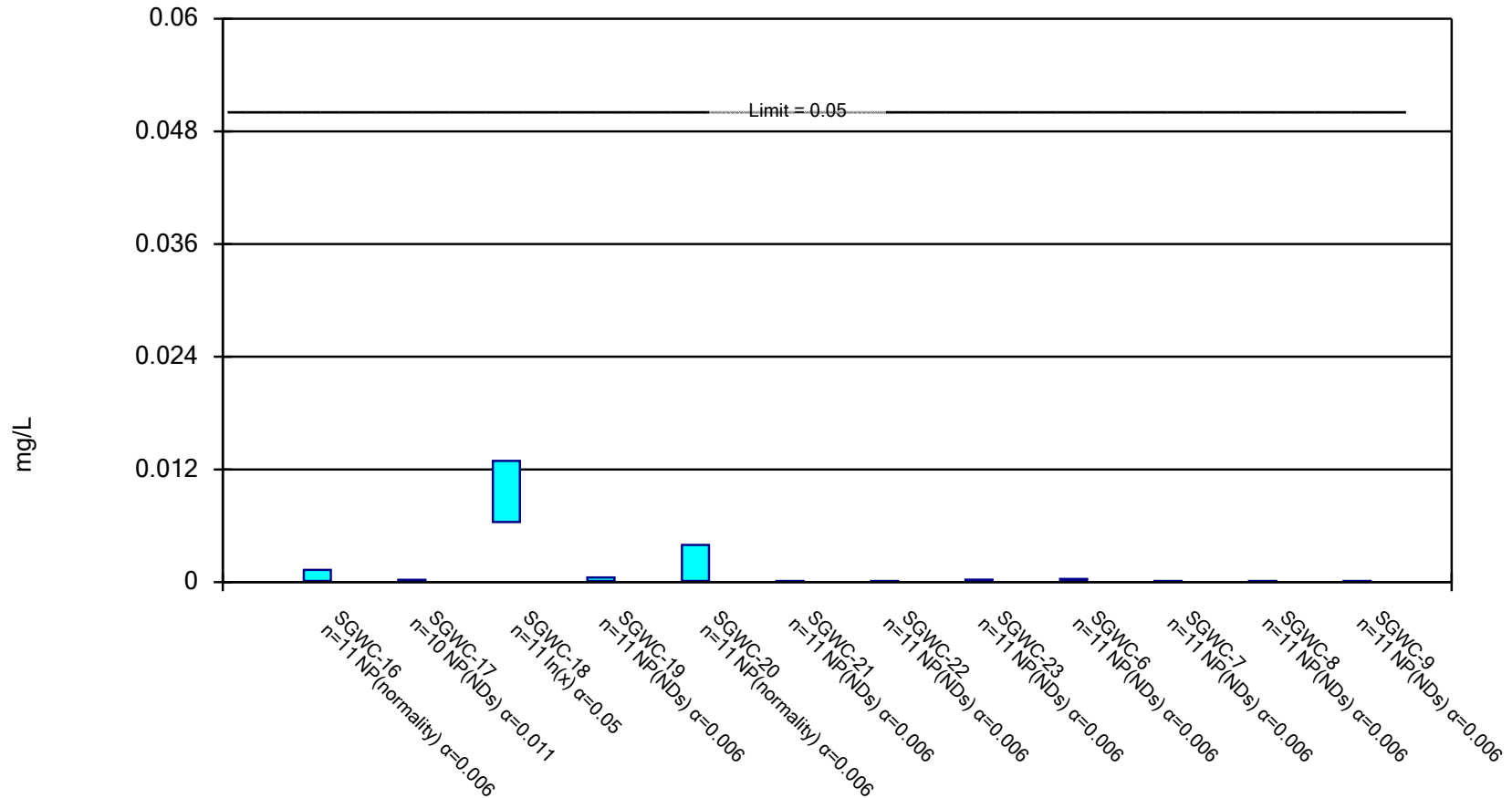


Constituent: Selenium Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

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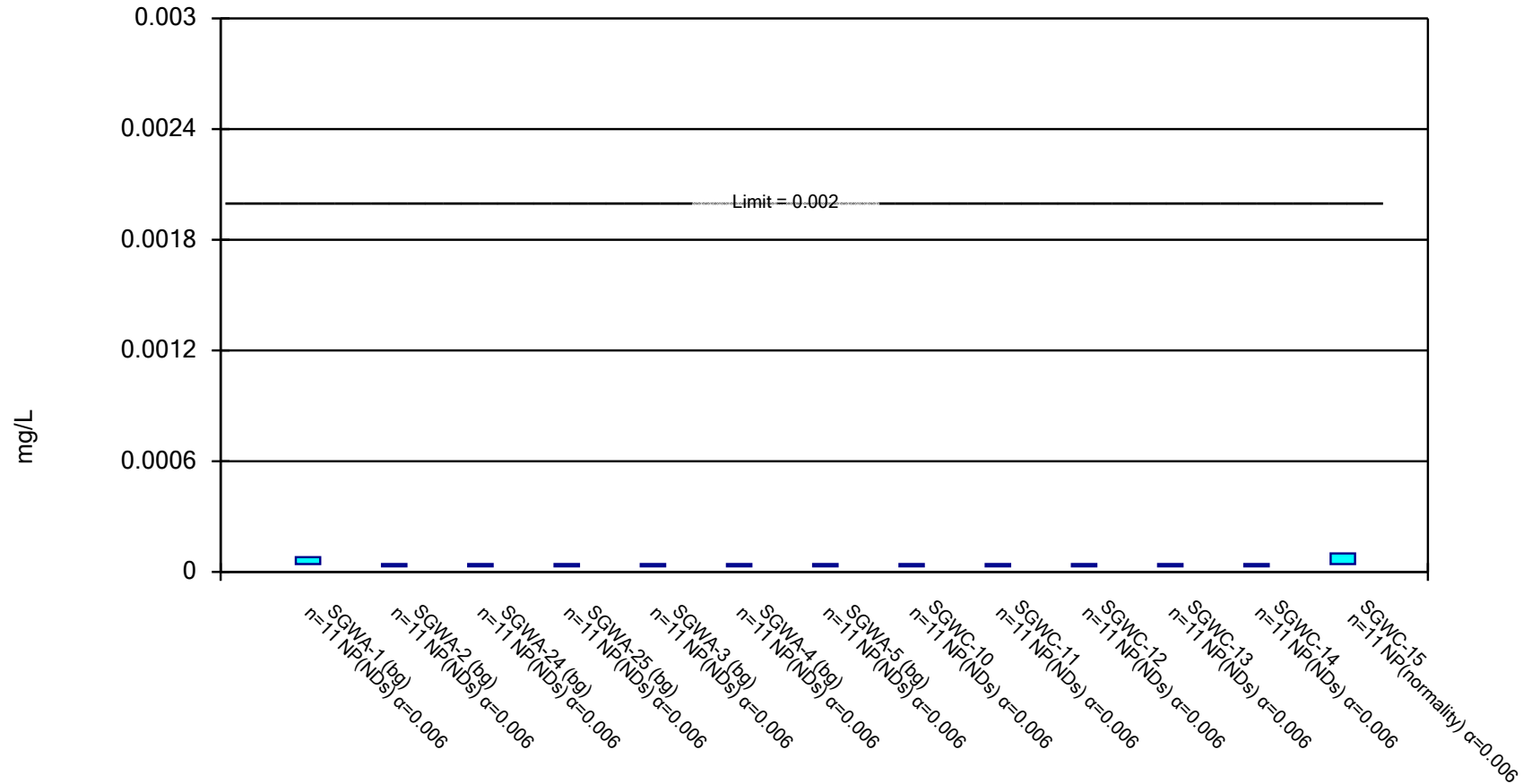


Constituent: Selenium Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

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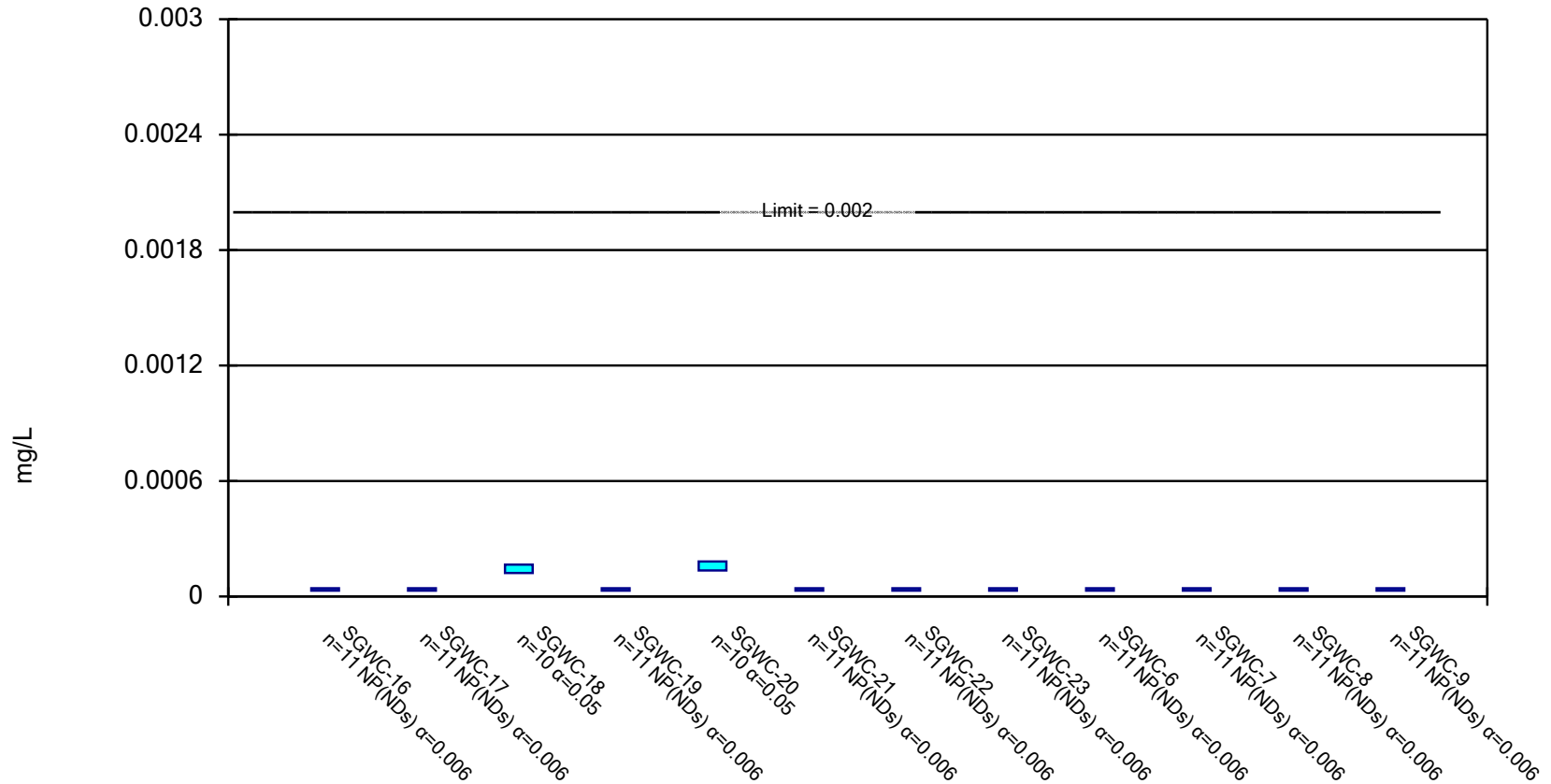


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Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Thallium Analysis Run 1/11/2019 2:00 PM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



**APPENDIX C**

## Alternate Source Demonstration



**REPORT**

# ALTERNATE SOURCE DEMONSTRATION

*Georgia Power Company Plant Scherer AP-1*

Submitted to:



**Georgia Power Company**

Submitted by:

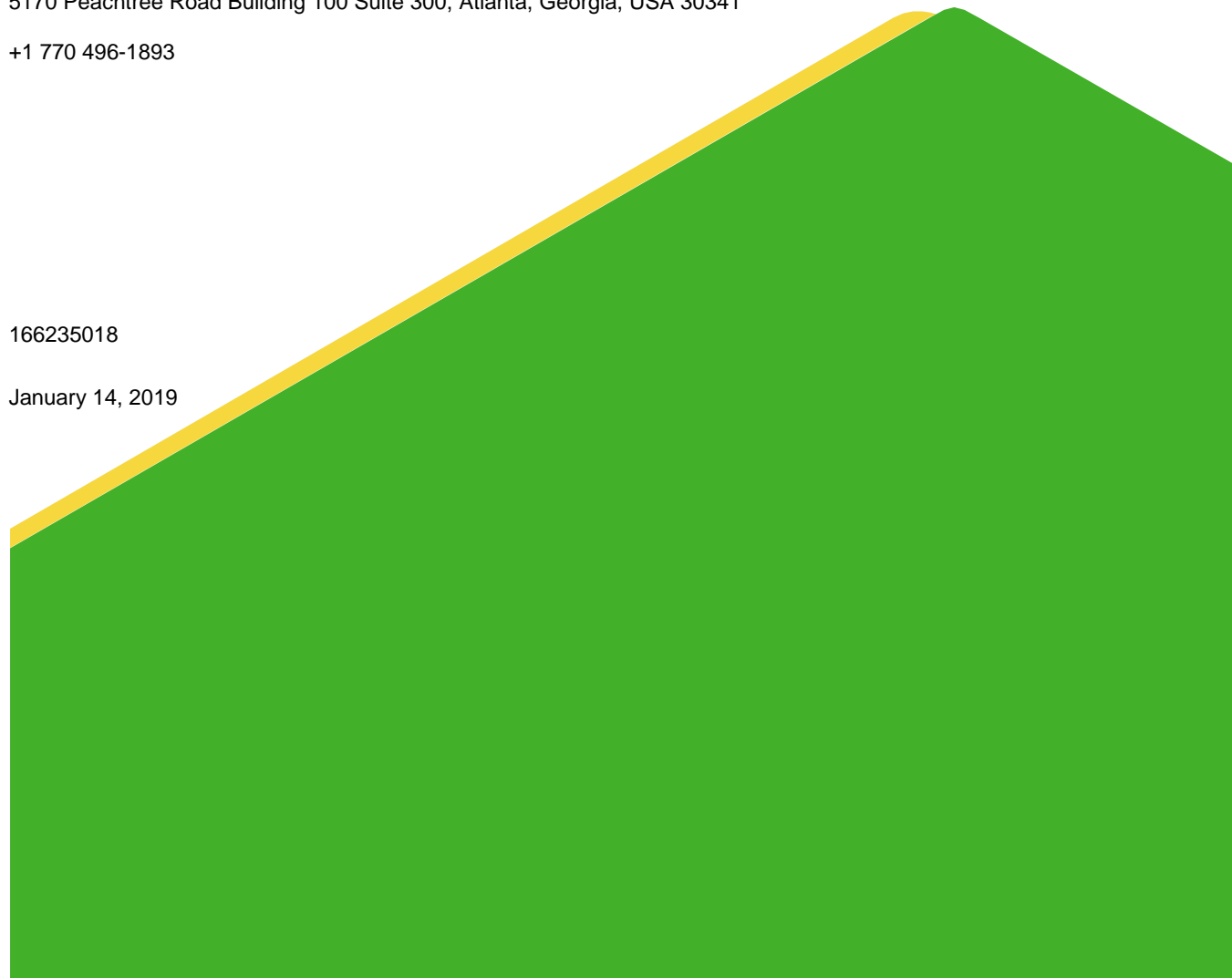
**Golder Associates Inc.**

5170 Peachtree Road Building 100 Suite 300, Atlanta, Georgia, USA 30341

+1 770 496-1893

166235018

January 14, 2019



## Distribution List

Georgia Power Company - Plant Scherer

Joju Abraham, PG - Southern Company Services

Tyler J. Boyles - Georgia Power Company

# Table of Contents

<b>1.0</b>	<b>INTRODUCTION</b>	<b>2</b>
<b>2.0</b>	<b>SITE DESCRIPTION AND BACKGROUND</b>	<b>2</b>
2.1	Ash Pond AP-1	2
2.2	Geologic and Hydrogeologic Setting	2
<b>3.0</b>	<b>SUMMARY OF ANALYTICAL RESULTS AND STATISTICAL ANALYSES</b>	<b>3</b>
3.1	Statistical Analyses Methods	3
3.2	Assessment Monitoring	3
3.3	Statistically Significant Levels	4
<b>4.0</b>	<b>ALTERNATE SOURCE DEMONSTRATION</b>	<b>4</b>
4.1	Pore-water Chemistry	4
4.2	Naturally-Occurring Cobalt in Aquifer Materials	4
4.3	Soil to Groundwater Partitioning	8
4.4	Naturally-Occurring Cobalt in Regional Groundwater	9
4.5	Alternate Source Demonstration Summary	10
<b>5.0</b>	<b>CONCLUSIONS</b>	<b>10</b>
<b>6.0</b>	<b>REFERENCES</b>	<b>10</b>

## Table of Contents - continued

### TABLES

Table 3.1.1: Site-Specific Groundwater Protection Standards.....	3
Table 4.2.1: USGS landscape site #5072 and NGDB rock sample W239273; Monroe County, GA.....	5
Table 4.2.2: Cobalt Concentrations vs. pH at Plant Scherer AP-1.....	8
Table 4.3.1: Summary of Partitioning Calculations Using EPA Partitioning Coefficients for Cobalt .....	9

### FIGURES

Figure 1: Site Location Map.....	Attached
Figure 2: Site Plan and Well Location Map .....	Attached
Figure 3: AP-1 Potentiometric Surface Contour Map - October 2018.....	Attached
Figure 4.2.1: Pourbaix diagram demonstrating the speciation and stability fields of cobalt and iron at monitoring wells and pore-water samples at Plant Scherer AP-1.....	6
Figure 4.2.2: A geochemical simulation demonstrating the stability of iron (ferrihydrite) and cobalt (cobalt carbonate) minerals in equilibrium with SGWC-18 groundwater in response to changes in pH .....	7
Figure 4.2.3: The percent of cobalt dissolved or adsorbed to ferrihydrite in response to changes in pH in groundwater sample SGWC-18 .....	7

### APPENDICES

#### APPENDIX A

Statistical Analyses

#### APPENDIX B

Analytical Data

#### APPENDIX C

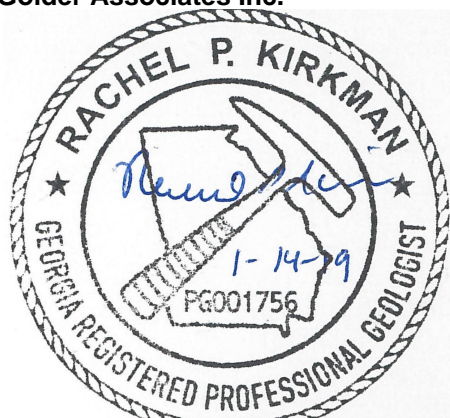
USGS Open-File Report

## Certification

This *Alternate Source Demonstration, Georgia Power Company Plant Scherer AP-1*, Juliette, Monroe County, Georgia, has been prepared in compliance with applicable United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule (40 Code of Federal Regulations [CFR] 257 Subpart D; published in 80 FR 21302-21501, April 17, 2015) under the direction of a licensed professional engineer with Golder Associates Inc.

I hereby certify that this *Alternate Source Demonstration, Georgia Power Company Plant Scherer AP-1*, located at 10986 Georgia 87, Juliette, Monroe County, Georgia 31046 has been prepared to meet the requirements of 40 CFR §257.95(g)(3)(ii).

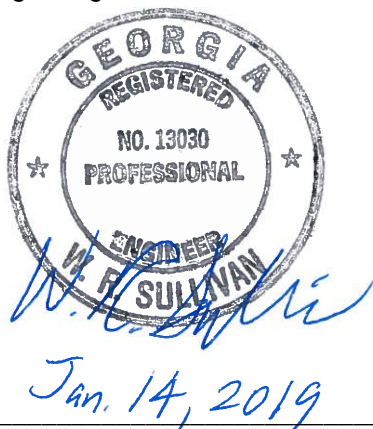
**Golder Associates Inc.**



Rachel P. Kirkman, PG  
Georgia Registered Professional Geologist No. 1756

1-14-2019

Date



W. Randall Sullivan, P.E.  
Georgia Registered Professional Engineer No. 13030

1-14-2019

Date

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[https://golderassociates.sharepoint.com/sites/24912g/project files/200 reports/alternate source demonstrations/ap-1 january 2019\\_asd/final/scherer ap1\\_asd\\_app iv\\_ final\\_1.14.2019.docx](https://golderassociates.sharepoint.com/sites/24912g/project%20files/200%20reports/alternate%20source%20demonstrations/ap-1%20january%202019_asd/final/scherer%20ap1_asd_app%20iv_final_1.14.2019.docx)

## 1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (EPA) coal combustion residual (CCR) rule (40 Code of Federal Regulations [CFR] 257 Subpart D; published in 80 FR 21302-21501, April 17, 2015) (CCR Rule or The Rule), this *Alternate Source Demonstration Plant Scherer AP-1* (ASD) has been prepared to document an alternate source for Statistically Significant Levels (SSLs) calculated at Georgia Power Company's Plant Scherer Ash Pond 1 (AP-1) during assessment monitoring. This document satisfies the requirements of §257.95(g)(3)(ii) which allows the owner or operator to demonstrate that a source other than the CCR Unit has caused an SSL and that the SSL was the result of an alternate source or resulted from errors in sampling, analysis, statistical evaluation, or natural variation in groundwater quality.

As documented by this report, the SSLs for cobalt are attributed to naturally-occurring cobalt in subsurface aquifer materials and are not caused by a release from the CCR unit.

## 2.0 SITE DESCRIPTION AND BACKGROUND

Plant Scherer is located in northeast Monroe County, GA, and is operated by the Georgia Power Company (GPC). The Plant is located approximately 5 miles south of Juliette, GA. The property occupies more than 12,000 acres and is bounded on the south by Lake Juliette. A site location map is included as Figure 1, Site Location Map.

### 2.1 Ash Pond AP-1

An ash pond (AP-1) and a cooling pond have been developed on site, and AP-1 is situated on a topographic high and occupies approximately 476 acres.

The groundwater monitoring system for AP-1 consists of twenty-five (25) monitoring wells screened in the uppermost aquifer as shown on Figure 2. Five (5) wells are situated upgradient of AP-1. Figure 2, Site Plan and Well Location Map identifies the location of AP-1 at Plant Scherer and shows the monitoring well network for AP-1.

### 2.2 Geologic and Hydrogeologic Setting

The site is situated within the Piedmont Physiographic Province of central Georgia, which is characterized by gently rolling hills and narrow valleys, with locally pronounced linear ridges. AP-1 is located in a topographically high area on the property, with several relatively small, intermittent and perennial creeks and streams surrounding the pond, creating radial surface water drainage downslope of the pond. Topographic relief across the site is greater than 200 feet, with a natural topographic high of over 570 feet above mean sea level (ft. msl) occurring along the topographic ridge west of AP-1, and a topographic low of less than 380 ft. msl in the eastern portion of the site near Berry Creek. Based on geologic mapping at the site, the plant property is primarily underlain by fine- to medium-grained, massive, poorly-jointed, feldspathic biotite gneiss, which has the potential to host iron and manganese oxides (Golder, 2018).

The groundwater table at the site is laterally consistent and generally occurs within overburden overlying fresh bedrock, which consists of residual soils and a transitionally weathered zone typical of Piedmont settings. Chemical weathering of bedrock results in a zone of enhanced permeability, which is referred to as the transitionally weathered zone, and is characterized by heterogeneously interlayered, fresh to completely weathered (saprolitic) rock. Saprolitic soils and/or saprolitic rock range in thickness across the site and the top of rock surface mimics topography. Bedrock aquifer systems are recharged by groundwater that is stored in the overburden, which slowly infiltrates underlying bedrock aquifer systems by moving through preferentially-weathered discontinuities in the bedrock mass, such as foliation/compositional layering, joints, and faults. A potentiometric map for the site is presented as Figure 3, AP-1 Potentiometric Surface Contour Map – October 2018.

### 3.0 SUMMARY OF ANALYTICAL RESULTS AND STATISTICAL ANALYSES

Following the October 2017 sampling event, as part of detection monitoring, Plant Scherer identified statistically-significant increases (SSIs) of Appendix III parameters above the upper prediction limits established based on the site-specific statistical plan. As a result, the AP-1 unit has transitioned to assessment monitoring. The following sections summarize the assessment monitoring plan for AP-1 and present the statistical analysis method for evaluation of assessment monitoring constituents (i.e., Appendix IV parameters) as they pertain to this ASD.

#### 3.1 Statistical Analyses Methods

During assessment monitoring, concentrations of Appendix IV constituents are compared to an applicable Groundwater Protection Standard (GWPS). As described in 40 CFR §257.95(h)(1-3) the GWPS is:

- 1) The maximum contaminant level (MCL) established under §§141.62 and 141.66 of this title (the “MCL”).
- 2) Where an MCL has not been established:
  - i) Cobalt 6 micrograms per liter (ug/l);
  - ii) Lead 15 ug/l;
  - iii) Lithium 40 ug/l; and
  - iv) Molybdenum 100 ug/l.
- 3) Background levels for constituents where the background level is higher than the MCL or rule-specified GWPS.

As specified in 40 CFR §257.95(h), the GWPS is the Maximum Contaminant Level (MCL) or the background concentration for constituents for which an MCL has not been established. Since an MCL has not been established for cobalt, the GWPS is the background concentration. The upper tolerance limits (UTLs) are used to calculate background limits from pooled upgradient well data to determine the background concentration/GWPS. Table 3.1.1, Site-Specific Groundwater Protection Standards, presents the data used for statistical comparison of Appendix IV data at AP-1.

**Table 3.1.1: Site-Specific Groundwater Protection Standards**

Analyte	Units	MCL	Site Specific Upper Tolerance Limit	Site-Specific Groundwater Protection Standard Used for Assessment Monitoring
Cobalt	mg/L	None	0.02	0.02

After the GWPS is established, confidence intervals are then constructed on downgradient wells for each of the Appendix IV parameters using the GWPS for comparison. Only when the entire confidence interval is above a GWPS is the constituent considered to exceed the GWPS.

#### 3.2 Assessment Monitoring

On January 15, 2018, Assessment Monitoring was initiated at Plant Scherer AP-1. Pursuant to 40 CFR §257.95(a) monitoring wells were sampled for all Appendix IV parameters in March as the initial assessment sampling event. In June the first semiannual assessment monitoring event was completed by sampling



monitoring wells for all Appendix III constituents and those Appendix IV constituents that were detected (had a reportable data value) in the initial March 2018 groundwater samples.

The June 2018 Appendix IV data were compared to the GWPS using confidence intervals. Statistical plots presenting the confidence intervals for AP-1 are presented in Appendix A, Statistical Analyses. Additionally, time series plots for Appendix IV groundwater quality data at AP-1 are provided in Appendix A.

### 3.3 Statistically Significant Levels

Review of confidence intervals in Appendix A indicates SSLs of cobalt are identified at monitoring wells SGWC-11, SGWC-15, SGWC-18 and SGWC-20. On October 15, 2018, Plant Scherer provided notification of SSL exceedances as required by 40 CFR §257.95. The next chapter provides documentation of an alternate source for cobalt in site groundwater.

## 4.0 ALTERNATE SOURCE DEMONSTRATION

There are multiple lines of evidence that support the conclusion that the SSLs of cobalt at AP-1 are not the result of impact by AP-1 but from an alternate source instead; specifically, that cobalt is naturally occurring in aquifer materials at the site. The following information supports the conclusion that cobalt SSLs are not the result of a release from AP-1:

- Cobalt has not been detected in porewater samples above the laboratory reporting limit. Cobalt concentrations in porewater samples from AP-1 are estimated and significantly below those detected at groundwater wells.
- Naturally-occurring cobalt is present in soils/sediment, saprolite, and bedrock at Plant Scherer and regionally.
- Naturally-occurring cobalt is present in regional groundwater.
- There are no statistical trends for cobalt in wells exhibiting SSLs.

### 4.1 Pore-water Chemistry

During January 2019, samples of pore-water from within AP-1 were collected and analyzed. Interstitial monitoring probes B-102A, B-102B, B-103A, B-103B, B-104A and B-104B were sampled for total cobalt. These piezometers are screened in the CCR material at AP-1. Results of these analyses are presented in Appendix B, Analytical Data. Review of analytical data reports indicates the absence of cobalt in pore-water samples above laboratory reporting limits. Total cobalt was not detected in pore-water samples above the reporting limit (RL; 0.0025 mg/L). Estimated concentrations, slightly above the MDL (0.000075 mg/L) were identified at interstitial probes B-102A, B-102B, B-103A, B-103B, and B-104A. The estimated concentrations of cobalt in porewater are below the risk-based screening level (0.006 mg/L) and are significantly below concentrations observed in site groundwater. At the measured pH range of AP-1 pore-water (8.7 to 11.9 standard units), cobalt mobility is limited, as described below and graphically presented in Figure 4.2.2. As such, the cobalt in site groundwater cannot reasonably be caused by a release from AP-1.

### 4.2 Naturally-Occurring Cobalt in Aquifer Materials

Naturally-occurring cobalt is present in soils/sediment, saprolite, and bedrock at and near AP-1 as well as at U.S. Geological Survey test holes in Monroe County, GA (Table 4.2.1). For reference, naturally-occurring cobalt in U.S. soils occurs at an average concentration of 29 mg/kg (Shacklette & Boerngen, 1984). Cobalt may be present in mineral form as arsenides, carbonates, sulfides and oxides (Hem, 1989; Smith and Carson, 1981). During weathering of these minerals (i.e., dissolution and/or oxidation), any cobalt is typically released and redistributed to iron or manganese (hydr)oxides (Butt et al., 2000) or other sorbent (e.g., clays, organic matter).

However, under low-pH conditions, the formation of such (hydr)oxides is inhibited, leading to increased dissolved cobalt levels and increased mobility in groundwater (Nordstrom and Alpers, 1999).

Mineralogical results obtained by X-ray diffraction (XRD) from on-site aquifer solids correlate with those reported regionally (included in Appendix B). The mineralogical composition of the saprolitic soils represents a typical weathering profile. The mineralogical compositions of deeper samples are more closely related to the original parent materials and show less indication of weathering. Trace levels of jarosite were identified in some samples corresponding to the intermediate aquifer (64.5ft bgs. and 67.3 ft bgs; PZ-9I and PZ-40I). Jarosite, an acid sulfate salt containing potassium and iron, typically forms during the oxidative weathering of iron-rich sulfide deposits under acidic conditions (Cook, 1978; Nordstrom and Alpers, 1999). Thus, the formation of jarosite during geological weathering at depth may infer historically low-pH conditions in some locations in the saprolite surrounding AP-1. During this weathering, cobalt may have been released as well and remained mobile in a dissolved state in groundwater.

**Table 4.2.1: USGS landscape site #5072 and NGDB rock sample W239273; Monroe County, GA**

Element	Units	Top 5cm	A Horizon	C Horizon <sup>[3]</sup>	Bedrock <sup>[4]</sup>
Cobalt <sup>[2]</sup>	mg/kg <sup>[1]</sup>	21.3	21.3	26.9	87 - 96
Site-specific element data (average of site samples)		Site-specific surface data	Shallow site data (30-40 ft. bgs.)	Intermediate site data (40-65 ft. bgs.)	Bedrock site data (90-106 ft. bgs.)
Cobalt	mg/kg	Not Available	33	22.3	2.9

Notes:

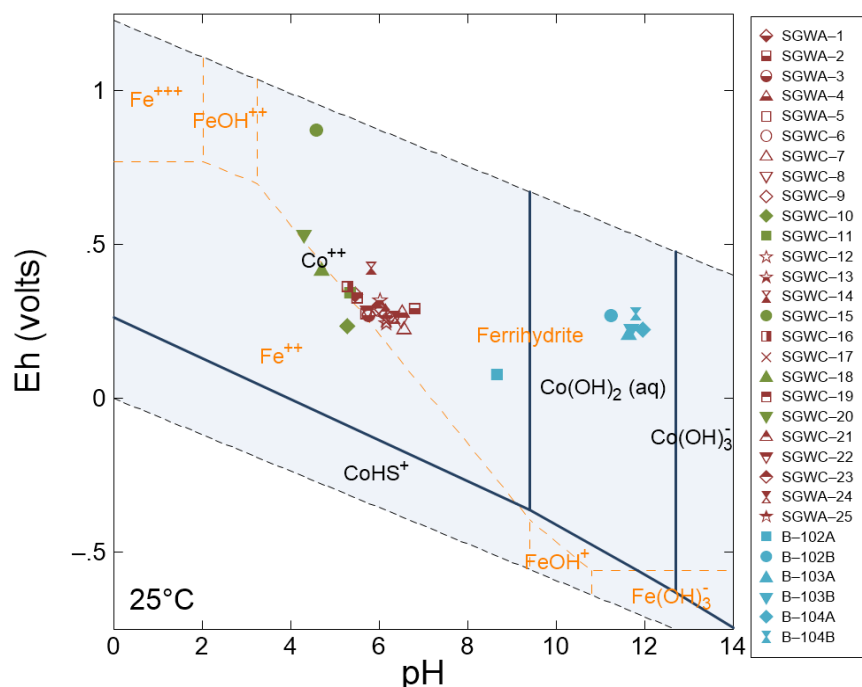
[1] mg/kg – milligrams per kilogram

[2] Data available from US Geological Survey, *Geochemical and Mineralogical Maps for Soils of the Conterminous United States*, Open-File Report 2014-1082 (Appendix C, USGS Open-File Report).

[3] USGS landscape site #5072 is located approximately 8 miles southwest of Plant Scherer.

[4] USGS landscape site #W239273 is located approximately 1,000 feet southeast of Plant Scherer.

Cobalt co-precipitation, adsorption, or inclusion within manganese and iron (hydr)oxides typically controls cobalt mobility in the environment (Hem, 1989). As determined from speciation modeling, at the pH and redox conditions measured in monitoring wells at Plant Scherer, cobalt will form the divalent cation  $\text{Co}^{+2}$  when dissolved, as shown in Figure 4.2.1, which is a Pourbaix diagram illustrating cobalt speciation for a range of pH/redox conditions. Superimposed on the cobalt predominance fields are those of iron, including the stability field for ferrihydrite  $[\text{Fe}(\text{OH})_3]$ , an iron hydroxide and common host mineral for cobalt. As shown in the figure, under more acidic and reducing conditions, this ferrihydrite dissolves, thereby releasing any sorbed/entrained cobalt (Figure 4.2.1). Monitoring wells SGWC-11, 15, 18, and 20 all have a measured pH and redox combination that locates them in the dissolved  $\text{Fe}^{+2}$  field, or on the boundary line where the transition from ferrihydrite to dissolved iron occurs, supporting the presence of ferrihydrite as a likely control on cobalt mobility.

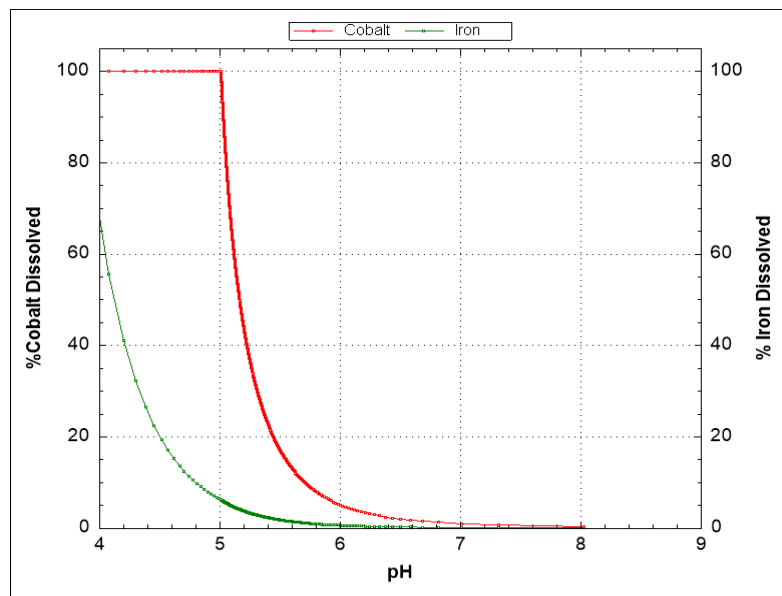


**Figure 4.2.1: Pourbaix diagram demonstrating the speciation and stability fields of cobalt and iron at monitoring wells and pore-water samples at Plant Scherer AP-1**

(Note: Cobalt /Iron adsorptive phase speciation figure created in Geochemist's Workbench "Act2" module using the following parameters:

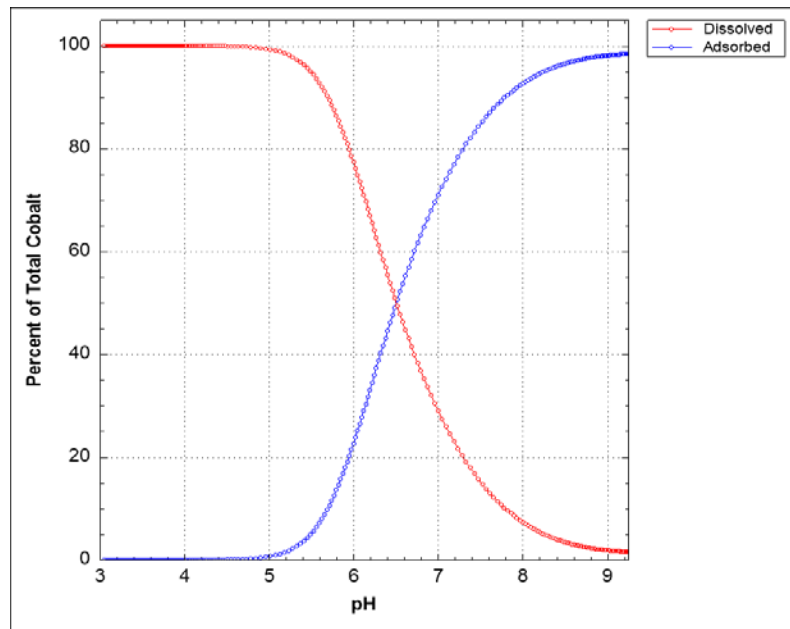
Activity=Molarity;  $a[\text{Co}] = 10^{-6}$ ;  $a[\text{Fe}] = 10^{-5.301}$ ; Generalized parameters: Temperature 25C,  $P = 1.013$  bars;  $a[\text{SO}_4] = 10^{-3}$ ;  $a[\text{Cl}] = 10^{-3}$ ;  $a[\text{Na}] = 10^{-3}$ ;  $a[\text{Mg}] = 10^{-3}$ ;  $a[\text{Ca}] = 10^{-3}$ ).

Geochemical modeling further corroborated the dissolution of solid phase cobalt and iron minerals at low pH (<5) (Figure 4.2.2). The geochemical computer code PHREEQC (Parkhurst and Appelo, 2013) was used to simulate the stability of iron (as ferrihydrite) and cobalt (as cobalt carbonate -  $\text{CoCO}_3$ ) in equilibrium with groundwater in response to changes in pH. Groundwater from monitoring well SGWC-18 was used as the starting solution. Under the conditions modeled, these two minerals are unstable at lower pH (<5), resulting in the presence of dissolved iron and cobalt. Additional geochemical modeling was used to simulate the response of adsorbed cobalt species on ferrihydrite to changes in pH using the same geochemical conditions and groundwater. As seen in Figure 4.2.3, full desorption of any cobalt adsorbed to ferrihydrite occurs at pH < 5. At higher pH, cobalt is more apt to be adsorbed on ferrihydrite and less mobile in groundwater, leading to lower dissolved levels of cobalt in the aquifer. Thus, whether cobalt occurs in the form of a carbonate mineral or is adsorbed to a metal (hydr)oxide, at low pH (<5), cobalt is released to groundwater.



**Figure 4.2.2: A geochemical simulation demonstrating the stability of iron (ferrihydrite) and cobalt (cobalt carbonate) minerals in equilibrium with SGWC-18 groundwater in response to changes in pH**

(Note 0.2 mg/L cobalt; 0.1 mg/L iron)



**Figure 4.2.3: The percent of cobalt dissolved or adsorbed to ferrihydrite in response to changes in pH in groundwater sample SGWC-18**

(Note: Ferrihydrite  $[10^{-5}]$  strong and  $-10^{-4}]$  weak sites; 0.2 mg/L cobalt)

Based on the cobalt Pourbaix diagram and the geochemical simulations illustrated in Figures 4.2.1 to 4.2.3, pH is the likely control on dissolved cobalt concentrations and the reason why cobalt is detected above background levels in some monitoring wells around AP-1. This is further demonstrated in Table 4.2.2, which indicates that cobalt is not observed at concentrations above analytical reporting limits where pH is greater than 8. Further, piezometers PZ-17I, PZ-39S, PZ-42I, and PZ-44I, each have pH levels that are circum-neutral and low cobalt levels, even though they are directly adjacent to monitoring wells in which conditions are more acidic and cobalt is observed above background levels. Therefore, it appears that small groundwater pockets exist where low pH (<5) results in elevated levels of naturally-occurring cobalt.

**Table 4.2.2: Cobalt Concentrations vs. pH at Plant Scherer AP-1**

Well ID	Location/Description	pH (S.U.)	Measured Cobalt (mg/L) <sup>[1]</sup>
B-102A	CCR Pore-water	8.7	0.0017J
B-102B	CCR Pore-water	11.2	0.00096 J
B-103A	CCR Pore-water	11.6	0.00078 J
B-103B	CCR Pore-water	11.7	0.00021 J
B-104A	CCR Pore-water	11.9	0.00019 J
B-104B	CCR Pore-water	11.8	< 0.000075
SGWC-10	Downgradient	5.3	0.03
SGWC-11	Downgradient	5.3	0.02
SGWC-15	Downgradient	4.6	0.27
SGWC-18	Downgradient	4.7	0.21
SGWC-20	Downgradient	4.3	0.16
PZ-17I	Adjacent to SGWC-15	7.0	<0.0004
PZ-39S	Adjacent to SGWC-18	7.3	0.0005
PZ-42I	Adjacent to SGWC-20	6.3	0.006
PZ-44I	Adjacent to SGWC-10 and SGWC-11	7.1	0.002

NOTE:

[1] "J" indicates the substance was detected at such low levels that the precision of the laboratory instruments could not produce a reliable value. Therefore, the value displayed (value J) is qualified by the laboratory as an estimated number.

### 4.3 Soil to Groundwater Partitioning

To evaluate reasonably expected concentrations of naturally occurring cobalt in groundwater produced as a result of leaching from the soil samples, soil-to-groundwater partitioning calculations were performed, and are presented in Table 4, Summary of Partitioning Calculations Using EPA Partitioning Coefficients. The K<sub>d</sub> is the ratio of a constituent concentration in the solid to the constituent concentration in surrounding solution, at equilibrium. A literature search of partitioning coefficients (K<sub>d</sub>) was performed, which resulted in wide range of K<sub>d</sub> values for cobalt. Partitioning calculations were performed using the range of published K<sub>d</sub> values. The maximum

concentrations of cobalt in historical groundwater samples for the facility are within or less than the simulated range utilizing the published Kd values (EPA, 1996).

Based on the partitioning calculations presented in Table 4, the concentrations of cobalt measured in soil samples collected within the facility boundary are simulated to produce groundwater concentrations similar to or greater than those observed in samples from downgradient monitoring wells. The table below presents the results of the partitioning calculations and compares them to maximum observed detections and the highest detections from the June 2018 water quality sampling event.

**Table 4.3.1: Summary of Partitioning Calculations Using EPA Partitioning Coefficients for Cobalt**

Well ID/Sample ID	Soil and Rock Cobalt Concentration (mg/kg)	Kd (L/kg)	Groundwater Cobalt Concentration (mg/L)			Maximum Observed Cobalt Concentration in Monitoring Well (mg/L)
		From EPA Regional Screening Level Table (November 2018)	Based on Literature Kd Value	Minimum Calculated Groundwater Concentration (mg/L)	Maximum Calculated Groundwater Concentration (mg/L)	
PZ-36S (31.5')	24	45	0.533	0.051	2.089	0.300 (SGWC-15) 0.210 (SGWC-18) 0.261 (SGWC-20)
PZ-9I (67.3')	9.8		0.218			
PZ-40I (43.4')	36		0.800			
PZ-42I (37.5')	42		0.933			
PZ-42I (92.0')	3.5		0.078			
PZ-44I (29.5')	94		2.089			
PZ-44I (51.5')	21		0.467			
PZ-44I (106')	2.3		0.051			

The partitioning calculations indicate that concentrations of cobalt in native soils in the area around AP-1 are within the range, and exceeding, the observed concentrations of cobalt in site groundwater. As a result, it is likely that the cobalt identified in the groundwater is leaching from the naturally-occurring soils and is not originating from AP-1.

## 4.4 Naturally-Occurring Cobalt in Regional Groundwater

USGS Publication, *Naturally Occurring Contaminants in the Piedmont and Blue Ridge Crystalline-Rock Aquifers and Piedmont Early Mesozoic Basin Siliciclastic-Rock Aquifers, Eastern United States, 1994-2008*, provides information on naturally-occurring cobalt in regional groundwater. Regional pH in the Piedmont and Blue Ridge Crystalline-Rock aquifers and Piedmont Early Mesozoic Basin Siliciclastic-Rock aquifers range on average between 4.7 to 5.5. Underlying geology strongly controls groundwater pH. Where quartz-rich metamorphic or felsic rocks dominate, up to 81% of groundwater locations have pH values less than 6.5. In these locations low pH also promoted the dissolution of metal (hydr) oxides, a primary component controlling trace metals groundwater.

Constituents of potential concern, including cobalt, were identified on the basis of drinking water exposure guidelines proposed by the USEPA for sources of public drinking water, including MCLs, and health-based

benchmarks (HHBs) (USGS, 2013). This report concludes that at a pH below 6.5, greater than 20 to 50 percent of samples exceed the highest common reporting level (HCRL) or HHB for cobalt in regional groundwater. The report further supports the interpretation that pH is a major factor controlling the chemical composition of groundwater from siliciclastic-rock and crystalline-rock aquifers of the Piedmont and Blue Ridge Physiographic Provinces. (USGS, 1994-2008). Consistent with the findings of the present study, the report finds that cobalt can be adsorbed by iron and manganese oxides while subsequent dissolution of these minerals under reducing or low-pH conditions will mobilize any sorbed constituents, including cobalt.

## 4.5 Alternate Source Demonstration Summary

The evaluation presented in this document demonstrates the statistically-significant levels of cobalt identified in groundwater are the result of naturally-occurring cobalt present in soils, saprolite and bedrock and not due to releases from the CCR unit.

Based on information provided regarding the regional and local geology as well as natural groundwater conditions, naturally-occurring cobalt is present in soils and saprolite surrounding AP-1. Pockets of low-pH groundwater have led to the release and mobilization of naturally-occurring cobalt into groundwater. The presence of jarosite in the intermediate aquifer indicates the low pH likely represents an historic artefact of sulfide weathering. As such, the low-pH conditions and associated cobalt are not caused by AP-1, as the pore-water in AP -1 is alkaline and contains no or very low detectable cobalt concentrations.

These lines of evidence, namely the lack of cobalt in CCR pore-water, the natural abundance of cobalt in aquifer solids, the natural occurrence of cobalt in upgradient groundwater (topographically higher in the landscape), and the lack of any statistical trends in the analytical data, strongly support a natural source of cobalt to groundwater at the site. Therefore, the CCR unit is not the source for the statistical exceedance of cobalt in the detection monitoring network. This summary serves as an “Alternate Source Demonstration” prepared for Plant Scherer in accordance with §257.95(g)(3)(ii).

## 5.0 CONCLUSIONS

This ASD has been prepared in response to SSLs identified for cobalt in groundwater monitoring wells established for AP-1 at Plant Scherer following the June 2018 sampling event. In accordance with §257.95(g)(3), this ASD addresses SSLs of cobalt at monitoring wells SGWC-10, SGWC-11, SGWC-15, SGWC-18, and SGWC-20.

Review of analytical results and statistical evaluations indicate that the cobalt exceedances identified are not the result of a release from AP-1 at Plant Scherer but can be attributed to naturally-occurring cobalt in subsurface aquifer materials. Therefore, no further action (i.e., Assessment of Corrective Measures) is warranted, and the Plant Scherer AP-1 will remain in Assessment Monitoring.

## 6.0 REFERENCES

- Butt, CRMI, M. J. Lintern, and RRI'L. Anand, *Evolution of regoliths and landscapes in deeply weathered terrain—implications for geochemical exploration*, Ore Geology Reviews 16, no. 3-4 (2000): 167-183.
- Cook, Robert B. *Minerals of Georgia: Their Properties and Occurrences*, State of Georgia, Department of Natural Resources, The Geologic and Water Resources Division, (1978).
- Golder Associates Inc., Statistical Analysis Plan (2018)
- Golder Associates Inc., *Geologic and Hydrogeologic Summary Report*, Plant Scherer Ash Pond 1 Monroe County, Georgia (2018).



- Hem, John David, and Geological Survey (US). *Study and interpretation of the chemical characteristics of natural water*. (1989): 263.
- Nordstrom, D. Kirk, and Alpers, Charlie. *Geochemistry of acid mine waters*, The environmental geochemistry of mineral deposits (1999).
- Parkhurst, David L., and C. A. J. Appelo, Description of input and examples for PHREEQC version 3: a computer program for speciation, batch-reaction, one-dimensional transport, and inverse geochemical calculations. No. 6-A43. US Geological Survey, (2013).
- Shacklette, Hansford T., and Josephine G. Boerngen, *Element concentrations in soils and other surficial materials of the conterminous United States*, (1984).
- Smith, H. I. C., and B. L. Carson, *Trace metals in the environment. Volume 6: cobalt. An appraisal of environmental exposure*, Ann Arbor, MI: Ann Arbor Science (1981).
- Smith, Kathleen S., *Metal sorption on mineral surfaces: an overview with examples relating to mineral deposits*, The Environmental Geochemistry of Mineral Deposits. Part B: Case Studies and Research Topics 6 (1999): 161-182.
- USEPA. Federal Register. Volume 80. No. 74. Friday April 17, Part II. Environmental Protection Agency. 40 CFR Parts 257 and 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] (2015).
- USGS *Geochemical and Mineralogical Maps for Soils of the Conterminous United States*, Open-File Report 2014-1082, Landscape site #5072; NGDB rock sample W239273; Monroe County, GA, Mineral Resources (<https://minerals.usgs.gov/>) / Online Spatial Data (/) / Geochemistry and mineralogy of US soils (/ds-801/) (2015).
- USGS *Natural Occurring Contaminants in the Piedmont and Blue Ridge Crystalline-Rock Aquifers and Piedmont Early Mesozoic Basin Siliciclastic-Rock Aquifers, Eastern United States, 1994-2008*, Scientific Investigations Report 2013-5072 (2013).



## APPENDIX A

# Statistical Analyses

# Tolerance Limit

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 10/15/2018, 9:30 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	n/a	0.0021	n/a	n/a	n/a	62	90.32	n/a	0.04158	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.0025	n/a	n/a	n/a	70	72.86	n/a	0.02758	NP Inter(normal...
Barium (mg/L)	n/a	0.06359	n/a	n/a	n/a	70	0	No	0.05	Inter
Beryllium (mg/L)	n/a	0.0015	n/a	n/a	n/a	70	98.57	n/a	0.02758	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.00125	n/a	n/a	n/a	63	96.83	n/a	0.0395	NP Inter(NDs)
Chromium (mg/L)	n/a	0.015	n/a	n/a	n/a	70	38.57	n/a	0.02758	NP Inter(normal...
Cobalt (mg/L)	n/a	0.02	n/a	n/a	n/a	69	63.77	n/a	0.02904	NP Inter(normal...
Combined Radium 226 + 228 (pCi/L)	n/a	1.2	n/a	n/a	n/a	69	0	n/a	0.02904	NP Inter(normal...
Fluoride (mg/L)	n/a	0.15	n/a	n/a	n/a	77	83.12	n/a	0.01926	NP Inter(NDs)
Lead (mg/L)	n/a	0.0025	n/a	n/a	n/a	70	98.57	n/a	0.02758	NP Inter(NDs)
Lithium (mg/L)	n/a	0.025	n/a	n/a	n/a	70	90	n/a	0.02758	NP Inter(NDs)
Mercury (mg/L)	n/a	0.00025	n/a	n/a	n/a	70	87.14	n/a	0.02758	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.0075	n/a	n/a	n/a	63	87.3	n/a	0.0395	NP Inter(NDs)
Selenium (mg/L)	n/a	0.005	n/a	n/a	n/a	70	97.14	n/a	0.02758	NP Inter(NDs)
Thallium (mg/L)	n/a	0.0005	n/a	n/a	n/a	70	95.71	n/a	0.02758	NP Inter(NDs)

# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 10/15/2018, 9:38 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt (mg/L)	SGWC-11	0.03203	0.02757	0.02	Yes	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-15	0.2805	0.2599	0.02	Yes	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-18	0.143	0.1064	0.02	Yes	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-20	0.2445	0.2077	0.02	Yes	10	0	No	0.05	Param.

# Confidence Interval

Scherer

Client: Golder Associates

Data: Scherer Ash Pond\_CCR

Printed 10/15/2018, 9:38 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Antimony (mg/L)	SGWA-1 (bg)	0.0015	0.0004	0.006	No	9	77.78	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-2 (bg)	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-24 (bg)	0.0015	0.0003	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-25 (bg)	0.0015	0.0003	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-3 (bg)	0.0021	0.0005	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-4 (bg)	0.0015	0.0005	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWA-5 (bg)	0.0015	0.0005	0.006	No	8	100	No	0.004	NP (NDs)
Antimony (mg/L)	SGWC-10	0.0015	0.0005	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-11	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-12	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-13	0.0015	0.0004	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-14	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-15	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-16	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-17	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-18	0.0015	0.0005	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-19	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-20	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-21	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-22	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-23	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-6	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-7	0.0015	0.0004	0.006	No	9	88.89	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-8	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Antimony (mg/L)	SGWC-9	0.0015	0.0005	0.006	No	9	100	No	0.002	NP (NDs)
Arsenic (mg/L)	SGWA-1 (bg)	0.0025	0.00023	0.01	No	10	70	No	0.011	NP (normality)
Arsenic (mg/L)	SGWA-2 (bg)	0.0025	0.00023	0.01	No	10	70	No	0.011	NP (normality)
Arsenic (mg/L)	SGWA-24 (bg)	0.0025	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWA-25 (bg)	0.004091	0.001046	0.01	No	10	30	No	0.05	Param.
Arsenic (mg/L)	SGWA-3 (bg)	0.0025	0.00023	0.01	No	10	90	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWA-4 (bg)	0.0025	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWA-5 (bg)	0.0025	0.00023	0.01	No	10	90	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-10	0.0025	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-11	0.0011	0.00023	0.01	No	10	20	No	0.011	NP (normality)
Arsenic (mg/L)	SGWC-12	0.0011	0.00023	0.01	No	10	50	No	0.011	NP (Cohens/xfrm)
Arsenic (mg/L)	SGWC-13	0.0025	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-14	0.0025	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-15	0.004264	0.001445	0.01	No	10	30	No	0.05	Param.
Arsenic (mg/L)	SGWC-16	0.0025	0.00023	0.01	No	10	90	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-17	0.0025	0.00023	0.01	No	10	60	No	0.011	NP (Cohens/xfrm)
Arsenic (mg/L)	SGWC-18	0.002009	0.001051	0.01	No	10	0	sqrt(x)	0.05	Param.
Arsenic (mg/L)	SGWC-19	0.0025	0.00023	0.01	No	10	90	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-20	0.001334	0.0004822	0.01	No	10	60	No	0.05	Param.
Arsenic (mg/L)	SGWC-21	0.0025	0.00023	0.01	No	10	90	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-22	0.0025	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-23	0.0025	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-6	0.0025	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-7	0.0009	0.00023	0.01	No	10	60	No	0.011	NP (Cohens/xfrm)
Arsenic (mg/L)	SGWC-8	0.0025	0.00023	0.01	No	10	80	No	0.011	NP (NDs)
Arsenic (mg/L)	SGWC-9	0.0011	0.00023	0.01	No	10	40	No	0.011	NP (Cohens/xfrm)

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 10/15/2018, 9:38 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Barium (mg/L)	SGWA-1 (bg)	0.05742	0.04954	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-2 (bg)	0.0392	0.03582	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-24 (bg)	0.02207	0.02049	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-25 (bg)	0.02398	0.02114	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-3 (bg)	0.03511	0.03255	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-4 (bg)	0.05489	0.04861	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWA-5 (bg)	0.01074	0.009881	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-10	0.03041	0.02753	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-11	0.03896	0.0357	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-12	0.03993	0.03297	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-13	0.02834	0.02338	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-14	0.06338	0.05908	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-15	0.04154	0.03796	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-16	0.022	0.0163	2	No	9	0	No	0.002	NP (normality)
Barium (mg/L)	SGWC-17	0.0196	0.01736	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-18	0.029	0.012	2	No	10	0	No	0.011	NP (normality)
Barium (mg/L)	SGWC-19	0.04483	0.03841	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-20	0.03926	0.03138	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-21	0.09317	0.08977	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-22	0.09663	0.08969	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-23	0.09211	0.08421	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-6	0.09138	0.04968	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-7	0.3213	0.2803	2	No	10	0	No	0.05	Param.
Barium (mg/L)	SGWC-8	0.205	0.16	2	No	10	0	No	0.011	NP (normality)
Barium (mg/L)	SGWC-9	0.06192	0.0519	2	No	10	0	ln(x)	0.05	Param.
Beryllium (mg/L)	SGWA-1 (bg)	0.00125	0.00017	0.004	No	10	90	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-2 (bg)	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-24 (bg)	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-25 (bg)	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-3 (bg)	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-4 (bg)	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWA-5 (bg)	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-10	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-11	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-12	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-13	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-14	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-15	0.00041	0.00017	0.004	No	10	30	No	0.011	NP (normality)
Beryllium (mg/L)	SGWC-16	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-17	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-18	0.00125	0.00017	0.004	No	10	70	No	0.011	NP (normality)
Beryllium (mg/L)	SGWC-19	0.00125	0.00017	0.004	No	10	90	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-20	0.0008333	0.0007271	0.004	No	10	0	No	0.05	Param.
Beryllium (mg/L)	SGWC-21	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-22	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-23	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-6	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-7	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-8	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)
Beryllium (mg/L)	SGWC-9	0.0015	0.00017	0.004	No	10	100	No	0.011	NP (NDs)

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 10/15/2018, 9:38 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Cadmium (mg/L)	SGWA-1 (bg)	0.00125	0.000156	0.005	No	9	88.89	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-2 (bg)	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-24 (bg)	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-25 (bg)	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-3 (bg)	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-4 (bg)	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWA-5 (bg)	0.00125	0.00017	0.005	No	9	88.89	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-10	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-11	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-12	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-13	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-14	0.00125	0.000136	0.005	No	9	88.89	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-15	0.00125	0.00017	0.005	No	9	66.67	No	0.002	NP (normality)
Cadmium (mg/L)	SGWC-16	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-17	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-18	0.00125	0.00016	0.005	No	9	77.78	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-19	0.00125	0.00017	0.005	No	9	88.89	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-20	0.00125	0.0001	0.005	No	9	77.78	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-21	0.00125	0.00017	0.005	No	9	88.89	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-22	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-23	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-6	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-7	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-8	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Cadmium (mg/L)	SGWC-9	0.00125	0.00017	0.005	No	9	100	No	0.002	NP (NDs)
Chromium (mg/L)	SGWA-1 (bg)	0.005	0.00055	0.1	No	10	90	No	0.011	NP (NDs)
Chromium (mg/L)	SGWA-2 (bg)	0.014	0.0043	0.1	No	10	0	No	0.011	NP (normality)
Chromium (mg/L)	SGWA-24 (bg)	0.004122	0.003304	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWA-25 (bg)	0.005	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWA-3 (bg)	0.01068	0.006948	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWA-4 (bg)	0.004745	0.002669	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWA-5 (bg)	0.005	0.00055	0.1	No	10	80	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-10	0.005	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-11	0.005	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-12	0.005	0.00055	0.1	No	10	90	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-13	0.005	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-14	0.00125	0.00055	0.1	No	10	70	No	0.011	NP (normality)
Chromium (mg/L)	SGWC-15	0.03391	0.03197	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWC-16	0.009674	0.008892	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWC-17	0.005437	0.003313	0.1	No	10	0	sqrt(x)	0.05	Param.
Chromium (mg/L)	SGWC-18	0.007546	0.006496	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWC-19	0.01524	0.014	0.1	No	10	0	No	0.05	Param.
Chromium (mg/L)	SGWC-20	0.00125	0.00055	0.1	No	10	90	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-21	0.00125	0.00055	0.1	No	10	90	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-22	0.00125	0.00055	0.1	No	10	90	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-23	0.0025	0.00055	0.1	No	9	55.56	No	0.002	NP (normality)
Chromium (mg/L)	SGWC-6	0.005	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-7	0.005	0.00055	0.1	No	10	100	No	0.011	NP (NDs)
Chromium (mg/L)	SGWC-8	0.005	0.00055	0.1	No	10	70	No	0.011	NP (normality)
Chromium (mg/L)	SGWC-9	0.005	0.00055	0.1	No	10	100	No	0.011	NP (NDs)

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 10/15/2018, 9:38 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Cobalt (mg/L)	SGWA-1 (bg)	0.01595	0.009457	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWA-2 (bg)	0.00125	0.0002	0.02	No	10	90	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWA-24 (bg)	0.00125	0.0002	0.02	No	10	80	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWA-25 (bg)	0.01454	0.01094	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWA-3 (bg)	0.005	0.0002	0.02	No	9	88.89	No	0.002	NP (NDs)
Cobalt (mg/L)	SGWA-4 (bg)	0.005	0.0002	0.02	No	10	90	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWA-5 (bg)	0.005	0.0002	0.02	No	10	100	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWC-10	0.03339	0.01947	0.02	No	10	0	No	0.05	Param.
<b>Cobalt (mg/L)</b>	<b>SGWC-11</b>	<b>0.03203</b>	<b>0.02757</b>	<b>0.02</b>	<b>Yes</b>	<b>10</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-12	0.004619	0.003536	0.02	No	10	0	sqrt(x)	0.05	Param.
Cobalt (mg/L)	SGWC-13	0.01017	0.006355	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-14	0.01261	0.006705	0.02	No	10	0	No	0.05	Param.
<b>Cobalt (mg/L)</b>	<b>SGWC-15</b>	<b>0.2805</b>	<b>0.2599</b>	<b>0.02</b>	<b>Yes</b>	<b>10</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-16	0.003495	0.003111	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-17	0.0006892	0.0004288	0.02	No	9	22.22	No	0.05	Param.
<b>Cobalt (mg/L)</b>	<b>SGWC-18</b>	<b>0.143</b>	<b>0.1064</b>	<b>0.02</b>	<b>Yes</b>	<b>10</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-19	0.00125	0.0002	0.02	No	10	50	No	0.011	NP (Cohens/xfrm)
<b>Cobalt (mg/L)</b>	<b>SGWC-20</b>	<b>0.2445</b>	<b>0.2077</b>	<b>0.02</b>	<b>Yes</b>	<b>10</b>	<b>0</b>	<b>No</b>	<b>0.05</b>	<b>Param.</b>
Cobalt (mg/L)	SGWC-21	0.005	0.0002	0.02	No	10	100	No	0.011	NP (NDs)
Cobalt (mg/L)	SGWC-22	0.004449	0.002939	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-23	0.005	0.0002	0.02	No	9	100	No	0.002	NP (NDs)
Cobalt (mg/L)	SGWC-6	0.003437	0.001903	0.02	No	10	10	No	0.05	Param.
Cobalt (mg/L)	SGWC-7	0.01331	0.007511	0.02	No	10	0	No	0.05	Param.
Cobalt (mg/L)	SGWC-8	0.00125	0.0002	0.02	No	10	70	No	0.011	NP (normality)
Cobalt (mg/L)	SGWC-9	0.01542	0.01146	0.02	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-1 (bg)	0.3546	0.1956	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-2 (bg)	0.4268	0.143	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-24 (bg)	0.2907	0.06359	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-25 (bg)	0.3657	0.06644	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-3 (bg)	0.345	-0.026	5	No	10	0	No	0.011	NP (normality)
Combined Radium 226 + 228 (pCi/L)	SGWA-4 (bg)	0.2418	0.0521	5	No	9	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWA-5 (bg)	0.3948	0.2169	5	No	10	0	ln(x)	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-10	0.548	-0.0725	5	No	10	0	No	0.011	NP (normality)
Combined Radium 226 + 228 (pCi/L)	SGWC-11	0.4835	0.1865	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-12	0.3209	0.1068	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-13	0.4395	0.08482	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-14	0.4345	0.1203	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-15	0.3963	0.1794	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-16	0.3112	0.1309	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-17	0.3778	0.1572	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-18	0.4267	0.192	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-19	0.2756	0.05208	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-20	0.6679	0.3185	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-21	0.498	0.208	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-22	0.297	0.1666	5	No	9	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-23	0.7208	0.4908	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-6	0.3675	0.1195	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-7	0.518	0.3068	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-8	2.468	1.992	5	No	10	0	No	0.05	Param.
Combined Radium 226 + 228 (pCi/L)	SGWC-9	0.4219	0.1804	5	No	10	0	No	0.05	Param.

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 10/15/2018, 9:38 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Fluoride (mg/L)	SGWA-1 (bg)	0.15	0.041	4	No	11	100	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWA-2 (bg)	0.1	0.03	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWA-24 (bg)	0.1	0.041	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWA-25 (bg)	0.1	0.03	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWA-3 (bg)	0.1	0.0192	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWA-4 (bg)	0.1	0.041	4	No	11	63.64	No	0.006	NP (Cohens/xfrm)
Fluoride (mg/L)	SGWA-5 (bg)	0.1	0.0188	4	No	11	90.91	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-10	0.1	0.019	4	No	11	90.91	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-11	0.1	0.033	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-12	0.1806	0.1142	4	No	11	27.27	No	0.05	Param.
Fluoride (mg/L)	SGWC-13	0.1	0.041	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-14	0.1	0.03	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-15	0.1312	0.1182	4	No	10	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-16	0.1	0.011	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-17	0.1	0.041	4	No	11	72.73	No	0.006	NP (Cohens/xfrm)
Fluoride (mg/L)	SGWC-18	0.18	0.0343	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-19	0.1	0.0126	4	No	11	81.82	No	0.006	NP (NDs)
Fluoride (mg/L)	SGWC-20	0.3025	0.2173	4	No	11	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-21	0.1017	0.06118	4	No	11	54.55	No	0.05	Param.
Fluoride (mg/L)	SGWC-22	0.1	0.029	4	No	11	72.73	No	0.006	NP (normality)
Fluoride (mg/L)	SGWC-23	0.1	0.0341	4	No	11	72.73	No	0.006	NP (normality)
Fluoride (mg/L)	SGWC-6	0.1473	0.08814	4	No	11	18.18	No	0.05	Param.
Fluoride (mg/L)	SGWC-7	0.2323	0.2032	4	No	11	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-8	0.4905	0.4153	4	No	11	0	No	0.05	Param.
Fluoride (mg/L)	SGWC-9	0.1	0.041	4	No	11	72.73	No	0.006	NP (normality)
Lead (mg/L)	SGWA-1 (bg)	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-2 (bg)	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-24 (bg)	0.00065	0.0001	0.015	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-25 (bg)	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-3 (bg)	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-4 (bg)	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWA-5 (bg)	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-10	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-11	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-12	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-13	0.0025	0.000175	0.015	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-14	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-15	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-16	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-17	0.0025	0.000175	0.015	No	9	100	No	0.002	NP (NDs)
Lead (mg/L)	SGWC-18	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-19	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-20	0.00065	0.000175	0.015	No	10	70	No	0.011	NP (Cohens/xfrm)
Lead (mg/L)	SGWC-21	0.00065	0.00009	0.015	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-22	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-23	0.00065	0.00009	0.015	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-6	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-7	0.0025	0.000175	0.015	No	10	90	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-8	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)
Lead (mg/L)	SGWC-9	0.0025	0.000175	0.015	No	10	100	No	0.011	NP (NDs)



# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 10/15/2018, 9:38 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Lithium (mg/L)	SGWA-1 (bg)	0.0025	0.0013	0.04	No	10	70	No	0.011	NP (normality)
Lithium (mg/L)	SGWA-2 (bg)	0.025	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWA-24 (bg)	0.025	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWA-25 (bg)	0.025	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWA-3 (bg)	0.025	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWA-4 (bg)	0.025	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWA-5 (bg)	0.025	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-10	0.025	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-11	0.0029	0.0013	0.04	No	10	70	No	0.011	NP (normality)
Lithium (mg/L)	SGWC-12	0.025	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-13	0.025	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-14	0.025	0.00055	0.04	No	9	88.89	No	0.002	NP (NDs)
Lithium (mg/L)	SGWC-15	0.0034	0.0016	0.04	No	10	70	No	0.011	NP (normality)
Lithium (mg/L)	SGWC-16	0.025	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-17	0.025	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-18	0.0042	0.0016	0.04	No	10	60	No	0.011	NP (normality)
Lithium (mg/L)	SGWC-19	0.025	0.00055	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-20	0.004444	0.003523	0.04	No	9	11.11	No	0.05	Param.
Lithium (mg/L)	SGWC-21	0.025	0.0013	0.04	No	10	90	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-22	0.025	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-23	0.004746	0.003265	0.04	No	9	22.22	No	0.05	Param.
Lithium (mg/L)	SGWC-6	0.025	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Lithium (mg/L)	SGWC-7	0.004846	0.003688	0.04	No	9	0	No	0.05	Param.
Lithium (mg/L)	SGWC-8	0.0025	0.0013	0.04	No	10	70	No	0.011	NP (normality)
Lithium (mg/L)	SGWC-9	0.025	0.00055	0.04	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-1 (bg)	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-2 (bg)	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-24 (bg)	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-25 (bg)	0.00025	0.000035	0.002	No	10	80	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-3 (bg)	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-4 (bg)	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWA-5 (bg)	0.00025	0.000035	0.002	No	10	80	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-10	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-11	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-12	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-13	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-14	0.00025	0.000035	0.002	No	10	80	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-15	0.00025	0.000072	0.002	No	10	30	No	0.011	NP (Cohens/xfrm)
Mercury (mg/L)	SGWC-16	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-17	0.00025	0.000035	0.002	No	10	80	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-18	0.0006439	0.0002353	0.002	No	10	50	No	0.05	Param.
Mercury (mg/L)	SGWC-19	0.00025	0.000035	0.002	No	10	100	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-20	0.00025	0.000035	0.002	No	10	80	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-21	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-22	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-23	0.00025	0.000035	0.002	No	10	70	No	0.011	NP (Cohens/xfrm)
Mercury (mg/L)	SGWC-6	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-7	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-8	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)
Mercury (mg/L)	SGWC-9	0.00025	0.000035	0.002	No	10	90	No	0.011	NP (NDs)

## Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 10/15/2018, 9:38 AM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Molybdenum (mg/L)	SGWA-1 (bg)	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWA-2 (bg)	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWA-24 (bg)	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWA-25 (bg)	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWA-3 (bg)	0.0075	0.000425	0.1	No	9	88.89	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWA-4 (bg)	0.0075	0.000425	0.1	No	9	22.22	No	0.002	NP (Cohens/xfrm)
Molybdenum (mg/L)	SGWA-5 (bg)	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-10	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-11	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-12	0.0075	0.000425	0.1	No	9	77.78	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-13	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-14	0.0075	0.000425	0.1	No	9	88.89	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-15	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-16	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-17	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-18	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-19	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-20	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-21	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-22	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-23	0.0075	0.000425	0.1	No	9	100	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-6	0.0075	0.000425	0.1	No	9	77.78	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-7	0.0075	0.000425	0.1	No	9	22.22	No	0.002	NP (Cohens/xfrm)
Molybdenum (mg/L)	SGWC-8	0.0075	0.000425	0.1	No	9	88.89	No	0.002	NP (NDs)
Molybdenum (mg/L)	SGWC-9	0.0075	0.000425	0.1	No	9	44.44	No	0.002	NP (Cohens/xfrm)
Selenium (mg/L)	SGWA-1 (bg)	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-2 (bg)	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-24 (bg)	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-25 (bg)	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-3 (bg)	0.005	0.00012	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-4 (bg)	0.005	0.00012	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWA-5 (bg)	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-10	0.005	0.00012	0.05	No	9	100	No	0.002	NP (NDs)
Selenium (mg/L)	SGWC-11	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-12	0.005	0.00012	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-13	0.005	0.00012	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-14	0.005	0.00012	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-15	0.00965	0.00012	0.05	No	10	20	No	0.011	NP (Cohens/xfrm)
Selenium (mg/L)	SGWC-16	0.005	0.00012	0.05	No	10	70	No	0.011	NP (Cohens/xfrm)
Selenium (mg/L)	SGWC-17	0.005	0.00012	0.05	No	9	88.89	No	0.002	NP (NDs)
Selenium (mg/L)	SGWC-18	0.023	0.0047	0.05	No	10	0	No	0.011	NP (normality)
Selenium (mg/L)	SGWC-19	0.005	0.00012	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-20	0.00396	0.00012	0.05	No	10	60	No	0.011	NP (Cohens/xfrm)
Selenium (mg/L)	SGWC-21	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-22	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-23	0.005	0.00012	0.05	No	10	90	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-6	0.005	0.00012	0.05	No	10	80	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-7	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-8	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)
Selenium (mg/L)	SGWC-9	0.005	0.00012	0.05	No	10	100	No	0.011	NP (NDs)

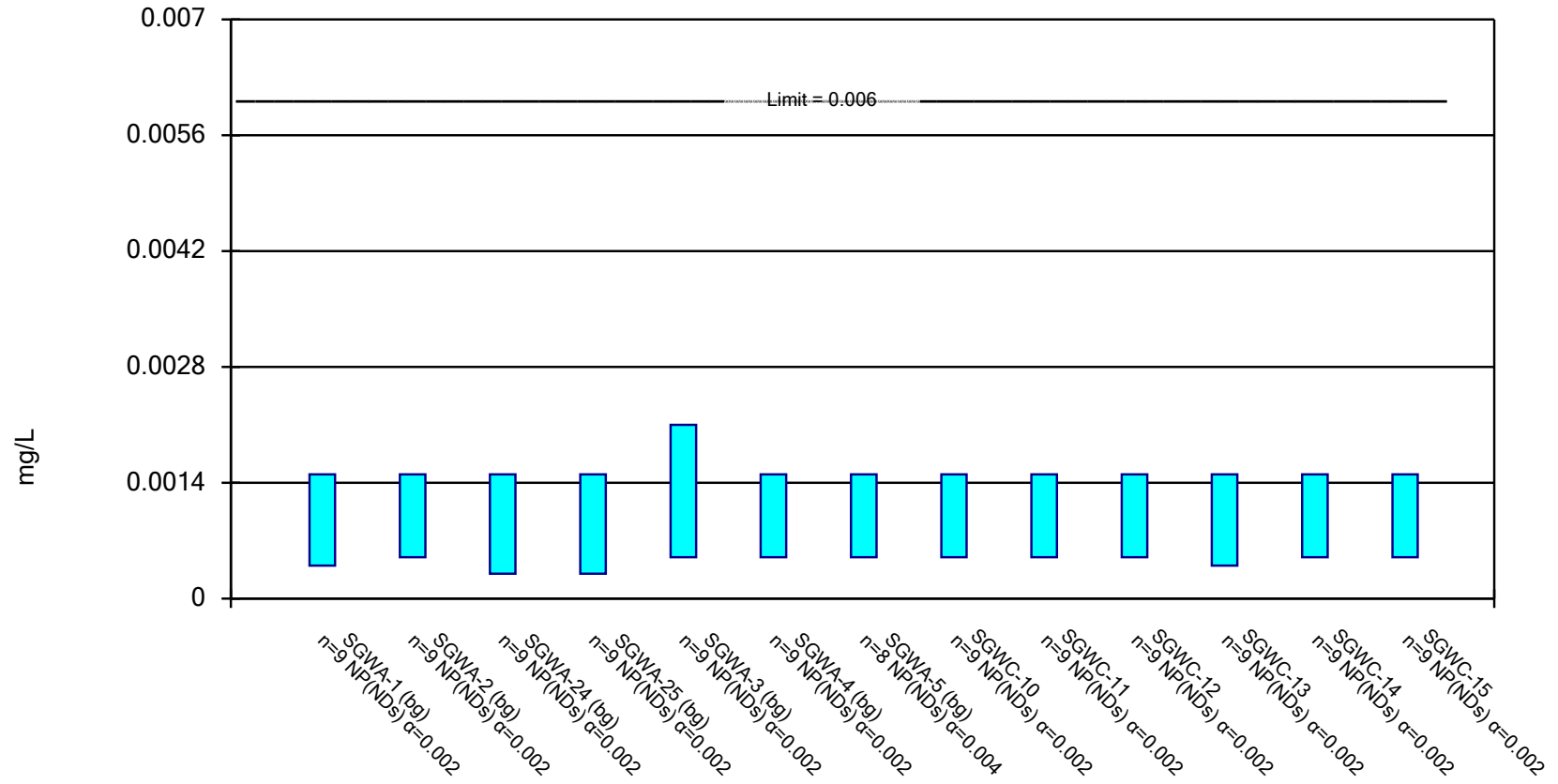
# Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR Printed 10/15/2018, 9:38 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Thallium (mg/L)	SGWA-1 (bg)	0.00025	0.0000425	0.002	No	10	80	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-2 (bg)	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-24 (bg)	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-25 (bg)	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-3 (bg)	0.00025	0.0000425	0.002	No	10	90	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-4 (bg)	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWA-5 (bg)	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-10	0.00025	0.0000425	0.002	No	10	90	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-11	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-12	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-13	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-14	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-15	0.00025	0.0000425	0.002	No	10	60	No	0.011	NP (normality)
Thallium (mg/L)	SGWC-16	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-17	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-18	0.0001604	0.0001163	0.002	No	9	0	No	0.05	Param.
Thallium (mg/L)	SGWC-19	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-20	0.0001815	0.0001296	0.002	No	9	0	No	0.05	Param.
Thallium (mg/L)	SGWC-21	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-22	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-23	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-6	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-7	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-8	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)
Thallium (mg/L)	SGWC-9	0.0005	0.0000425	0.002	No	10	100	No	0.011	NP (NDs)

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

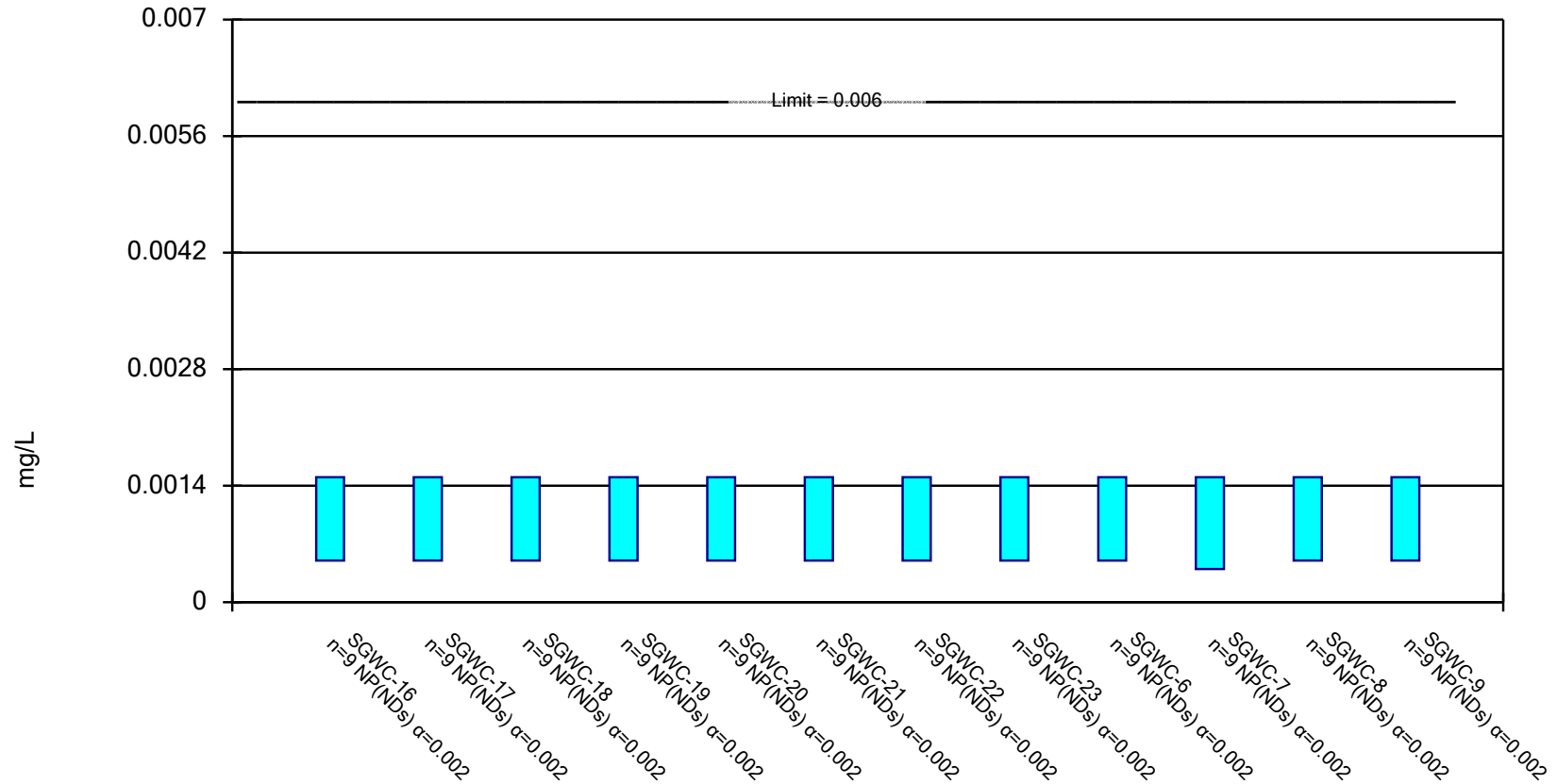


Constituent: Antimony Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

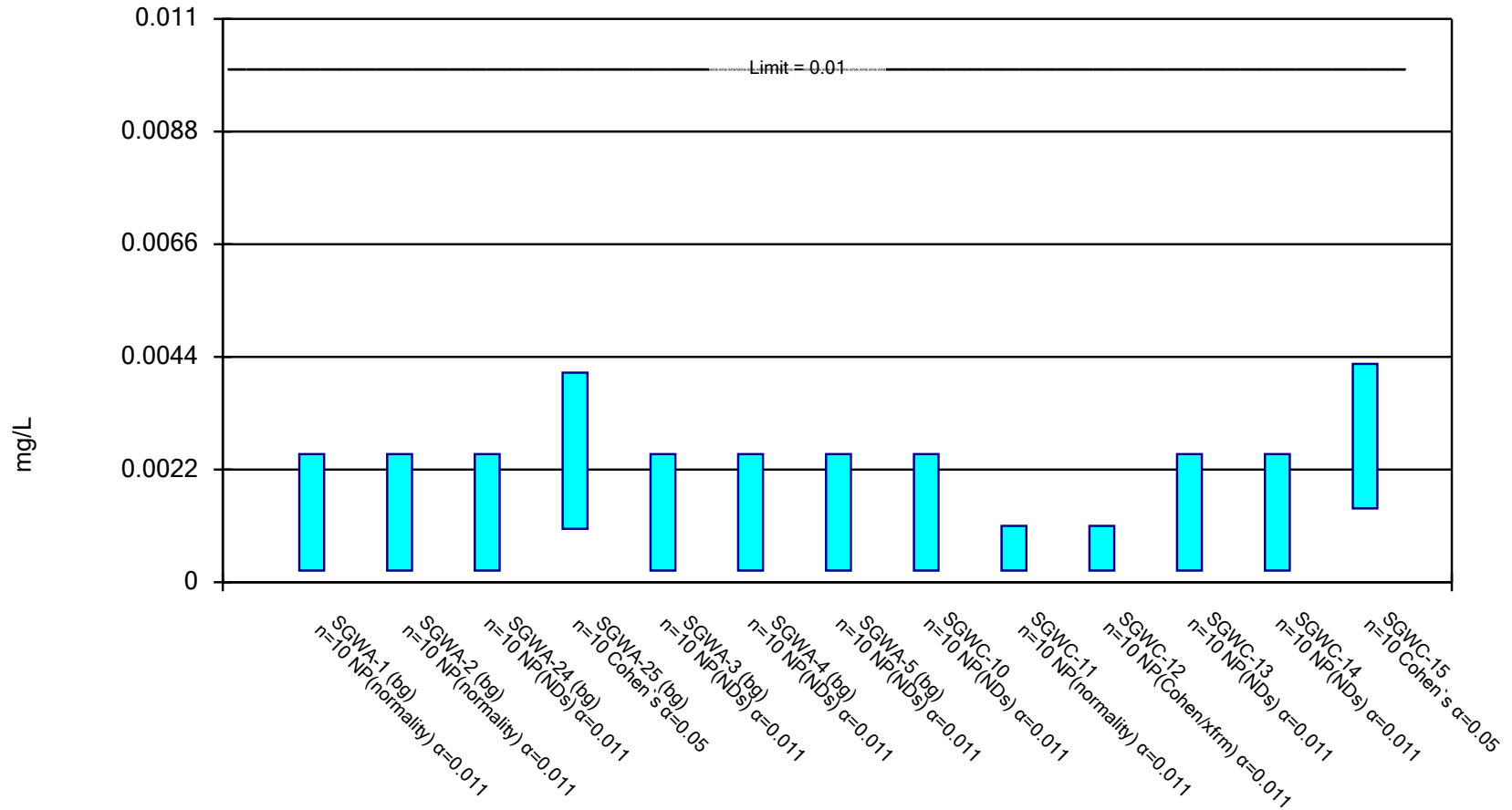


Constituent: Antimony Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

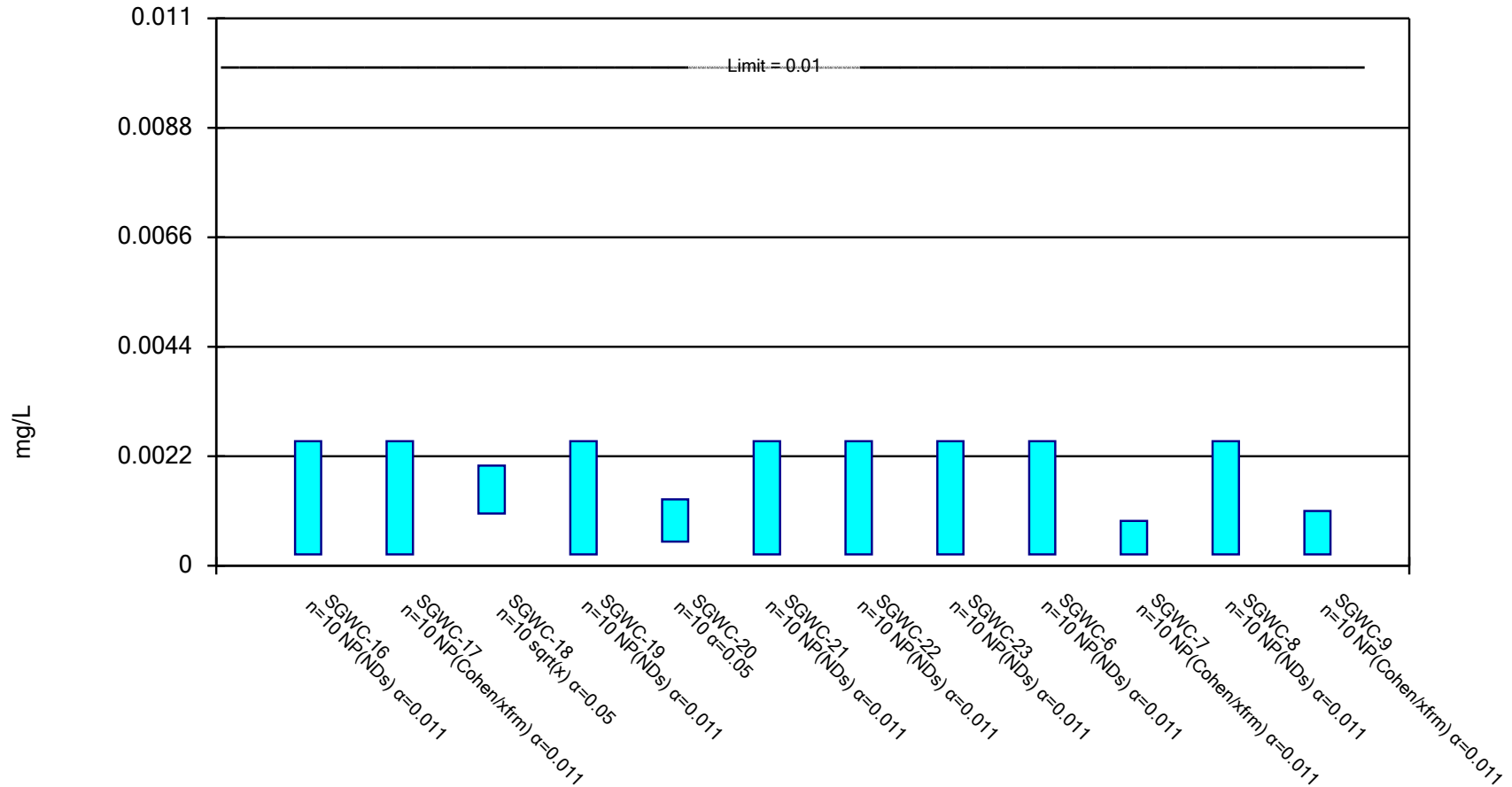


Constituent: Arsenic Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

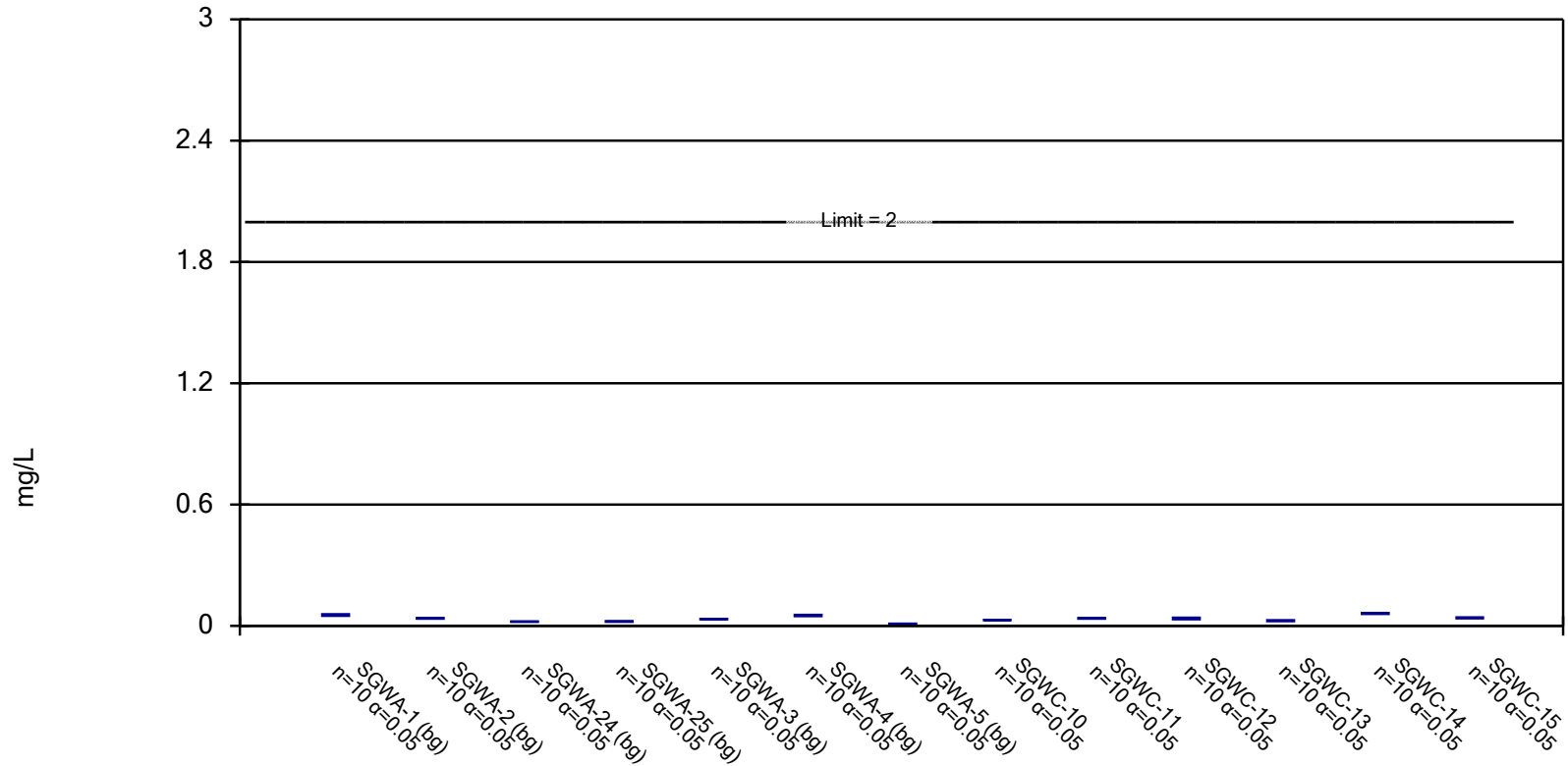


Constituent: Arsenic Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

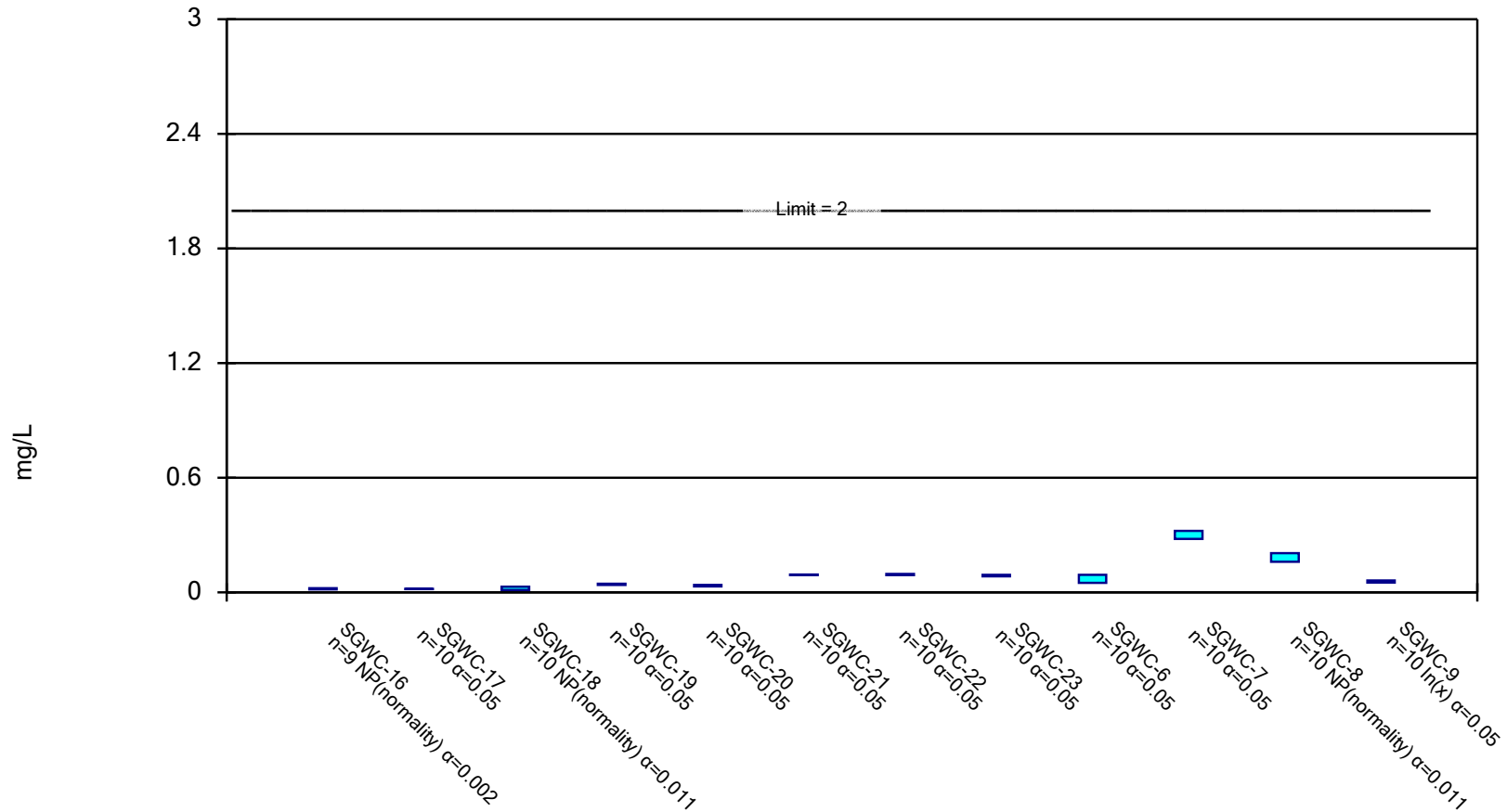


Constituent: Barium    Analysis Run 10/15/2018 9:31 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR



## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

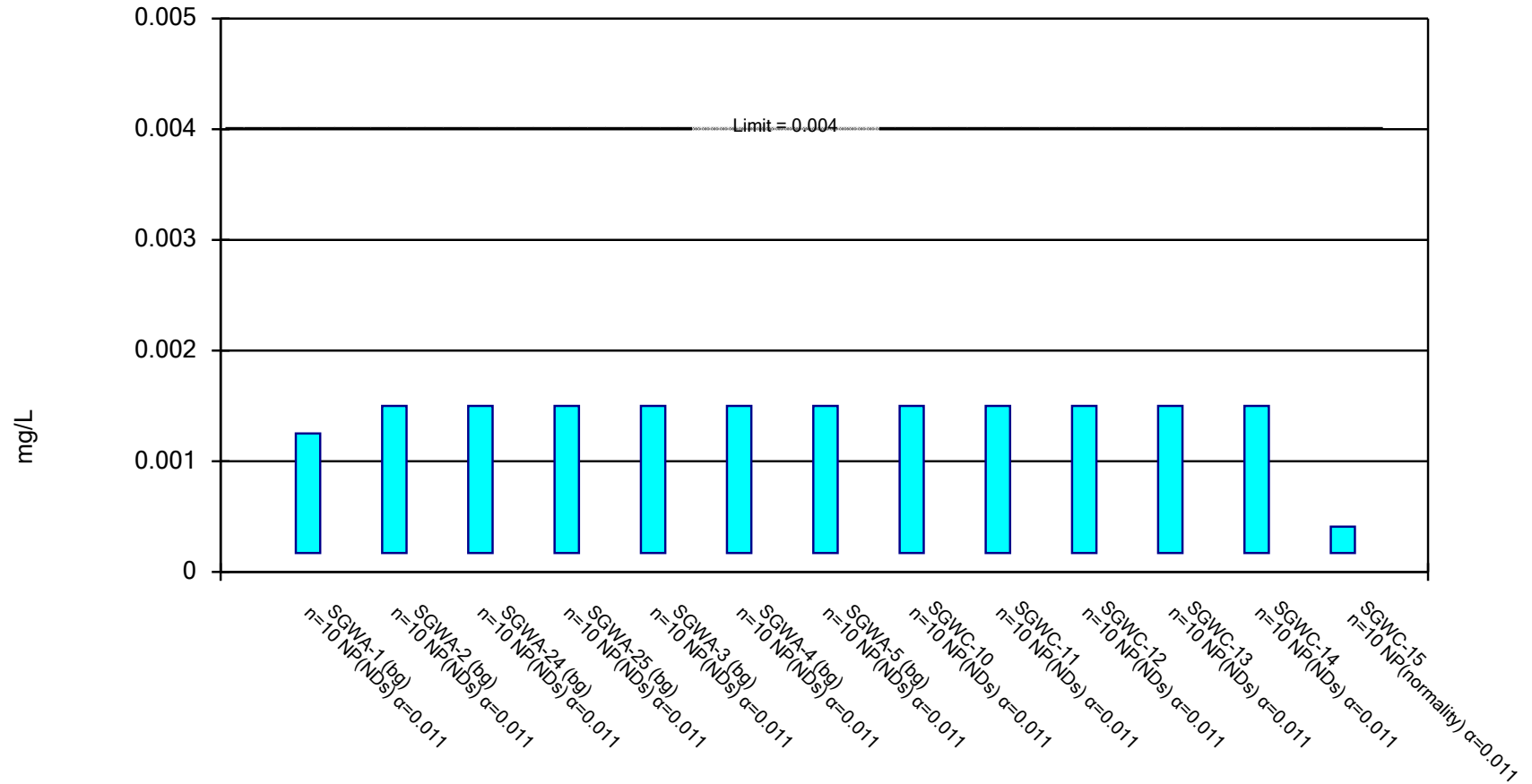


Constituent: Barium Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

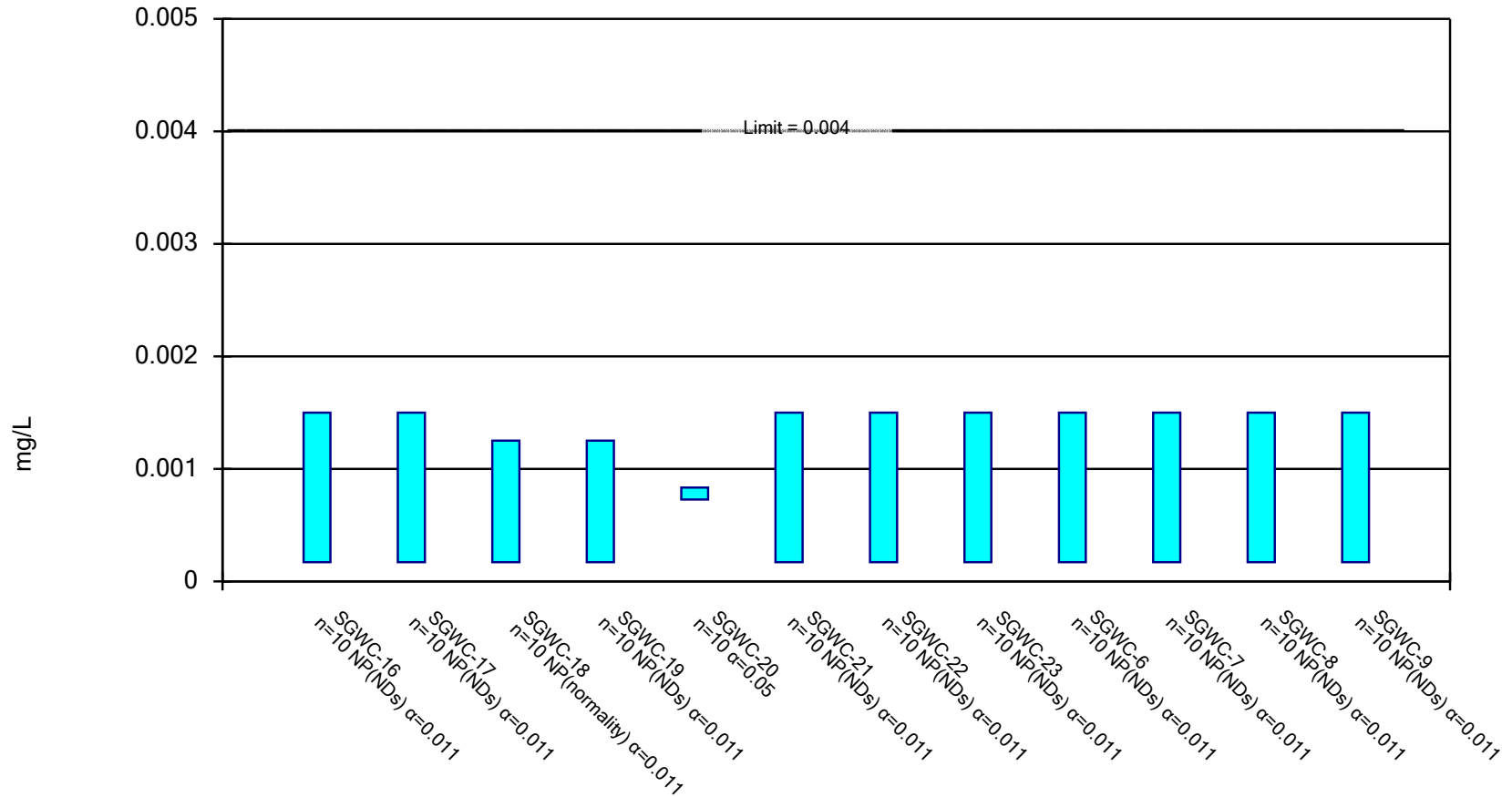


Constituent: Beryllium Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

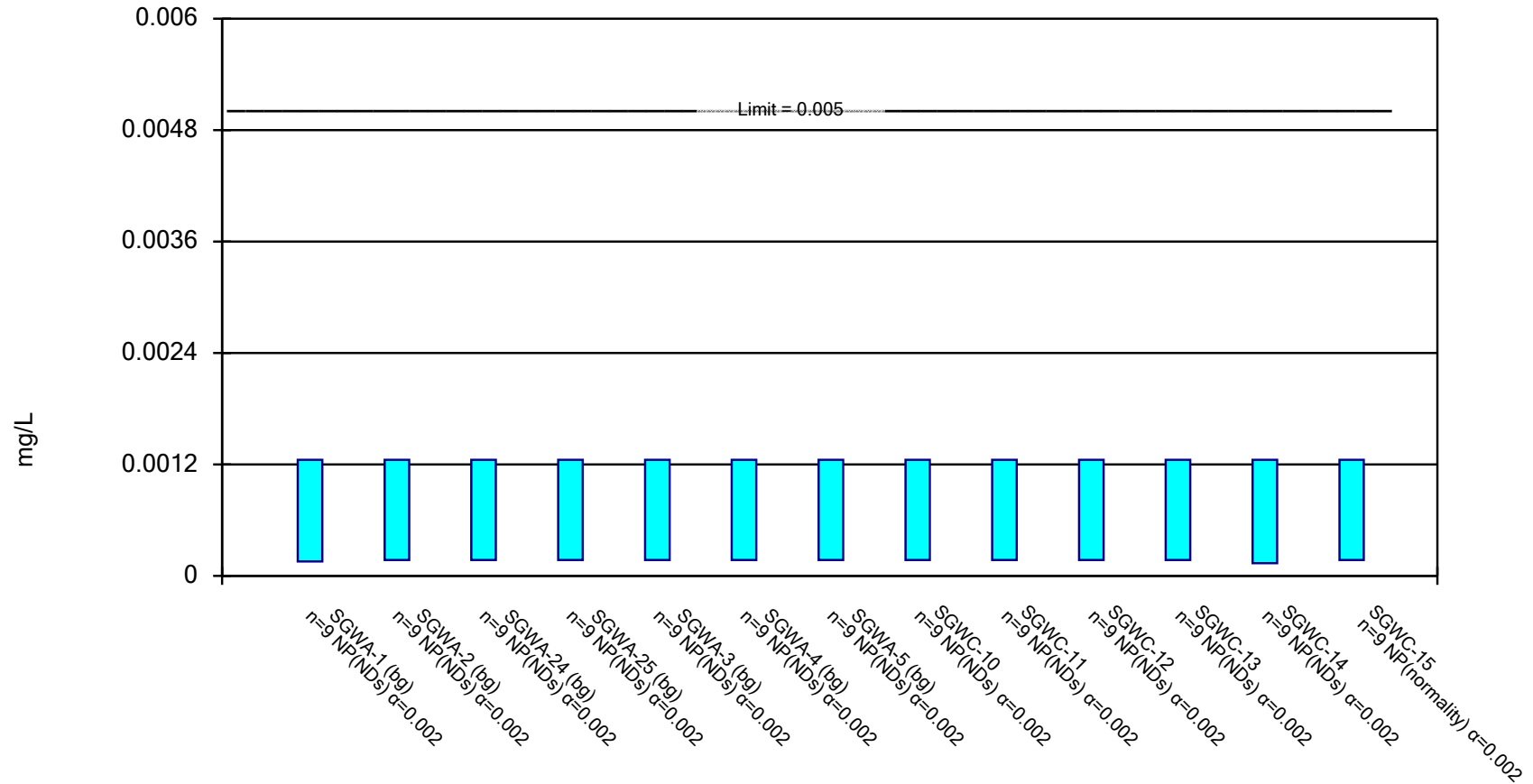


Constituent: Beryllium Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

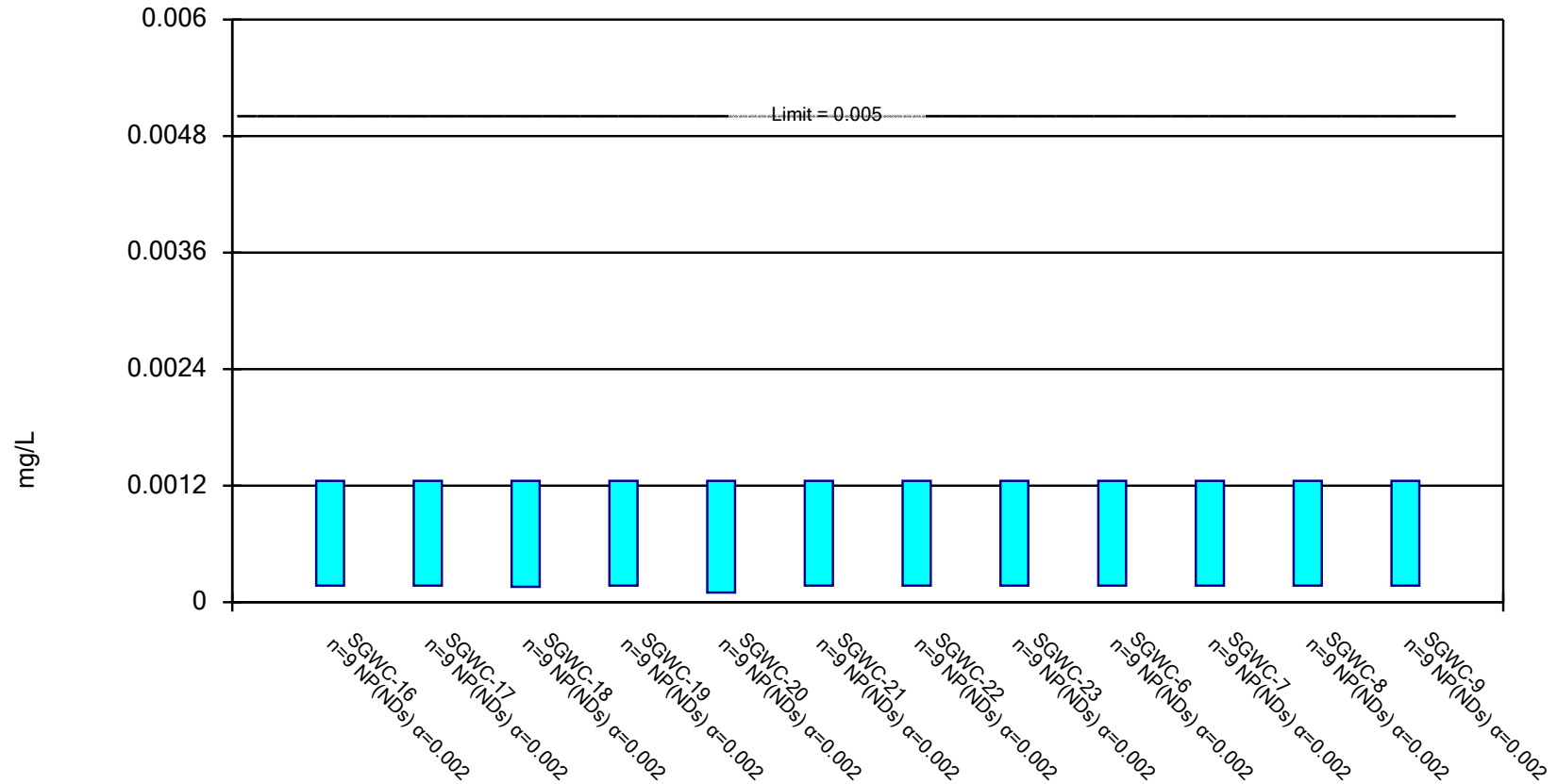


Constituent: Cadmium Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

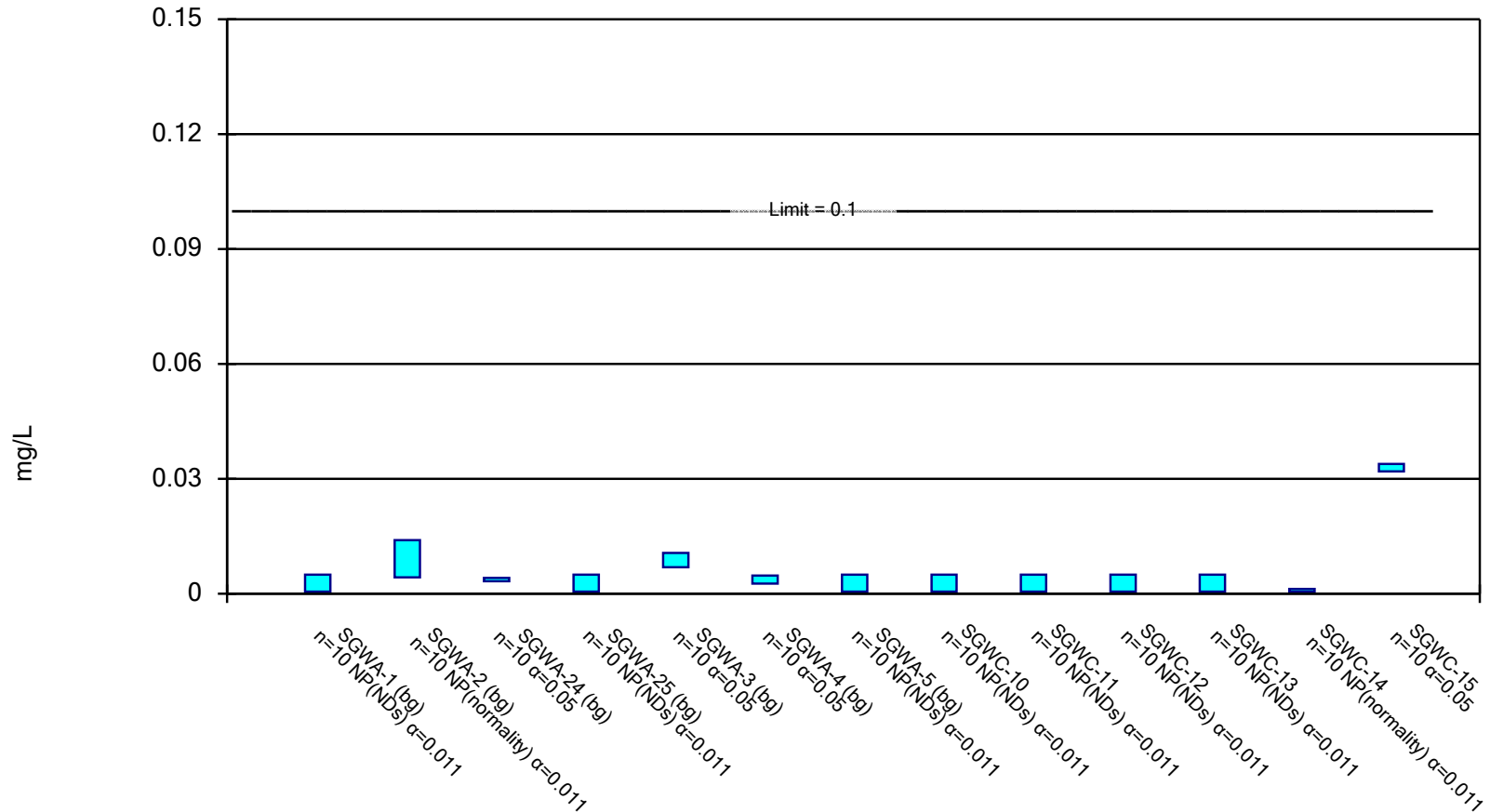


Constituent: Cadmium Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

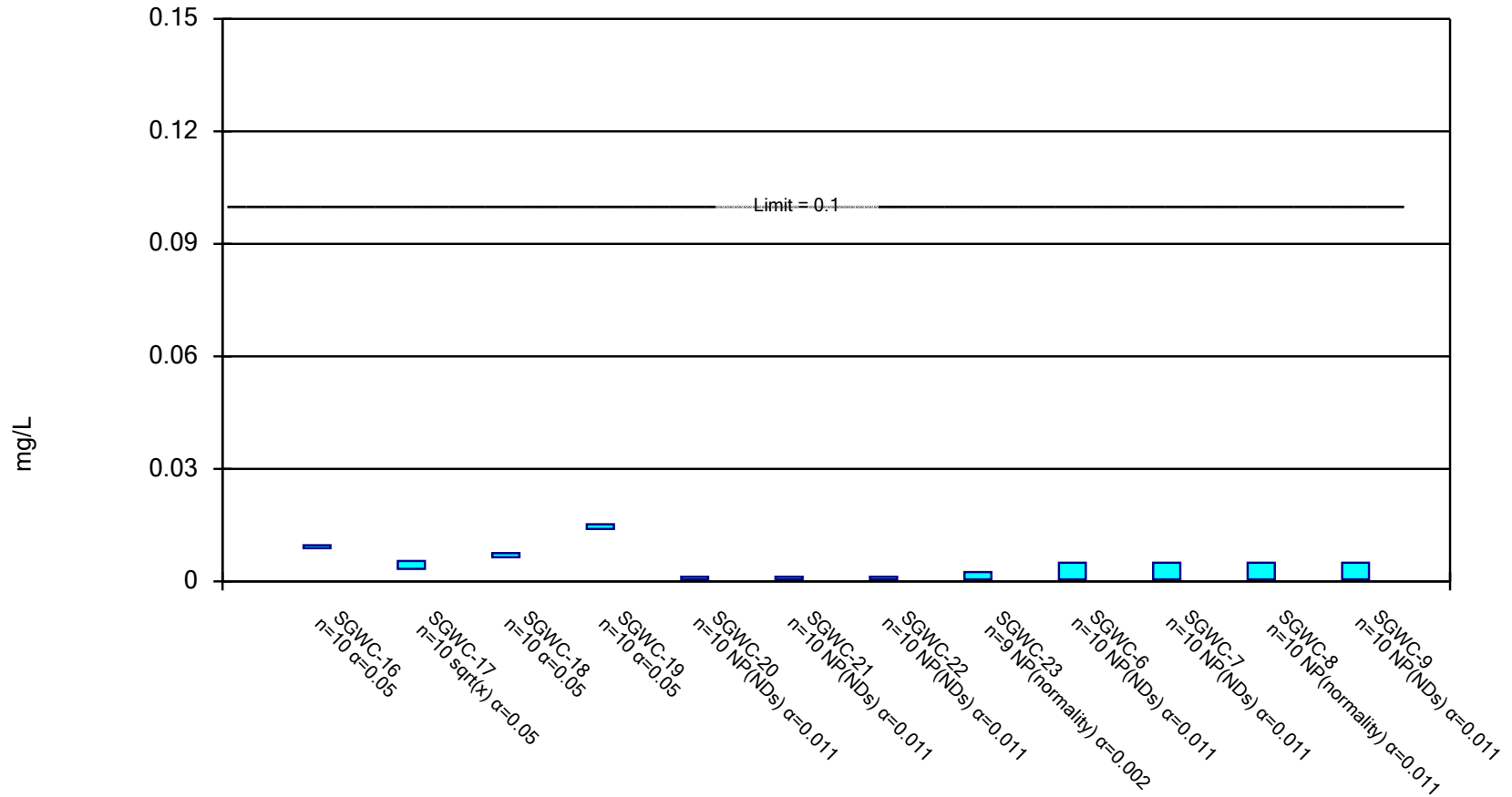


Constituent: Chromium Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

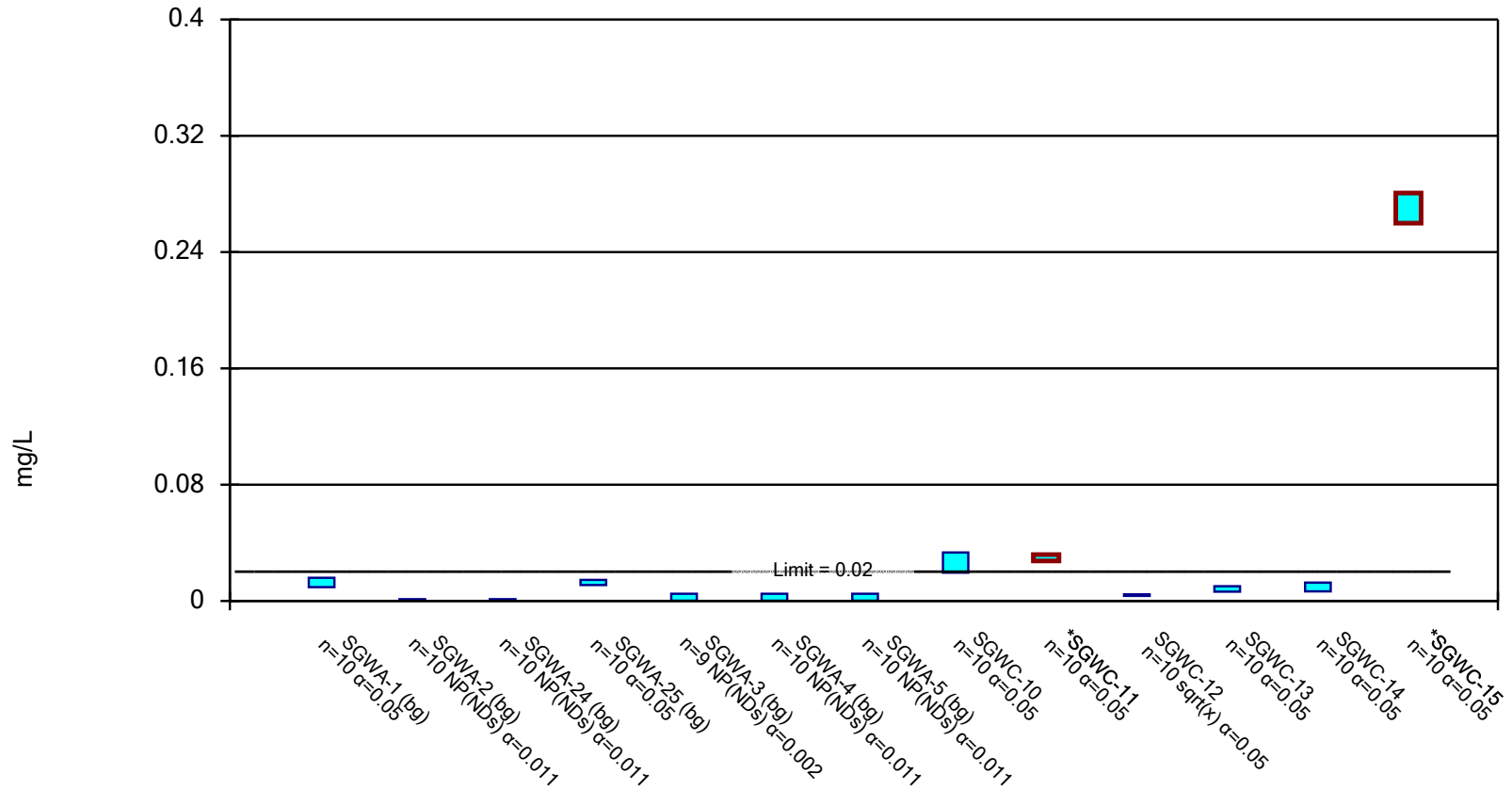
Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Chromium Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Normality Test: Shapiro Wilk, alpha based on n.



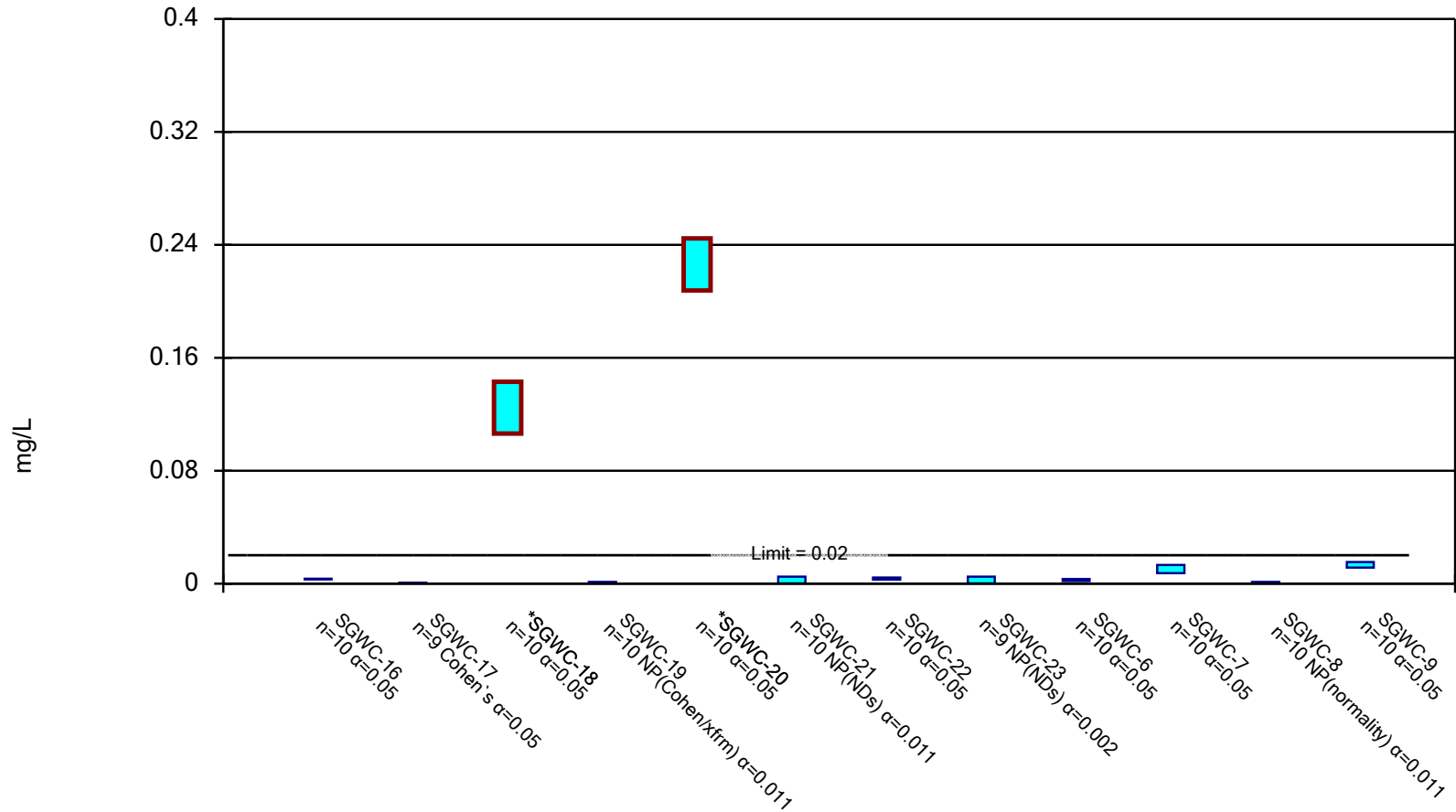
Constituent: Cobalt Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



## Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.\* Normality Test: Shapiro Wilk, alpha based on n.

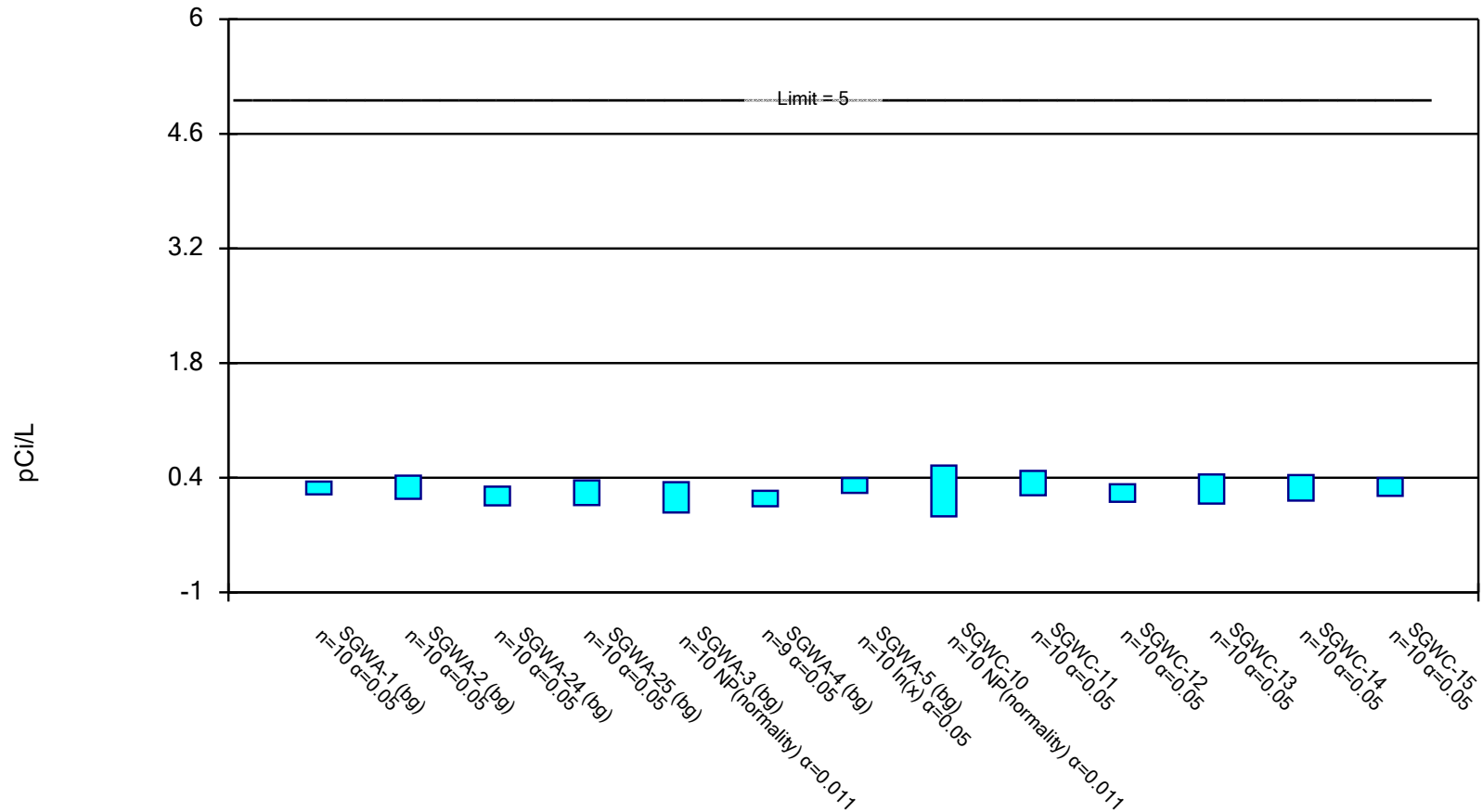


Constituent: Cobalt Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

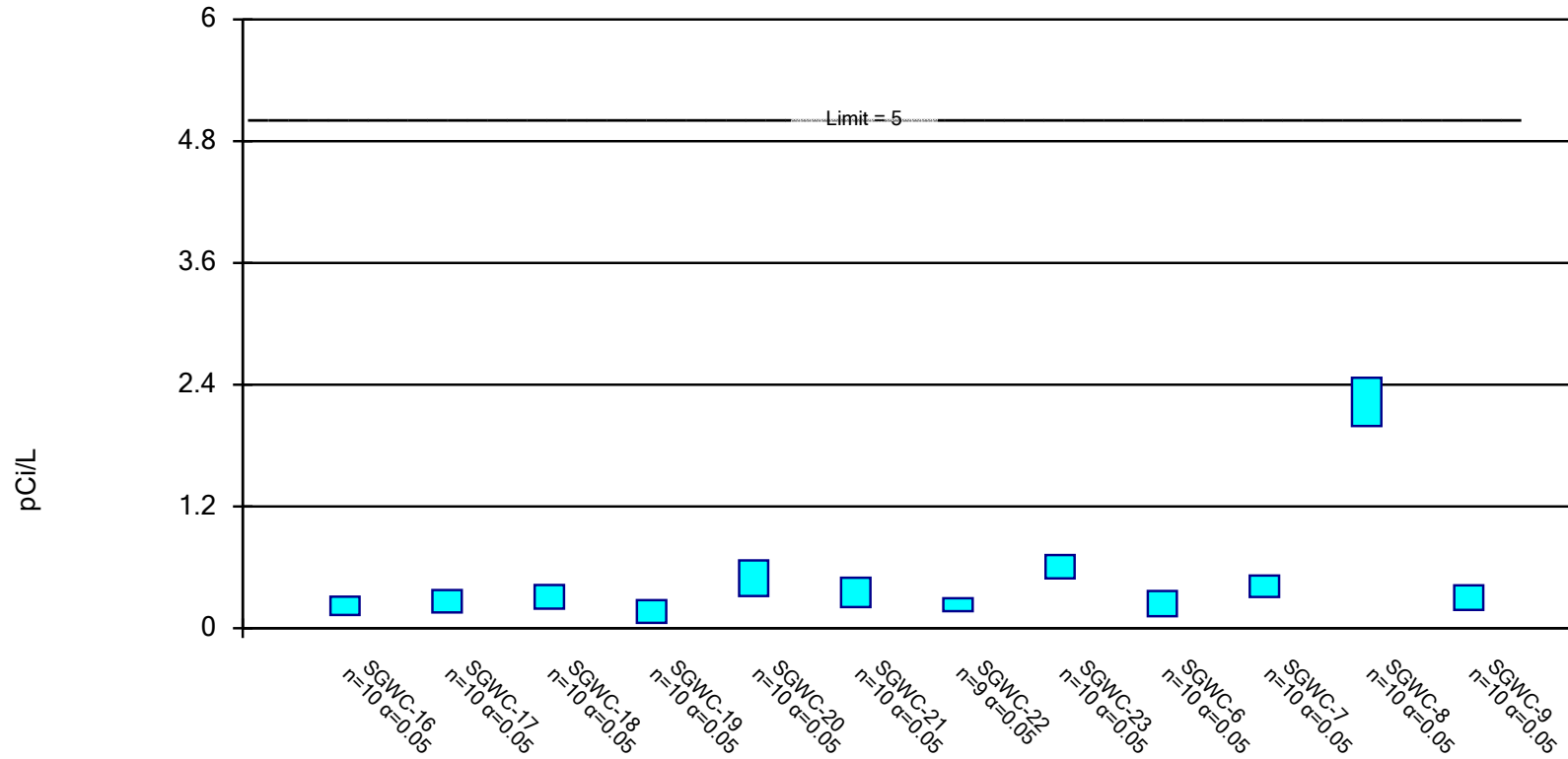


Constituent: Combined Radium 226 + 228 Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence I

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

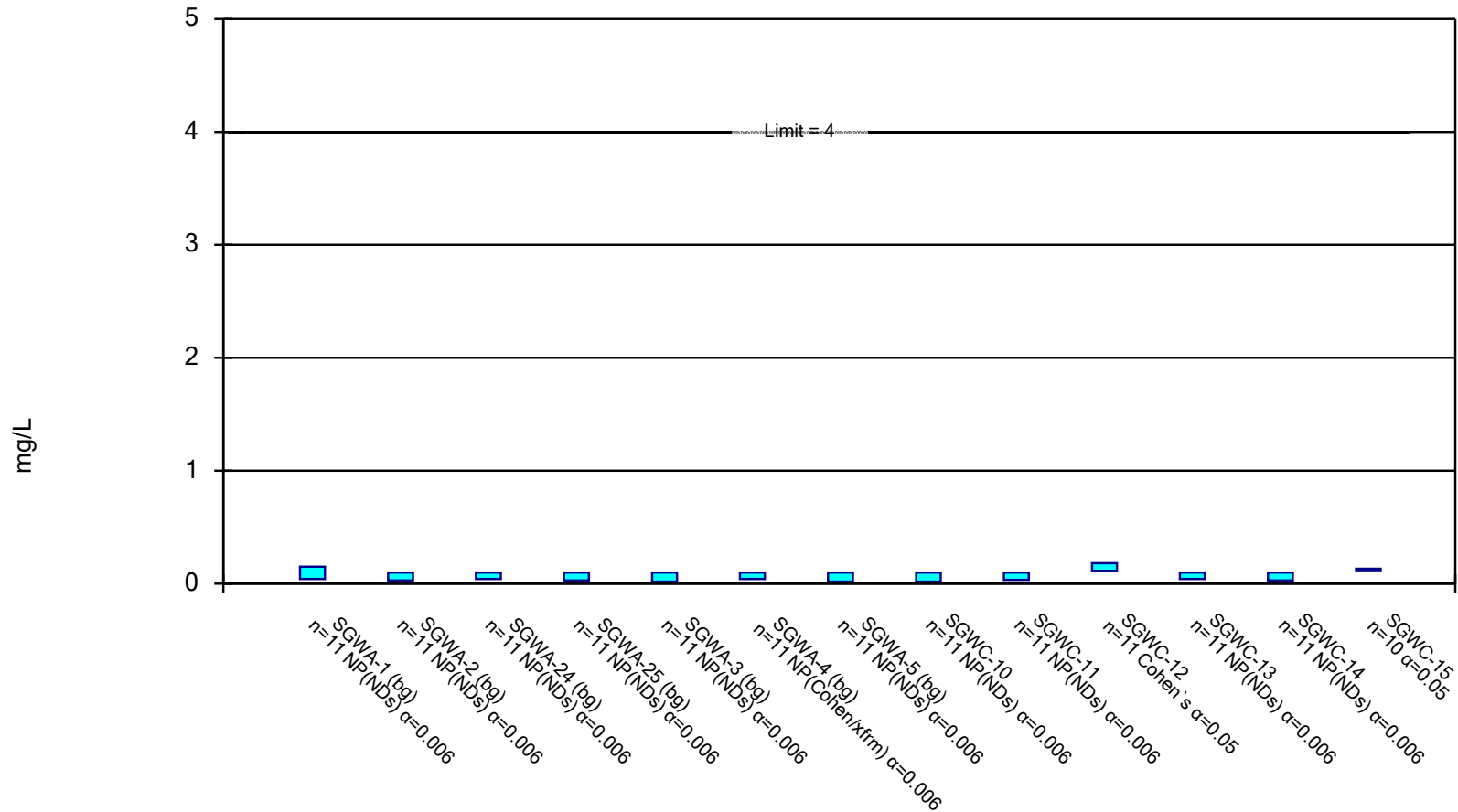


Constituent: Combined Radium 226 + 228 Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence I

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

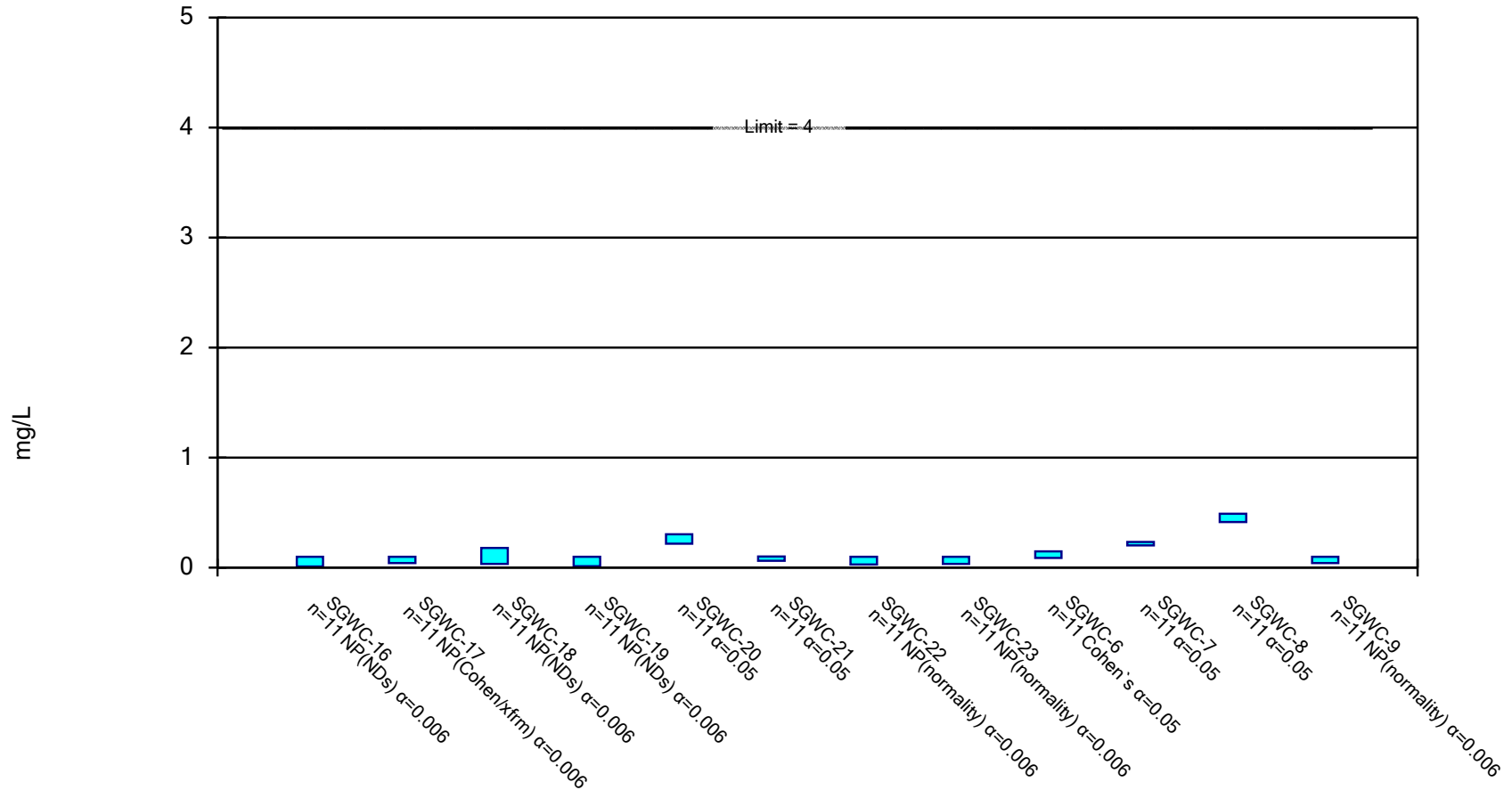


Constituent: Fluoride Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

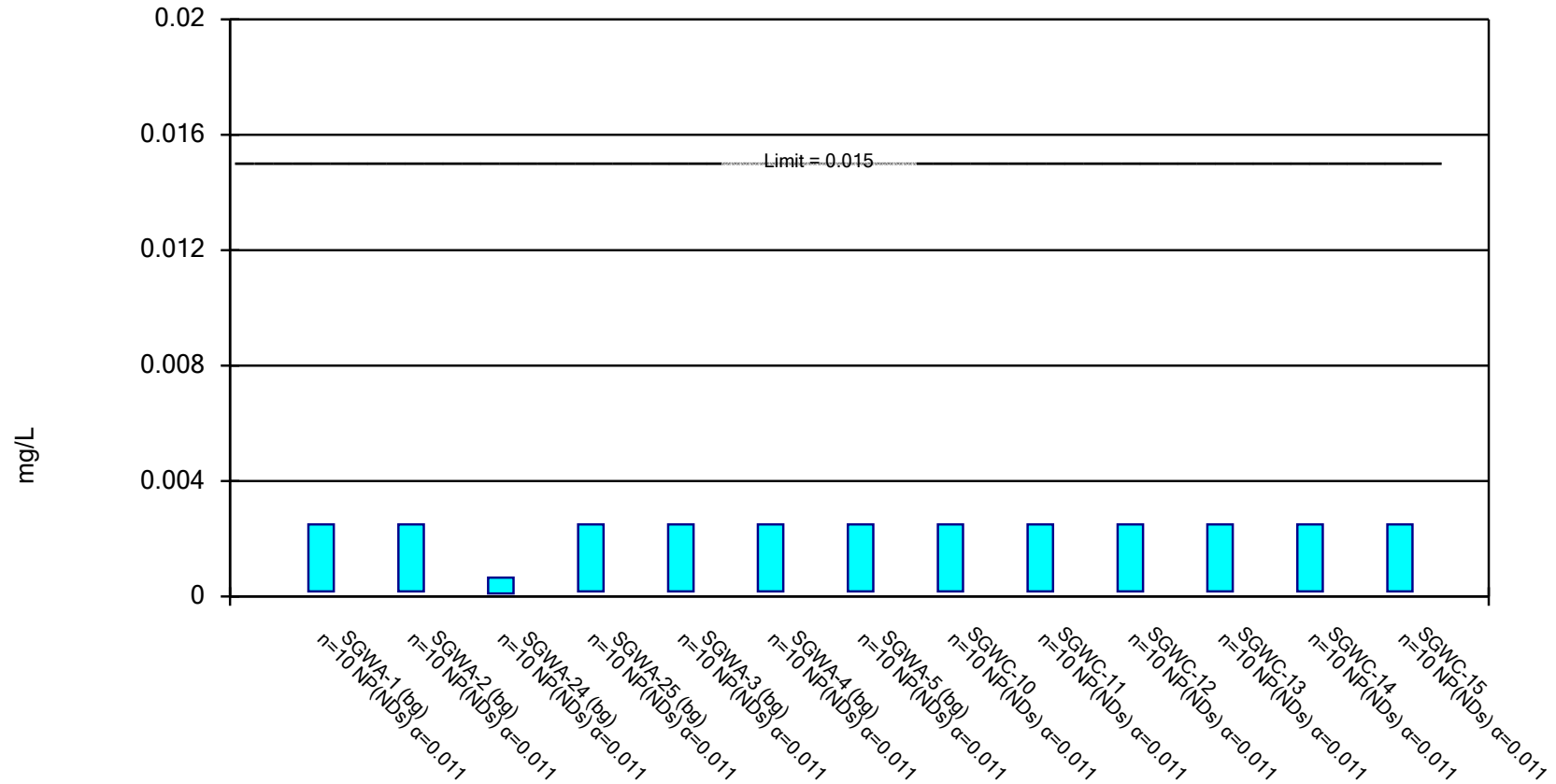


Constituent: Fluoride Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

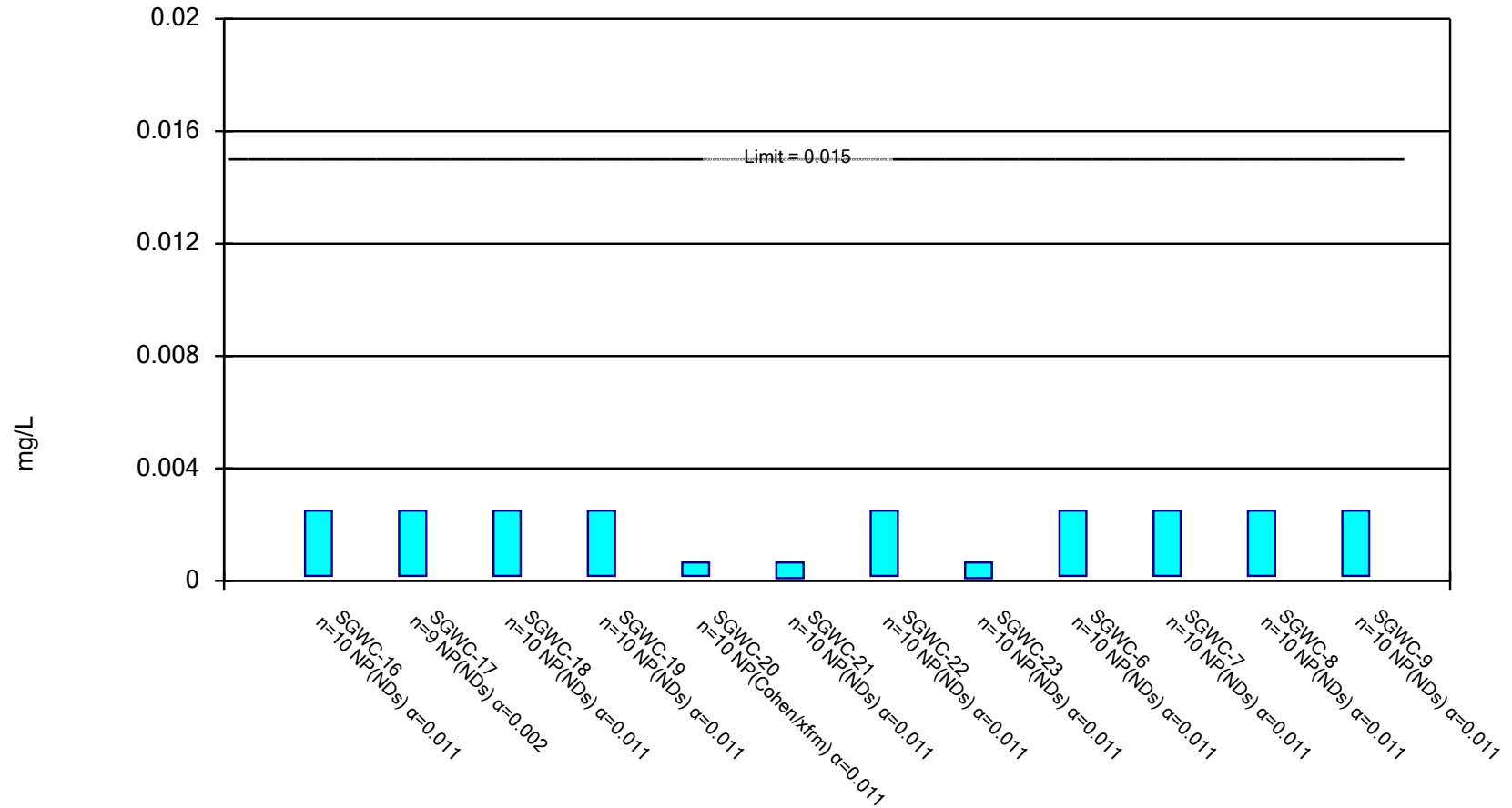


Constituent: Lead Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

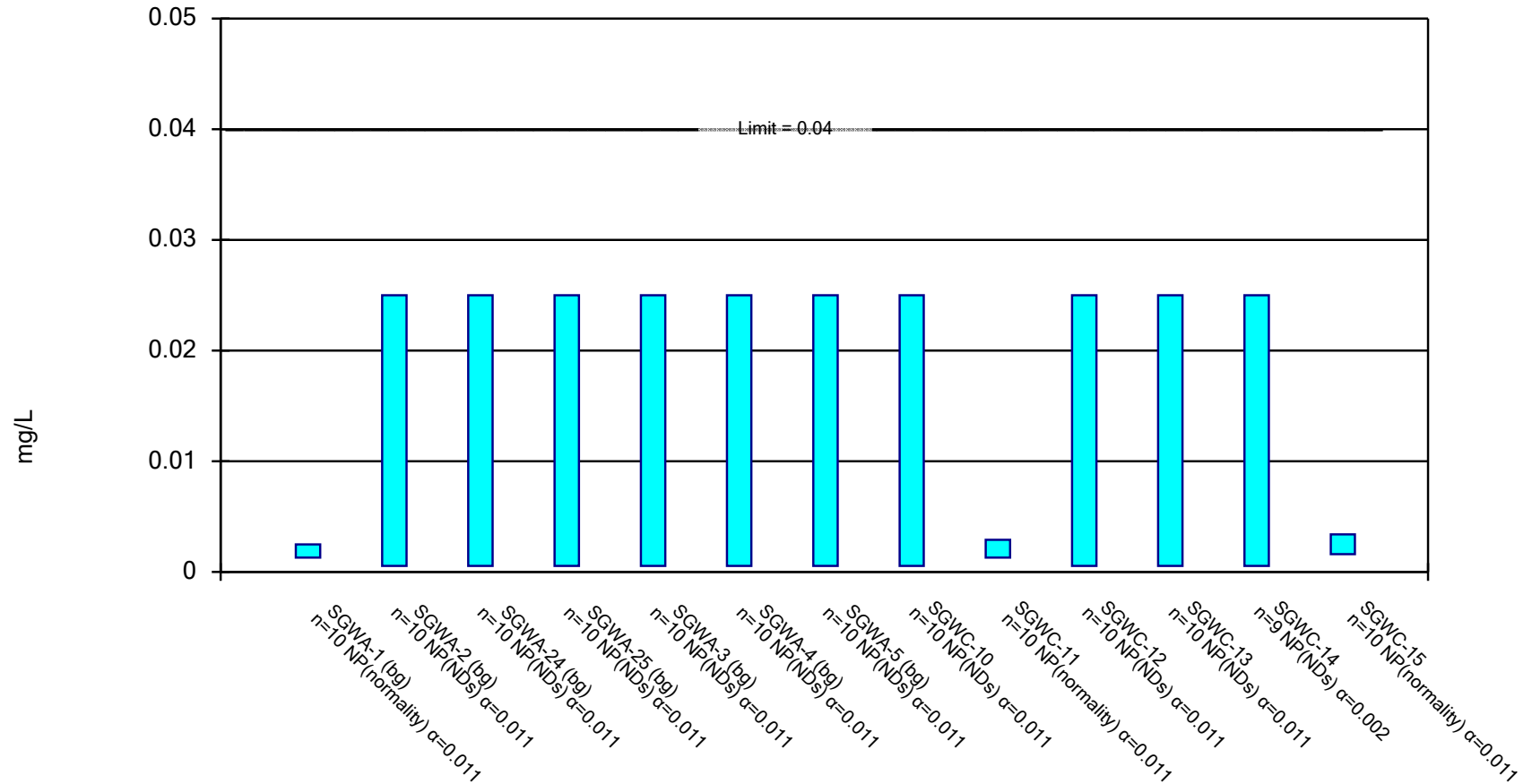


Constituent: Lead Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



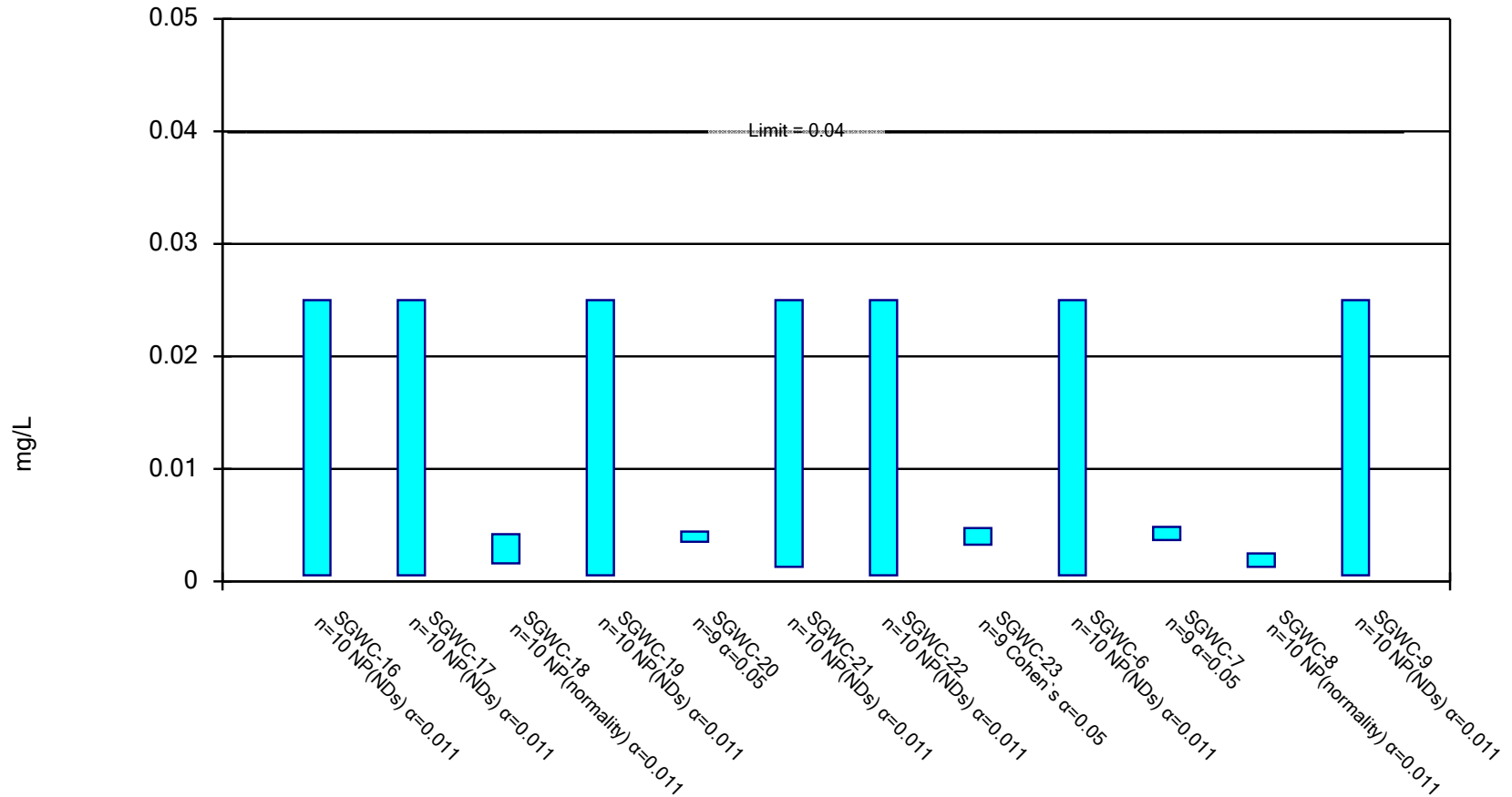
Constituent: Lithium Analysis Run 10/15/2018 9:31 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

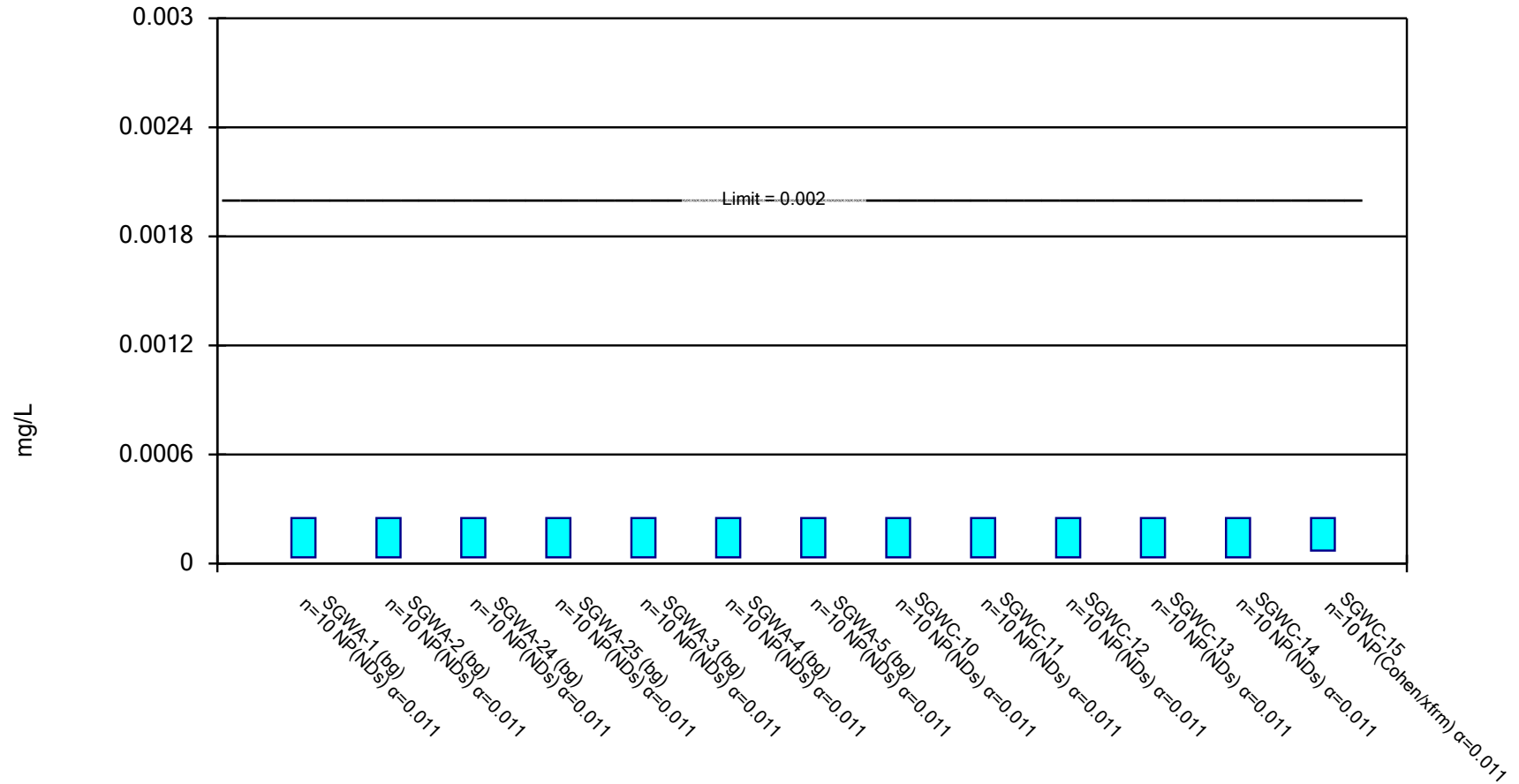


Constituent: Lithium Analysis Run 10/15/2018 9:32 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

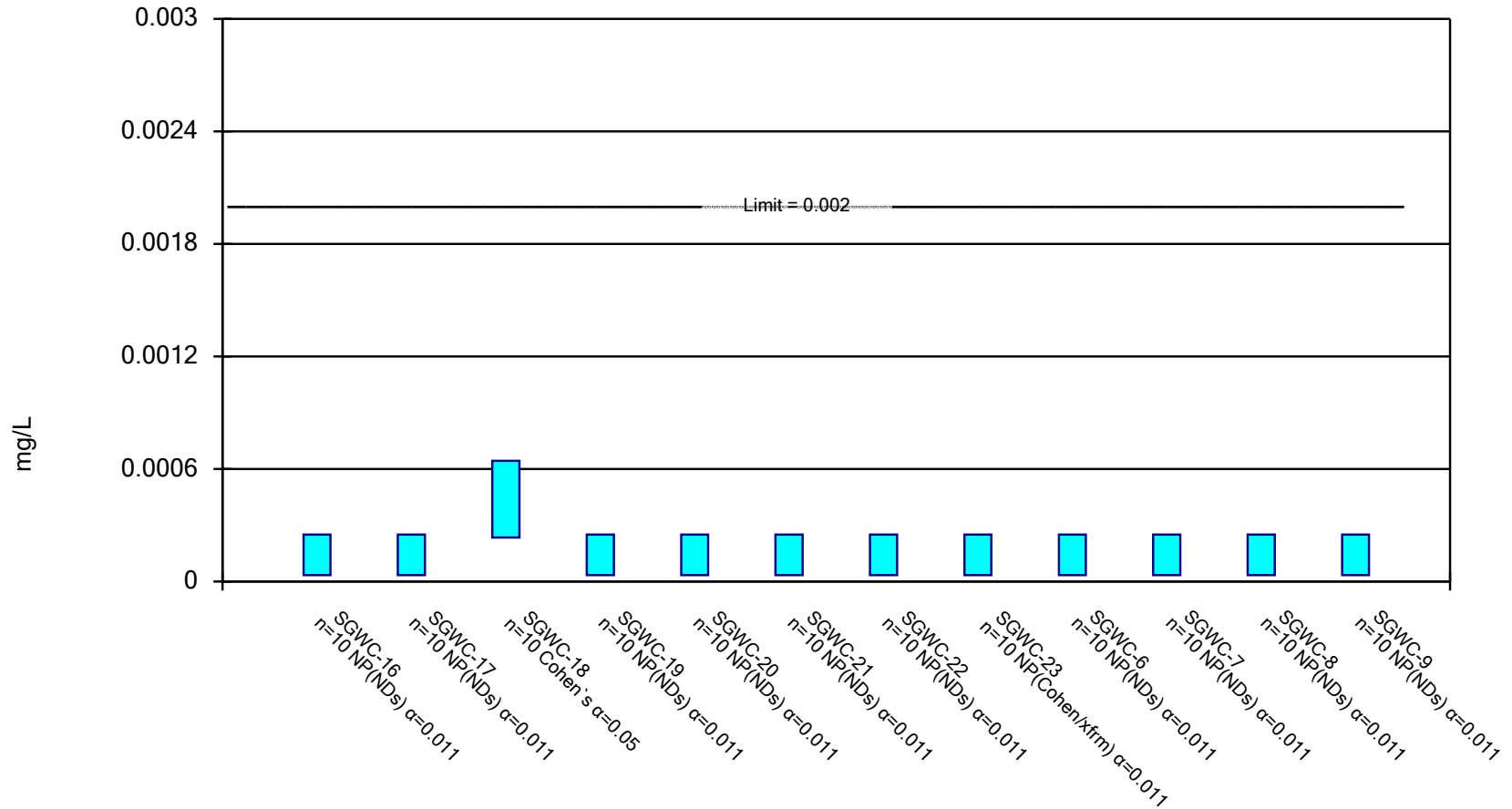


Constituent: Mercury Analysis Run 10/15/2018 9:32 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.

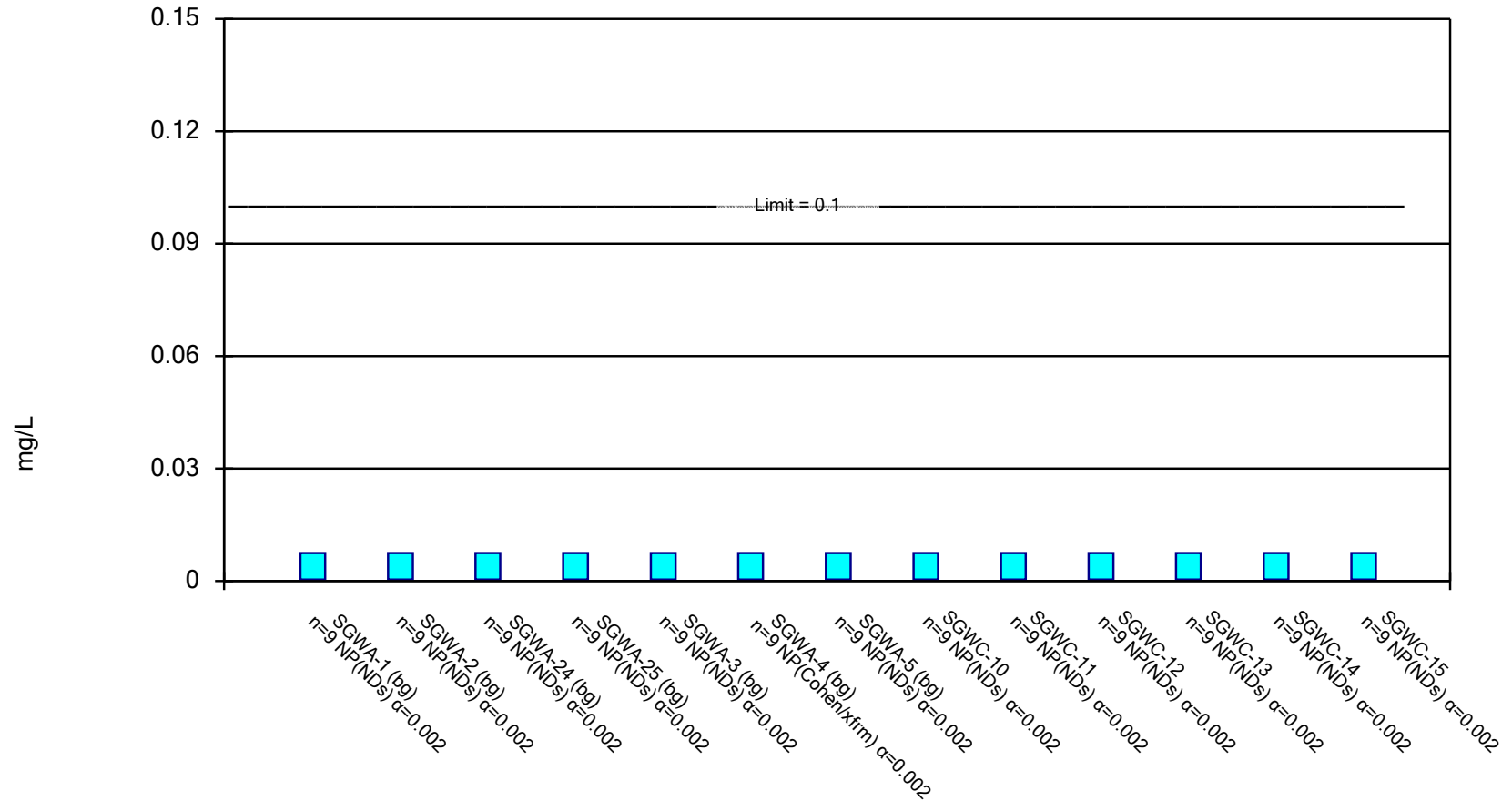


Constituent: Mercury Analysis Run 10/15/2018 9:32 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

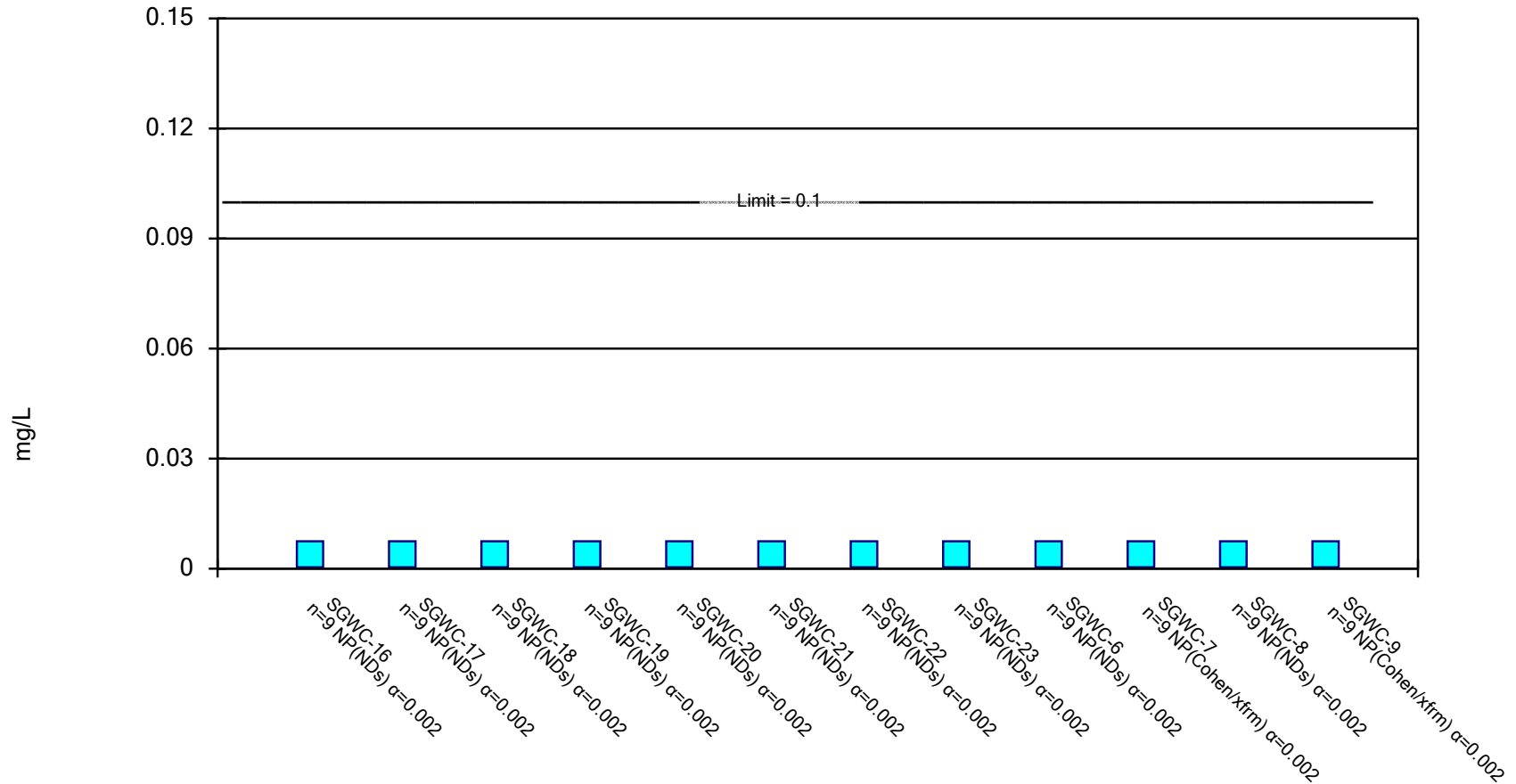


Constituent: Molybdenum Analysis Run 10/15/2018 9:32 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

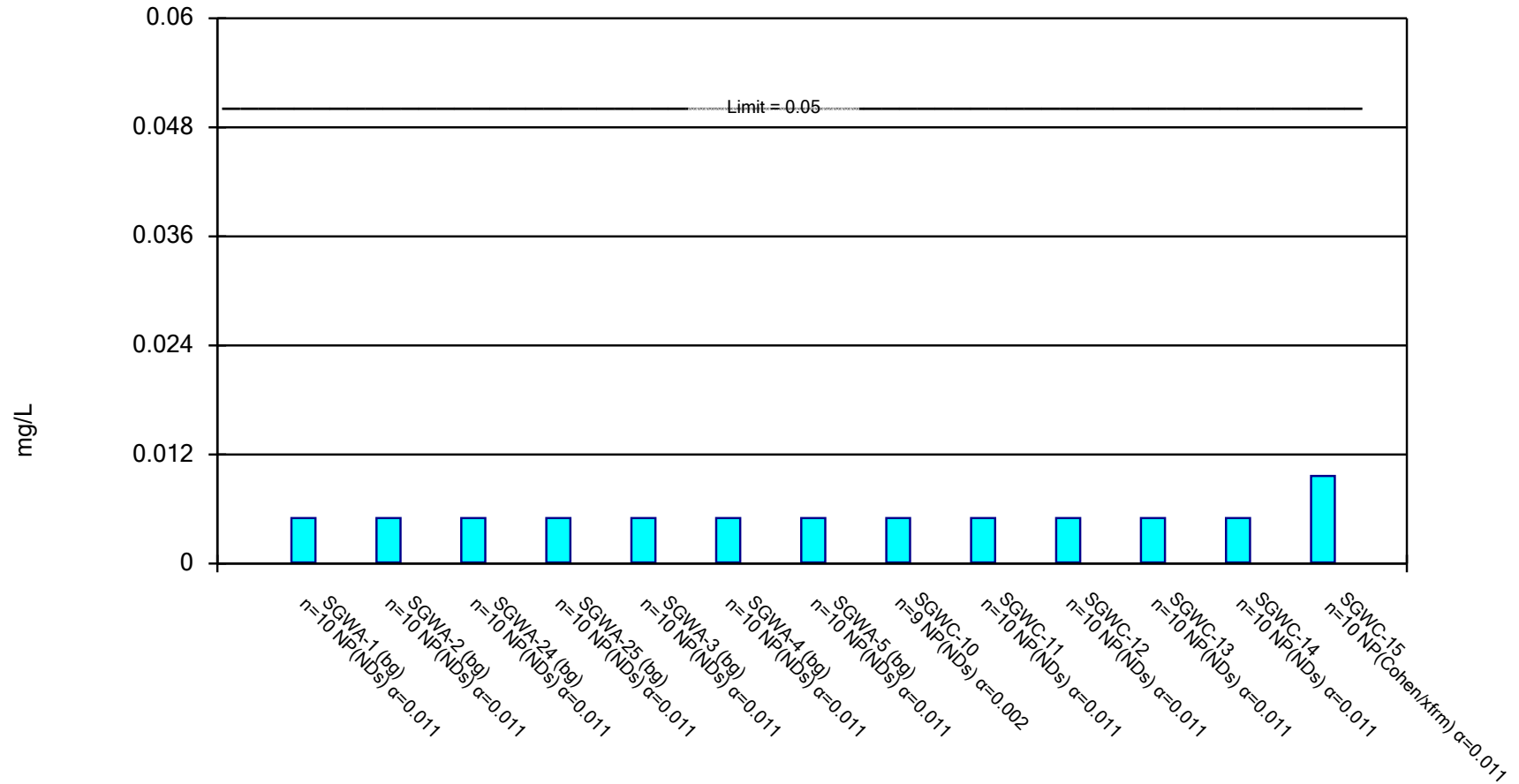


Constituent: Molybdenum Analysis Run 10/15/2018 9:32 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

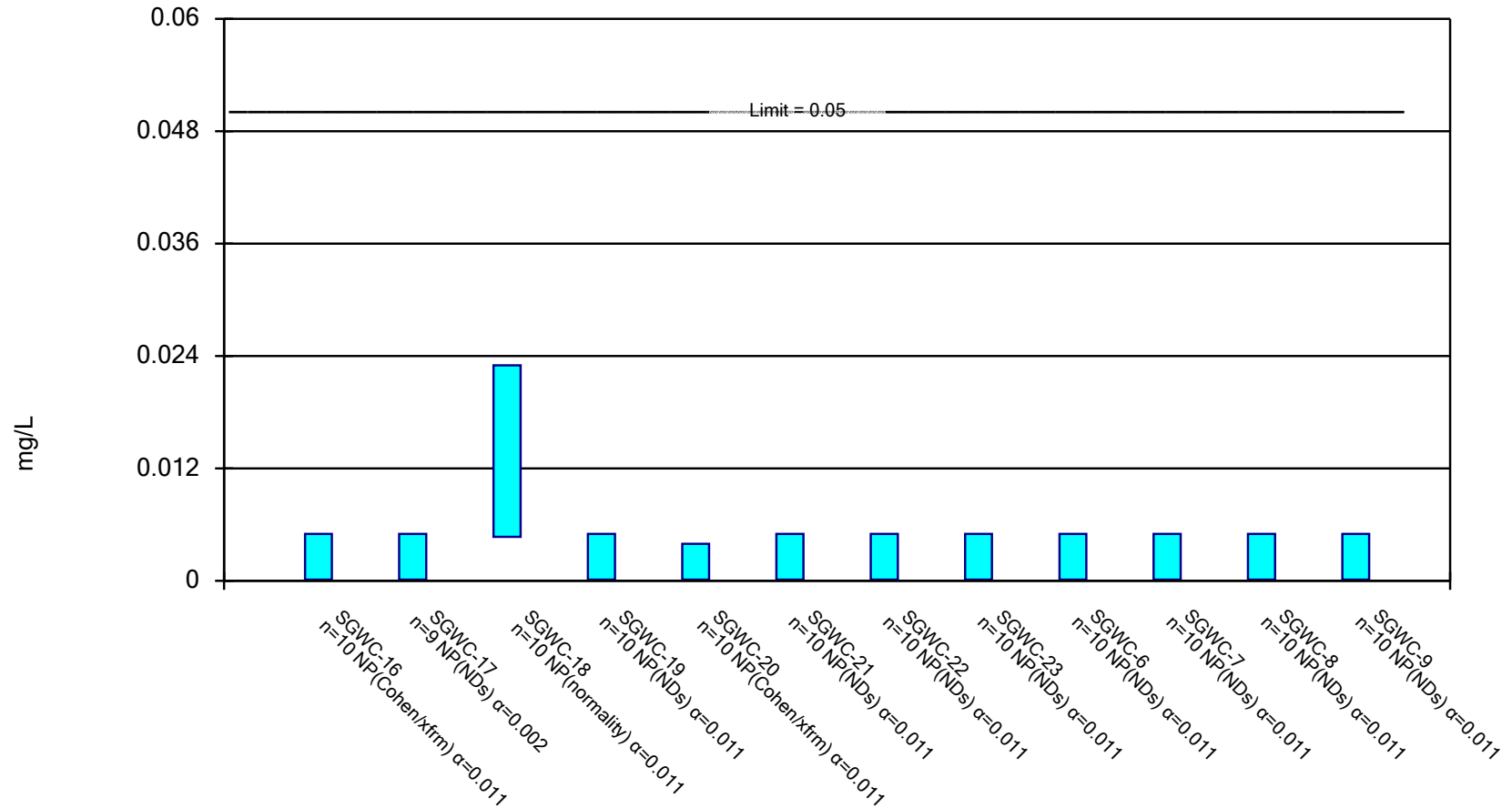


Constituent: Selenium Analysis Run 10/15/2018 9:32 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.

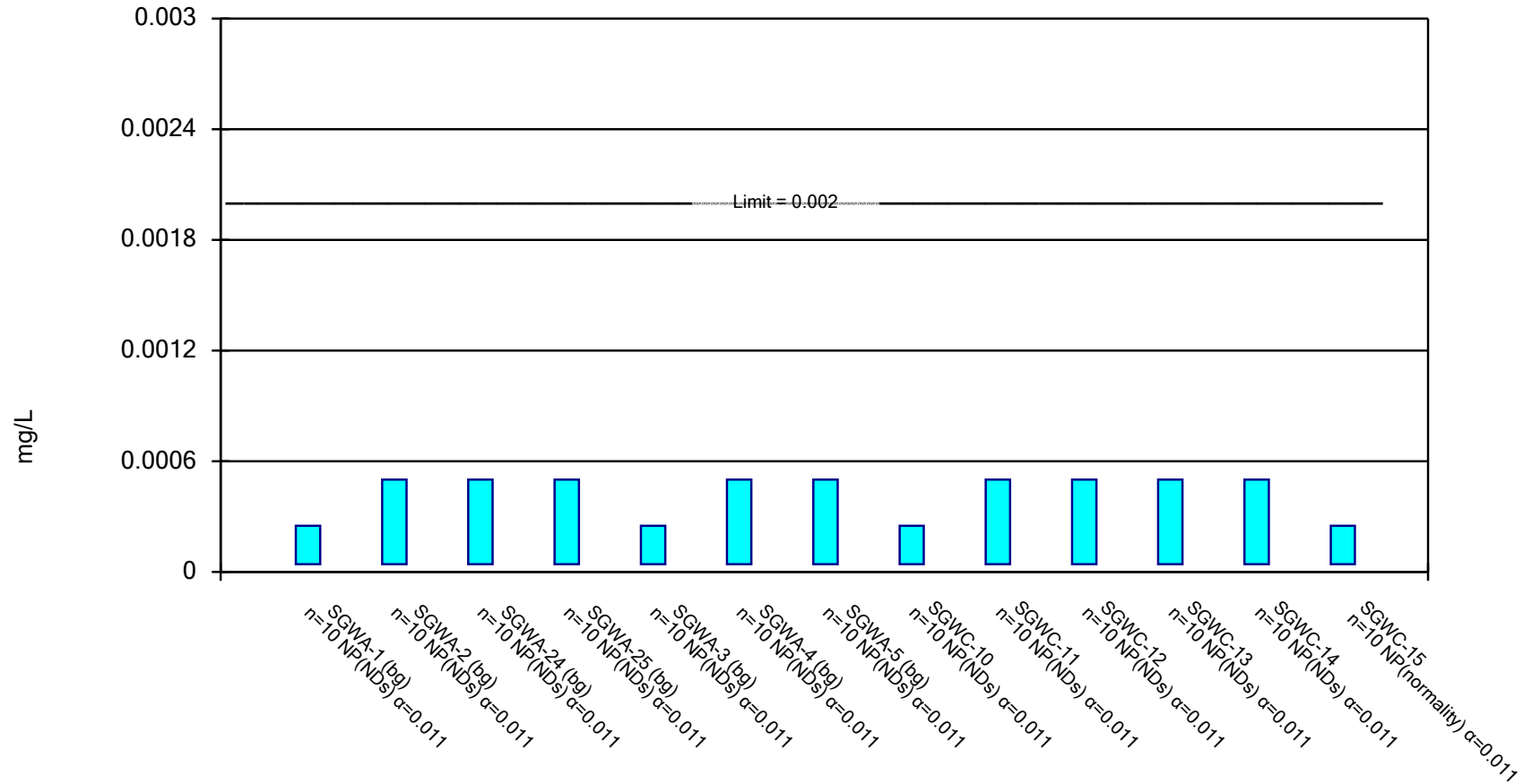


Constituent: Selenium Analysis Run 10/15/2018 9:32 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



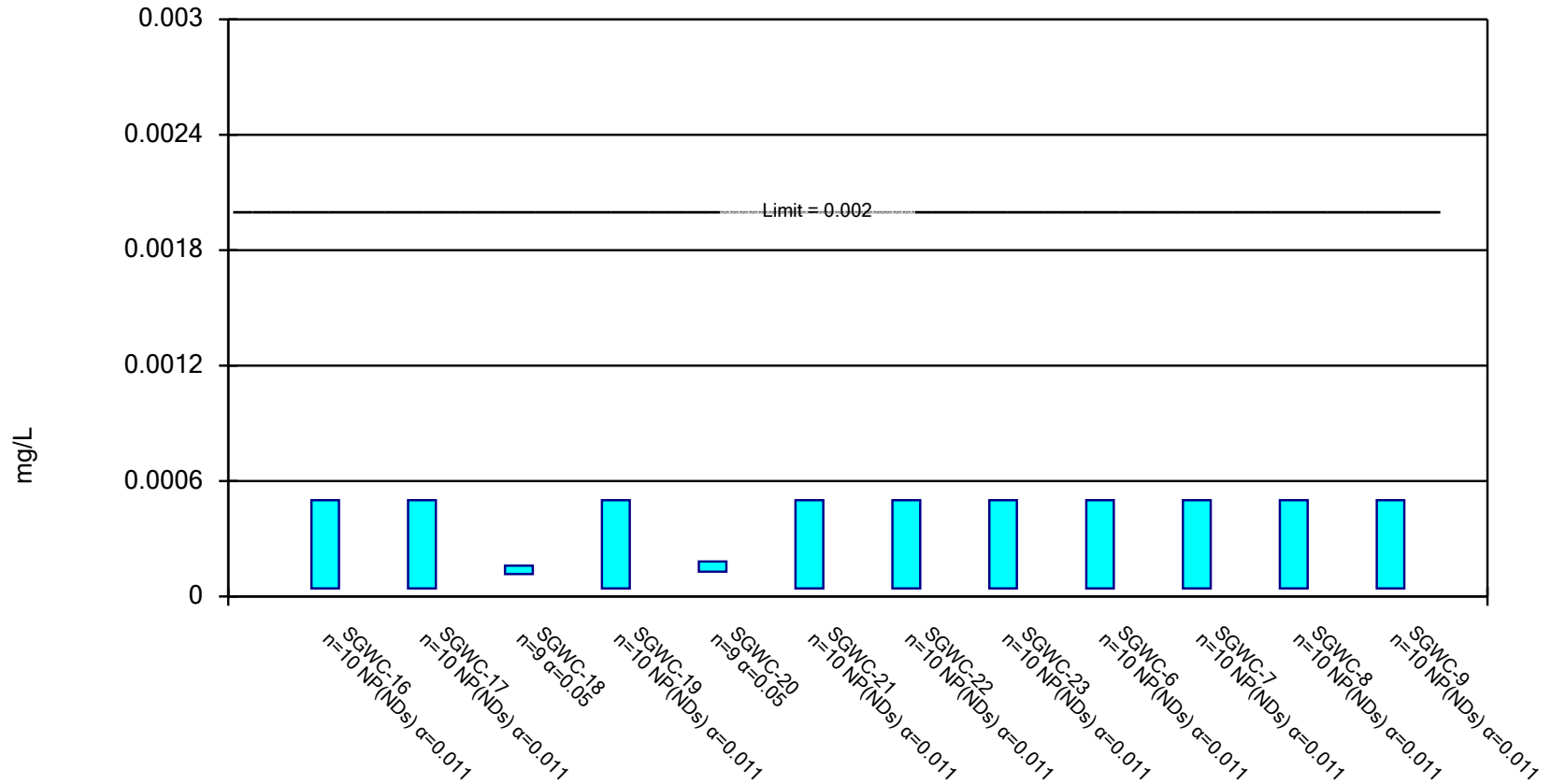
Constituent: Thallium Analysis Run 10/15/2018 9:32 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR



## Parametric and Non-Parametric (NP) Confidence Interval

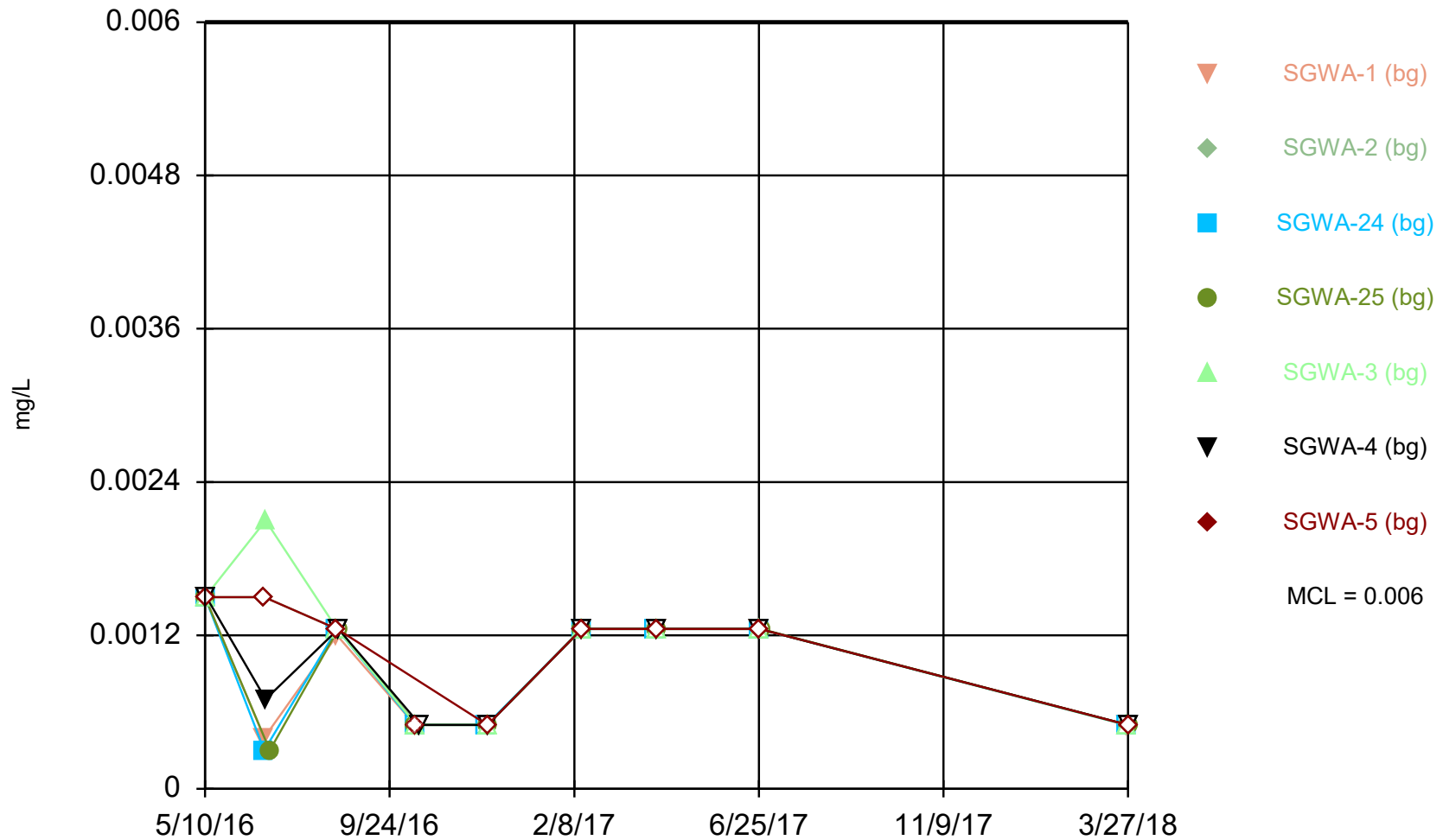
Compliance Limit is not exceeded. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Thallium Analysis Run 10/15/2018 9:32 AM View: Interwell Confidence Interval

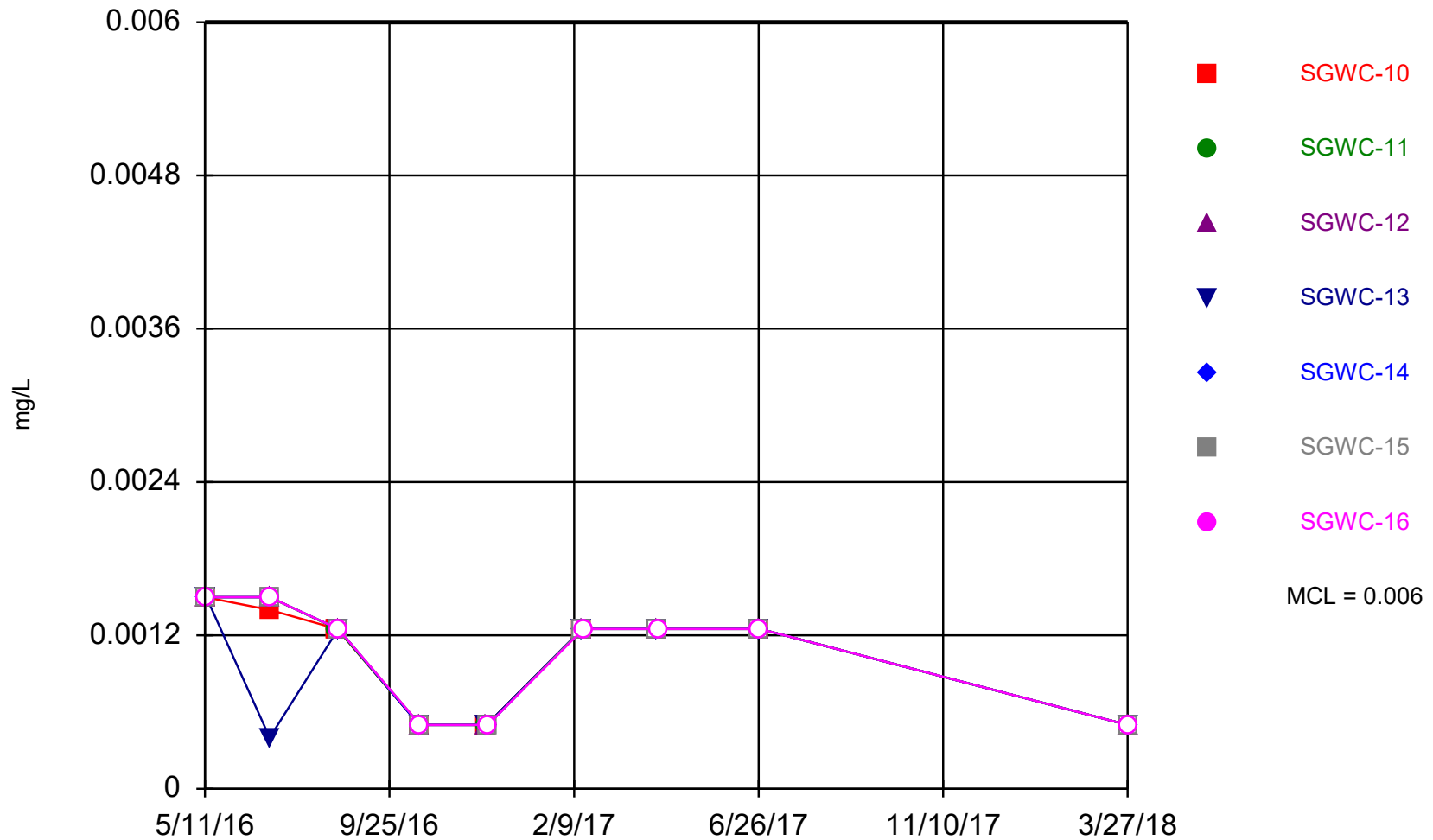
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



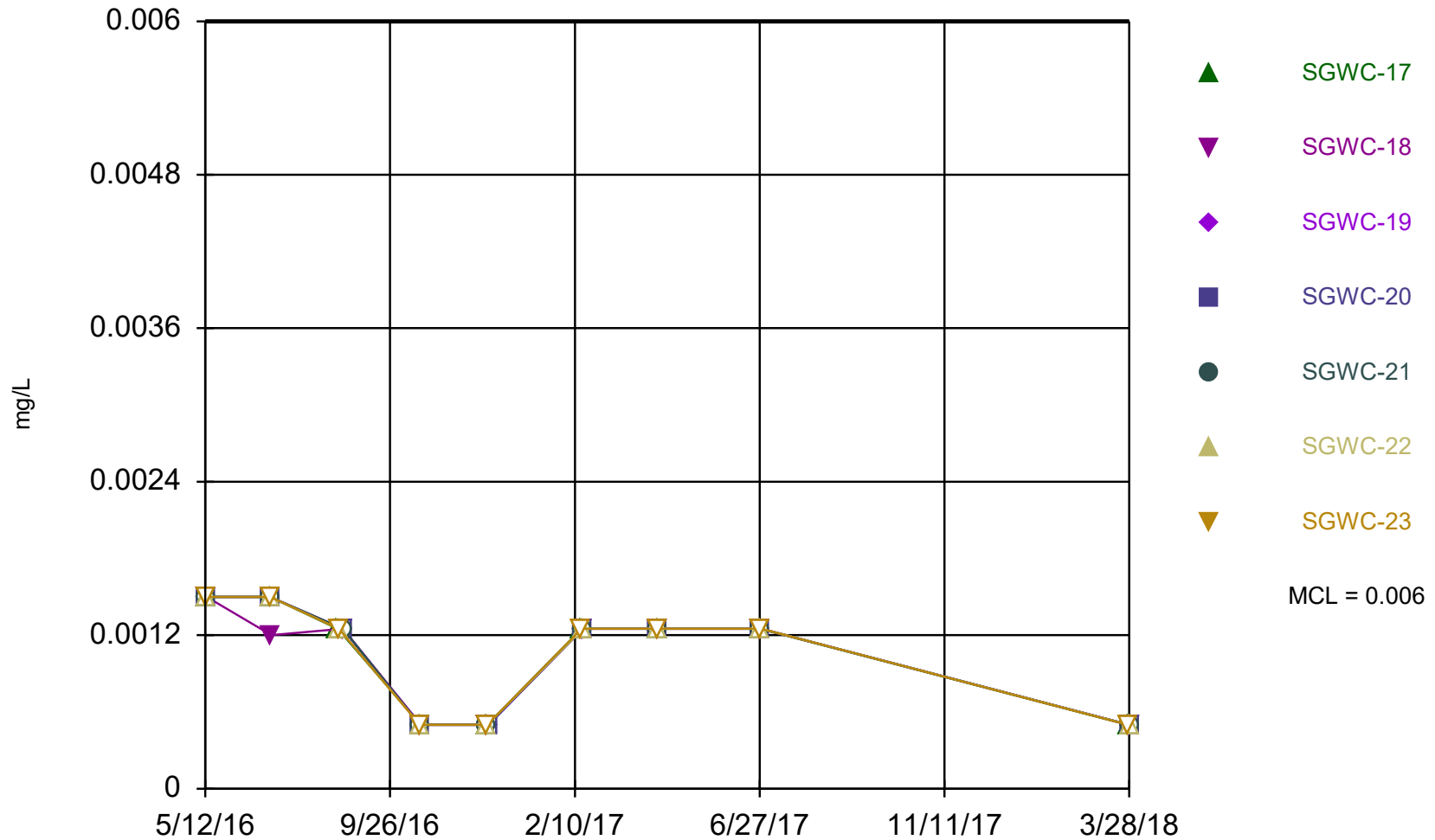
Constituent: Antimony Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



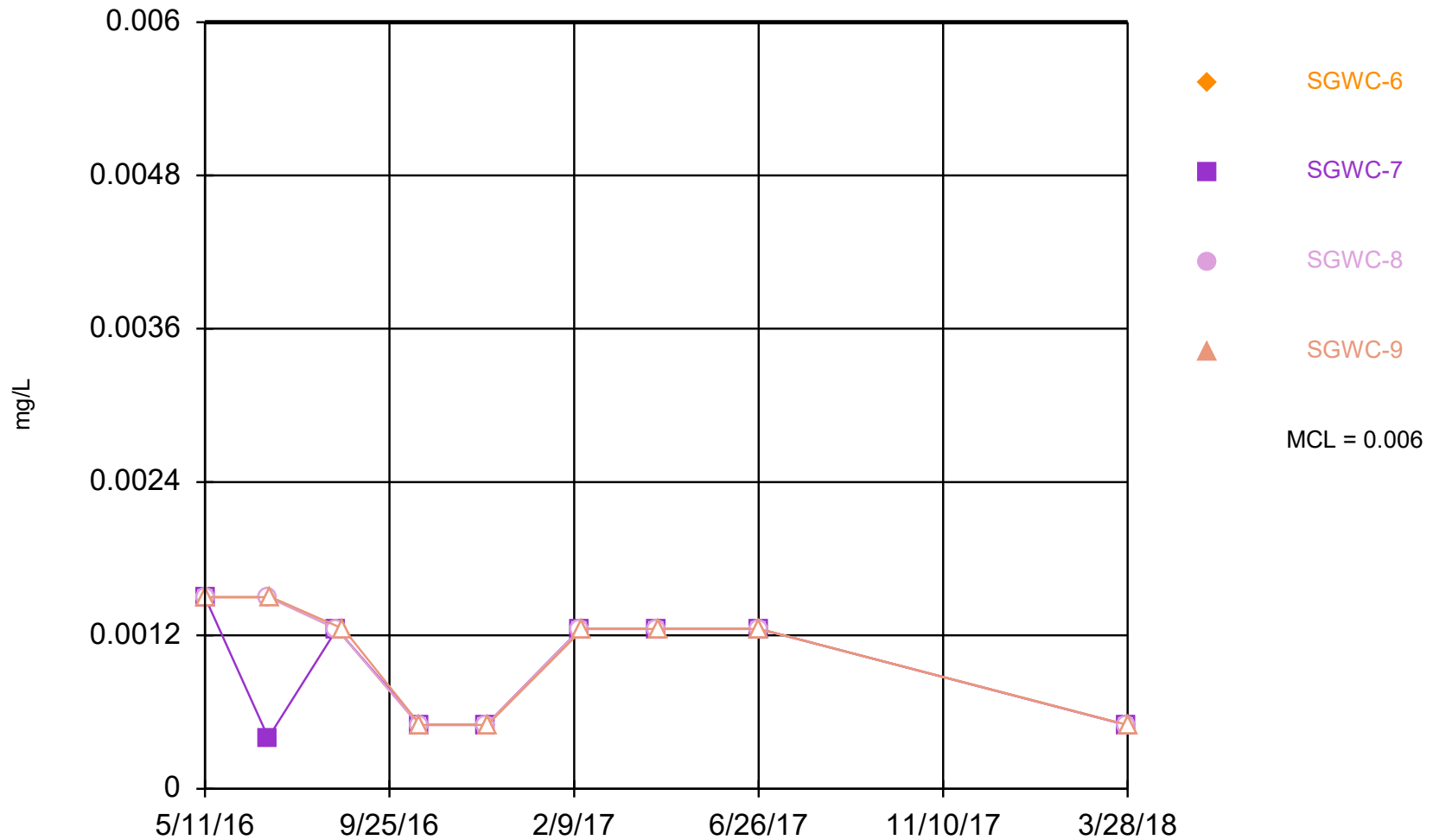
Constituent: Antimony Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



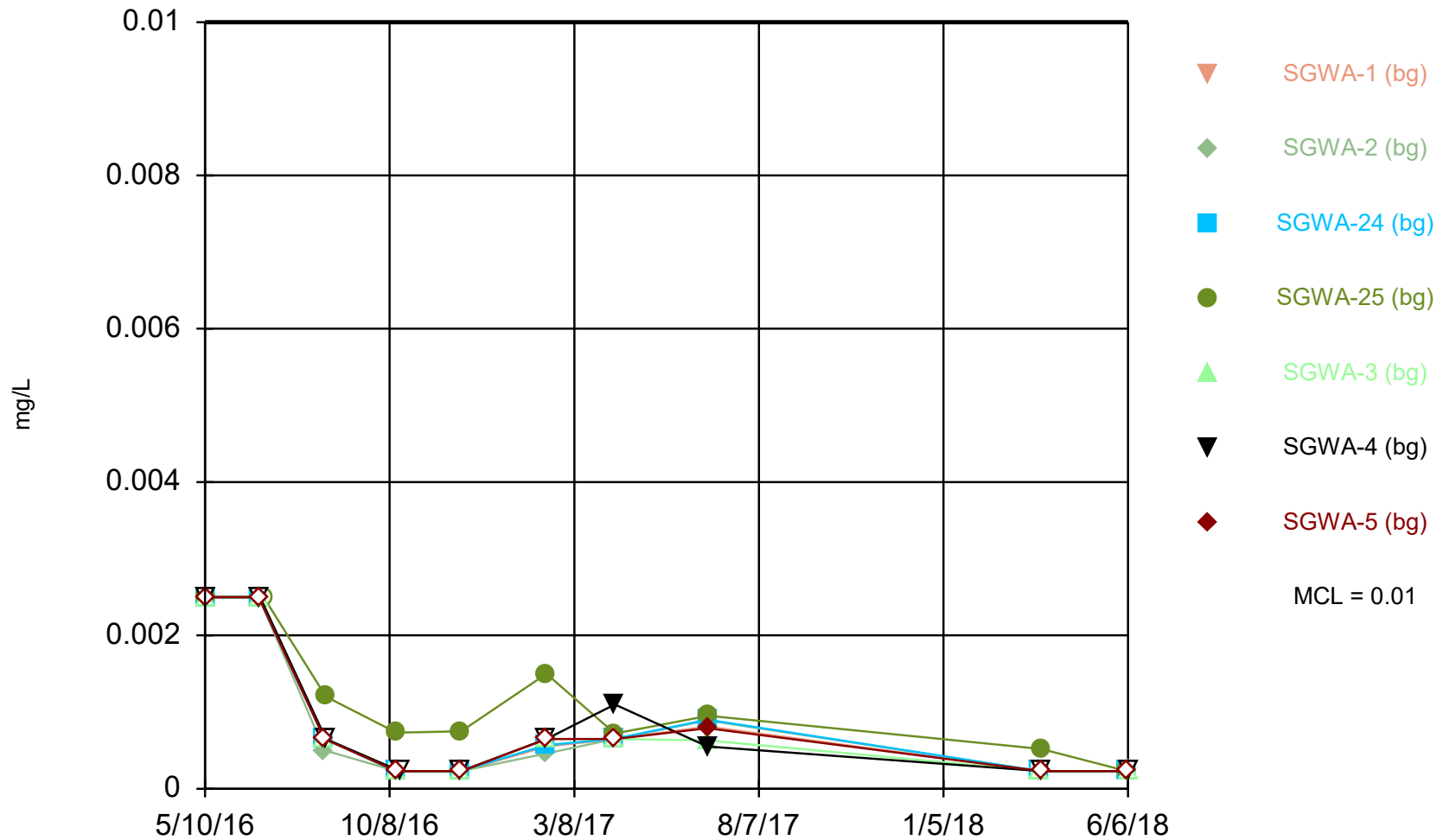
Constituent: Antimony Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



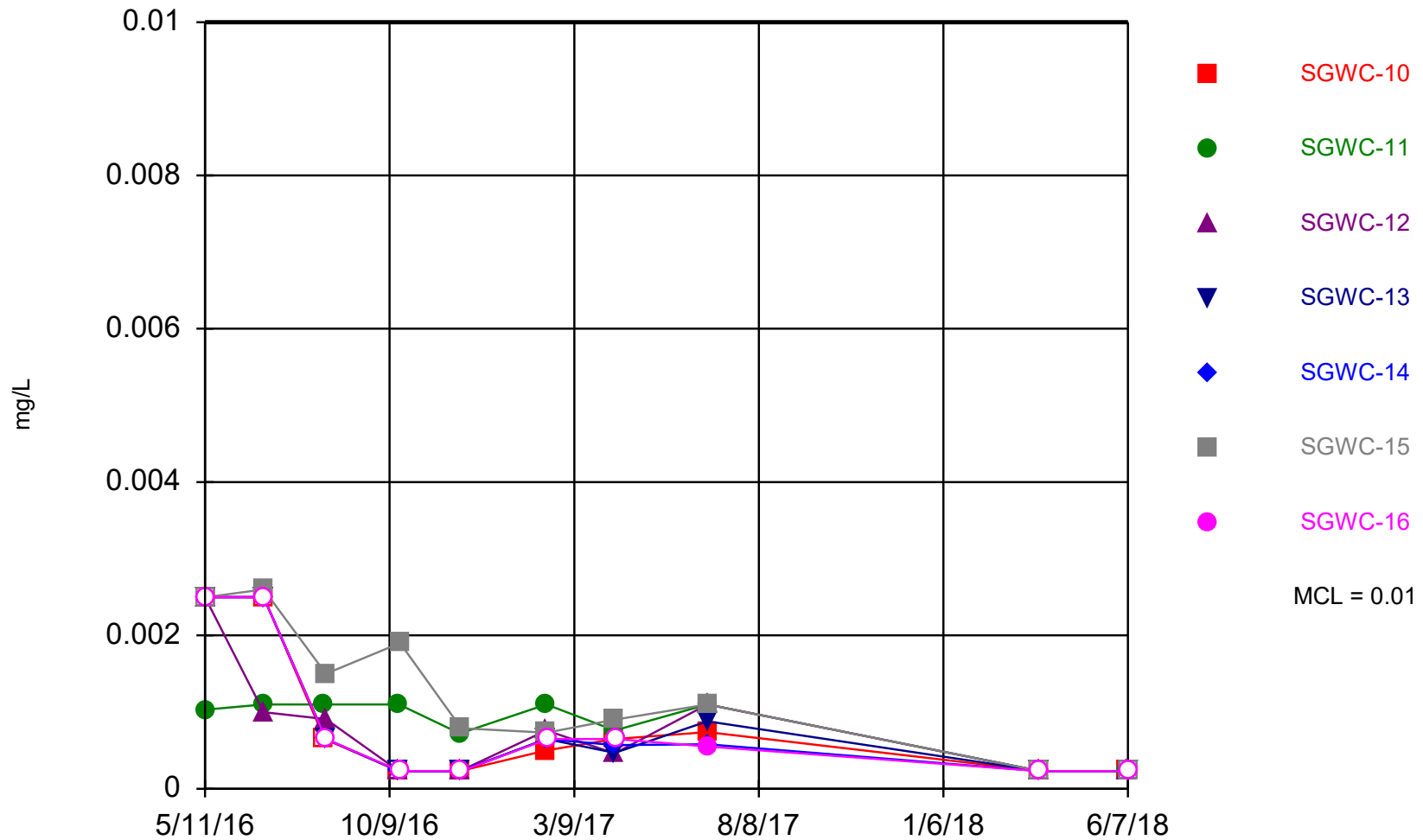
Constituent: Antimony    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



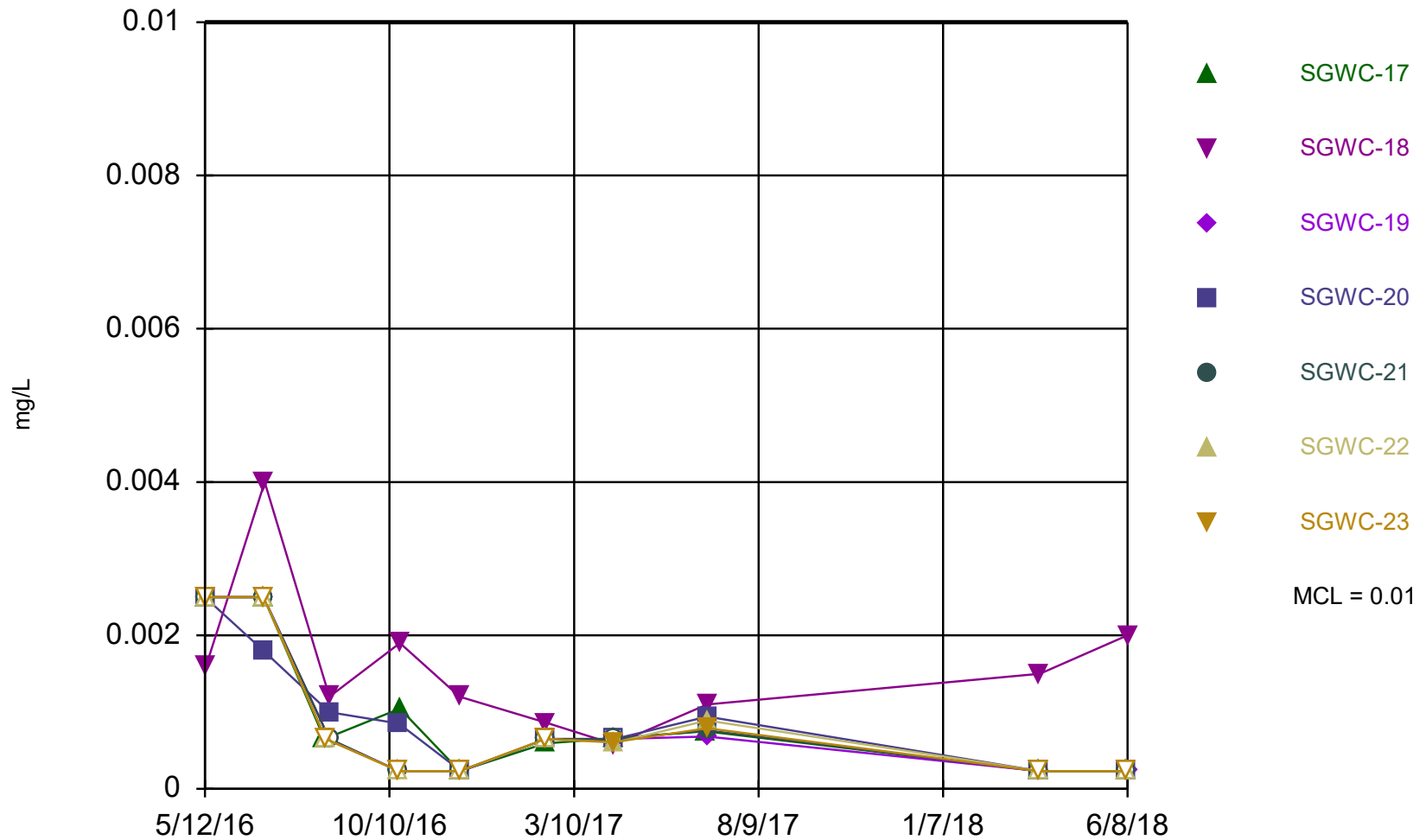
Constituent: Arsenic Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Arsenic Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

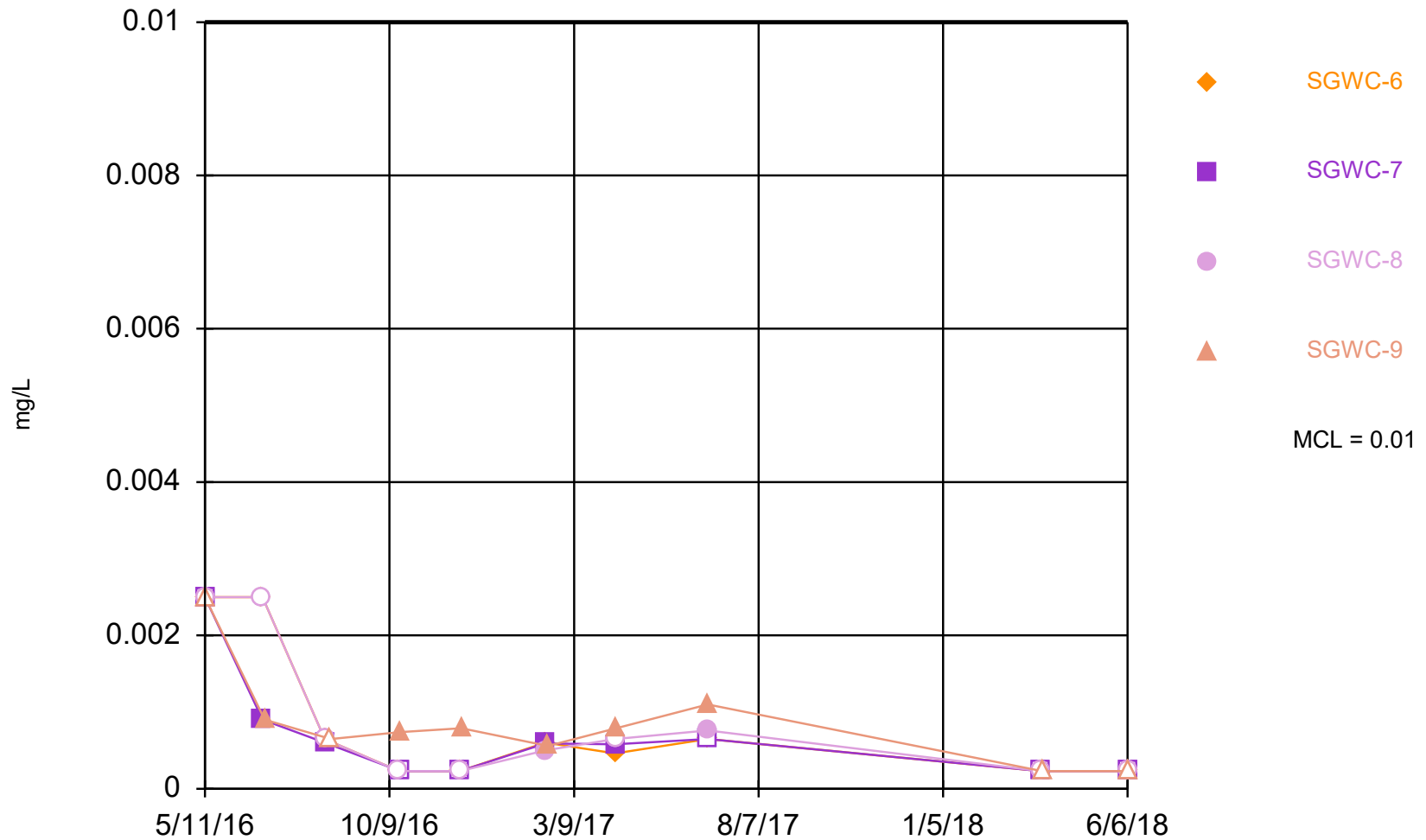
## Time Series



Constituent: Arsenic    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

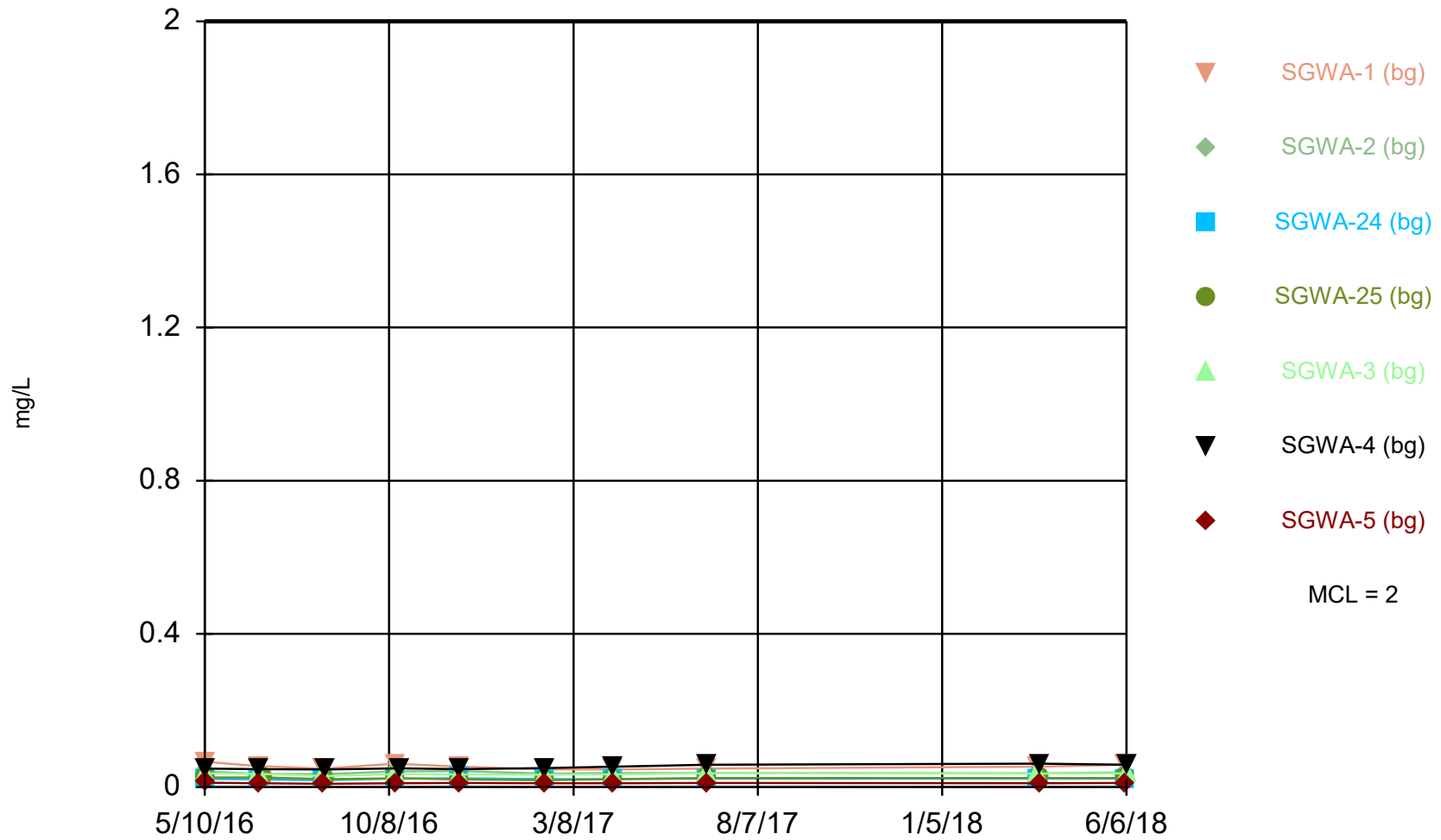


## Time Series



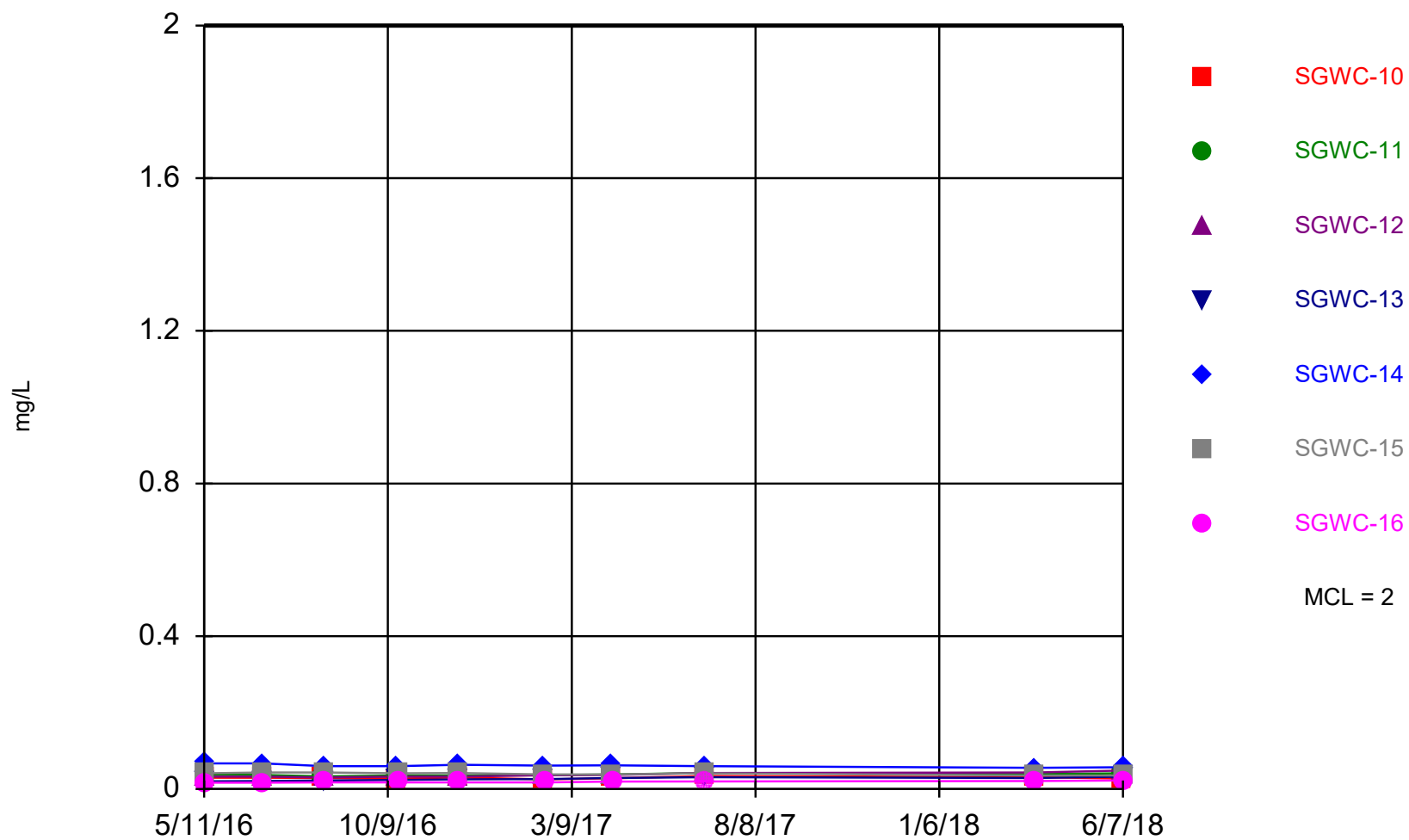
Constituent: Arsenic    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



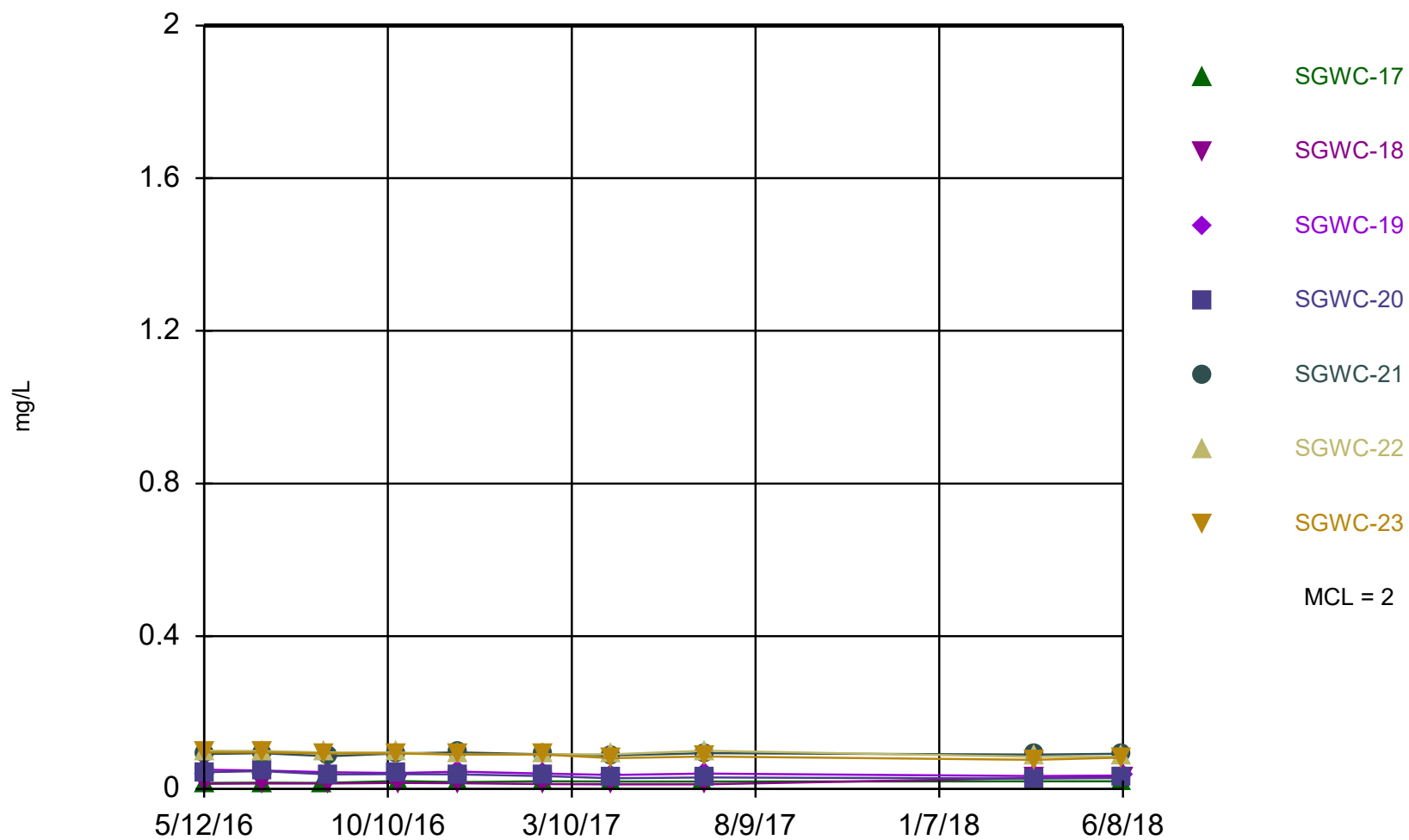
Constituent: Barium    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



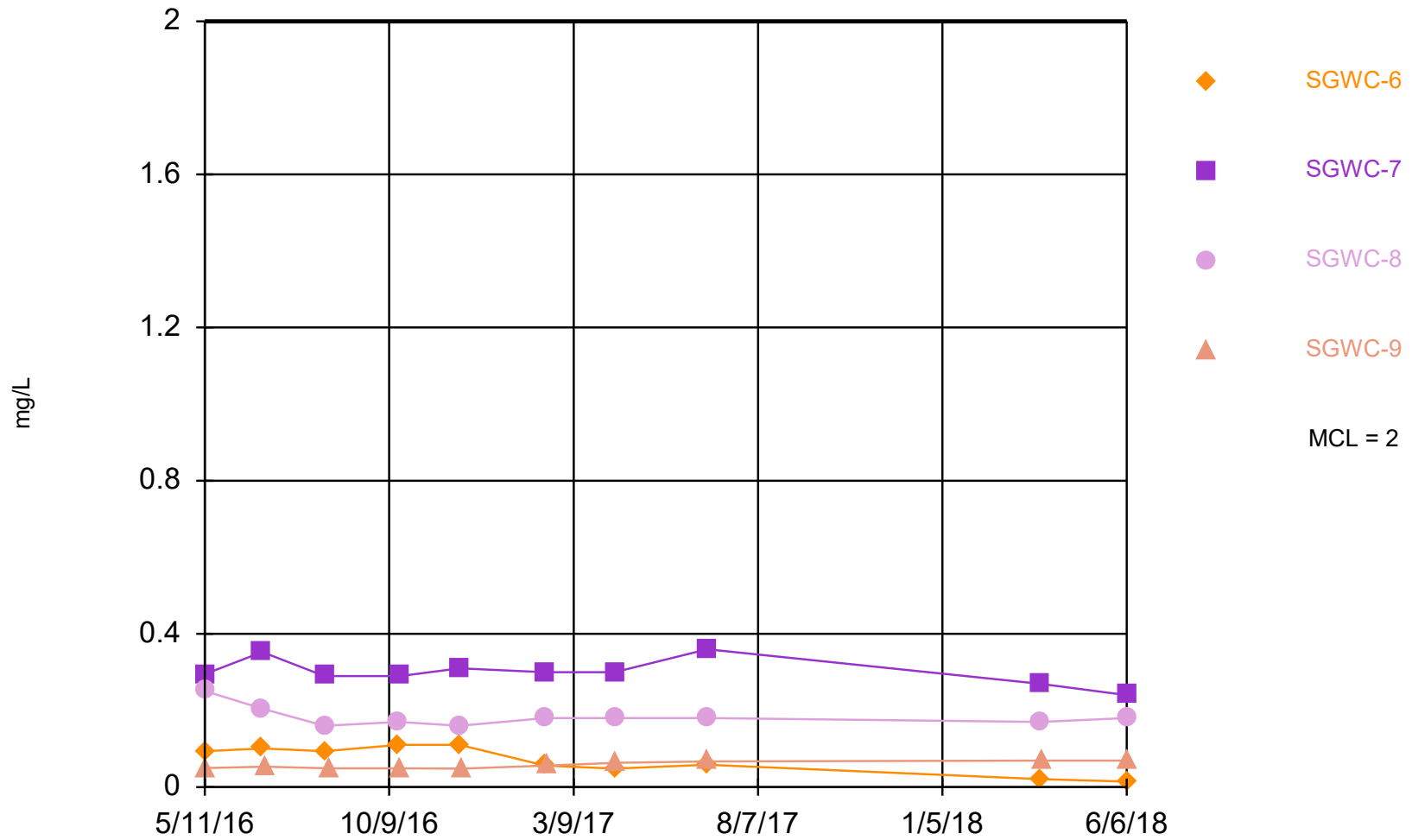
Constituent: Barium    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



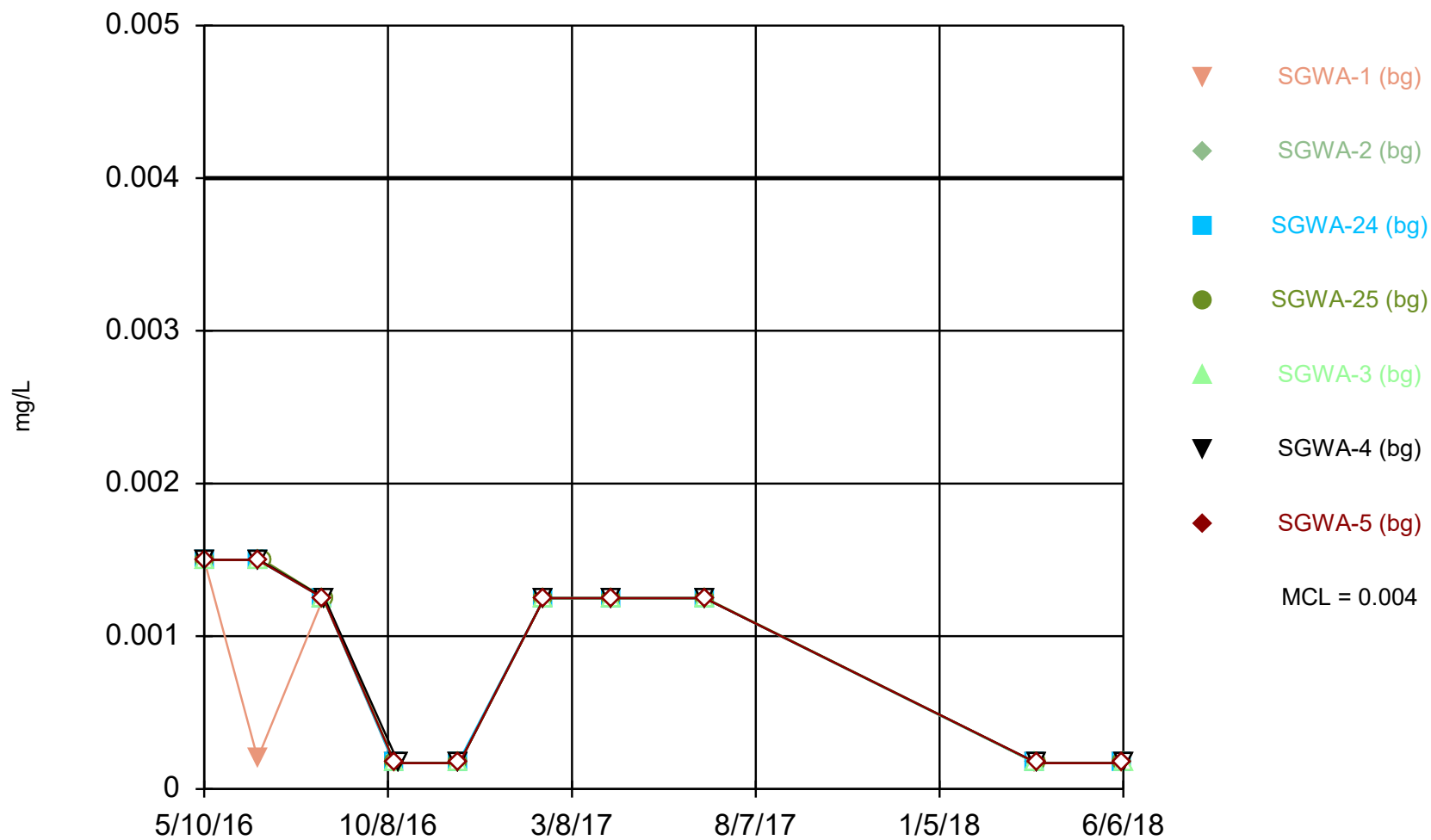
Constituent: Barium    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



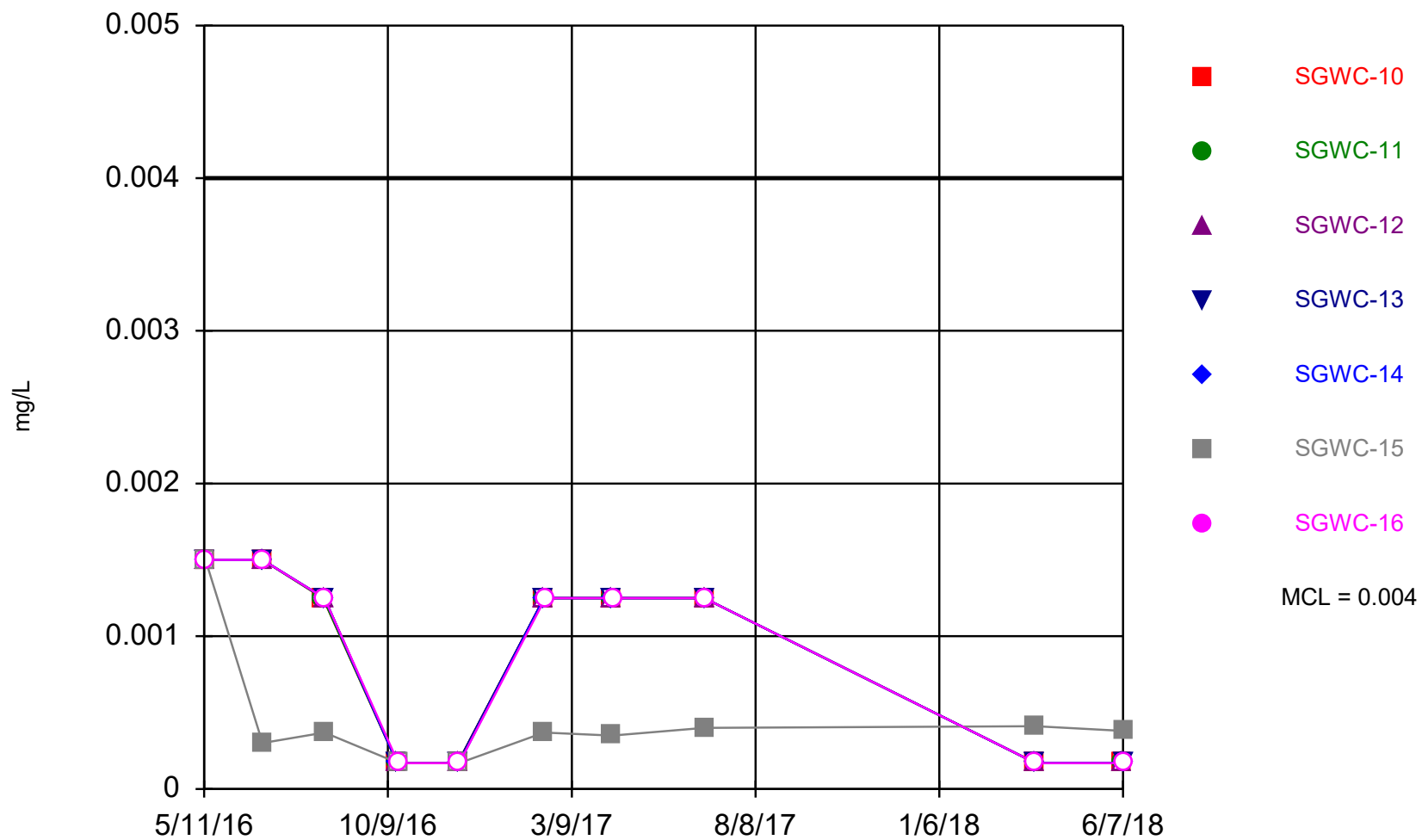
Constituent: Barium    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



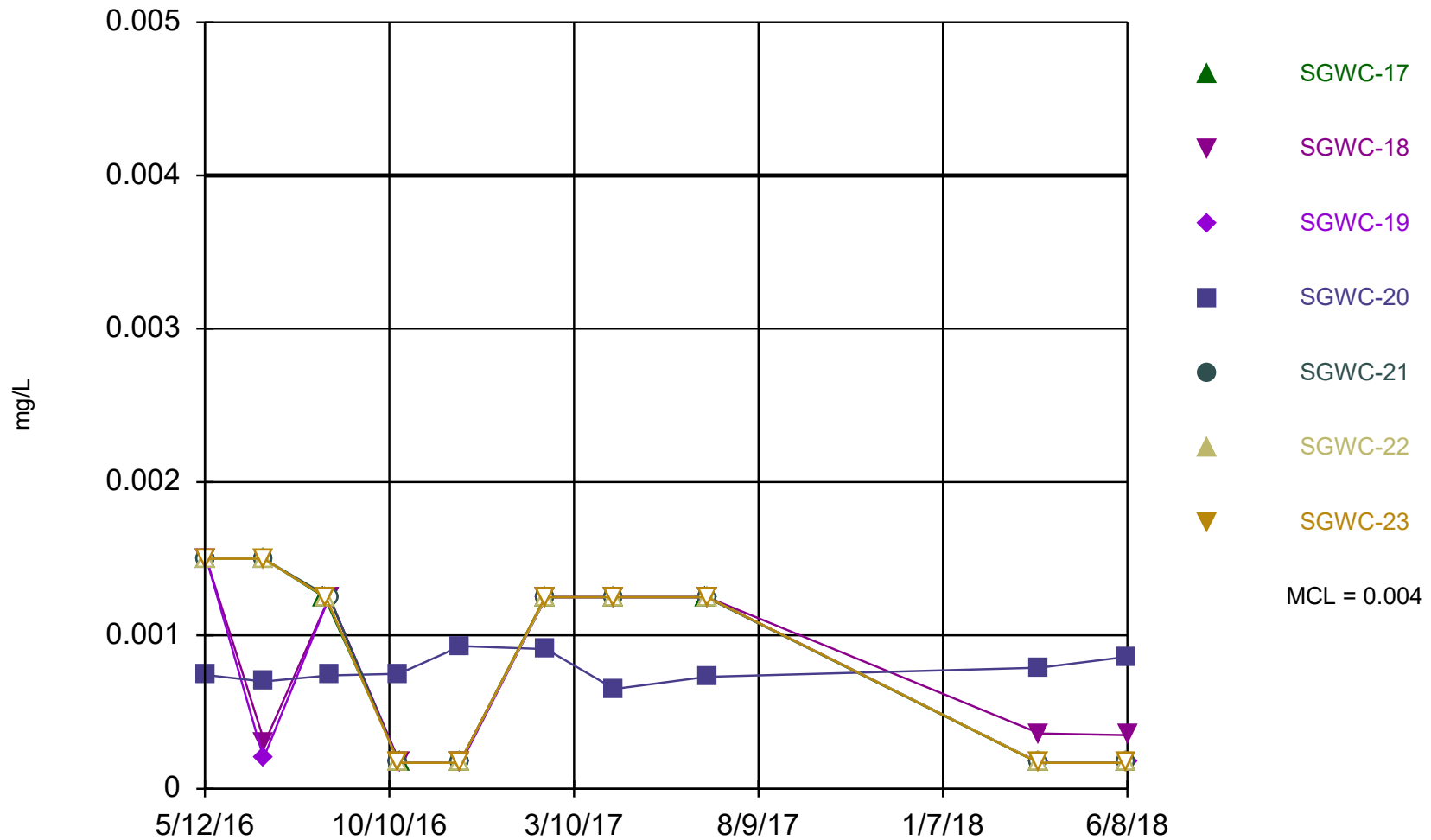
Constituent: Beryllium Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Beryllium    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

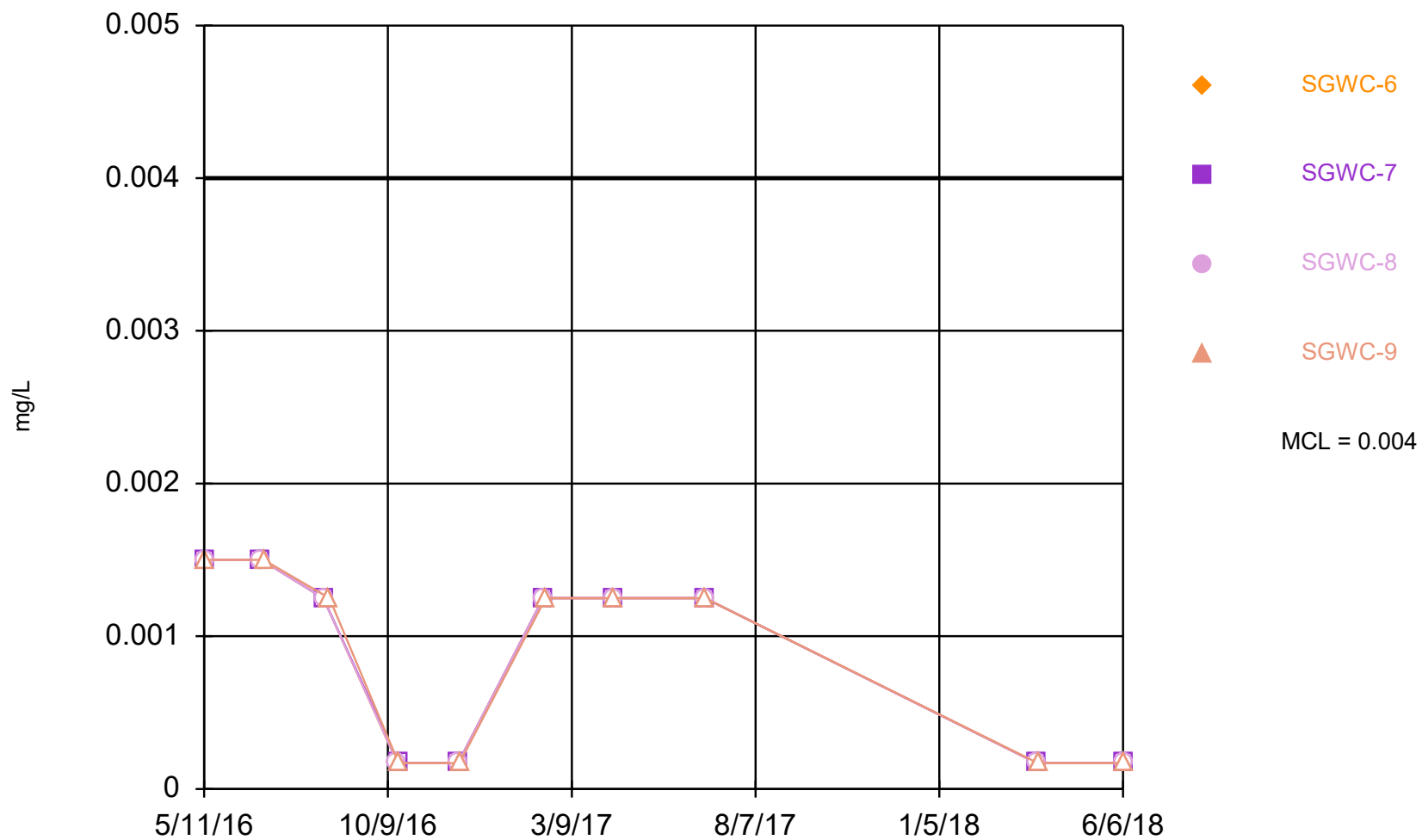
## Time Series



Constituent: Beryllium    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

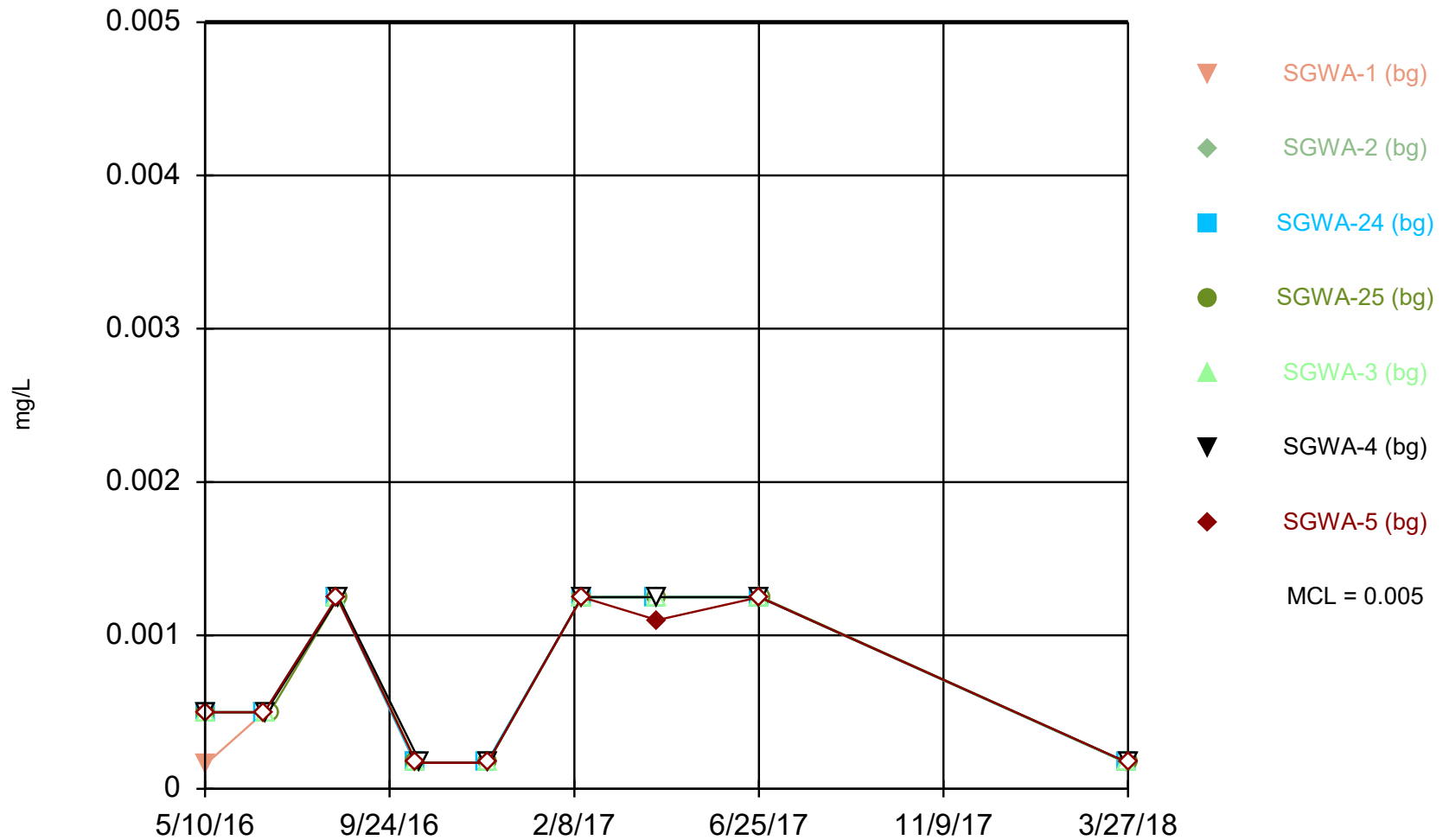


## Time Series



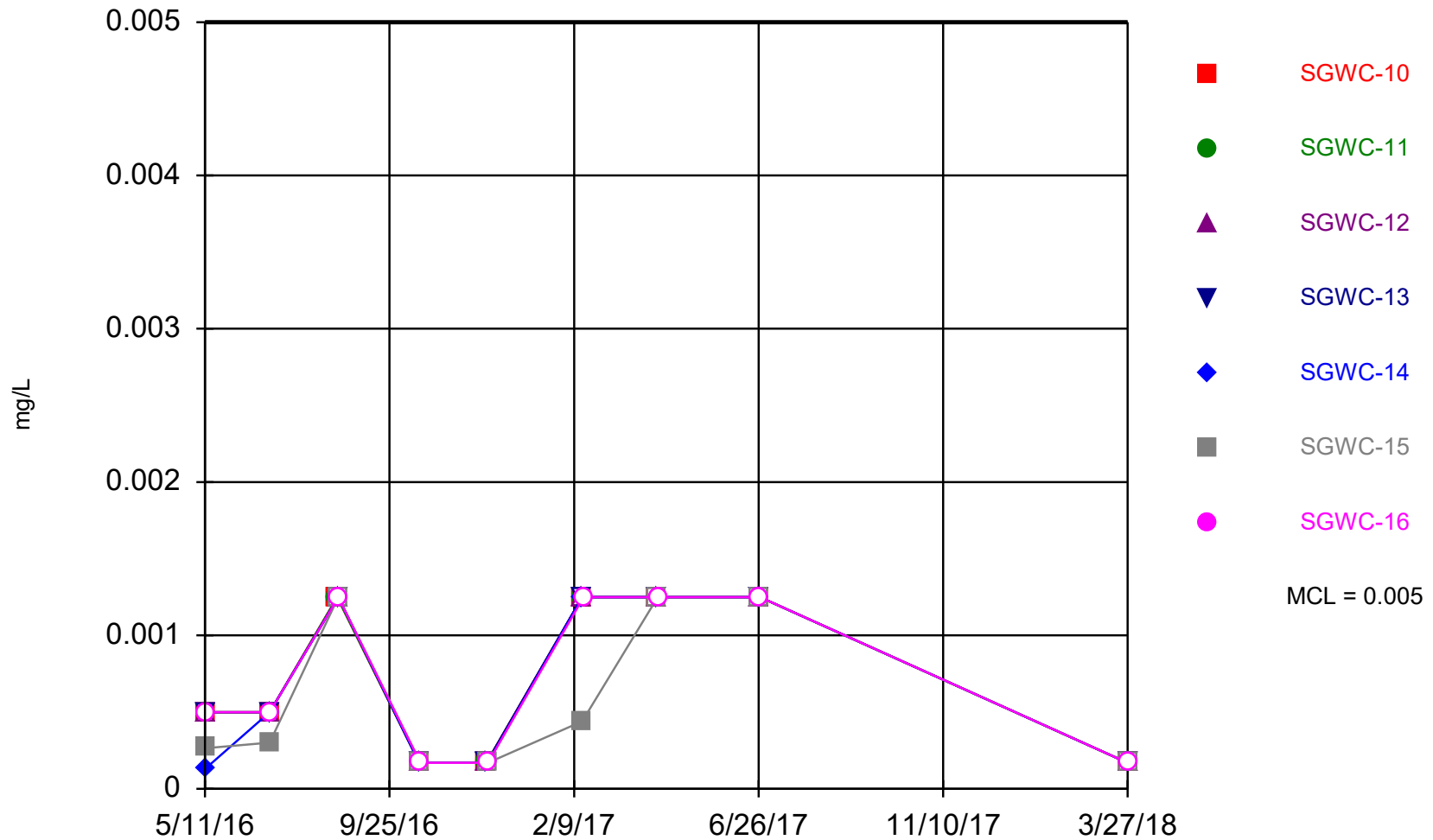
Constituent: Beryllium Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



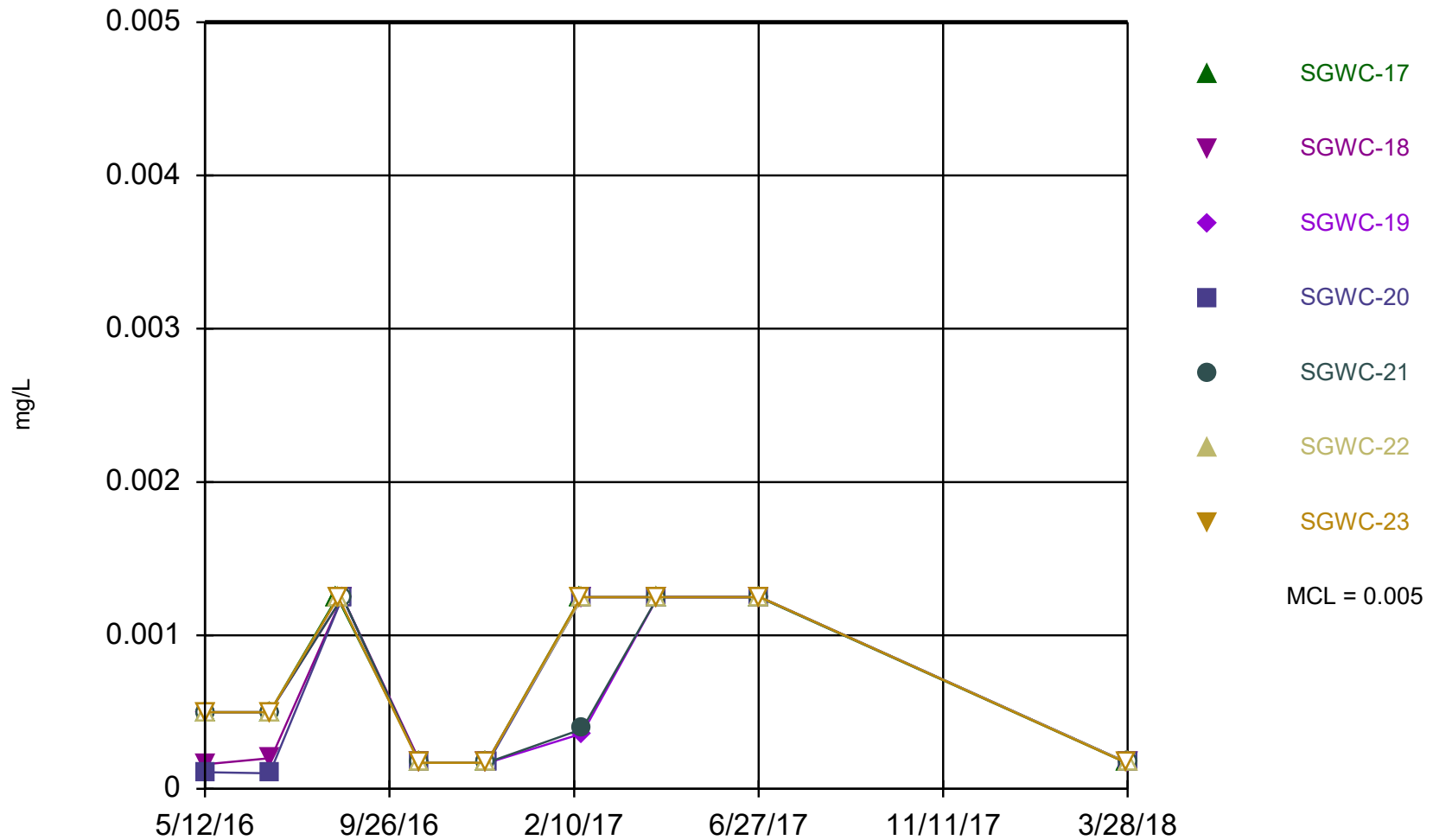
Constituent: Cadmium Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



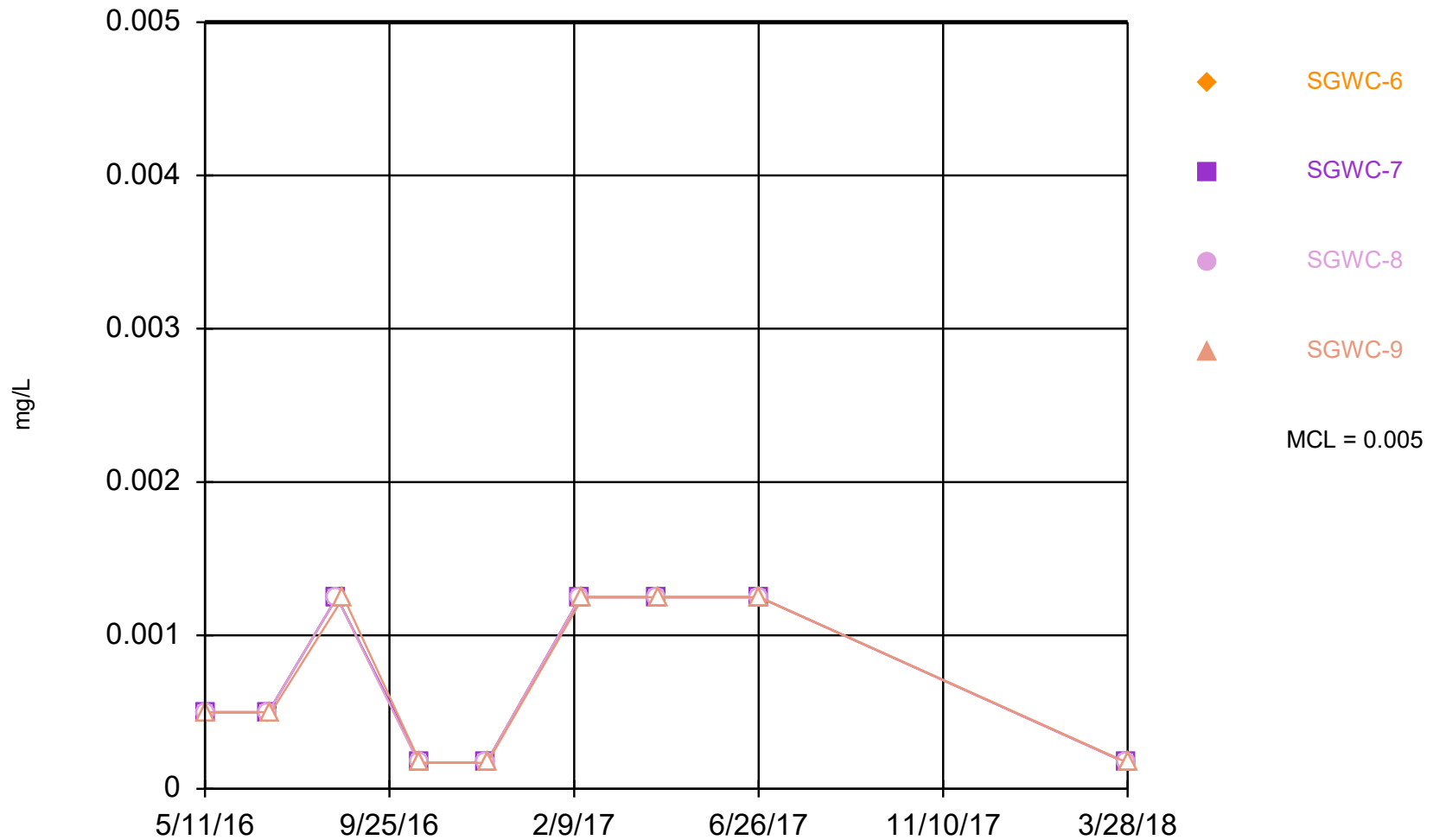
Constituent: Cadmium Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



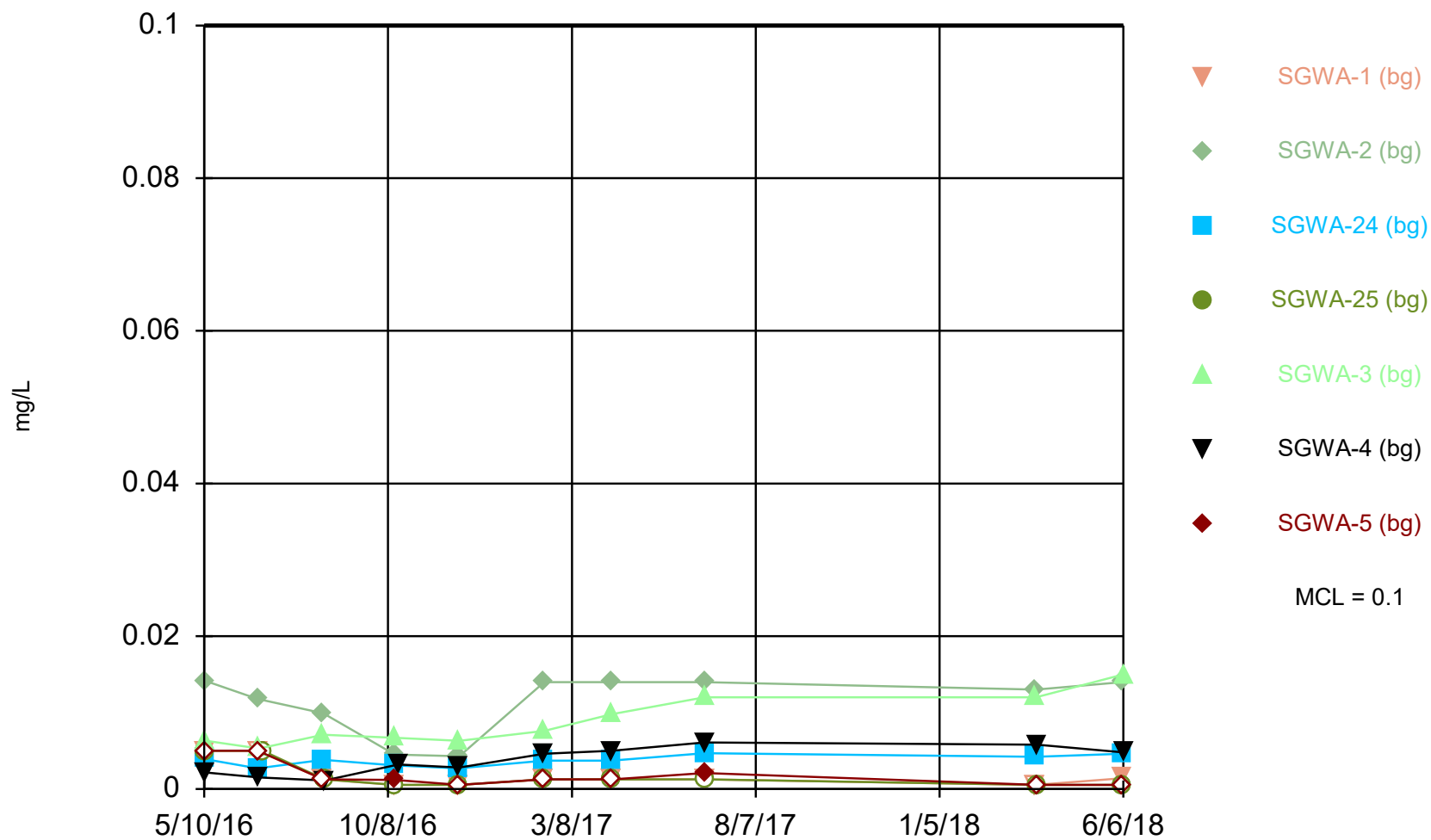
Constituent: Cadmium Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



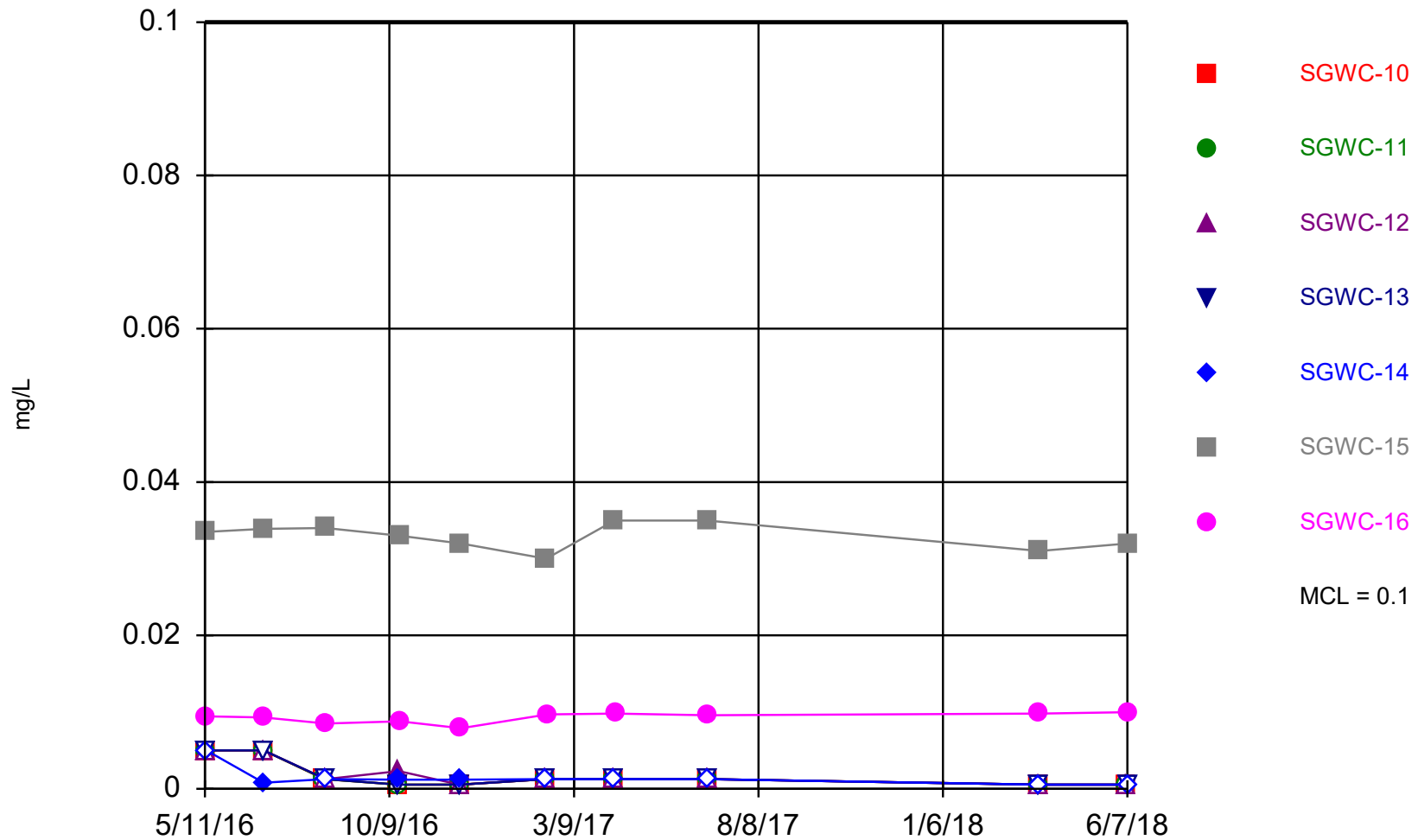
Constituent: Cadmium Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



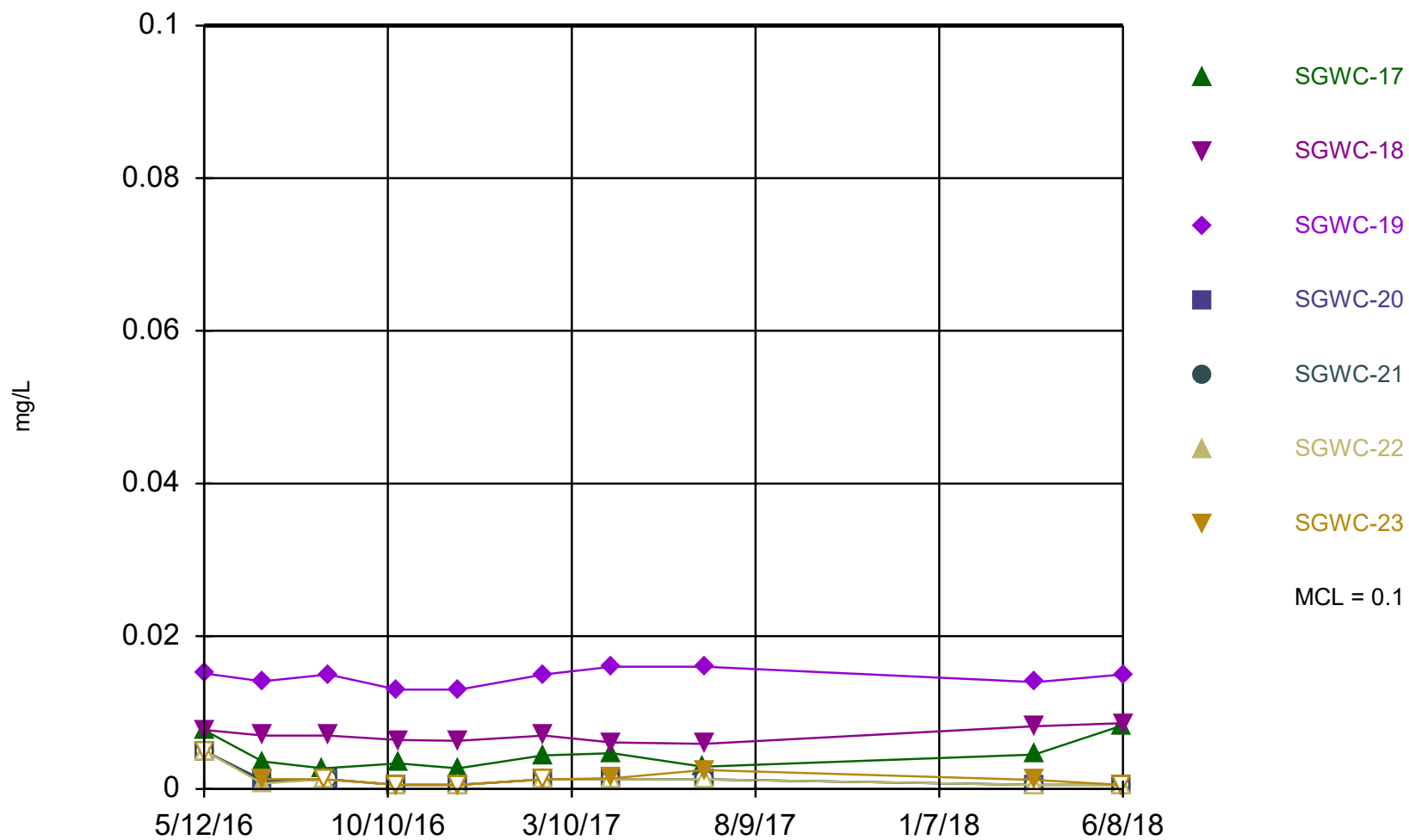
Constituent: Chromium Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Chromium Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

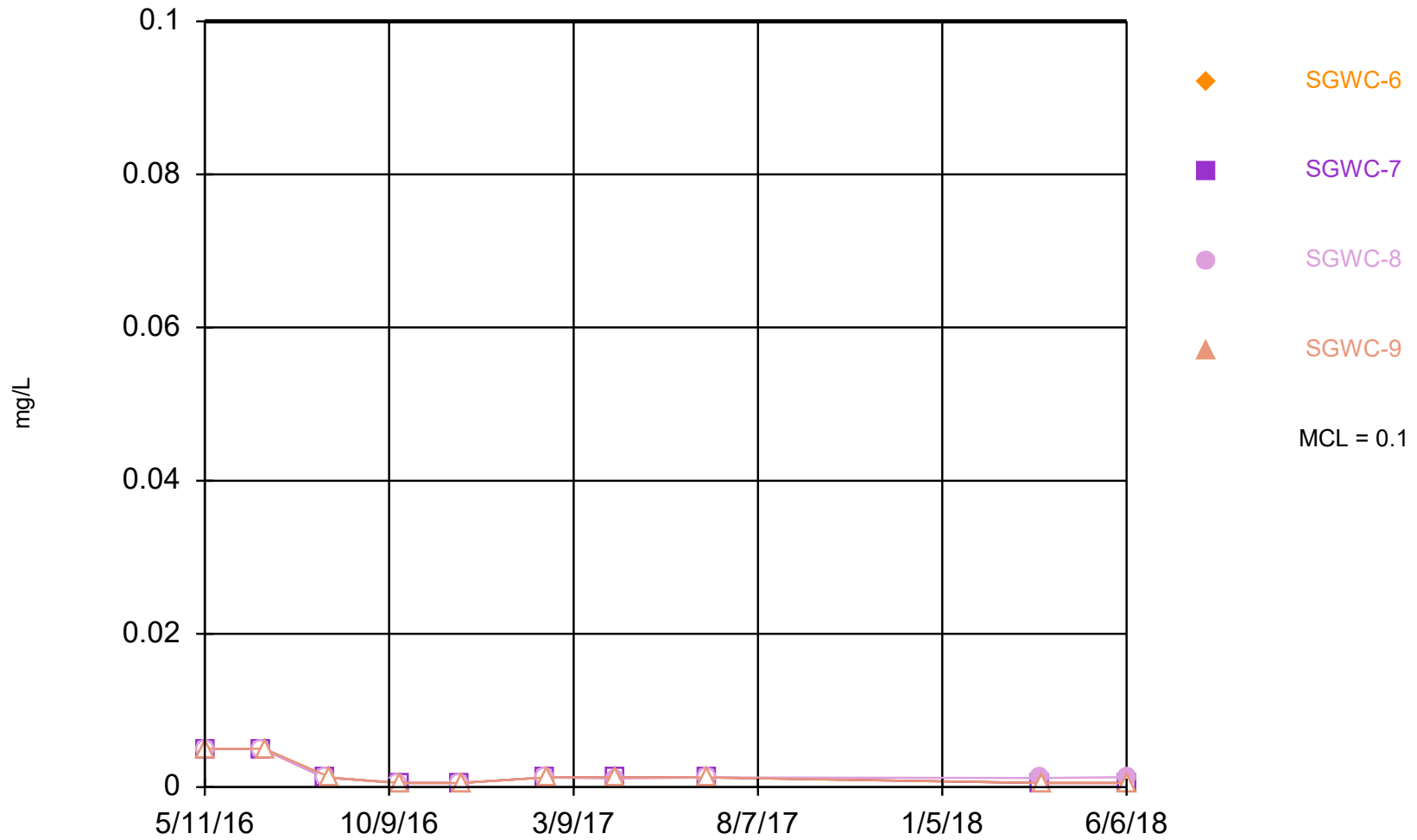
## Time Series



Constituent: Chromium Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

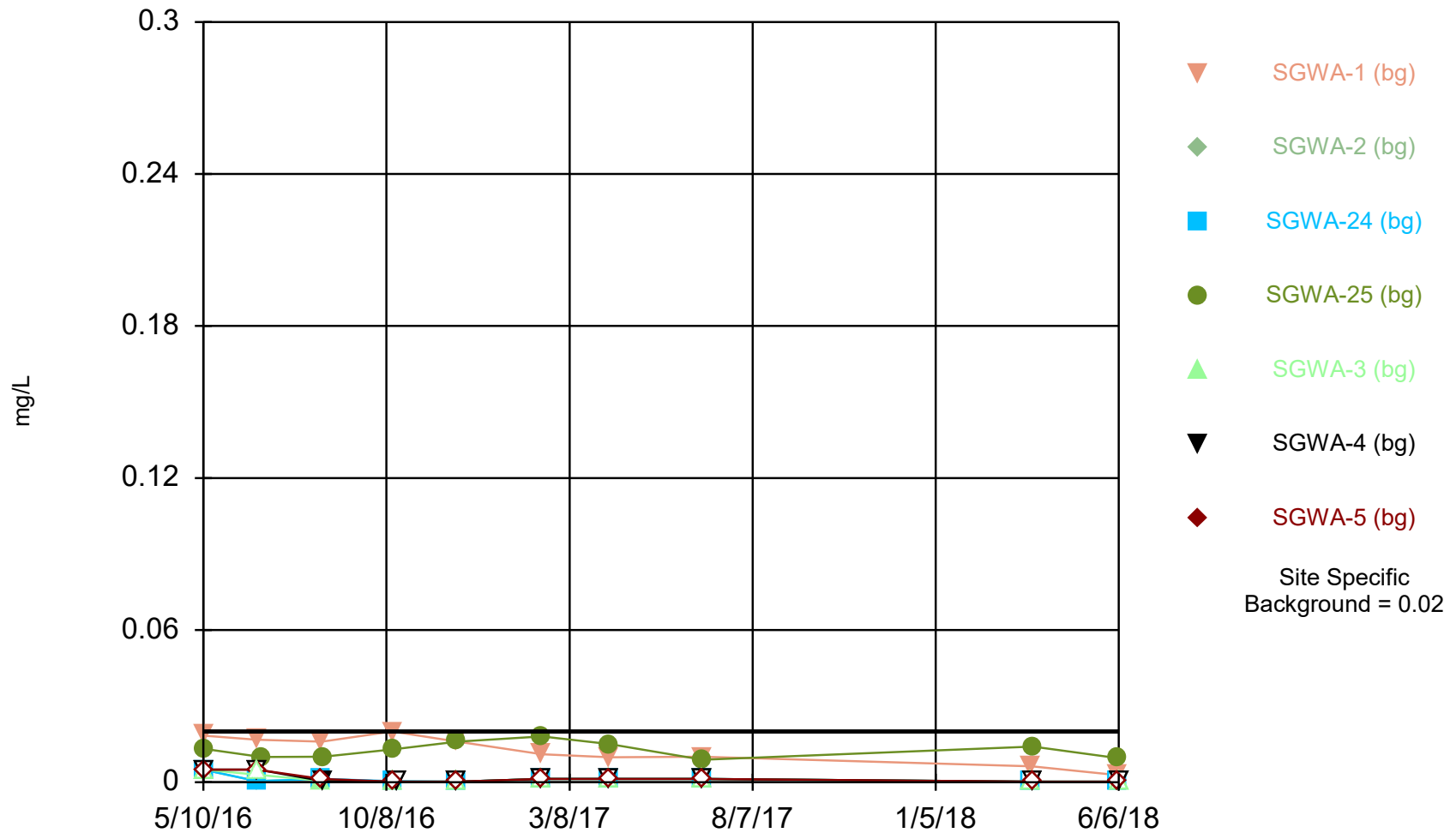


## Time Series



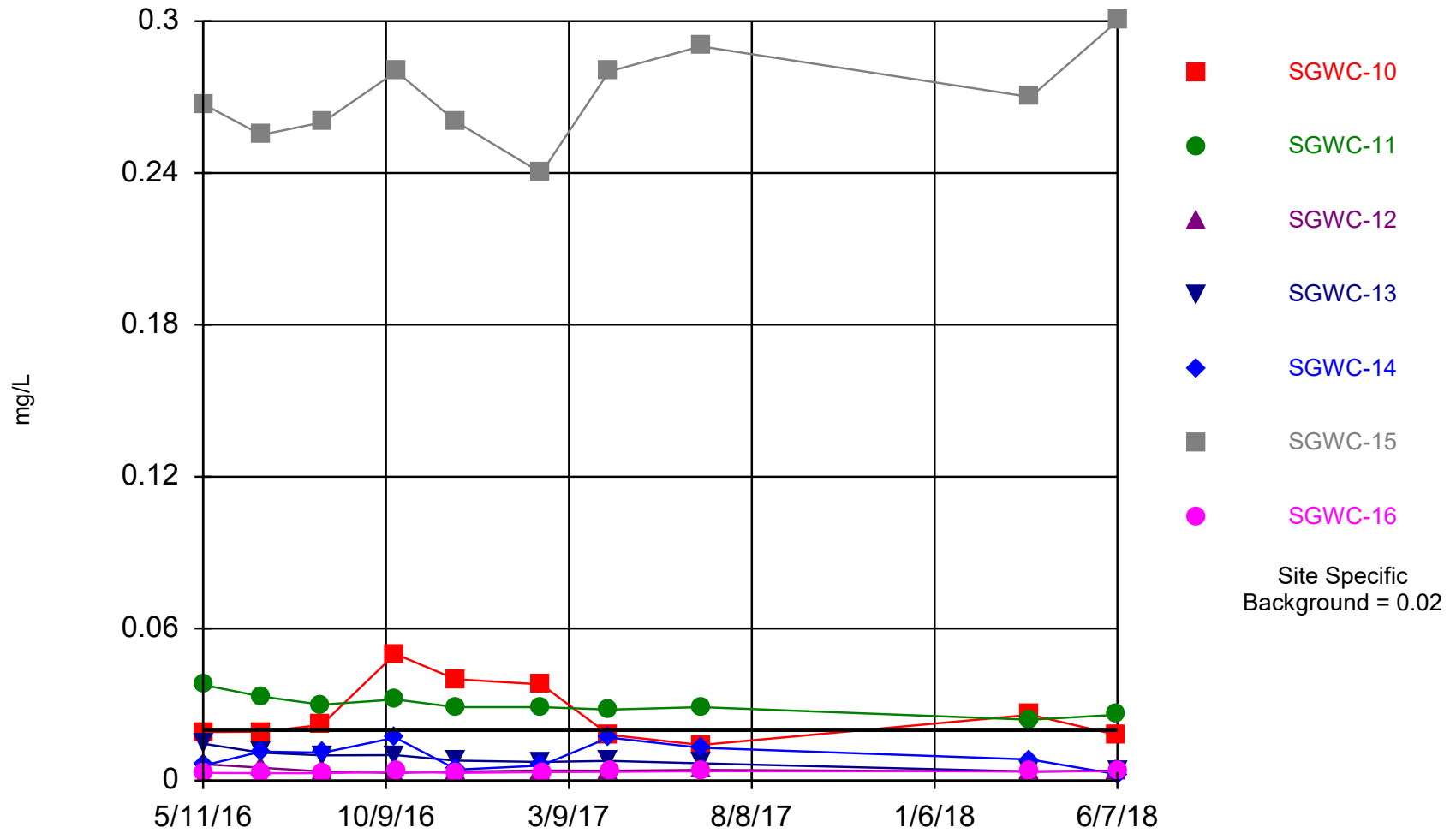
Constituent: Chromium Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



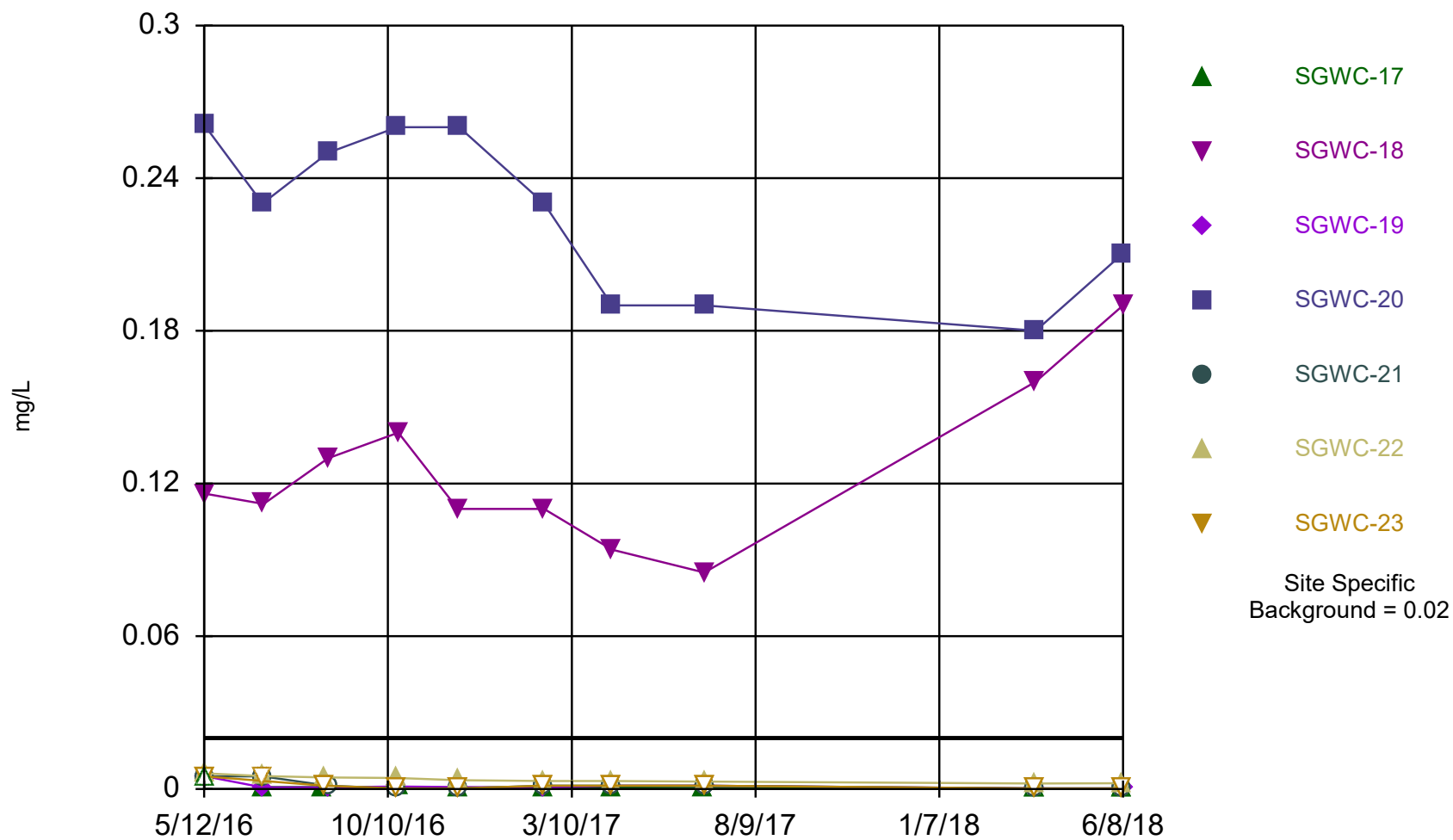
Constituent: Cobalt Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



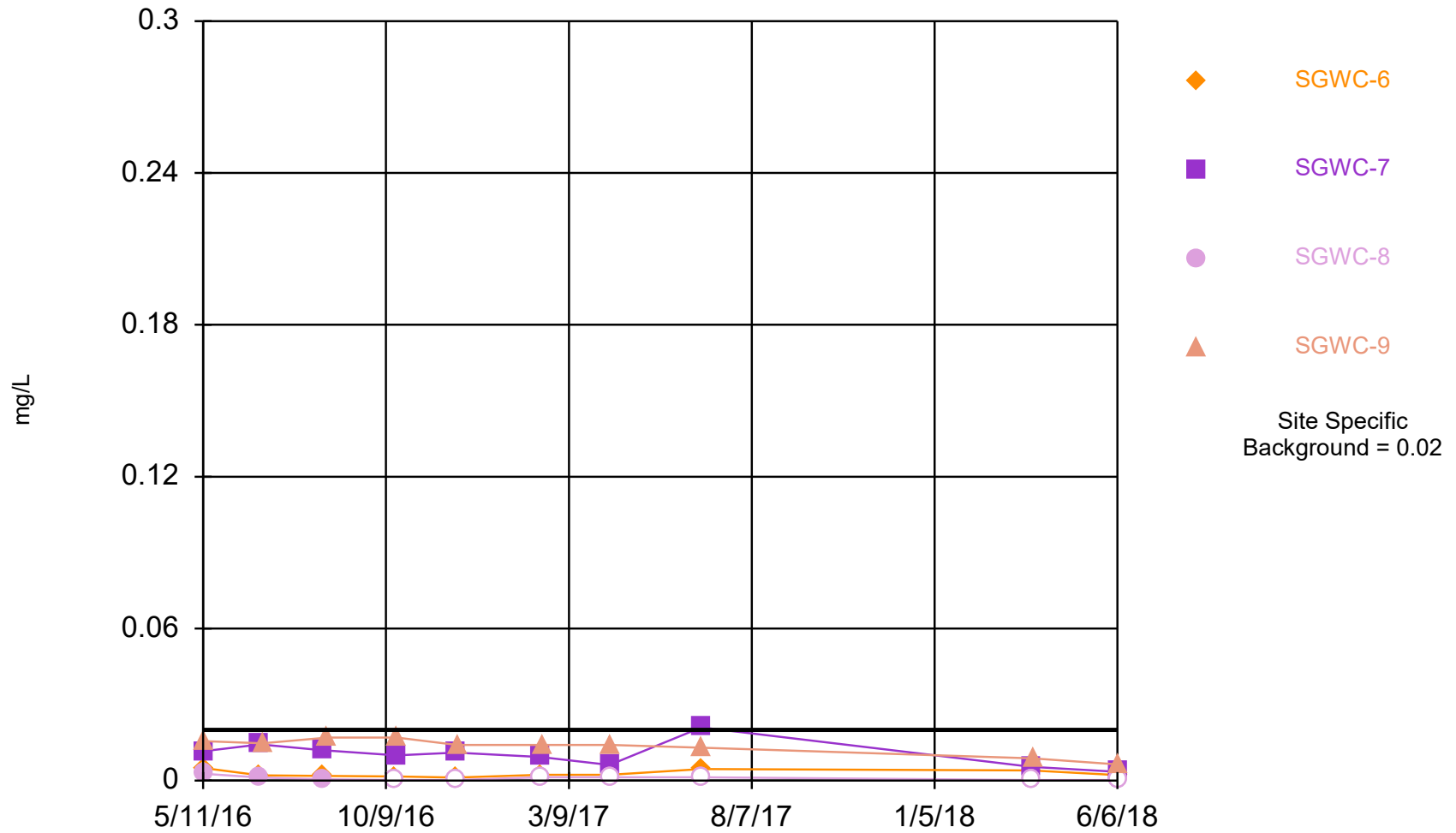
Constituent: Cobalt Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



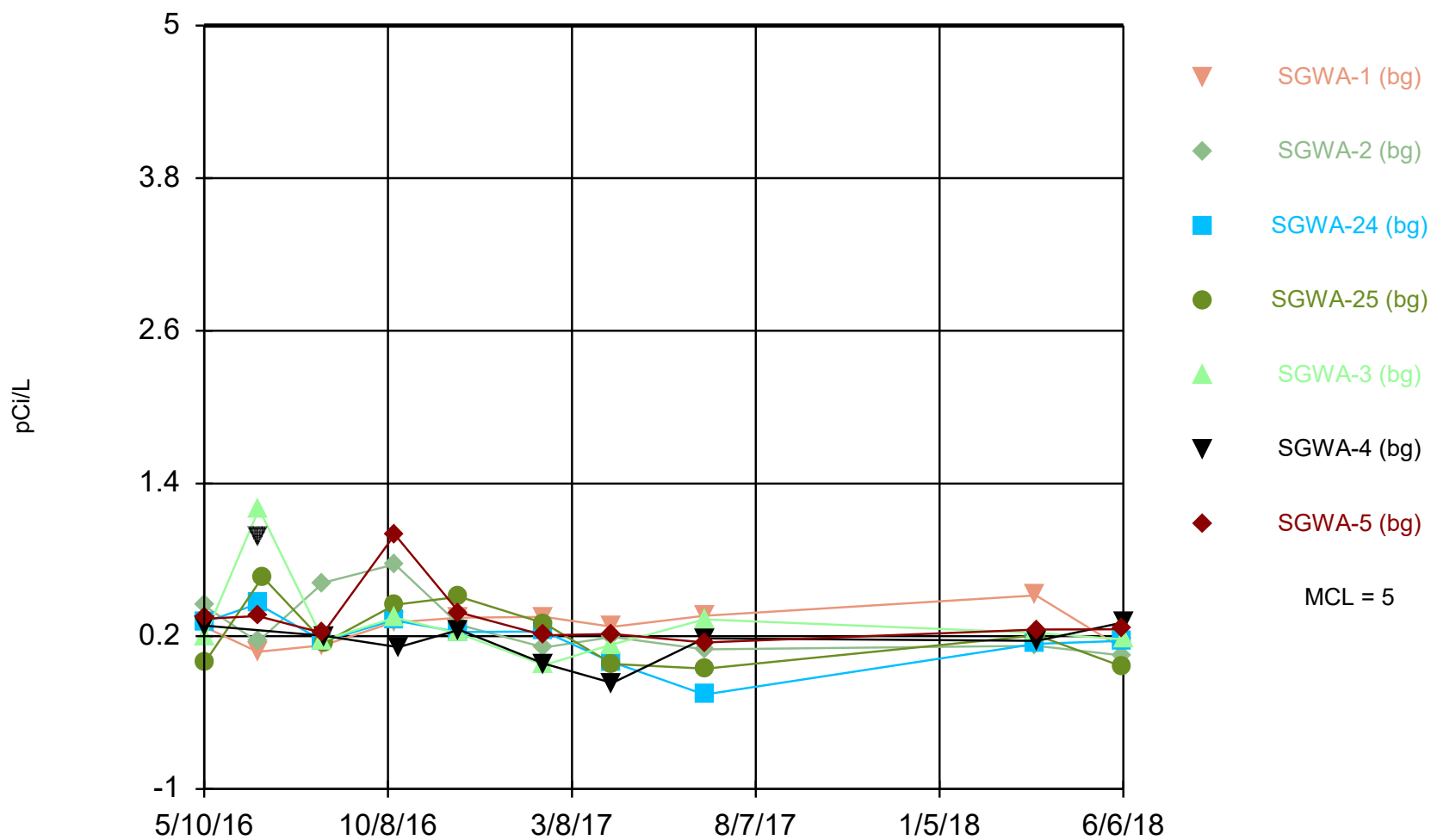
Constituent: Cobalt Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



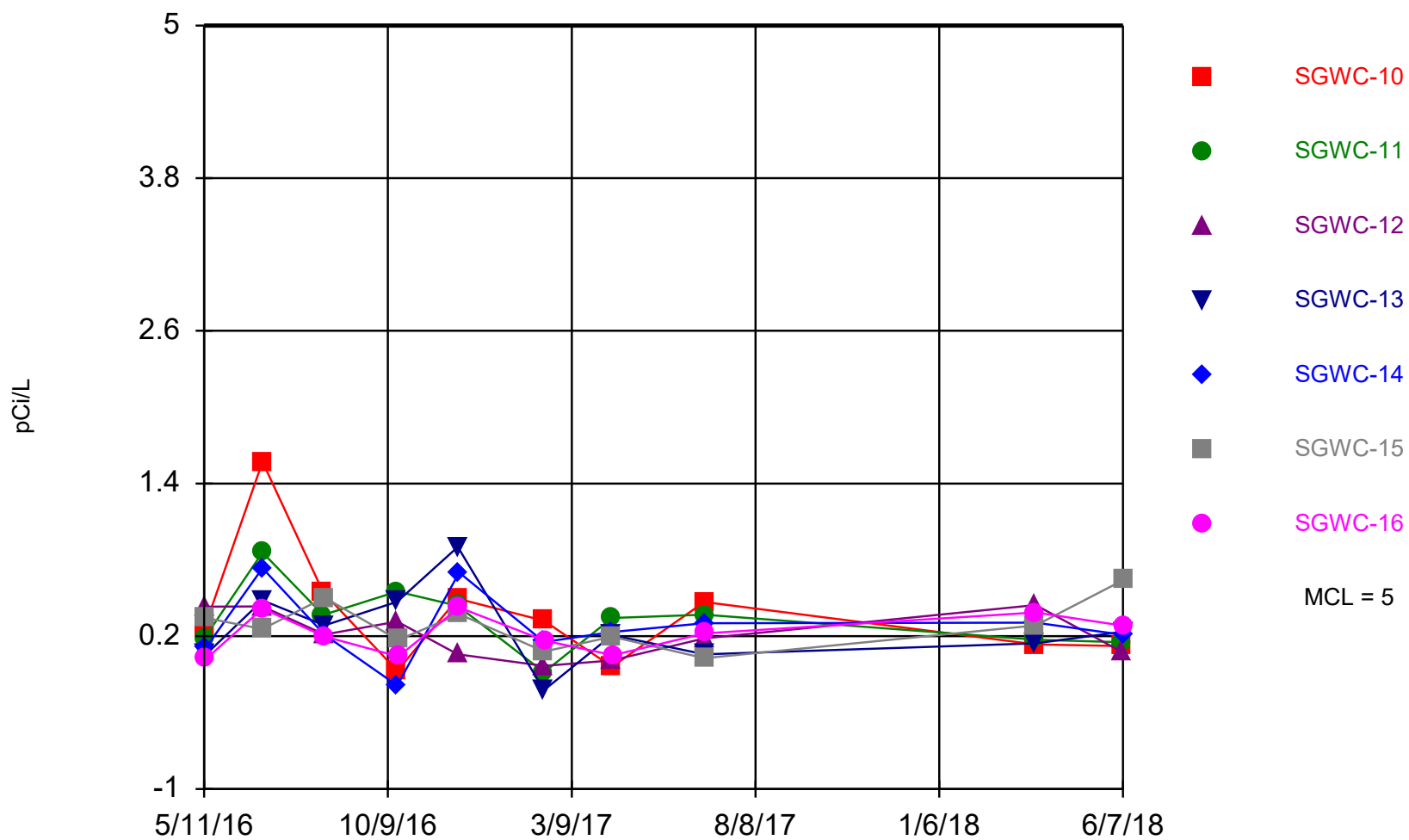
Constituent: Cobalt Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



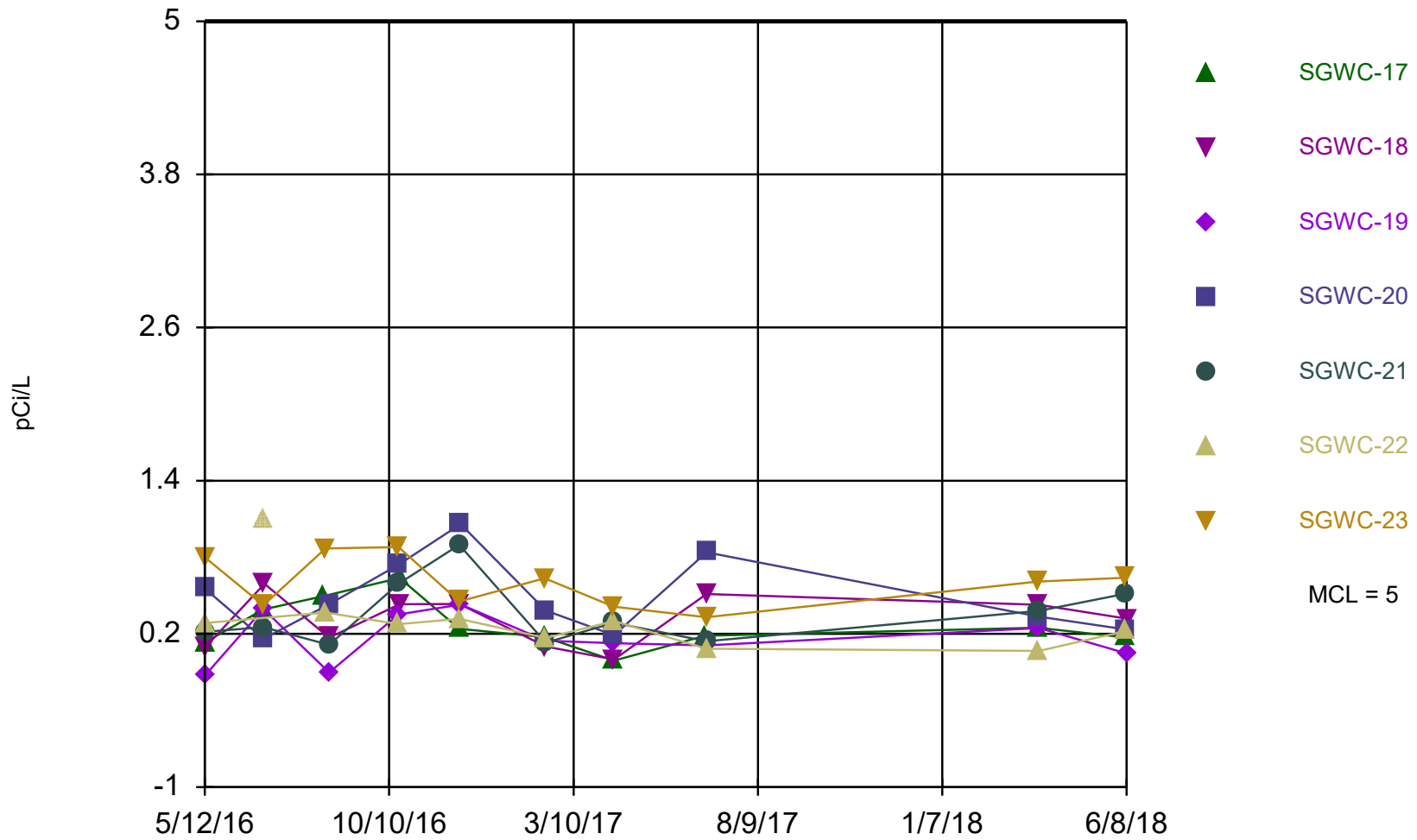
Constituent: Combined Radium 226 + 228    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence I  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Combined Radium 226 + 228    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence I  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

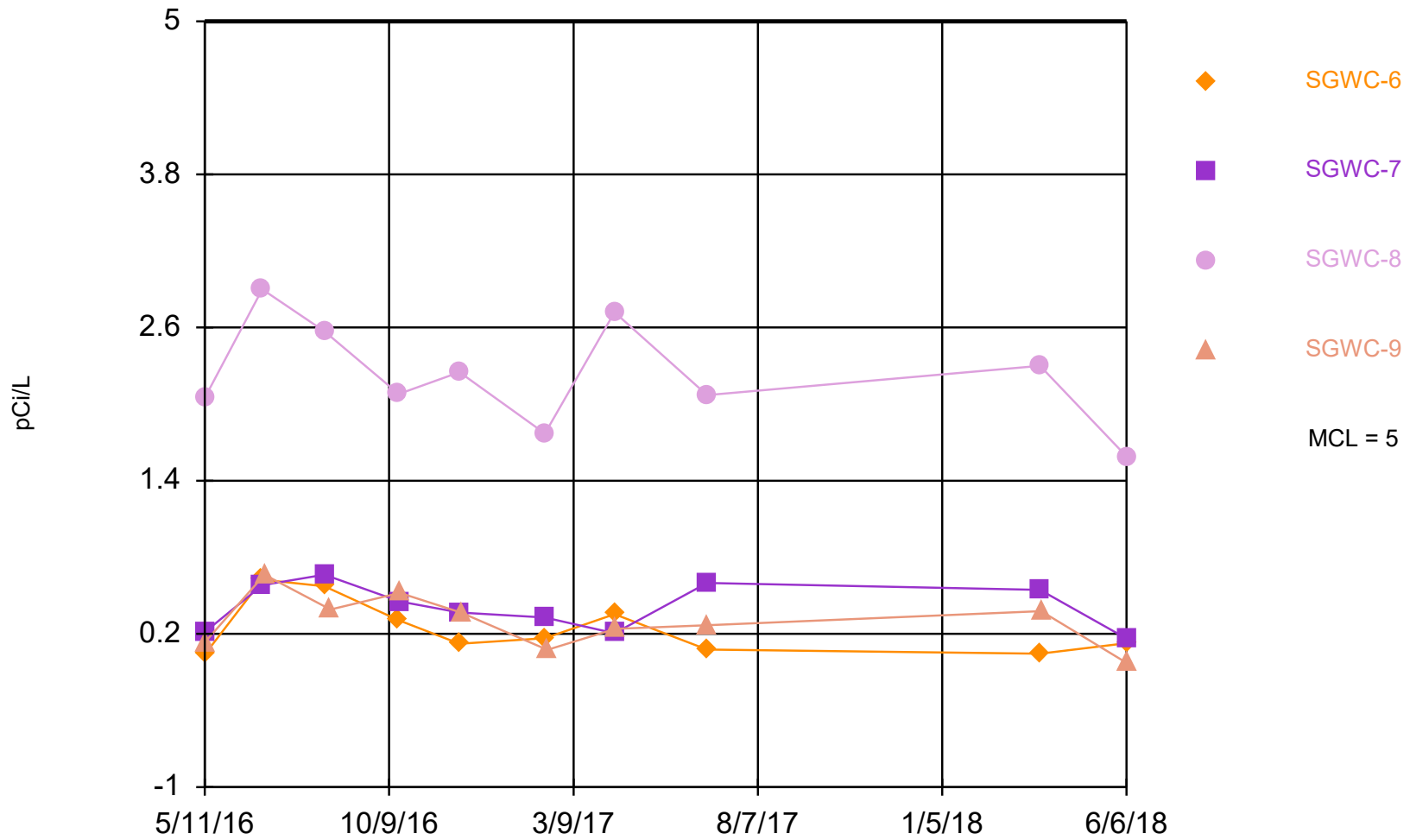
## Time Series



Constituent: Combined Radium 226 + 228    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence I  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

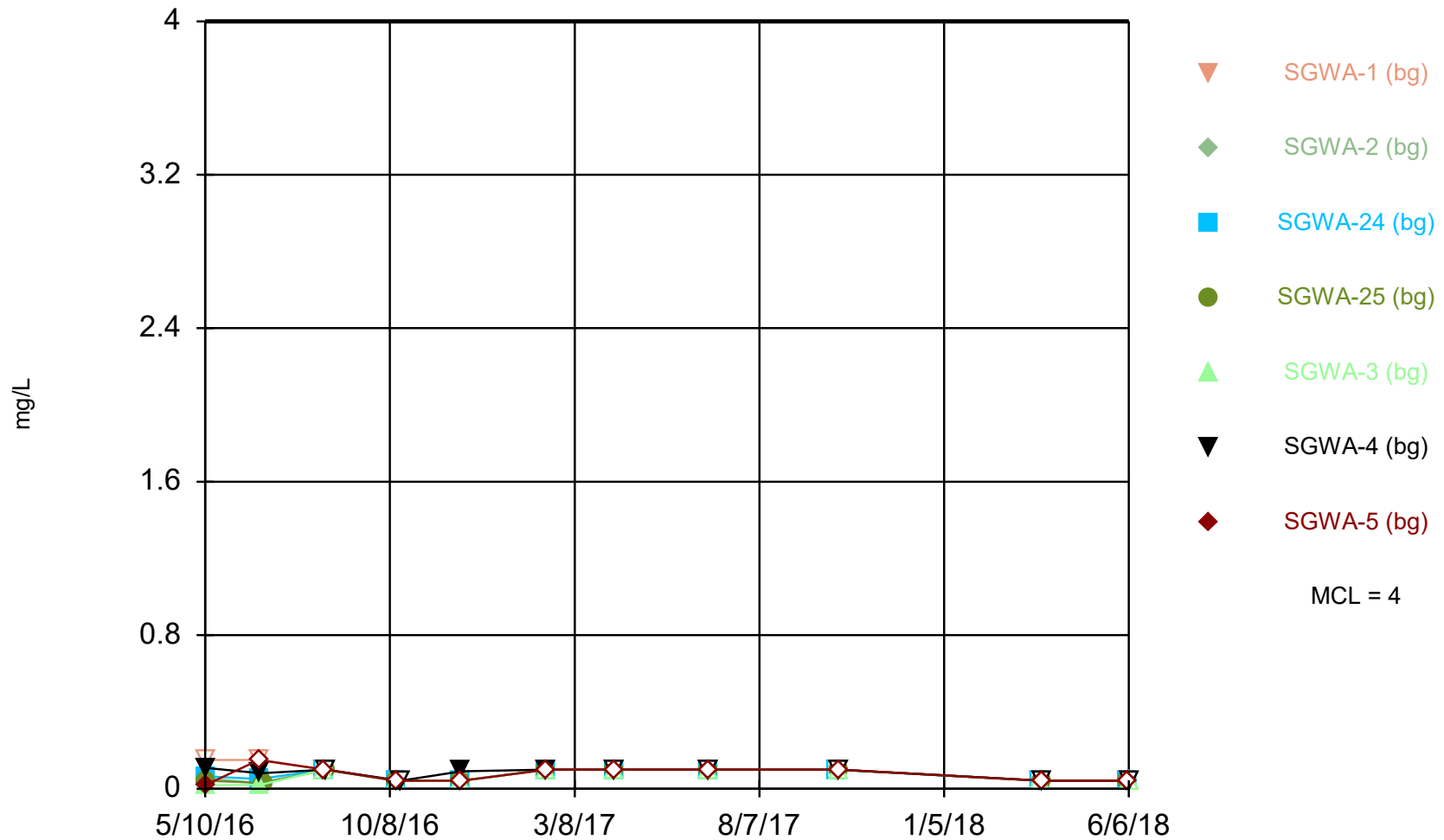


## Time Series



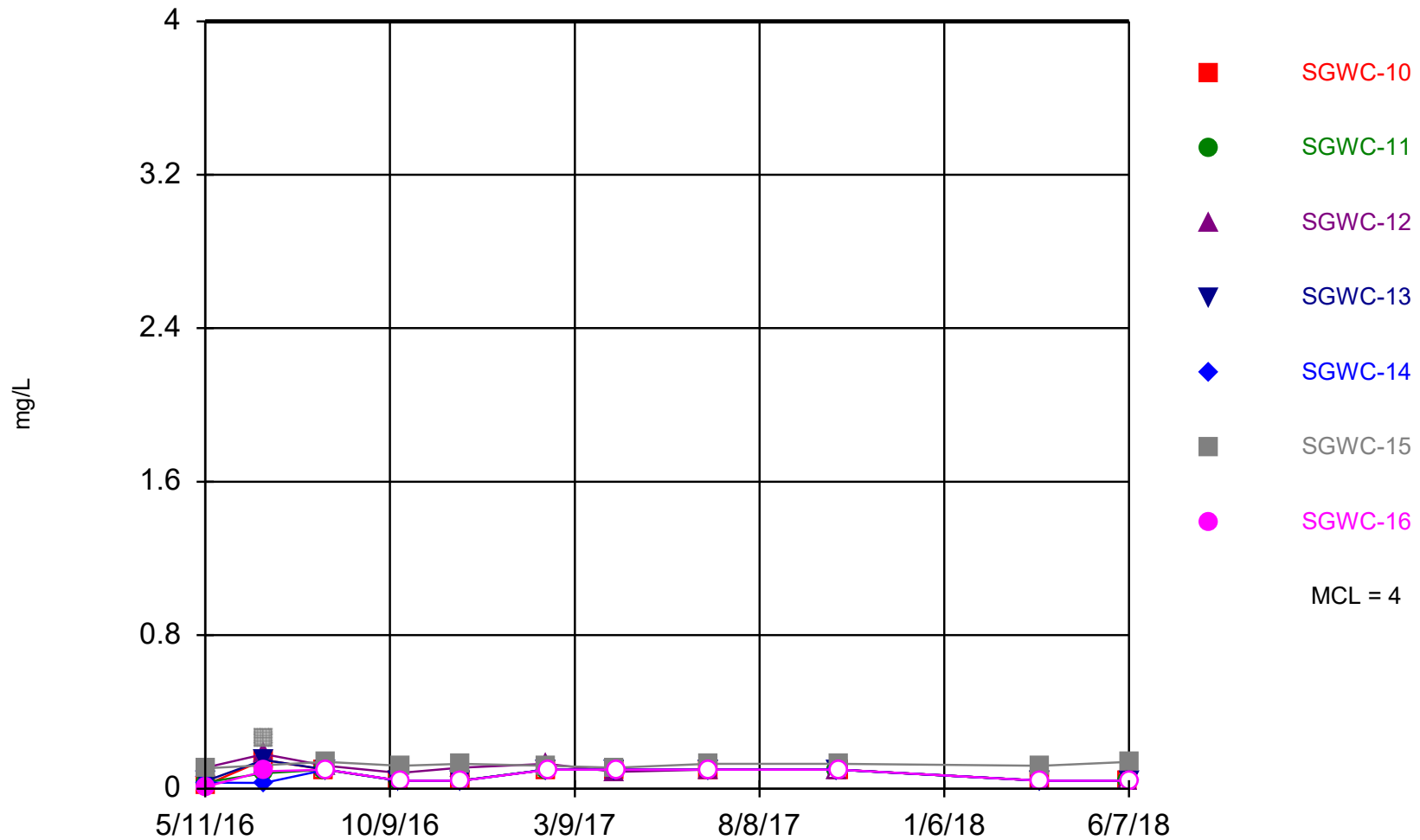
Constituent: Combined Radium 226 + 228 Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence I  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



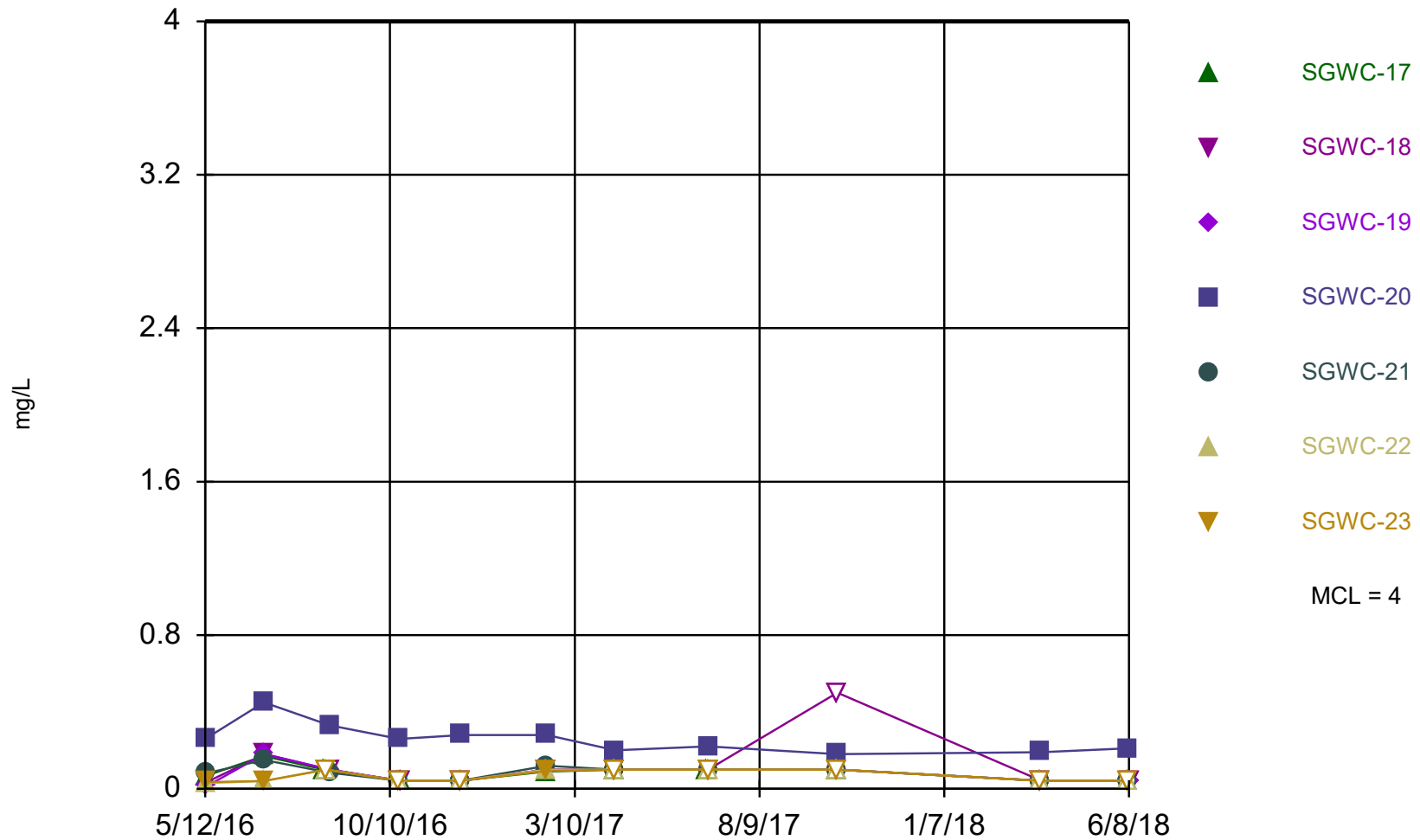
Constituent: Fluoride Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



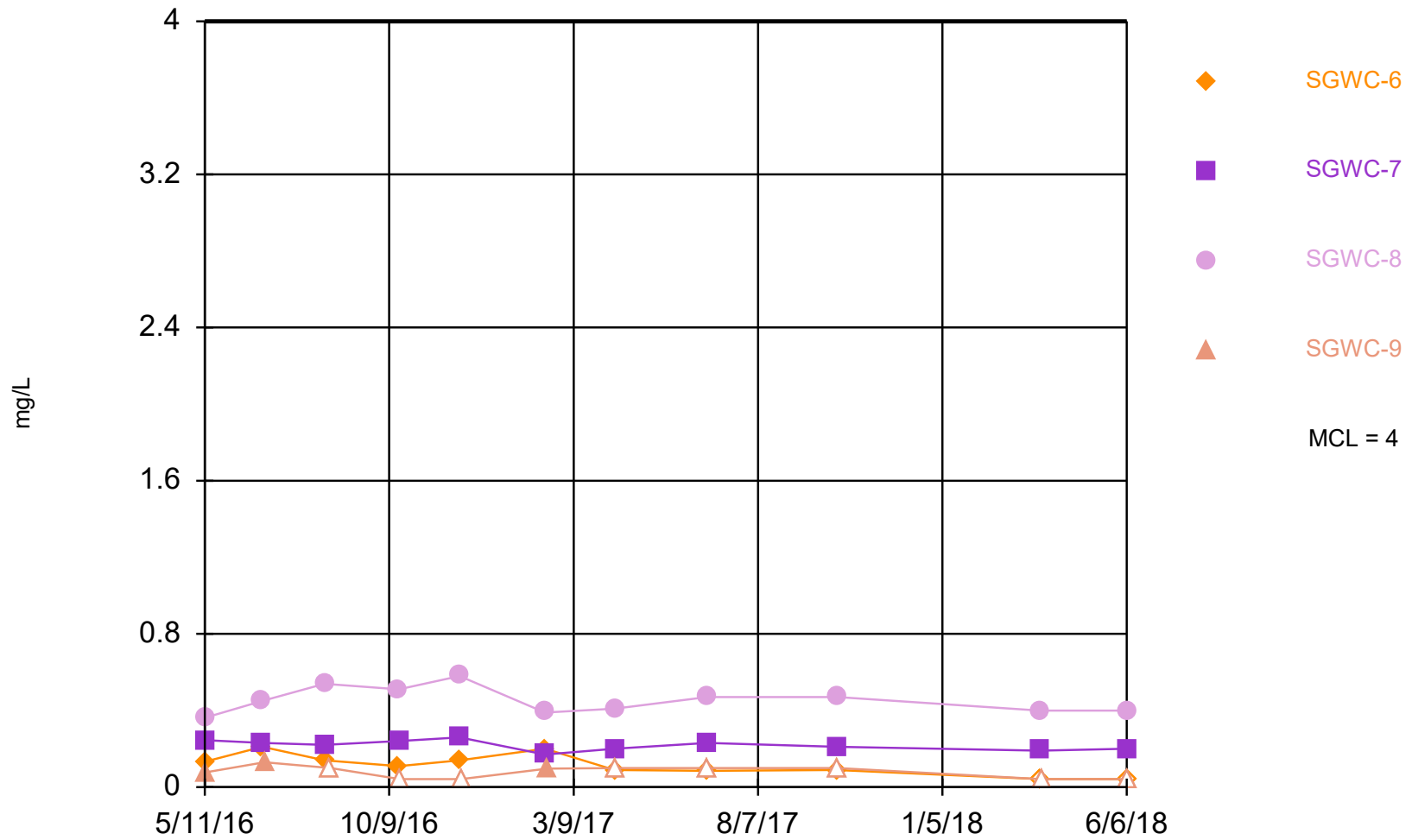
Constituent: Fluoride Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



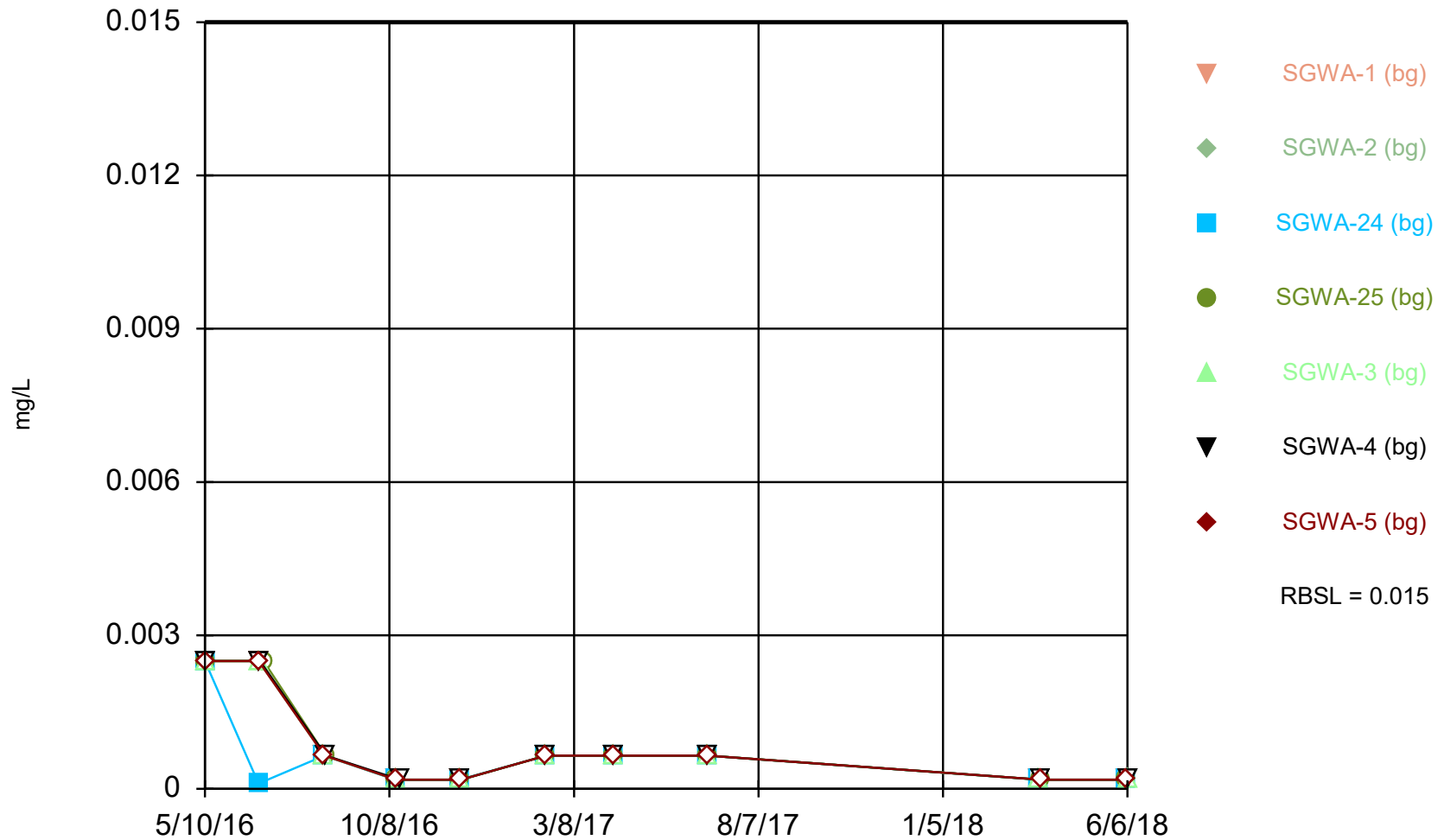
Constituent: Fluoride Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Fluoride    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

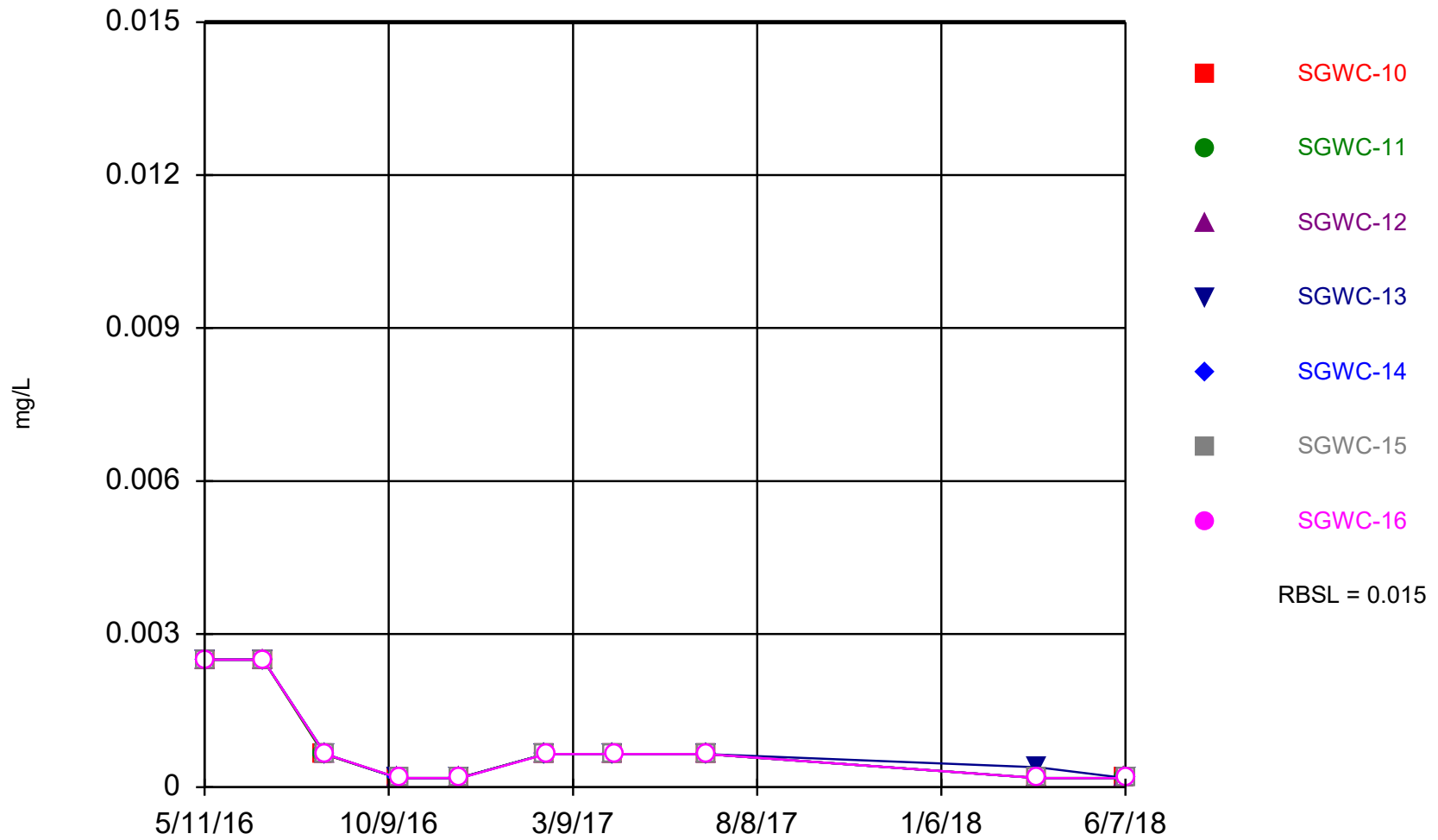
## Time Series



Constituent: Lead Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval

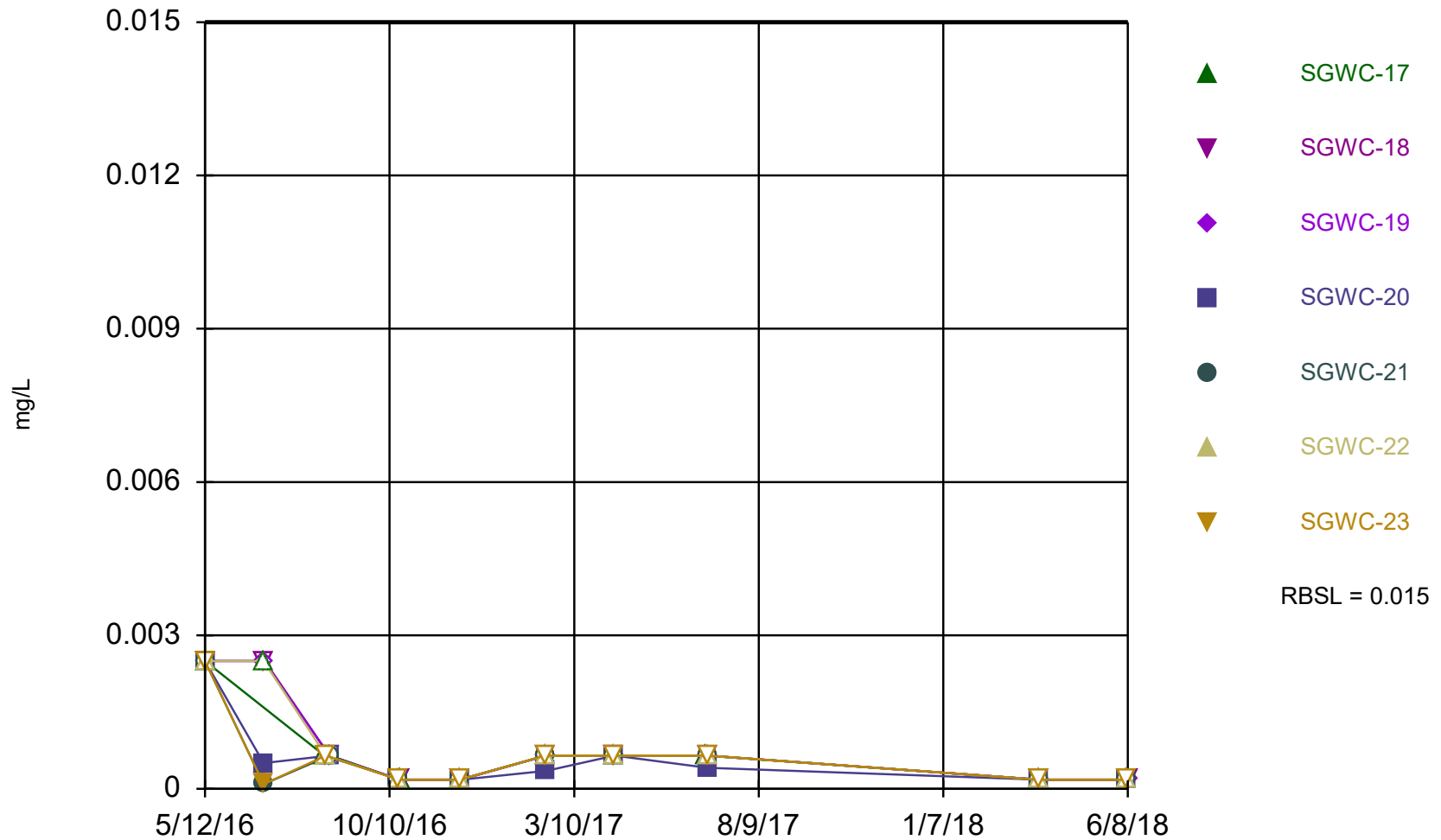
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Lead Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

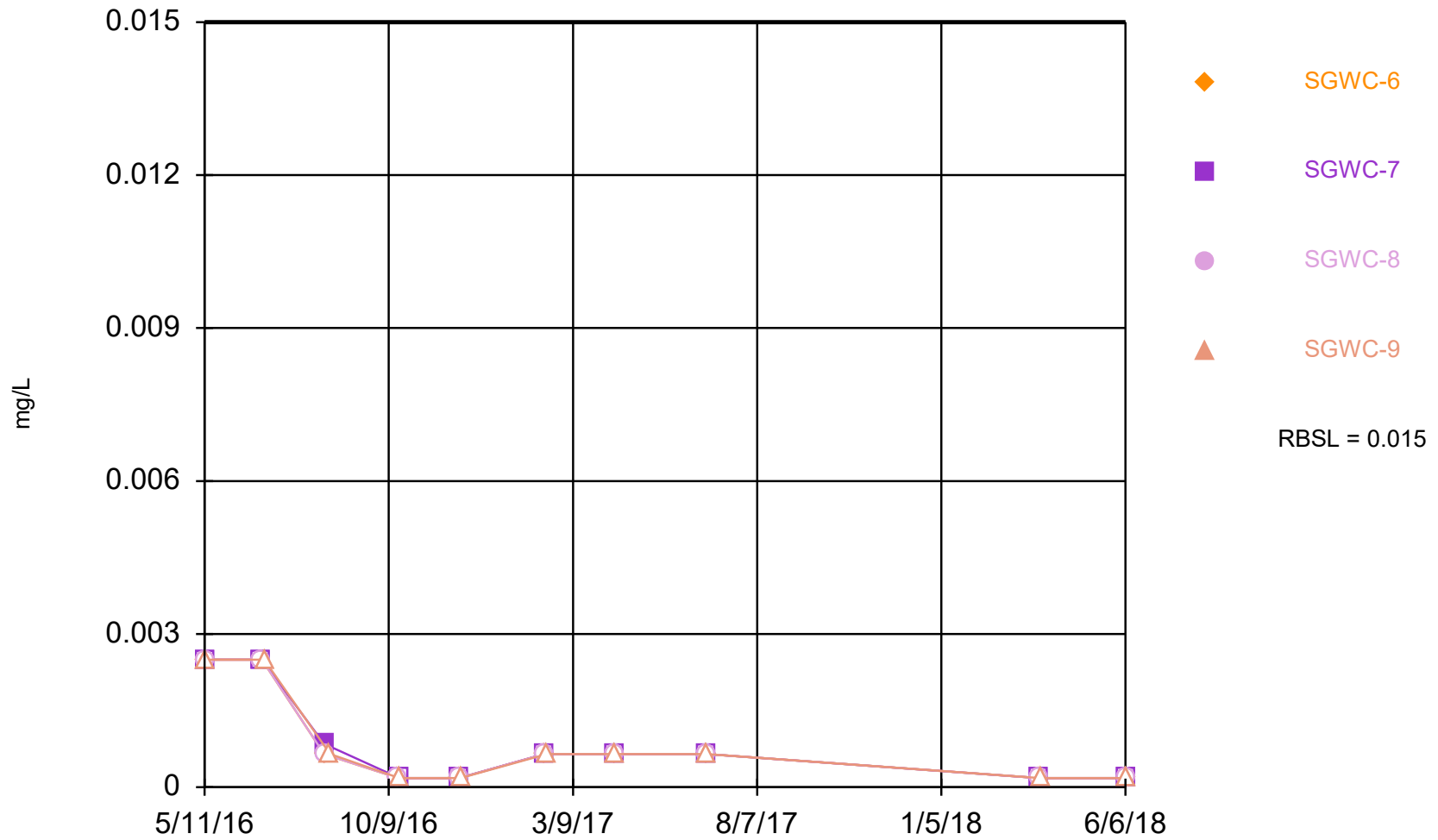
## Time Series



Constituent: Lead Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

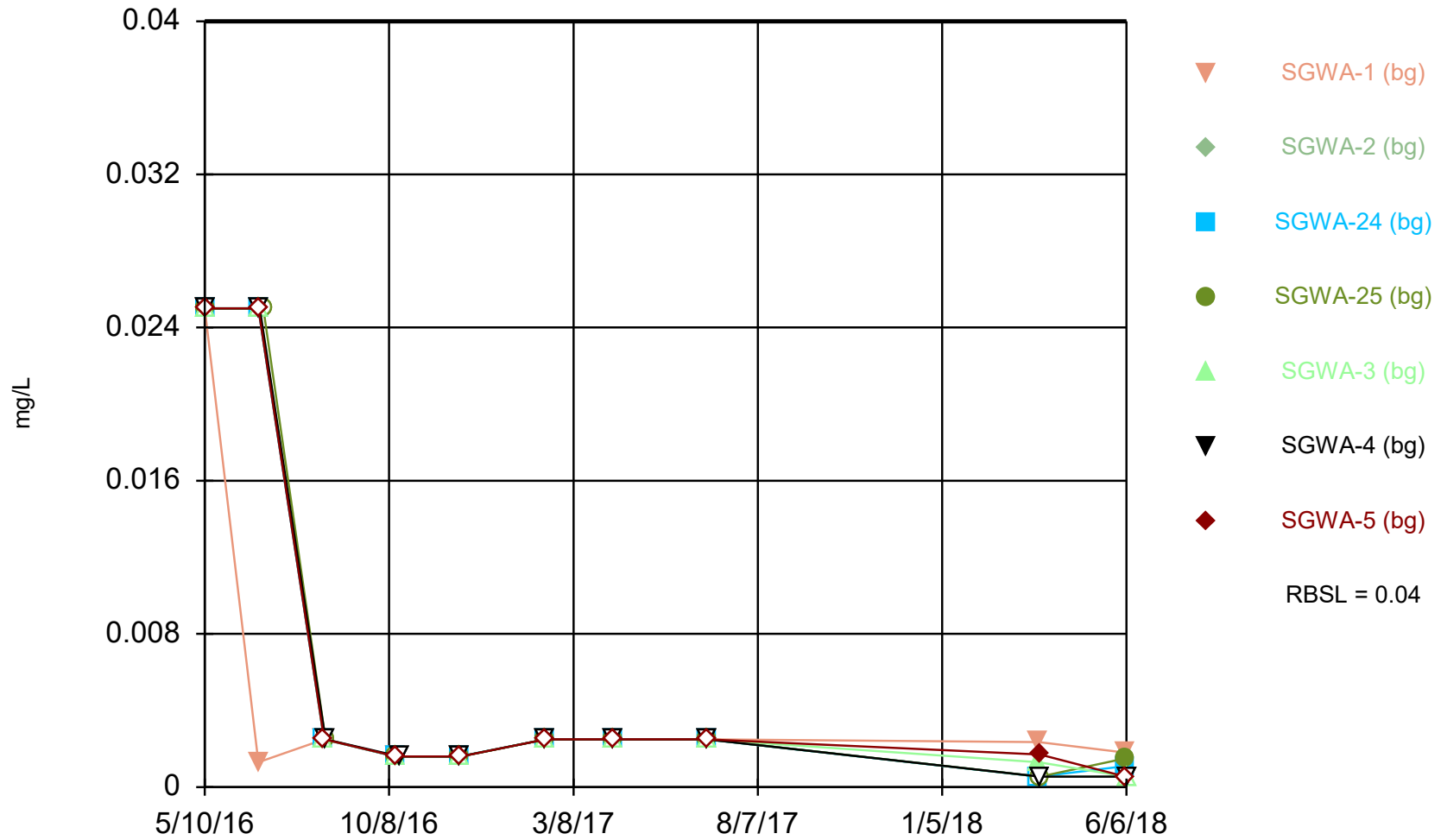


## Time Series



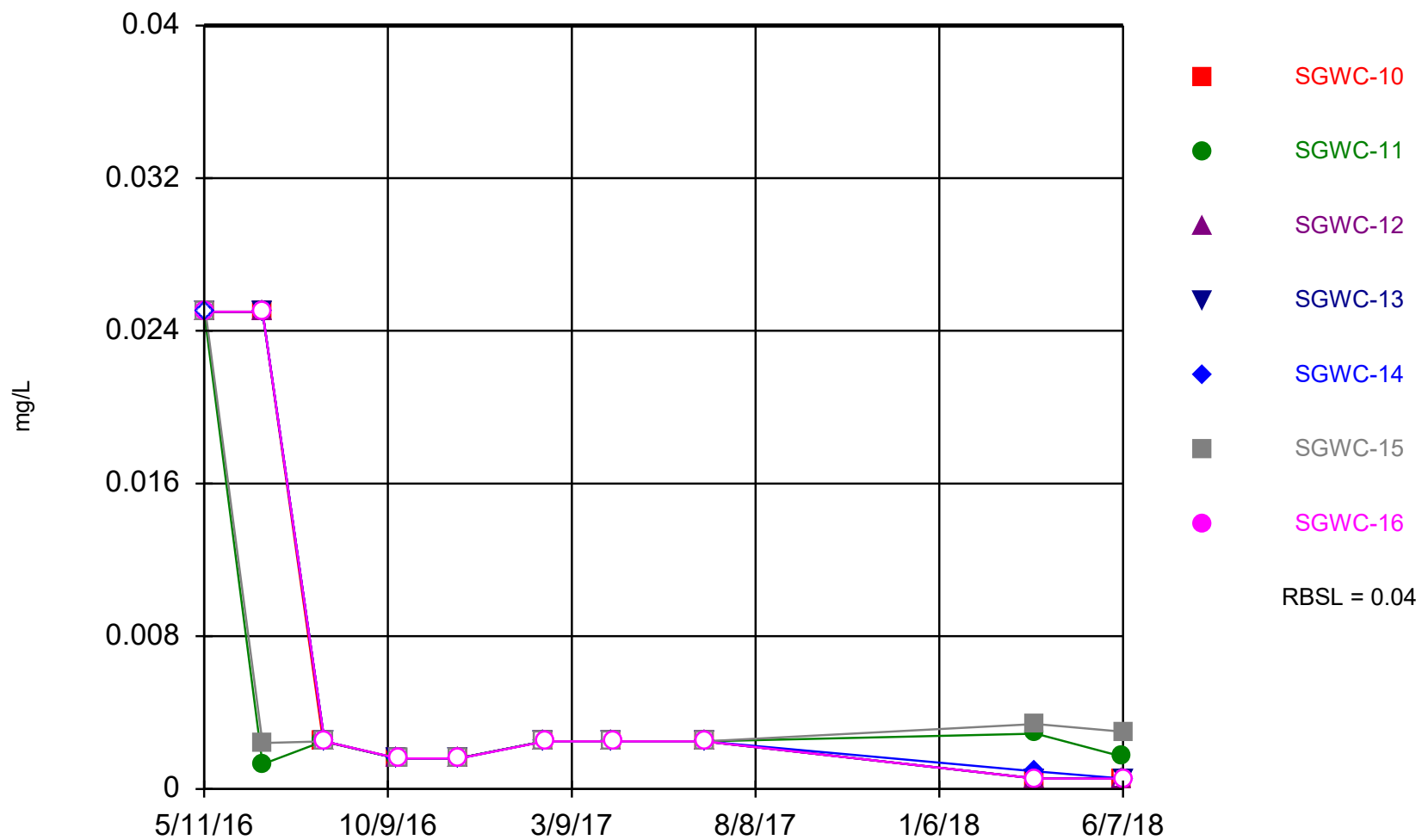
Constituent: Lead Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



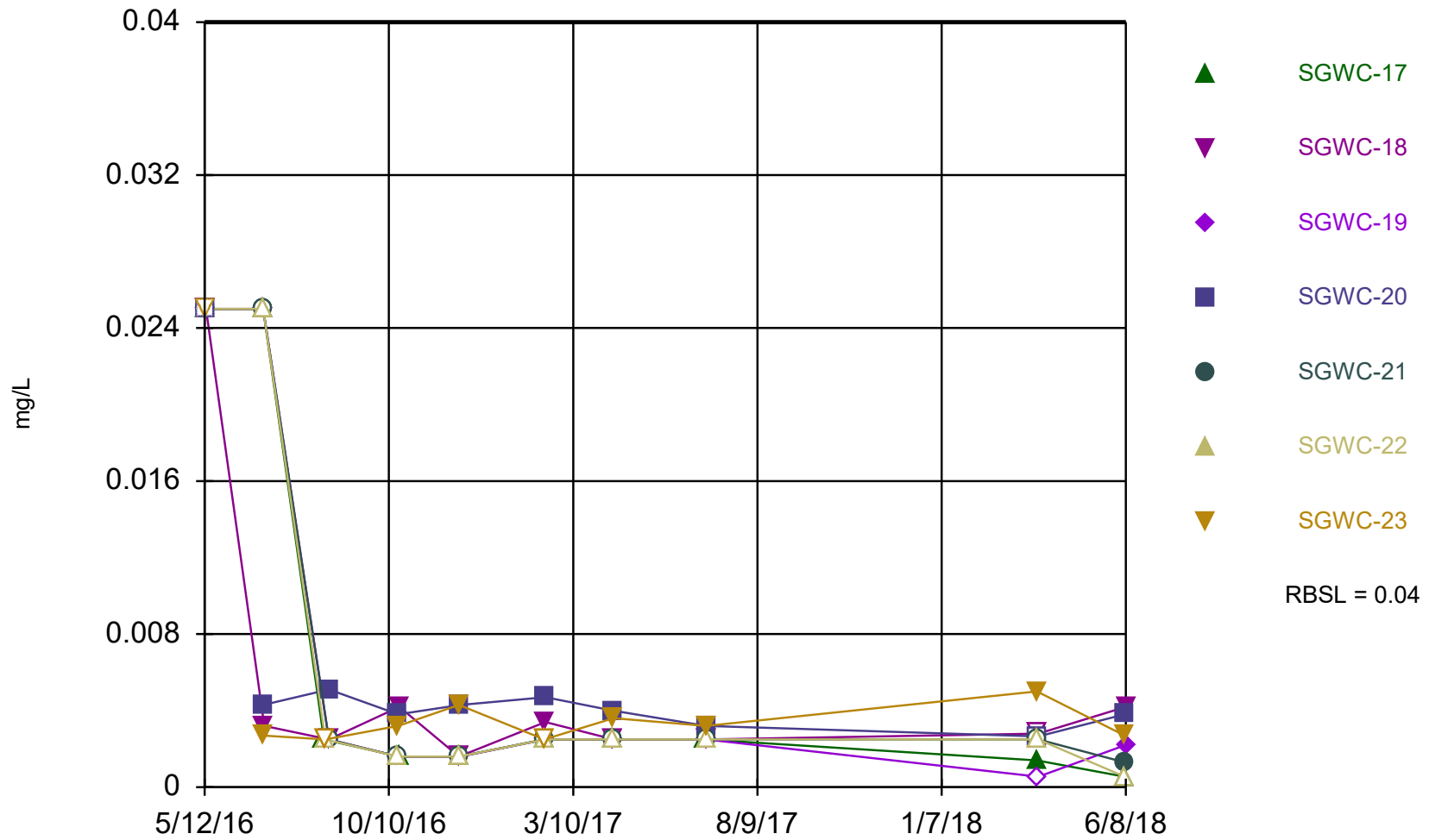
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Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



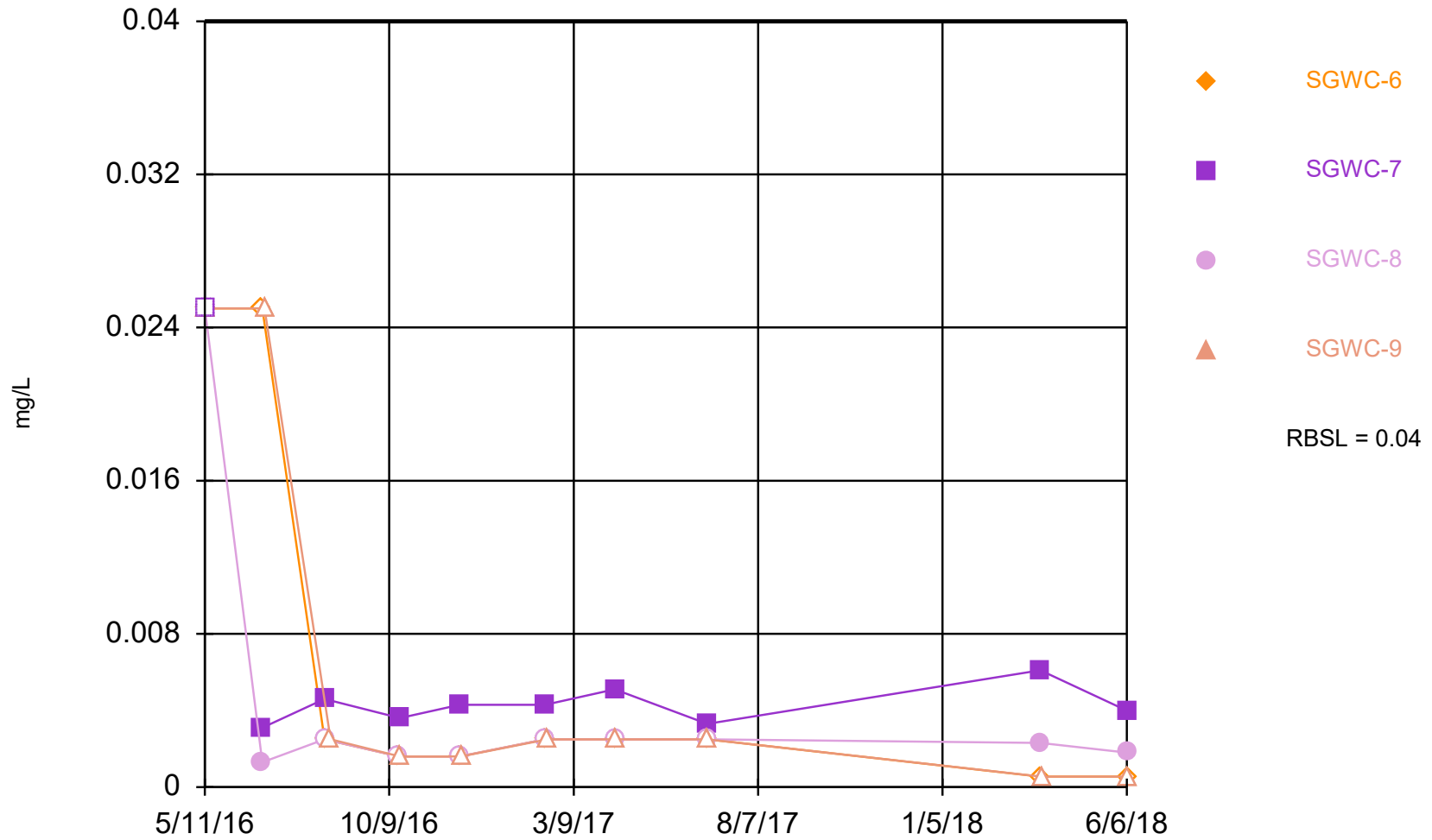
Constituent: Lithium    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



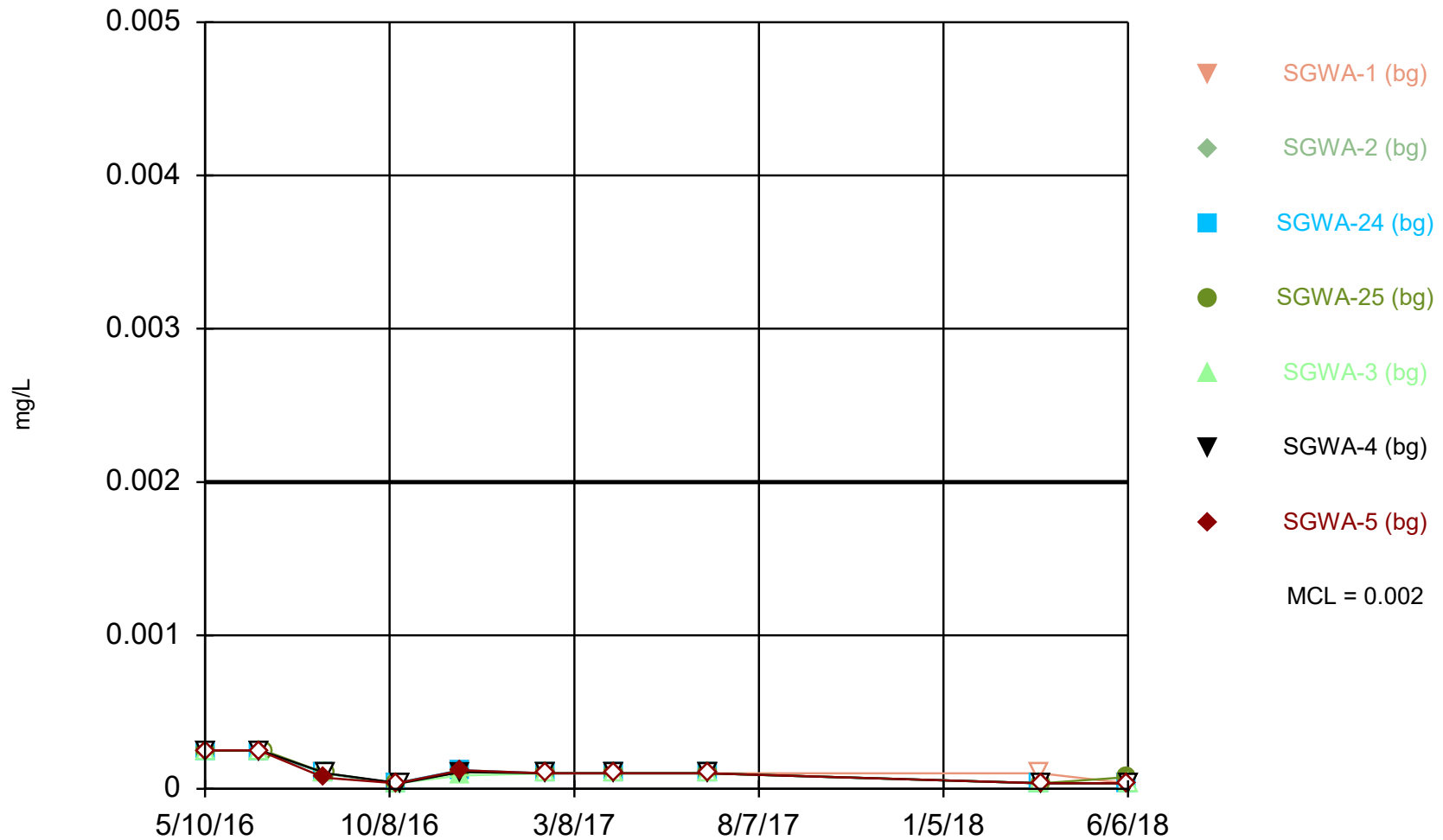
Constituent: Lithium    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



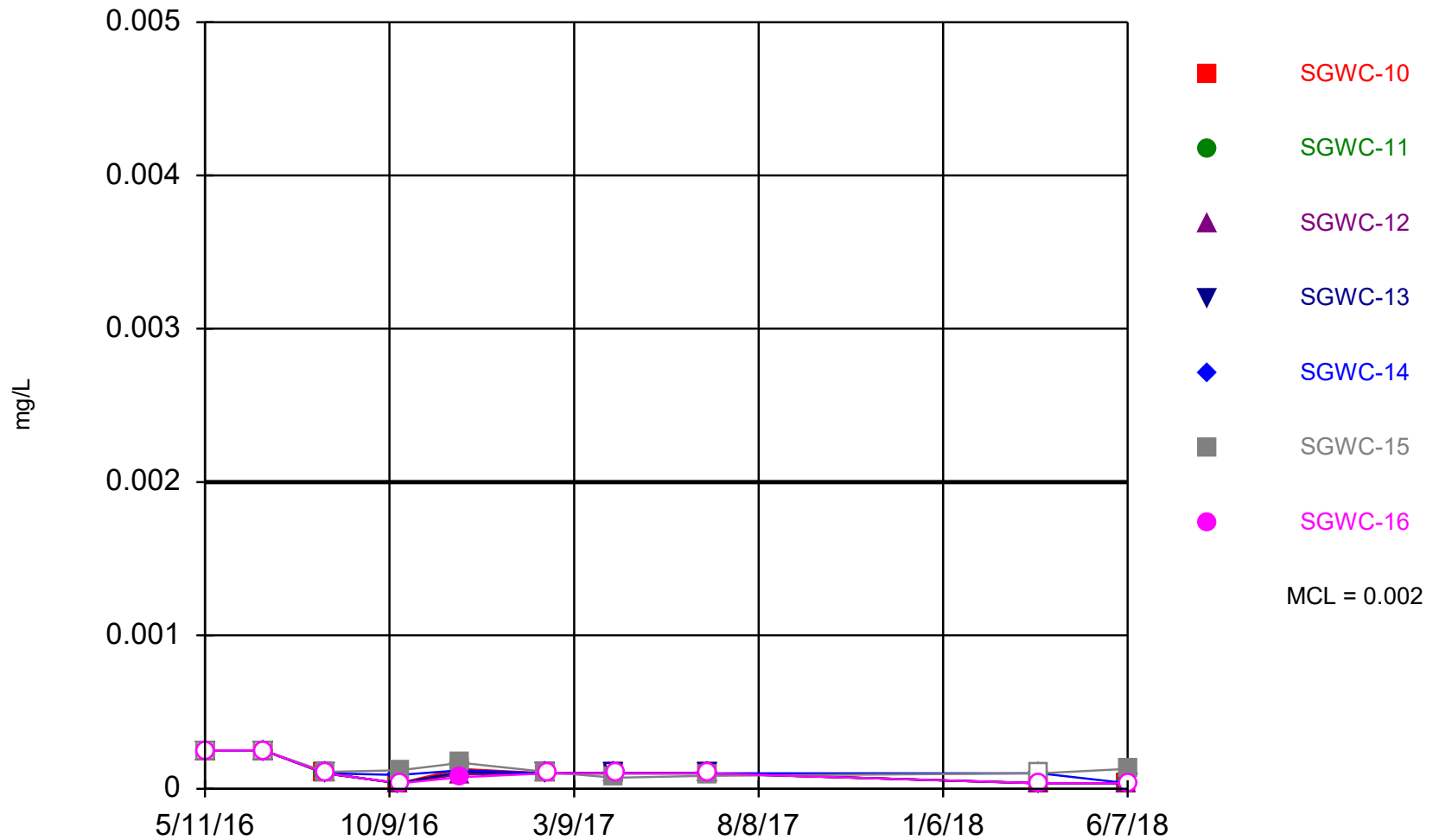
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Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



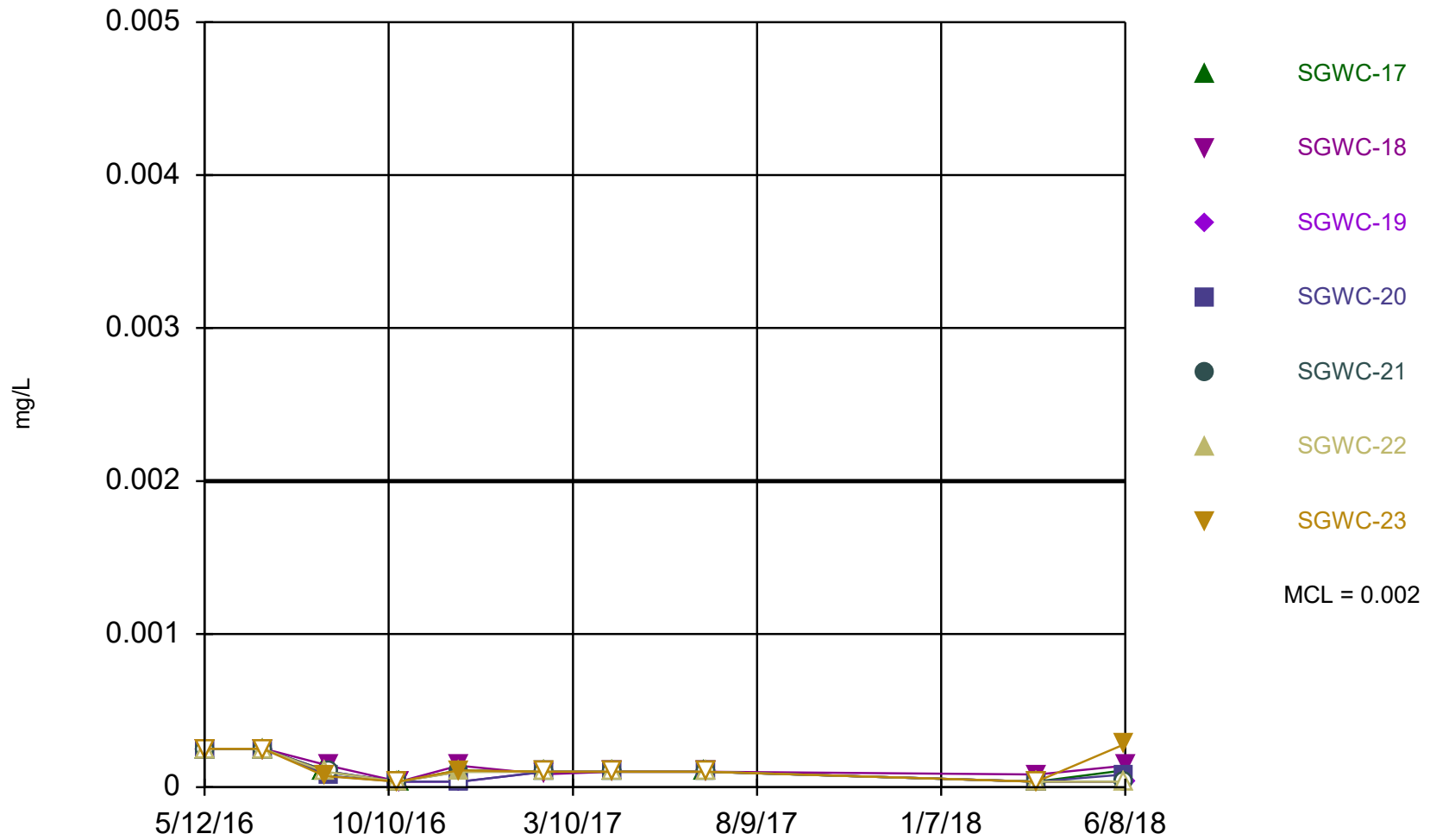
Constituent: Mercury    Analysis Run 10/15/2018 9:39 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Mercury Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

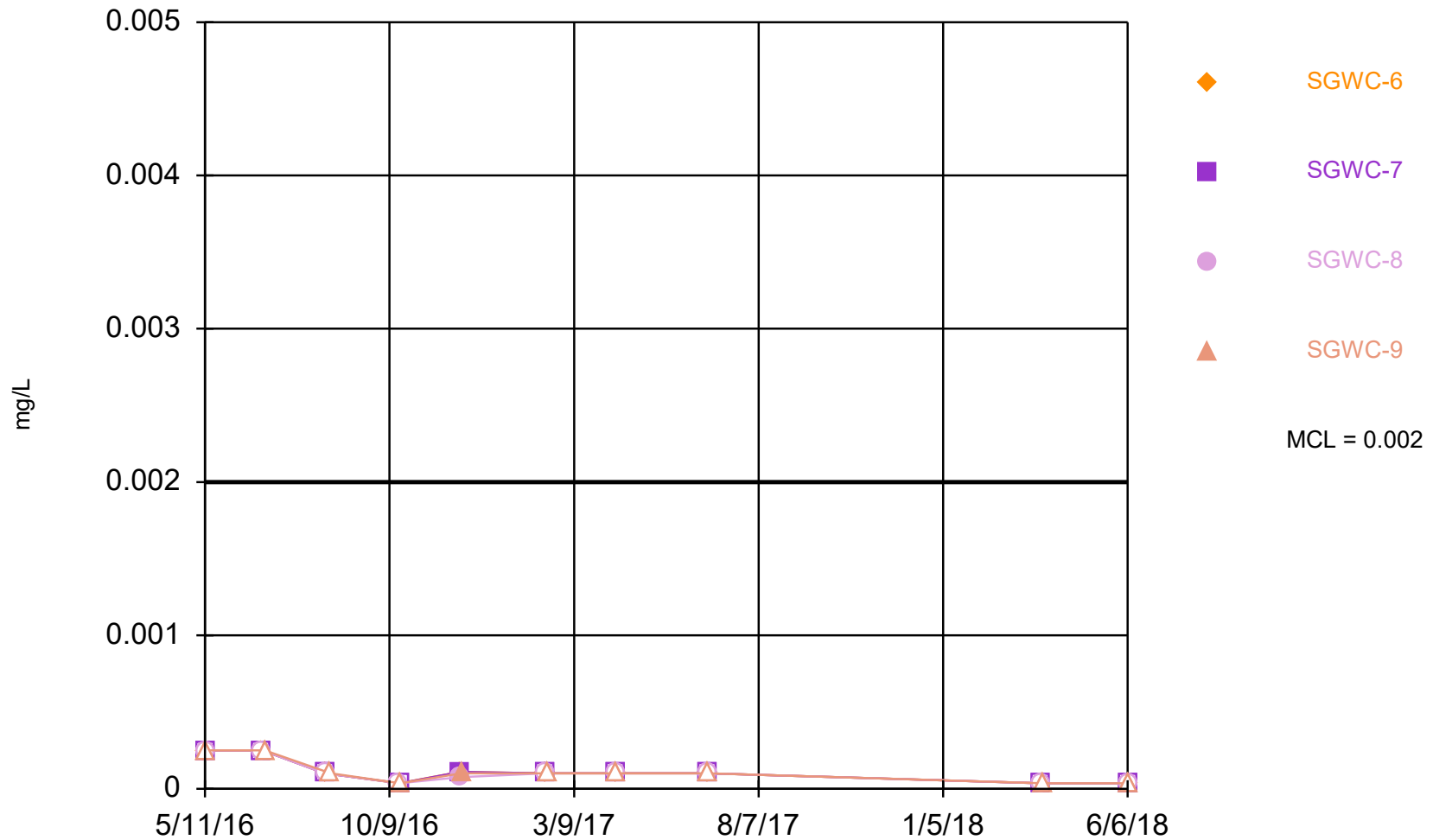
## Time Series



Constituent: Mercury Analysis Run 10/15/2018 9:39 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

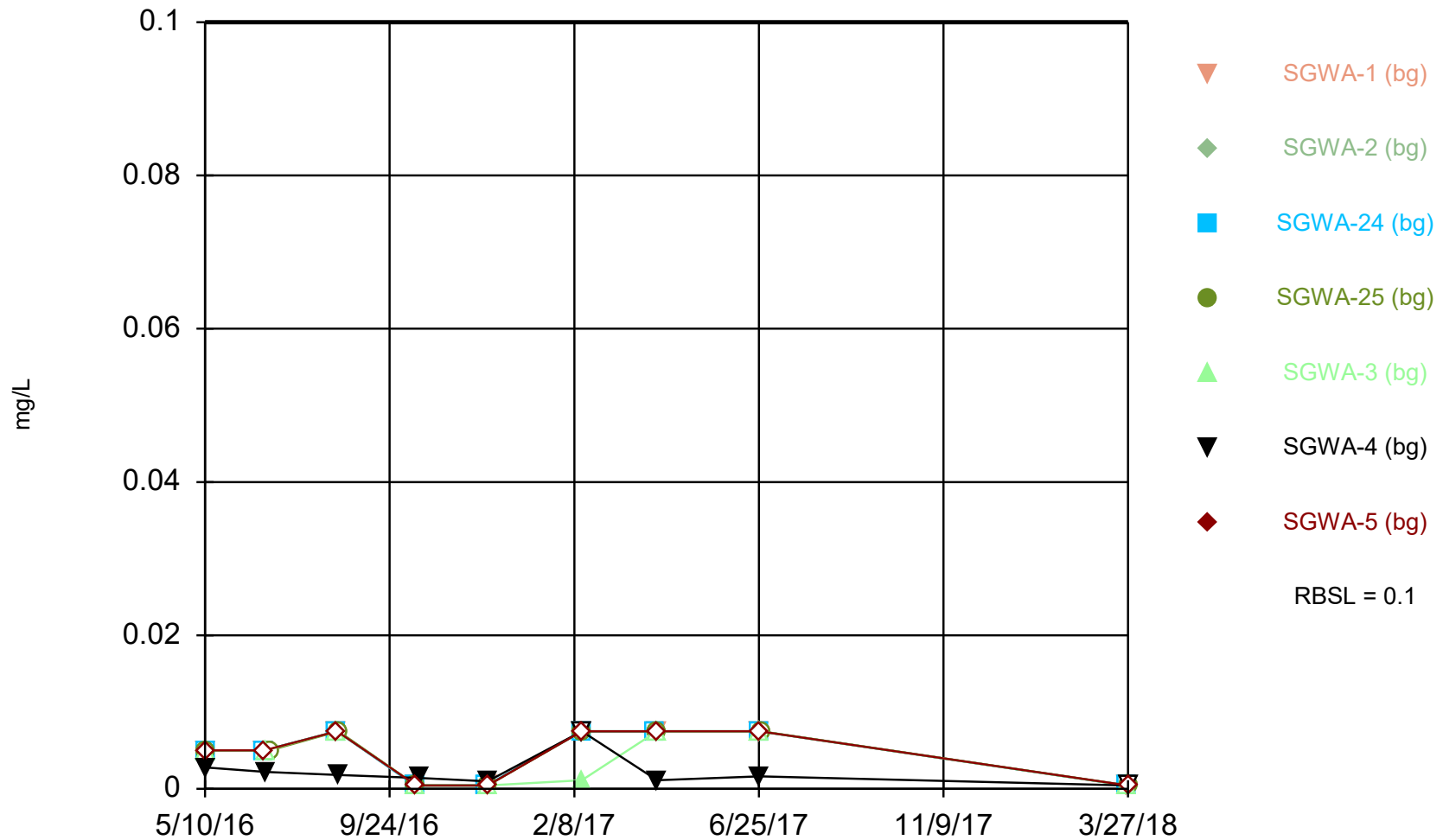


## Time Series



Constituent: Mercury Analysis Run 10/15/2018 9:40 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

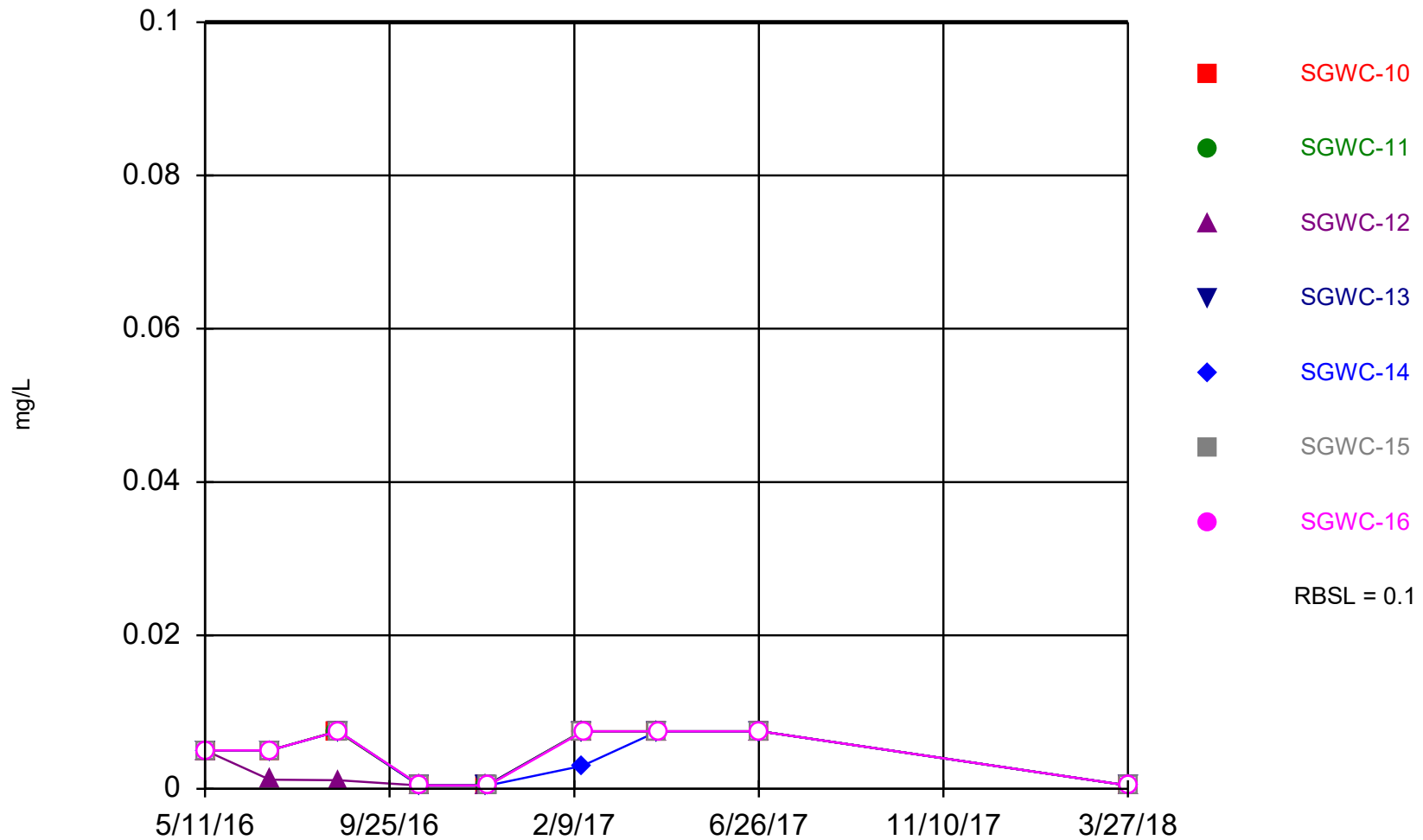
## Time Series



Constituent: Molybdenum Analysis Run 10/15/2018 9:40 AM View: Interwell Confidence Interval

Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

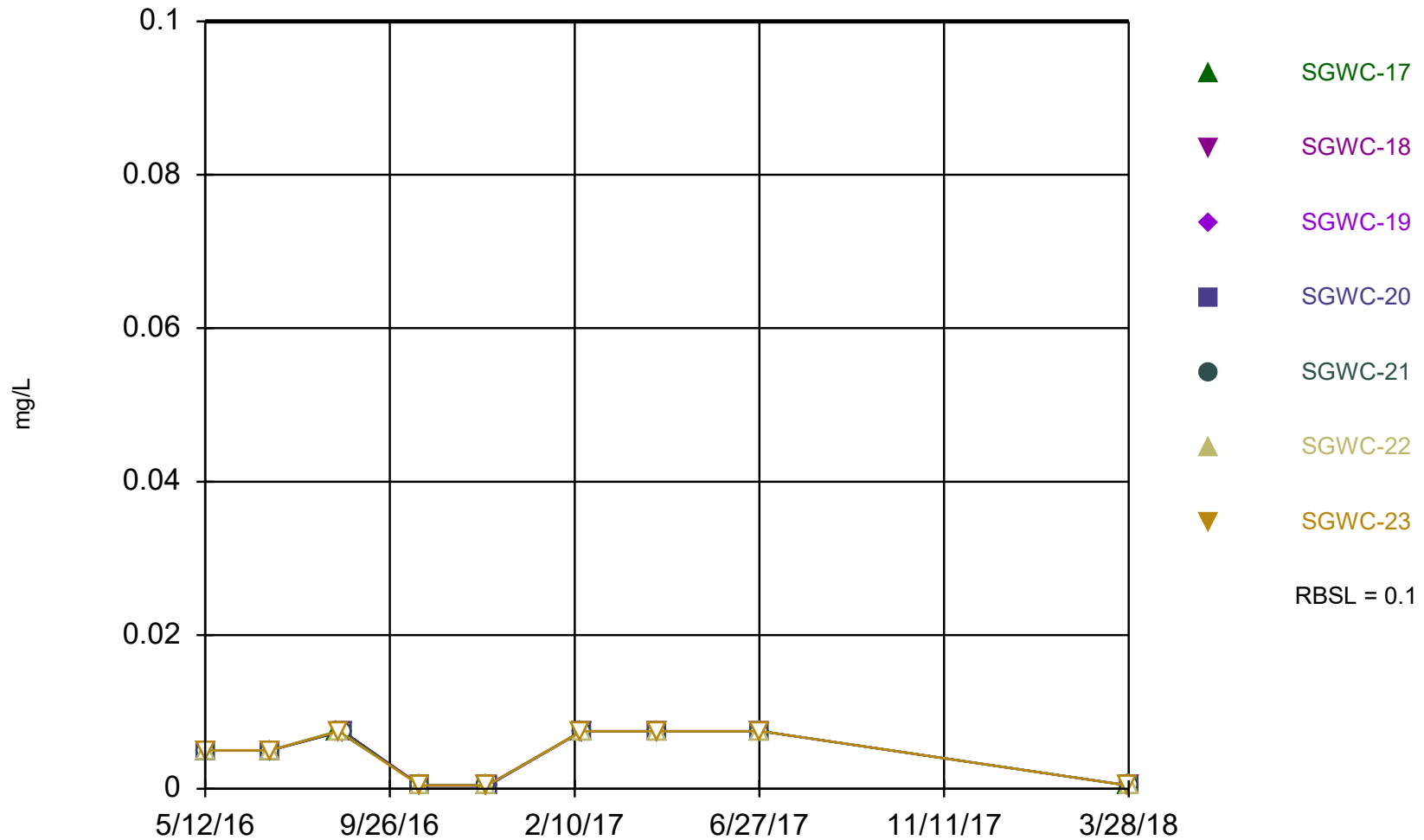
## Time Series



Constituent: Molybdenum Analysis Run 10/15/2018 9:40 AM View: Interwell Confidence Interval

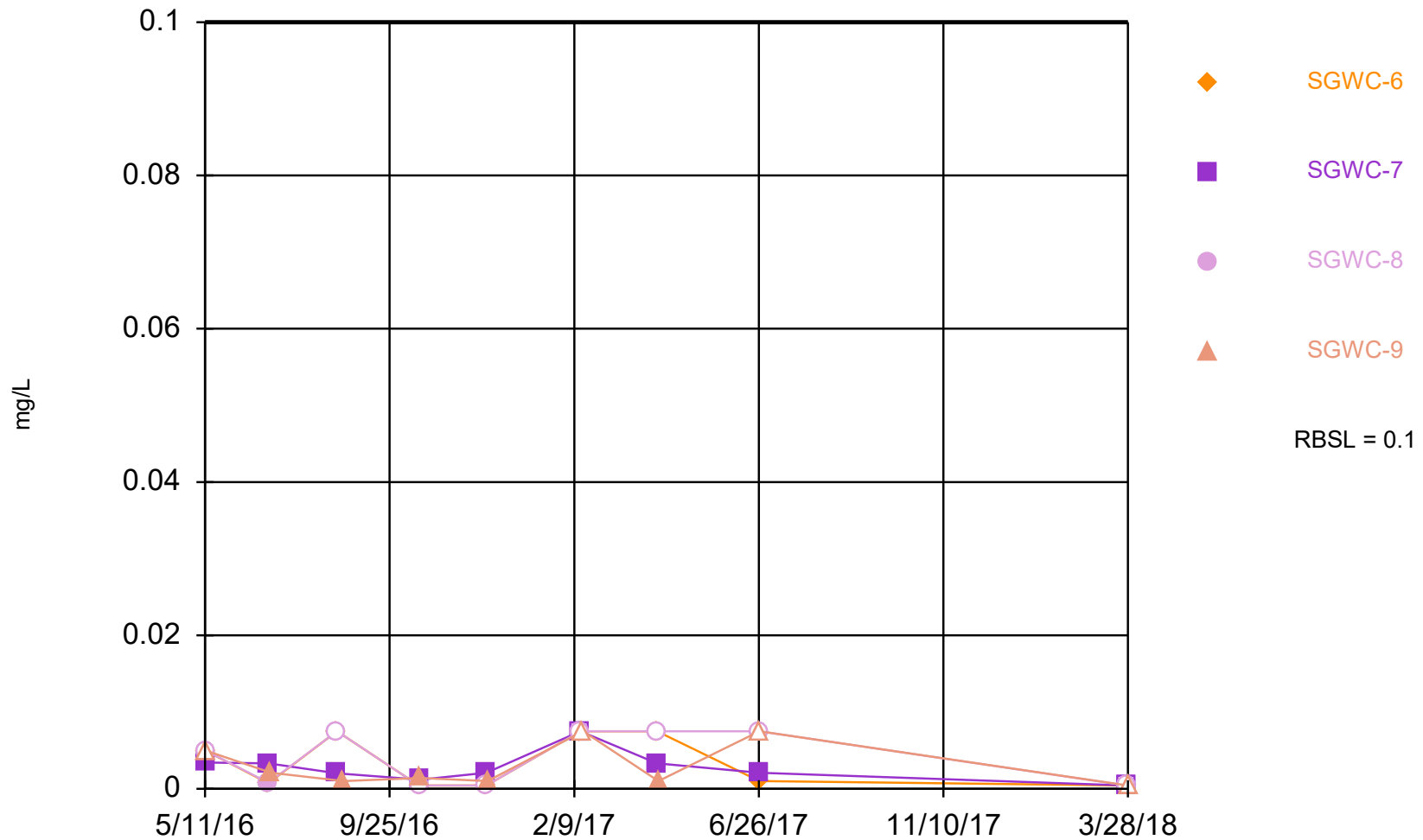
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Molybdenum Analysis Run 10/15/2018 9:40 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

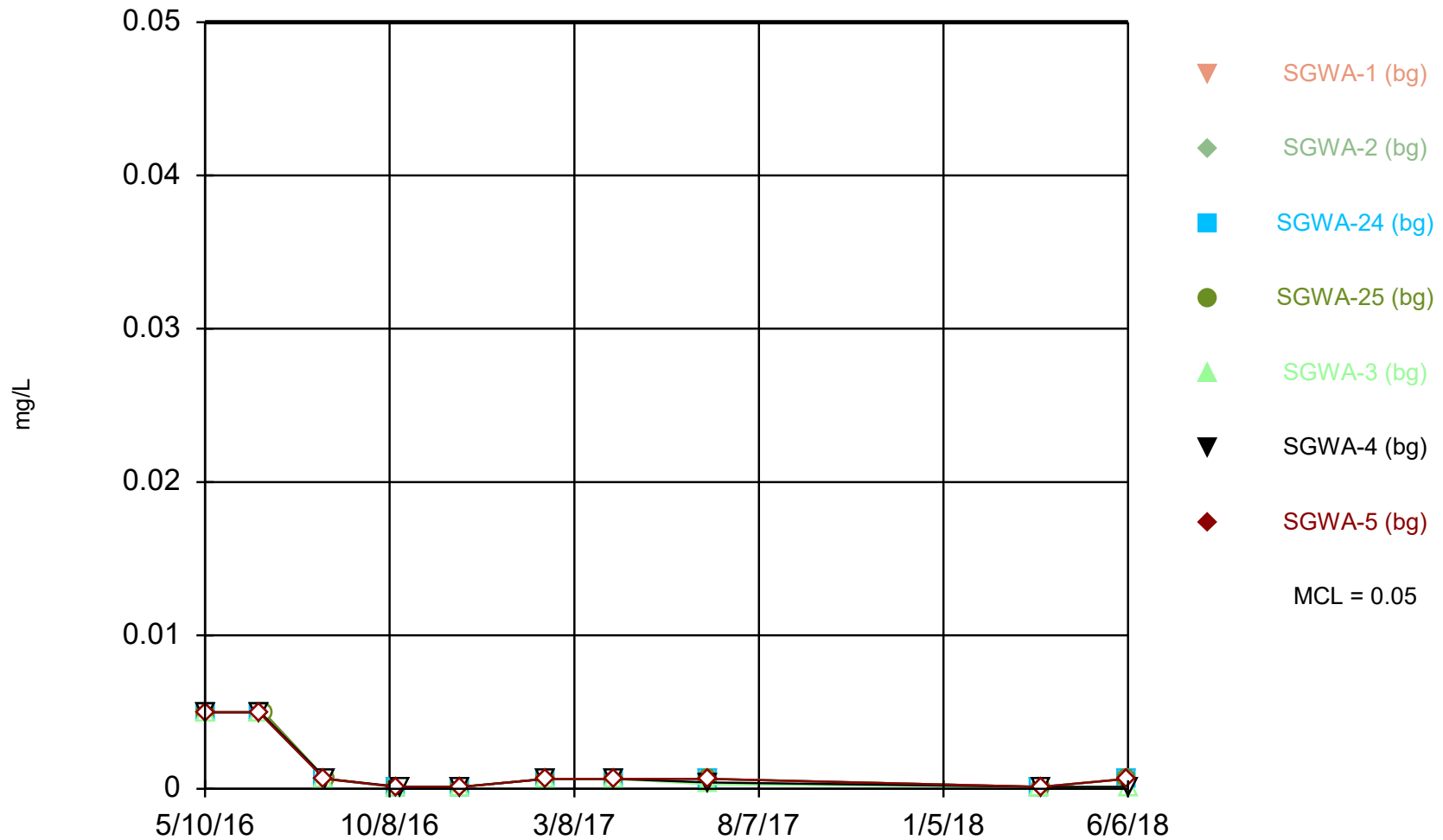
## Time Series



Constituent: Molybdenum Analysis Run 10/15/2018 9:40 AM View: Interwell Confidence Interval

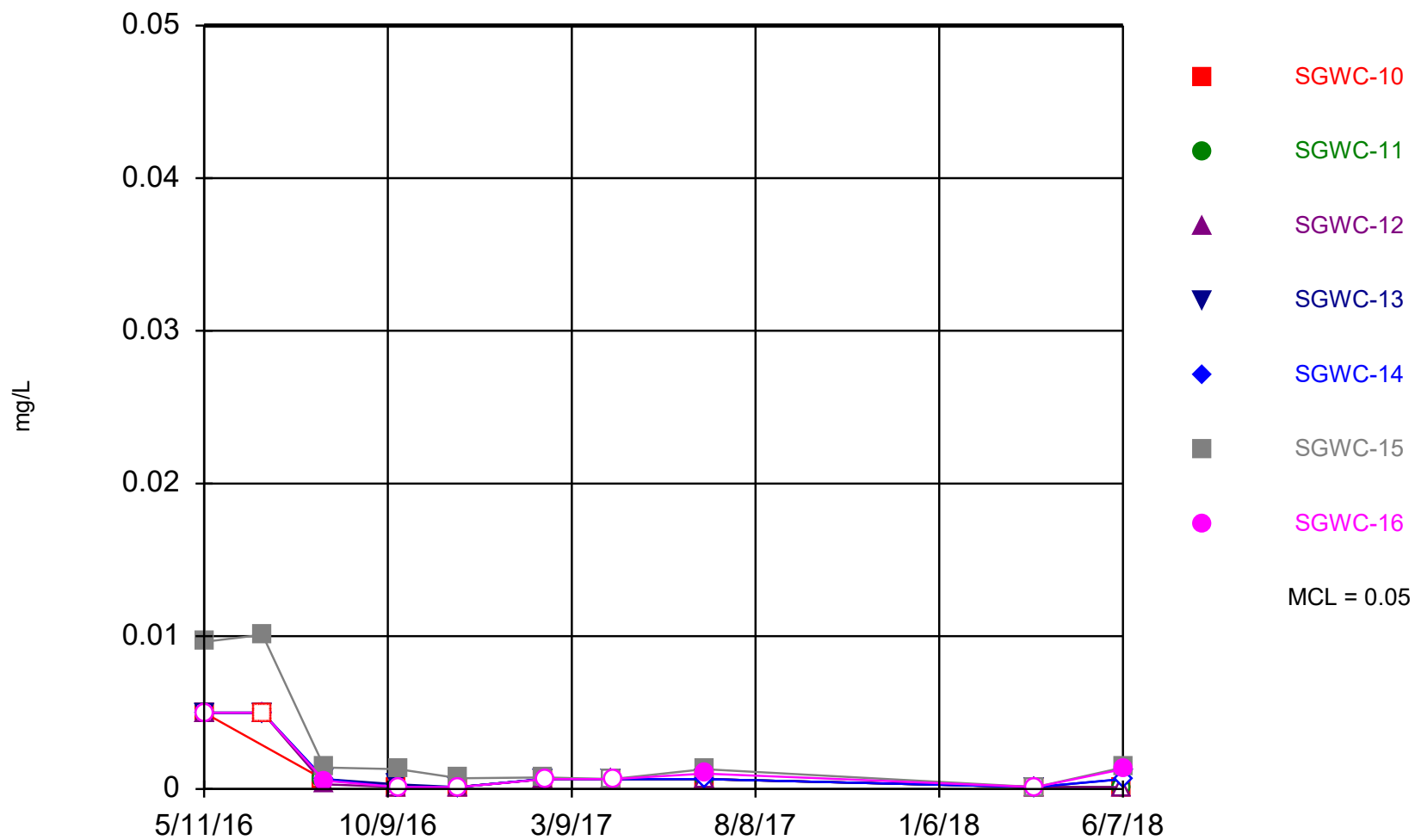
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



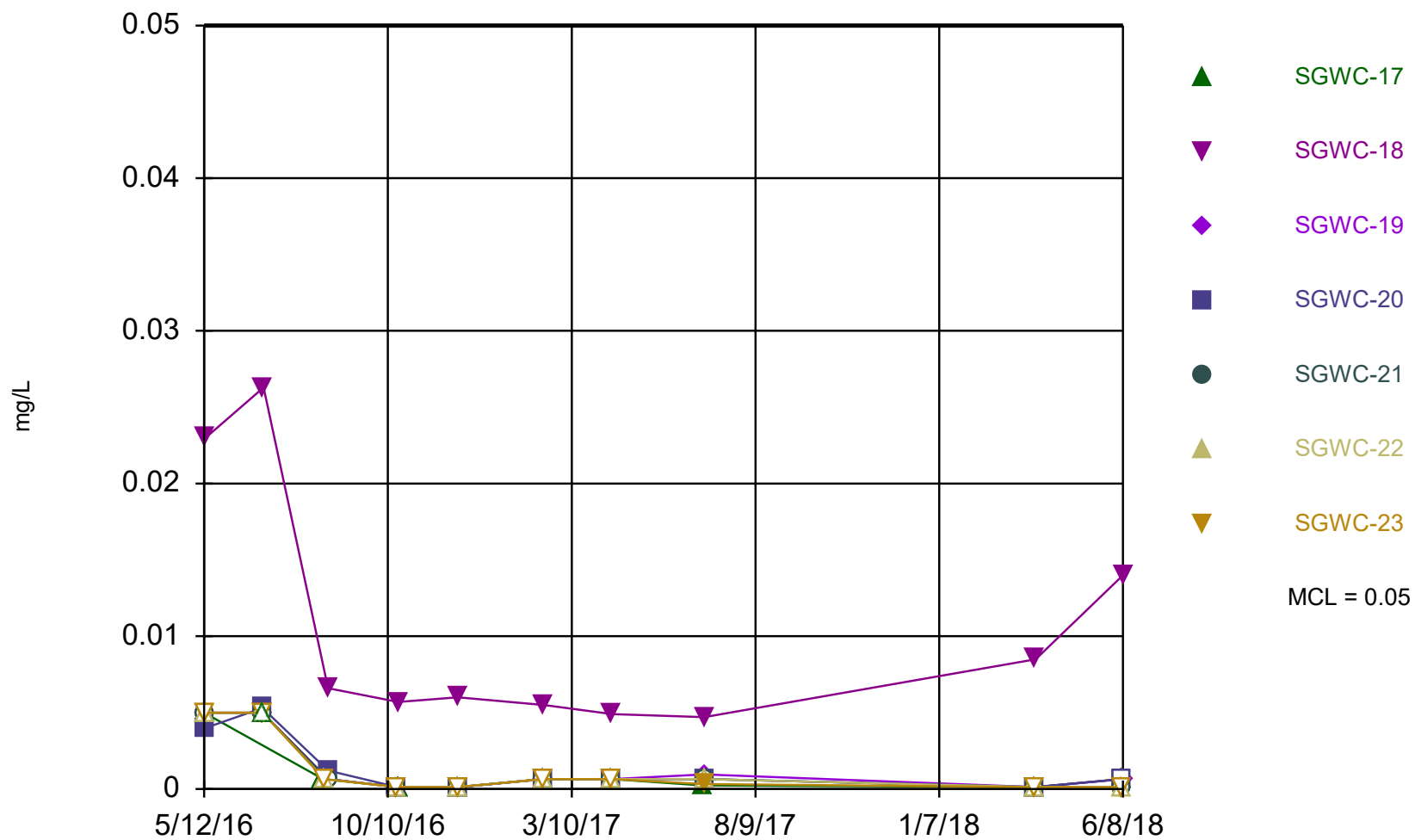
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Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Selenium    Analysis Run 10/15/2018 9:40 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

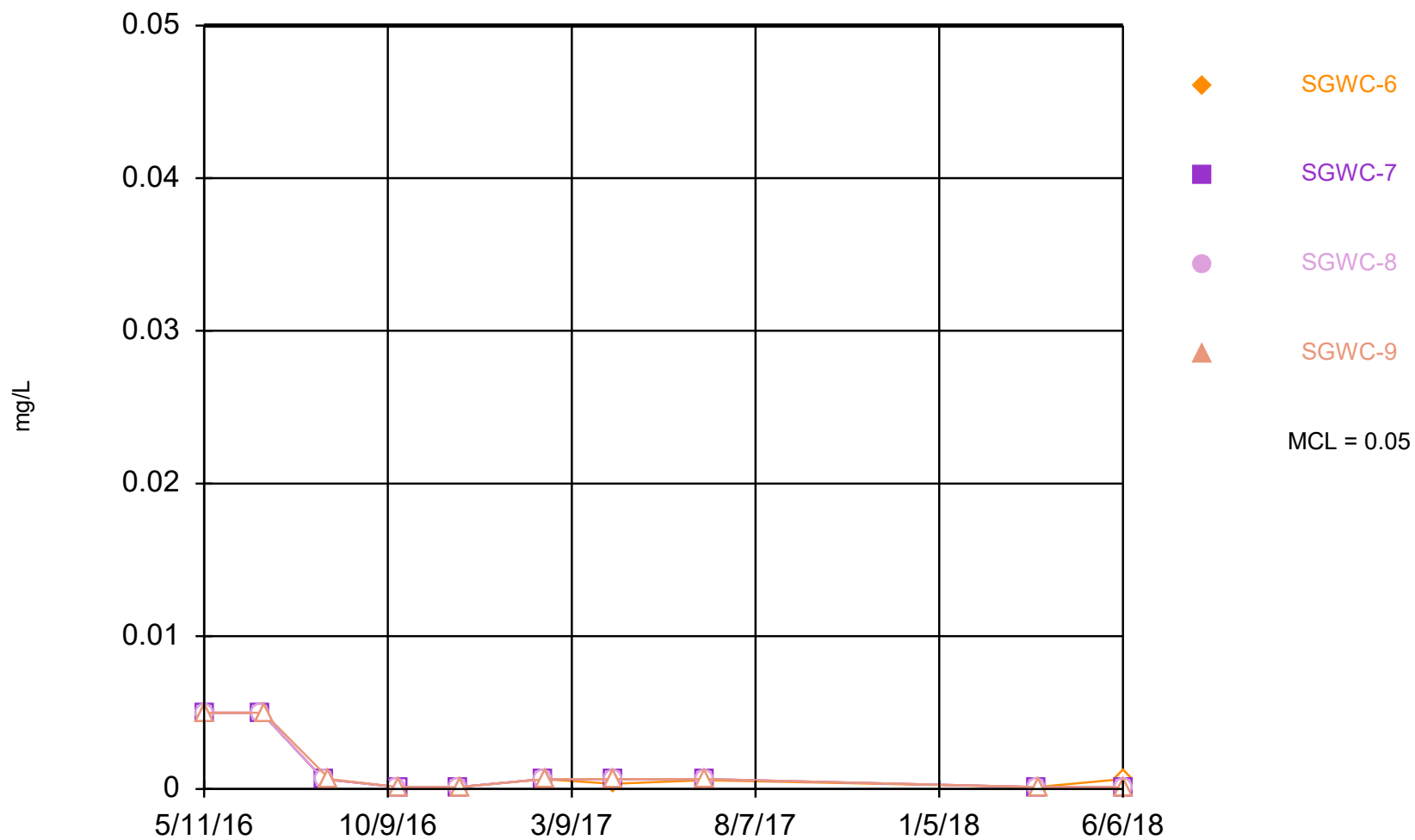
## Time Series



Constituent: Selenium Analysis Run 10/15/2018 9:40 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

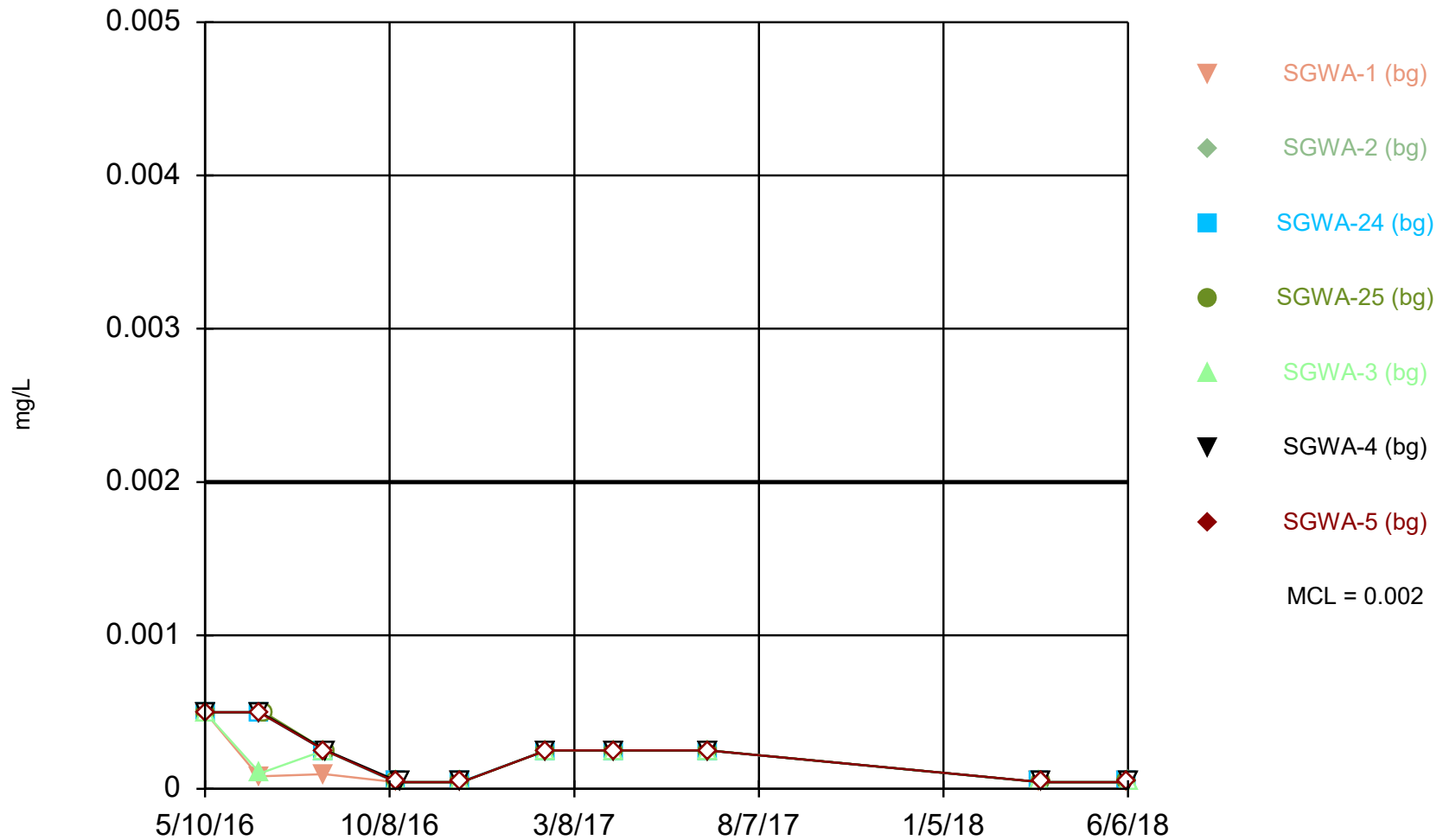


## Time Series



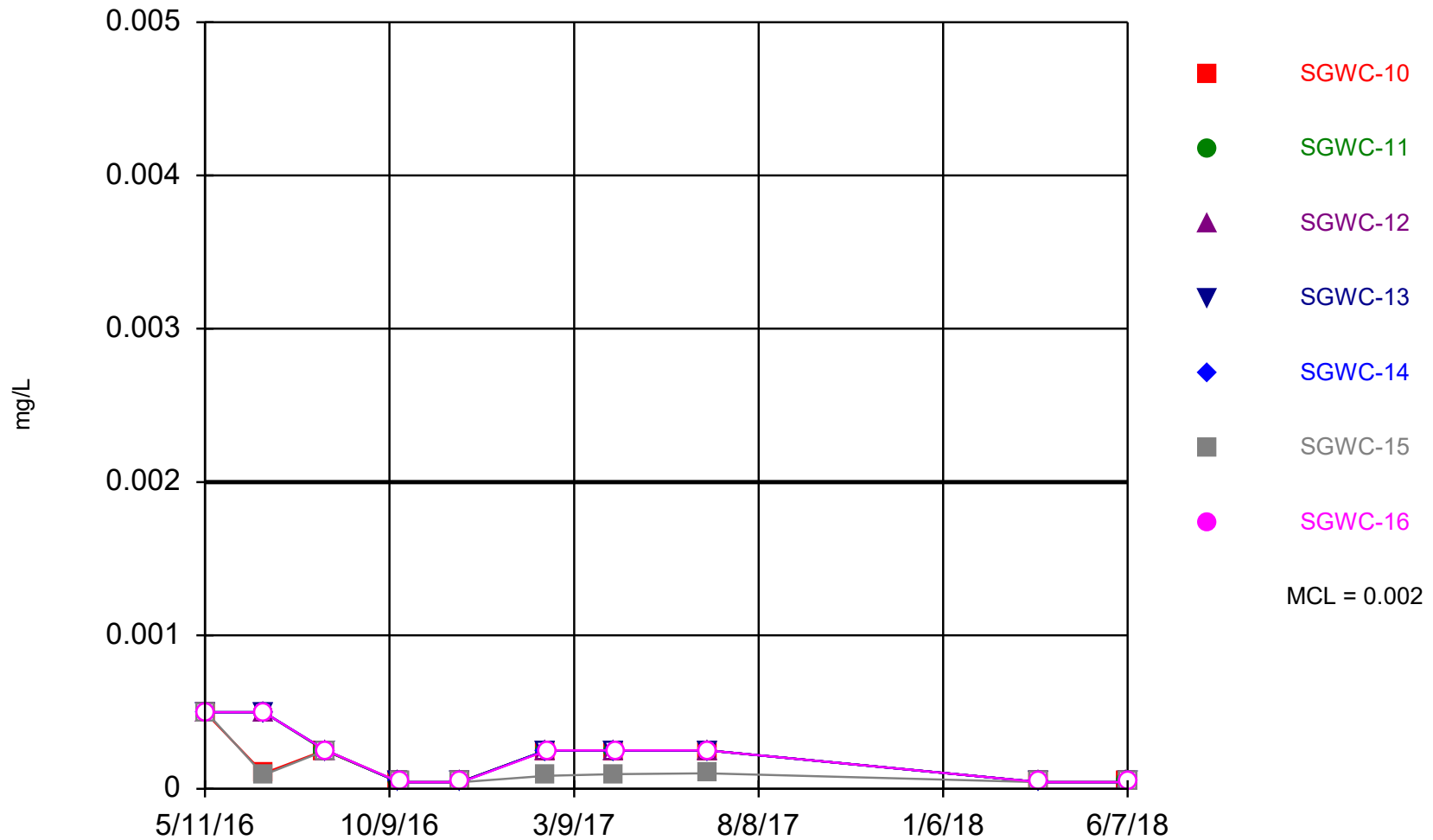
Constituent: Selenium Analysis Run 10/15/2018 9:40 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



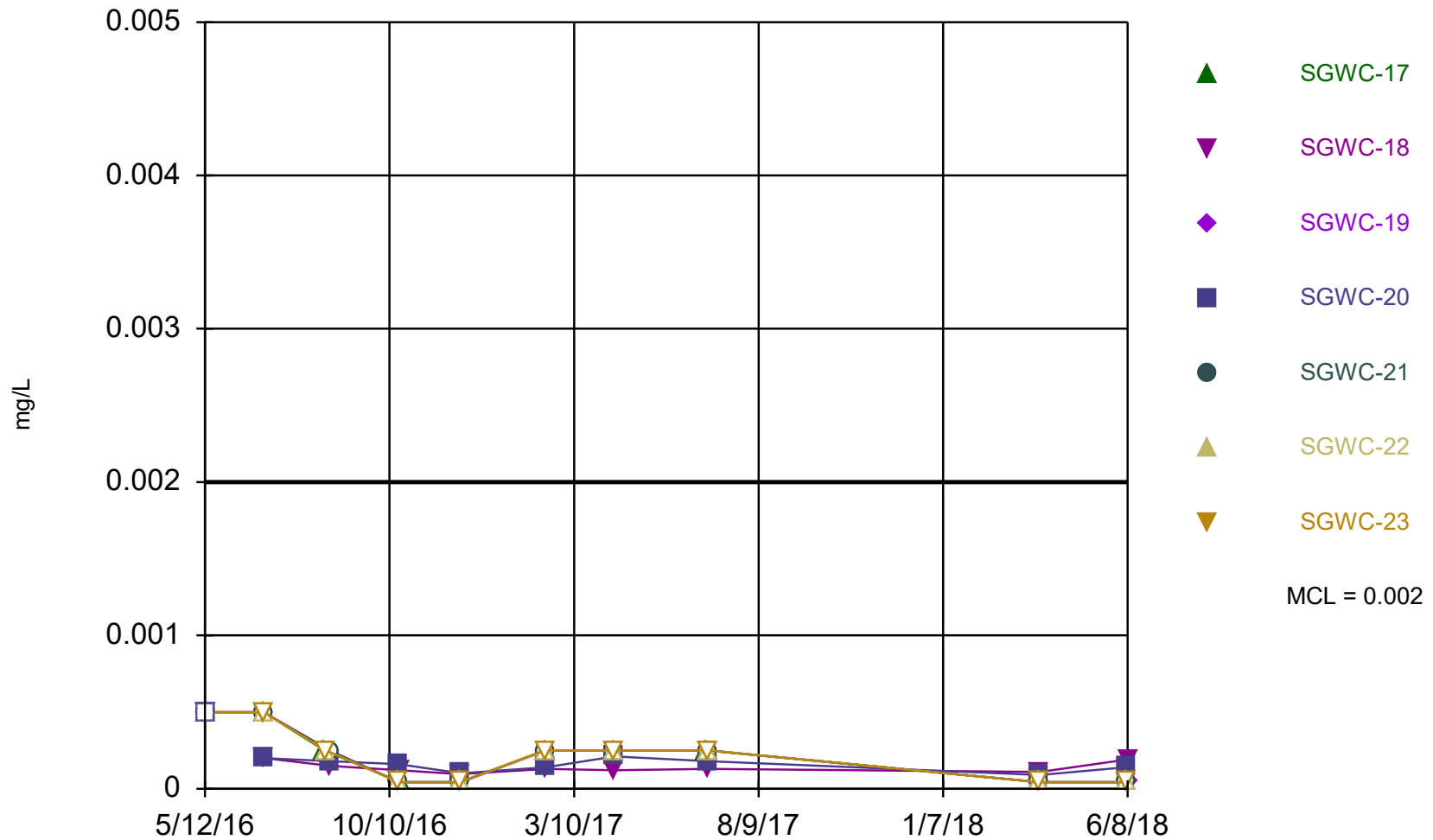
Constituent: Thallium Analysis Run 10/15/2018 9:40 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



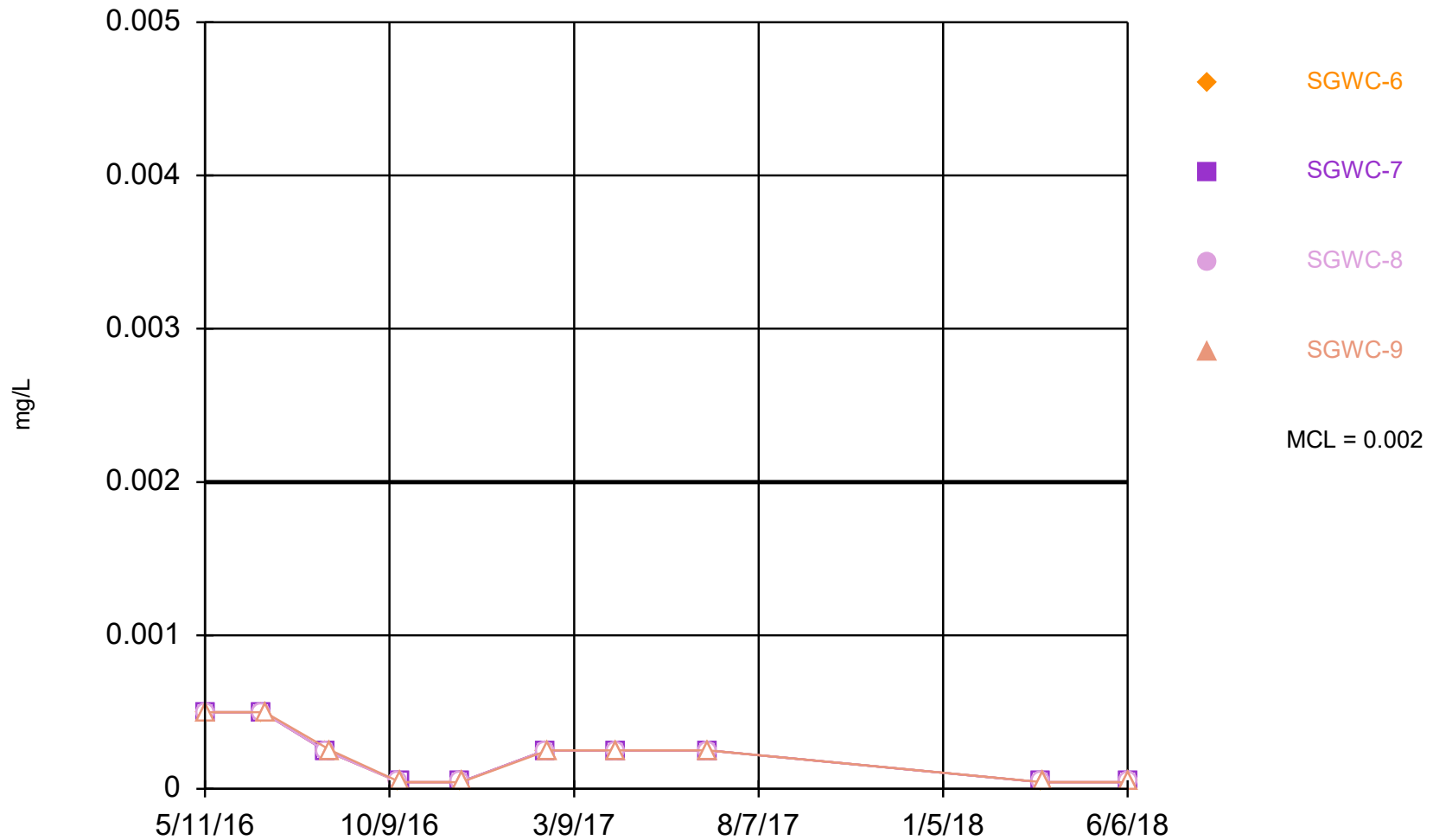
Constituent: Thallium Analysis Run 10/15/2018 9:40 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Thallium    Analysis Run 10/15/2018 9:40 AM    View: Interwell Confidence Interval  
Scherer    Client: Golder Associates    Data: Scherer Ash Pond\_CCR

## Time Series



Constituent: Thallium Analysis Run 10/15/2018 9:40 AM View: Interwell Confidence Interval  
Scherer Client: Golder Associates Data: Scherer Ash Pond\_CCR

**APPENDIX B**

**Analytical Data**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pittsburgh

301 Alpha Drive

RIDC Park

Pittsburgh, PA 15238

Tel: (412)963-7058

TestAmerica Job ID: 180-85554-1

Client Project/Site: CCR - Plant Scherer

For:

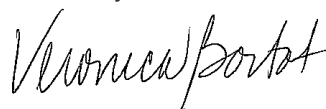
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

1/10/2019 3:22:19 PM

Veronica Bortot, Senior Project Manager

(412)963-2435

[veronica.bortot@testamericainc.com](mailto:veronica.bortot@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

PA Lab ID: 02-00416

1

2

3

4

5

6

7

8

9

10

11

12

13

# 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 . . . . .	11
QC Association Summary . . . . .	12
Chain of Custody . . . . .	13
Receipt Checklists . . . . .	14





## Case Narrative

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85554-1

**Job ID: 180-85554-1**

**Laboratory: TestAmerica Pittsburgh**

### Narrative

#### Job Narrative 180-85554-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 1/9/2019 9:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.6° C.

#### Receipt Exceptions

COC for these samples indicated no J flags; however as per client the lab was to report flagged results.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85554-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

## Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85554-1

### Laboratory: TestAmerica Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-19
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-19
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19
Texas	NELAP	6	T104704528-15-2	03-31-19
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-19
Wisconsin	State Program	5	998027800	08-31-19

# Sample Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85554-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-85554-1	B-102B	Water	01/08/19 15:10	01/09/19 09:10
180-85554-2	B-103B	Water	01/08/19 13:35	01/09/19 09:10
180-85554-3	B-104A	Water	01/08/19 13:25	01/09/19 09:10
180-85554-4	B-104B	Water	01/08/19 14:10	01/09/19 09:10
180-85554-5	FB	Water	01/08/19 16:10	01/09/19 09:10
180-85554-6	FD	Water	01/08/19 00:00	01/09/19 09:10

## Method Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85554-1

Method	Method Description	Protocol	Laboratory
EPA 6020	Metals (ICP/MS)	SW846	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT

### Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85554-1

**Client Sample ID: B-102B**

**Date Collected: 01/08/19 15:10**

**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	267420	01/09/19 11:13	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			267572	01/09/19 21:48	WTR	TAL PIT
Instrument ID: X										

**Client Sample ID: B-103B**

**Date Collected: 01/08/19 13:35**

**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	267420	01/09/19 11:13	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			267572	01/09/19 21:53	WTR	TAL PIT
Instrument ID: X										

**Client Sample ID: B-104A**

**Date Collected: 01/08/19 13:25**

**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	267420	01/09/19 11:13	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			267572	01/09/19 21:58	WTR	TAL PIT
Instrument ID: X										

**Client Sample ID: B-104B**

**Date Collected: 01/08/19 14:10**

**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	267420	01/09/19 11:13	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			267572	01/09/19 22:13	WTR	TAL PIT
Instrument ID: X										

**Client Sample ID: FB**

**Date Collected: 01/08/19 16:10**

**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	267420	01/09/19 11:13	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			267572	01/09/19 22:18	WTR	TAL PIT
Instrument ID: X										

TestAmerica Pittsburgh

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85554-1

**Client Sample ID: FD**

**Date Collected: 01/08/19 00:00**

**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-6**

**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	267420	01/09/19 11:13	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			267572	01/09/19 21:22	WTR	TAL PIT
Instrument ID: X										

## Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

## Analyst References:

Lab: TAL PIT

Batch Type: Prep

NAM = Nicole Marfisi

Batch Type: Analysis

WTR = Bill Reinheimer

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85554-1

**Client Sample ID: B-102B**  
**Date Collected: 01/08/19 15:10**  
**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-1**  
**Matrix: Water**

**Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00096	J	0.0025	0.000075	mg/L	—	01/09/19 11:13	01/09/19 21:48	1

**Client Sample ID: B-103B**  
**Date Collected: 01/08/19 13:35**  
**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-2**  
**Matrix: Water**

**Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00021	J	0.0025	0.000075	mg/L	—	01/09/19 11:13	01/09/19 21:53	1

**Client Sample ID: B-104A**  
**Date Collected: 01/08/19 13:25**  
**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-3**  
**Matrix: Water**

**Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00019	J	0.0025	0.000075	mg/L	—	01/09/19 11:13	01/09/19 21:58	1

**Client Sample ID: B-104B**  
**Date Collected: 01/08/19 14:10**  
**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-4**  
**Matrix: Water**

**Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.000075		0.0025	0.000075	mg/L	—	01/09/19 11:13	01/09/19 22:13	1

**Client Sample ID: FB**  
**Date Collected: 01/08/19 16:10**  
**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-5**  
**Matrix: Water**

**Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.000075		0.0025	0.000075	mg/L	—	01/09/19 11:13	01/09/19 22:18	1

**Client Sample ID: FD**  
**Date Collected: 01/08/19 00:00**  
**Date Received: 01/09/19 09:10**

**Lab Sample ID: 180-85554-6**  
**Matrix: Water**

**Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.000075		0.0025	0.000075	mg/L	—	01/09/19 11:13	01/09/19 21:22	1



# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85554-1

## Method: EPA 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-267420/1-A  
Matrix: Water  
Analysis Batch: 267572

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 267420

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.000075		0.0025	0.000075	mg/L		01/09/19 11:13	01/09/19 20:42	1

Lab Sample ID: LCS 180-267420/2-A  
Matrix: Water  
Analysis Batch: 267572

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 267420

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	0.500	0.464		mg/L		93	80 - 120

Lab Sample ID: 180-85554-6 MS  
Matrix: Water  
Analysis Batch: 267572

Client Sample ID: FD  
Prep Type: Total Recoverable  
Prep Batch: 267420

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	<0.000075		0.500	0.432		mg/L		86	75 - 125

Lab Sample ID: 180-85554-6 MSD  
Matrix: Water  
Analysis Batch: 267572

Client Sample ID: FD  
Prep Type: Total Recoverable  
Prep Batch: 267420

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cobalt	<0.000075		0.500	0.438		mg/L		88	75 - 125	1	20

# QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85554-1

## Metals

### Prep Batch: 267420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-85554-1	B-102B	Total Recoverable	Water	3005A	
180-85554-2	B-103B	Total Recoverable	Water	3005A	
180-85554-3	B-104A	Total Recoverable	Water	3005A	
180-85554-4	B-104B	Total Recoverable	Water	3005A	
180-85554-5	FB	Total Recoverable	Water	3005A	
180-85554-6	FD	Total Recoverable	Water	3005A	
MB 180-267420/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-267420/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-85554-6 MS	FD	Total Recoverable	Water	3005A	
180-85554-6 MSD	FD	Total Recoverable	Water	3005A	

### Analysis Batch: 267572

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-85554-1	B-102B	Total Recoverable	Water	EPA 6020	267420
180-85554-2	B-103B	Total Recoverable	Water	EPA 6020	267420
180-85554-3	B-104A	Total Recoverable	Water	EPA 6020	267420
180-85554-4	B-104B	Total Recoverable	Water	EPA 6020	267420
180-85554-5	FB	Total Recoverable	Water	EPA 6020	267420
180-85554-6	FD	Total Recoverable	Water	EPA 6020	267420
MB 180-267420/1-A	Method Blank	Total Recoverable	Water	EPA 6020	267420
LCS 180-267420/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	267420
180-85554-6 MS	FD	Total Recoverable	Water	EPA 6020	267420
180-85554-6 MSD	FD	Total Recoverable	Water	EPA 6020	267420

# TestAmerica Pittsburgh

301 Alpha Drive  
RDC Park  
Pittsburgh, PA 15238-2907  
phone 412.963.7058 fax 412.963.2468

## Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ DNPOES ☐ DROCA ☐ Other:

Project Manager: Dawn Prell  
Tel/Fax: 248-536-5445

Client Contact  
Southern Company  
241 Ralph McGill Blvd SE B10185  
Atlanta, GA, 30308  
(404) 506-7239 Phone  
FAX  
Project Name: GPC Plant Scherer  
Site: Ash Pond  
PO #

Site Contact: Karim Minkara  
Lab Contact: Veronica Bortot

Date: 1/8/2019  
Carrier:

COC No: 1 of 1 COCs  
Sampler:  
For Lab Use Only:  
Walk-in Client:  
Lab Sampling:  
Job / SDG No.:

Analysis Turnaround Time  
☐ CALENDAR DAYS ☒ WORKING DAYS  
TAT if different from Below: ☐ 2 weeks ☐ 1 week ☐ 2 days ☒ 1 day

Sample Identification

Sample Date Sample Time Sample Type (C=Comp, G=Grab) Matrix # of Cont.

1/8/2019 1510 G GW 1

1/8/2019 1335 G GW 1

1/8/2019 1325 G GW 1

1/8/2019 1410 G GW 1

1/8/2019 1610 G W 1

1/8/2019 - G GW 1

6020 - Co

Perform MS / MSD (Y / N)

Filtered Sample (Y / N)

Seal

Barcode: 180-85554 Chain of Custody

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other

Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Special Instructions/QC Requirements & Comments: Attorney Client Privilege. Report to RL only, do not report J-flagged data

Custody Seal No.:  
Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-8-19/18:20*

Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-9-18/9:10*

Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-9-18/9:10*

Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-9-18/9:10*

Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-9-18/9:10*

Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-9-18/9:10*

Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-9-18/9:10*

Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-9-18/9:10*

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Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-9-18/9:10*

Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-9-18/9:10*

Relinquished by: *[Signature]* Company: *Goilder* Date/Time: *1-9-18/9:10*

## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-85554-1

Login Number: 85554

List Number: 1

Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ 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?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Pittsburgh

301 Alpha Drive

RIDC Park

Pittsburgh, PA 15238

Tel: (412)963-7058

TestAmerica Job ID: 180-85596-1

Client Project/Site: CCR - Plant Scherer

For:

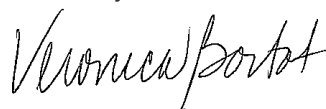
Southern Company

241 Ralph McGill Blvd SE

B10185

Atlanta, Georgia 30308

Attn: Joju Abraham



Authorized for release by:

1/11/2019 5:02:02 PM

Veronica Bortot, Senior Project Manager

(412)963-2435

[veronica.bortot@testamericainc.com](mailto:veronica.bortot@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

PA Lab ID: 02-00416

1

2

3

4

5

6

7

8

9

10

11

12

13

# 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 . . . . .	11
Chain of Custody . . . . .	12
Receipt Checklists . . . . .	13



# Case Narrative

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85596-1

**Job ID: 180-85596-1**

**Laboratory: TestAmerica Pittsburgh**

## Narrative

**Job Narrative**  
**180-85596-1**

## Comments

No additional comments.

## Receipt

The samples were received on 1/10/2019 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3° C.

## Metals

Method(s) 6020: The serial dilution performed for the following sample associated with batch 180-267636 was outside control limits for lithium: B-102A (180-85596-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



# Definitions/Glossary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85596-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



## Accreditation/Certification Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85596-1

### Laboratory: TestAmerica Pittsburgh

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-19 *
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-19
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19
Texas	NELAP	6	T104704528-15-2	03-31-19
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-19 *
Wisconsin	State Program	5	998027800	08-31-19

\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Pittsburgh

## Sample Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85596-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-85596-1	B-102A	Water	01/09/19 18:10	01/10/19 09:15
180-85596-2	B-103A	Water	01/09/19 16:50	01/10/19 09:15

## Method Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85596-1

Method	Method Description	Protocol	Laboratory
EPA 6020	Metals (ICP/MS)	SW846	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT

### Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Lab Chronicle

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85596-1

**Client Sample ID: B-102A**

**Date Collected: 01/09/19 18:10**

**Date Received: 01/10/19 09:15**

**Lab Sample ID: 180-85596-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	267564	01/10/19 12:44	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			267636	01/11/19 08:04	RSK	TAL PIT
Instrument ID: A										

**Client Sample ID: B-103A**

**Date Collected: 01/09/19 16:50**

**Date Received: 01/10/19 09:15**

**Lab Sample ID: 180-85596-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total Recoverable	Prep	3005A			50 mL	50 mL	267564	01/10/19 12:44	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			267636	01/11/19 08:20	RSK	TAL PIT
Instrument ID: A										

## Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

## Analyst References:

Lab: TAL PIT

Batch Type: Prep

NAM = Nicole Marfisi

Batch Type: Analysis

RSK = Robert Kurtz

# Client Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85596-1

**Client Sample ID: B-102A**  
**Date Collected: 01/09/19 18:10**  
**Date Received: 01/10/19 09:15**

**Lab Sample ID: 180-85596-1**  
**Matrix: Water**

**Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.0017	J	0.0025	0.000075	mg/L	—	01/10/19 12:44	01/11/19 08:04	1

**Client Sample ID: B-103A**  
**Date Collected: 01/09/19 16:50**  
**Date Received: 01/10/19 09:15**

**Lab Sample ID: 180-85596-2**  
**Matrix: Water**

**Method: EPA 6020 - Metals (ICP/MS) - Total Recoverable**

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	0.00078	J	0.0025	0.000075	mg/L	—	01/10/19 12:44	01/11/19 08:20	1

# QC Sample Results

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85596-1

## Method: EPA 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-267564/1-A

Matrix: Water

Analysis Batch: 267636

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 267564

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.000075		0.0025	0.000075	mg/L		01/10/19 12:44	01/11/19 07:57	1

Lab Sample ID: LCS 180-267564/2-A

Matrix: Water

Analysis Batch: 267636

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 267564

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	0.500	0.486		mg/L		97	80 - 120

Lab Sample ID: 180-85596-1 MS

Matrix: Water

Analysis Batch: 267636

Client Sample ID: B-102A

Prep Type: Total Recoverable

Prep Batch: 267564

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	0.0017	J	0.500	0.480		mg/L		96	75 - 125

Lab Sample ID: 180-85596-1 MSD

Matrix: Water

Analysis Batch: 267636

Client Sample ID: B-102A

Prep Type: Total Recoverable

Prep Batch: 267564

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cobalt	0.0017	J	0.500	0.461		mg/L		92	75 - 125	4	20

## QC Association Summary

Client: Southern Company  
Project/Site: CCR - Plant Scherer

TestAmerica Job ID: 180-85596-1

### Metals

#### Prep Batch: 267564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-85596-1	B-102A	Total Recoverable	Water	3005A	
180-85596-2	B-103A	Total Recoverable	Water	3005A	
MB 180-267564/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-267564/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-85596-1 MS	B-102A	Total Recoverable	Water	3005A	
180-85596-1 MSD	B-102A	Total Recoverable	Water	3005A	

#### Analysis Batch: 267636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-85596-1	B-102A	Total Recoverable	Water	EPA 6020	267564
180-85596-2	B-103A	Total Recoverable	Water	EPA 6020	267564
MB 180-267564/1-A	Method Blank	Total Recoverable	Water	EPA 6020	267564
LCS 180-267564/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	267564
180-85596-1 MS	B-102A	Total Recoverable	Water	EPA 6020	267564
180-85596-1 MSD	B-102A	Total Recoverable	Water	EPA 6020	267564

# TestAmerica Pittsburgh

301 Alpha Drive  
RDC Park


Pittsburgh, PA 15238-2907  
phone 412.963.7058 fax 412.963.2468

## Chain of Custody Record

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

<b>Client Contact</b> Southern Company 241 Ralph McGill Blvd SE B10185 Atlanta, GA, 30308 (404) 506-7239 Phone FAX Project Name: GPC Plant Scherer Site: Ash Pond P.O.#		<b>Regulatory Program:</b> <input type="checkbox"/> DOW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other: <b>Project Manager:</b> Dawn Prell <b>Tel/Fax:</b> 248-536-5445 <b>Analysis Turnaround Time</b> <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input checked="" type="checkbox"/> 1 day		<b>Site Contact:</b> Karim Minkara <b>Lab Contact:</b> Veronica Bortot <b>Date:</b> 1/9/2019 <b>Carrier:</b>		<b>COC No:</b> _____ 1 of 1 COCs <b>Sampler:</b> _____ <b>For Lab Use Only:</b> Walk-in Client: _____ Lab Sampling: _____ Job / SDG No.: _____											
<b>Sample Identification</b> B-102A B-103A		<b>Sample Date</b> 1/9/2019 1/9/2019		<b>Sample Type</b> G G		<b>Matrix</b> GW GW		<b># of Cont.</b> 1 1		<b>Filtered Sample (Y/N)</b> N N		<b>Perform MS / MSD (Y/N)</b> X X		<b>6020 - Co</b> X X		<b>Sample Specific Notes:</b>  180-85596 Chain of Custody	
<b>Preservation Used:</b> 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other																	
<b>Possible Hazard Identification:</b> Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown																	
<b>Special Instructions/QC Requirements &amp; Comments: Attorney Client Privilege.</b>																	
<b>Custody Seals Intact:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Custody Seal No.:</b>		<b>Cooler Temp. (°C):</b> Obs'd: _____ Cor'd: _____ Therm ID No.: _____		<b>Received by:</b> _____ Company: _____ Date/Time: 1/10/19 9:15		<b>Received by:</b> _____ Company: _____ Date/Time:		<b>Received in Laboratory by:</b> _____ Company: _____ Date/Time:		<b>Received by:</b> _____ Company: _____ Date/Time:		<b>Received in Laboratory by:</b> _____ Company: _____ Date/Time:			

Form No. CA-C-WI-002, Rev. 4.18, dated 9/5/2018



## Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-85596-1

Login Number: 85596

List Number: 1

Creator: Say, Thomas C

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## Quantitative X-Ray Diffraction by Rietveld Refinement

**Report Prepared for:** Golder Associates

**Project Number/ LIMS No.** CA201-00000-211-17024-01 / MI7002-OCT18

**Sample Receipt:** October 3, 2018

**Sample Analysis:** October 13, 2018

**Reporting Date:** November 1, 2018

---

**Instrument:** Panalytical X'pert Pro Diffractometer

**Test Conditions:** Co radiation, 40 kV, 45 mA  
Regular Scanning: Step: 0.033°, Step time: 0.15s, 2θ range: 6-70°

**Interpretations:** HighScore Plus software using Crystallography Open Database (COD) and Joint Committee on Powder Diffraction Standards -International Center for Diffraction Data (JCPDS-ICDD).

**Detection Limit:** 0.5-2%. Strongly dependent on crystallinity.

---

**Contents:**

- 1) Method Summary
- 2) Summary of Mineral Assemblages
- 3) Quantitative XRD Results
- 4) XRD Pattern(s)

---

Lain Glossop H.B.Sc  
Senior Mineralogist

---

Sarah Prout, Ph.D.  
Senior Mineralogist



## Method Summary

### ***Mineral Identification and Interpretation:***

Mineral identification and interpretation involve matching the diffraction pattern of a test sample material to patterns of single-phase reference materials. The reference patterns from the Crystallography Open Database (COD) and the Joint Committee on Powder Diffraction Standards - International Center for Diffraction Data (JCPDS-ICDD).

Interpretations do not reflect the presence of non-crystalline and/or amorphous compounds, except when internal standards have been added by request. Mineral proportions may be strongly influenced by crystallinity, crystal structure and preferred orientations. Mineral or compound identification and quantitative analysis results should be accompanied by supporting chemical assay data or other additional tests.

### ***Quantitative Rietveld Analysis:***

Panalytical Highscore Plus software was used to perform the quantitative Rietveld Analysis. This software uses a graphics based profile analysis program built around a non-linear least squares fitting system, to quantitatively determine the amount of different phases present in a multicomponent sample. Whole pattern analyses are predicated by the fact that the X-ray diffraction pattern is a total sum of both instrumental and specimen factors. Unlike other peak intensity-based methods, the Rietveld method uses a least squares approach to refine a theoretical line profile (shown as a blue pattern in the analyses plots) until it matches the obtained experimental patterns (shown as the coloured pattern in the analyses plots).

Rietveld refinement is completed with a set of minerals specifically identified for the sample. Zero values indicate that the mineral was included in the refinement calculations, but the calculated concentration was less than 0.5 wt%. Minerals not identified by the analyst are not included in refinement calculations for specific samples and are indicated with a dash.

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## Summary of Rietveld Quantitative Analysis X-ray Diffraction Results

### Quantitative X-ray Diffraction Results

Mineral/Compound	Sample ID 01 PZ-36S (31.5')	Sample ID 02 PZ-36S (53.5')	Sample ID 03 PZ-9I (67.3')	Sample ID 04 PZ-40I (43.5')	Sample ID 05 PZ-40I (64.5')	Sample ID 06 PZ-40I (81')
	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)
Quartz	71.3	74.1	10.9	43.8	23.9	13.6
Plagioclase	-	2.0	39.6	-	36.1	37.3
Biotite	-	-	-	-	-	1.2
Kaolinite	28.7	23.9	-	56.2	0.9	0.0
Palygorskite	0.0	0.0	-	0.0	-	0.0
Amphibole	-	-	49.4	-	39.1	47.9
Jarosite	-	-	0.1	-	0.1	0.0
Sepiolite	-	-	-	-	-	0.0
Montmorillonite	-	-	-	-	-	-
Talc	-	-	-	-	-	-
Chlorite-Smectite	-	-	-	-	-	-
Goethite	-	-	-	-	-	-
TOTAL	100	100	100	100	100	100

Mineral/Compound	Sample ID 07 PZ-42I (37.5')	Sample ID 08 PZ-42I (52.5')	Sample ID 09 PZ-42I (92.0')	Sample ID 10 PZ-44I (29.5')	Sample ID 11 PZ-44I (51.5')	Sample ID 12 PZ-44I (106')
	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)	(wt %)
Quartz	42.2	3.5	49.2	39.1	41.5	15.0
Plagioclase	-	36.2	48.5	-	38.5	25.0
Biotite	-	-	2.4	-	-	0.0
Kaolinite	57.8	2.3	-	60.7	6.7	-
Palygorskite	-	0.0	-	-	-	-
Amphibole	-	55.3	0.0	-	13.1	60.0
Jarosite	-	-	-	-	-	0.0
Sepiolite	-	-	-	-	0.2	-
Montmorillonite	-	0.4	-	-	-	-
Talc	-	1.1	-	-	-	-
Chlorite-Smectite	-	1.2	-	-	-	-
Goethite	-	-	-	0.2	-	-
TOTAL	100	100	100	100	100	100

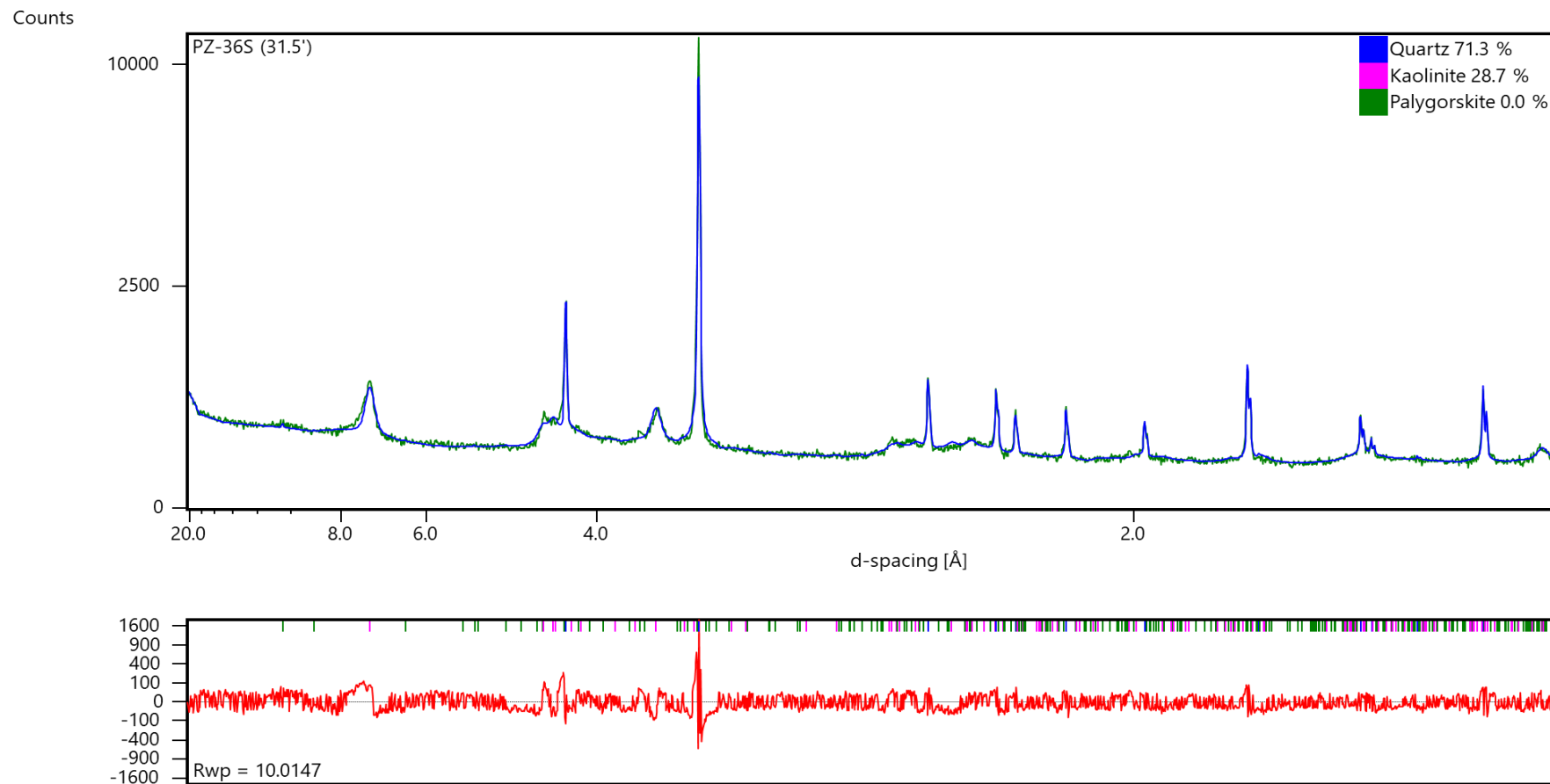
Zero values indicate that the mineral was included in the refinement, but the calculated concentration is below a measurable value.

Dashes indicate that the mineral was not identified by the analyst and not included in the refinement calculation for the sample.

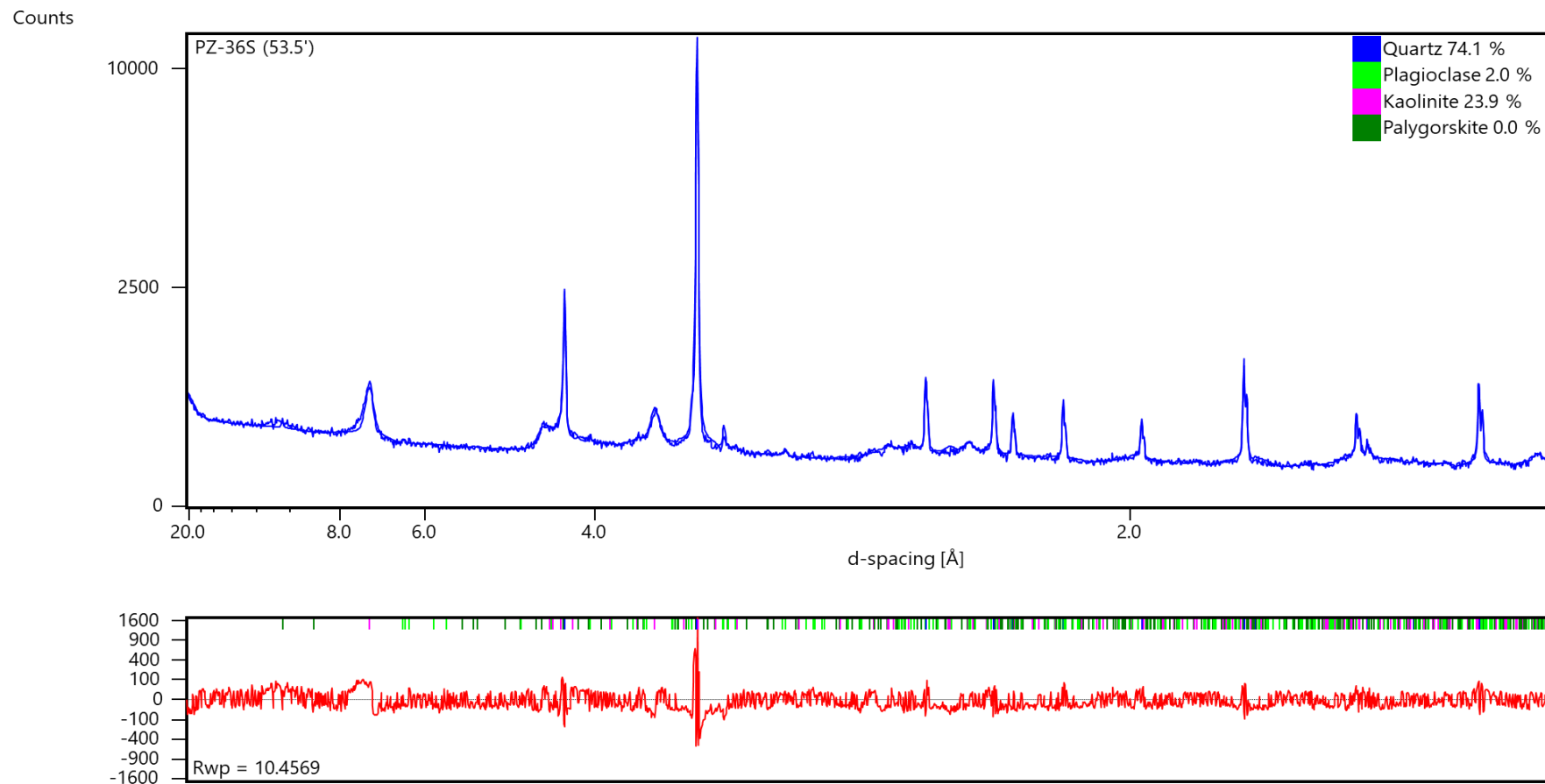
The weight percent quantities indicated have been normalized to a sum of 100%. The quantity of amorphous material has not been determined.



Mineral/Compound	Approximate Formula
Quartz	$\text{SiO}_2$
Plagioclase	$(\text{Ca}, \text{Na})(\text{Al}, \text{Si})_4\text{O}_8$
Biotite	$\text{K}(\text{Mg}, \text{Fe})_3[\text{AlSi}_3\text{O}_{10}(\text{OH}, \text{F})_2]$
Kaolinite	$\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$
Palygorskite	$(\text{Mg}, \text{Al})_2\text{Si}_4\text{O}_{10}(\text{OH}) \cdot 4(\text{H}_2\text{O})$
Amphibole	$\text{Ca}_2(\text{Mg}, \text{Fe}, \text{Al})_5(\text{Al}, \text{Si})_8\text{O}_{22}(\text{OH})_2$
Jarosite	$\text{KFe}_3(\text{OH})_6(\text{SO}_4)_2$
Sepiolite	$\text{Mg}_4\text{Si}_6\text{O}_{15}(\text{OH})_2 \cdot 6\text{H}_2\text{O}$
Montmorillonite	$(\text{Na}, \text{Ca})_{0.33}(\text{Al}, \text{Mg})_2(\text{Si}_4\text{O}_{10})(\text{OH})_2 \cdot n\text{H}_2\text{O}$
Talc	$\text{Mg}_3\text{Si}_4\text{O}_{10}(\text{OH})_2$
Chlorite-Smectite	$(\text{Mg}_5\text{Al})(\text{AlSi}_3\text{O}_{10}(\text{OH})_8 - (\text{Na}, \text{Ca})_{0.33}(\text{Al}, \text{Mg})_2(\text{Si}_4\text{O}_{10})(\text{OH})_2 \cdot n\text{H}_2\text{O})$
Goethite	$\text{FeO}(\text{OH})$

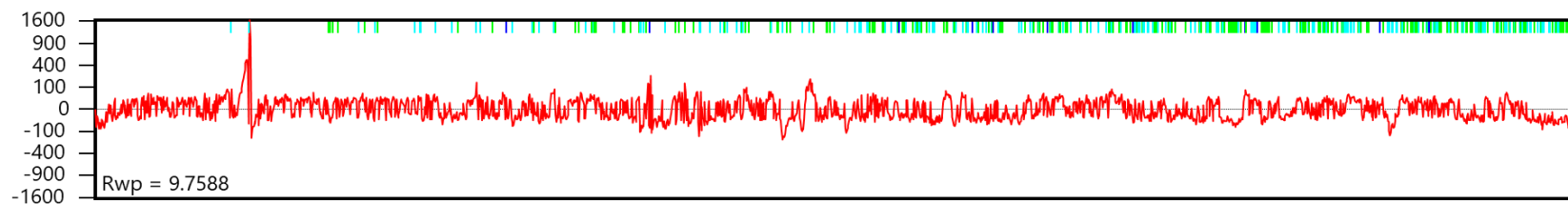
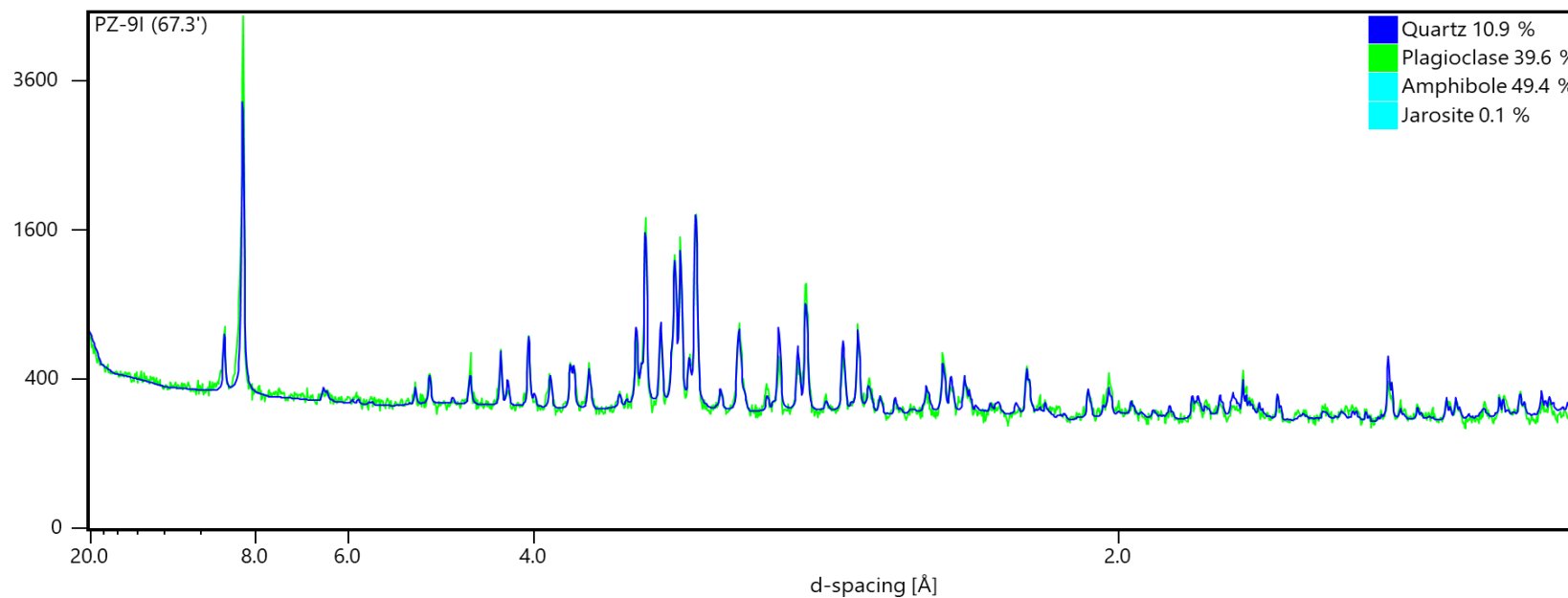


X-ray diffractogram. The upper pattern is the measured diffractogram, the blue curve is the calculated pattern from the Rietveld Refinement. The lower red curve is the difference plot with the weighted R profile value (Rwp).



X-ray diffractogram. The upper pattern is the measured diffractogram, the blue curve is the calculated pattern from the Rietveld Refinement. The lower red curve is the difference plot with the weighted R profile value (Rwp).

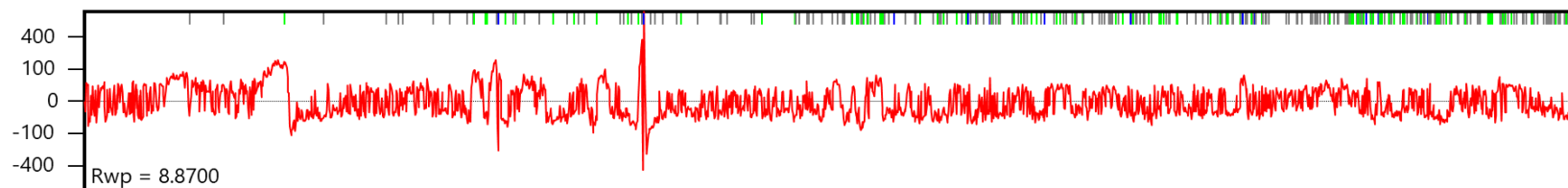
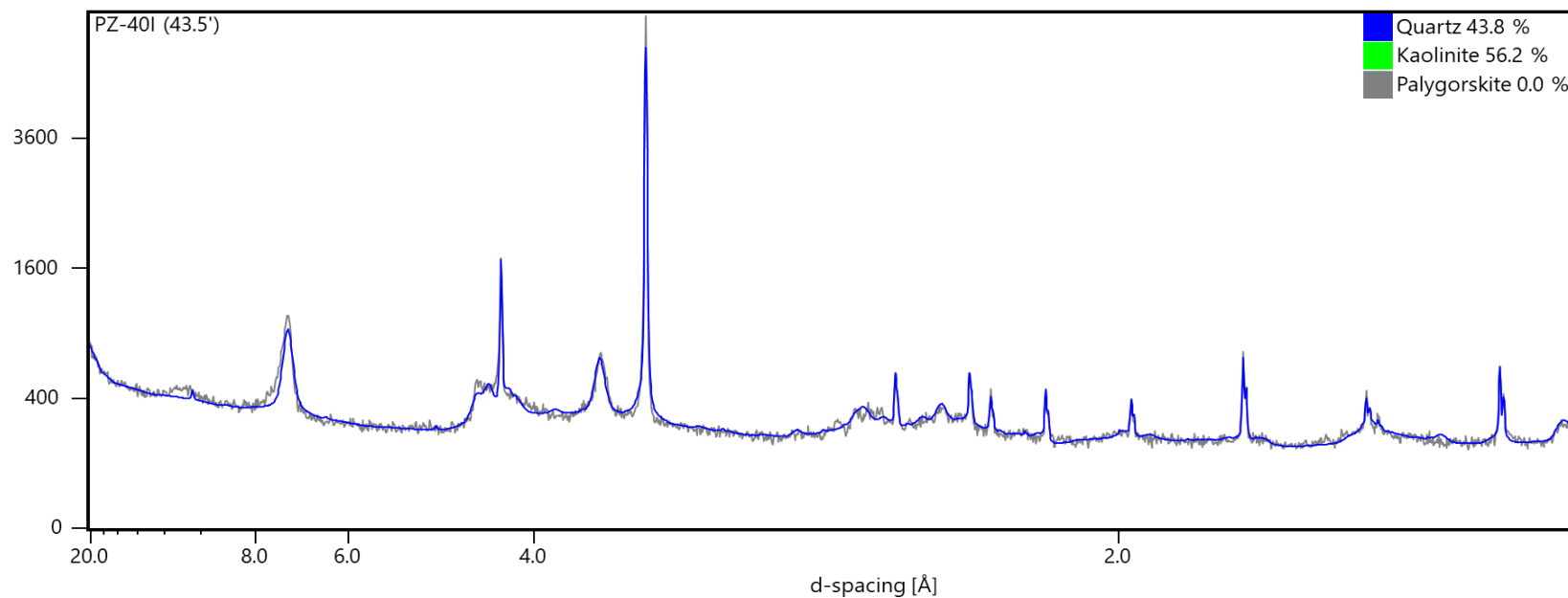
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X-ray diffractogram. The upper pattern is the measured diffractogram, the blue curve is the calculated pattern from the Rietveld Refinement. The lower red curve is the difference plot with the weighted R profile value (Rwp).

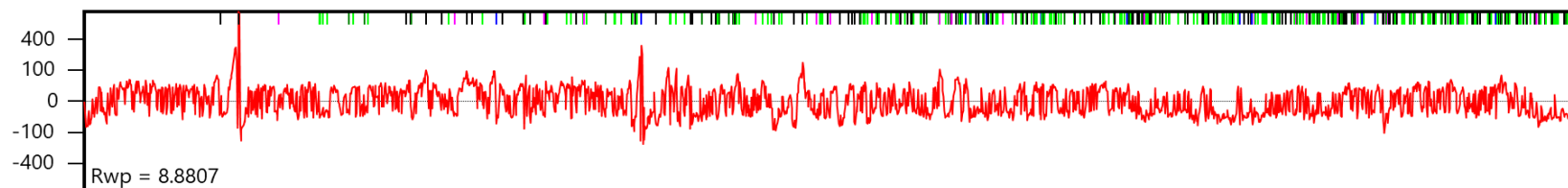
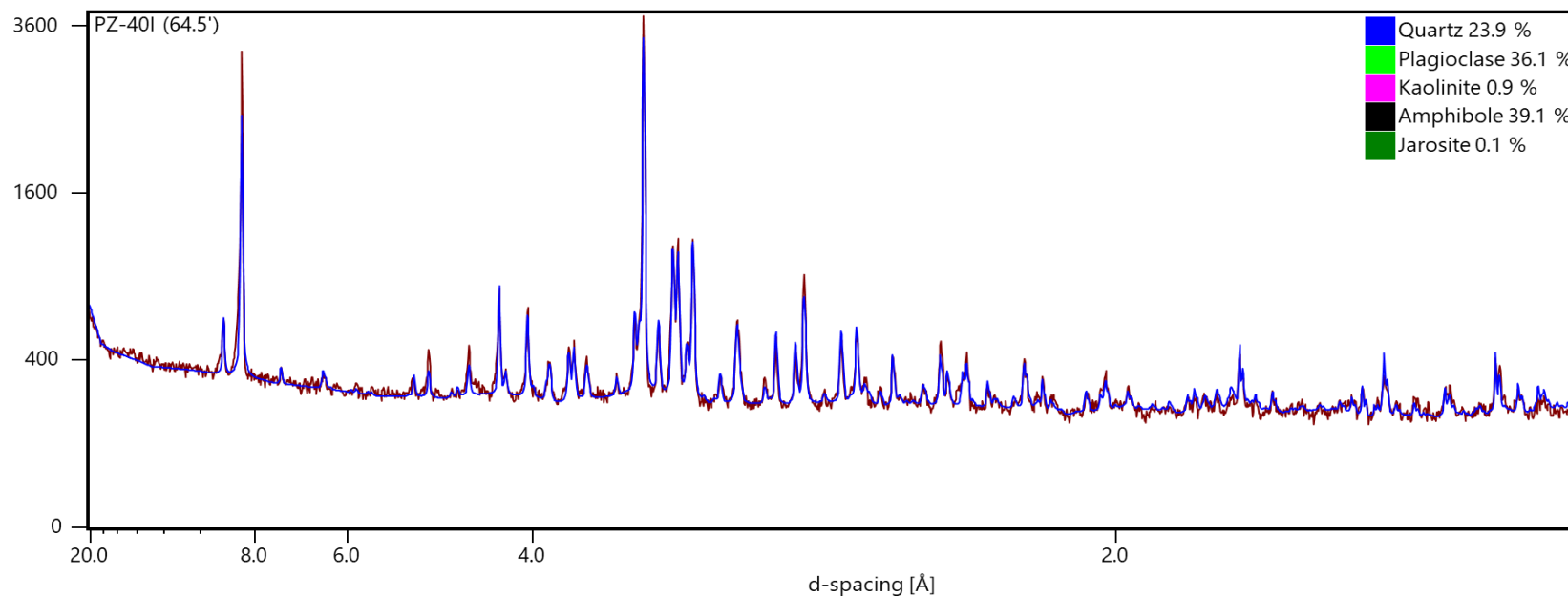


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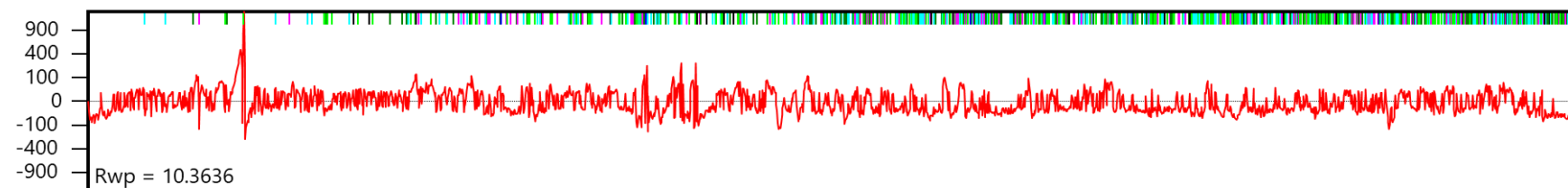
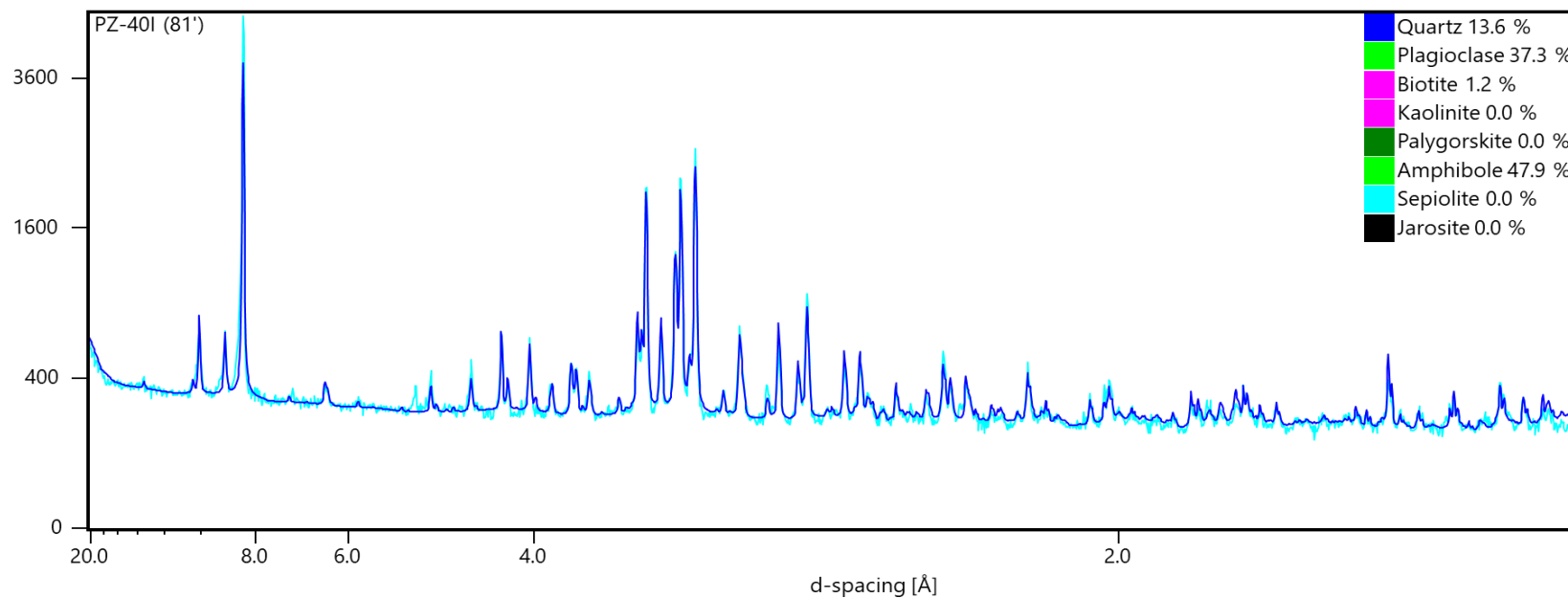
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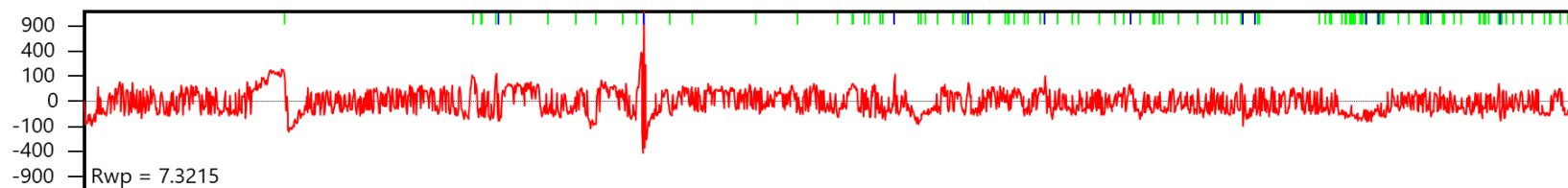
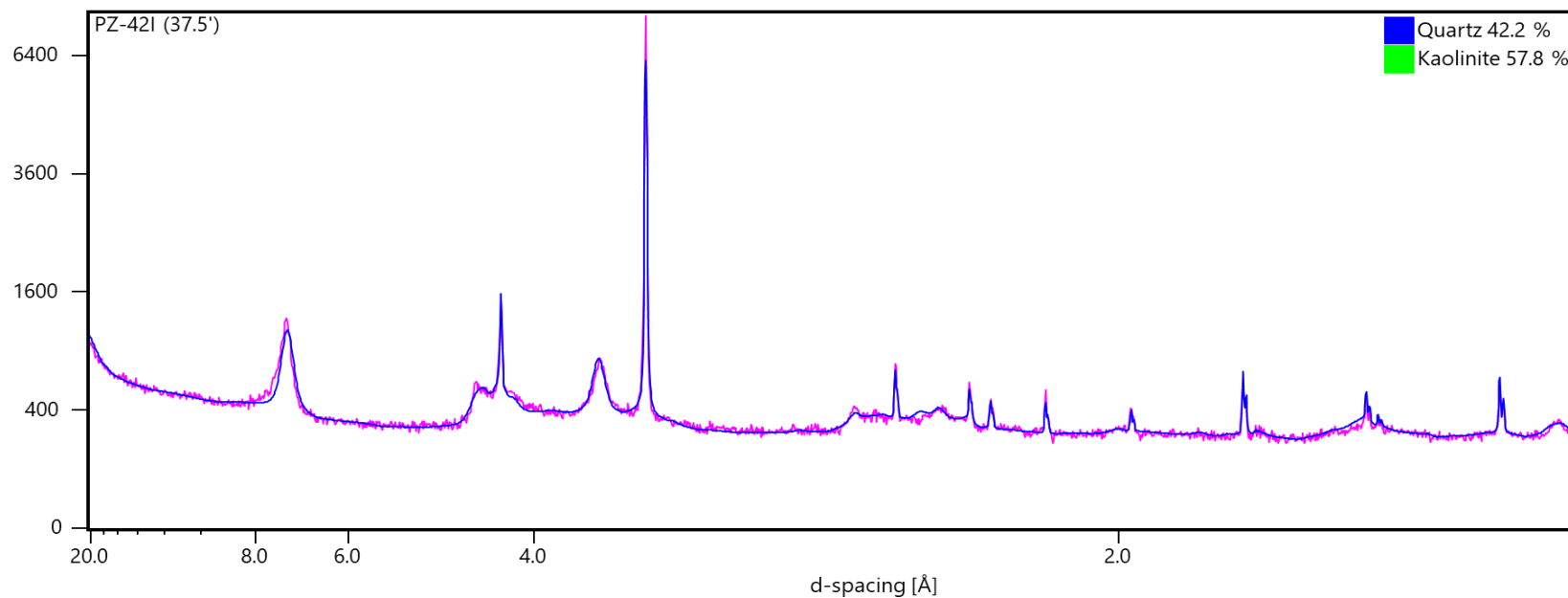
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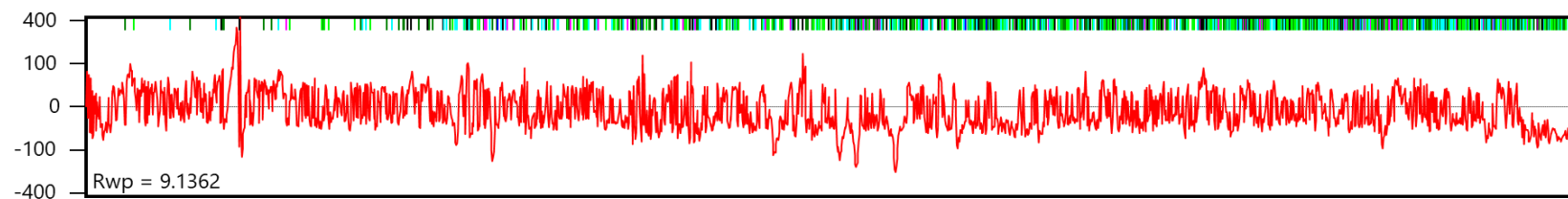
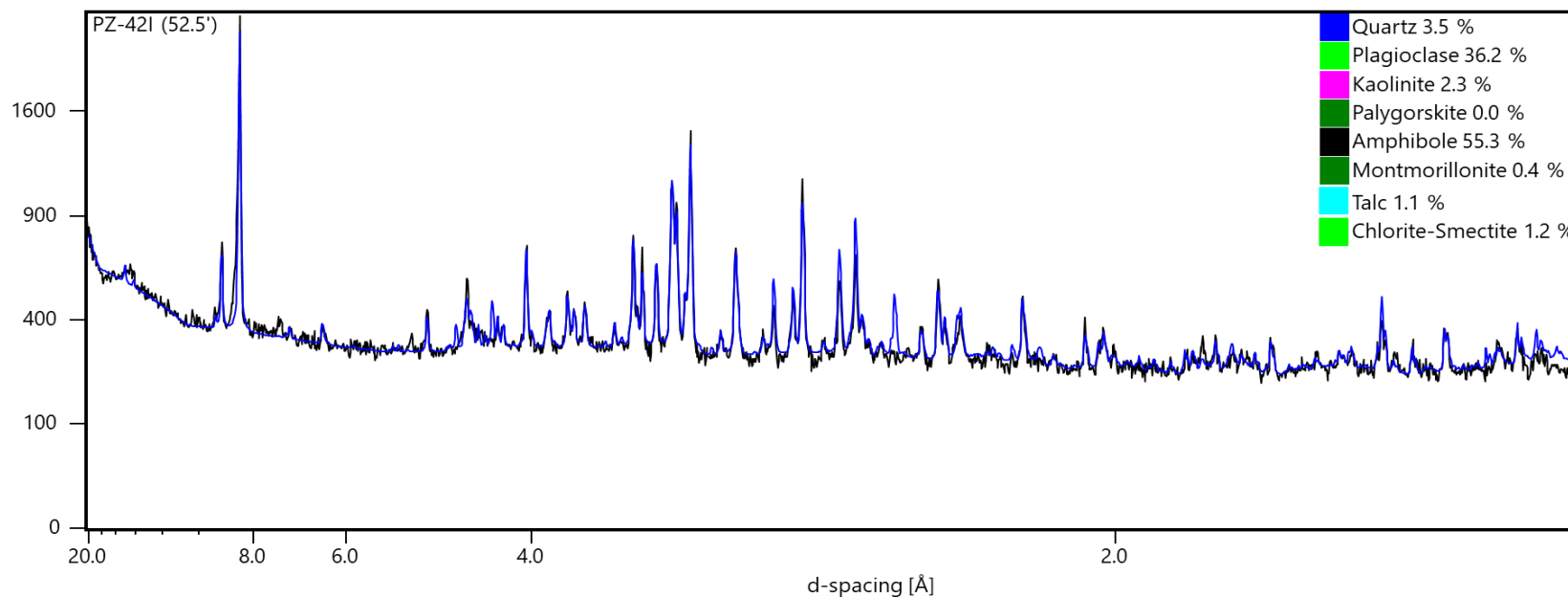
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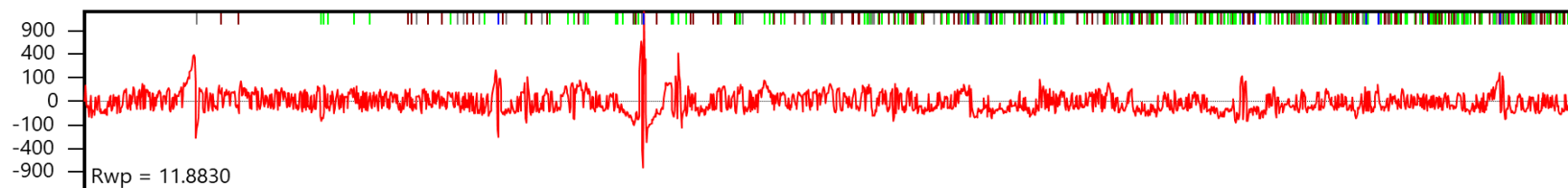
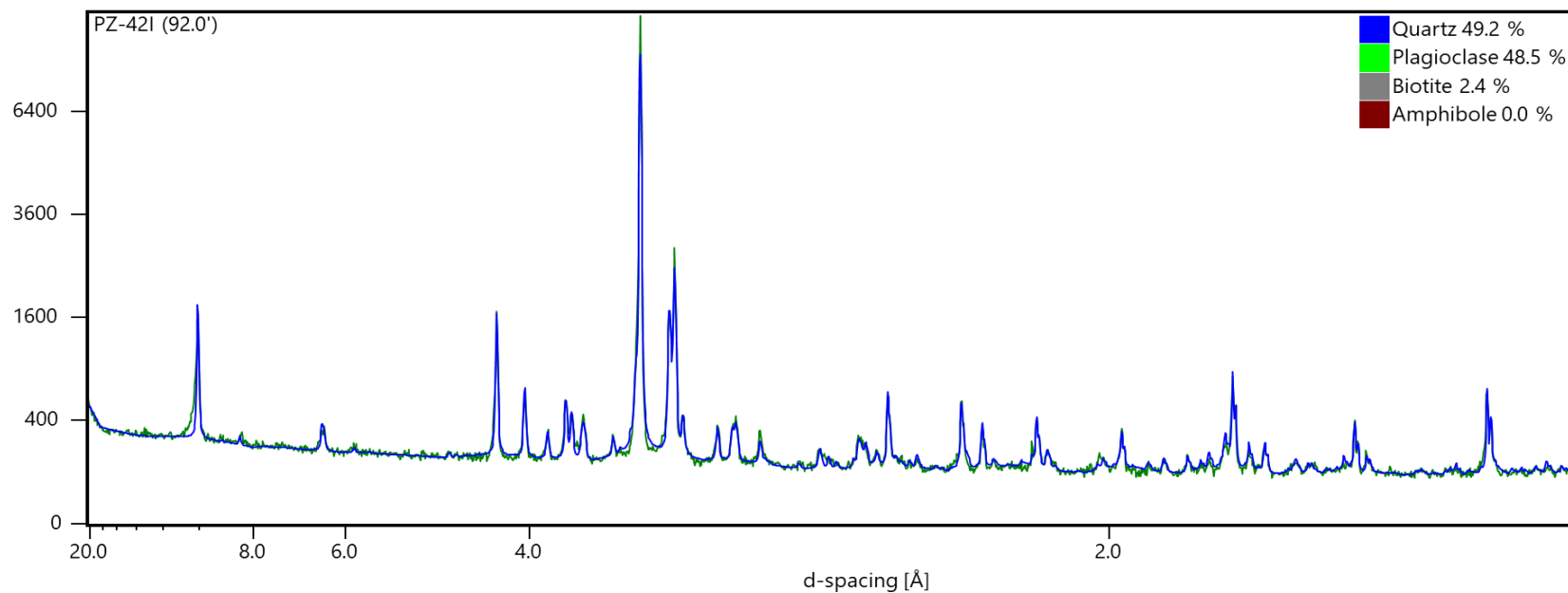
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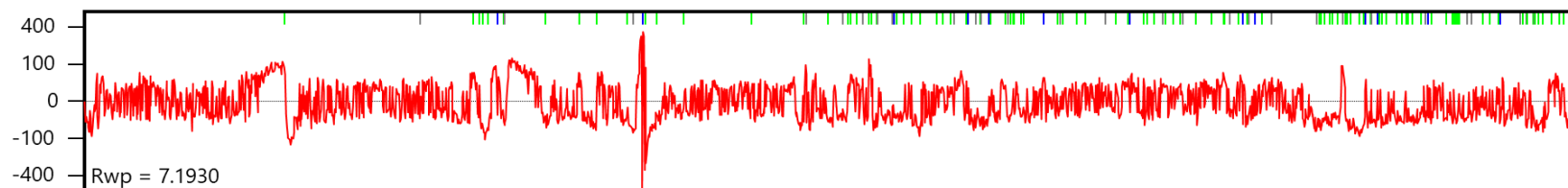
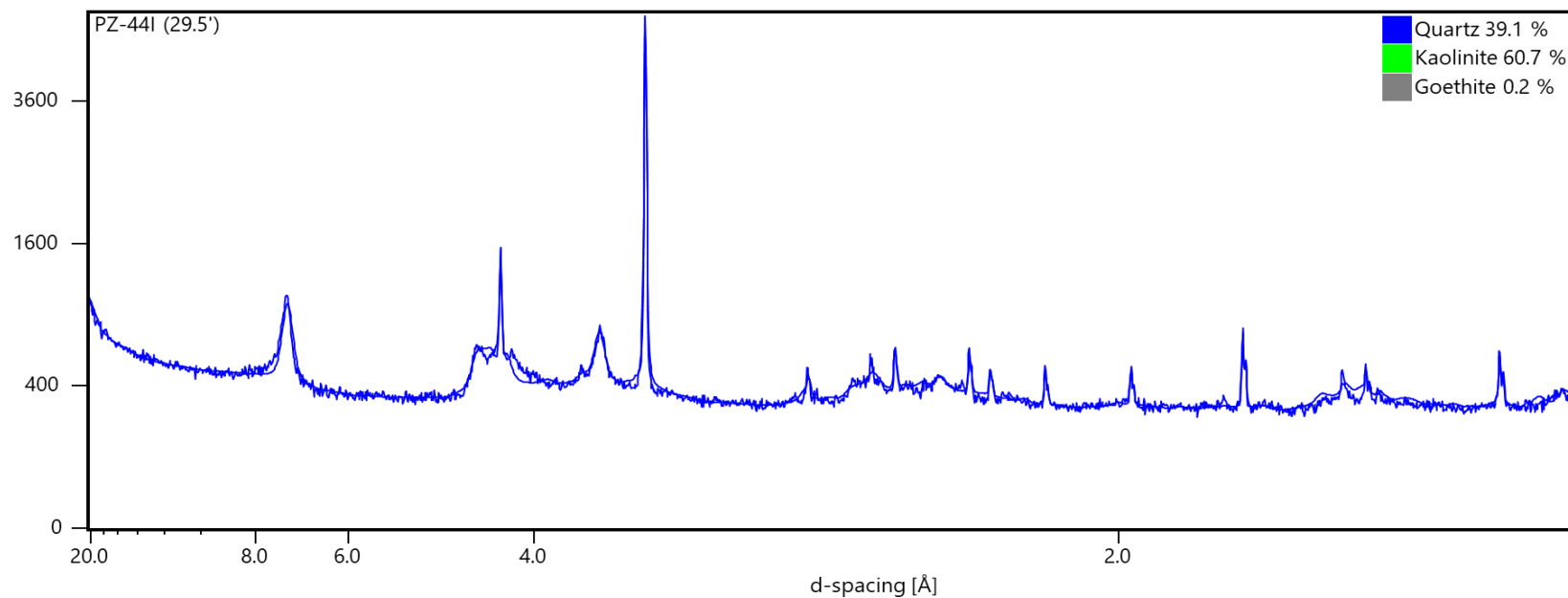
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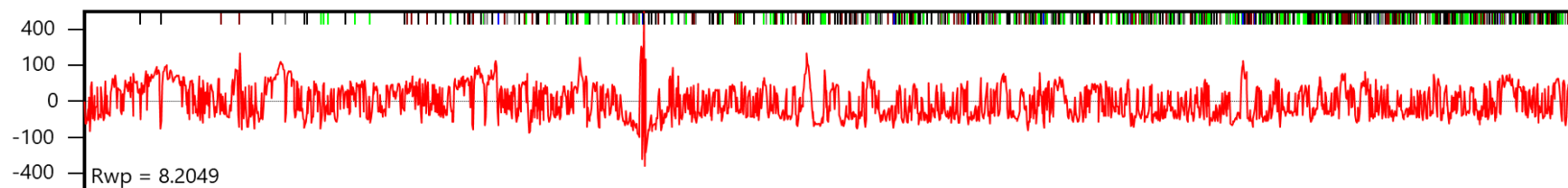
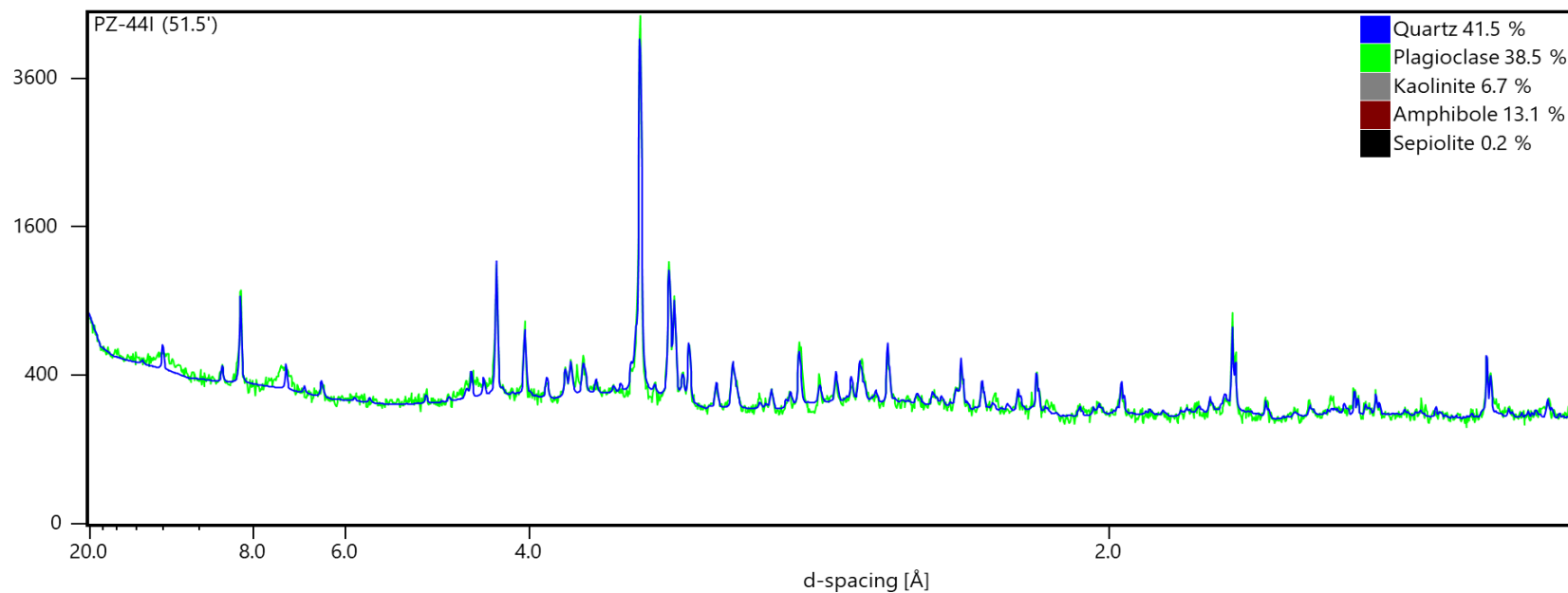
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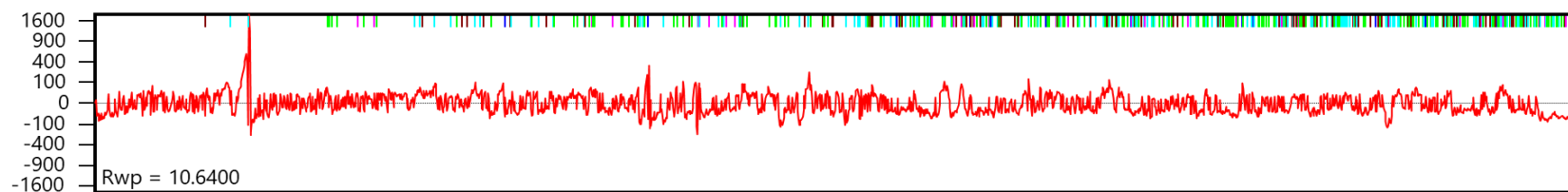
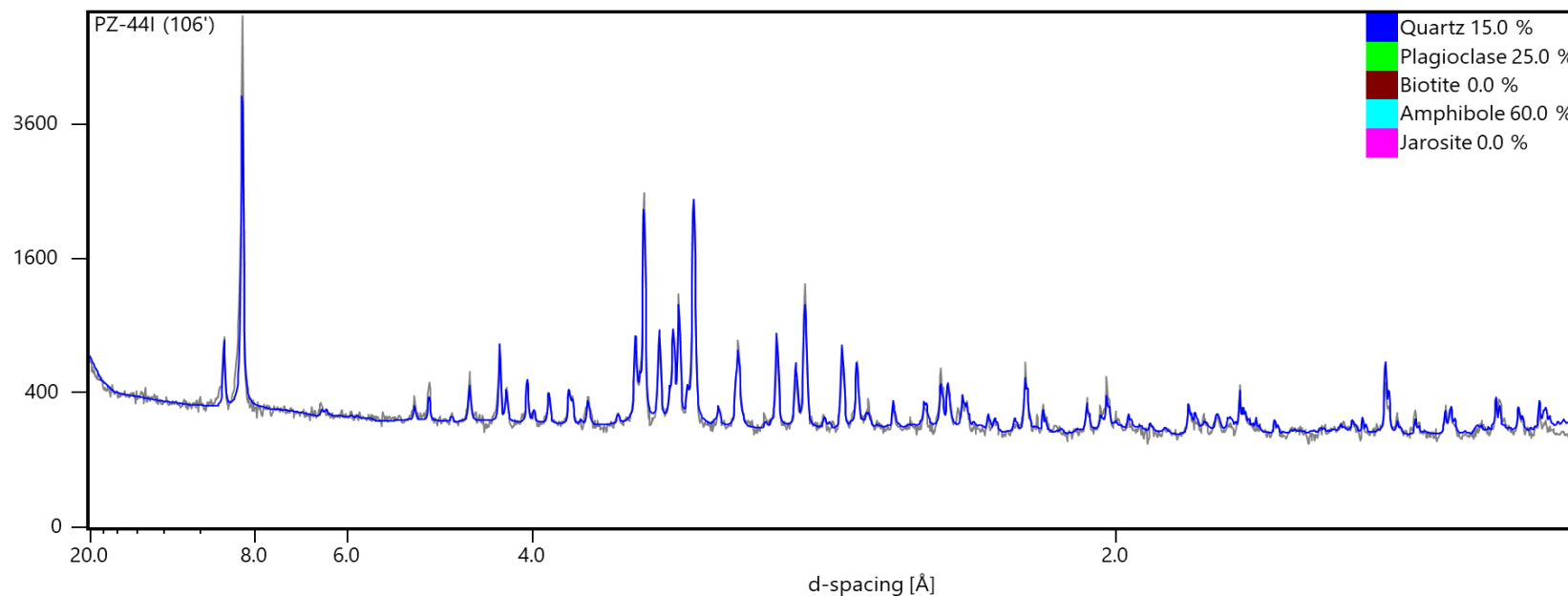
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X-ray diffractogram. The upper pattern is the measured diffractogram, the blue curve is the calculated pattern from the Rietveld Refinement. The lower red curve is the difference plot with the weighted R profile value (Rwp).

**APPENDIX C**

# USGS Open-File Report



# **Geochemical and Mineralogical Maps for Soils of the Conterminous United States**

By David B. Smith, William F. Cannon, Laurel G. Woodruff, Federico Solano, and Karl J. Ellefsen

Open-File Report 2014–1082

**U.S. Department of the Interior  
U.S. Geological Survey**

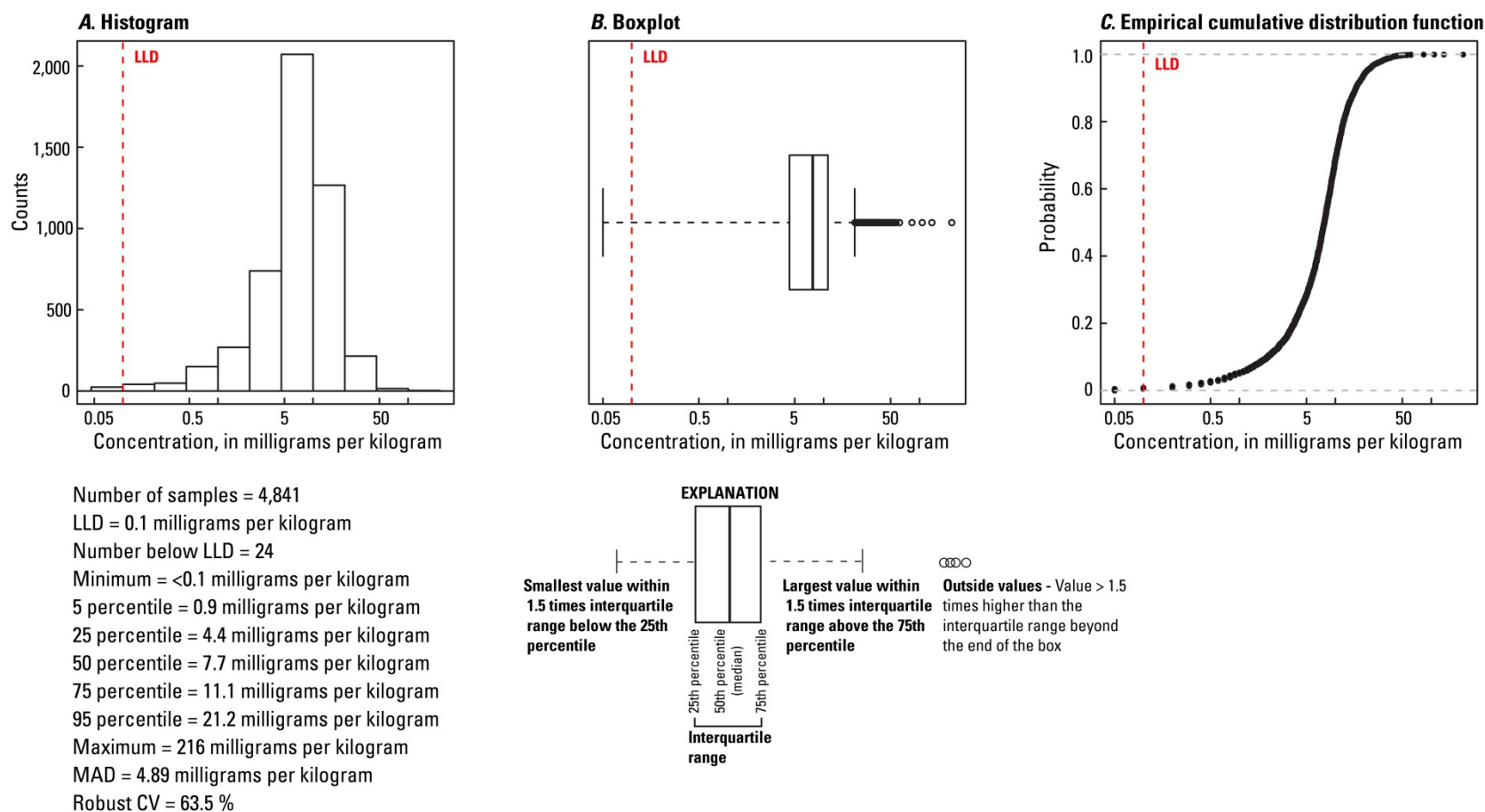
**This is an excerpt from the original document.**

It was downloaded from [mrdata.usgs.gov/soilgeochemistry](http://mrdata.usgs.gov/soilgeochemistry);

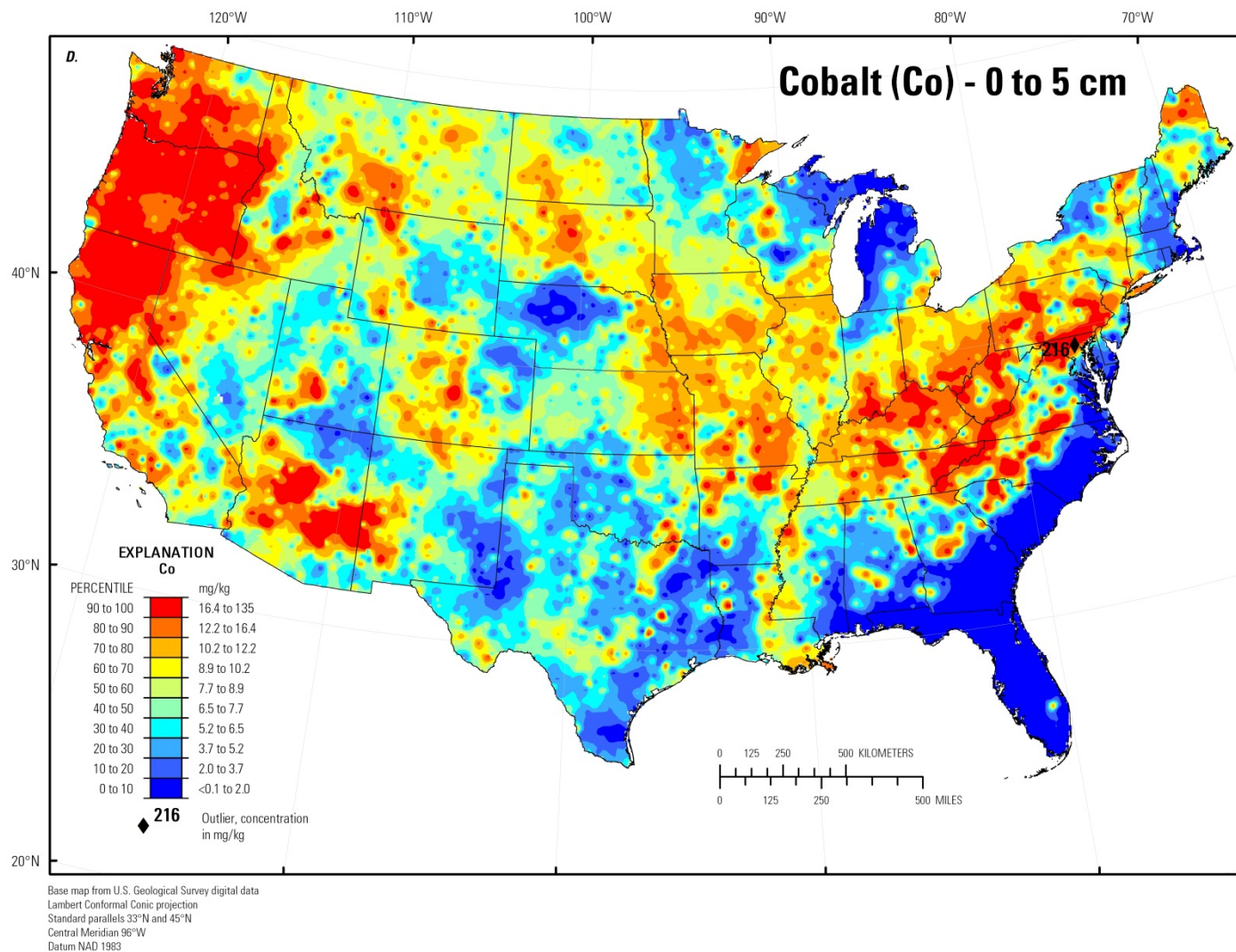
A link to download the full document (U.S. Geological Survey Open-File Report 2014-1082, 400 pages, 170 MB) can be found there or at <http://pubs.usgs.gov/of/2014/1082>.

These maps and statistical graphics were derived from data published in U.S. Geological Survey Data Series 801, downloadable from <http://pubs.usgs.gov/ds/801>.

## Cobalt (Co) in soil collected from a depth of 0 to 5 centimeters

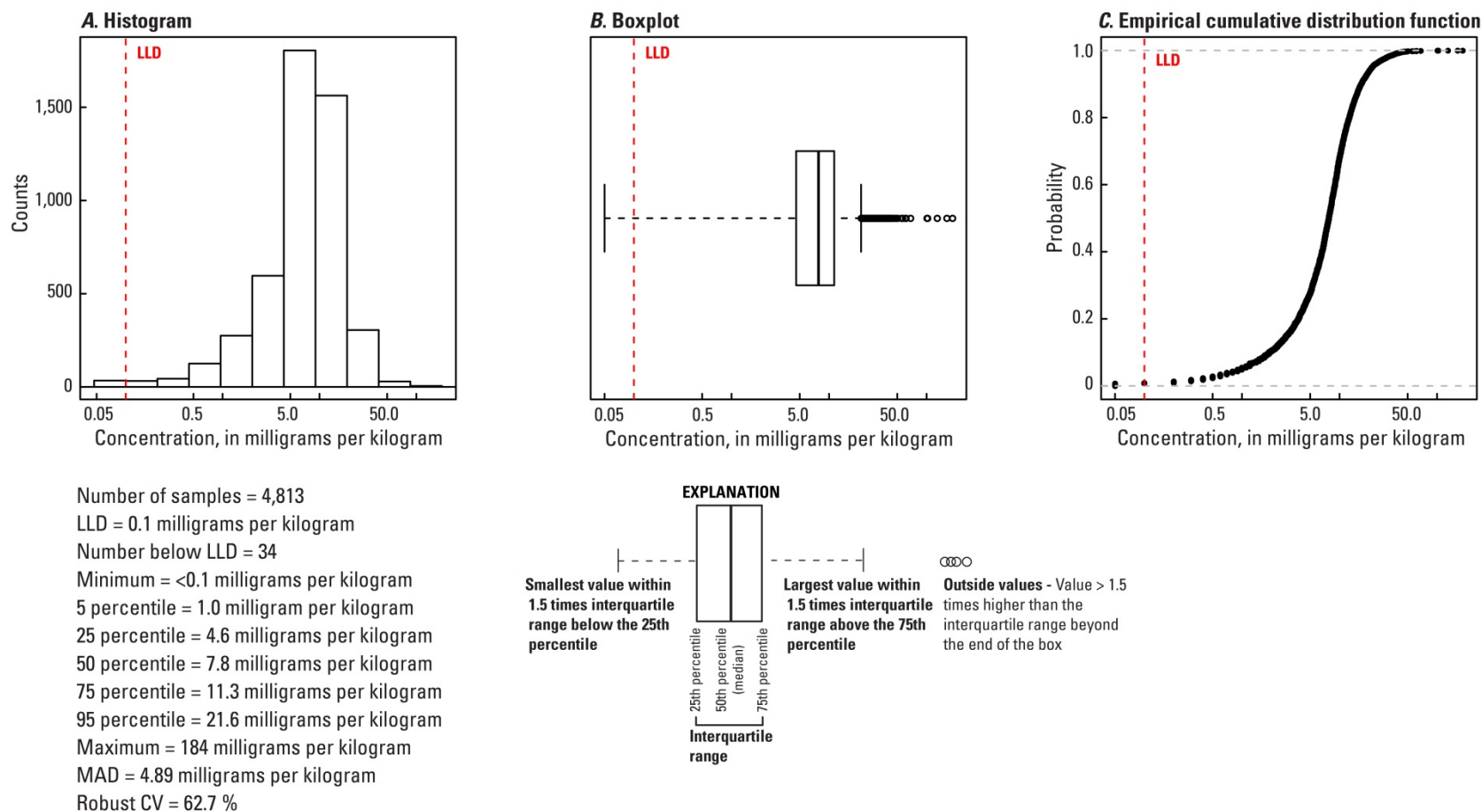


**Figure 41.** A, Histogram and summary statistics; B, Boxplot; C, Empirical cumulative distribution function; and D, Distribution of cobalt (Co) in surface soils collected from a depth of 0 to 5 centimeters, conterminous United States (LLD, lower limit of determination; MAD, median absolute deviation; CV, coefficient of variation; mg/kg, milligrams per kilogram; cm, centimeters).



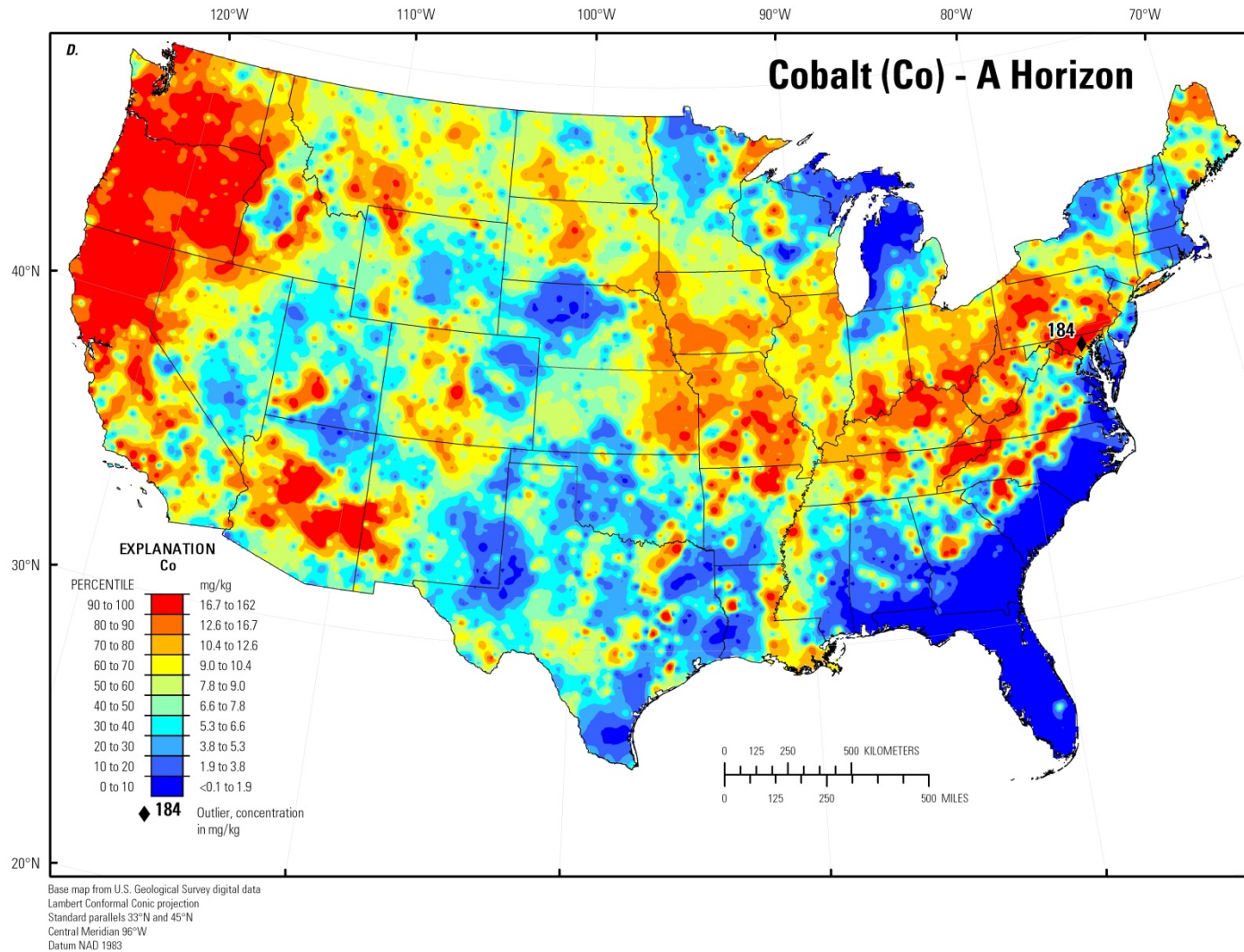
**Figure 41.** A, Histogram and summary statistics; B, Boxplot; C, Empirical cumulative distribution function; and D, Distribution of cobalt (Co) in surface soils collected from a depth of 0 to 5 centimeters, conterminous United States (LLD, lower limit of determination; MAD, median absolute deviation; CV, coefficient of variation; mg/kg, milligrams per kilogram; cm, centimeters).—Continued

## Cobalt (Co) in soil A horizon



**Figure 42.** A, Histogram and summary statistics; B, Boxplot; C, Empirical cumulative distribution function; and D, Distribution of cobalt (Co) in the soil A horizon, conterminous United States (LLD, lower limit of determination; MAD, median absolute deviation; CV, coefficient of variation; mg/kg, milligrams per kilogram).

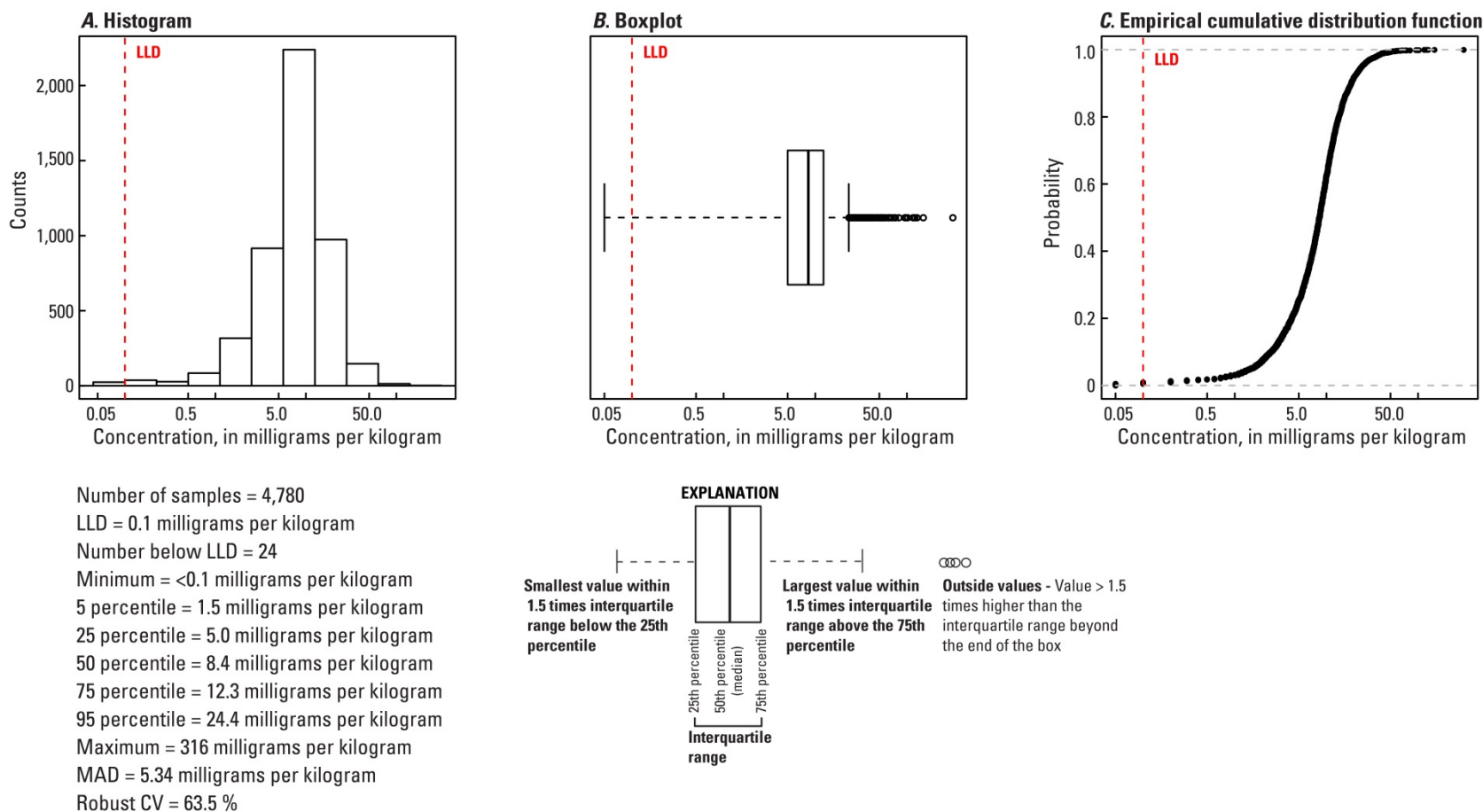




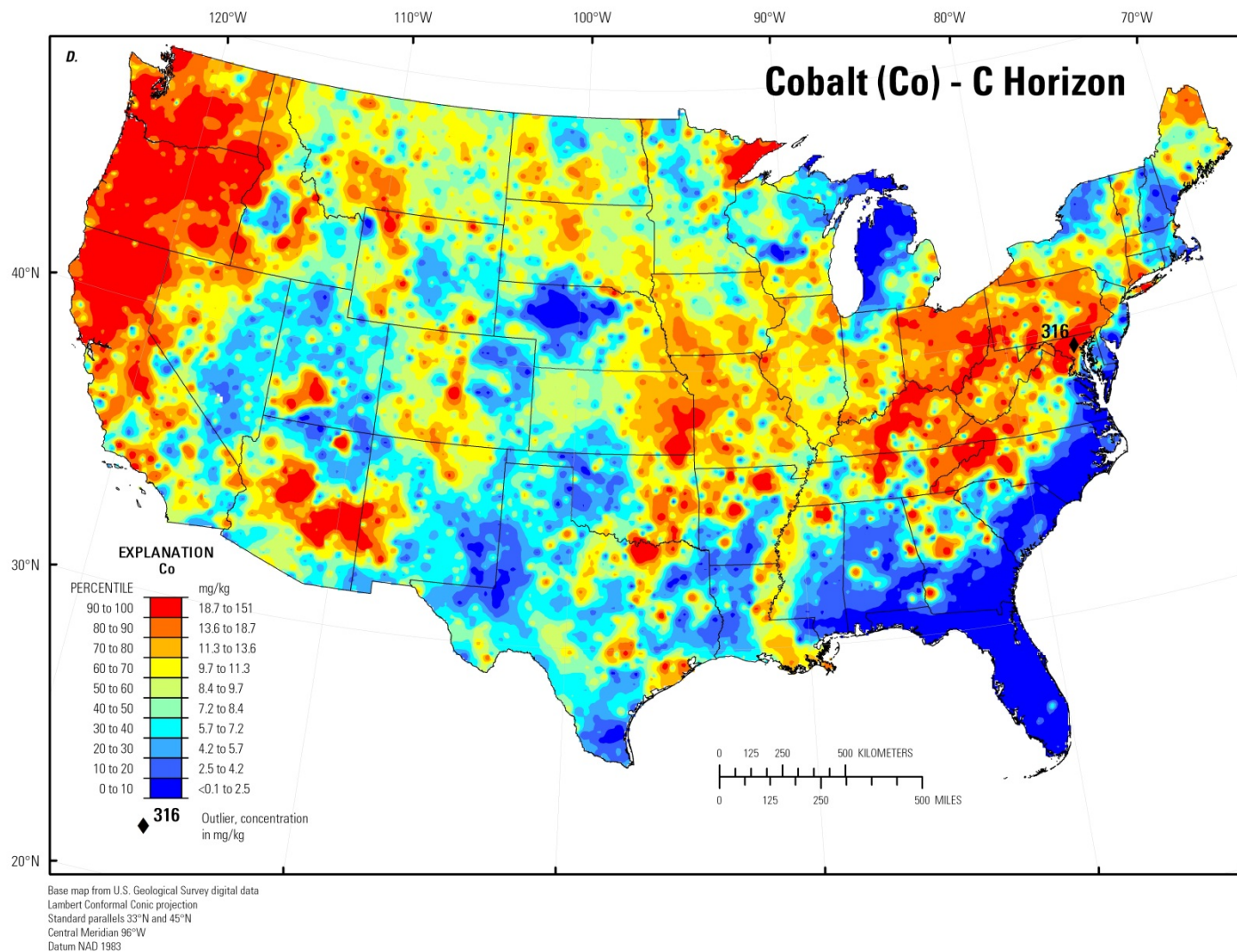
**Figure 42.** A, Histogram and summary statistics; B, Boxplot; C, Empirical cumulative distribution function; and D, Distribution of cobalt (Co) in the soil A horizon, conterminous United States (LLD, lower limit of determination; MAD, median absolute deviation; CV, coefficient of variation; mg/kg, milligrams per kilogram).—Continued



## Cobalt (Co) in soil C horizon



**Figure 43.** A, Histogram and summary statistics; B, Boxplot; C, Empirical cumulative distribution function; and D, Distribution of cobalt (Co) in the soil C horizon, conterminous United States (LLD, lower limit of determination; MAD, median absolute deviation; CV, coefficient of variation; mg/kg, milligrams per kilogram).



**Figure 43.** A, Histogram and summary statistics; B, Boxplot; C, Empirical cumulative distribution function; and D, Distribution of cobalt (Co) in the soil C horizon, conterminous United States (LLD, lower limit of determination; MAD, median absolute deviation; CV, coefficient of variation; mg/kg, milligrams per kilogram).—Continued



**National Water-Quality Assessment Program**

**Naturally Occurring Contaminants in the Piedmont and  
Blue Ridge Crystalline-Rock Aquifers and Piedmont Early  
Mesozoic Basin Siliciclastic-Rock Aquifers, Eastern  
United States, 1994–2008**



Scientific Investigations Report 2013–5072

**Cover:** Photo showing Whiteside tonalite (rock types quartz diorite and granodiorite, lithologic group mafic igneous rocks and their metamorphic equivalents, lithochemical subgroup 41). Photograph by William Burton, U.S. Geological Survey

# **Naturally Occurring Contaminants in the Piedmont and Blue Ridge Crystalline-Rock Aquifers and Piedmont Early Mesozoic Basin Siliciclastic-Rock Aquifers, Eastern United States, 1994–2008**

By Melinda J. Chapman, Charles A. Cravotta III, Zoltan Szabo, and Bruce D. Lindsey

National Water-Quality Assessment Program

Scientific Investigations Report 2013–5072

**U.S. Department of the Interior  
U.S. Geological Survey**

**U.S. Department of the Interior**

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U.S. Geological Survey, Reston, Virginia: 2013

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## Foreword

The U.S. Geological Survey (USGS) is committed to providing the Nation with reliable scientific information that helps to enhance and protect the overall quality of life and that facilitates effective management of water, biological, energy, and mineral resources (<http://www.usgs.gov/>). Information on the Nation's water resources is critical to ensuring long-term availability of water that is safe for drinking and recreation and is suitable for industry, irrigation, and fish and wildlife. Population growth and increasing demands for water make the availability of that water, measured in terms of quantity and quality, even more essential to the long-term sustainability of our communities and ecosystems.

The USGS implemented the National Water-Quality Assessment (NAWQA) Program in 1991 to support national, regional, State, and local information needs and decisions related to water-quality management and policy (<http://water.usgs.gov/nawqa>). The NAWQA Program is designed to answer: What is the quality of our Nation's streams and groundwater? How are conditions changing over time? How do natural features and human activities affect the quality of streams and groundwater, and where are those effects most pronounced? By combining information on water chemistry, physical characteristics, stream habitat, and aquatic life, the NAWQA Program aims to provide science-based insights for current and emerging water issues and priorities. From 1991 to 2001, the NAWQA Program completed interdisciplinary assessments and established a baseline understanding of water-quality conditions in 51 of the Nation's river basins and aquifers, referred to as Study Units ([http://water.usgs.gov/nawqa/studies/study\\_units.html](http://water.usgs.gov/nawqa/studies/study_units.html)).

In the second decade of the Program (2001–12), a major focus is on regional assessments of water-quality conditions and trends. These regional assessments are based on major river basins and principal aquifers, which encompass larger regions of the country than the Study Units. Regional assessments extend the findings in the Study Units by filling critical gaps in characterizing the quality of surface water and groundwater, and by determining water-quality status and trends at sites that have been consistently monitored for more than a decade. In addition, the regional assessments continue to build an understanding of how natural features and human activities affect water quality. Many of the regional assessments employ modeling and other scientific tools, developed on the basis of data collected at individual sites, to help extend knowledge of water quality to unmonitored, yet comparable areas within the regions. The models thereby enhance the value of our existing data and our understanding of the hydrologic system. In addition, the models are useful in evaluating various resource-management scenarios and in predicting how our actions, such as reducing or managing nonpoint and point sources of contamination, land conversion, and altering flow and (or) pumping regimes, are likely to affect water conditions within a region.

Other activities planned during the second decade include continuing national syntheses of information on pesticides, volatile organic compounds (VOCs), nutrients, trace elements, and aquatic ecology; and continuing national topical studies on the fate of agricultural chemicals, effects of urbanization on stream ecosystems, bioaccumulation of mercury in stream ecosystems, effects of nutrient enrichment on stream ecosystems, and transport of contaminants to public-supply wells.

The USGS aims to disseminate credible, timely, and relevant science information to address practical and effective water-resource management and strategies that protect and restore water quality. We hope this NAWQA publication will provide you with insights and information to meet your needs, and will foster increased citizen awareness and involvement in the protection and restoration of our Nation's waters.

The USGS recognizes that a national assessment by a single program cannot address all water-resource issues of interest. External coordination at all levels is critical for cost-effective management, regulation, and conservation of our Nation's water resources. The NAWQA Program, therefore, depends on advice and information from other agencies—Federal, State, regional, interstate, Tribal, and local—as well as nongovernmental organizations, industry, academia, and other stakeholder groups. Your assistance and suggestions are greatly appreciated.

William H. Werkheiser  
USGS Associate Director for Water



# Contents

Foreword .....	iii
Abstract .....	1
Introduction .....	2
Description of Study Area .....	2
Purpose and Scope .....	6
Geologic Setting and Aquifer Descriptions .....	6
Previous Studies .....	9
Geological and Geochemical Framework for Interpretations of Water Quality .....	14
Previous Lithochemical Classifications .....	14
Lithologic Groups .....	14
Lithochemical Subgroups .....	17
Geochemical Controls on Naturally Occurring Trace Elements and Radionuclides in Groundwater .....	20
Water-Quality Data and Methods .....	23
Graphical and Statistical Analyses .....	25
Geochemical Modeling .....	26
Water-Quality Characteristics of Aquifers, Lithologic Groups, and Lithochemical Subgroups .....	27
Exceedances of Drinking Water Criteria .....	27
Correlations Among Major and Trace Constituents and Environmental Factors .....	41
Geochemical Conditions Associated with Elevated Concentrations of Naturally Occurring Constituents .....	44
Trace Elements .....	44
Arsenic .....	44
Manganese .....	45
Zinc .....	45
Alkalinity, Hardness, and Dissolved Solids .....	47
Antimony, Lead, Barium, and Molybdenum .....	49
Radionuclides .....	49
Uranium .....	51
Radon .....	53
Radium .....	57
Gross Alpha-Particle Activity .....	60
Potential for Detrimental Effects from Trace Elements, Radionuclides, and Associated Contaminants .....	61
Summary and Conclusions .....	62
Acknowledgments .....	64
References Cited .....	64
Appendix 1. Tables (Excel spreadsheets available online at <a href="http://pubs.usgs.gov/sir/2013/5072/">http://pubs.usgs.gov/sir/2013/5072/</a> ) .....	71
Appendix 2. Probability plots of principal components analysis (PCA) scores for ground- water of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces: PC1 "Alkalinity-pH"; PC2 "Chloride-Nitrate"; PC3 "Redox"; PC4 "Temperature-Silica"; and "Radon-Potassium" .....	72
Appendix 3. Analytical Issues Relating to Defining Radium Occurrence .....	73

## Figures

1. Map showing boundaries for the three principal aquifers within the Piedmont and Blue Ridge Physiographic Provinces.....	3
2. Map showing 2007 land-use data for the Piedmont and Blue Ridge Physiographic Provinces and major metropolitan areas .....	5
3. Map showing U.S. Geological Survey National Water-Quality Assessment (NAWQA) Program study unit boundaries within the Piedmont and Blue Ridge Physiographic Provinces and sample-collection locations for groundwater-quality data collected from 1994–2008.....	7
4. Block diagram showing the conceptual groundwater system, aquifers, and typical well types included as part of this study within the Piedmont and Blue Ridge Physiographic Provinces.....	8
5. Map showing distribution of delineated lithologic groups and 1994–2008 sample locations within the study area, Piedmont and Blue Ridge Physiographic Provinces .....	18
6. Generalized schematic cross-section diagram across North Carolina physiographic provinces showing generalized geologic terranes and common lithologic groups delineated as part of this study .....	19
7. Chart showing an example division of the aquifers into lithologic groups, lithochemical subgroups, and corresponding geologic formations .....	20
8. Graphs showing equilibrium fractions of initial concentrations of ions that may be dissolved or adsorbed on a finite amount of hydrous ferric oxide at 25 degrees Celsius as a function of pH. Anions; cations .....	22
9. Chart showing uranium-238 and thorium-232 decay series .....	24
10. Graphs showing probability plots of groundwater-quality data for siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. Total dissolved solids; specific conductance; alkalinity; hardness; calcium; magnesium; sodium; and potassium .....	28
11. Graphs showing probability plots of groundwater-quality data for siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. Sulfate; chloride; nitrate; phosphate; bromide; fluoride; silica; and aluminum.....	29
12. Graphs showing probability plots of groundwater-quality data for siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. pH; dissolved oxygen; iron; manganese; arsenic; selenium; boron; and molybdenum .....	30
13. Graphs showing probability plots of groundwater-quality data for siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. Cadmium; zinc; copper; lead; cobalt; nickel; chromium; and vanadium .....	31
14. Graphs showing probability plots of groundwater-quality data for siliclasti-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. Barium; strontium; beryllium; antimony; uranium; tritium; radium; and radon.....	32
15. Boxplots showing groundwater-quality data by lithologic groups of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. Specific conductance; sulfate; chloride; nitrate; phosphate; silica; sodium; potassium; and magnesium.....	33

16.	Boxplots showing groundwater-quality data by lithologic group of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. Calcium; alkalinity; pH; dissolved oxygen; iron; manganese; arsenic; selenium; and molybdenum.....	34
17.	Boxplots showing groundwater-quality data by lithologic group of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. Barium; copper; lead; nickel; zinc; tritium; uranium; radium 226+228; and radon-222.....	35
18.	Boxplots showing saturation indices (SI) for selected minerals in groundwater by lithologic group of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces. Calcite; dolomite; gypsum; fluorite; fluorapatite; manganese phosphate; strengite; ferrihydrite; and siderite .....	36
19.	Boxplots showing saturation indices (SI) for selected minerals in groundwater by lithologic group of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces. Andularia; chlorite; kaolinite; gibbsite; chalcedony; barite; anglesite; cerrusite; and smithsonite.....	37
20.	Chart showing redox/pH matrix summarizing groundwater-quality samples by lithologic group of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. All nine lithologic groups; clastic sedimentary; clastic lacustrine/evaporite; quartz-rich sedimentary; metamorphosed clastic sedimentary; quartz-rich metamorphic; felsic igneous or metamorphic; intermediate igneous or metamorphic; mafic igneous or metamorphic; and ultramafic.....	38
21.	Chart showing redox-pH matrix summarizing groundwater-quality samples greater than or equal to the highest common reporting level (HCRL) or human health benchmark (HHB). Nitrate; manganese; sulfate; iron; phosphate; lead; arsenic; zinc; selenium; chromium; molybdenum; nickel; barium; cobalt; uranium; copper; radon-222; and radium-226+228 .....	39
22.	Map showing areal occurrence of lithochemical subgroups having elevated arsenic concentrations (based on the Tukey mean rank test, table 6) in groundwater within the Piedmont and Blue Ridge Physiographic Provinces.....	46
23.	Boxplots showing concentrations of selected metals and associated constituents in groundwater by casing type for wells in siliclastic- and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces .....	48
24.	Map showing areal occurrence of felsic lithologic groups within the Piedmont and Blue Ridge Physiographic Provinces .....	50
25.	Map showing the areal occurrence of lithochemical subgroups having elevated uranium concentrations in groundwater (based on Tukey mean rank tests, table 6) within the Piedmont and Blue Ridge Physiographic Provinces.....	52
26.	Boxplot showing radon concentrations in groundwater samples related to composition of lithologic group .....	54
27.	Map showing areal occurrence of lithochemical subgroups having elevated radon-222 concentrations in groundwater (based on the Tukey mean rank test, table 6) within the Piedmont and Blue Ridge Physiographic Provinces .....	55
28.	Map showing an overlay of areal occurrence of lithochemical subgroups having elevated radon-222 concentrations and U.S. Geological Survey National Uranium Resource Evaluation Program uranium measurements in groundwater within the Piedmont and Blue Ridge Physiographic Provinces .....	56
29.	Graph showing relations between concentrations of Radium-228 and Radium-226 in samples from bedrock aquifers of the Piedmont and Blue Ridge Physiographic Provinces .....	58

30. Graph showing relations of concentrations of radium-226 plus radium-228 and dissolved oxygen for samples from siliclastic-rock and crystalline-rock aquifers of the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008 .....	59
31. Graph showing relations of concentrations of radium-226 plus radium-228 and uranium for samples from bedrock aquifers of the Piedmont and Blue Ridge Physiographic Provinces.....	61

## Tables

1. NAWQA study units in the Piedmont and Blue Ridge Physiographic Provinces .....	4
2. Published reports from USGS NAWQA studies and other data sources conducted in the Piedmont and Blue Ridge Physiographic Provinces categorized by aquifer and constituents investigated .....	10
3. Lithologic group, major rock types, and lithochemical subgroups for groundwater sites within the siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008 .....	15
4. Summary of wells within siliclastic and crystalline rock aquifers of the Piedmont and Blue Ridge Physiographic Provinces (1994–2008) having chemical constituents in groundwater exceeding U.S. Environmental Protection Agency (2010) drinking water standards. (Table 4 is a excel spreadsheet available online at <a href="http://pubs.usgs.gov/sir/2013/5072/">http://pubs.usgs.gov/sir/2013/5072/</a> ) .....	15
5. Principal components analysis model of major factors controlling the chemistry of groundwater from siliclastic-rock and crystalline-rock aquifers of the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008 .....	42
6. Tukey test for difference in mean rank of arsenic concentration, pH, and concentrations of manganese, iron, uranium, and radon among lithochemical subgroups with a minimum of five values for arsenic or uranium. (Table 6 is a excel spreadsheet available online at <a href="http://pubs.usgs.gov/sir/2013/5072/">http://pubs.usgs.gov/sir/2013/5072/</a> ) .....	42
7. Number of samples with specified ranges of uranium and radium-226 concentrations for 99 water samples for which gross alpha-particle activity was determined .....	60

## Conversion Factors, Datums

Inch/Pound to SI

Multiply	By	To obtain
<b>Length</b>		
foot (ft)	0.305	meter
mile (mi)	1.609	kilometer (km)
<b>Area</b>		
square foot (ft <sup>2</sup> )	929	square centimeter (cm <sup>2</sup> )
square foot (ft <sup>2</sup> )	0.093	square meter (m <sup>2</sup> )
square mile (mi <sup>2</sup> )	259	hectare (ha)
square mile (mi <sup>2</sup> )	2.59	square kilometer (km <sup>2</sup> )
<b>Volume</b>		
cubic foot (ft <sup>3</sup> )	28.32	cubic decimeter (dm <sup>3</sup> )
cubic foot (ft <sup>3</sup> )	0.028	cubic meter (m <sup>3</sup> )
cubic mile (mi <sup>3</sup> )	4.168	cubic kilometer (km <sup>3</sup> )
acre-foot (acre-ft)	1,233	cubic meter (m <sup>3</sup> )
acre-foot (acre-ft)	0.001	cubic hectometer (hm <sup>3</sup> )
<b>Flow rate</b>		
acre-foot per day (acre-ft/d)	0.014	cubic meter per second (m <sup>3</sup> /s)
acre-foot per year (acre-ft/yr)	1,233	cubic meter per year (m <sup>3</sup> /yr)
acre-foot per year (acre-ft/yr)	0.001	cubic hectometer per year (hm <sup>3</sup> /yr)
<b>Radioactivity</b>		
picocurie per liter (pCi/L)	0.037	becquerel per liter (Bq/L)

Temperature in degrees Celsius (°C) may be converted to degrees Fahrenheit (°F) as follows:

$$^{\circ}\text{F}=(1.8\times^{\circ}\text{C})+32$$

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as follows:

$$^{\circ}\text{C}=(^{\circ}\text{F}-32)/1.8$$

Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83).

Altitude, as used in this report, refers to distance above a vertical datum.

Specific conductance is given in microsiemens per centimeter at 25 degrees Celsius (µS/cm at 25 °C).

Concentrations of chemical constituents in water are given either in milligrams per liter (mg/L) or micrograms per liter (µg/L).

## Acronyms and Abbreviations

acfbclusur1	Apalachicola-Chattahoochee Flint River Basin urban land-use study
acfbclusur2	Apalachicola-Chattahoochee Flint River Basin urban land-use study
Al	aluminum
albesus8	Albemarle-Pamlico Drainages major aquifer study
AMCL	alternative maximum contaminant level
ANOVA	analysis-of-variance
Ba	barium
C	carbon
Ca	calcium
Cl	chloride
CLSD	clastic sedimentary rocks
CLSDF	feldspar-rich clastic sedimentary rocks
CLSDLAC	clastic lacustrine/evaporite sedimentary rocks
CLSDMT	metamorphosed clastic sedimentary rocks
CLSDQ	quartz-rich sedimentary rocks
CZmd	Cambrian/Late Proterozoic metamudstone and meta-argillite
CZms	Cambrian/Late Proterozoic mica schist
CZph	Cambrian/Late Proterozoic phyllite and schist
delrsus1	Delaware River Basin major aquifer study
DO	dissolved oxygen
Fe	iron
GEOLEX	USGS National Geologic Map Database Geologic Names Lexicon
GIS	geographic information system
H	hydrogen
HHB	human health benchmark
HBSL	health-based screening level
HFO	hydrous ferric oxide
HCRL	highest common reporting limit
IGMTF	felsic igneous and metamorphic rocks
IGMTI	intermediate igneous or metamorphic rocks
IGMTM	mafic igneous and metamorphic rocks
K	potassium
KANA	Kanawha/New River Basins
Lc	critical level of detection

linjsus3	Long Island/New Jersey Study Unit major aquifer study
Isussus2	Lower Susquehanna River Basin agricultural land-use study
MCL	maximum contaminant level
Mg	magnesium
µg/L	micrograms per liter
mg/L	milligrams per liter
Mn	manganese
MTQ	quartz-rich metamorphic rocks
Na	Sodium
NAD83	North American Datum of 1983
NAVD88	North American Vertical Datum of 1988
NAWQA	U.S. Geological Survey National Water-Quality Assessment Program
NJDEP	New Jersey Department of Environmental Protection
NLCD 1992	National Land Cover Dataset 1992
NURE	U.S. Geological Survey National Uranium Resource Evaluation Program
NWQL	U.S. Geological Survey National Water Quality Laboratory
OHSU	Oregon Health and Science University
O	oxygen
P	phosphorus
PBR	Piedmont and Blue Ridge
PC	principal components
PCA	principal components analysis
Ra	radium
S	sulfur
SC	specific conductance
Si	silica
SI	mineral saturation index
SMCL	secondary maximum contaminant level
SSMDC	sample-specific minimum-detection concentration
TDS	total dissolved solids
ULMAF	ultramafic rocks
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey





# Naturally Occurring Contaminants in the Piedmont and Blue Ridge Crystalline-Rock Aquifers and Piedmont Early Mesozoic Basin Siliciclastic-Rock Aquifers, Eastern United States, 1994–2008

By Melinda J. Chapman, Charles A. Cravotta III, Zoltan Szabo, and Bruce D. Lindsey

## Abstract

Groundwater quality and aquifer lithologies in the Piedmont and Blue Ridge Physiographic Provinces in the eastern United States vary widely as a result of complex geologic history. Bedrock composition (mineralogy) and geochemical conditions in the aquifer directly affect the occurrence (presence in rock and groundwater) and distribution (concentration and mobility) of potential naturally occurring contaminants, such as arsenic and radionuclides, in drinking water. To evaluate potential relations between aquifer lithology and the spatial distribution of naturally occurring contaminants, the crystalline-rock aquifers of the Piedmont and Blue Ridge Physiographic Provinces and the siliciclastic-rock aquifers of the Early Mesozoic basin of the Piedmont Physiographic Province were divided into 14 lithologic groups, each having from 1 to 16 lithochemical subgroups, based on primary rock type, mineralogy, and weathering potential. Groundwater-quality data collected by the U.S. Geological Survey (USGS) National Water-Quality Assessment (NAWQA) Program from 1994 through 2008 from 346 wells and springs in various hydrogeologic and land-use settings from Georgia through New Jersey were compiled and analyzed for this study. Analyses for most constituents were for filtered samples, and, thus, the compiled data consist largely of dissolved concentrations. Concentrations were compared to criteria for protection of human health, such as U.S. Environmental Protection Agency (USEPA) drinking water maximum contaminant levels and secondary maximum contaminant levels or health-based screening levels developed by the USGS NAWQA Program in cooperation with the USEPA, the New Jersey Department of Environmental Protection, and Oregon Health & Science University. Correlations among constituent concentrations, pH, and oxidation-reduction (redox) conditions were used to infer geochemical controls on constituent mobility within the aquifers.

Of the 23 trace-element constituents evaluated, arsenic, manganese, and zinc were detected in one or more water

samples at concentrations greater than established human health-based criteria. Arsenic concentrations typically were less than 1 microgram per liter ( $\mu\text{g/L}$ ) in most groundwater samples; however, concentrations of arsenic greater than 1  $\mu\text{g/L}$  frequently were detected in groundwater from clastic lacustrine sedimentary rocks of the Early Mesozoic basin aquifers and from metamorphosed clastic sedimentary rocks of the Piedmont and Blue Ridge crystalline rock aquifers. Groundwater from these rock units had elevated pH compared to other rock units evaluated in this study. Of the nine samples for which arsenic concentration was greater than 10  $\mu\text{g/L}$ , six were classified as oxic and three as anoxic, and seven had pH of 7.2 or greater. Manganese concentrations typically were less than 10  $\mu\text{g/L}$  in most samples; however, 8.3 percent of samples from the Piedmont and Blue Ridge crystalline-rock aquifers and 3.0 percent of samples from the Early Mesozoic basin siliciclastic rock aquifers had manganese concentrations greater than the 300- $\mu\text{g/L}$  health-based screening level. The positive correlation of manganese with iron and ammonia and the negative correlation of manganese with dissolved oxygen and nitrate are consistent with the reductive dissolution of manganese oxides in the aquifer. Zinc concentrations typically were less than 10  $\mu\text{g/L}$  in the groundwater samples considered in the study, but 0.4 percent and 5.5 percent of the samples had concentrations greater than the health-based screening level of 2,000  $\mu\text{g/L}$  and one-tenth of the health-based screening level, respectively. The mean rank concentration of zinc in groundwater from the quartz-rich sedimentary rock lithologic group was greater than that for other lithologic groups even after eliminating samples collected from wells constructed with galvanized casing.

Approximately 90 percent of 275 groundwater samples had radon-222 concentrations that were greater than the proposed alternative maximum contaminant level of 300 picocuries per liter. In contrast, only 2.0 percent of 98 samples had combined radium (radium-226 plus radium-228) concentrations greater than the maximum contaminant level of 5.0 picocuries per liter, and 0.6 percent

of 310 samples had uranium concentrations greater than the maximum contaminant level of 30  $\mu\text{g/L}$ . Radon concentrations were highest in the Piedmont and Blue Ridge crystalline-rock aquifers, especially in granite, and elevated median concentrations were noted in the Piedmont Early Mesozoic basin aquifers, but without the extreme maximum concentrations found in the crystalline rocks (granites). Although the siliciclastic lithologies had a greater frequency of elevated uranium concentrations, radon and radium were commonly detected in water from both siliciclastic and crystalline lithologies. Uranium concentrations in groundwater from clastic sedimentary and clastic lacustrine/evaporite sedimentary lithologic groups within the Early Mesozoic basin aquifers, which had median concentrations of 3.6 and 3.1  $\mu\text{g/L}$ , respectively, generally were higher than concentrations for other siliciclastic lithologic groups, which had median concentrations less than 1  $\mu\text{g/L}$ . Although 89 percent of the 260 samples from crystalline-rock aquifers had uranium concentrations less than 1  $\mu\text{g/L}$ , 0.8 percent had uranium concentrations greater than the 30- $\mu\text{g/L}$  maximum contaminant level, and 6.5 percent had concentrations greater than 3  $\mu\text{g/L}$ .

## Introduction

Since its inception in 1991, the U.S. Geological Survey (USGS) National Water-Quality Assessment (NAWQA) Program has collected and reported information about water-quality conditions and changes in those conditions over time. From 1991 to 2001 (Cycle I), the NAWQA Program was focused on describing water-quality conditions within 51 major river basins across the United States. Interdisciplinary assessments of water chemistry, hydrology, land use, stream habitat, and aquatic life established a baseline understanding of water-quality conditions within the 51 river basins and aquifers, referred to as study units (Gilliom and others, 1995).

A major focus of the NAWQA Program during its second decade (2002–13, Cycle II) is on regional- and national-scale assessments of groundwater-quality status and trends in about one-third of the 62 principal aquifers identified by the USGS Office of Groundwater (U.S. Geological Survey, 2003; Lapham and others, 2005). A goal of the Cycle II NAWQA Regional Assessments of Principal Aquifers is to address the effects of natural features on water quality of major aquifers, including soil, geology, mineral composition, and geochemistry, especially oxidation-reduction potential (oxygen-reducing, nitrate-reducing, manganese-reducing, and iron-reducing conditions) (Lapham and others, 2005).

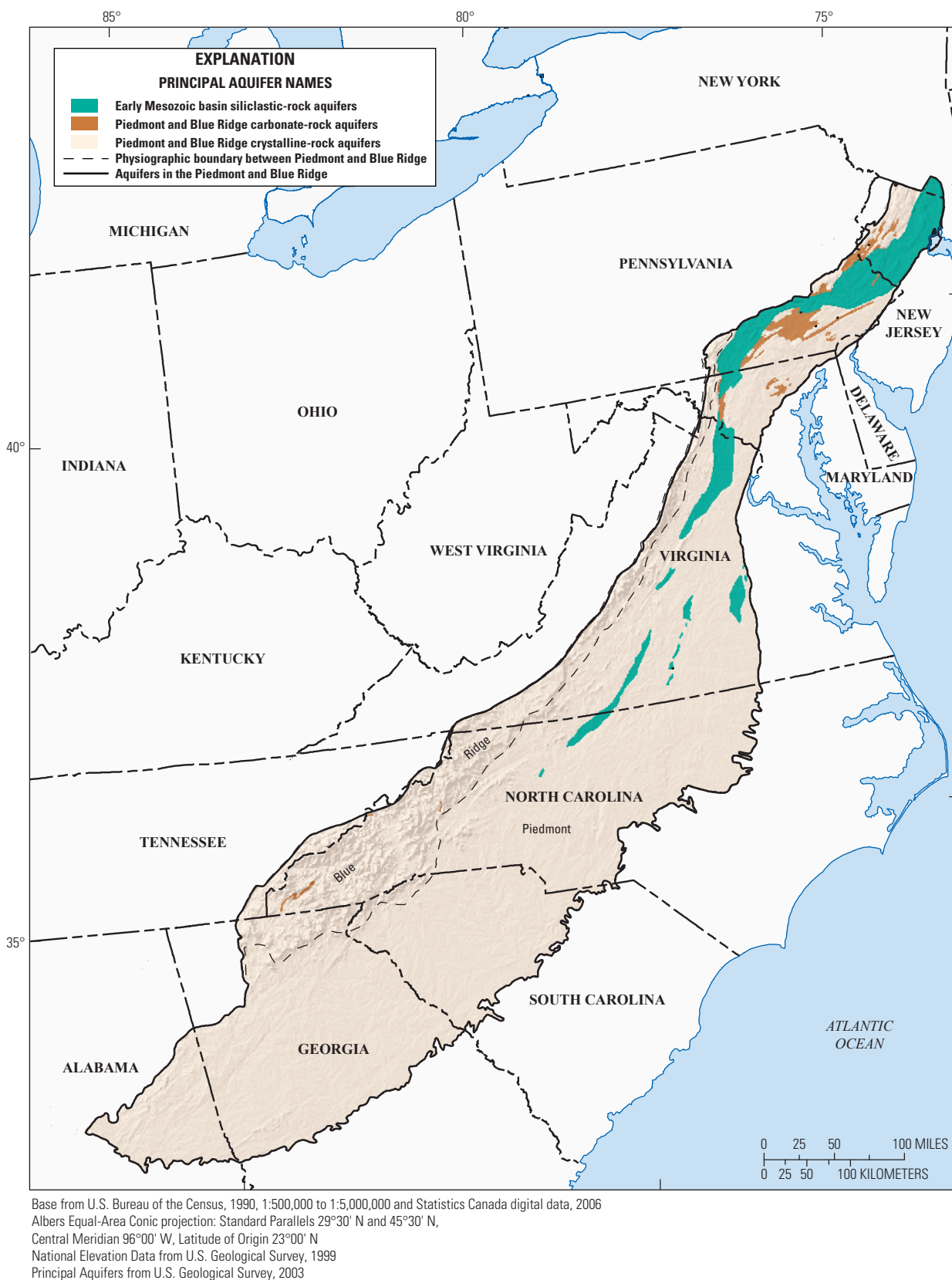
This report focuses on naturally occurring contaminants in groundwater of the Piedmont and Blue Ridge crystalline-rock aquifers and the Early Mesozoic basin siliciclastic-rock aquifers (fig. 1). The Piedmont and Blue Ridge crystalline-rock aquifers are categorized as fractured igneous and metamorphic rock aquifers, and the Early Mesozoic basin aquifers are categorized as fractured sandstone aquifers (U.S. Geological Survey, 2003).

As a precursor to this study, Lindsey and others (2006) combined groundwater-quality analyses from 11 NAWQA Program studies in the Piedmont Physiographic Province to present findings on the occurrence of anthropogenic contaminants and naturally occurring radon. Lindsey and others (2006) categorized the aquifer lithologies into three groups: carbonate rock, crystalline rock, and siliciclastic rock. Compared to the carbonate-rock aquifers, the crystalline-rock and siliciclastic-rock aquifers had higher concentrations of radon and associated characteristics that implied naturally occurring contaminants could be widespread. The current report is a continuation of the effort by Lindsey and others (2006), evaluating the effects of lithologies and geochemical environment on the occurrence and distribution of radon and other naturally occurring contaminants in groundwater from the crystalline-rock and siliciclastic-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces.

## Description of Study Area

The Piedmont and Blue Ridge Physiographic Provinces extend from Alabama to New York in the eastern United States (Fenneman, 1938; Fenneman and Johnson, 1946) and have a collective area of 154,000 square miles ( $\text{mi}^2$ ) (fig. 1). This region includes three principal aquifers: (1) the Piedmont and Blue Ridge crystalline-rock aquifers; (2) the Piedmont and Blue Ridge carbonate-rock aquifers; and (3) the Piedmont Early Mesozoic clastic sedimentary rock aquifers, also referred to as “sandstone” aquifers (U.S. Geological Survey, 2003). In the study area, groundwater generally occurs in aquifer units that are local in scale because of complex geologic and topographic controls, but that are similar on a regional scale on the basis of major bedrock type and hydrogeologic properties. The aquifers are affected locally by geologic factors such as lithology and structure, particularly features such as fractures and joints, which provide secondary permeability for water movement within these “fractured-rock” aquifers.

The study area discussed in this report includes parts of 14 NAWQA study units (see “Network Code,” table 1) where groundwater-quality data were collected for major aquifer, land-use, or drinking water studies in the Piedmont and Blue Ridge crystalline-rock and Piedmont Early Mesozoic basin siliciclastic-rock aquifers (table 1 and fig. 2). Regional and national assessments of the effects on water quality from natural environmental factors and human activities are possible because of the application of a consistent study design and uniform methods of data collection and analysis within the NAWQA Program (Gilliom and others, 1995; Lapham and others, 2005). The study area includes several large metropolitan areas (Atlanta, Ga., Charlotte, N.C., Raleigh, N.C., Richmond, Va., Washington, D.C., Baltimore, Md., Philadelphia, Pa., and Trenton, N.J.), rural or forested areas in the southern and mid-Atlantic sections, and agricultural areas in the northeast section (fig. 2). The geologic setting of the area is complex and includes a history of deposition, metamorphism, igneous intrusion, and extensive folding and faulting; a wide

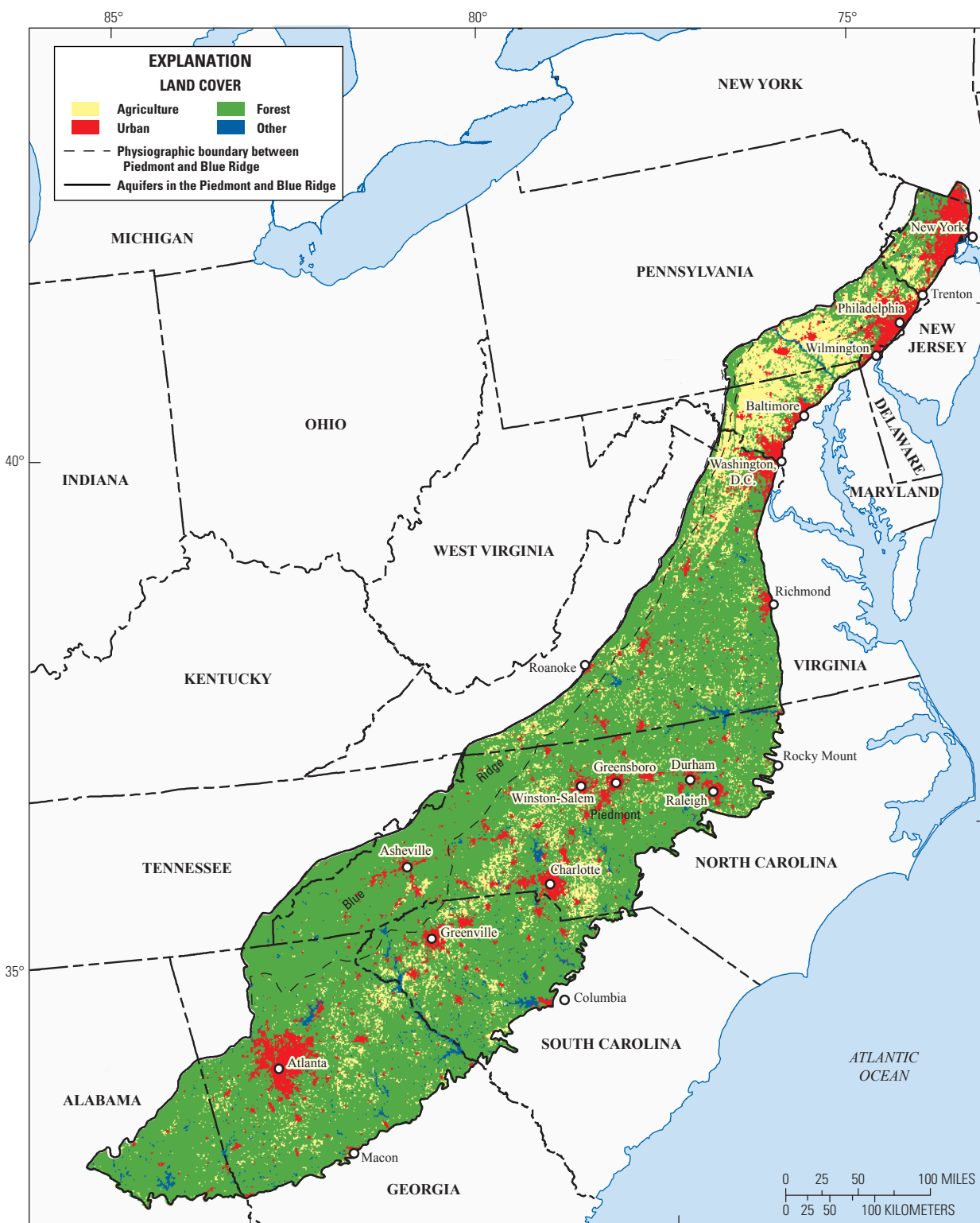


**Figure 1.** Boundaries for the three principal aquifers within the Piedmont and Blue Ridge Physiographic Provinces.

**Table 1.** NAWQA study units in the Piedmont and Blue Ridge Physiographic Provinces.

[PIED-CRY, Piedmont Physiographic Province crystalline-rock aquifer; PIED-EMZ, Piedmont Physiographic Province Early Mesozoic rock aquifer; BR-CRY, Blue Ridge Physiographic Province crystalline-rock aquifer]

Study unit name	Study unit code	Network code	Aquifer	Study type	Number of ground water samples	Year(s) sampled	State(s) sampled
Apalachicola-Chattahoochee-Flint River Basin	acfb	acfbtusr1	PIED-CRY	Urban land-use study - shallow regolith wells only	21	1994–1995	Georgia
Apalachicola-Chattahoochee-Flint River Basin	acfb	acfbtusr2	PIED-CRY	Urban land-use study - springs only	19	1994–1995	Georgia
Albemarle-Pamlico Drainages	albe	albesus8	PIED-CRY	Major aquifer study	55	2007	North Carolina; Virginia
Deleware River Basin	delr	delrsus1	PIED-EMZ	Major aquifer study	30	1999	New Jersey; Pennsylvania
Kanawha/New River Basins	kana	kanasus2	BR-CRY	Major aquifer study	30	1997	North Carolina; Virginia
Long-Island/New Jersey Coastal Drainages	linj	linjsus3	PIED-EMZ	Major aquifer study	21	1998	New Jersey
Lower Susquehanna River Basin	lsus	lsususs2	PIED-CRY	Agricultural land-use study	30	1994	Maryland; Pennsylvania
Potomac River Basin and Delmarva Peninsula	podl	podldwgs1	PIED-CRY	Drinking water study	15	2003	Maryland; Virginia
Potomac River Basin and Delmarva Peninsula	podl	podltsure1	PIED-CRY	Urban land-use study - shallow wells only	30	2003	Maryland; Virginia
Potomac River Basin and Delmarva Peninsula	podl	podlreffo2	PIED-CRY	Urban land-use study - reference network shallow wells	2	2003; 2005	Maryland; Virginia
Potomac River Basin	poto	potosus1	PIED-CRY	Major aquifer study	25	1994	Maryland; Virginia
Potomac River Basin	poto	potosus2	PIED-EMZ	Major aquifer study	23	1994	Maryland; Pennsylvania; Virginia
Santee River Basin and Coastal Drainages	sant	santdwgs1	PIED-CRY	Drinking water study	15	2008	South Carolina
Santee River Basin and Coastal Drainages	sant	santsus3	PIED-CRY	Major aquifer study	30	1998	North Carolina; South Carolina
TOTAL					346		



**Figure 2.** 2007 land-use data for the Piedmont and Blue Ridge Physiographic Provinces and major metropolitan areas.



variety of bedrock lithologies ranging from quartz sandstone to black shale and from felsic-rich granite to ultramafic metamorphic rocks; and many rock types of intermediate composition, such as siltstones, gneisses, and schists. The weathering of minerals within the rock and the geochemical conditions within the aquifer directly affect groundwater quality in this region. Thus, in order to assess conditions in the aquifer and predict areas where specific contaminants may affect drinking water sources, it is important to understand the factors that control the release and transport of naturally occurring contaminants in groundwater.

## Purpose and Scope

This report contains the results of an evaluation of the potential occurrence and distribution of naturally occurring contaminants in groundwater in the Piedmont and Blue Ridge crystalline-rock aquifers and the Piedmont Early Mesozoic basin siliciclastic-rock aquifers in the eastern United States (fig. 1). Descriptions of the primary rock type and associated mineral assemblages for mapped bedrock in the region were used to delineate mappable lithologic groups and lithochemical subgroups that could influence groundwater quality. The focus is on trace elements, radionuclides, nutrients, and major ions in groundwater that have potential for human health effects when present at concentrations approaching or exceeding drinking water standards or other human health benchmarks.

Water-quality data collected as part of the NAWQA Program from 1994 through 2008 from 346 wells and springs in various hydrogeologic and land-use settings from Georgia through New Jersey were compiled and analyzed for this regional assessment. The sampled sites are from the following NAWQA study units (table 1): Apalachicola-Chattahoochee Flint River Basins (acfbur1 and acfbur2), Albemarle-Pamlico Drainages (albesus8), Delaware River Basin (delrsus1), Long Island/New Jersey Coastal Drainages (linjsus3), Lower Susquehanna River Basin (lsussus2), Potomac River Basin and Delmarva Peninsula (podldwgs1, podllusr1, podlreffo2, potosus1, and potosus2), and Santee Basin and Coastal Drainages (santsus3 and sandwgs1) (fig. 3 and table 1).

Graphical and statistical techniques were used to compare constituent concentrations in groundwater to human health criteria for drinking water and to compare concentrations among different lithologies. Interactions between groundwater and lithologies in various settings were inferred through comparison of major and trace-ion chemistry. Implications of observations and conclusions for regional mapping of risk for elevated arsenic, radionuclides, and other naturally occurring contaminants on the basis of geologic mapping are discussed. Results and interpretations are compared to those from studies conducted by other Federal and State agencies throughout the Piedmont and Blue Ridge crystalline-rock and Piedmont Early Mesozoic siliciclastic-rock aquifer systems in the eastern United States.

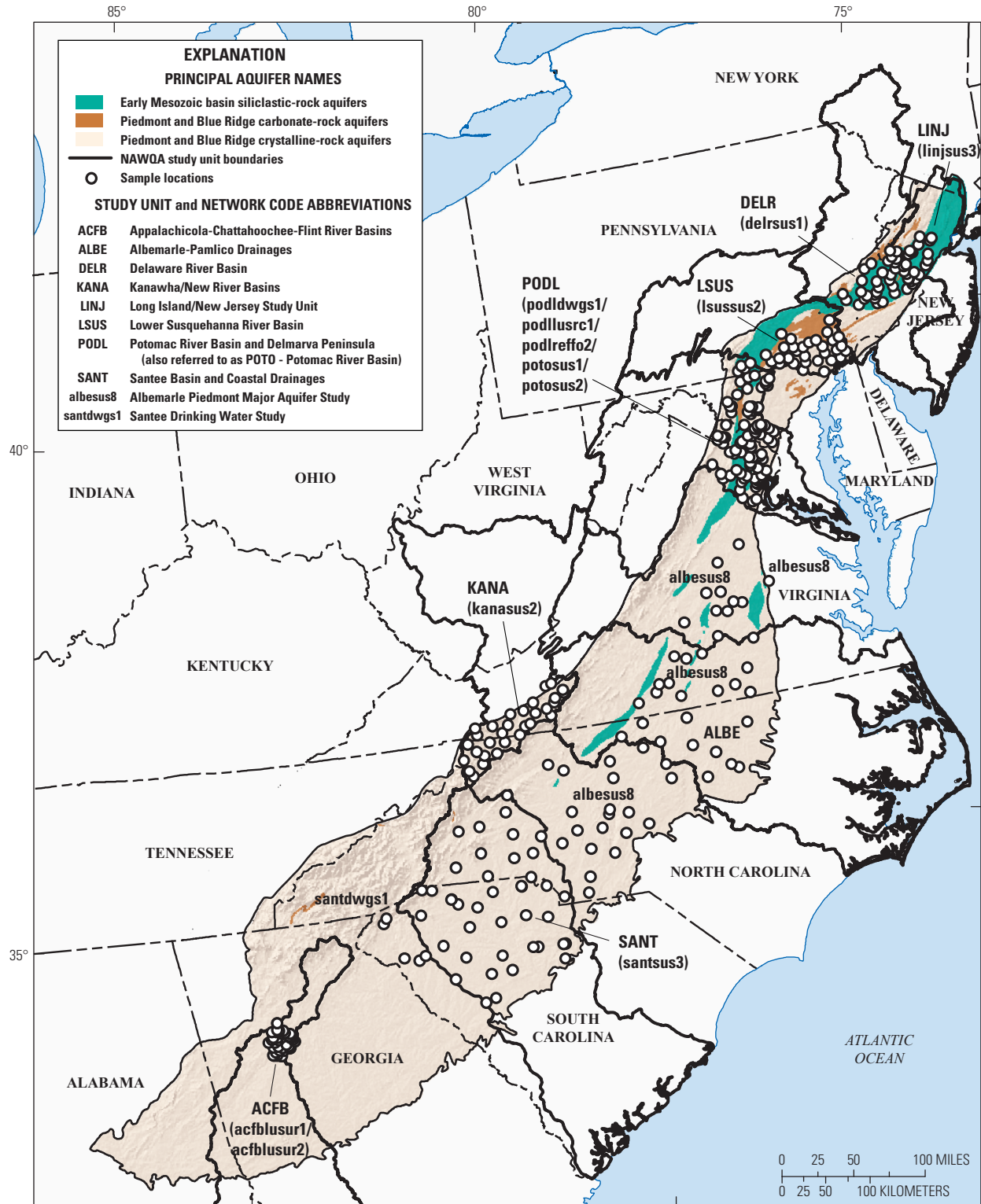
## Geologic Setting and Aquifer Descriptions

The geologic setting within the Piedmont and Blue Ridge (PBR) Physiographic Provinces of the eastern United States (fig. 1) is complex as a result of diverse geologic factors including rock type, metamorphic and structural history, and weathering. Bedrock in the study area has undergone multiple periods of metamorphism, deformation, including folding and faulting resulting in superimposed fracturing, and igneous intrusion that has altered mineralogy as well as inherent bedrock fabric (foliation). These mineralogical and structural characteristics directly affect groundwater and surface-water flow, recharge to the aquifer system, and geochemical processes within the aquifer (Cranford and others, 1982).

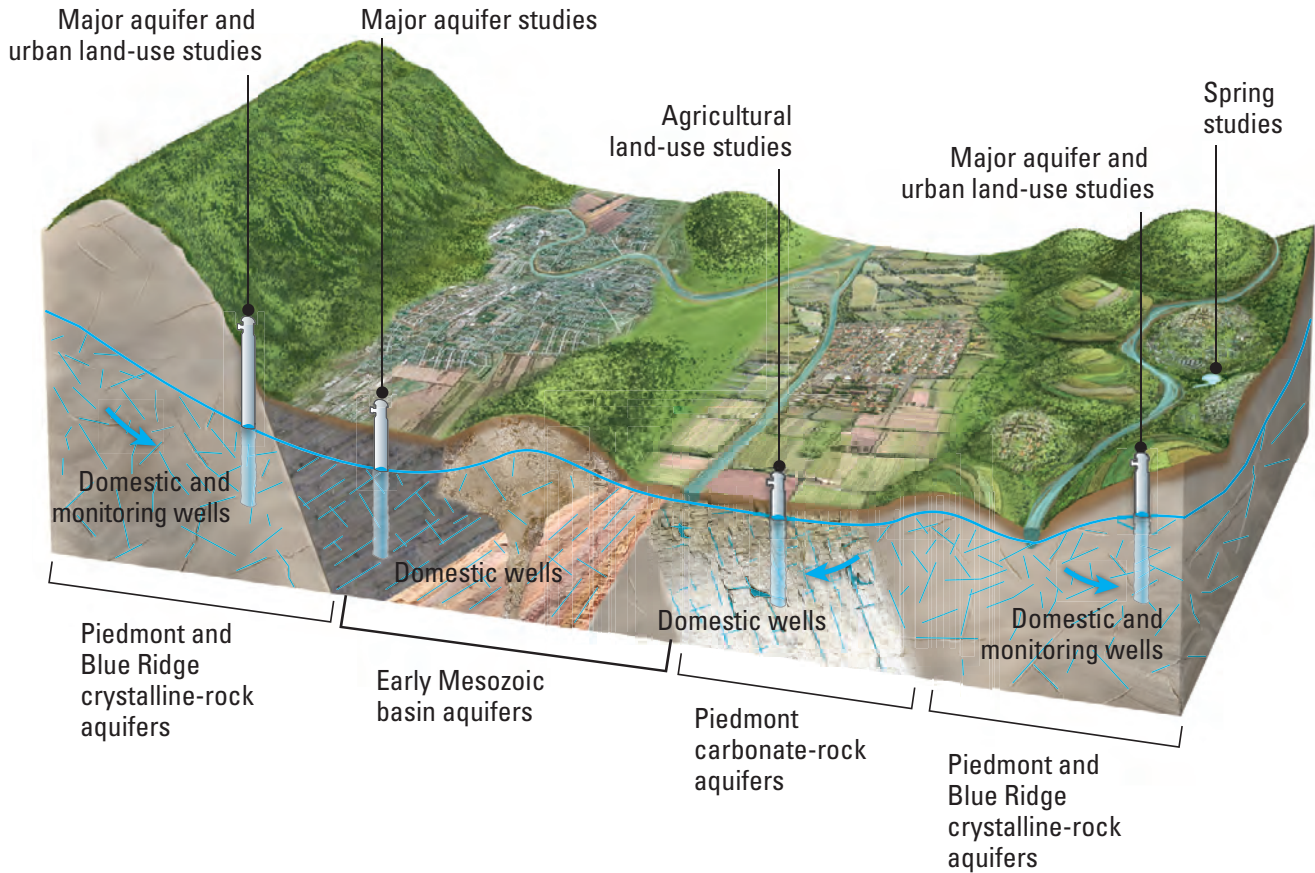
Regional geologic units in the PBR Physiographic Provinces historically have been grouped into northeast-trending “belts” that described common assemblages of rock types grouped by metamorphic facies and broad structural features (North Carolina Geological Survey, 1985). More recently, Hibbard and others (2006) produced a lithotectonic map of the Appalachian Orogen in the eastern United States, grouping mapped units into “terrane” that better reflect geologic structural history. The geologic setting of the southern Blue Ridge and western Piedmont Physiographic Provinces from Virginia to Alabama is described in Clark (2008). Major rock types are described in terms of their respective geologic history, including depositional setting, metamorphism, and structural characteristics. Geologic structural terranes and rock assemblages typically strike northeast-southwest.

The Blue Ridge Physiographic Province, in the western part of the study area, is characterized by high relief, with mountain peaks rising more than 6,000 feet (ft) above the North American Vertical Datum of 1988 (NAVD 88) with steep slopes, and valleys generally near 2,000 ft in altitude. The Blue Ridge primarily is underlain by metamorphic and igneous crystalline rocks; however, some sedimentary rocks also are present in Maryland, Pennsylvania, Virginia, and North Carolina. The Piedmont Physiographic Province in the eastern part of the study area is characterized by a more subdued topography, with gently rolling hills and valleys and land-surface altitudes ranging from about 300 to 1,500 ft above NAVD 88. The Piedmont can be subdivided topographically into lowland and upland areas, where lowlands generally are underlain by carbonate rocks (Pennsylvania, Maryland, and New Jersey), and by clastic sedimentary rocks in the Early Mesozoic rift basins, as shown in a conceptual diagram (fig. 4).

Trapp and Horn (1997) describe bedrock aquifers in the PBR Physiographic Provinces in North Carolina, Virginia, Maryland, Delaware, Pennsylvania, and New Jersey as being dense and almost impermeable, yielding groundwater primarily from secondary porosity and permeability provided by fractures. Except for the carbonate rocks, which contain solution openings, joints and fractures are the only openings that



**Figure 3.** U.S. Geological Survey National Water-Quality Assessment (NAWQA) Program study unit boundaries within the Piedmont and Blue Ridge Physiographic Provinces and sample-collection locations for groundwater-quality data collected from 1994–2008.



**Figure 4.** The conceptual groundwater system, aquifers, and typical well types included as part of this study within the Piedmont and Blue Ridge Physiographic Provinces.

store and transmit water. Despite this description, many wells completed in fractured bedrock aquifers of the PBR are sufficiently productive to be the main source of local water supplies. The carbonate rock units of the Piedmont typically are the most productive of the bedrock aquifers but are not widely distributed in the region, occurring primarily in Maryland, Pennsylvania, and New Jersey. The PBR bedrock aquifers in northeastern Pennsylvania and northern New Jersey locally are covered by glacial deposits, which include productive sand and gravel of the surficial aquifer system. Three principal bedrock aquifers underlie the northern PBR Provinces, in order of decreasing area: crystalline-rock and undifferentiated sedimentary-rock aquifers, clastic sedimentary-rock aquifers in Early Mesozoic basins, and carbonate-rock aquifers.

Miller (1990) describes the geologic setting of the PBR as consisting of many different types of metamorphic and igneous rocks that are complexly related. Main rock types are varieties of gneiss and schist and extremely fine-grained rocks such as phyllite and metamorphosed volcanic tuff and ash. Most of the metamorphic rocks were originally sediments

(metasediments), but some were originally igneous or volcanic materials (metagranites, granite gneiss, metavolcanics). The degree of heat and pressure to which the original rocks were subjected during metamorphism, as well as the degree of structural deformation (principally folding, foliation, jointing, and shearing) that they have undergone, has determined the final texture and mineralogy of the rocks. Most of the rocks have undergone several periods of metamorphism. The metamorphic rocks have been intruded by large to small bodies of igneous rock that vary in composition from felsic (light-colored rocks that contain large quantities of silica as quartz and potassium as potassium-feldspar) to mafic (dark-colored rocks that contain large quantities of ferromagnesian minerals such as pyroxene, amphibole, or ferrous phyllosilicate mineral groups). Large igneous intrusions consist of granite, quartz monzonite, and gabbro that occur in plutons that cover many tens of square miles. Smaller igneous intrusions, such as dikes and sills, include felsic and mafic rocks, such as syenite, andesite, diabase, and pegmatite. Rocks in this region are displaced by several major fault zones, some of which extend



for hundreds of miles. Shearing along large fracture zones has produced siliceous, intensely fractured rocks, such as mylonite or phyllonite (Miller, 1990).

Trapp and Horn (1997) describe aquifers in Early Mesozoic basins that primarily are in three major basins—the Newark basin in New Jersey and Pennsylvania is the largest and is the basin from which the most groundwater is withdrawn; the Gettysburg basin of Pennsylvania and Maryland is second largest; and the Culpeper basin of Virginia is third largest. The Richmond basin in Virginia and the Dan River/Danville basin in Virginia and North Carolina are of intermediate size. Nine small early Mesozoic basins are located in Virginia. Sedimentary rocks in the basins consist predominately of interbedded shale, sandstone, and siltstone, all typically red, reddish brown, or maroon, but locally gray or black. Conglomerate, dolomite, lacustrine black mudstone, and coal are present locally. In many places, the sedimentary rocks are interbedded with basalt flows or have been intruded by diabase dikes and sills. Thicknesses of Triassic and Jurassic rocks in the large basins have been calculated to be more than 20,000 ft. Additional basins in North Carolina, including the Durham, Sanford, Wadesboro, and Davie County basins (Lindsey and others, 2006, fig. 10), were not considered to be important aquifers because they are more compact and more tightly cemented than those in the basins to the north and do not yield sufficient quantities of water to be considered principal aquifers.

Physically, the aquifer system in the PBR can be composed of one (bedrock only), two (regolith-bedrock), or three parts (regolith, transition zone, and bedrock), depending upon whether or not weathered material (regolith) overlies the bedrock and if a local transition zone has developed between the shallow regolith and deeper bedrock. In the Blue Ridge Physiographic Province, very little, if any, regolith may be present, and, if present, it is often debris flow, colluvium, or alluvium in stream valleys. In the Piedmont Physiographic Province, generally there is at least a two-part system with the weathered regolith overlying fractured bedrock as described by Heath (1984). The regolith consists of soil, residuum, saprolite, and possibly colluviums, alluvium, and debris flow. Residuum and saprolite are formed from in situ weathering of the bedrock and form a blanket of decomposed or partially decomposed rock that is usually thick and clayey. Saprolite retains the texture and structure of the parent bedrock from which it is derived. A third component, a transition zone between the regolith and bedrock (Harned and Daniel, 1992), has been more commonly delineated in recent years. The regolith is more porous and more permeable than the underlying bedrock everywhere. Because the crystalline bedrock formed under intense heat and pressure during metamorphism and igneous intrusion, the bedrock has few primary pore spaces, and the porosity and permeability of the unweathered and unfractured bedrock is extremely low (Miller, 1990). Groundwater in the bedrock is stored in and moves through secondary fractures and other discontinuities, which form the only effective porosity in the unweathered rock. Because of the absence of

substantial water storage (storativity) in the unweathered rock, a large amount of groundwater is found in the weathered and slightly porous overlying saprolite. Water slowly drains from the saprolite to the fractures in the underlying and hydraulically connected bedrock. Although there are considerable differences in the mineralogy, texture, and structure of the rocks composing the PBR aquifers, the overall hydraulic characteristics of the aquifers are similar in a regional context (Miller, 1990).

## Previous Studies

Data on naturally occurring and manmade contaminants in groundwater in the PBR have been collected and reported through the NAWQA Program and other USGS studies, some of which are summarized in this section. Table 2 lists pertinent reports published for these studies, constituents analyzed, and major findings relevant to this study. Results from a few selected studies that are applicable to this report are summarized in this section.

One of the larger NAWQA data compilations for the Piedmont Physiographic Province was reported by Lindsey and others (2006) in a summary of groundwater-quality data collected from 11 of the 14 NAWQA studies listed in table 1 (all except albesus8, kanasus2, and sandwgs1). Lindsey and others (2006) grouped samples from 225 wells and 19 springs into 3 aquifer types: crystalline, siliciclastic, and carbonate. While the report focused on the detection and occurrence of anthropogenic contaminants, selected naturally occurring contaminants also were evaluated. Concentrations of radon were higher in areas underlain by felsic crystalline rocks and lower in areas underlain by mafic crystalline rocks. Groundwater from adjacent siliciclastic-rock aquifers had concentrations of radon lower than those in samples from felsic crystalline-rock aquifers. Ninety percent of the 205 samples analyzed for radon had concentrations that exceeded the proposed maximum contaminant level (MCL) of 300 picocuries per liter (pCi/L), and 13 percent of samples had concentrations that exceeded the proposed alternative maximum contaminant level (AMCL) of 4,000 pCi/L (Lindsey and others, 2006).

Fifty-five domestic wells in the Piedmont crystalline-rock aquifers were sampled for a major aquifer study in the Albemarle-Pamlico (ALBE) drainages of North Carolina and Virginia in 2007–08 (fig. 3 albesus8, table 1). The data for NAWQA samples were combined with other USGS data collected in the Piedmont and Blue Ridge of North Carolina for comparison of analytical results for 79 groundwater samples within the statewide geologic belt units, or geozones (Harden and others, 2009) (table 2). Results from this study suggest that the cationic and anionic composition of groundwater from within a particular geozone reflected differences in lithologic setting, hydrologic and geochemical conditions, and (or) land-use effects. Exceedances in Federal and State drinking water standards or proposed standards were noted for radon, pH, manganese, iron, and zinc. Radon had the most

**Table 2.** Published reports from USGS NAWQA studies and other data sources conducted in the Piedmont and Blue Ridge Physiographic Provinces categorized by aquifer and constituents investigated.

[PDX, Piedmont crystalline-rock aquifer; EMZ, Early Mesozoic basin aquifer; BRX, Blue Ridge crystalline-rock aquifer; VOCs, volatile organic compounds; PODL, Potomac River/Delmarva Peninsula; POTO, Potomac River; LSUS, Lower Susquehanna River; LINJ, Long-Island/New Jersey Coastal Drainages; SANT, Santee River Basin and Coastal Drainages; ACFB, Apalachicola-Chattahoochee-Flint River Basin; DELR, Delaware River Basin; KANA, Kanawha-New River Basin; ALBE, Albemarle-Pamlico Drainages; USGS NC WSC, USGS North Carolina Water Science Center; USGS PA WSC, USGS Pennsylvania Water Science Center]

Report	Constituents studied	Aquifers	NAWQA study area	Data sources	Major findings relevant to current study
USGS NAWQA Program					
Ator and Denis (1997)	Nitrate, phosphorus	PDX, EMZ	PODL, POTO	USGS NAWQA	
Ator and others (1998)	Radon, nitrate, pesticides, VOCs	EMZ	POTO, LSUS	USGS NAWQA	Radon from the EMZ rocks are similar in concentration to the PDX rocks
Ayers and others (2000)	Arsenic	EMZ	LINJ	USGS NAWQA	Arsenic higher in Early Mesozoic rocks
Ayotte and others (2007)	Radon, uranium	PDX, OTHERS	LINJ, DELR	USGS NAWQA	Uranium and radon higher in New England crystalline-rock aquifers
Carter and others (2010)	VOCs, pesticides	PDX, OTHERS	SANT, PODL	USGS NAWQA	
Denver and others (2011)	Phosphorus, trace metals	PDX, EMZ	POTO, LSUS, ACFB, DELR, SANT, LINJ	USGS NAWQA	Phosphorus from natural sources reported in crystalline-rock aquifers with alkaline pH or iron-reducing conditions.
Fischer and others (2004)	Nitrate, pesticides, VOCs, radon, trace elements	EMZ, OTHERS	DELR	USGS NAWQA	Arsenic and radon higher in Early Mesozoic rocks relative to other aquifer units
Frick and others (1998)	Pesticides, VOCs	PDX, OTHERS	ACFB	USGS NAWQA	
Hughes and others (2000)	Nitrate, pesticides, VOCs, radon	PDX, OTHERS	SANT (Santee Circular)	USGS NAWQA	Radon higher in crystalline-rock aquifers
Lapham and others (2005)	Radon, uranium, trace elements, VOCs, pesticides	PDX, BRX, OTHERS		USGS NAWQA	Uranium and radon higher in New England crystalline-rock aquifers

**Table 2.** Published reports from USGS NAWQA studies and other data sources conducted in the Piedmont and Blue Ridge Physiographic Provinces categorized by aquifer and constituents investigated.—Continued

[PDX, Piedmont crystalline-rock aquifer; EMZ, Early Mesozoic basin aquifer; BRX, Blue Ridge crystalline-rock aquifer; VOCs, volatile organic compounds; PODL, Potomac River/Delmarva Peninsula; POTO, Potomac River; LSUS, Lower Susquehanna River; LINJ, Long-Island/New Jersey Coastal Drainages; SANT, Santee River Basin and Coastal Drainages; ACFB, Apalachicola-Chattahoochee-Flint River Basin; DELR, Delaware River Basin; KANA, Kanawha-New River Basin; ALBE, Albemarle-Pamlico Drainages; USGS NC WSC, USGS North Carolina Water Science Center; USGS PA WSC, USGS Pennsylvania Water Science Center]

Report	Constituents studied	Aquifers	NAWQA study area	Data sources	Major findings relevant to current study
USGS NAWQA Program—Continued					
Kozar and others (2002)	Radon	PDX, BRX, OTHERS	KANA	USGS NAWQA	Noted high concentrations of radon in wells near fracture zones of crystalline rocks.
Lindsey and Ator (1996)	Radon	EMZ, PDX, OTHERS	POTO, LSUS	USGS NAWQA	Noted high concentrations of radon in crystalline rocks; differences between concentrations in mafic and felsic lithologies.
Lindsey and others (1997)	Nitrate	PDX, OTHERS	LSUS	USGS NAWQA	
Lindsey and others (2006)	Nitrate, pesticides, VOCs, radon	EMZ, PDX, OTHERS	POTO, LSUS, ACFB, DELR, SANT, LINJ	USGS NAWQA	Radon higher in crystalline-rock aquifers
Paybins and others (2000)	Radon, nitrate, pesticides, VOCs	BRX	KANA	USGS NAWQA	Radon higher in crystalline-rock aquifers
Other data sources					
Campbell (2006)	Radon, radium, uranium, trace elements	BRX, PRX		NC DENR	Radon elevated in meta-igneous rocks (granites and gneisses) compared to meta-sedimentary rocks.
Harden and others (2009)	Radon, uranium, trace elements	PDBRX	ALBE	USGS NAWQA; USGS NCWSC; NC DENR	Correlation of Geozones (geologic belts) with radon, uranium, and trace elements
Pippin (2005)	Arsenic	PDX		NC DENR	Elevated arsenic associate with geologic formations in the Carolina Slate Belt in North Carolina. Rock types including meta-mudstone, meta-argillite, phyllite, schist, and mica schist of volcanic origin were associated with elevated arsenic concentrations in groundwater.
Senior and Vogel (1992)	Radium	PDX		PAWSC	Elevated radium concentrations correlated to pH conditions lower than 4.7.

**Table 2.** Published reports from USGS NAWQA studies and other data sources conducted in the Piedmont and Blue Ridge Physiographic Provinces categorized by aquifer and constituents investigated.—Continued

[PDX, Piedmont crystalline-rock aquifer; EMZ, Early Mesozoic basin aquifer; BRX, Blue Ridge crystalline-rock aquifer; VOCs, volatile organic compounds; PODL, Potomac River/Delmarva Peninsula; POTO, Potomac River; LSUS, Lower Susquehanna River; LINJ, Long-Island/New Jersey Coastal Drainages; SANT, Santee River Basin and Coastal Drainages; ACFB, Apalachicola-Chattahoochee-Flint River Basin; DELR, Delaware River Basin; KANA, Kanawha-New River Basin; ALBE, Albemarle-Pamlico Drainages; USGS NC WSC, USGS North Carolina Water Science Center; USGS PA WSC, USGS Pennsylvania Water Science Center]

Report	Constituents studied	Aquifers	NAWQA study area	Data sources	Major findings relevant to current study
Other data sources—Continued					
Senior and Sloto (2006)	Arsenic	EMZ		PAWSC	Elevated arsenic correlated to pH conditions higher than 8.
Serfes (2004), Serfes and others (2010)	Arsenic	EMZ		NJGS	Elevated arsenic higher in EMZ black shale members of Lackatong and Passaic formations in New Jersey
Sloto and Senior (1998)	Radon	PDX, EMZ		USGS PAWSC	Radon highest from areas underlain by a schist, phyllite, and quartzite rock types
Sloto (2002)	Radon	PDX, EMZ		USGS PAWSC	Radon lowest in ultramafic serpentinite rocks and higher in the Wissahickon Schist.
Sloto (2000)	Uranium, radium, radon	PDX, EMZ		USGS PAWSC	Radium elevated in the Chickies Quartzite formation. Radon higher in schist and quartzite rock types.

exceedances, with 61 of 69 wells sampled exceeding the U.S. Environmental Protection Agency's (USEPA's) proposed MCL of 300 pCi/L and with 18 of 69 sampled wells exceeding the USEPA's AMCL (requires treatment) of 4,000 pCi/L of radon (U.S. Environmental Protection Agency, 2010). Fifty percent of samples collected from the felsic intrusive rock geozone had radon concentrations greater than the AMCL. Statistically different median concentrations of calcium, silica, ammonia, aluminum, antimony, cadmium, and uranium were delineated between one or more geozone pairs (Harden and others, 2009).

The New England and Appalachian Piedmont region was highlighted for radon occurrence in groundwater by the reconnaissance assessment by the USEPA (U.S. Environmental Protection Agency, 1999). Radon and uranium occurrences in crystalline-rock aquifers in New York and New England were identified as an issue of concern by Lapham and others (2005) and Ayotte and others (2007). Granitic rocks, such as two-mica granites and other high-grade metamorphic rocks, were reported to be a source of uranium that is soluble under predominantly oxic to sub-oxic geochemical conditions. The median value of radon reported was 2,122 pCi/L from the New York and New England crystalline-rock aquifer group, with about 25 percent of samples exceeding the proposed AMCL (Ayotte and others, 2007).

Sloto (2000) presented the results of sampling groundwater from domestic wells in the Piedmont Physiographic Province in southeastern Pennsylvania for naturally occurring radionuclides, including uranium, radium-226, radium-228, and radon-222 (table 2). The results were analyzed according to the underlying bedrock lithology, which included carbonate rock (limestone, dolomite, and marble), crystalline rock (gneiss, phyllite, quartzite, and schist), diabase, sedimentary rock of Paleozoic age (conglomerate, limestone, sandstone, siltstone, and shale), sedimentary rock of Triassic age (conglomerate, sandstone, siltstone, and shale), and unconsolidated sediments (clay, sand, and gravel). Of the more than 250 samples analyzed for radium isotopes, 46 percent of the wells located in the Chickies Quartzite had elevated radium activities that exceeded the USEPA MCL of 5 pCi/L for combined radium (radium-226 and radium-228 combined). Elevated radium values were correlated with water samples having a pH of less than 4.7 (Senior and Vogel, 1992) (table 2). Twenty-three percent of the 170 wells sampled in the Chickies Quartzite also had gross alpha-particle activities in water that exceeded the 15-pCi/L MCL and 46 percent of the wells sampled in the Chickies Quartzite had combined radium concentrations exceeding the 5-pCi/L MCL (Sloto, 2000). Water samples from 33 percent of the wells in the Chickies Quartzite also had gross beta particle activity exceeding the 15-pCi/L MCL. Samples from 13 wells in the Chickies Quartzite and nearby geologic units contained concentrations of radium-224 (a short-lived daughter product of radium-228) up to 265 pCi/L and gross alpha-particle activities up to 1,300 pCi/L (Senior and Sloto, 2000). Radon-222 activities differed among rock types, and of the more than 900 samples analyzed from the study area in southeastern Pennsylvania,

the greatest median values were in the schist (2,500 pCi/L) and quartzite (2,300 pCi/L) rock types (Sloto, 2000). About 89 percent of 534 wells sampled in 38 geologic formations in the Piedmont Physiographic Province in Chester County, southeastern Pennsylvania, had water with radon-222 concentrations greater than the proposed 300-pCi/L MCL that ranged up to 53,000 pCi/L (Senior, 1998).

Sloto (2002) described results from the analyses of 64 well samples collected in the Big Elk Creek Basin in Chester County, Pennsylvania, and Cecil County, Maryland, from 1925 through 1999 (table 2). Samples were categorized based on surface lithologies consisting of the Peters Creek Schist, serpentinite, Wissahickon Schist, pegmatite, and pelitic schist. The groundwater from wells located in the Wissahickon Schist had the lowest median pH of 5.9, while the samples from wells in the serpentinite rock type had the highest values ranging from 7.8 to 8.5. Groundwater from the serpentinite was categorized as magnesium-bicarbonate type, compared to samples from the other lithologies, which had no dominant cation to correspond with the dominant anion, bicarbonate. The three groundwater samples from the serpentinite unit also had the lowest concentrations of radon-222, with a maximum activity of 392 pCi/L, while wells in the other lithologic units were notably higher; samples from the Wissahickon Schist had a median value of 2,500 pCi/L. An assessment of groundwater quality and its relation to lithology and land use based on analyses of water samples from 82 wells in the Red Clay Creek Basin in the Piedmont Physiographic Province of Pennsylvania and Delaware (a hydrogeologic setting similar to that of Elk Creek) also indicated that concentrations of barium, lithium, and radon-222 differed among lithologies; radon-222 activities generally were highest (up to 10,000 pCi/L) in water from felsic gneiss and schist units and lowest in water from mafic gneiss and serpentinite units (Senior, 1996).

Radon concentrations documented by Kozar and others (2001) (table 2) for the Kanawha/New River Basins (KANA) study unit in the Blue Ridge Physiographic Province of Virginia and North Carolina were similar to those reported by Sloto (2000, 2002) for Pennsylvania, Maryland, and Delaware. Kozar and others (2001) noted that radon was detected in concentrations exceeding the proposed USEPA 300-pCi/L MCL for radon in 26 of 30 (87 percent) wells sampled. In 10 of 30 (33 percent) samples, radon exceeded the 4,000-pCi/L proposed AMCL. The median radon concentration detected was 2,080 pCi/L, and the maximum concentration detected was 30,900 pCi/L. Of 10 wells having radon concentrations greater than 4,000 pCi/L, 8 were on or adjacent to faults; this finding suggests that fault zones may be areas of uranium enrichment and that fault zones may allow radon migration upward along the fault (Kozar and others, 2001).

Pippin (2005) (table 2) presented results from a database of more than 10,000 analytical results for arsenic concentrations from groundwater samples collected primarily from domestic wells across North Carolina. A probability analysis using indicator kriging techniques was applied to the georeferenced dataset. Spatial correlation between the zone having



the highest probabilities for elevated arsenic concentrations in groundwater and rocks of the Carolina Slate Belt was evident. Common rock types associated with these areas of elevated arsenic were of volcanic origin, with the highest average arsenic concentrations estimated for the following lithologies: metamudstone and meta-argillite (CZmd; North Carolina Geological Survey, 1985), phyllite and schist (CZph, North Carolina Geological Survey, 1985), and mica schist (CZms, North Carolina Geological Survey, 1985).

Sources, mobilization, and transport of arsenic in groundwater in the Early Mesozoic basin aquifers of the Passaic and Lockatong Formations of the Newark basin, New Jersey, were documented by Serfes (2004) and Serfes and others (2010) (table 2). Elevated arsenic concentrations [greater than 10 micrograms per liter ( $\mu\text{g/L}$ )] correlated with geochemical conditions, including dissolved oxygen (DO) less than 3 milligrams per liter (mg/L) and pH from 7.5 to 8.0. For concentrations of arsenic greater than 40  $\mu\text{g/L}$ , DO was suboxic (less than 1.0 mg/L) or nearly suboxic. The major source of arsenic was determined to be the mineral pyrite ( $\text{FeS}_2$ ) within the black shale members of the Passaic Formation (Serfes, 2004).

An assessment of arsenic, boron, and fluoride in groundwater in the Newark basin in Pennsylvania included a review of available data (Senior and Sloto, 2006). About 10 percent of wells completed in the Early Mesozoic basin aquifers had water with arsenic concentrations greater than the MCL of 10  $\mu\text{g/L}$ . For data collected from 46 wells during that study, all groundwater samples with pH values greater than 8 had arsenic concentrations greater than 10  $\mu\text{g/L}$ ; no samples with pH below 7 had arsenic concentrations greater than 10  $\mu\text{g/L}$ .

## Geological and Geochemical Framework for Interpretations of Water Quality

Building on previous work linking aquifer lithology to the occurrence of radionuclides, arsenic, and other naturally occurring contaminants in groundwater, the primary purpose of this study was to determine if primary rock type and associated mineral assemblages described for published State geologic maps could be organized into mappable lithologic groups and lithochemical subgroups and related to the occurrence of natural contaminants in the crystalline-rock aquifers of the Piedmont and Blue Ridge Physiographic Provinces and the siliciclastic-rock aquifers in the Piedmont Physiographic Province. For this study, bedrock aquifers were divided into lithologic groups and lithochemical subgroups based on overall bedrock composition with regard to specific mineralogy and the potential for similar weathering characteristics. This classification of bedrock aquifer types follows the organization of lithochemical groups by McCartan and others (1998) and Peper and others (2001) in the Chesapeake Bay region of Maryland, Virginia, and the District of Columbia.

## Previous Lithochemical Classifications

McCartan and others (1998) related regional geologic data (rock type and mineralogical characteristics) from geologic maps of Maryland and northern Virginia in the southern Chesapeake Bay watershed to water-quality data from shallow wells and streams collected from the region. The rock types within the region were first grouped with the three primary classes of rock—sedimentary, igneous, and metamorphic—then by acid-neutralizing capacity and weathering characteristics. Interest stemmed from the apparent mitigation of high-acidity surface- and groundwater-quality problems from contact with carbonate rock types and elevated nitrate problems in groundwater and surface water by rocks and sediments high in carbon and sulfur (peat and black shale). McCartan and others (1998) organized regional geologic map data within the southern Chesapeake Bay watershed into four groups: (1) “Sedimentary rocks and their metamorphic equivalents,” which included carbonate-rich rocks, clastic sedimentary rocks, and metamorphosed clastic sedimentary rocks; (2) “Igneous rocks and their metamorphic equivalents,” which included mafic igneous rocks and their metamorphic equivalents, ultramafic rocks, and felsic igneous rocks and their metamorphic equivalents; (3) “Unconsolidated sediments,” such as sands, silts, clays, and organic-rich deposits; and (4) “Iron-rich sediment,” such as greensand, magnetite and ferro-ilmenite beach sand, and bog iron ore. Lithologies in the study area were categorized into 30 lithologic-mineralogic equivalent, or “lithogeochemical,” units (McCartan and others, 1998).

Peper and others (2001) modified the organization of McCartan and others (1998) to form three main geologic groups by including iron-rich sediments under the “Unconsolidated sediments” group, and then by classifying lithologies on the basis of potential rock-water interaction. Classes of rock types based on water-reactive minerals and their weathering reactions were regrouped by Peper and others (2001) into the following five classes of lithogeochemical units: (1) carbonate rocks and calcareous rocks and sediments, the most acid-neutralizing; (2) carbonaceous-sulfidic rocks and sediments, likely to be oxygen-depleting and reducing; (3) quartzofeldspathic rocks and siliciclastic sediments, mostly relatively weakly reactive with water; (4) mafic silicate rocks and sediments, likely to be oxygen consuming and high solute-load delivering; and (5) rare calcareous-sulfidic (carbonaceous) rocks that may be neutralizing and reducing.

## Lithologic Groups

Fourteen lithologic groups (table 3) were delineated within the study area as an expansion of previous work by McCartan and others (1998) and Peper and others (2001) to southeastern and northeastern areas of the PBR Physiographic Provinces [(appendix 1, table 1-1 (appendix 1 available online at <http://pubs.usgs.gov/sir/2013/5072/>)]. The same principal

**Table 3.** Lithologic group, major rock types, and lithochemical subgroups for groundwater sites within the siliciclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008.[Lithologic groups and lithochemical subgroups are described in detail in appendix table 1-1. **Red** font indicates units that lack groundwater-quality data. Na, not applicable]

<b>Rock type</b>	<b>Lithologic group</b>	<b>Site count</b>	<b>Abbreviation</b>	<b>Principal lithologies</b>	<b>Lithochemical subgroup number(s)</b>
<b>Carbonate</b>	<b>Carbonate-rich rocks</b>	<b>0</b>	<b>na</b>	<b>Limestone, dolostone, marble</b>	<b>11, 12, 13</b>
Siliciclastic	Clastic sedimentary rocks	9	CLSD	Mudstone, shale	21, <b>21c</b>
Siliciclastic	Quartz-rich sedimentary rocks	11	CLSDQ	Conglomerate, sandstone	22, <b>22c</b>
Siliciclastic	Clastic lacustrine/evaporite sedimentary rocks	51	CLSDLAC	Argillite, fine-grained mixed clastic, mudstone, sandstone, shale, siltstone, arkose	22e
<b>Siliciclastic</b>	<b>Feldspar-rich clastic sedimentary rocks</b>	<b>0</b>	<b>na</b>	<b>Arkose, graywacke</b>	<b>22f</b>
<b>Siliciclastic</b>	<b>Sulfidic clastic sedimentary rocks</b>	<b>0</b>	<b>na</b>	<b>Black shale, coal</b>	<b>23s, 24s</b>
Crystalline	Metamorphosed clastic sedimentary rocks	96	CLSMT	Slate, mica schist, pelitic schist, phyllite, quartz-feldspar schist, schist, metasedimentary rock, meta-argillite, paragneiss, gneiss, melange	31, <b>31s, 32a, 32c, 32g, 32m, 32s, 32u, 35, 35a, 35c, 35gn, 35gns, 35ml, 41bs</b>
Crystalline	Quartz-rich metamorphic rocks	17	MTQ	Meta-conglomerate, metasedimentary rock, quartzite	33, <b>33c, 33my</b>
Crystalline	Felsic igneous rocks and their metamorphic equivalents	71	IGMTF	Granite, quartz monzonite, tonalite, metamorphic rock, felsic metavolcanic rock, metavolcanic rock, felsic volcanic rock, rhyolite, alkali syenite	61, <b>61c, 61m, 61mf, 61ml, 61mv, 61v, 62</b>
Crystalline	Intermediate igneous rocks and their metamorphic equivalents	55	IGMTI	Biotite gneiss, gneiss, felsic gneiss	<b>34agn, 34bg, 34f, 34fi, 34i, 34s</b>

**Table 3.** Lithologic group, major rock types, and lithochemical subgroups for groundwater sites within the siliciclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008.—Continued

[Lithologic groups and lithochemical subgroups are described in detail in appendix table 1-1. **Red** font indicates units that lack groundwater-quality data. Na, not applicable]

Rock type	Lithologic group	Site count	Abbreviation	Principal lithologies	Lithochemical subgroup number(s)
Crystalline	Mafic Igneous rocks and their Metamorphic equivalents	34	IGMTM	Amphibolite, meta-basalt, intermediate metavolcanic rock, diabase, gabbro, mafic rock, metamorphic rock, norite, quartz diorite, basalt, diabase, mafic gneiss	41, 41c, <b>41mv</b> , <b>41v</b> , 42, 43, 43em, 44
Crystalline	Ultramafic rocks	2	ULMAF	Metamorphic rock, serpentinite	50c
Sediment	Unconsolidated sediments	0	na	Sand, silt, clay, gravel, terrace (undifferentiated), alluvium, gravel, sand	71c, 72, 73, 74, 75, 76, 78, 79, 80
Sediment	Iron-Rich sediments	0	na	Greensand, silty in places; magnetite and ferro-ilmenite beach sand; bog iron ore	77
Total number of samples		346			



aquifers are covered—the crystalline-rock aquifers of the Piedmont and Blue Ridge and the siliciclastic rocks in the Early Mesozoic aquifers of the Piedmont. As with McCartan and others (1998), the first step for this study was to translate information from each mapped geologic unit within the study area to lithologic-mineralogic equivalents based on descriptions for each State geologic map (see References Cited section and appendix 1, table 1-2). As a new approach for this study, further division of the geologic units under “Sedimentary rocks and their metamorphic equivalents” heading was made within the siliciclastic sedimentary rocks sequence by introducing clastic sedimentary (fine-grained), clastic lacustrine/evaporite sedimentary, feldspar-rich clastic sedimentary, quartz-rich sedimentary, and sulfidic clastic sedimentary as major lithologic groups in the study area (table 3 and appendix 1, table 1-1). The metamorphosed clastic sedimentary sequence was further divided in the study area by introduction of quartz-rich metamorphic and feldspar-rich metamorphic lithologic groups. All other major lithologic groups used for this study followed McCartan and others (1998) (appendix 1, table 1-1). The 14 major lithologic groups delineated for this study and a listing of associated major rock types compiled from State geologic maps (Dicken and others, 2005a, 2005b; Nicholson and others, 2005, 2006) are described in table 3, based on classification schemes presented in appendix table 1-1. Representative geologic formations are listed in appendix table 1-1 and a detailed descriptions of geologic formations (including State abbreviations) are grouped by lithologic group and lithochemical subgroup number in appendix table 1-2. Abbreviations for the lithologic groups used in this report are listed in table 3 to simplify technical discussions and figure/table presentations. For example, the felsic igneous rocks and their metamorphic equivalents group is abbreviated as “IGMTF” (table 3). For more detailed descriptions and formation references, please see appendix 1, tables 1-1 and 1-2.

As a result of the classification of the lithologic groups for the purposes of this report, the metamorphic and igneous lithologic groups are associated primarily with the crystalline-rock aquifers in the PBR Physiographic Provinces, and the sedimentary or siliciclastic-rock groups are associated with the Early Mesozoic basin within the Piedmont Physiographic Province (fig. 1). Additionally, crystalline diabase rocks locally intrude the primary sedimentary rocks in the Early Mesozoic basins. The diabase dikes are mafic rocks with geochemical properties likely similar to rock types such as amphibolite. The carbonate-rich lithologic group is limited to the northeastern area of the Piedmont (fig. 1).

The distributions of lithologic groups, as delineated for this study, are shown in figure 5 along with available USGS NAWQA groundwater-quality sample locations. (Note: sulfidic clastic sedimentary and iron-rich sediments were not delineated in the study area.) For this report, NAWQA groundwater sample data were available for 9 of the 14 lithologic groups; samples were not available for the carbonate-rich group, the feldspar-rich clastic sedimentary group, the

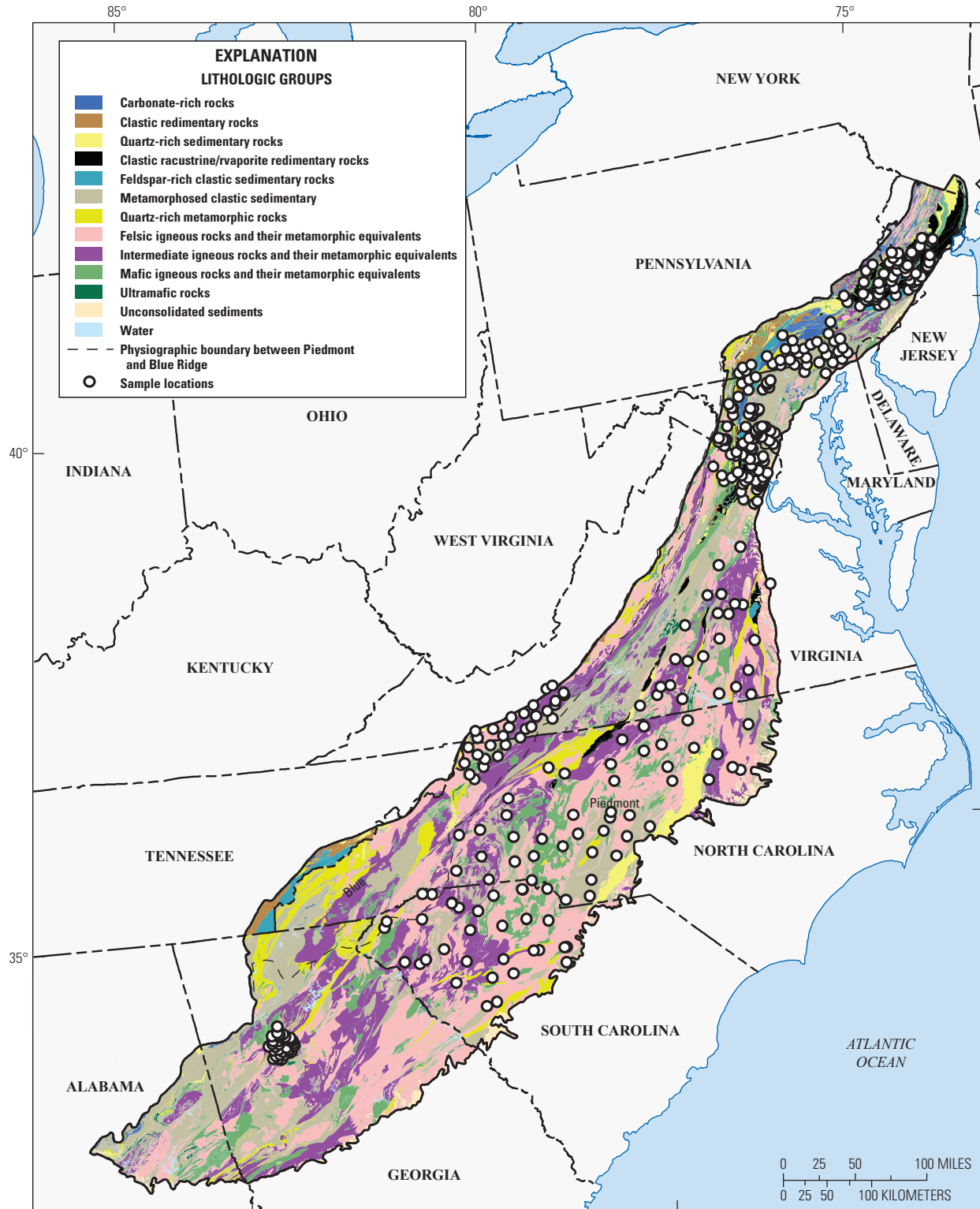
sulfide-rich sedimentary group, unconsolidated sediments, and iron-rich sediments (table 3). To illustrate the physical relations among different lithologic groups, representative lithologic groups within mapped geologic terranes in North Carolina are shown in figure 6.

## Lithochemical Subgroups

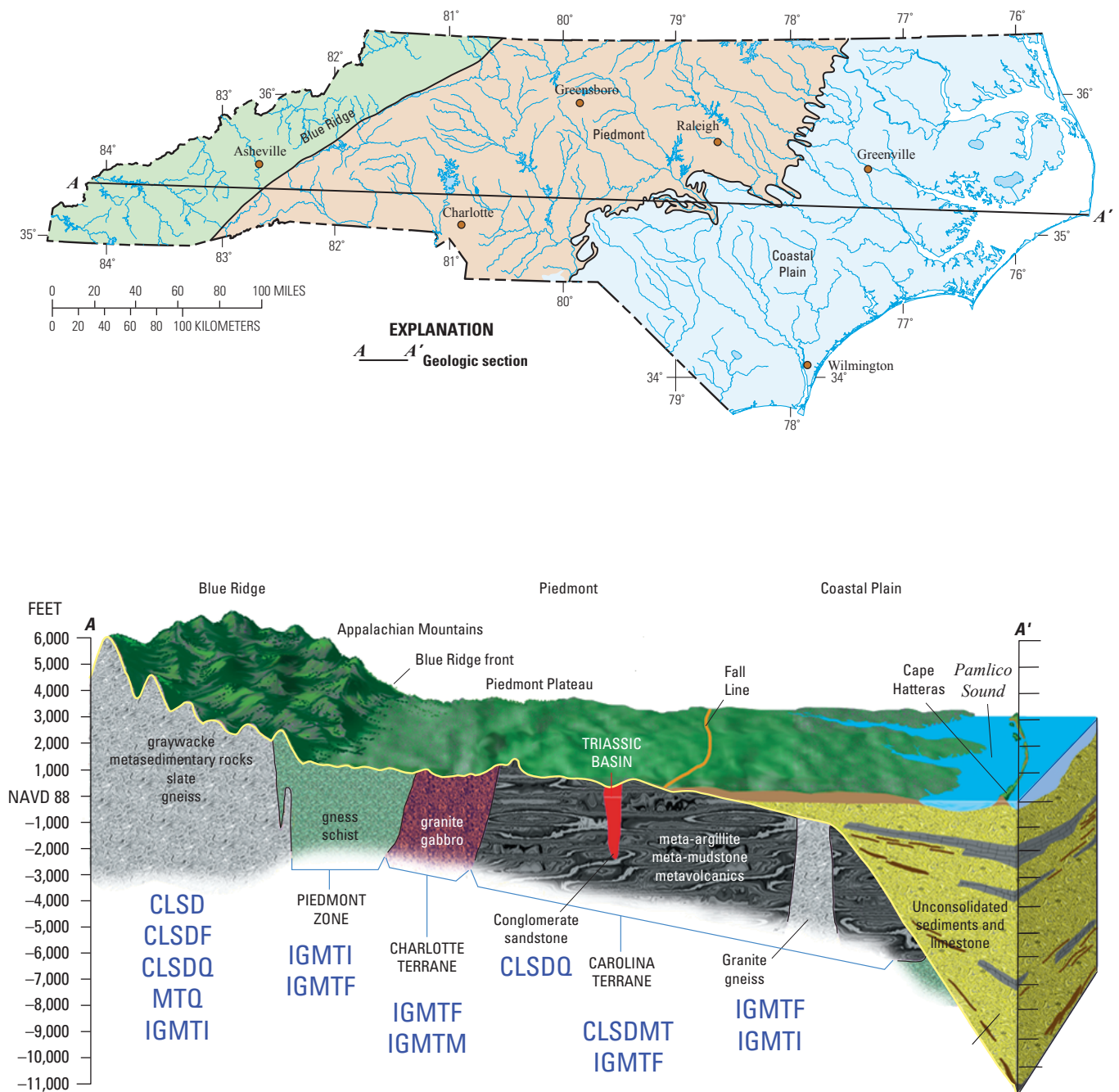
As a starting point, rock type designations from the geographic information system (GIS) attributes for the State maps (appendix 1, table 1-1 “ROCK\_TYPE1”) (Dicken and others, 2005a, 2005b; Nicholson and others, 2005, 2006) were directly assigned to a particular subgroup number as listed in McCartan and others (1998). For example, the use of subgroup 32 (appendix 1, table 1-1) for schist rock types is continued in this study. Because some of the lithologic groups delineated as part of this study are large and contain several variable rock types, such as the metamorphosed clastic sedimentary, the mafic igneous and metamorphic equivalents, and the felsic igneous and metamorphic equivalent groups, the generalized rock types such as gneiss or schist, for example, were further divided to evaluate potential effects of mineralogical distinctions on geochemistry and thereby groundwater quality in the aquifers. Detailed descriptions of geologic units are available in the geographic information system (GIS) attributes for the State maps as compiled by Dicken and others (2005a, 2005b) and Nicholson and others (2005, 2006) (appendix 1, table 1-1). Where formation descriptions did not include mineralogy in the GIS attribute file, the USGS National Geologic Map Database Geologic Names Lexicon “GEOLEX” was used to obtain mineralogical descriptions of the formations ([http://ngmdb.usgs.gov/Geolex/geolex\\_home.html](http://ngmdb.usgs.gov/Geolex/geolex_home.html); accessed February 2011). Each lithologic group (with the exception of the unconsolidated sediments group) is categorized with regard to chemical composition as felsic, intermediate, mafic, carbonaceous, or sulfidic (appendix 1, table 1-1).

The metamorphosed clastic sedimentary lithologic group is subdivided into 16 lithochemical subgroups based on the presence of minerals that may affect aquifer geochemistry. For example, sulfidic characteristics [31s and 32s, following McCartan and others (1998)], graphitic content (32g and 35gns), the presence of calcareous minerals or rocks (35c), the presence of aluminous minerals (32al), the presence of mafic minerals (chlorite and hornblende, 32m; biotite, 41bs). The subgroup “u” designation is simply “undifferentiated” because the description of the geologic unit or formation indicated mixed rock types. Other distinctions were made with regard to rock types that have similar geologic origin, structure, or textural characteristics (35gn and 35ml) (appendix 1, table 1-1). Figure 7 shows an example of the further division of lithologic groups into lithochemical subgroups and corresponding geologic formations.

A few lithologic groups have only minor modifications from McCartan and others (1998). The quartz-rich metamorphic group has an additional 33my lithochemical subgroup for mylonitic rocks associated with major fault zones (Brevard



**Figure 5.** Distribution of delineated lithologic groups and 1994–2008 sample locations within the study area, Piedmont and Blue Ridge Physiographic Provinces.



**Figure 6.** Generalized schematic cross-section diagram across North Carolina physiographic provinces showing generalized geologic terranes and common lithologic groups delineated as part of this study.

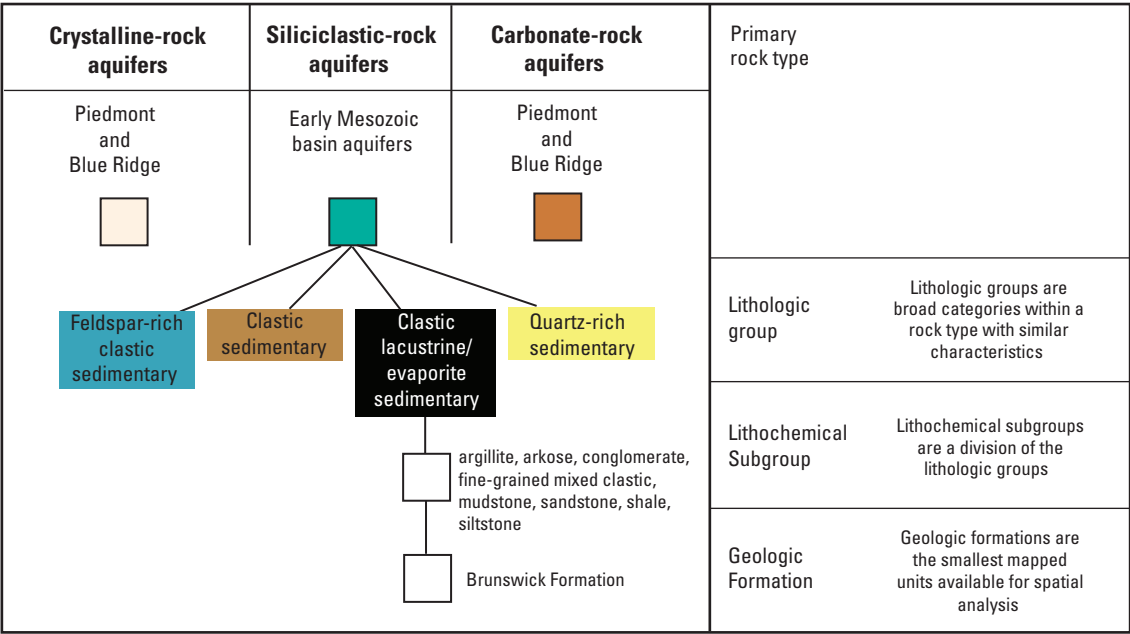


Figure 7. An example division of the aquifers into lithologic groups, lithochemical subgroups, and corresponding geologic formations.

fault zone, appendix 1, table 1-1). The intermediate igneous rocks and their metamorphic equivalents group includes distinctions for the more feldspathic subgroups (34f and 34fl) compared to the more intermediate composition groups (34i). This group also includes some rock type designations, including biotite gneiss (34bg) and augen gneiss (34agn), as well as mineralogical distinctions for sulfidic and graphitic rocks (34s). The mafic igneous and metamorphic equivalent rocks group has seven lithochemical subgroups, most of which follow McCartan and others (1998), with the addition of 41mv and 41v for metavolcanic and volcanic origin, respectively. A subgroup 44 was added for an undifferentiated mafic gneiss rock type. For the ultramafic rocks group, the subgroup 50gs was added to distinguish greenstones that did not contain carbonates. For the felsic igneous and metamorphic equivalent rocks group, the subgroup 61m is used to distinguish metamorphosed intrusive, while 61mf and 61mi distinguish compositional differences of felsic and intermediate, respectively. The subgroup 61v follows McCartan and others (1998) with the addition of 61mv for metavolcanic rocks. Where lithochemical subgroups were important to the interpretation and extrapolation of groundwater-quality data from this study for human health issues, the correlation of formations across State boundaries was reviewed. Geologic formations may be categorized differently based on the available geologic formation data and rock and mineral assemblage descriptions on the State maps (appendix 1, table 1-1, "ROCK\_TYPE1"; Dicken and others, 2005a, 2005b; Nicholson and others, 2005, 2006). Also, the USGS National Geologic Map Database, Geologic Names Lexicon "GEOLEX" searchable database was used to

obtain mineralogical descriptions of the formations ([http://ngmdb.usgs.gov/Geolex/geolex\\_home.html](http://ngmdb.usgs.gov/Geolex/geolex_home.html); accessed October 2012).

### Geochemical Controls on Naturally Occurring Trace Elements and Radionuclides in Groundwater

Dissolved chemicals in groundwater may be derived from rock weathering, biological processes, and anthropogenic sources. Dissolution of minerals in bedrock and overlying geologic materials commonly release naturally occurring constituents to the groundwater. Major cations (positively charged ions such as calcium, magnesium, sodium, and potassium), major anions (negatively charged ions such as sulfate, chloride, fluoride, and bicarbonate), and nonionic solutes (uncharged solutes such as silica and DO typically are present at concentrations greater than 1 mg/L, whereas trace constituents typically are present at concentrations less than 1 mg/L (Hem, 1985). However, dissolved concentrations of trace constituents can range widely depending on their occurrence in the rock or other source, the solubility of the constituent elements and interacting substances, and geochemical conditions such as pH and oxidation-reduction (redox) state that affect element form, mobility, and transport in the aqueous environment.

Groundwater from diverse environments may contain naturally occurring trace elements such as iron, manganese, zinc, lead, copper, nickel, vanadium, molybdenum, arsenic, radium, and uranium (Rose and others, 1979). Descriptions of



the mineral assemblages in mapped geologic units may be useful when identifying potential geologic sources of dissolved constituents, although the mere presence of minerals containing such constituents may not lead to elevated concentrations in the associated groundwater. Elevated concentrations of trace constituents tend to be found locally or are associated with specific aquifer settings, particularly (1) under acidic conditions where the solubilities and mobilities of many element species are increased (Kirby and Cravotta, 2005; Cravotta, 2008a,b) or (2) under reducing conditions where the dissolution of ferric iron [Fe(III)] and manganese [Mn(III,IV)] to more soluble ferrous Fe(II) and dissolved manganese [Mn(II)] can release adsorbed and coprecipitated metals (Langmuir, 1997, p. 294–296; McMahon and Chapelle, 2008).

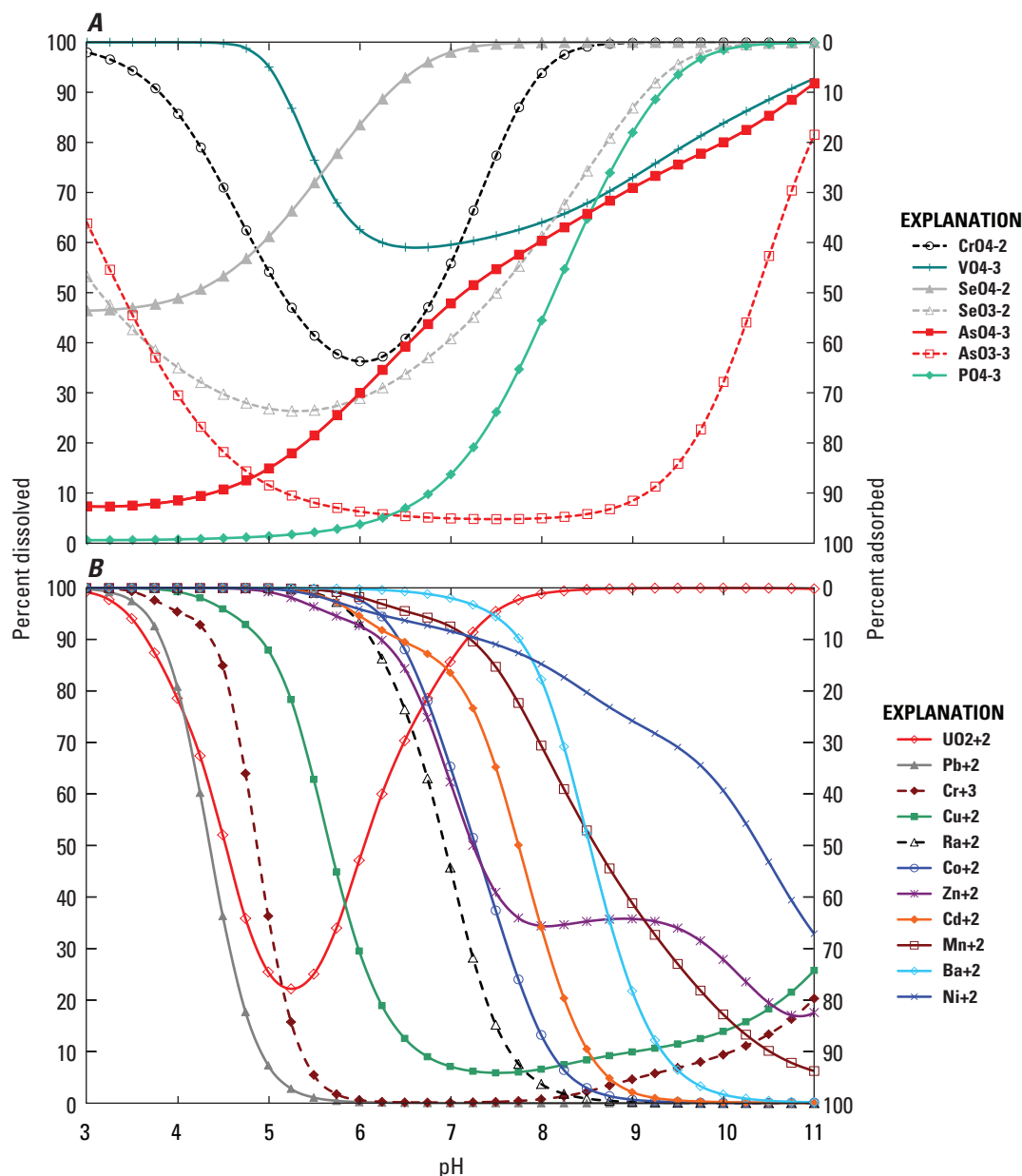
Although the release of trace elements through mineral weathering is a natural process, accelerated mineral decomposition that accompanies the development of strongly acidic or reducing conditions could be a consequence of human activities. For example, acidification can result from the excavation of sulfide minerals or the release of gaseous emissions containing sulfur or nitrogen oxides, and reduction can result from the disposal of organic wastes or over-fertilization. Furthermore, some constituents may originate from industrial sources, manmade materials, or land applications. Thus, in order to determine constituent concentrations that may have been added to groundwater as a consequence of land-use or waste-disposal practices, natural background concentrations for specific geologic settings need to be established. Additionally, in order to identify geochemical environments where elevated concentrations of constituents may be present, water-quality conditions such as pH and redox state and major ion composition need to be characterized.

Whether a dissolved constituent has originated from the weathering of rocks or from anthropogenic sources, its transport may be affected by its ionic charge, redox state, and tendency to interact with other dissolved elements (ion complexation) and solid surfaces (surface complexation or ion exchange). Redox-sensitive elements that commonly occur in more than one valence state under atmospheric conditions near the surface of the Earth include carbon (−4, +4), sulfur (−2, +6), nitrogen (−3, +3, +5), iron (+2, +3), manganese (+2, +3, +4), arsenic (−3, +3, +5), selenium (−2, +4, +6), chromium (+3, +6), molybdenum (+4, +6), vanadium (+3, +4, +5), and uranium (+3, +4, +5, +6). Although these and many other elements can have a positive valence state or core charge, the predominant aqueous species may be positively or negatively charged ions, depending on the tendency of the charged element to hydrolyze and to form aqueous complexes. Generally, the highly positively charged valences are present as cations form oxyanions and, less commonly, oxycations (Turner and others, 1981; Stumm and Morgan, 1996; Langmuir, 1997; Hodge and others, 1998). For example, in a reducing groundwater environment, chromium in the +3 valence state may be present as a cation ( $\text{Cr}^{+3}$ ), whereas in a strongly oxidizing environment, chromium in the +6 valence state may be present

as the oxyanion chromate ( $\text{CrO}_4^{-2}$ ). Likewise, under oxidizing conditions, arsenic in the +3 or +5 valence states tends to form the oxyanions arsenite ( $\text{AsO}_3^{-3}$ ) or arsenate ( $\text{AsO}_4^{-3}$ ), respectively, and uranium in the +6 valence state tends to form the uranyl ( $\text{UO}_2^{+2}$ ) oxycation. Furthermore, at the typical pH range of natural water, the uranyl ion may interact with carbonate and bicarbonate ions to form negatively charged carbonate complexes (Langmuir, 1997). The formation of such soluble ion complexes can increase the concentrations and transport of dissolved trace elements (Cravotta, 2008a, 2008b).

Concentrations of major cations and anions in natural waters generally are controlled by acid-base and precipitation-dissolution reactions; however, the concentration and mobility of most trace ions generally are controlled by surface-complexation (adsorption) reactions on hydrous Fe(III) oxides, Mn(III,IV) oxides, and aluminum oxides and silicates (Dzombak and Morel, 1990; Bowell, 1994; Stumm and Morgan, 1996; Drever, 1997; Langmuir, 1997). Consequently, the concentrations of trace elements in natural waters typically are far below the values that would be predicted for saturation with respect to a pure mineral phase (Drever, 1997; Cravotta, 2008b). For example, at the acidic pH range (5 to 6.5) of natural groundwater, dissolved oxyanions, such as chromate ( $\text{CrO}_4^{-2}$ ), phosphate ( $\text{PO}_4^{-3}$ ), selenite ( $\text{SeO}_3^{-2}$ ), selenate ( $\text{SeO}_4^{-2}$ ), arsenite ( $\text{AsO}_3^{-3}$ ), and arsenate ( $\text{AsO}_4^{-3}$ ), tend to be weakly sorbed and partly immobilized by hydrous ferric oxide (HFO) minerals (fig. 8, such as goethite ( $\text{FeOOH}$ ) and ferrihydrite [ $\text{Fe}(\text{OH})_3$ ]). However, at the alkaline pH range (7.5 to 9) of natural water, sorption of these anions generally decreases with increasing pH and is accompanied by corresponding increases in their dissolved concentrations (fig. 7). In contrast, dissolved cations, such as chromium ( $\text{Cr}^{+3}$ ), copper ( $\text{Cu}^{+2}$ ), cadmium ( $\text{Cd}^{+2}$ ), nickel ( $\text{Ni}^{+2}$ ), and zinc ( $\text{Zn}^{+2}$ ), tend to be poorly adsorbed and are relatively mobile at acidic pH, whereas at alkaline pH, the cation concentrations tend to be attenuated by adsorption on HFO and other oxide surfaces (fig. 8).

The apparent opposite sorption behavior of the anions and cations (fig. 8) results from a progressive decrease in the effective charge on oxide surfaces from positive (attractive to anions) to negative (attractive to cations) as the pH increases from acidic to alkaline values (Dzombak and Morel, 1990; Stumm and Morgan, 1996; Langmuir, 1997). At alkaline pH values, negatively charged oxide atoms at mineral surfaces attract cations; however, at acidic pH, protons attached to the oxide atoms yield an effective positive charge at the mineral surface and thus attract anions. In addition, the sorbed cations or anions may be displaced by other charged ions such as magnesium ( $\text{Mg}^{+2}$ ), chloride ( $\text{Cl}^-$ ), and sulfate ( $\text{SO}_4^{-2}$ ) through ion exchange or competition for sorption sites. Thus, concentrations of trace elements in solution may increase with concentrations of total dissolved solids, not only because of the release of trace constituents with the major ions dissolved from minerals, but because of the displacement of trace ions from surface sorption sites by the major ions. For the trace



**Figure 8.** Equilibrium fractions of initial concentrations of ions that may be dissolved or adsorbed on a finite amount of hydrous ferric oxide at 25 degrees Celsius as a function of pH. *A*, anions; *B*, cations.

elements that form aqueous complexes, the increase in soluble major ion concentrations also increases the likelihood of the formation of soluble ion complexes.

Cations and anions that had been adsorbed or coprecipitated with Fe(III) or Mn(III,IV) compounds may be remobilized under anoxic, reducing conditions. The reducing conditions must be sufficient to reduce and dissolve iron and manganese but not to produce sulfide, which tends to form insoluble compounds with many trace cations (Korte, 1991; Welch and others, 2000; Kirk and others, 2004). The reductive dissolution of Fe(III) and Mn(III,IV) oxides typically is coupled with the oxidation of organic compounds after supplies of dissolved oxygen, nitrate ( $\text{NO}_3^-$ ), and nitrite ( $\text{NO}_2^-$ )

have been depleted, but before the development of sulfate-reducing conditions (Ehrlich, 1990; Stumm and Morgan, 1996; Drever, 1997; McMahon and Chapelle, 2008). Under such reducing geochemical conditions, the concentrations of dissolved iron and manganese and associated sorbed trace anions and cations may become elevated. Thus, the presence of dissolved iron, manganese, and sulfate in anoxic groundwater that lacks nitrate and nitrite can be interpreted to indicate reducing geochemical conditions capable of mobilizing trace elements associated with Fe(III) or Mn(III,IV) oxides in the aquifer (McMahon and Chapelle, 2008).

Naturally occurring radionuclides in groundwater include isotopes of uranium (U-238), thorium (Th-232), radium

(Ra-224, Ra-226, Ra-228), and radon (Rn-222). Uranium-238 is the parent of radium-226 and radon-222; thorium-232 is the parent of radium-228 and radium-224 (fig. 9). Uranium, thorium, radium, and other radioisotopes in the decay chains tend to be present as dissolved ions that are affected by different geochemical speciation, solubility, and sorption processes (Ames and others, 1983a, 1983b). Consequently, the presence of uranium, thorium, or radium in groundwater requires a mineral source and geochemical conditions in the aquifer that are conducive to transport of those elements. The presence of radon (of which radon-222 is the most abundant isotope) in groundwater is directly related to the presence of a decay-chain parent, such as uranium, in the aquifer because radon is a highly soluble noble gas that generally is not affected by chemical reactions. In addition, all radon isotopes have short half-lives and generally occur relatively near the parent source in the aquifer.

## Water-Quality Data and Methods

Groundwater-quality data collected by the USGS NAWQA Program (Gilliom and others, 1995) from wells in various hydrogeologic and land-use settings from Georgia through New Jersey were compiled to establish a regional database on water quality in the study area. The NAWQA design is discussed in Gilliom and others (1995) and Lapham and others (2005); protocols for collection of water-quality data are presented in Koterba and others (1995). The NAWQA groundwater sampling protocols specified prolonged flushing of the well to remove water stored in the well bore prior to sample collection (Koterba and others, 1995). Furthermore, field measurements of dissolved oxygen, pH, alkalinity, and other unstable constituents were routinely conducted without exposing samples to the atmosphere at the time of sample collection. Thus, the data used for this study are presumed to represent the *in situ* water-quality characteristics of the aquifer.

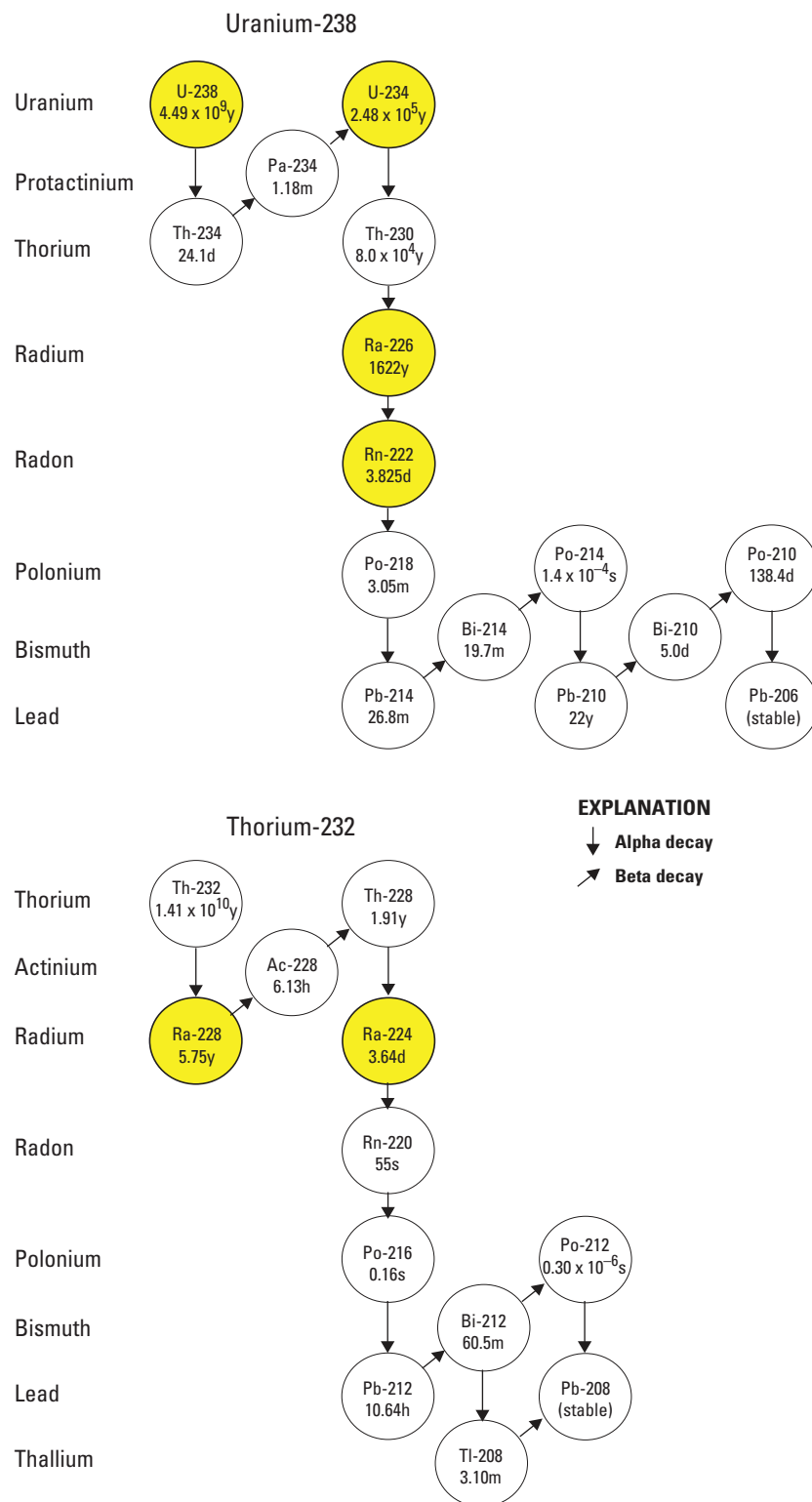
This report includes groundwater-quality data collected as part of 14 NAWQA studies across the eastern United States covering the Early Mesozoic basin principal aquifer and a variety of fractured felsic and mafic crystalline-rock aquifers of the Piedmont and Blue Ridge aquifer as described by Lapham and others (2005) (figs. 1 and 3). The compiled data are not distributed evenly throughout the study area and therefore are not spatially representative of all the aquifers. The dataset analyzed consists of 346 samples (appendix 1, tables 1-3 and 1-4) collected as part of land use, major aquifer, and drinking water studies (table 1). Each study involved a network of 20 to 30 wells to document and explain the occurrence and distribution of selected chemical compounds in groundwater in particular settings (Gilliom and others, 2006) (table 1; fig. 3; appendix 1, tables 1-3 and 1-4). Groundwater data from carbonate rock and glacial aquifers are not included in this study.

Data for physical characteristics and concentrations of dissolved chemical constituents in groundwater were compiled for the 346 sampled wells (appendix 1, tables 1-3 and 1-4). A variety of crystalline and siliciclastic bedrock types with associated lithologies were sampled at these well locations. Most of these data were collected during the late spring through the late summer. Although collected only once per site (from 1994 through 2008; appendix 1, table 1-4), the groundwater-quality data are assumed comparable for the purpose of evaluating spatial patterns in water quality for this study. Selected data from these compilations are presented in this report; all data compiled for this report are accessible on the World Wide Web at <http://infotrek.er.usgs.gov/apex/f?p=NAWQA:HOME:0;> accessed October 2012.

Analytical results for most samples were obtained for major ions, various trace elements (including iron, manganese, aluminum, antimony, arsenic, barium, beryllium, boron, cadmium, chromium, cobalt, copper, lead, lithium, mercury, molybdenum, nickel, selenium, silver, strontium, thallium, vanadium, and zinc), selected nutrients (including phosphorus and nitrogen compounds), dissolved organic carbon, and radionuclides [including radon-222 (hereafter referred to as radon), radium isotopes, uranium, and tritium] as well as temperature, specific conductance (SC), pH, and concentrations of dissolved oxygen (DO). All analyses are for dissolved constituents in water samples that were filtered in the field, unless otherwise specified. The water temperature, SC, pH, and dissolved-oxygen concentrations were measured in the field immediately prior to sample collection. Other chemical analyses were conducted at the USGS National Water Quality Laboratory (NWQL) in Denver, Colorado (Patton and Truitt, 1992; Brenton and Arnett, 1993; Fishman, 1993; Werner and others, 1996).

To assess the potential for naturally occurring solutes to contaminate drinking water, the concentrations of chemical constituents are compared to criteria for protection of human health such as USEPA (2009) drinking water maximum contaminant levels (MCLs) and secondary maximum contaminant levels (SMCLs) or health-based screening levels (HBSLs). Because water quality at a given location will vary temporally owing to natural hydrologic processes and seasonality, and because samples were collected only once from each well, constituent concentrations also were compared to a value of one-tenth of the relevant human health criteria. Consideration of this lower threshold level increases the certainty that constituents will be acknowledged that could have human health implications under variable circumstances.

The reported water-quality data were used to compute mineral saturation indices (explained below), hardness, and groundwater redox classes. Hardness was calculated as the sum of calcium and magnesium concentrations and is expressed as calcium carbonate (Fishman, 1993). The redox class was determined on the basis of concentrations of dissolved oxygen, nitrate, manganese, iron, and sulfate using thresholds of McMahon and Chapelle (2008). The redox classifications used in this report were simplified to consider only



**Figure 9.** Uranium-238 and thorium-232 decay series.



three major classes: “anoxic” ( $\text{DO} < 0.5 \text{ mg/L}$ , manganese  $\geq 50 \text{ }\mu\text{g/L}$ , and iron  $\geq 100 \text{ }\mu\text{g/L}$ ); “mixed” ( $\text{DO} \geq 0.5 \text{ mg/L}$  and either manganese  $\geq 50 \text{ }\mu\text{g/L}$  or iron  $\geq 100 \text{ }\mu\text{g/L}$ ); and “oxic” ( $\text{DO} \geq 0.5 \text{ mg/L}$ , manganese  $< 50 \text{ }\mu\text{g/L}$ , and iron  $< 100 \text{ }\mu\text{g/L}$ ).

Ancillary geospatial data were compiled to describe the physical characteristics of the watersheds within the potential contributing areas of 1,640 ft (NAWQA buffer for ancillary data including land use, census data, nutrient sources, and point sources) of sampled wells. Each groundwater sample site was classified on the basis of the physiographic setting, bedrock type (crystalline or siliciclastic), lithologic group, and lithochemical subgroup (table 3). Land-cover data were compiled and used to compute the percentage of four major land uses (wetland, forested, agricultural, and urban) within 1,640 ft of sampled wells (appendix 1, table 1-3). Generalized land cover was modified from the National Land Cover Database 1992 (NLCD 1992) using historical land-use and land-cover data (Price and others, 2007) (fig. 2).

## Graphical and Statistical Analyses

Various graphical and statistical techniques were used in this report to compare water-quality data for different aquifers or geologic settings, to estimate natural and anthropogenic sources of dissolved constituents, and to identify possible factors affecting the occurrence or transport of solutes in the aquifers in the study area. In general, nonparametric, rank-based statistical approaches were used to accommodate non-normally distributed and censored data typical of most environmental samples (Helsel and Hirsch, 2002). Data for individual continuous variables, such as chemical concentrations, were censored to a common level, and censored values were set to a common reporting limit before ranks were computed for use in statistical tests. Relations between continuous variables were evaluated with scatter plots and correlation coefficients (Spearman's rho); distributions of continuous variables were compared among different groups (such as lithology) using probability plots, boxplots, and rank-sum or rank-transform analysis-of-variance (ANOVA) (Helsel and Hirsch, 2002).

The data reported for trace element concentrations typically included “censored” values that were less than ( $<$ ) the reporting limit. The reporting limit for a given constituent generally was not uniform for all samples. For example, 157 of 253 samples had censored values for arsenic concentration at five different reporting limits, in micrograms per liter, with count (n) indicated in parentheses:  $<0.06$  (n = 11),  $<0.12$  (n = 15),  $<0.26$  (n = 23),  $<1.0$  (n = 106), or  $<2.0$  (n = 2). However, the other 96 samples had reported trace element concentrations ranging from 0.036 to 57  $\mu\text{g/L}$  (appendix 1, tables 1-4 and 1-5). Only 42 of these reported concentration values were greater than 2.0  $\mu\text{g/L}$ , which was the highest common reporting limit (HCRL) for arsenic (appendix 1, tables 1-4 and 1-5). For statistical tests and other computations, the censored data and reported values less than the HCRL were considered equivalent to the HCRL at 0.99 times the HCRL for most

constituents; however, for several constituents (arsenic, zinc, iron, manganese, aluminum), where the HCRL applied to few samples and resulted in excessive censoring, the next highest common reporting limit was considered. In the case of arsenic, the next highest reporting limit is 1.0  $\mu\text{g/L}$ , which is one-tenth of the MCL and one-half of USEPA's health advisory level of 2.0  $\mu\text{g/L}$  (U.S. Environmental Protection Agency, 2001) (appendix 1, tables 1-4 and 1-5).

Probability plots and boxplots are used to illustrate univariate distributions for the different aquifers and associated lithologic groups or redox classes. Horizontal reference lines on the plots indicate the applicable values of drinking water or other human health benchmarks. Probability plots indicate the frequency (x-axis), or the proportion, of samples within the crystalline- and siliciclastic-rock aquifers that exceeded the constituent concentration (y-axis) or other plotted parameter values. For parameters without censored data (where all reported values exceeded the detection limits), the maximum and minimum reported values correspond to the 0.0 and 1.0 probability values, respectively, and the median value corresponds to the 0.5 probability value. Censored values are not displayed, but are counted to estimate the frequency of samples that exceeded the reported values. For parameters with censored data, the minimum plotted value corresponds to the lowest reported value greater than the detection limit. For some constituents, such as fluoride, cobalt, lead, and selenium, the minimum reported value has a frequency of exceedance less than 0.5, which indicates the median is a censored value.

Boxplots were used to show the water-quality concentration distributions for the three lithologic groups of the siliciclastic-rock aquifers and the six lithologic groups of the crystalline-rock aquifers that have water-quality data (table 3). The boxplots show the percentile distributions of samples with concentrations equal to or less than the associated value. All censored values were set to a common reporting limit. Where the median for a group is greater than the common reporting limit, it is displayed as a horizontal line within the box that is defined by the 25th and 75th percentiles for that group; otherwise, the median is displayed at the reporting limit. Along the top of each boxplot, the number of samples in each group is shown above a letter symbol. Groups with a different letter symbol have mean ranks that are significantly different on the basis of the nonparametric Tukey test (Helsel and Hirsch, 2002) (appendix 1, table 1-6). Results were ranked and coded sequentially, with the group with the highest mean rank coded “A,” the group with the next highest mean rank coded “B,” then “C,” and so on; overlapping groups were coded with letters for overlapping groups, “BC,” for example, or “BD,” representing overlap with groups B and C, and B, C, and D, respectively. Only the first and last letters of the range of overlapping groups are listed. The mean ranks of groups with one or more of the same letters are not significantly different. Although the mean ranks of groups may not differ, data

values greater than the 75th percentile are of particular interest because these values may exceed relevant benchmarks.

The frequency and number of samples within specified pH and redox classes are illustrated using a bivariate matrix. These pH-redox matrices are used in this report to indicate relations among aquifer lithology, geochemical environment, and probability of contaminant occurrence. Each matrix considers four general pH classes (x-axis—pH 4.5 to <5.5; 5.5 to <6.5; 6.5 to <7.5; 7.5 to <8.5) and the three simplified redox classes (y-axis—anoxic; mixed; oxic). The pH-redox matrices indicate the frequency of occurrence of the pH-redox classes by lithologic group and the frequency of occurrence of contaminant concentrations in relation to a specified reporting limit or human health benchmark for all the groups combined. The corresponding reporting limit or benchmark value and the total number of samples considered are indicated at the top of the matrix. The number of samples counted within each pH-redox class is color-coded to highlight those pH-redox classes with the greatest frequency of samples exceeding relevant limits.

Principal components analysis (PCA), computed with SAS 9.2 (SAS Institute, Inc., 2008), was used to evaluate multivariate correlations among the elements in the regional groundwater dataset without prior classification. The goal was to identify important hydrochemical processes or master variables that could explain element associations and distributions (Joreskog and others, 1976; Drever, 1997; Thyne and others, 2004). The Spearman-rank correlation coefficient matrix for the groundwater dataset (appendix 1, table 1-7) provided the standardized input for the PCA. Because the PCA model would exclude the entire record for any sample with a missing value, those constituents that were missing or those that were censored in more than 40 percent of the samples, such as dissolved aluminum, fluoride, bromide, organic carbon, and many trace elements, were excluded. The PCA model was optimized with varimax rotation, and only principal components with eigenvalues greater than unity, equivalent to correlations with a probability greater than or equal to 0.999, were retained (Joreskog and others, 1976; Thyne and others, 2004). Loadings for each constituent included in the PCA model are equivalent to the Spearman-rank correlation coefficient between that constituent and the principal component. To aid in interpretations, the scores for each principal component in the PCA model were compiled and then evaluated by correlation or graphical analysis with additional variables that had been excluded from the PCA, such as lithology, land use, well depth, and chemical constituents. For simplification of displayed results, the loading values and Spearman-rank correlation coefficient values are multiplied by 100 and rounded. Significant correlation coefficients for the additional variables are displayed beneath the main PCA model results; only correlation coefficients with probability greater than or equal to 0.999 are considered significant.

## Geochemical Modeling

Geochemical equilibrium models were developed to explain the occurrence of solutes in different geochemical environments and the relations among concentrations of dissolved constituents in the groundwater samples. Aqueous speciation computations with WATEQ4F (Ball and Nordstrom, 1991) and PHREEQC (Parkhurst and Appelo, 1999) using the WATEQ4F database were used to evaluate the potential for the concentrations of dissolved constituents to be limited by precipitation-dissolution and (or) adsorption-desorption processes. The computed mineral saturation index (SI) values for various major and trace minerals were used to indicate the potential for mineral dissolution and precipitation. If a mineral phase is undersaturated in groundwater (SI less than 0), that mineral phase (if present) has the potential to be dissolved by the groundwater. Likewise, if a mineral is supersaturated in groundwater (SI greater than 0), that mineral phase feasibly could precipitate, thus limiting the dissolved constituent concentrations. To illustrate potential differences in geochemical properties, the SI values for selected minerals were illustrated as boxplots by lithologic groups.

Adsorption and desorption of anions and cations on hydrous ferric-oxide-coated surfaces were evaluated using a diffuse double-layer modeling approach with PHREEQC (Parkhurst and Appelo, 1999), aqueous speciation data from WATEQ4F (Ball and Nordstrom, 1991), and surface complexation data from Dzombak and Morel (1990). Supplemental thermodynamic data for radium, chromium, cobalt, and vanadium were obtained from the ThermoChimie data base offered with PHREEQC (sit.dat), and surface-complexation constants for radium were estimated using empirical adsorption data presented by Benes and others (1984). For all of the sorption models, to be consistent with Dzombak and Morel (1990), the hydrous ferric oxide was specified as 90 mg/L, with a specific surface area of 600 square meters per gram consisting of  $5 \times 10^{-6}$  moles of strong binding sites and  $2 \times 10^{-4}$  moles of weak binding sites. Aqueous speciation and adsorption distribution for a range of pH values were computed, and the percentage of the total concentration distributed between the solution and sorbent was plotted as a function of pH. The sorption modeling results were illustrated as fractions of initial concentrations of ions that may be dissolved or adsorbed on a finite amount of hydrous ferric oxide at 25 degrees Celsius ( $^{\circ}\text{C}$ ) as a function of pH.

## Water-Quality Characteristics of Aquifers, Lithologic Groups, and Lithochemical Subgroups

Descriptions of groundwater quality generally include concentrations of major ions, pH, dissolved oxygen, and other variables. In this report, these characteristics are described in order to explain naturally occurring contaminants in groundwater from different geologic settings and geochemical environments.

The groundwater quality for the PBR crystalline-rock aquifers generally differed from that for the Early Mesozoic siliciclastic-rock aquifers, considering the major ion and other constituent concentrations for the two bedrock types (figs. 10–14). Compared to the crystalline-rock aquifers, the groundwater from siliciclastic-rock aquifers had higher maximum and median concentrations of total dissolved solids, hardness, calcium, alkalinity (calcium carbonate), and sulfate (figs. 10–11). Although the median concentrations of magnesium, sodium, chloride, and nitrate in groundwater from siliciclastic aquifers also were higher than those medians for the crystalline-rock aquifers, the maximum concentrations of these constituents were present in groundwater from the crystalline-rock aquifers (figs. 10–11). Although median concentrations of silica were comparable for the two aquifer rock types, the crystalline-rock aquifers had a larger range for silica concentrations and larger ranges and higher medians for potassium and aluminum concentrations than the siliciclastic-rock aquifers (figs. 10–11).

The PBR crystalline-rock aquifers and the Early Mesozoic siliciclastic-rock aquifers also exhibited differences in the frequency distributions of minor and trace constituents in the groundwater (figs. 12–14). However, as explained previously and in more detail below, spatial and temporal variations in concentrations of these constituents may be attributed to variations in lithology within a particular rock type (lithologic group, lithochemical subgroup) and (or) geochemical environment (pH and redox conditions) within the aquifer (figs. 15–21). For example, the pH of the groundwater samples evaluated for this study ranged from 4.7 to 8.2 (fig. 12A, appendix 1, table 1-4). Although the highest and lowest pH values were recorded for groundwater from the PBR crystalline-rock aquifers, the groundwater from the Early Mesozoic siliciclastic-rock aquifers, particularly the clastic sedimentary (CLSD) and clastic lacustrine/evaporite sediments (CLSD-LAC), generally had higher mean rank pH values than the PBR crystalline-rock aquifers, particularly the felsic or intermediate igneous and metamorphic lithologic units (IGMTI) (fig. 16C). About 70 percent of groundwater samples from the siliciclastic-rock aquifers had pH greater than 7 compared to only about 10 percent from the crystalline-rock aquifers.

Although DO concentrations in the groundwater varied widely, a majority of samples for all the aquifer lithologies could be characterized as oxic, with DO greater than or equal

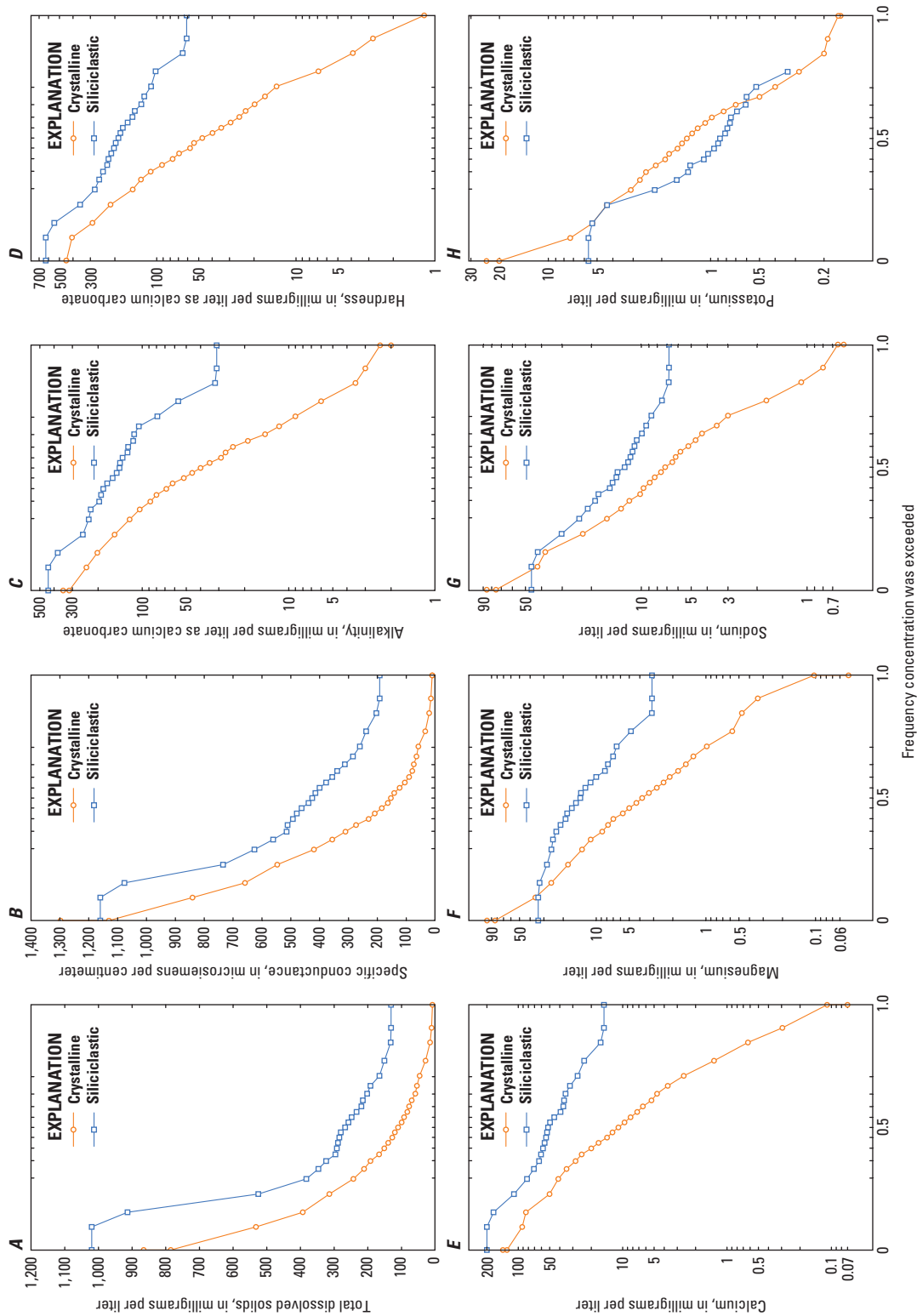
to 0.5 mg/L (fig. 12B). Seven redox classes were determined on the basis of concentrations of DO, nitrate, manganese, iron, and sulfate by using thresholds of McMahon and Chapelle (2008). Of the 346 groundwater samples evaluated for this study, 65.0 percent were classified as “oxic” (with DO greater than or equal to 0.5 mg/L); 18.2 percent were classified as “mixed” (with DO greater than or equal to 0.5 mg/L and manganese greater than or equal to 50 mg/L or iron greater than or equal to 100 mg/L); 14.2 percent were classified “anoxic” (with DO less than 0.5 mg/L); and the remaining 2.6 percent, which lacked data for DO, were classified as “unknown.” Based on the Tukey analysis, DO concentrations in groundwater did not differ among lithologies (fig. 15). Of the anoxic samples, 3.2 percent were suboxic, 1.7 percent were nitrate-reducing, 1.7 percent were manganese-reducing, 5.8 percent were iron-reducing, and 0.3 percent were methanogenic. Because few samples could be characterized as strongly reducing, the anoxic samples were considered as a single class for evaluation of geochemical environment.

To evaluate the potential for aquifer lithology to affect contaminant concentrations, the water-quality data and saturation indices for selected minerals were considered in relation to the major bedrock type, lithologic groups, and lithochemical subgroups [tables 3 and 4 (table 4 available online at <http://pubs.usgs.gov/sir/2013/5072/>), figs. 10–17]. To evaluate potential for geochemical factors to affect the mobility of contaminants in the aquifer, the saturation indices for minerals that may be present in the aquifers and soil were summarized by lithologic group (figs. 18 and 19), and the frequency of contaminant detections and exceedances of human health benchmarks were evaluated with respect to the groundwater pH and redox characteristics (figs. 20 and 21) that may affect the adsorption and release of trace constituents by iron and manganese oxides.

### Exceedances of Drinking Water Criteria

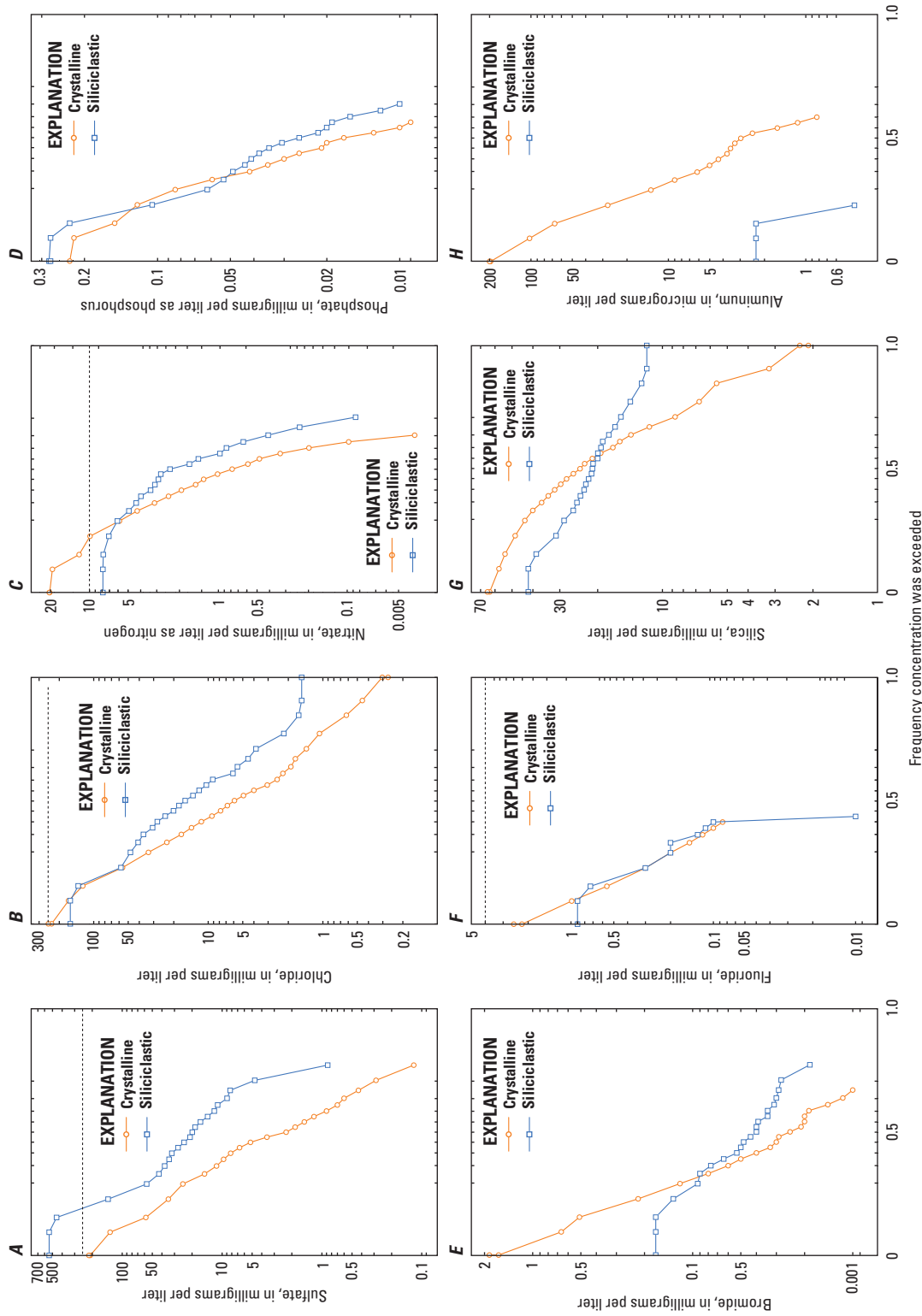
Constituents of potential concern were identified on the basis of drinking water exposure guidelines proposed by the USEPA for sources of public drinking water (U.S. Environmental Protection Agency, 2009, 2010), including MCLs, HBSLs, or other criteria such as SMCLs. HBSLs were developed by the USGS, USEPA, New Jersey Department of Environmental Protection (NJDEP), and Oregon Health and Science University (OHSU) as an interagency pilot effort beginning in 1998 to communicate the potential relevance of the water-quality findings of the USGS NAWQA Program in a human-health context (Toccalino and others, 2012).

Provisionally promulgated drinking water standards for radium (U.S. Environmental Protection Agency, 1976) became final with the Radionuclide Rule of 2000 (U.S. Environmental Protection Agency, 2000) when the other proposed standards for radionuclides were also finalized, or in the case of uranium, newly promulgated. Uranium, radium, and radon are radioactive elements that can increase human cancer risk

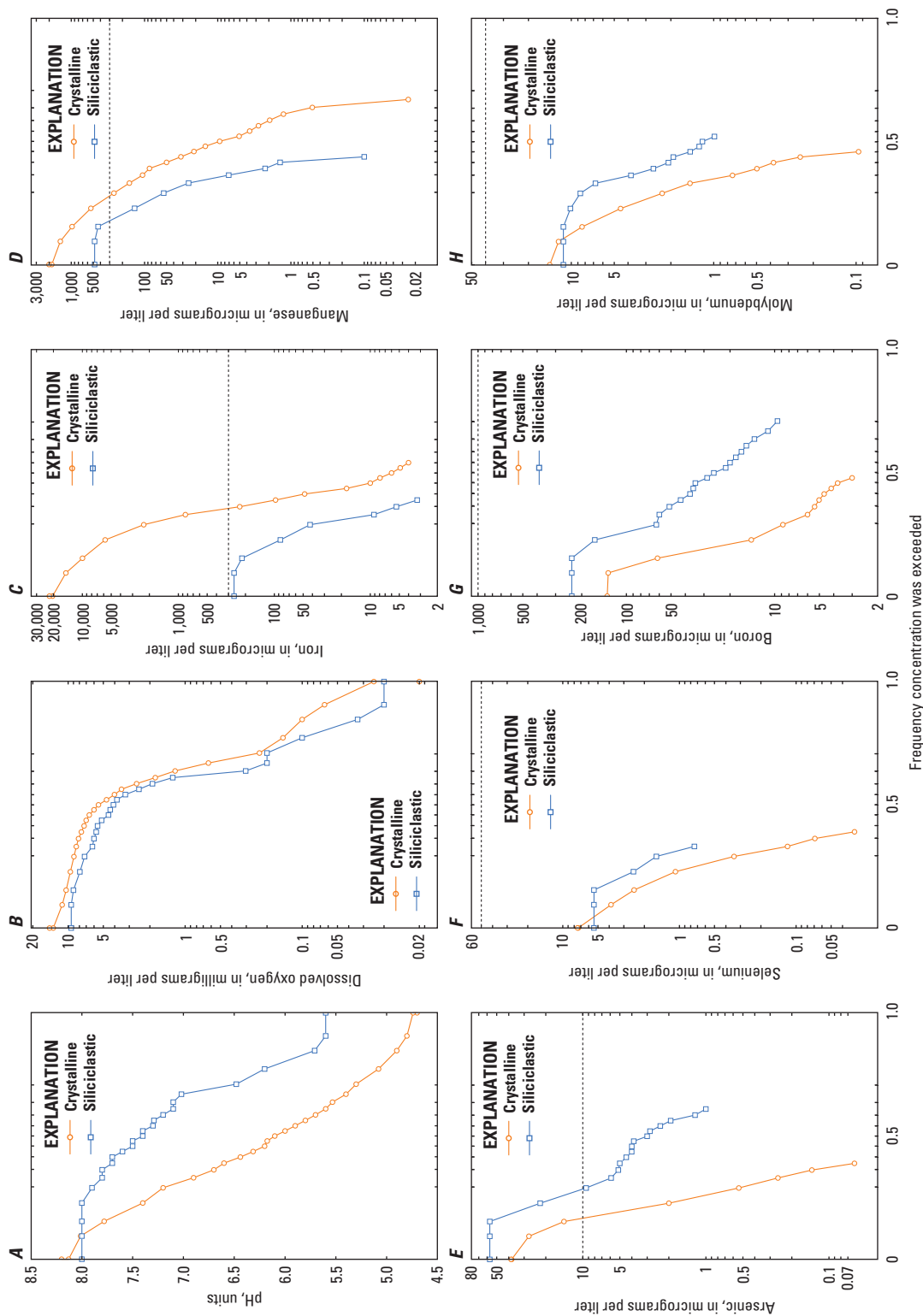


**Figure 10.** Probability plots of groundwater-quality data for siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. A, total dissolved solids; B, specific conductance; C, alkalinity; D, hardness; E, calcium; F, magnesium; G, sodium; and H, potassium.

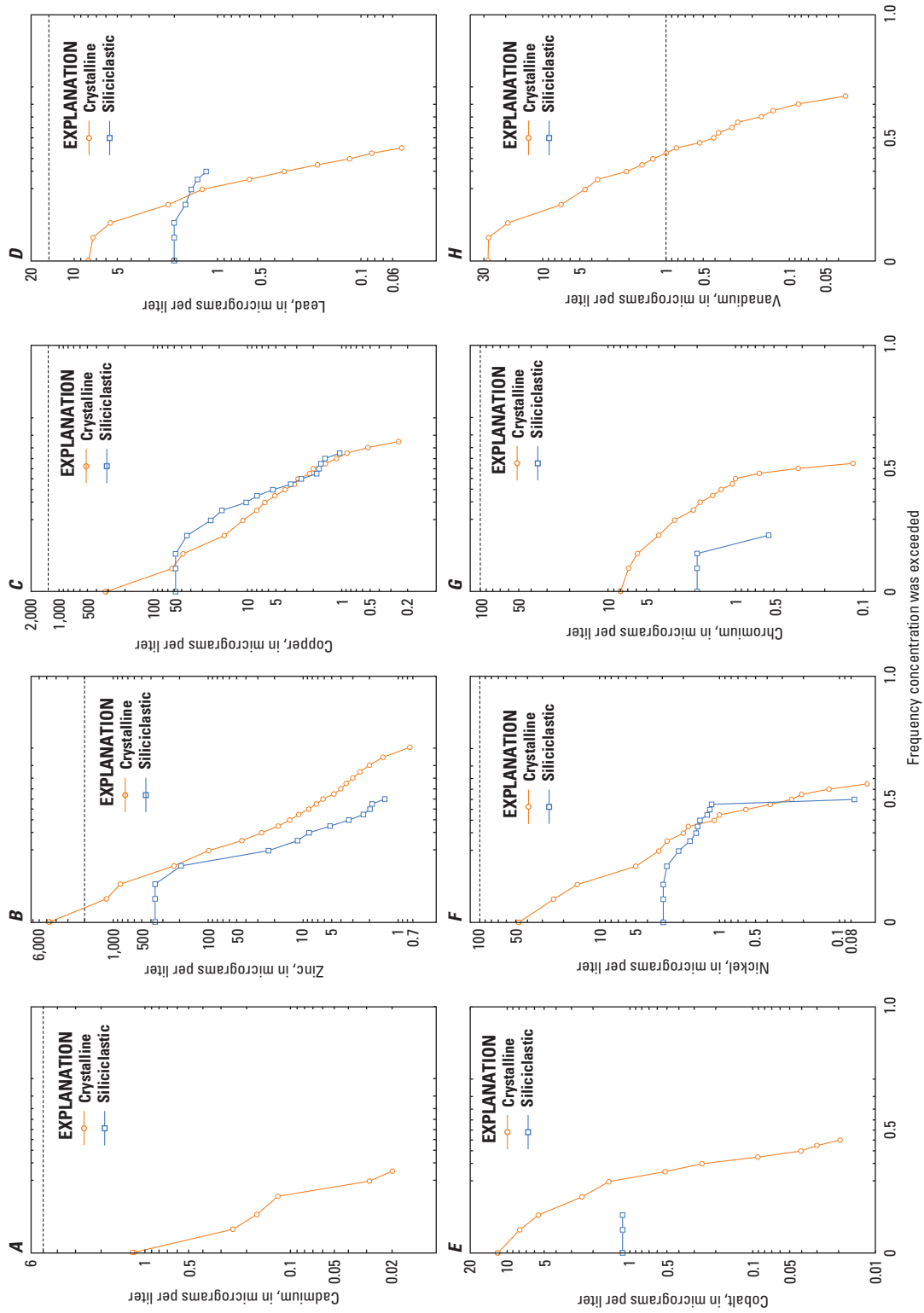




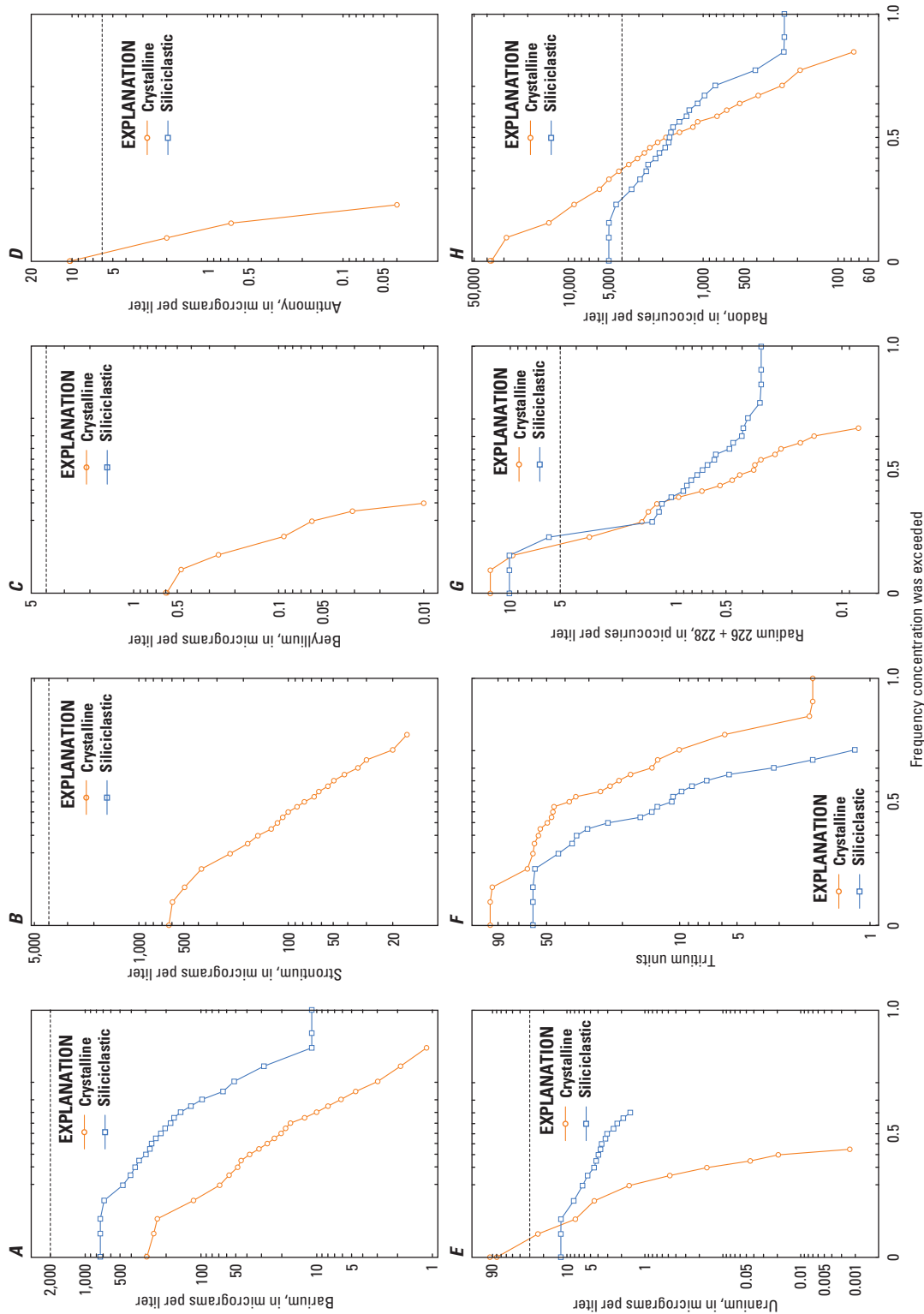
**Figure 11.** Probability plots of groundwater-quality data for siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. A, sulfate; B, chloride; C, nitrate; D, phosphate; E, bromide; F, fluoride; G, silica; and H, aluminum.



**Figure 12.** Probability plots of groundwater-quality data for siliciclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. A, pH; B, dissolved oxygen; C, iron; D, manganese; E, arsenic; F, selenium; G, boron; and H, molybdenum.

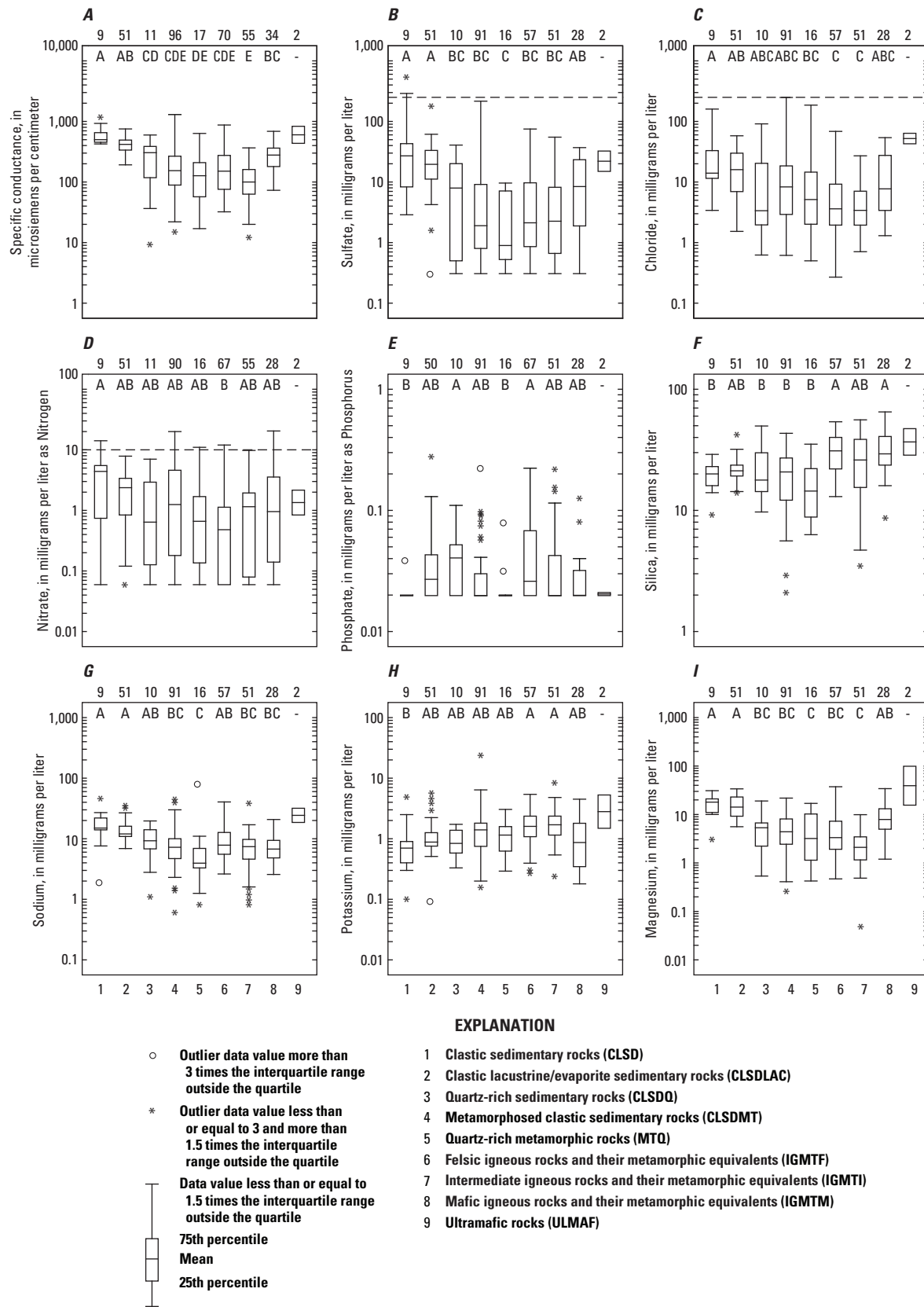


**Figure 13.** Probability plots of groundwater-quality data for siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. A, cadmium; B, zinc; C, copper; D, lead; E, cobalt; F, nickel; G, chromium; and H, vanadium.

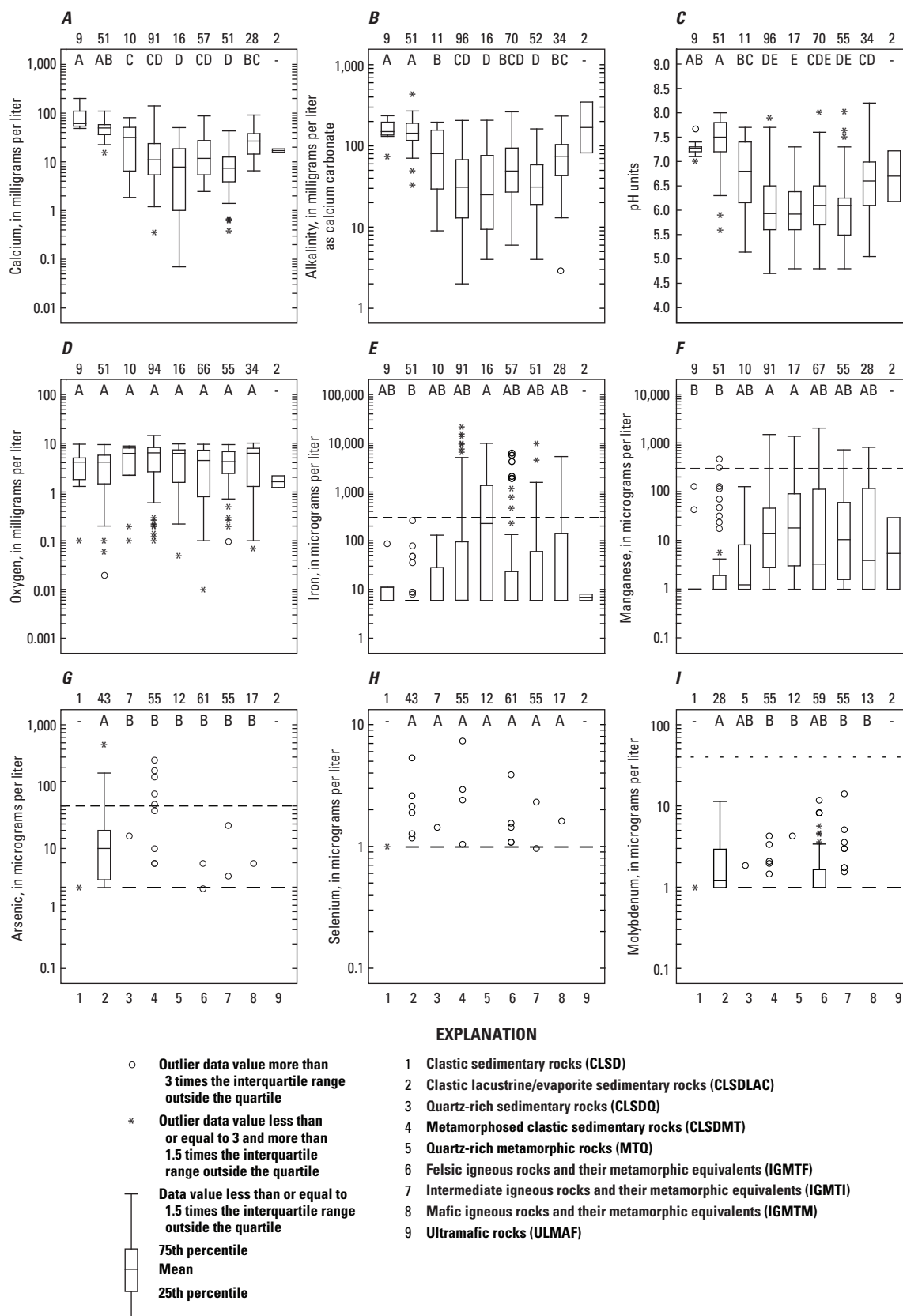


**Figure 14.** Probability plots of groundwater-quality data for siliciclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. A, barium; B, strontium; C, beryllium; D, antimony; E, uranium; F, tritium; G, radium; and H, radon.

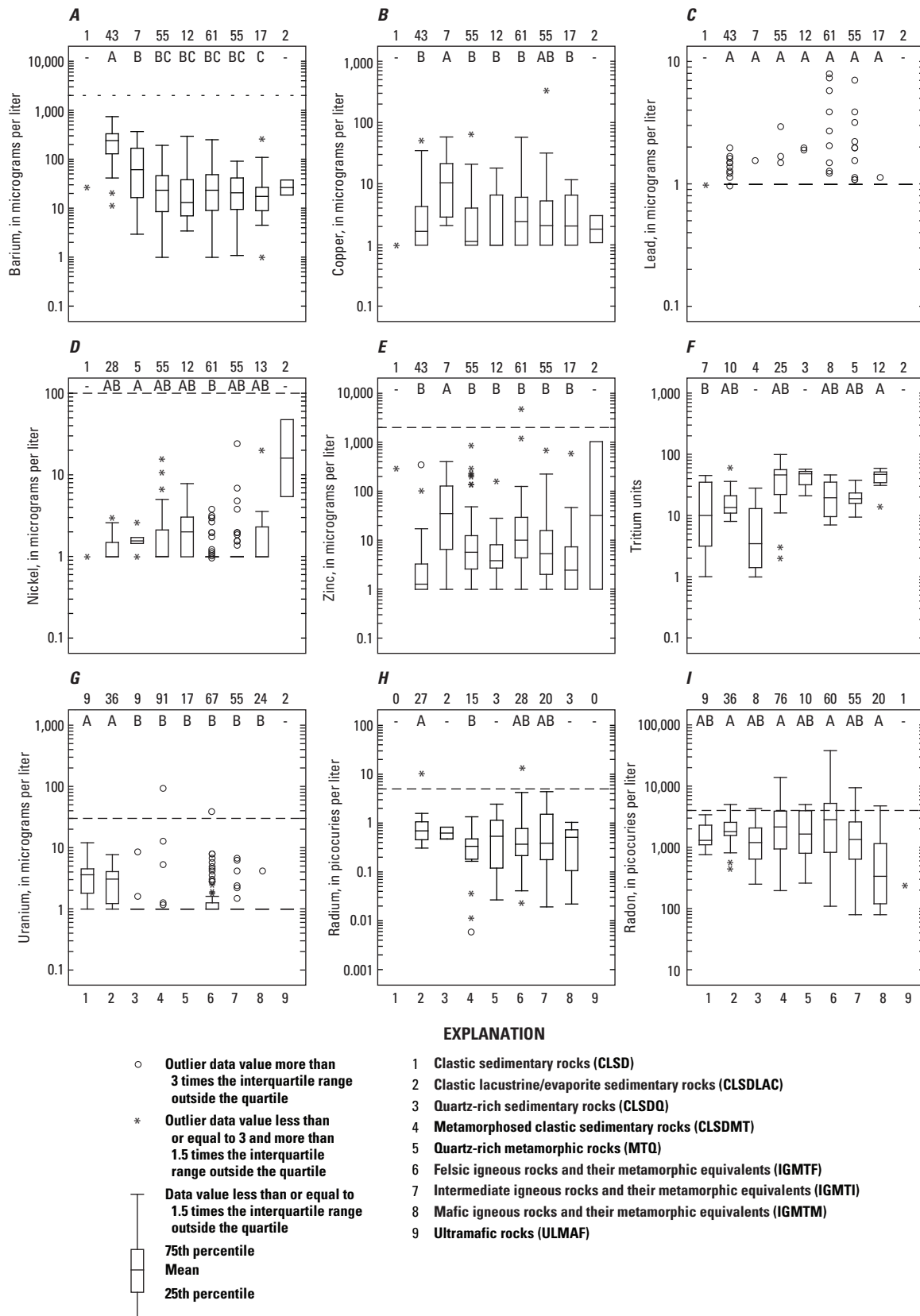




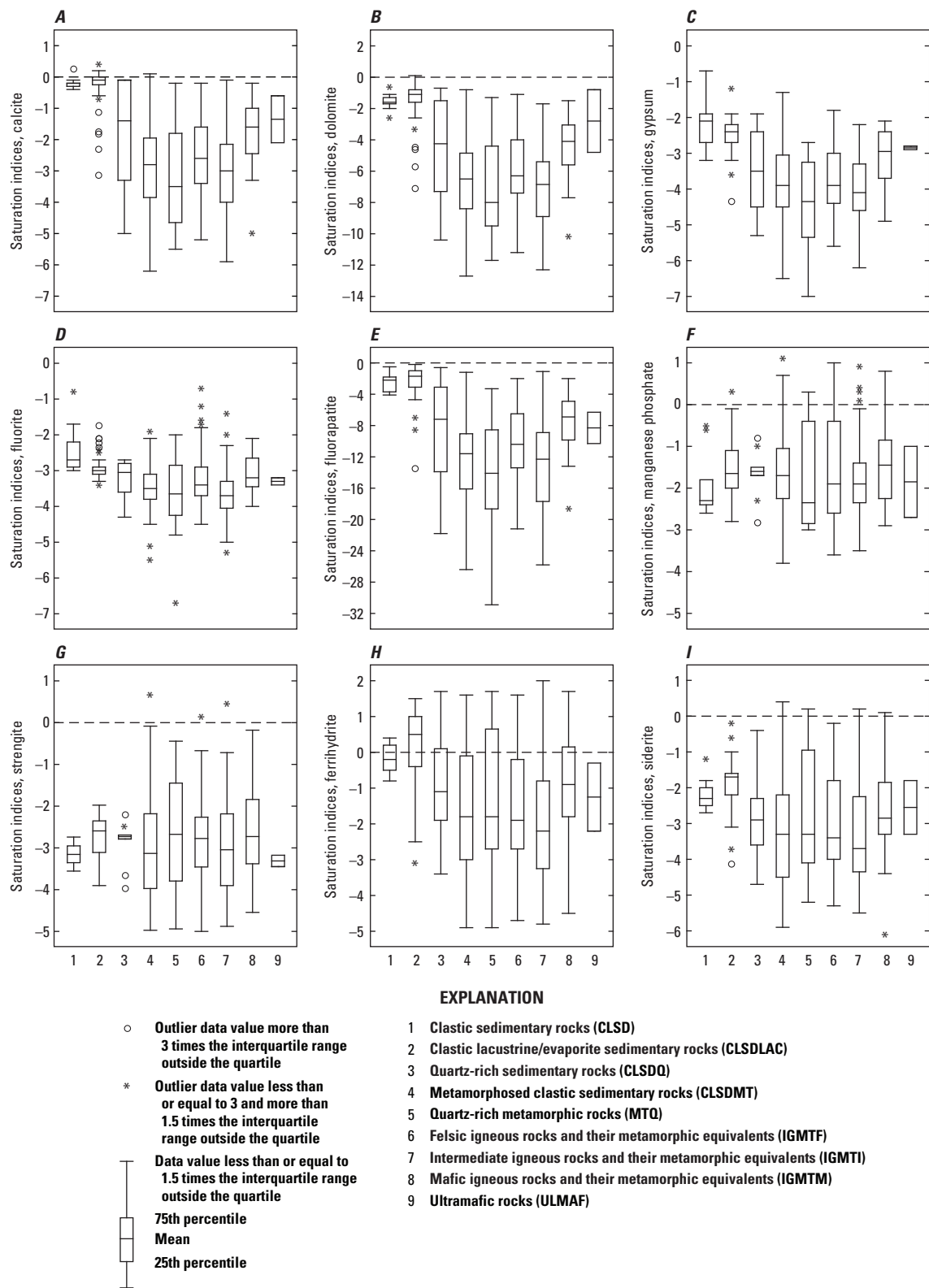
**Figure 15.** Groundwater-quality data by lithologic groups of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. *A*, specific conductance; *B*, sulfate; *C*, chloride; *D*, nitrate; *E*, phosphate; *F*, silica; *G*, sodium; *H*, potassium; and *I*, magnesium.



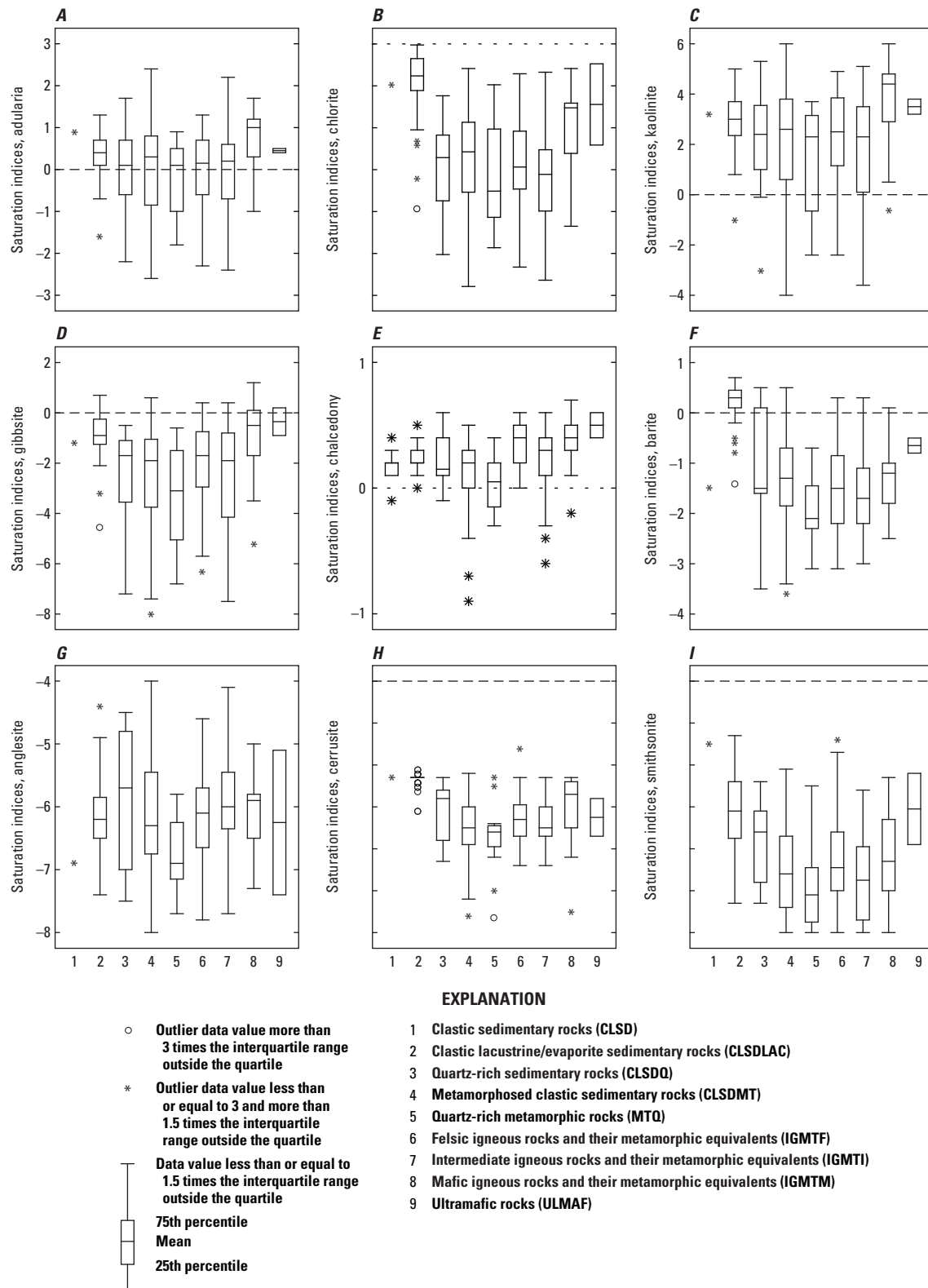
**Figure 16.** Groundwater-quality data by lithologic group of siliciclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. *A*, calcium; *B*, alkalinity; *C*, pH; *D*, dissolved oxygen; *E*, iron; *F*, manganese; *G*, arsenic; *H*, selenium; and *I*, molybdenum.



**Figure 17.** Groundwater-quality data by lithologic group of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. A, barium; B, copper; C, lead; D, nickel; E, zinc; F, tritium; G, uranium; H, radium 226+228; and I, radon-222.



**Figure 18.** Saturation indices (SI) for selected minerals in groundwater by lithologic group of siliciclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces. *A*, calcite; *B*, dolomite; *C*, gypsum; *D*, fluorite; *E*, fluorapatite; *F*, manganese phosphate; *G*, strengite; *H*, ferrihydrite; and *I*, siderite.



**Figure 19.** Saturation indices (SI) for selected minerals in groundwater by lithologic group of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces. *A*, andalusite; *B*, chlorite; *C*, kaolinite; *D*, gibbsite; *E*, chalcedony; *F*, barite; *G*, anglesite; *H*, cerussite; and *I*, smithsonite.

**A. All samples: 9 lithologic subgroups (n=337)**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	2.7 (9)	8.6 (29)	3.3 (11)
Mixed	3.9 (13)	9.8 (33)	4.7 (16)	0.3 (1)
Oxic	9.2 (31)	33.2 (112)	15.1 (51)	9.2 (31)

**B. CLSD: Clastic sedimentary (n=9)**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	x	11.1 (1)	x
Mixed	x	x	x	x
Oxic	x	x	77.8 (7)	11.1 (1)

**C. CLSDQ: Quartz-rich sedimentary (n=10)**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	x	x	10.0 (1)
Mixed	10.0 (1)	10.0 (1)	10.0 (1)	x
Oxic	x	20.0 (2)	20.0 (2)	20.0 (2)

**D. CLSDLAC: Clastic lacustrine (n=51)**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	x	7.8 (4)	13.7 (7)
Mixed	x	x	2.01 (1)	x
Oxic	x	7.8 (4)	27.5 (14)	41.2 (21)

**E. CLSDMT: Metamorphosed clastic sedimentary (n=94)**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	5.3 (5)	4.3 (4)	x
Mixed	2.1 (2)	16.0 (15)	4.3 (4)	x
Oxic	14.9 (14)	35.1 (33)	13.8 (13)	4.3 (4)

**F. MTQ: Quartz-rich metamorphic (n=16)**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	x	12.5 (2)	x
Mixed	18.8 (3)	18.8 (3)	x	x
Oxic	6.3 (1)	37.5 (6)	6.3 (1)	x

**G. IGMTF: Felsic igneous or metamorphic (n=66)**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	4.5 (3)	10.6 (7)	4.5 (3)
Mixed	3.0 (2)	13.6 (9)	6.1 (4)	x
Oxic	9.1 (6)	43.9 (29)	4.5 (3)	x

**H. IGMTI: Intermediate igneous or metamorphic (n=55)**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	1.8 (1)	7.3 (4)	x
Mixed	7.3 (4)	7.3 (4)	9.1 (5)	1.8 (1)
Oxic	18.2 (10)	43.6 (24)	x	3.6 (2)

**I. IGMTM: Mafic igneous or metamorphic (n=34)**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	x	17.6 (6)	x
Mixed	2.9 (1)	2.9 (1)	2.9 (1)	x
Oxic	x	38.2 (13)	29.4 (10)	2.9 (1)

**J. ULMAF: Ultramafic (n=2)**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	x	x	x
Mixed	x	x	x	x
Oxic	x	50.0 (1)	50.0 (1)	x

**EXPLANATION**

	No data
	Less than 10 percent of samples in dataset or subset
	10 to 20 percent of samples in dataset or subset
	20 to 50 percent of samples in dataset or subset
	Greater than 50 percent of samples in dataset or subset

**Figure 20.** Redox/pH matrix summarizing groundwater-quality samples by lithologic group of siliciclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008. *A*, all nine lithologic groups; *B*, clastic sedimentary; *C*, clastic lacustrine/evaporite; *D*, quartz-rich sedimentary; *E*, metamorphosed clastic sedimentary; *F*, quartz-rich metamorphic; *G*, felsic igneous or metamorphic; *H*, intermediate igneous or metamorphic; *I*, mafic igneous or metamorphic; and *J*, ultramafic.

when ingested (Mays and others, 1985; U.S. Environmental Protection Agency, 1999). The risk is presumed to be linearly proportional to exposure (amount and duration; U.S. Environmental Protection Agency, 1999) and was used to determine conservative standards (MCLs) designed to limit exposure. Because the standards for radionuclides are slightly different and somewhat more complex than those for other trace elements, they are listed here in detail. The MCLs promulgated for radionuclides in 2000 are as follows: gross alpha-particle activity (including radium-226 but excluding uranium and

radon), 15 pCi/L; gross beta-particle activity, 4 millirems per year (isotope-specific dose to be evaluated when a sample exceeds 50 pCi/L); uranium, 30 µg/L; and for radium [the sum of radium-226 and radium-228 (generally termed combined radium, and conveniently abbreviated as “Ra TOT”) in selected tables and figures in this report, including table 4], 5 pCi/L (table 4). Gross alpha-particle activity had also been suggested for use as a compliance-monitoring “screen” for combined radium (Hess and others, 1985). In addition, radon has had a proposed (health-based) MCL of 300 pCi/L and a

**A. Nitrate: HHB = 10 49.7% (159/320) > 0.1 HHB**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	22.2 (9)	10.3 (29)	0 (11)
Mixed	58.3 (12)	42.4 (33)	18.8 (16)	0 (1)
Oxic	66.7 (30)	60.0 (100)	61.2 (49)	66.7 (30)

**C. Sulfate: HHB = 250 14.9% (46/309) > 0.1 HHB**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	22.9	24.0 (25)	72.7 (11)
Mixed	15.4 (13)	6.3 (32)	13.3 (15)	0 (1)
Oxic	0 (28)	8.3 (96)	20.4 (49)	20.0 (30)

**E. Phosphate: HCRL = 0.02 49.8% (159/319) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	44.9 (9)	42.9 (28)	27.3 (11)
Mixed	33.3 (12)	15.2 (33)	37.5 (16)	100 (1)
Oxic	30.0 (30)	63.0 (100)	67.3 (49)	63.3 (30)

**G. Arsenic: HCRL = 2 17.1% (42/246) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	11.1 (9)	25.0 (20)	80.0 (10)
Mixed	0 (10)	0 (28)	7.1 (14)	0 (1)
Oxic	0 (22)	1.3 (75)	20.0 (30)	74.1 (27)

**I. Selenium: HCRL = 1 7.7% (19/246) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	11.1 (9)	10.0 (20)	10.0 (10)
Mixed	20.0 (10)	0 (28)	0 (14)	0 (1)
Oxic	0 (22)	5.3 (75)	16.7 (30)	14.8 (27)

**K. Molybdenum: HCRL = 1 21.4% (48/224) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	11.1 (9)	26.3 (19)	100 (6)
Mixed	0 (10)	3.6 (28)	50.0 (14)	0 (1)
Oxic	0 (21)	10.8 (74)	36.0 (25)	64.7 (17)

**M. Barium: HHB = 2,000 12.6% (31/246) > 0.1 HHB**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	0 (9)	15.0 (20)	10.0 (10)
Mixed	20.0 (10)	0 (28)	7.1 (14)	0 (1)
Oxic	0 (22)	5.3 (75)	26.7 (30)	44.4 (27)

**O. Uranium: HCRL = 1 21.3% (64/301) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	22.2 (9)	42.9 (28)	71.4 (7)
Mixed	7.7 (13)	3.3 (33)	25.0 (16)	0 (1)
Oxic	3.3 (30)	5.1 (99)	40.0 (45)	75.0 (20)

**Q. Radon 222: HHB = 4,000 18.4% (49/267) > HHB**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	14.3 (7)	7.4 (27)	0 (7)
Mixed	30.0 (10)	21.1 (19)	16.7 (12)	0 (1)
Oxic	25.0 (28)	28.0 (93)	4.5 (44)	10.5 (19)

**B. Manganese: HHB = 300 32.1% (106/330) > 0.1 HHB**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	77.8 (9)	71.4 (28)	36.4 (11)
Mixed	100 (13)	93.9 (33)	100 (16)	100 (1)
Oxic	6.7 (30)	7.0 (100)	4.0 (50)	3.3 (30)

**D. Iron: HHB = 300 26.5% (82/309) > 0.1 HHB**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	66.7 (9)	68.0 (25)	36.4 (11)
Mixed	53.8 (13)	78.1 (32)	80.0 (15)	100 (1)
Oxic	0 (28)	7.3 (96)	4.1 (49)	3.3 (30)

**F. Lead: HCRL = 1 14.2% (36/253) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	0 (9)	15.0 (20)	20.0 (10)
Mixed	10.0 (10)	0 (28)	7.1 (14)	0 (1)
Oxic	50.0 (22)	14.7 (75)	10.0 (30)	11.1 (27)

**H. Zinc: HCRL = 20 5.5% (14/253) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	44.4 (9)	35.0 (20)	0 (10)
Mixed	40.0 (10)	7.1 (28)	21.4 (14)	0 (1)
Oxic	27.3 (22)	24.0 (75)	23.3 (30)	3.7 (27)

**J. Chromium: HCRL = 1 34.6% (84/243) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	33.9 (9)	15.0 (20)	20.0 (10)
Mixed	70.0 (10)	25.0 (28)	7.1 (14)	0 (1)
Oxic	54.5 (22)	55.4 (74)	17.2 (29)	11.5 (26)

**L. Nickel: HCRL = 1 37.3% (84/225) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	66.7 (9)	26.3 (19)	50.0 (6)
Mixed	70.0 (10)	78.6 (28)	28.6 (14)	0 (1)
Oxic	40.9 (22)	29.7 (74)	24.0 (25)	0 (17)

**N. Cobalt: HCRL = 1 11.1% (25/225) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	33.3 (9)	5.3 (19)	0 (6)
Mixed	30.0 (10)	46.4 (28)	14.3 (14)	0 (1)
Oxic	9.1 (22)	1.4 (74)	0 (25)	0 (17)

**P. Copper: HCRL = 1 64.2% (158/246) > HCRL**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	55.6 (9)	25.0 (20)	10.0 (10)
Mixed	70.0 (10)	46.4 (28)	21.4 (14)	0 (1)
Oxic	95.5 (22)	85.3 (75)	70.0 (30)	66.7 (27)

**R. Radium TOT: HHB = 5 23.4% (22/94) > 0.2 HHB**

Redox / pH	4.5 to <5.5	5.5 to <6.5	6.5 to <7.5	7.5 to <8.5
Anoxic	x	66.7 (3)	42.9 (14)	66.7 (3)
Mixed	x	40.0 (5)	37.5 (8)	0 (1)
Oxic	0 (3)	15.4 (26)	12.5 (16)	6.7 (15)

**EXPLANATION**

x	No data		10 to 20 percent of samples exceed HCRL or HHB
	All results below highest common reporting limit (HCRL) or human health benchmark (HHB)		Greater than 20 to 50 percent of samples exceed HCRL or HHB
	10 percent of samples exceed HCRL or HHB		Greater than 50 percent of samples exceed HCRL or HHB

**Figure 21.** Redox-pH matrix summarizing groundwater-quality samples greater than or equal to the highest common reporting level (HCRL) or human health benchmark (HHB). A, nNitrate; B, manganese; C, sulfate; D, iron; E, phosphate; F, lead; G, arsenic; H, zinc; I, selenium; J, chromium; K, molybdenum; L, nickel; M, barium; N, cobalt; O, uranium; P, copper; Q, radon-222; and R, radium-226+228 (TOT).



proposed AMCL of 4,000 pCi/L that may be used if airborne remediation or risk reduction approaches are implemented (U.S. Environmental Protection Agency, 1991); while proposed, the radon standards have yet to be adopted and fully implemented.

Five trace-element constituents (arsenic, antimony, iron, manganese, zinc) were detected in one or more water samples at concentrations greater than established human health-based benchmarks, and 10 additional constituents (barium, beryllium, cadmium, copper, lead, selenium, boron, molybdenum, nickel, and strontium) were detected at concentrations greater than a threshold of one-tenth the established health-based levels (table 4; figs. 12–17). Arsenic was detected at concentrations greater than the MCL of 10  $\mu\text{g/L}$  in 9 of 253 samples, and antimony was detected at concentrations greater than the MCL of 6  $\mu\text{g/L}$  in 1 of 232 samples. Manganese was detected at concentrations greater than the HBSL of 300  $\mu\text{g/L}$  in 24 of 330 samples, and zinc was detected at concentrations greater than the HBSL of 2,000  $\mu\text{g/L}$  in 1 of 253 samples. Iron was detected at concentrations greater than the SMCL of 300  $\mu\text{g/L}$  in 46 of 315 samples.

The trace elements most frequently detected at concentrations greater than one-tenth of the MCL or HBSL were arsenic (47 of 253 samples  $> 1 \mu\text{g/L}$ ), manganese (106 of 330 samples  $> 30 \mu\text{g/L}$ ), zinc (14 of 253 samples  $> 200 \mu\text{g/L}$ ), barium (31 of 253 samples  $> 200 \mu\text{g/L}$ ), molybdenum (16 of 230 samples  $> 4 \mu\text{g/L}$ ), and lead (23 of 253 samples  $> 1.5 \mu\text{g/L}$ ). Additionally, iron (84 of 315 samples  $> 30 \mu\text{g/L}$ ) commonly was present at concentrations greater than one-tenth of the SMCL. Considering concentrations greater than one-tenth of the relevant threshold, the crystalline lithologies of the PBR had a larger percentage of samples (by a factor of two) containing iron, manganese, or fluoride, whereas the siliciclastic lithologies of the Early Mesozoic basins had a larger percentage of water samples containing arsenic, barium, selenium, boron, molybdenum, uranium, chloride, or sulfate (table 4).

Of the radionuclides analyzed, radon-222 frequently was detected at concentrations greater than the proposed MCL of 300 pCi/L (248 of 275 samples) or the proposed AMCL of 4,000 pCi/L (51 of 275 samples) (table 4). Although rarely present at concentrations exceeding their respective MCLs, uranium (43 of 310 samples  $> 3 \mu\text{g/L}$ ) and radium [Ra-226 plus Ra-228, abbreviated as (RaTOT)] (47 of 98 samples  $> 1.0 \text{ pCi/L}$ ) frequently were detected at concentrations greater than one-tenth and one-fifth of their MCLs. Although the siliciclastic lithologies had a greater frequency of elevated uranium concentrations, radon and radium were commonly detected in groundwater from siliciclastic and crystalline lithologies. Only 2.0 percent of 98 samples had combined radium [Ra-226 plus Ra-228, abbreviated as (RaTOT)] concentrations greater than the MCL of 5.0 pCi/L, and these detections were evenly split among siliciclastic and crystalline lithologies; 0.6 percent of 310 samples had uranium concentrations greater than the MCL of 30  $\mu\text{g/L}$ , all from crystalline lithologies. Only 6 percent of 50 samples had

radon-222 concentrations greater than the proposed AMCL of 4,000 pCi/L among the siliciclastic lithologies, but 21 percent of 225 samples had concentrations greater than the proposed AMCL from crystalline lithologies, most commonly from granites.

Considering nutrients and major ions that may be derived from natural and human-related sources, few samples had concentrations of nitrate (12 of 329 samples) greater than the MCL of 10 mg/L as nitrogen (N) or sulfate (2 of 315 samples) greater than the SMCL of 250 mg/L, and none had concentrations of chloride greater than the SMCL of 250 mg/L (table 4). Nevertheless, many samples had concentrations of nitrate (161 of 329 samples), sulfate (47 of 315 samples), or chloride (56 of 315 samples) greater than one-tenth of the respective MCL or SMCL thresholds. Few samples exceeded this lower threshold for fluoride (10 of 315 samples) or nitrite (2 of 331 samples) (table 4). Generally, mineral weathering can be an important source of sulfate; however, elevated concentrations of nitrate and nitrite may be attributed to anthropogenic contamination. Likewise, although mineral weathering can be a source of background concentrations of chloride and fluoride, anthropogenic sources also can produce anomalous concentrations of these constituents.

The concentration of dissolved nitrate in groundwater for the study ranged from less than 0.1 to 20.5 mg/L as N, with a median of 0.96 mg/L as N (fig. 11C). The siliciclastic and crystalline lithologies had median concentrations of nitrate of 2.37 and 0.78 mg/L as N, respectively. Natural levels of nitrate in groundwater from rainfall and plant and animal sources generally are less than 1 mg/L as N in the eastern United States (Peters and Bonelli, 1982; Puckett, 1994; Holloway and others, 1998). Concentrations of nitrate that are greater than background concentrations are most commonly associated with agricultural and turf (lawns, golf courses) fertilizers and also with discharges from septic systems or sewage treatment plants (Denver and others, 2010).

The concentration of chloride in groundwater for the study ranged from 0.27 to about 250 mg/L with a median of 7.0 mg/L (fig. 11B). Groundwater from the siliciclastic-rock aquifers and crystalline-rock aquifers had median concentrations of chloride of 15.9 and 5.9 mg/L, respectively, which are significantly greater than background levels in atmospheric precipitation (Peters and Bonelli, 1982). Concentrations of chloride that are greater than background concentrations may be associated with agricultural applications of “potash” or potassium chloride (KCl) and manure and discharges of sewage effluent, although highest concentrations are associated with the application of road deicing salts such as sodium chloride (NaCl) and calcium chloride ( $\text{CaCl}_2$ ) in urban areas of the northern part of the region (Denver and others, 2010). Although chloride transport is conservative, nitrate and other forms of nitrogen may be attenuated by denitrification (dissimilatory reduction) or biological uptake (assimilation). Hence, the relative abundances of nitrate and chloride may be useful with other chemical indicators to identify geochemical



conditions within the aquifer where naturally occurring contaminants may or may not be attenuated or mobilized.

The saturation index for selected minerals was evaluated to indicate the general corrosivity of the groundwater and the potential for specific major and trace minerals to dissolve or precipitate, thus increasing or decreasing concentrations of solutes in the groundwater. Most groundwaters from all lithologies were undersaturated (SI less than 0) with respect to common sulfides (pyrite,  $\text{FeS}_2$ ), sulfates (gypsum,  $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ), carbonates [calcite,  $\text{CaCO}_3$ ; dolomite  $\text{CaMg}(\text{CO}_3)_2$ ], and aluminosilicates [adularia,  $\text{KAlSiO}_3$ ; albite,  $\text{NaAlSiO}_3$ ; anorthite,  $\text{CaAl}_2\text{Si}_2\text{O}_8$ ; chlorite,  $\text{Mg}_5\text{Al}_2\text{Si}_3\text{O}_{10}(\text{OH})_8$ ] (figs. 18 and 19), indicating that weathering of major rock-forming minerals and trace minerals is a likely source of major and trace constituents in the groundwater. However, some groundwater samples, particularly those from the clastic sedimentary and clastic lacustrine/evaporite sedimentary lithologies of the Early Mesozoic basin aquifers, approached saturation or were saturated (SI approximately equal to 0) with respect to calcite and dolomite (figs. 18 and 19), indicating that their dissolution and precipitation could maintain or limit constituent concentrations. Likewise, most groundwater samples were supersaturated or saturated (SI greater than or equal to 0) with respect to kaolinite [ $\text{Al}_2\text{Si}_2\text{O}_5(\text{OH})_4$ ], gibbsite [ $\text{Al}(\text{OH})_3$ ], and ferrihydrite [amorphous  $\text{Fe}(\text{OH})_3$ ], indicating that the precipitation of these secondary phases feasibly could limit concentrations of silica, aluminum, and iron. Although concentrations of manganese and barium frequently were at saturation levels with respect to certain solid phases (manganese phosphate,  $\text{MnHPO}_4$ ; barite,  $\text{BaSO}_4$ ), most other trace elements, including arsenic, selenium, uranium, lead, zinc, copper, cadmium, and strontium, were undersaturated with respect to pure mineral phases, suggesting that mineral precipitation would not be likely to limit concentrations of these contaminants. However, some trace elements, particularly divalent cations, may substitute for major ions such as calcium and magnesium in minerals that are supersaturated, and thus be reduced in concentration in the aqueous phase compared to the solubility of the pure trace mineral phase.

The overall relations among bedrock lithology and water quality in the study area are consistent with different water-quality characteristics for major rock types described by Drever (1997). Specifically, in crystalline-rock aquifers, slow weathering of silicate minerals tends to produce natural groundwater with low concentrations of dissolved solids, alkalinity, and hardness (figs. 10–17). Consequently, most major carbonate, sulfate, and hydroxide minerals are undersaturated in these settings (figs. 18 and 19). In contrast, groundwater in the siliciclastic-rock aquifers commonly has greater concentrations of dissolved solids, alkalinity, and hardness than groundwater in adjacent crystalline-rock aquifers. The siliciclastic lithologies of the Early Mesozoic basins typically are cemented by carbonate minerals and in some places are cemented by sulfate minerals (Van Houten, 1965), and these minerals tend to dissolve rapidly (Van Houten, 1965; Langmuir, 1971). Concentrations of trace elements may increase

with concentrations of dissolved solids because of the release of trace constituents dissolved from major minerals and because of the displacement of trace ions from surface sorption sites by major ions. In some instances, natural constituent concentrations may exceed thresholds established to protect human health.

## Correlations Among Major and Trace Constituents and Environmental Factors

Principal component analysis (PCA) provides insight on hydrochemical processes affecting groundwater chemistry in the study area by indicating intercorrelations among chemical constituents and environmental variables, such as land use and well depth. Five principal components (PCs) explain nearly 76 percent of the variance in the regional groundwater dataset and consist of 18 routinely detected constituent loadings (table 5). Associations of additional chemical and physical variables excluded from the model are indicated by the Spearman-rank coefficient of correlation of these variables with the principal component scores (table 5; appendix 1, table 1-7).

PC1 has positive loadings by alkalinity, pH, calcium, magnesium, sodium, sulfate, and specific conductance and negative loading by dissolved oxygen (table 5). These loadings are related to increasing dissolved solids associated with the weathering of carbonate-bearing and sulfur-bearing minerals. Scores on PC1 generally were greater for siliciclastic lithologies than for crystalline lithologies and were positively correlated with agriculture, latitude, well depth, and water-quality constituents excluded from the PCA model, including hardness, total dissolved solids, strontium, uranium, boron, arsenic, molybdenum, fluoride, and barium; scores were negatively correlated with aluminum, chromium, tritium, and copper (table 5). Positive correlations with hardness and trace constituents, such as strontium and barium, are consistent with the weathering of alkaline-earth carbonate and sulfate minerals that are present as cements, fracture filling, and clasts in siliciclastic rocks. As explained previously (fig. 7) and in more detail below, several of the positively correlated trace constituents, specifically arsenic, molybdenum, and uranium, tend to be mobile as anions under high-pH conditions (Hodge and others, 1998), whereas negatively correlated trace constituents, specifically aluminum, chromium, and copper, tend to be mobile as cations under low-pH conditions. The positive associations of PC1 with well depth and negative associations with tritium and dissolved oxygen are consistent with increased mineralization and age of groundwater along flow paths. Likewise, positive correlations with latitude could relate to less extensively weathered bedrock in northern areas compared to more deeply weathered (leached) saprolitic and lateritic horizons in the southern parts of the study area.

PC2 has positive loadings by chloride, bromide, sodium, magnesium, nitrate, dissolved organic carbon, and specific conductance (table 5). Although the constituents could

**Table 5.** Principal components analysis model of major factors controlling the chemistry of groundwater from siliciclastic-rock and crystalline-rock aquifers of the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008.

[Varimax rotation factor pattern for rank-transformed data (SAS, 1988); minimum eigenvalue >1; >, greater than; loading and correlation coefficient values multiplied by 100 and rounded; \*, indicates significant loadings ( $p < 0.001$ ). PC, principal component]

	PC1	PC2	PC3	PC4	PC5	
	Alkalinity- pH	Chloride- nitrate	Redox	Temp- erature- silica	Radon- potassium	Commu- nalities
<b>Constituent loadings</b>						
Alkalinity	91 *	18	−3	19	−18	0.93
pH	89 *	−12	−4	6	−16	0.85
Calcium	88 *	37	−5	1	−6	0.92
Specific conductance	81 *	55 *	1	−3	−5	0.96
Magnesium	69 *	53 *	−5	−11	−6	0.78
Sulfate	67 *	35	22	−17	3	0.66
Dissolved oxygen	−64 *	−2	−46 *	−32	2	0.74
Chloride	30	86 *	−2	−15	13	0.86
Bromide	26	71 *	6	29	−7	0.67
Nitrate	−21	63 *	−43 *	−34	19	0.78
Sodium	55 *	59 *	−4	32	9	0.76
Dissolved organic carbon	20	58 *	10	0	−36	0.51
Manganese (>1)	−1	11	90 *	−1	−2	0.79
Iron (>6)	1	−11	82 *	−1	−12	0.67
Temperature	−18	15	8	86 *	−11	0.81
Silica	26	−13		77 *	11	0.69
Radon-222	−18	0	−19	−9	81 *	0.72
Potassium	−1	1	46 *	25	48 *	0.54
Eigenvalue:	6.61	2.76	1.66	1.57	1.05	13.64
Cumulative percent variance explained:	36.67	51.68	61.28	70.04	75.85	
<b>Spearman Correlations (only values significant at <math>p &lt; 0.05</math> are reported):</b>						
Latitude	37	--	--	−63	--	
Agricultural land-use percentage	27	--	--	−43	--	
Urban land-use percentage	--	22	--	--	--	
Forested land-use percentage	--	−43	--	35	--	
Wetland land-use percentage	--	--	--	--	--	
Well depth	25	−23	--	--	--	
Hardness	85	46	--	--	--	
Total dissolved solids	81	53	--	--	--	
Strontium	58	46	--	--	--	
Uranium	57	--	--	--	--	
Boron (>8)	56	43	--	−72	--	

**Table 5.** Principal components analysis model of major factors controlling the chemistry of groundwater from siliciclastic-rock and crystalline-rock aquifers of the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008.—Continued

[Varimax rotation factor pattern for rank-transformed data (SAS, 1988); minimum eigenvalue >1; >, greater than; loading and correlation coefficient values multiplied by 100 and rounded; \*, indicates significant loadings ( $p < 0.001$ ). PC, principal component]

	PC1	PC2	PC3	PC4	PC5	
	Alkalinity- pH	Chloride- nitrate	Redox	Temp- erature- silica	Radon- potassium	Commu- nalities
<b>Spearman Correlations (only values significant at <math>p &lt; 0.05</math> are reported):—Continued</b>						
Arsenic (>1)	50	26	--	--	--	
Molybdenum	47	--	--	--	--	
Fluoride	38	--	--	--	--	
Barium	28	53	--	-27	--	
Chromium	-35	--	--	--	--	
Copper	-47	--	-28	--	--	
Tritium	-58	--	--	-45	--	
Aluminum (>1.6)	-62	--	--	--	--	
Nickel	--	45	33	--	--	
Radium-226	--	--	54	--	--	
Radium-226 plus radium-228	--	--	41	--	--	
Cobalt	--	--	26	--	--	
Ammonia	--	--	26	--	--	
Phosphate	--	--	-37	39	--	
Vanadium	--	--	-76	--	--	
Lithium	--	--	--	--	47	
Silver	--	--	--	--	--	
Beryllium	--	--	--	--	--	
Cadmium	--	--	--	--	--	
Lead	--	--	--	--	--	
Radium-228	--	--	--	--	--	
Antimony	--	--	--	--	--	
Selenium	--	--	--	--	--	
Thalium	--	--	--	--	--	
Zinc (>1)	--	--	--	--	--	

originate from natural sources, their corresponding positive associations are interpreted to indicate anthropogenic sources of contamination, such as road-deicing salt, fertilizer, and sewage. Scores on PC2 were negatively correlated with well depth and forest area and positively correlated with urban area, hardness, total dissolved solids (TDS), barium, strontium, nickel, boron, and arsenic. Although PC2 scores ranged more widely for crystalline lithologies compared to siliciclastic lithologies, the median score for siliciclastic lithologies was larger

than that for crystalline lithologies. The land use overlying the siliciclastic lithologies tends more frequently to be urban and less frequently to be forested than that for the more steep terrains associated with the crystalline-rock lithologies (figs. 2 and 4).

PC3 has positive loadings by manganese, iron, and potassium and negative loadings by dissolved oxygen and nitrate (table 5). High scores on PC3 are interpreted to indicate isolation from the atmosphere and the development of reducing

conditions. Scores on PC3 generally were larger for crystalline lithologies than siliciclastic lithologies and were not correlated with land use. Scores on PC3 were positively correlated with radium-226, combined radium (Ra-226+Ra-228), cobalt, nickel, and ammonia and negatively correlated with vanadium, phosphate, and copper. Nitrate is stable under oxidizing conditions where iron and manganese concentrations may be limited by precipitation of iron and manganese oxides; ammonia is stable under reducing conditions. The positive associations of potassium and radium on PC3 and potassium and radon on PC5 (described below) are consistent with felsic, granitic, or arkosic rocks as a source of radioactive elements in groundwater. As explained previously (figs. 8 and 9) and in more detail below, radon is a highly mobile noble gas, whereas radium, cobalt, and other cations can be adsorbed by iron and manganese oxides. Subsequent dissolution of the iron and manganese oxides under reducing conditions will mobilize the sorbed constituents, such as radium and cobalt. The negative correlations of vanadium, phosphate, and copper with PC3 could indicate greater mobility of these constituents under oxidizing conditions, where the concentrations of iron and manganese are low.

PC4 has positive loadings by temperature and silica (table 5). Scores on PC4 were positively correlated with forest and phosphate and negatively correlated with latitude, agriculture, boron, tritium, and barium. Denver and others (2010) explained that co-occurrence of phosphate and silica in groundwater from forested areas could result from the weathering of common silicate minerals containing phosphorus as a trace constituent. Generally, the mean annual temperature of groundwater decreases with latitude, and tritium concentration decreases with groundwater age. Thus, these associations on PC4 may indicate that increased temperature or longer residence time in the aquifer promotes greater rates and extent of weathering of silicate minerals. The range of and median PC4 scores for crystalline lithologies, which predominate in southern latitudes, were larger than those for siliciclastic lithologies (appendix 2).

PC5 has positive loadings by radon and potassium and positive correlations with lithium (table 5). Although the range of PC5 scores for crystalline lithologies is greater than that for siliciclastic lithologies, the median scores for the two lithologies are comparable. As explained in more detail below, these associations and distributions are consistent with the emanation of radon from felsic, granitic, or arkosic rocks that tend to be rich in uranium, potassium, and lithium (Speer and others, 1981; Michel, 1984). Radon, potassium, and lithium tend to be mobile in a wide range of groundwater environments compared to other constituents that tend to be affected by variations in pH and (or) redox conditions.

## **Geochemical Conditions Associated with Elevated Concentrations of Naturally Occurring Constituents**

The associations of certain trace elements and radionuclides in groundwater may be explained by similar rock sources and (or) geochemical processes. These constituents are discussed separately below, however, because of differences in monitoring frequency, reporting protocols, and human-health thresholds.

### **Trace Elements**

Arsenic, manganese, and zinc were identified as trace elements of concern in groundwater of the study area on the basis of their relatively high frequencies of exceedance of human health benchmarks for drinking water (table 4). Additionally, lead, barium, antimony, and molybdenum were noteworthy because of relatively high frequencies of detection of these constituents at concentrations greater than one-tenth of their respective health-based thresholds. Specific settings and geochemical conditions associated with anomalous concentrations of these constituents are described in more detail below.

#### **Arsenic**

Although arsenic concentrations were less than 1 µg/L in nearly 80 percent of the 253 groundwater samples analyzed in the study, 8.5 percent of sampled wells in the Early Mesozoic basin aquifers and 2.4 percent of the sampled wells in the Piedmont and Blue Ridge aquifers had arsenic concentrations greater than the USEPA MCL of 10 µg/L (table 4). Arsenic concentrations greater than 1 µg/L were detected in samples from wells from all lithologies in these aquifers, but all concentrations greater than the MCL were present in groundwater from clastic lacustrine sedimentary rocks of the Early Mesozoic basin aquifers and from metamorphosed clastic sedimentary rocks of the PBR aquifers (fig. 16G). Maximum arsenic concentrations in water samples from these aquifers were 57 and 38 µg/L, respectively (tables 1-3 and 1-4). Both lithologic groups are composed of fine-grained sedimentary rocks, such as mudstone, shale, siltstone, and their metamorphic equivalents.

Although redox conditions typically control the mobility of arsenic in groundwater (Smedley and Kinniburgh, 2002; Welch and Stollenwerk, 2003; Serfes and others, 2010), the dominant factor controlling arsenic mobility in the study area appears to be pH, with elevated arsenic concentrations associated with alkaline pH conditions (fig. 21G). Arsenate and arsenite, which are the predominant forms of arsenic in groundwater, tend to adsorb to iron-oxide surfaces at acidic to neutral pH, but not at alkaline pH conditions (fig. 8). Thus, arsenic concentrations greater than 1 µg/L were associated with a range of oxic to anoxic redox conditions, primarily where pH values were greater than 7.5 (fig. 21G). Of the nine samples for which arsenic concentrations were greater than

10 µg/L, six were classified as oxic and three as anoxic, and seven had a pH of 7.2 or greater (maximum pH, 8.0). The clastic lacustrine/evaporite sedimentary and metamorphosed clastic sedimentary lithologic groups and associated lithochemical subgroups that had the highest mean ranks of arsenic on the basis of Tukey tests also had the highest mean ranks of pH [fig. 16C and G; table 6 (table 6 available online at <http://pubs.usgs.gov/sir/2013/5072/>)]. One other factor that supports the concept that the arsenic mobility is controlled by sorption processes is the consistent correlation of arsenic concentrations with other oxyanions, including boron, uranium, antimony, and molybdenum (appendix 1, table 1-7). The mobility of these oxyanions also is primarily controlled by adsorption at acidic to neutral pH and desorption at alkaline pH conditions (figs. 8 and 21).

The spatial distribution pattern for elevated arsenic concentrations indicates locations with elevated levels of arsenic in the rock and geochemical conditions favoring transport of arsenic. Although 72 percent of the 47 samples from the Early Mesozoic basin aquifers had arsenic concentrations greater than 1 µg/L, only 6.3 percent of the 206 samples from the PBR crystalline-rock aquifers had arsenic concentrations greater than 1 µg/L (table 4). However, 46 percent of the samples from two crystalline-rock lithologies, metasedimentary rocks and meta-argillite, had concentrations greater than 10 µg/L. The results for the samples from the Early Mesozoic basin aquifers with respect to arsenic obtained in this study are consistent with results of previous studies for these aquifers (Serfes, 1994, 2004; Lindsey and others, 2006; Senior and Sloto, 2006; Harden and others, 2009; Serfes and others, 2010). Although the overall exposure of the population in the study area to arsenic is low, arsenic concentrations are likely to be elevated in some areas that are densely populated in Pennsylvania and New Jersey (figs. 2 and 22). Even in these areas of possible elevated arsenic concentrations in groundwater, the frequency for exceeding the MCL was less than 15 percent.

## Manganese

Manganese concentrations were greater than or equal to 4 µg/L in 75 percent of the 330 groundwater samples analyzed in the study; 7.3 percent and 32.1 percent of the samples had concentrations greater than the HBSL of 300 µg/L and one-tenth of the HBSL, respectively (table 4). Manganese concentrations generally were elevated in groundwater from the PBR crystalline-rock aquifers (figs. 12D and 16F) where the bedrock and overlying geologic materials contain manganese-bearing minerals and geochemical conditions in the aquifer facilitate manganese transport. Only the clastic sedimentary rocks and quartz-rich sedimentary rocks of the Early Mesozoic basin aquifers had concentrations of manganese less than 300 µg/L in all samples (fig. 16F). On the basis of Tukey tests, the mean rank manganese concentrations for the metamorphosed clastic sedimentary and quartz-rich metamorphic lithologic groups of the PBR crystalline-rock aquifers were greater than those for the clastic sedimentary and clastic lacustrine/evaporite sedimentary lithologic groups of the

Early Mesozoic basin aquifers (fig. 16F). The lithochemical subgroup 43 of the mafic igneous and metamorphic lithologic group had the greatest median concentration of manganese (54 µg/L) of all lithochemical subgroups (table 6). Lithochemical subgroup 43 consists of massive mafic rocks including diorite, gabbro, monzodiorite, diabase, and basalt (table 3 and appendix 1, table 1-1).

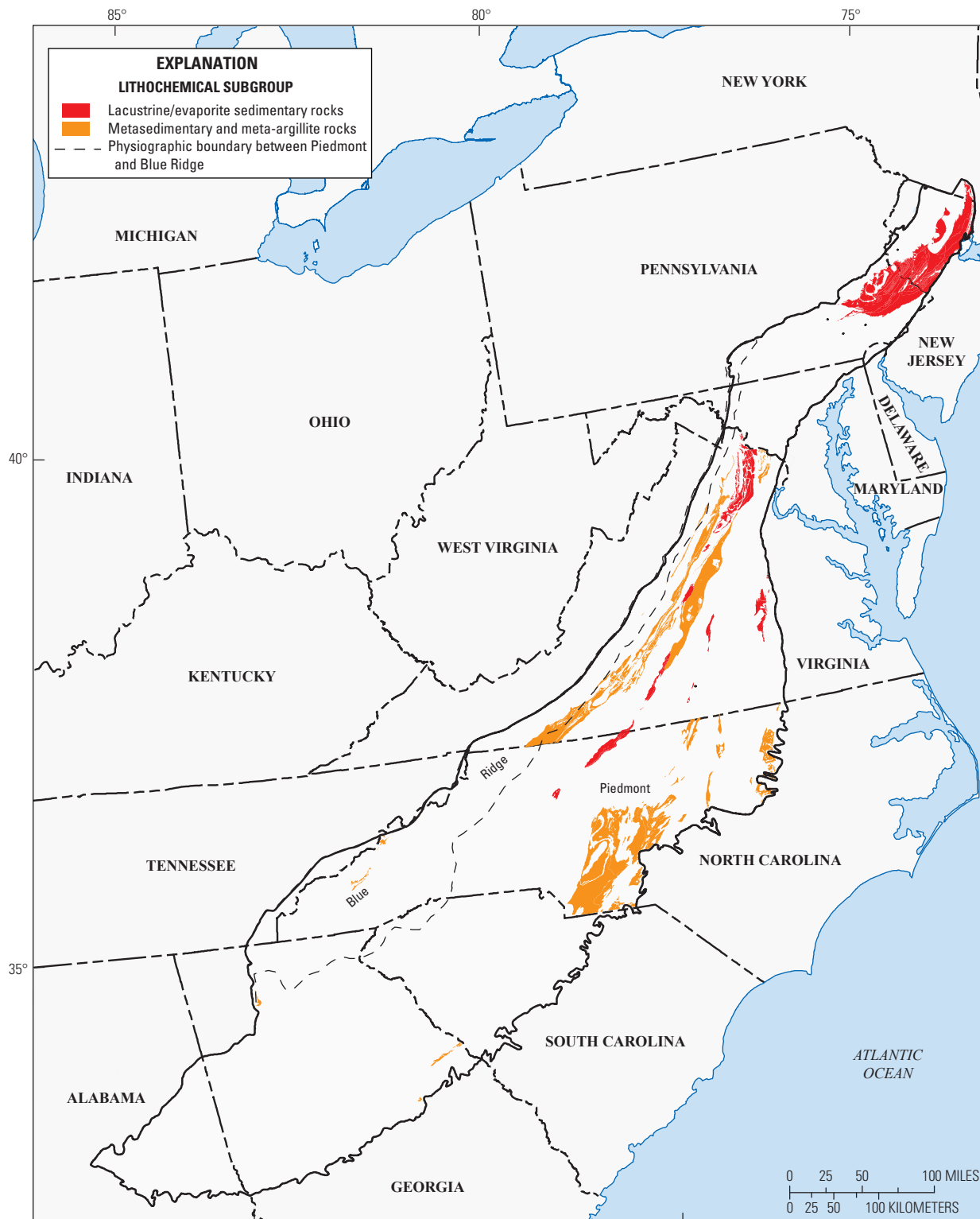
The concentration of manganese in groundwater was positively correlated with iron, cobalt, nickel, aluminum (censored at 10 µg/L), and ammonia and negatively correlated with dissolved oxygen, nitrate, phosphate, and vanadium (appendix 1, table 1-7). The relations between dissolved oxygen, manganese, iron, nitrate, and ammonia are consistent with elevated mobility of the reduced forms of manganese ( $\text{Mn}^{+2}$ ) and iron ( $\text{Fe}^{+2}$ ) under reducing conditions (fig. 21B). The positive correlations between manganese, iron, nickel, and cobalt could be attributed to the reductive dissolution of Mn(III-IV) and Fe(III) oxides and the consequent release of sorbed cations (Loganathan and Burau, 1973; Kooner, 1993), whereas the negative correlations between manganese, phosphate, and vanadium could be attributed to the precipitation of Mn(II)-phosphate and associated vanadate compounds under reducing conditions as indicated by the saturation indices for  $\text{MnHPO}_4$  and  $\text{Mn}_3(\text{PO}_4)_2$  (appendix 1, table 1-7). Hence, the frequencies of elevated concentrations of manganese, iron, cobalt, and nickel generally are the opposite of those of nitrate, phosphate, and vanadium as functions of pH and redox conditions (fig. 21B).

Although reductive dissolution of Mn(III-IV) oxides could be a primary source of dissolved manganese and associated trace elements in many groundwater samples, it is noteworthy that the highest concentrations of dissolved manganese are associated with low to intermediate values of pH and high concentrations of aluminum (fig. 21 and appendix 1, table 1-7). Low pH can promote the dissolution of various potential sources of manganese, including manganese oxides, common aluminosilicate minerals, such as chlorite, and carbonate minerals, such as calcite and siderite. The carbonate and aluminosilicate minerals, in which  $\text{Mn}^{+2}$  and  $\text{Fe}^{+2}$  commonly substitute for magnesium ( $\text{Mg}^{+2}$ ), would tend to be stable under reducing conditions, but not under acidic conditions. Because of incongruent dissolution, the weathering of chlorite and other aluminosilicates may preferentially leach magnesium, iron, manganese, and, to a lesser extent, aluminum, relative to silica (Drever, 1997).

## Zinc

Zinc concentrations were greater than or equal to 20 µg/L in 21 percent of the 253 groundwater samples analyzed in the study; 0.4 percent and 5.5 percent of the samples had concentrations greater than the HBSL of 2,000 µg/L and one-tenth of the HBSL, respectively (table 4). Although the highest zinc concentrations were recorded for groundwater samples from the PBR crystalline-rock aquifers (figs. 13B and 17E), the quartz-rich sedimentary lithologic group of the Early Mesozoic basin siliciclastic-rock aquifers had a higher mean rank





Base from U.S. Bureau of the Census, 1990, 1:500,000 to 1:5,000,000 and Statistics Canada digital data, 2006  
 Albers Equal-Area Conic projection: Standard Parallels 29°30' N and 45°30' N,  
 Central Meridian 96°00' W, Latitude of Origin 23°00' N  
 Lithologic group data from Dicken and others, 2005a and  
 2005b and Nicholson and others, 2005 and 2006

**Figure 22.** Areal occurrence of lithochemical subgroups having elevated arsenic concentrations (based on the Tukey mean rank test, table 6) in groundwater within the Piedmont and Blue Ridge Physiographic Provinces.

zinc concentration than all other lithologic groups (fig. 17E). In some parts of the study area, this lithologic unit is a local host of zinc ore minerals (Smith, 1977) and, regionally, may have elevated background concentrations of zinc.

Various natural and anthropogenic materials can be important sources of dissolved zinc in groundwater. Zinc may be present as a trace mineral, such as sphalerite ( $\text{ZnS}$ ) or smithsonite ( $\text{ZnCO}_3$ ), or as a trace substitution for calcium, magnesium, or other divalent cations in common carbonate and silicate minerals in aquifers of the study area (Smith, 1977; Hanshaw and Back, 1979). Furthermore, dissolved zinc concentrations and transport can be affected by sorption reactions with carbonate minerals and iron and aluminum oxides (Zachara and others, 1991; Kooner, 1993; Coston and others, 1995). As described previously, dissolved cations, such as  $\text{Zn}^{+2}$ , tend to be poorly adsorbed and are relatively mobile at acidic pH, whereas at alkaline pH, the cation concentrations tend to be attenuated by adsorption on HFO and other oxide surfaces (fig. 8). Additionally, zinc can be derived from the corrosion of galvanized casing and pipes used for well construction and water distribution.

The concentration of zinc in groundwater was positively correlated with concentrations of copper, lead, and aluminum and with percentage of forested land use and negatively correlated with pH, concentrations of calcium, magnesium, alkalinity (as calcium carbonate), sulfate, arsenic, and total dissolved solids, percentage of urban land use, and saturation index of calcite and many other minerals (appendix 1, table 1-7). These correlations are consistent with elevated mobility of zinc under acidic, corrosive conditions associated with low pH and low ionic strength. Samples with oxic to anoxic redox conditions and pH less than 7.5 had a higher frequency of elevated zinc concentrations (greater than 10 mg/L) than samples with alkaline pH (fig. 21H). Likewise, concentrations of chromium, copper, lead, cobalt, and nickel were more frequently detected in groundwater samples with low to moderate pH than in groundwater samples with alkaline pH conditions (fig. 21). Low-pH conditions may mobilize zinc and other metals from natural mineral sources or plumbing and inhibit its adsorption by Fe(III), Mn(III-IV), and aluminum-oxides in the aquifer.

Zinc, iron, copper, lead, chromium, nickel, and other metals are commonly used materials for the construction of wells and associated plumbing systems. Different casing types may be used for different hydrogeological conditions. For example, steel and galvanized casing typically are used for small bore, deep wells in fractured bedrock, whereas concrete and plastic casing typically are used for larger bore, shallow wells in regolith or unconsolidated materials or where the water may be corrosive.

To evaluate the ability of plumbing materials to contribute dissolved metals to groundwater samples, boxplots were generated on the basis of the well-casing type (steel, galvanized, concrete, plastic, other) identified with each groundwater sample, and Tukey tests were conducted to evaluate differences among the mean rank concentration values for these sample groups (fig. 23). Although concentrations of

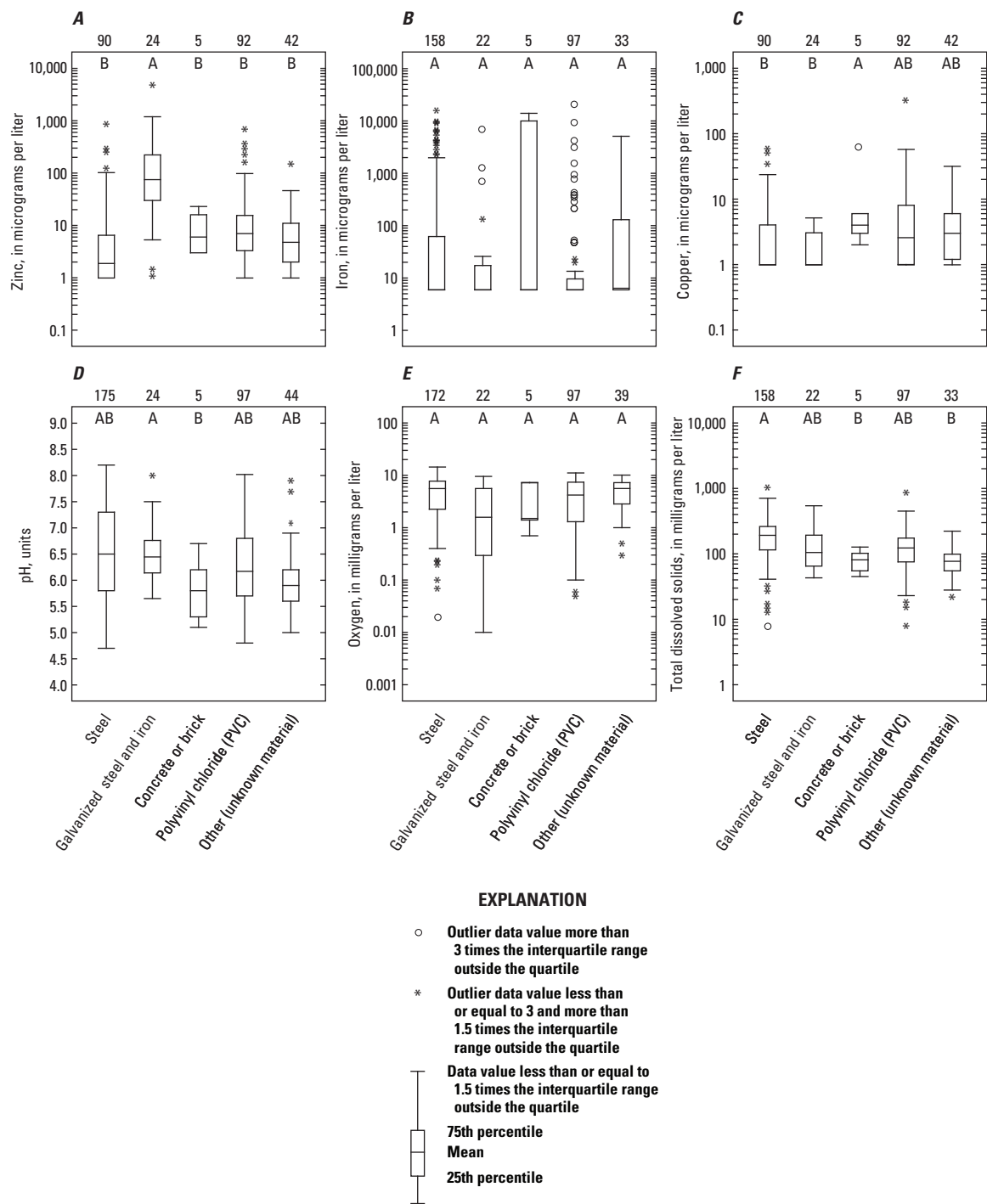
iron and dissolved oxygen were similar for the five different casing types, indicating comparable redox conditions among the groups, the maximum and mean rank zinc concentrations were greatest for samples from wells constructed using galvanized casing, and the mean rank copper concentration was greater for samples from wells constructed using concrete casing (fig. 23). Increased concentrations of zinc may be related to higher pH in deeper bedrock wells with steel or galvanized steel casing, whereas the more acidic pH in shallow wells (generally regolith material) may increase copper concentrations (table 5). Furthermore, the pH was higher for the samples associated with galvanized casing than for the samples associated with concrete casing. These water-quality differences suggest that the aquifer characteristics affect the type of well construction and (or) that the casing type affects the water chemistry.

To evaluate the apparent effect of galvanized casing on zinc concentrations, the 24 samples identified with galvanized casing were eliminated from the dataset before recreating the boxplots and the Tukey tests for the nine major lithologic groups. Although fewer samples were associated with each of the lithologic groups, the boxplots and Tukey test results did not differ from the original results. Despite eliminating samples associated with galvanized well casing, the quartz-rich sedimentary lithologic group of the Early Mesozoic basin siliciclastic-rock aquifers had a higher mean rank zinc concentration than all other lithologic groups (fig. 17E). The concentration of zinc in groundwater from the ultramafic lithologic group also was elevated, but this group only had a sample size of two, so the data could not be rigorously evaluated.

### Alkalinity, Hardness, and Dissolved Solids

Calcite clasts, fracture filling, and cements in some sedimentary-rock aquifers can dissolve easily and lead to high levels of alkalinity, hardness, and TDS. High alkalinity in such aquifers helps to maintain stable, near neutral pH (6 to 8). Thus, corrosivity, pH, hardness, and TDS generally are related by the calcite saturation index, which is equal to the Langelier index of corrosivity (Drever, 1997). In general, the samples from the clastic sedimentary and clastic lacustrine/evaporite sedimentary lithologic units had the highest overall saturation indices for calcite, dolomite, and other carbonate minerals (fig. 18).

Only a few wells sampled from the Early Mesozoic basin siliciclastic-rock aquifers had groundwater that was classified as hard (calcium carbonate equivalent 150 to 300 mg/L) or very hard (calcium carbonate equivalent greater than 300 mg/L) (fig. 10D). Samples of water from the PBR crystalline-rock aquifers frequently were characterized as soft and had pH values less than the recommended pH of 6.5 (fig. 12A). Moderate hardness with neutral pH is considered desirable because soft water with low pH can corrode plumbing and facilitate the dissolution of various aquifer minerals, whereas hard water with high pH can lead to scaling and clogged plumbing (encrustation) (Hem, 1985).



**Figure 23.** Concentrations of selected metals and associated constituents in groundwater by casing type for wells in siliciclastic- and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces.



### Antimony, Lead, Barium, and Molybdenum

Antimony was detected in only 11 of 202 samples from crystalline-rock aquifers; none of the 30 samples from siliciclastic-rock aquifers had detectable concentrations of antimony (table 4, fig. 14D). One sample from the metamorphosed clastic sedimentary lithologic group of the crystalline-rock aquifers had a concentration of antimony of 10.4  $\mu\text{g/L}$ , which exceeded the MCL of 6  $\mu\text{g/L}$ ; four samples had concentrations greater than one-tenth of the MCL (table 4).

None of the samples evaluated for this study had concentrations of lead, barium, or molybdenum greater than their respective MCLs (table 4). However, 23 of 253 samples analyzed for lead had concentrations greater than one-tenth of the 15- $\mu\text{g/L}$  MCL (9.0 percent of samples had concentrations greater than 1.5  $\mu\text{g/L}$ ); 31 of 253 samples analyzed for barium had concentrations greater than one-tenth of the 2,000- $\mu\text{g/L}$  MCL (12.3 percent of samples had concentrations greater than 200  $\mu\text{g/L}$ ); and 16 of 230 samples analyzed for molybdenum had concentrations greater than one-tenth of the 40- $\mu\text{g/L}$  HBSL (7.0 percent of samples had concentrations greater than 4  $\mu\text{g/L}$ ). A greater frequency of elevated barium concentrations was observed for groundwater samples from siliciclastic-rock aquifers compared to those from crystalline-rock aquifers (table 4, figs. 14A and 17A), whereas lead concentrations were more frequently elevated in samples from the crystalline-rock aquifers (table 4, figs. 13D and 17C).

Lead and barium generally occur as divalent cations in carbonate, sulfate, and sulfide minerals and associated groundwater. These trace cations commonly substitute for calcium or magnesium in major carbonate and sulfate minerals in aquifers (Back and others, 1979). The sulfate minerals anglesite ( $\text{PbSO}_4$ ) and barite ( $\text{BaSO}_4$ ) and the carbonate minerals cerussite ( $\text{PbCO}_3$ ) and witherite ( $\text{BaCO}_3$ ) can be stable in surficial environments where concentrations of sulfate or alkalinity (dissolved carbonate) are elevated (Cravotta, 2008b). For example, barite saturation index values greater than 0 for many samples from the clastic lacustrine/evaporite sedimentary lithologic group and for one or more samples from several other lithologic groups indicate potential for barite precipitation to limit the concentration of barium. Generally, samples that were saturated with barite had elevated concentrations of sulfate and barium (figs. 15 and 17), which were positively correlated for the dataset as a whole (appendix 1, table 1-7). However, negative values of saturation indices for witherite for all samples and for barite for a majority of samples indicate that these minerals feasibly could dissolve, under most of the geochemical conditions under which these samples were collected, if present in the aquifer (fig. 19). Likewise, all the groundwater samples analyzed in this study were undersaturated with respect to anglesite, cerussite, and other lead minerals, indicating that such minerals could feasibly dissolve (fig. 19).

Iron oxides can adsorb lead at relatively low pH values, with increasing potential for adsorption as pH increases; however, iron oxides are not strong adsorbents of barium at pH values less than 8 (fig. 8). Consequently, groundwater

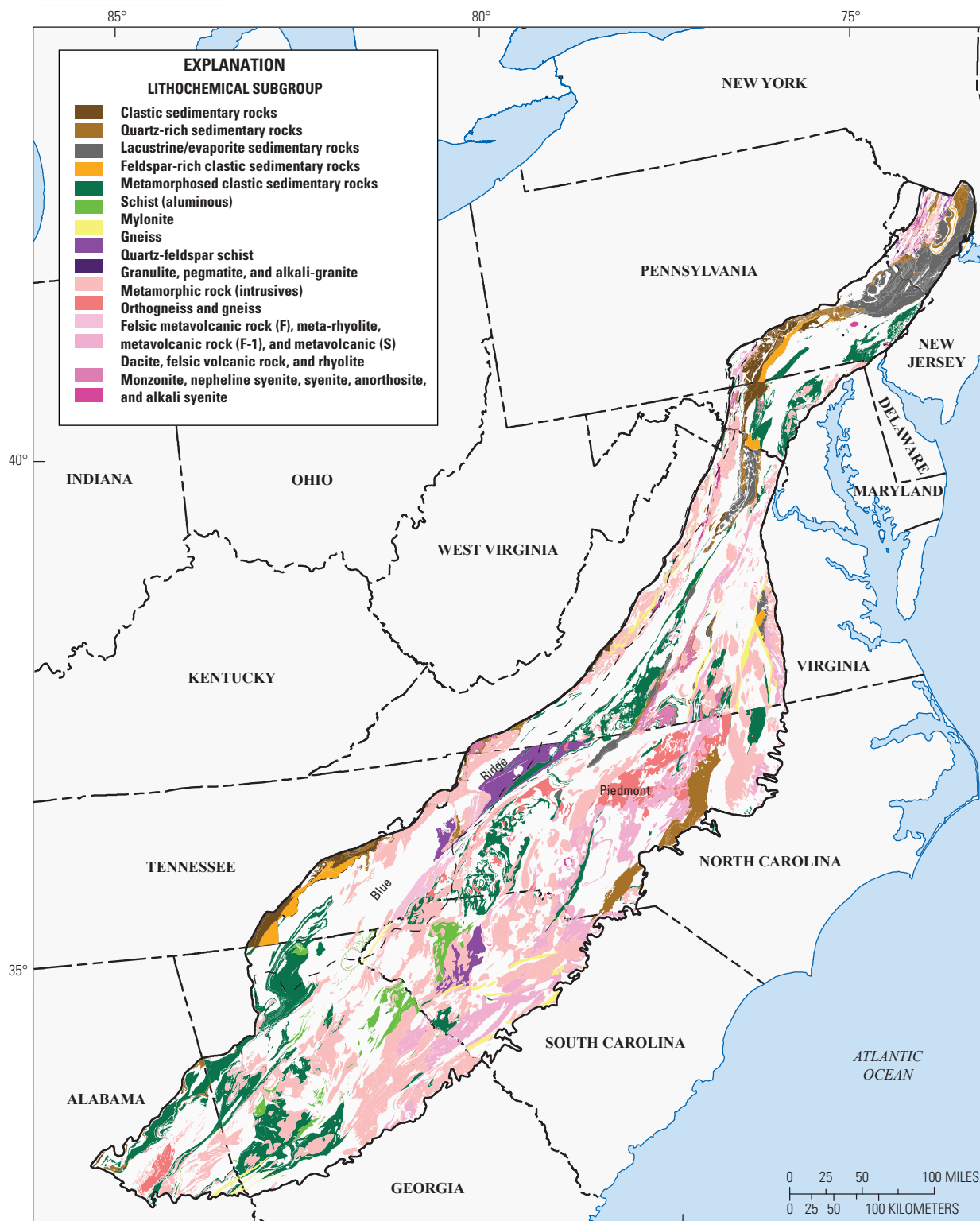
samples with low pH (4.5 to 5.5) had the greatest frequency of lead concentrations greater than the 1- $\mu\text{g/L}$  HCRL (fig. 21F), whereas groundwater with neutral to alkaline pH had the highest frequency of barium concentrations greater than one-tenth of the 2,000- $\mu\text{g/L}$  MCL (fig. 21M). In contrast with lead and barium, molybdenum tends to occur in groundwater as the oxyanion molybdate, with characteristics similar to chromate and tungstate ions (Cotton and others, 1999). As for other oxyanions with decreased adsorption at neutral to alkaline pH (fig. 8), groundwater with pH greater than or equal to 6.5 had the greatest frequency of molybdenum concentrations greater than the 1- $\mu\text{g/L}$  HCRL (fig. 21K).

### Radionuclides

The presence of uranium and radium in water requires a uranium source (parent of radium) in the host rock (fig. 9) and geochemical conditions in the aquifer that are conducive to transport of these elements. Radon, however, is highly soluble and is related primarily to the abundance of uranium in the rock. The variation in uranium content in rocks is generally understood, and this provides key background information on the potential sources of uranium, and thus radium and radon, its progeny. Overall, a comparison of the aquifers in the study area suggests that the elevated concentrations of the various radionuclides are distributed in ways that are consistent with their lithological sources and their chemical and radiological properties. Thorium is the source of two isotopes of radium, but it is insoluble in common water geochemical types found in the natural environment, except in those representing the most extreme geochemical environments (strongly acidic or strongly alkaline; Langmuir and Herman, 1980) that are not found in the aquifers in the study area.

For some radionuclide contaminants, knowledge of specific lithology (for example, felsic compared to mafic rocks or lacustrine compared to quartzose siliciclastic rocks) is needed to explain differences in occurrence that gross lithology (siliciclastic compared to crystalline) cannot. The lithochemical framework developed for the PBR crystalline-rock aquifers and the Early Mesozoic basin aquifers discussed in earlier sections of this report was used to identify specific lithologic groups with greater potential for radiochemical contaminants. Uranium is present in trace amounts in all rock types but can become enriched relative to background concentrations in certain rock types because of its high solubility in certain water types and because of the wide variety of chemical reactions in which it can participate (Langmuir, 1978; Turner-Peterson, 1980; Hodge and others, 1998).

Water from areas underlain by more felsic crystalline bedrock (fig. 24) is assumed to be more likely to contain elevated concentrations of these naturally occurring radionuclides; however, differential weathering of specific minerals and rock types (Speer and others, 1981; Michel, 1984) may control the geochemical environment and thereby the concentrations of radionuclides and associated constituents in



Base from U.S. Bureau of the Census, 1990, 1:500,000 to 1:5,000,000 and Statistics Canada digital data, 2006  
 Albers Equal-Area Conic projection: Standard Parallels 29°30' N and 45°30' N,  
 Central Meridian 96°00' W, Latitude of Origin 23°00' N  
 Lithologic group data from Dicken and others, 2005a and  
 2005b and Nicholson and others, 2005 and 2006

**Figure 24.** Areal occurrence of felsic lithologic groups within the Piedmont and Blue Ridge Physiographic Provinces.

groundwater. Transport characteristics of uranium, radium, and radon differ; thus, areas underlain by rocks with the highest uranium content, which are the felsic rocks in the PBR crystalline-rock aquifers, do not always have the highest concentrations of all three of these radionuclides.

## Uranium

Less than 1 percent of the samples from the aquifers exceeded the 30- $\mu\text{g/L}$  MCL for uranium (table 4). Although the highest single measurement of uranium of 97  $\mu\text{g/L}$  was in a sample taken from paragneiss from the metamorphosed clastic sedimentary lithologic group in the PBR crystalline-rock aquifers, samples from the Early Mesozoic basin aquifers had statistically higher concentrations of uranium than the samples from the PBR crystalline-rock aquifers (table 6; fig. 17). Previous studies indicate that these two areas have a combination of sources of uranium in or near the aquifer, with conditions conducive to mobilization and transport of uranium (Turner-Petersen, 1980; Szabo and Zapecza, 1991).

Clastic sedimentary and lacustrine clastic sedimentary lithologic groups within the Early Mesozoic basin aquifers had elevated median concentrations of uranium (greater than 1  $\mu\text{g/L}$ ) (fig. 17). The highest median uranium concentration values of 3.6 and 3.1  $\mu\text{g/L}$  were for the clastic sedimentary (CLSD group, subgroup 21) and clastic lacustrine (CLSDLAC group, subgroup 22e) lithologic groups, respectively, of the Early Mesozoic basin (tables 3, 6, and 1-1). Of 50 water samples from Early Mesozoic basin sedimentary-rock aquifers analyzed for uranium, the concentrations were greater than 4  $\mu\text{g/L}$  in about 26 percent (13 samples) and were greater than 3  $\mu\text{g/L}$  in 46 percent of the samples (appendix 1, tables 1-3 and 1-4). For these rock types, only 22 percent of the samples contained uranium concentrations that were less than 1  $\mu\text{g/L}$ ; however, only 2 percent of the samples had uranium concentrations that exceeded 10  $\mu\text{g/L}$ , and the maximum uranium concentration was 12  $\mu\text{g/L}$ .

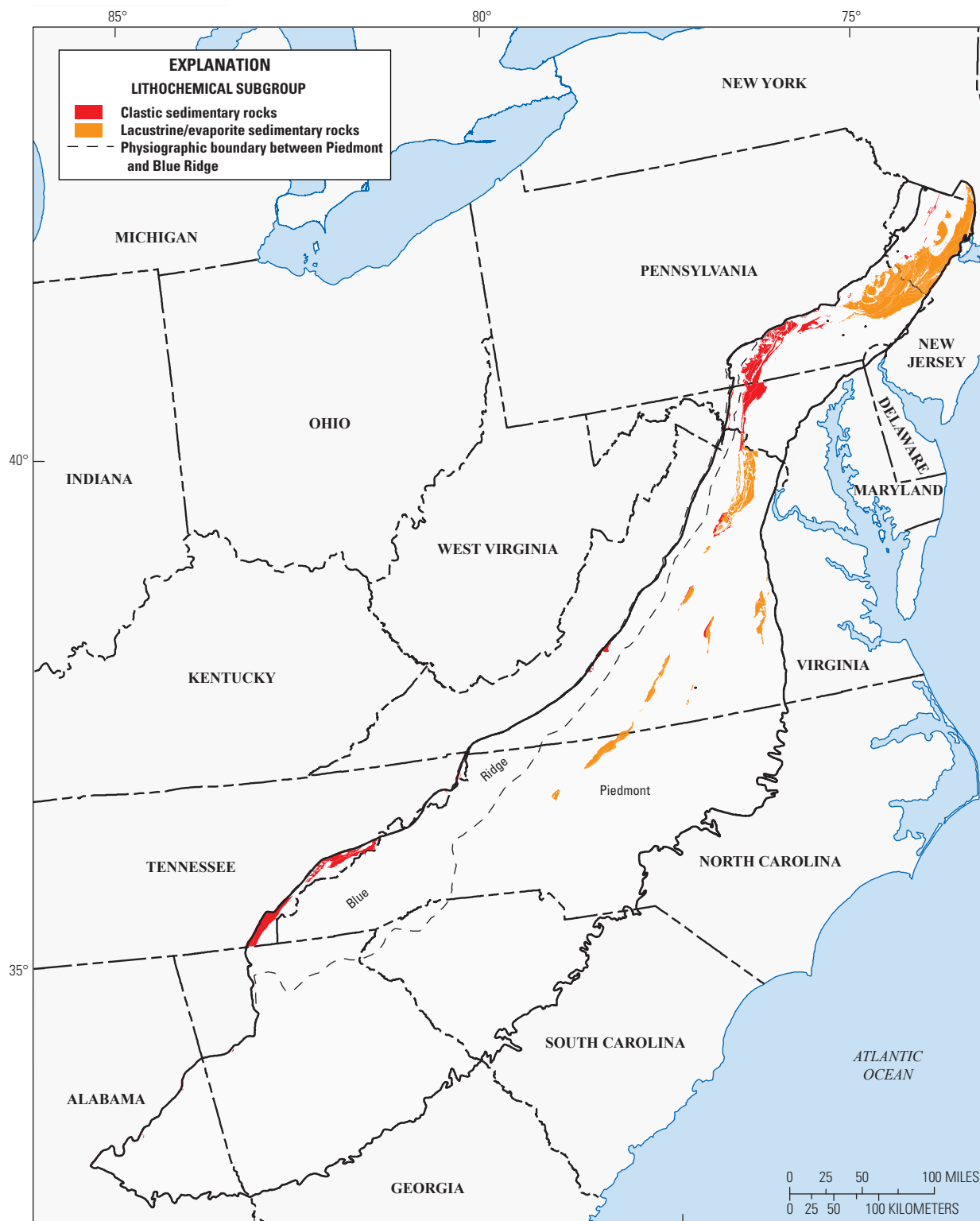
The uranium concentration distribution was more bimodal for the water samples from most crystalline-rock aquifers, especially the granites, metasediments, biotite gneisses, and paragneisses, which have sedimentary origin and had the highest individual uranium concentrations (tables 3 and 1-1). A few water samples (1.1 percent) from these crystalline-rock aquifers contained uranium concentrations in excess of 10  $\mu\text{g/L}$ , and a few samples (0.8 percent) contained uranium concentrations in excess of the 30- $\mu\text{g/L}$  MCL; however, the majority of samples (89 percent) contained concentrations less than 1  $\mu\text{g/L}$  (appendix 1, table 1-4). Of water samples from the crystalline-rock aquifers, only about 6 percent contained uranium concentrations greater than 4  $\mu\text{g/L}$ , and about half of those samples (7), were from granite and granite gneiss. The two highest uranium concentrations, 97 and 39  $\mu\text{g/L}$ , were detected from paragneiss (sedimentary origin, now metamorphosed) and granite, respectively.

The geographic distribution of these clastic sedimentary (CLSD group, subgroup 21, appendix 1, tables 1-3 and 1-1)

and clastic lacustrine sedimentary (CLSDLAC group, subgroup 22e) lithochemical subgroups is shown in figure 25. Common lithologies for these siliciclastic groups are argillite, arkose, conglomerate, fine-grained mixed clastic, mudstone, sandstone, shale, siltstone, and greywacke. Common lithologies for the crystalline groups are granite, biotite gneiss, gneiss, and other metasediments. (Note that some clastic sedimentary rocks are mapped in the Blue Ridge Physiographic Province; fig. 25). The clastic sedimentary and lacustrine clastic sedimentary lithologic subgroups of the Early Mesozoic basin aquifers and the PBR crystalline-rock aquifers have a source of uranium and geochemical characteristics conducive to transport of uranium.

Uranium in the PBR crystalline-rock aquifers and Early Mesozoic basin aquifers occurs most commonly in groundwater that has higher values of pH under oxic geochemical conditions. Of the 29 water samples with the highest uranium concentrations ( $>4$   $\mu\text{g/L}$ ), 16 (55 percent) had pH values greater than or equal to 7.3. In the grouping of samples in which the concentrations of uranium exceeded 1  $\mu\text{g/L}$ , 73.4 percent (47 of 64 samples) had pH values that were neutral to alkaline (greater than or equal to 7.0), and 32.8 percent (21 of 64 samples) had a pH greater than or equal to 7.5. Conversely, in samples where uranium concentrations were low (less than 1  $\mu\text{g/L}$ ), the samples were overwhelmingly acidic, with pH less than 7.0 in 211 (86.8 percent) of 243 samples with pH measurement. For samples with pH less than 7.0, the samples with near-neutral pH (6.5–7.0) had the greatest frequencies for exceeding 1  $\mu\text{g/L}$  highest common reporting level (fig 21.O). The strong correlation between uranium concentrations and pH in groundwater is not surprising because of the important role pH and alkalinity (carbonate complexation) play in the geochemical mobilization of uranium. Uranium concentrations were positively correlated with pH, specific conductance, and concentrations of alkalinity, calcium, sodium, sulfate and several trace elements. The trace elements having the strongest positive correlations with pH and alkalinity were arsenic, boron, and molybdenum, all of which form oxyanions (Hodge and others, 1998) that tend to be mobile in alkaline environments (tables 5 and 1-7).

Higher concentrations of arsenic and uranium tend to occur in water with elevated pH conditions; this association is indicative of increased weathering processes (PC1, table 5). The high concentrations are consistent with the hypothesized increase in the mobility of the oxyanions under high-pH conditions, as the calculated adsorption/desorption model profiles for uranium and arsenic indicate (fig. 8). Laboratory experiments have repeatedly shown that while uranium sorbs strongly to iron-hydroxides and clays, uranium is readily desorbed from iron hydroxides and clays with increasing pH, especially in the presence of carbonate alkalinity (Hsi and Langmuir, 1985; Echevarria and others, 2001; Logue and others, 2004). Uranium concentrations are negatively correlated with concentrations of DO and iron (appendix 1, table 1-7), which is a constituent whose occurrence is strongly affected by redox conditions. These correlations are consistent with



Base from U.S. Bureau of the Census, 1990, 1:500,000 to 1:5,000,000 and Statistics Canada digital data, 2006  
 Albers Equal-Area Conic projection: Standard Parallels 29°30' N and 45°30' N,  
 Central Meridian 96°00' W, Latitude of Origin 23°00' N  
 Lithologic group data from Dicken and others, 2005a and  
 2005b and Nicholson and others, 2005 and 2006

**Figure 25.** Areal occurrence of lithochemical subgroups having elevated uranium concentrations in groundwater (based on Tukey mean rank tests, table 6) within the Piedmont and Blue Ridge Physiographic Provinces.



the thermodynamic property of uranium—the more oxidized species form oxyanions that are much more soluble than the reduced species (Langmuir, 1978), especially with more alkaline pH. Uranium concentrations also are negatively correlated with concentrations of aluminum. Aluminum is not a redox-sensitive constituent, but its solubility increases with decreasing pH (more acidic conditions); uranium solubility is optimal in the opposite conditions (with increasing pH or more alkaline conditions).

The general lack of correlation between radon and uranium concentrations among the water samples, previously noted for sediments of the Early Mesozoic basins by Szabo and Zapecza (1991), indicates that geochemical environment more strongly controls the dissolution of uranium than that of radon. A favorable geochemical environment (high pH and alkalinity) is critical for mobilizing uranium, whereas radon is readily soluble in any type of water (either acidic or alkaline). Previous sampling and analysis of the Early Mesozoic basin sediments have similarly shown that uranium concentrations tend to be highest (uranium is most mobile) in oxidizing alkaline water (Szabo and Zapecza, 1991). Previous sampling efforts for granites and gneisses of the Blue Ridge also indicate the lack of correlation between radon and uranium concentrations but indicate that high pH and alkalinity tend to be the favorable geochemical conditions for uranium occurrence (Vinson and others, 2009).

## Radon

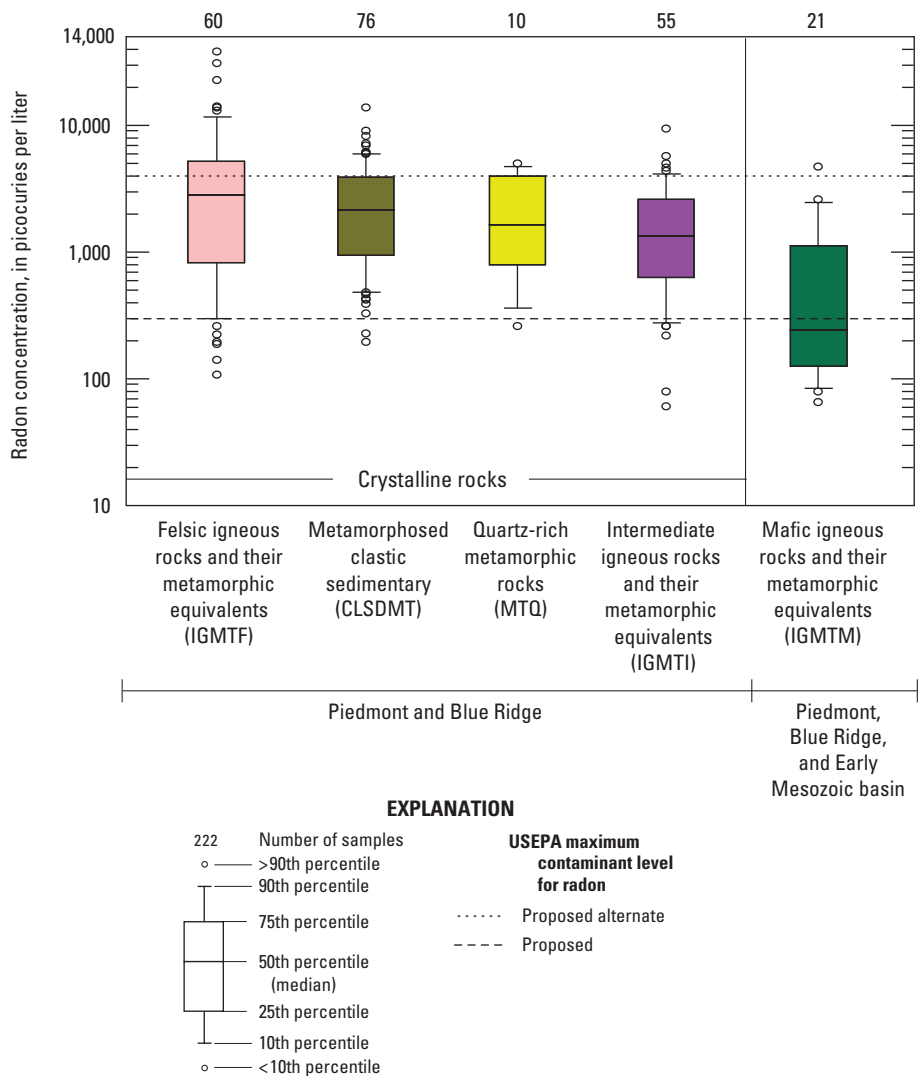
Concentrations of radon-222 exceeded the proposed AMCL of 4,000 pCi/L in 19 percent of the samples from the PBR crystalline-rock aquifers and from the Early Mesozoic basin siliciclastic-rock aquifers (table 4). Concentrations exceeded 3,250 pCi/L in 25 percent of samples, and 30 percent of the samples had a concentration greater than 3,000 pCi/L. Overall, 90 percent of the samples had radon concentrations greater than the proposed MCL of 300 pCi/L. The overall median for the entire sample set is 1,800 pCi/L, thereby exceeding the proposed MCL by a factor of 6. Median concentrations are substantially greater than the proposed MCL of 300 pCi/L, except for the those samples from the combined set of mafic igneous and metamorphic rocks and ultramafic-rock lithologic groups (IGMTM median 355 pCi/L and ULMAF median, 240 pCi/L; tables 3 and 1-1; fig. 17). Median radon concentrations for all of the lithologic groups of aquifers start at about 1,200 pCi/L for the quartz-rich sedimentary and metamorphosed clastic sedimentary lithologic groups and increase substantially for other lithologic groups. The maximum radon concentration was 38,000 pCi/L in a sample from felsic biotite gneiss. Six of the seven wells with the next highest radon concentrations, all greater than 10,000 pCi/L, were from granite.

Within the PBR crystalline-rock aquifers, the highest median concentrations of radon were detected in samples from wells completed in the felsic igneous and the metamorphosed clastic sedimentary lithologic groups (fig. 26). Although radon

had similar mean rank and median concentrations for many lithologic groups in the PBR crystalline-rock aquifer (table 6), each of the lithologic groups had large ranges in concentrations. The mafic/ultramafic lithologies had notably lower concentrations of radon, had the lowest mean rank, and had the lowest median concentration of 240 pCi/L (fig. 17). Half of all samples with radon concentrations less than 200 pCi/L were from the mafic igneous and metamorphic and ultramafic lithologic groups, which is consistent with findings from previous studies in areas of the PBR (Senior, 1998; Sloto, 2000). The median concentrations of 3,530 pCi/L for granite (felsic igneous and metamorphic lithology) and 3,600 pCi/L for schist (metamorphosed clastic sedimentary lithology) were the highest among all of the rock-aquifer types, and these two groups had the statistically highest radon concentrations (table 6; fig. 27). Within the felsic igneous and metamorphic crystalline-rock lithologic group (IGMTF group, tables 3 and A1), samples from areas underlain by a specific rock type (granite, subgroup 61, appendix 1, table 1-1) had concentrations of radon exceeding 4,000 pCi/L in 47 percent of the samples, a frequency that was twice as great as that from any of the other rock types. About 24 percent of samples from the gneiss and schist metasediments had concentrations of radon exceeding 4,000 pCi/L.

The Early Mesozoic basin siliciclastic lithologic groups had radon concentrations that generally are comparable to those of the PBR crystalline-rock aquifer lithologic groups (table 6; fig. 17). The Early Mesozoic basin lacustrine siliciclastic lithologic group within the Piedmont also had a median value that was about 1,800 pCi/L, and a small percentage of samples (about 8 percent) had a concentration greater than 4,000 pCi/L (table 6; fig. 17), with a maximum of 5,000 pCi/L. Concentrations of radon exceeded 8,000 pCi/L in 21 percent of samples from granitic aquifers (IGMTF lithologic group, lithochemical subgroup 61) and in 6 percent of samples from schistose aquifers (CLSDMT group, lithochemical subgroup 32u). The remaining Early Mesozoic basin siliciclastic lithologic groups within the Piedmont also had median concentrations of radon greater than 1,000 pCi/L, but less than 3,000 pCi/L (table 6).

Radon is highly soluble and generally is not affected by chemical reactions because it is a noble gas. Radon gas was ubiquitous, and concentrations exceeded the proposed MCL of 300 pCi/L in samples collected under all geochemical conditions encountered during this study, including pH ranging from 4.5 to 8.5 and oxic and anoxic conditions. The higher proposed AMCL of 4,000 pCi/L was also exceeded in samples collected from all types of geochemical conditions (fig. 21Q). Radon concentrations generally were higher in water that was classified as oxic as opposed to waters that were classified as anoxic. Acidic to neutral groundwater with oxic or mixed redox characteristics had the greatest frequency of samples with concentrations exceeding the 4,000-pCi/L AMCL for radon (fig. 21Q). Radon concentrations were highest where water was most corrosive and substantial rock (mineral) weathering was likely occurring. These geochemical



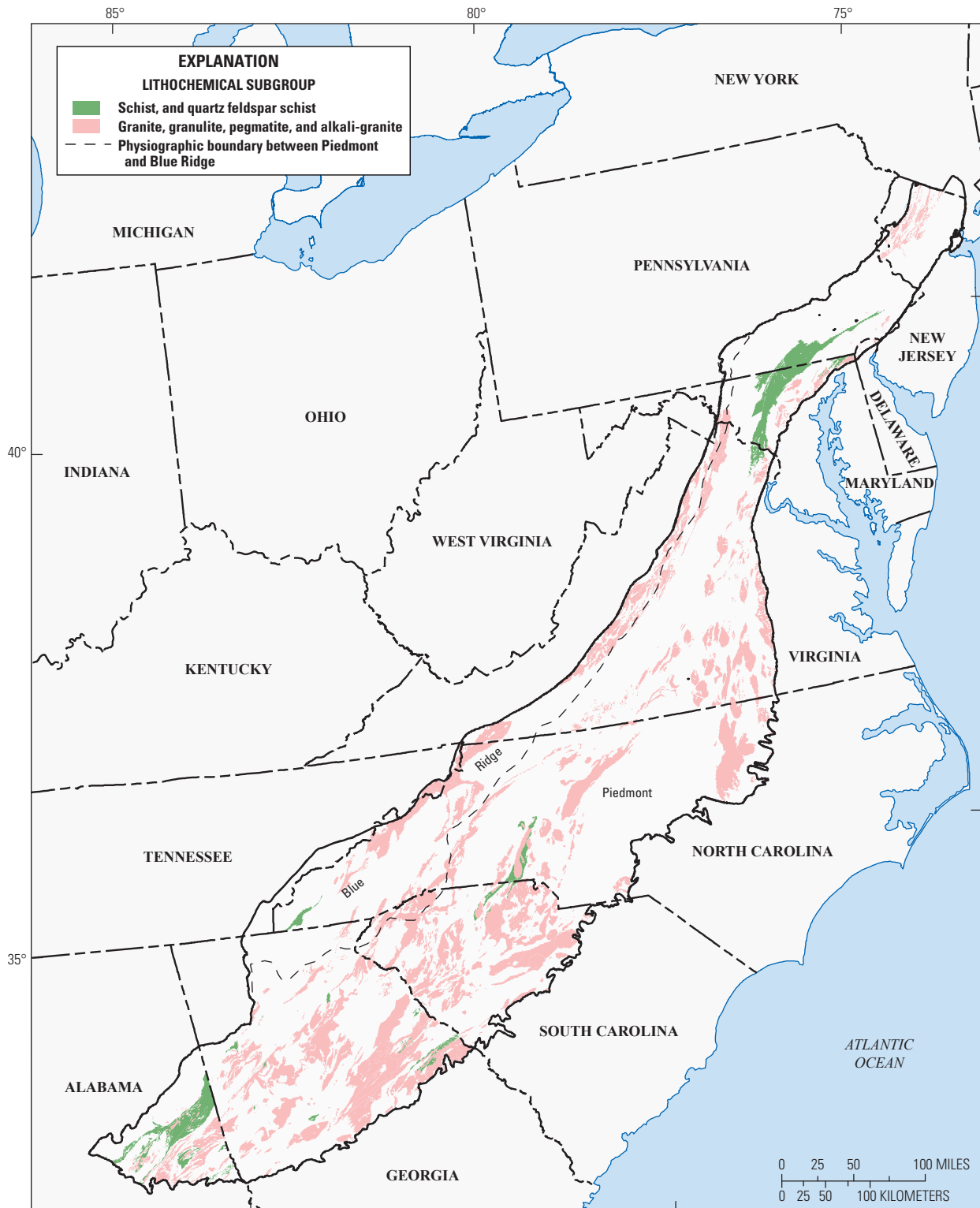
**Figure 26.** Radon concentrations in groundwater samples related to composition of lithologic group.

conditions are consistent with those noted for granites, which tend to yield the highest radon concentrations. The positive corresponding loading of radon and potassium together in PCA (PC5 in table 5 and 1-7) is also consistent with the highest occurrence of radon in felsic rocks, especially granites, which generally contain potassium feldspar and potassium-bearing mica minerals, such as muscovite, biotite, or phlogopite.

Because radon is highly soluble in waters of all geochemical types encountered in the region, the occurrence of radon is related primarily to the abundance of uranium in the rock. Gamma-ray spectral emission maps constructed from measurements during aerial overflights of the United States in the late 1970s as part of the USGS National Uranium Resource Evaluation (NURE) Program (Duval and Riggle, 1999) reveal a broad range of radionuclide contents. These data include the equivalent uranium-238 content interpolated on the basis of

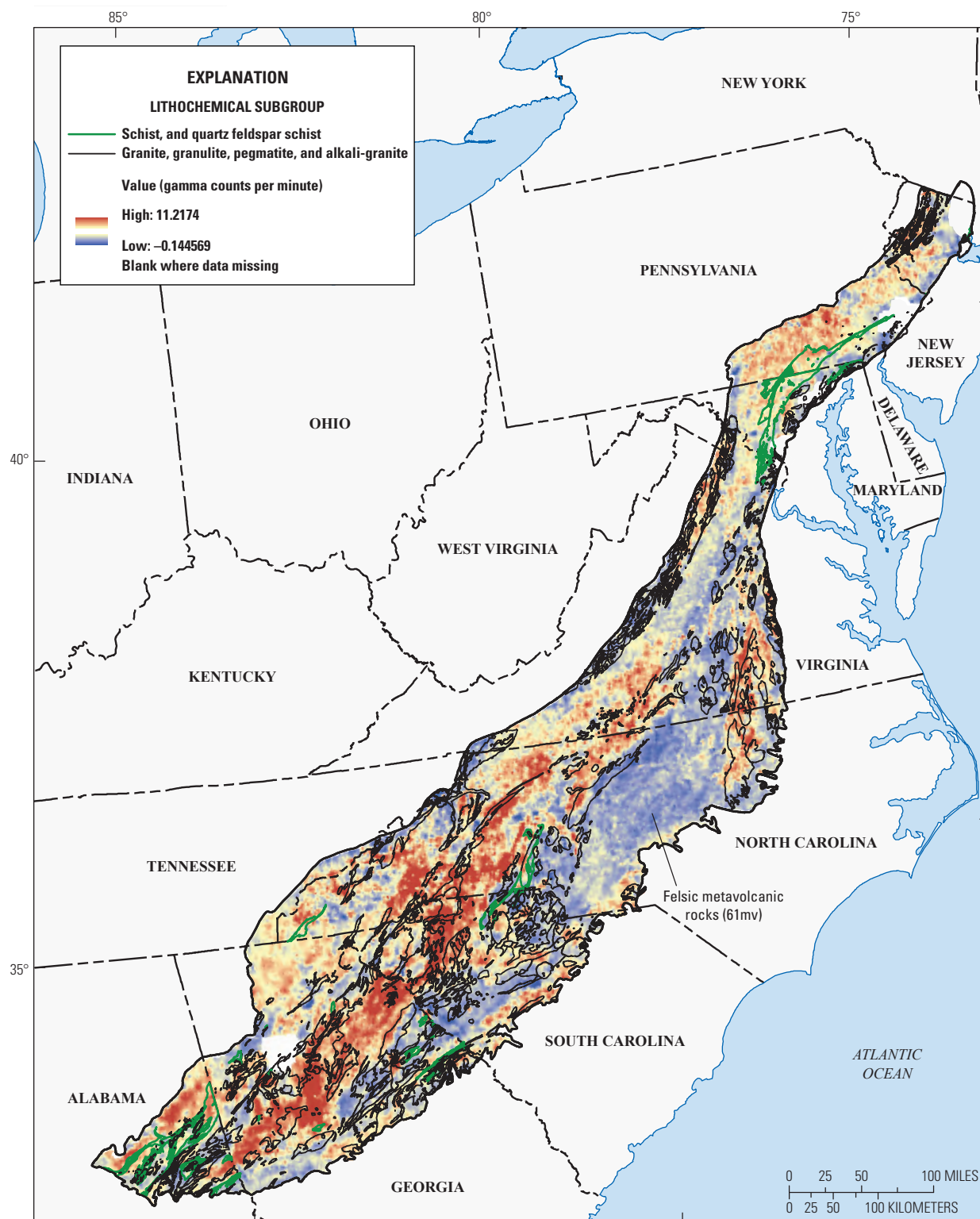
gamma emissions in the upper 25 centimeters of soil, surface sediments, or rock, which can indicate the general presence of radionuclide-enriched rock as shown in figure 28. Results from the Tukey mean rank test suggest that only the granitic rocks (61) and undifferentiated schist (32u) lithochemical subgroups had statistically higher concentrations of radon in groundwater compared to other lithochemical subgroups; however, other areas shown in warm colors in figure 28, such as the eastern Piedmont of North Carolina, suggest that other felsic rocks, including metavolcanics (lithochemical subgroup 61mv), may also be important sources of radon.

Uranium is present in trace amounts in all the rock types from the region but is strongly enriched relative to background concentrations in some of the bedrock types. Overall, a comparison of the aquifers in the study area suggests that elevated concentrations of uranium in bedrock most commonly were noted in the PBR crystalline-rock aquifers, especially granite



Base from U.S. Bureau of the Census, 1990, 1:500,000 to 1:5,000,000 and Statistics Canada digital data, 2006  
 Albers Equal-Area Conic projection: Standard Parallels 29°30' N and 45°30' N,  
 Central Meridian 96°00' W, Latitude of Origin 23°00' N  
 Lithologic group data from Dicken and others, 2005a and  
 2005b and Nicholson and others, 2005 and 2006

**Figure 27.** Areal occurrence of lithochemical subgroups having elevated radon-222 concentrations in groundwater (based on the Tukey mean rank test, table 6) within the Piedmont and Blue Ridge Physiographic Provinces.



Base from U.S. Bureau of the Census, 1990, 1:500,000 to 1:5,000,000 and Statistics Canada digital data, 2006  
 Albers Equal-Area Conic projection: Standard Parallels 29°30' N and 45°30' N,  
 Central Meridian 96°00' W, Latitude of Origin 23°00' N  
 Lithologic group data from Dicken and others, 2005a and 2005b and Nicholson and others, 2005 and 2006;  
 Uranium gamma counts from National Uranium Resource Evaluation (NURE) database

**Figure 28.** An overlay of areal occurrence of lithochemical subgroups having elevated radon-222 concentrations and U.S. Geological Survey National Uranium Resource Evaluation Program uranium measurements in groundwater within the Piedmont and Blue Ridge Physiographic Provinces.



and gneiss (metasediment), but high values are also present in most of the region underlain by the Early Mesozoic basin sediments, especially the lacustrine siliciclastic sediments. The variation in uranium content in the rock types of the region provides the key background upon which the concentrations of radon can be overlain and interpreted. The intersecting distribution of elevated uranium concentrations in bedrock and elevated radon concentrations in groundwater demonstrates that bedrock uranium distribution is the source, and thus is the most useful potential explanatory factor for radon concentrations (fig. 28). There is a large difference in the concentration of uranium in the granites relative to concentrations in the mafic rock or in some of the quartz-rich sediment. Thus, the large differences in concentrations of radon-222 that are observed regionally among these rock types is to be expected, based on the variable bedrock uranium contents.

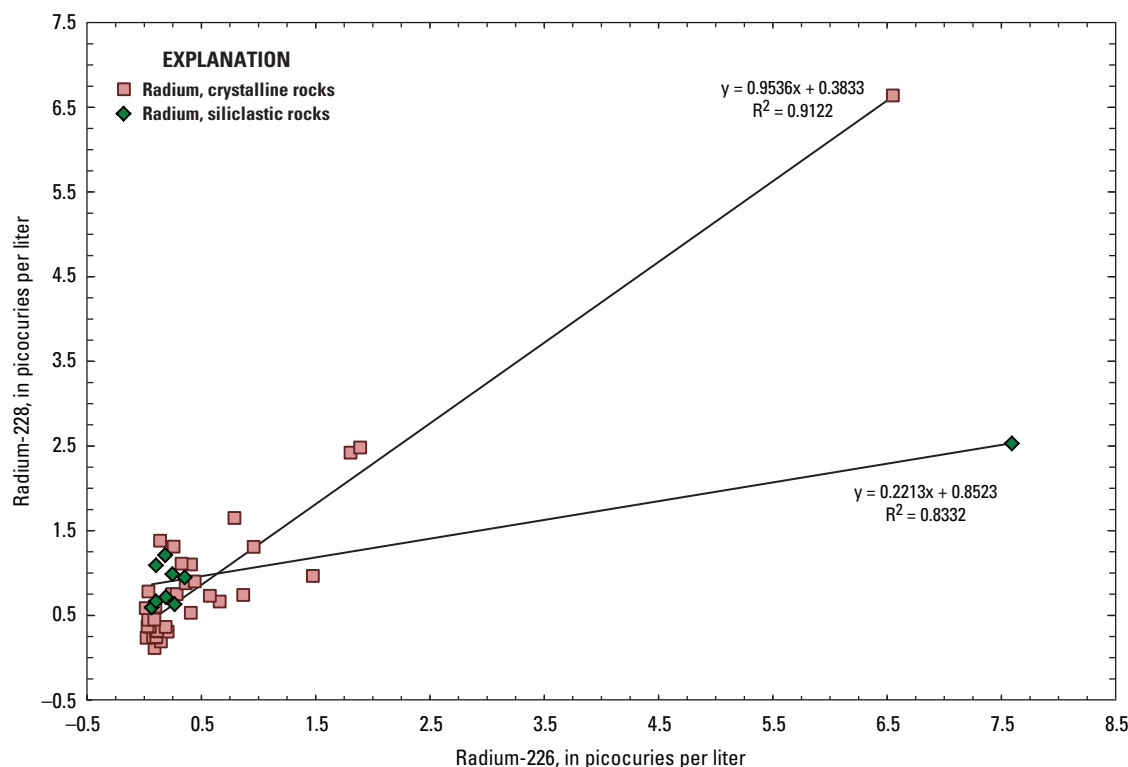
Theoretically, the concentration of radon-222 in groundwater is directly proportional to the concentration of uranium in the rock-aquifer matrix (Wanty and others, 1992). The distribution of radon in water on the basis of the collected concentration data from the sampled well sites from the Piedmont Early Mesozoic basin and PBR crystalline-rock aquifers is consistent with the distribution of uranium in the bedrock, with the most extreme radon values corresponding to the most uraniferous lithologic types. The differences in possible concentrations of uranium among the various rock types may be relatively large, as much as a full order of magnitude or more for granites relative to mafic rocks; hence, the lithologic control on radon-222 concentrations is predominant in the PBR crystalline-rock aquifer. Concentrations of radon-222 in groundwater and concentrations of uranium in the rock-aquifer matrix were crudely correlated also for felsic crystalline rock and for the thin glacial sand and gravel aquifer systems in the northeastern United States (Ayotte and others, 2007). Many other factors can affect the radon-222 concentrations to some degree, however, including porosity and the efficiency of radon-222 emanation (Wanty and others, 1992). In the crystalline-rock aquifer types, the common occurrence of the uranium-bearing minerals along grain margins is well documented (Speer and others, 1981; Michel, 1984; Davis and others, 1987), again emphasizing the importance of granites and similar crystalline-rock types for yielding the highest radon concentrations. The variability in emanation can be affected by geochemistry and other associated factors because the geochemistry may directly affect the fate of the radium-226 parent of the radon; for example, sorption of radium to grain surfaces may be enhanced or minimized. Thus, variability in emanation may have a small effect on the overall radon-222 concentrations in the PBR crystalline-rock aquifer. The emanation effect is likely too small to be notable on the regional scale in comparison to the large variability of bedrock uranium concentrations, but may be one minor factor that further explains some of the local-area variation noted within a single rock type. Further evaluation of such local-area variation is outside of the scope of this study.

## Radium

Only 2 percent of the samples analyzed for radium had concentrations that exceeded the 5-pCi/L MCL for combined radium-226 and radium-228. Three percent of samples from the Early Mesozoic basin aquifers had concentrations that exceeded the MCL (table 4). [Radium data were not analyzed from some of the lithologic groups, and the number of samples per group was often small (fig. 17H).] Of the aquifers that had radium data, the siliciclastic-rock lacustrine aquifers had the highest median concentrations of radium. The only lithologic groups within the Piedmont that contained samples with concentrations greater than the 5-pCi/L MCL for combined radium-226 and -228 were the felsic igneous and metamorphic lithologic group (IGMTF, tables 3, 4, and 1-1) in the PBR crystalline-rock aquifers (sample from granite with a concentration of 13.19 pCi/L) and the clastic lacustrine/evaporate sedimentary groups of the Early Mesozoic basin aquifers (sample from lacustrine siltstone with a concentration of 10.12 pCi/L; tables 1-3 and 1-4). In two additional samples, the combined radium concentration exceeded 4 pCi/L; one of those samples was from biotite gneiss (IGMTI group, subgroup 34bg), and the other was from granite gneiss, which is derived from granite (IGMTF group, subgroup 61). The mean rank of concentrations was not significantly different among many of the lithologic groups because of the small range in concentrations for each lithochemical subgroup, the large number of samples for which the concentrations of the radium isotopes were low or not detected, and the limited number of samples available for each group (appendix 1, table 1-6 and fig. 17H). Additional issues with regard to the detection of the radium isotopes are briefly discussed in appendix 3.

A few samples collected in areas underlain by uranium-rich sandstone or siltstone in the Early Mesozoic basin aquifers had concentrations of radium-226 that were substantially higher than the associated concentrations of radium-228. In general, the concentration ratios of radium-226 to radium-228 were highly variable among the siliclastic lithologic groups; however, the concentrations of these two radionuclides were nearly equal (about 1:1 ratio) in most samples from the felsic igneous and metamorphic crystalline-rock lithologic group (fig. 29).

Concentrations of radium isotopes exceeded the 5-pCi/L MCL and the 1-pCi/L common detection threshold more frequently in samples with anoxic or mixed geochemical conditions than did concentrations in samples with oxic geochemical conditions, usually with neutral to alkaline pH (fig. 21R). The effect of enhanced solubility of radium in the anoxic-type waters is the most important factor explaining the occurrence of the occasionally elevated concentrations of radium in the PBR bedrock aquifers, in terms of statistical significance (as illustrated by the correlation with dissolved oxygen; PC3; appendix 1, table 1-7 and table 5) and in terms of occurrence of the highest concentration values. For the two samples that had a combined radium concentration that exceeded the MCL of 5 pCi/L, the DO concentration was less than 0.5 mg/L and

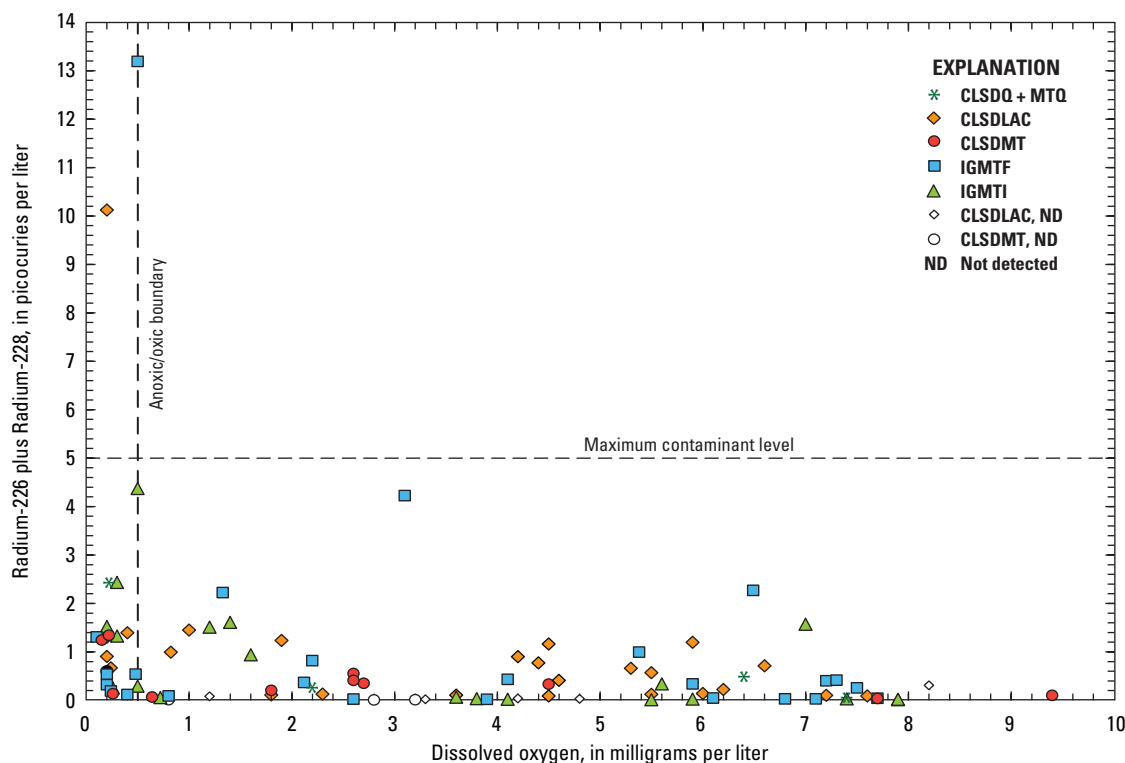


**Figure 29.** Relations between concentrations of radium-228 and radium-226 in samples from bedrock aquifers of the Piedmont and Blue Ridge Physiographic Provinces.

the concentration of manganese (an element far more soluble in anoxic than in oxic waters) was greater than 0.05 mg/L in both. Of the seven samples in which the combined radium concentration exceeded the level of 2 pCi/L, five samples had DO concentrations less than 0.5 mg/L, and six samples had concentrations of manganese greater than 0.05 mg/L. The frequency of occurrence for concentrations of combined radium to be greater than or equal to 1 pCi/L was evaluated among samples of water from three Ra-bearing rock aquifer groups [felsic igneous and metamorphic lithologic group in the PBR crystalline-rock aquifers, including granite; the lacustrine clastic sedimentary groups of the Early Mesozoic basins aquifers; and biotite gneiss (IGMTI group, subgroup 34bg, tables 3 and 1-1)]. Combined radium was greatest when DO was less than or equal to 1 mg/L (anoxic). Four of the five highest concentrations of radium-226 occurred when DO concentrations were less than 0.5 mg/L.

Concentrations of combined radium are negatively correlated with DO concentration (appendix 1, table 1-7). Concentrations of combined radium with respect to DO are shown in figure 30; the relation is nearly hyperbolic, indicating that radium concentrations are high when DO is absent and lower or absent when DO is abundant. Combined radium-228 and radium-226 (total radium) concentrations also have positive

correlations with iron and manganese concentrations (appendix 1, table 1-7, abbreviated as RaTOT). The indirect correlations of concentrations of radium with concentrations of DO coupled with the direct correlations with the concentrations of iron and manganese are indicative of the ongoing geochemical processes that allow for the most common mobility of radium: lack of adsorption to iron- and manganese-hydroxides and oxyhydroxides in anoxic environments. Laboratory studies have shown that radium is readily adsorbed by clay minerals (Ames and others, 1983a), but has an even stronger pattern of preferential adsorption to amorphous iron- and manganese-oxyhydroxides (Moore and Reid, 1973; Ames and others, 1983b; Benes and others, 1984). A consequence of this strong adsorption pattern for radium is that natural iron-oxyhydroxide samples have shown that they contain much more radium than the surrounding rock matrix (Korner and Rose, 1977). Reductive dissolution of the iron oxyhydroxides in anoxic conditions releases radium to the water as demonstrated by dissolving such oxyhydroxides from sediments and observing the sharp increase in the amount of radium in solution (Landa and others, 1991). The adsorption properties of radium with respect to iron oxyhydroxides (hydrated ferric oxide) under variable pH conditions are illustrated in figure 8. In neutral and alkaline waters, nearly complete adsorption of radium to



**Figure 30.** Relations of concentrations of radium-226 plus radium-228 and dissolved oxygen for samples from siliclastic-rock and crystalline-rock aquifers of the Piedmont and Blue Ridge Physiographic Provinces, 1994–2008.

iron oxyhydroxides is indicated. In anoxic conditions with reductive dissolution of iron oxyhydroxides, the aquifer loses a considerable sink for radium from the solid phase, thus allowing for a greater amount of radium to be in solution.

The nearly hyperbolic trend among the concentrations of radium and dissolved oxygen observed in the Appalachian PBR crystalline-rock aquifers is consistent with similar trends observed in other principal aquifers of the United States (Szabo and others, 2012a, fig. 3). The somewhat greater frequency of occurrence of radium in anoxic conditions is the most important factor controlling radium in aquifers used for drinking water supply in the United States (Szabo and others, 2012b). The occurrence pattern, whether in the Appalachian PBR crystalline-rock aquifers or in the larger setting of the continental United States, reflects the critical role that sorption processes, specifically to iron (and manganese) oxyhydroxides, play in controlling the concentration of radium in dilute groundwaters.

Data from this study show that among the Appalachian PBR siliclastic-rock and crystalline-rock aquifers, oxic groundwater is more common than anoxic groundwater, causing a greater frequency of elevated uranium concentrations relative to radium-226. These findings are consistent with results from previous studies (Szabo and Zapecza, 1991; Vinson and others, 2009). Dissolved oxygen was usually present

in detectable amounts for most, though not all, samples that contained uranium; however, dissolved oxygen was usually not present, or was present in very low amounts, for most samples that contained radium. Concentrations of uranium correlated directly and strongly with pH, indicating a lithochemical relation in occurrence patterns to rock types with the presence of bicarbonate-rich, near-neutral to alkaline waters (table 5, PC1).

For samples with oxic characteristics, radium concentrations tended to be low, but exceeded the 1-pCi/L threshold most frequently for low-pH conditions. Low concentrations of radium generally are consistent with the high potential for adsorption of the divalent radium cation by iron oxides under neutral to alkaline conditions, but not under acidic conditions in which radium tends to desorb (fig. 21R). Groundwater in the study area is not usually acidic, but in the adjoining Coastal Plain (fig. 6), pH is commonly less than 5.0, and combined radium concentrations exceed the MCL in about 20 to 30 percent of sampled wells (Szabo and others, 2005, 2012b). Data from other studies indicate that elevated radium-226 and radium-228 concentrations more frequently occur in groundwater in acidic formations in the PBR crystalline-rock aquifers (such as the Chickies Quartzite, Senior and Vogel, 1992). Because of the limited radium data collected for the current study, results of the assessment should not be considered

strictly representative of the probability of elevated radium in the PBR crystalline-rock aquifers in all lithochemical subgroups, which have great diversity in lithochemical composition and geochemical environments.

### Gross Alpha-Particle Activity

Approximately 8 percent of the samples analyzed for gross alpha-particle activity from the entire dataset exceeded the MCL of 15 pCi/L. For the measured gross alpha-particle activity to exceed the USEPA drinking water MCL, the activity, excluding that from uranium (all isotopes of uranium emit alpha particles), must exceed 15 pCi/L. Only 2 percent of the samples exceed the gross alpha-particle activity MCL if presumed uranium activity is excluded from the measured gross alpha-particle activity. Perhaps equally important is the concept that gross alpha-particle activity might be of use as a compliance-monitoring “screen” for combined radium (Hess and others, 1985) or as an indicator for the presence of high concentrations of uranium, radium, or both. The measured gross alpha-particle activity is further examined in light of this concept.

Most samples with the highest values of gross alpha-particle activity greater than 15 pCi/L (table 7), contained elevated concentrations of alpha-particle-emitting radium-226 or uranium, and on some occasions, both. The MCL for combined radium or uranium was exceeded in some, but not all, samples with gross alpha-particle activity greater than 15 pCi/L. The maximum uranium concentration among the samples was 97.4 µg/L, and this sample (from paragneiss rock type, appendix 1, tables 1-1 and 1-3; CLSDMT group, subgroup 35gn) had the highest gross alpha-particle activity of 78.3 pCi/L. Similarly, the sample with the second highest uranium concentration (39.3 µg/L) from granite (IGMTF subgroup 61; appendix 1, tables 1-1 and 1-3) had the second highest gross alpha-particle activity (33.1 pCi/L). The two samples with the highest radium-226 concentrations [7.6 and 6.6 pCi/L, respectively, from the siliciclastic lacustrine/evaporite sedimentary rock group (CLSDLAC tables 3 and appendix 1, table 1-1) and the felsic igneous lithologic group (granite rock type; appendix tables 1-1 and 1-3, IGMTF group, subgroup 61)] had gross alpha-particle activity of about 30 pCi/L. Samples with moderate gross alpha-particle activities (5 to 14.99 pCi/L) occasionally contained moderate concentrations of radium-226 (0.95–1.9 pCi/L) or uranium (4–13 µg/L), but the MCL itself was not exceeded for either of these radioactive constituents. Of five samples with radium-226 concentrations greater than 1 pCi/L, all had measured gross alpha-particle activity greater than 5 pCi/L (tables 7 and 1-4). Most of these samples with moderate gross alpha-particle activities were from the siliciclastic-rock clastic lacustrine/evaporite sedimentary lithologic group (CLSDLAC tables 3 and 1-1) within the Early Mesozoic basin aquifers and from the granite (IGMTF group, subgroup 61) and biotite gneiss (intermediate igneous and metamorphic rocks, tables 3 and 1-1 IGMTI group, subgroup 34bg) PBR crystalline-rock

aquifers. The samples from these lithologic groups also had the highest frequency of occurrence of gross alpha-particle activity, radium-226, and uranium, with concentrations above their respective MCLs, and had among the highest median concentrations for uranium or radium or both. Low gross alpha-particle activities (less than 5 pCi/L) corresponded with low concentrations of radium-226 (all samples less than 1 pCi/L) and mostly low concentrations of uranium; less than 10 percent of the samples had concentrations of uranium that were greater than 4 µg/L. However, one sample with 13 µg/L of uranium had less than 5 pCi/L of measured gross alpha-particle activity; such a low gross alpha-particle activity in a sample with that amount of uranium is unusual and implies an atypical uranium isotopic ratio (Osmond and Cowart, 1976) or low analyte recovery.

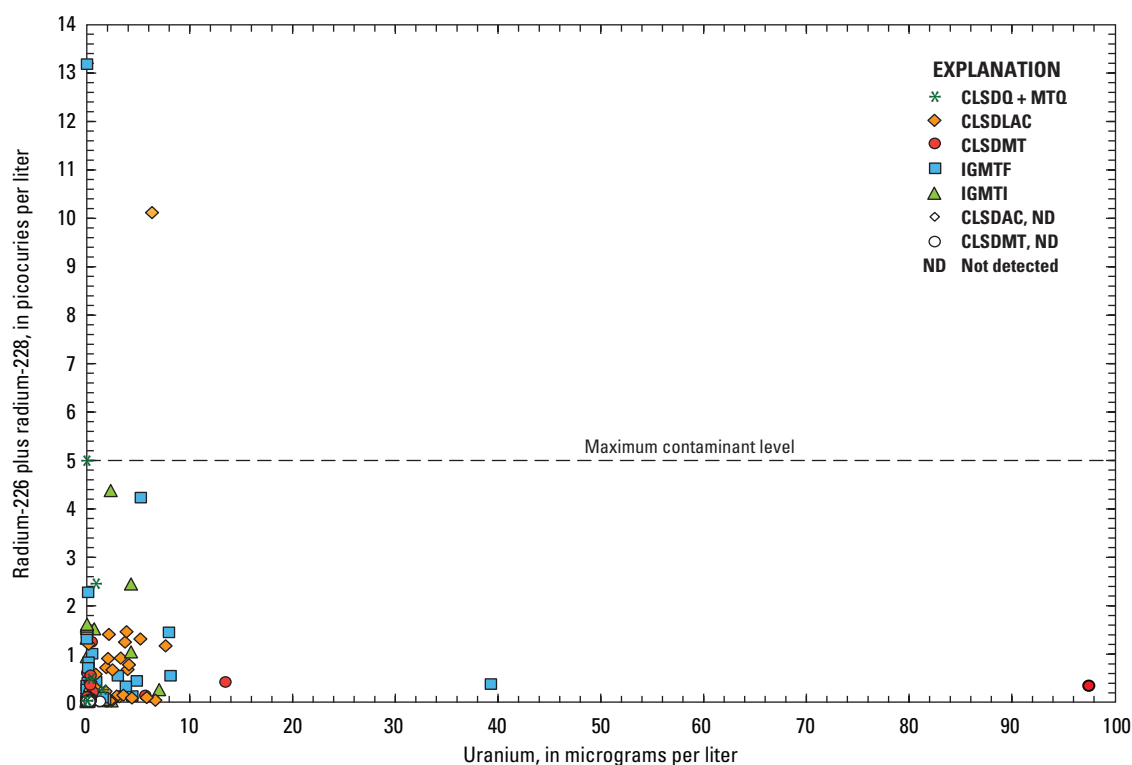
**Table 7.** Number of samples with specified ranges of uranium and radium-226 concentrations for 99 water samples for which gross alpha-particle activity was determined.

[pCi/L, picocuries per liter; µg/L, micrograms per liter; MCL, maximum contaminant level; <, less than; >, greater than; --, not detected]

Uranium concentration (µg/L)	Gross alpha activities, in pCi/L		
	<5	5–14.99	>15 (MCL)
>30 (MCL)	--	--	2
10–29.99	1	--	--
4.0–9.99	6	7	3
1.0–3.99	18	6	--
<1	52	2	2
Totals	77	15	7

Radium-226 concentration (pCi/L)	Gross alpha activities, in pCi/L		
	<5	5–14.99	>15 (MCL)
>5 (MCL)	--	--	2
1.0–4.99	--	3	--
0.5–0.99	4	3	--
0.3–0.49	6	2	--
<0.3	67	7	5
Totals	77	15	7



**Figure 31.** Relations of concentrations of radium-226 plus radium-228 and uranium for samples from bedrock aquifers of the Piedmont and Blue Ridge Physiographic Provinces.

Conventional measurements of the general amount of radioactivity in the water, such as measurements of gross alpha-particle activity, did not prove to be reliable for identifying specifically where concentrations might exceed the combined radium MCL or the uranium MCL. Elevated gross alpha-particle activity indicates the presence of at least one or the other of these alpha-particle-emitting radioactive constituents in relatively high concentrations, but the identity of which of these nuclides is predominant and contributes the most to the radioactivity of the water sample cannot be established on the basis of the gross alpha-particle activity measurement alone. Sample geochemistry (oxic or anoxic) could be helpful in estimating the likelihood of which radionuclide is predominant (fig. 21). The geochemistry of radium and uranium differ, and either one or the other tends to predominate in most, but not all, cases. The adsorption properties of the two elements tend to differ, with uranium most likely to desorb at high pH and radium most likely to desorb at low pH (fig. 8) or in the presence of anoxic water (fig. 21R). The samples with the highest concentrations of radium typically had among the lowest concentrations of uranium, and the converse was also true, regardless of the lithologic group (fig. 31).

### Potential for Detrimental Effects from Trace Elements, Radionuclides, and Associated Contaminants

The trace elements arsenic, manganese, and zinc and the radionuclides uranium, radon, and radium are among the most frequently occurring elements that exceed drinking water standards in the United States. The frequencies of occurrence of uranium and arsenic are 1.7 and 6.8 percent, respectively, in samples from domestic wells nationally (DeSimone, 2009). For uranium, combined radium, and arsenic, the frequencies of occurrence in excess of the respective MCLs are 0.65, 2.0, and 3.56 percent, respectively, in the samples from the wells throughout the PBR crystalline-rock aquifers and Early Mesozoic basin aquifers. All of the samples collected from the PBR crystalline-rock and Piedmont Early Mesozoic basin siliciclastic-rock aquifers that were analyzed in this study are generally consistent with the broader national occurrence frequency as reported by DeSimone (2009). Although the frequencies of occurrence for uranium, radium, and arsenic for this region were similar to the national frequencies in general,



the frequency of occurrence for radon concentrations greater than the AMCL was substantially higher for the PBR crystalline-rock aquifers and Early Mesozoic basin aquifers than that for the Nation as a whole. The proposed AMCL was exceeded more often in the PBR crystalline-rock aquifers than in the Early Mesozoic basin aquifers, and granite is the specific rock type in the felsic igneous and metamorphic lithologic groups in which the highest percentage (47 percent) of the samples exceed 4,000 pCi/L. This relation of radon occurrence with lithology represents a readily mapable lithologic target that could be useful in prioritizing monitoring activity for radon.

## Summary and Conclusions

The following key findings are from the analyses of 346 groundwater samples collected from wells examined as part of 14 U.S. Geological Survey National Water Quality Assessment (NAWQA) Program studies conducted from 1994 to 2008. These key findings are related to lithologic groups and lithochemical subgroups delineated as part of this study:

- Certain naturally occurring trace elements (arsenic, manganese, zinc) and radionuclides (uranium, radon, radium) in groundwater from wells used as domestic water supplies exceeded public drinking water standards, and 10 additional constituents (barium, beryllium, cadmium, copper, lead, selenium, boron, molybdenum, nickel, and strontium) were detected at concentrations greater than a threshold of one-tenth of the established health-based levels.
- Naturally occurring contaminants, such as arsenic, radon, uranium, and radium, had geographic occurrence patterns that generally were associated with certain mappable lithologic groups (categorized based on primary rock type and mineral assemblages). Although there was some spatial overlap, some lithologic groups associated with the presence of radionuclides were different from others affected by arsenic or other trace elements.
- Arsenic concentrations typically were less than 1 µg/L in groundwater of the study area. Concentrations of arsenic exceeding the 10-µg/L drinking water maximum contaminant level were detected in 8.5 percent of the sampled wells in the Piedmont Early Mesozoic basin siliciclastic-rock aquifers and in 2.4 percent of sampled wells in the Piedmont and Blue Ridge crystalline-rock aquifers. The elevated arsenic concentrations were predominantly in groundwater samples from clastic lacustrine sedimentary rocks and metamorphosed clastic sedimentary rocks (meta-mudstone and meta-argillite) and frequently were associated with alkaline pH (measured values of 7.2 to 8.0), under oxic to anoxic geochemical conditions. Although arsenic can be attenuated by adsorption on iron oxides at acidic pH

(less than 6.5), alkaline pH can facilitate the desorption and mobilization of arsenic from iron-oxide surfaces.

- Manganese concentrations typically were less than 10 µg/L in groundwater of the study area. Concentrations of manganese exceeding the Health-Based Screening Level of 300 µg/L were detected in 7.3 percent of the wells sampled. Elevated concentrations of manganese were associated with groundwaters from crystalline-rock aquifers that contained less than 0.5 mg/L of dissolved oxygen and more than 100 µg/L of dissolved iron. Many anoxic samples with elevated concentrations of manganese also had acidic pH. Anoxic conditions and (or) low pH can promote the dissolution of manganese oxides and common aluminosilicate minerals, such as chlorite, that contain manganese.
- A small number of the samples from crystalline-rock aquifers contained high uranium concentrations; only 2 of 256 samples (0.8 percent) had concentrations exceeding the 30-µg/L Maximum Contaminant Level (MCL), but the majority (89 percent) contained concentrations less than 1 µg/L. The highest concentration of uranium was 97 µg/L and was detected in a groundwater sample from the Piedmont and Blue Ridge crystalline-rock aquifers (paragneiss from the metamorphosed clastic sedimentary lithologic group). Clastic sedimentary and lacustrine clastic sedimentary lithologic groups within the Piedmont Early Mesozoic basin siliciclastic-rock aquifers had elevated median concentrations of uranium (greater than the detection limit of 1 µg/L). The median uranium concentration was 3.6 µg/L for the siliciclastic lacustrine siltstones of the Early Mesozoic basin.
- Radon exceeded proposed drinking water standards with a greater frequency than all other naturally occurring constituents, particularly in groundwater from the crystalline-rock aquifers. Concentrations in 19 percent of the samples from these aquifers exceeded the Alternative Maximum Contaminant Level (AMCL) of 4,000 pCi/L for radon, and 90 percent of the samples had radon concentrations greater than the proposed MCL of 300 pCi/L. At least one sample in all of the aquifer lithologic groups except for the mafic and ultramafic rocks (which are known to have low uranium concentrations in the rock matrix) had elevated concentrations of radon. Granites from the felsic igneous lithologic group in the Piedmont and Blue Ridge crystalline-rock aquifers had the greatest frequency of radon occurrence greater than the AMCL at about 46.5 percent.
- Uranium and radium rarely exceeded their respective MCLs (about 1 and 2 percent, respectively). Nevertheless, elevated concentrations of uranium, radium, and radon followed predictable geologic distribution pat-

terns. The geologic patterns of occurrence were somewhat different for each of these radionuclides despite the fact that radium-226 is a progeny of uranium, which emphasizes the importance of aquifer geochemistry for occurrence patterns.

- Radium was typically highest in anoxic waters that contained less than 0.5 mg/L of dissolved oxygen and more than 50 µg/L of manganese and on occasion more than 100 µg/L of iron, but the number of samples that exceeded the MCL of 5 pCi/L was small, only 2 of 98 samples. Both exceedences, along with most of the highest concentrations, were from anoxic waters. The occurrence of radium was most notable among the clastic sedimentary and clastic lacustrine (lakebed silt and feldspathic sand) sediments of the Piedmont Early Mesozoic basin siliclastic-rock aquifers and in the granites of the crystalline-rock aquifers in the Piedmont and Blue Ridge, especially in anoxic conditions in each of these aquifers. The number of elevated occurrences of radium in the granite and gneiss crystalline-rock aquifers (felsic igneous and metamorphic equivalents lithologic group) was small because these rocks commonly tended to have oxic waters.
- Uranium and arsenic generally were elevated in specific aquifers with alkaline pH conditions, especially those with clastic sedimentary and clastic lacustrine (lakebed silt and feldspathic sand) sediments. Concentrations of uranium were elevated in a few samples from the granite and gneiss crystalline-rock aquifers, but in about 89 percent of the samples from the crystalline rocks, the concentration of uranium was less than or equal to 1 µg/L.
- The geographic distributions of samples with elevated concentrations of uranium and of samples with elevated concentrations of radium differed except for a small number of samples. The radium-226 radionuclide was more frequently detected at elevated concentrations in waters from the siliclastic rocks of the Early Mesozoic basin than was the radium-228 radionuclide; however, in waters from the granites and gneisses, the concentrations of the two radium isotopes were nearly equal in almost all cases.
- In addition to their presence in aquifer bedrock and associated geologic materials, the occurrence of most trace elements and radiochemicals was related to the pH and redox characteristics of the groundwater. Anoxic conditions and elevated concentrations of iron and manganese were correlated with concentrations of radium isotopes in nearly all of the lithochemical subgroups of the study. Alkaline pH was correlated with concentrations of uranium and arsenic, and acidic pH was correlated with elevated concentrations of zinc.

The identification of geologic and geochemical factors affecting trace-element and radionuclide occurrence can be

useful to owners of domestic wells because these water systems generally are not monitored regularly for trace elements or radionuclides. Millions of people in the Piedmont and Blue Ridge region consume water from private domestic wells that are not regulated or monitored and could pose a source of exposure to contaminants such as arsenic or radon. Domestic well owners rarely test for these constituents, but should be aware of their potential occurrence in groundwater and the health risks of exposure to concentrations that exceed drinking water standards. A better understanding of these issues and the geochemical environments that are associated with high levels of contaminants allows water managers to focus on the most important problems in specific geographic areas. The trace-element and radionuclide data compiled in this and other large-scale regional studies or measured locally for public-supply wells could be informative to private-well owners and municipal authorities in identifying where potential risks of naturally contaminated groundwater may be highest and provide information for prioritization of testing private wells in these areas. For example, the general knowledge that water from crystalline-rock aquifers tends to have higher levels of radon than water from other aquifer types can be further focused to a specific geographic area because water from rocks in felsic (specifically those of igneous origin and granitic rock types) or metamorphic sedimentary lithologic groups (specifically schist rock types) has the highest radon levels within the crystalline-rock aquifers. Results of this study also may provide information that would be useful in designing future studies, such as prioritizing the radium-226 isotope for analysis where water is withdrawn from uranium-rich sandstone or siltstone in the Early Mesozoic basins, in order to increase the timeliness of results and perhaps minimize analytical costs for local monitoring programs.

Additional testing of domestic wells and continued public education are important, particularly considering the large areas of potential occurrence of naturally occurring inorganic chemicals and radionuclides. Some of the lithologic groups and subgroups identified for comparison with the water-quality data compiled for this study lacked the corresponding water-quality data. Sampling of these aquifer units, particularly for those lithologies with source minerals associated with radionuclide occurrence could fill these data gaps. Of the potential greatest concern are the granite and biotite gneiss and other intermediate igneous and metamorphic rocks of the Piedmont and Blue Ridge crystalline-rock aquifers and the lacustrine sedimentary and feldspar-rich (arkosic) sedimentary lithologic groups within the Piedmont Early Mesozoic basin siliclastic aquifers, as well as similar metasediments found among the Piedmont and Blue Ridge crystalline-rock aquifers. In addition to the direct measure of contaminants, additional measurements to indicate redox characteristics and pH would be useful to document the geochemical environments of contaminant occurrence.

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## References Cited

- Ames, L.L., McGarrah, J.E., and Walker, B.A., 1983a, Sorption of trace constituents from aqueous solutions onto secondary minerals. II. Radium: *Clays Clay Minerals*, v. 31, p. 335–342.
- Ames, L.L., McGarrah, J.E., Walker, B.A., and Salter, F., 1983b, Uranium and radium sorption on amorphous ferric oxyhydroxide: *Chemical Geology*, v. 40, p. 135–148.
- Ator, S.W., Blomquist, J.D., Brakebill, J.W., Denis, J.M., Ferrari, M.J., Miller, C.V., and Zappia, Humbert, 1998, Water quality in the Potomac River Basin, Maryland, Pennsylvania, Virginia, West Virginia, and the District of Columbia, 1992–96: U.S. Geological Survey Circular 1166, 38 p., accessed May 2011 at <http://pubs.usgs.gov/circ/circ1166/>.
- Ator, S.W., and Denis, J.M., 1997, Relation of nitrogen and phosphorus in ground water to land use in four subunits of the Potomac River Basin: U.S. Geological Survey Water-Resources Investigations Report 96-4268, 26 p.
- Ayers, M.A., Kennen, J.G., and Stackelberg, P.E., 2000, Water quality in the Long Island–New Jersey coastal drainages, New Jersey and New York, 1996–98: U.S. Geological Survey Circular 1201, 40 p., accessed May 2011 at <http://pubs.water.usgs.gov/circ1201/>.
- Ayotte, J.D., Flanagan, S.M., and Morrow, W.S., 2007, Occurrence of uranium and <sup>222</sup>radon in glacial and bed-rock aquifers in the northern United States, 1993–2003: U.S. Geological Survey Scientific Investigations Report 2007-5037, 84 p., accessed August 2011 at <http://pubs.usgs.gov/sir/2007/5037/>.
- Back, W., Hanshaw, B.B., Pyle, T.E., Plummer, L.N., and Weidie, A.E., 1979, Geochemical significance of groundwater discharge to the formation of Caleta Zel Ha, Quintana Roo, Mexico: *Water Resources Research*, v. 15, no. 6, p. 1521–1535.
- Ball, J.W., and Nordstrom, D.K., 1991, User's manual for WATEQ4F, with revised thermodynamic data base and test cases for calculating speciation of major, trace, and redox elements in natural waters: U.S. Geological Survey Open-File Report 91-183, 189 p.
- Benes, P., Streic, P., and Lukavec, Z., 1984, Interaction of radium with freshwater sediments and their mineral components—I. Ferric hydroxide and quartz: *Journal of Radioanalytical and Nuclear Chemistry, Articles* 82/2, p. 275–285.
- Bowell, R.J., 1994, Sorption of arsenic by iron oxides and oxyhydroxides in soils: *Applied Geochemistry*, v. 9, p. 279–286.
- Brenton, R.W., and Arnett, T.L., 1993, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of dissolved organic carbon by UV-promoted persulfate oxidation and infrared spectrometry: U.S. Geological Survey Open-File Report 92-480, 12 p.
- Campbell, T.R., 2006, Radon-222 and other naturally-occurring radionuclides in private drinking water wells and radon in indoor air in selected counties in western North Carolina, 2005: North Carolina Department of Environment and Natural Resources Division of Water Quality Ground Water Circular 2006-01, 27 p., accessed August 2011 at [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=630840d1-d035-482c-a7b3-82f09cf89ae9&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=630840d1-d035-482c-a7b3-82f09cf89ae9&groupId=38364).
- Clark, S.H.B., 2008, Geology of the Southern Appalachian Mountains: U.S. Geological Survey Scientific Investigations Map 2830, 1 two-sided sheet, accessed May 2011 at <http://pubs.usgs.gov/sim/2830/>.
- Coston, J.A., Fuller, C.C., and Davis, J.A., 1995, Pb<sup>2+</sup> and Zn<sup>2+</sup> adsorption by a natural aluminum- and iron-bearing surface coating on an aquifer sand: *Geochimica et Cosmochimica Acta*, v. 59, p. 3535–3547.
- Cotton, F.A., Wilkinson, Geoffrey, Murillo, C. A., and Bochmann, Manfred, 1999, Advanced inorganic chemistry (6th ed.): New York, Wiley-Interscience, 1355 p.
- Cranford, S.L., Bobyarchick, A.R., Pavlides, Louis, and Wier, Karen, 1982, Stream control by foliation, joints, and folds in the Rappahannock River drainage system near Fredericksburg, Virginia: U.S. Geological Survey Miscellaneous Investigations Series Map I-1285, scale 1:48,000.



- Cravotta, C.A., III, 2008a, Dissolved metals and associated constituents in abandoned coal-mine discharges, Pennsylvania, USA—1. Constituent concentrations and correlations: *Applied Geochemistry*, v. 23, p. 166–202.
- Cravotta, C.A., III, 2008b, Dissolved metals and associated constituents in abandoned coal-mine discharges, Pennsylvania, USA—2. Geochemical controls on constituent concentrations: *Applied Geochemistry*, v. 23, p. 203–226.
- Currie, L.A., 1968, Limits for qualitative detection and quantitative determination: Application to radiochemistry. *Analytical Chemistry* 20, 586–593.
- Davis, N.M., Hon, Rudolph, and Dillon, Peter, 1987, Determination of bulk radon emanation rates by high resolution gamma-ray spectroscopy, *in* Graves, Barbara, ed., 1987, Radon in ground water—Hydrogeologic impact and indoor air contamination. Conference on radon, radium, and other radioactivity—Hydrogeologic impact and application to indoor airborne contamination, Somerset, N.J., April 7–9, 1987: Chelsea, Mich., Lewis Publishers Inc., p. 111–128.
- Denver, J.M., Cravotta, C.A., III, Ator, S.W., and Lindsey, B.D., 2010, Contributions of phosphorus from ground-water to streams in the Piedmont, Blue Ridge, and Valley and Ridge Physiographic Provinces, eastern United States: U.S. Geological Survey Scientific Investigations Report 2010-5176, 38 p., accessed May 2011 at <http://pubs.usgs.gov/sir/2010/5176/>.
- DeSimone, L.A., 2009, Quality of water from domestic wells in principal aquifers of the United States, 1991–2004: U.S. Geological Survey Scientific Investigations Report 2008-5227, 139 p. (Also available at <http://pubs.usgs.gov/sir/2008/5227/>)
- Dicken, C.L., Nicholson, S.W., Horton, J.D., Foose, M.P., and Mueller, J.A.L., 2005a, Integrated geologic map databases for the United States—Alabama, Florida, Georgia, Mississippi, North Carolina, and South Carolina: U.S. Geological Survey Open-File Report 2005-1323, accessed October 2008 at <http://pubs.usgs.gov/of/2005/1323/>.
- Dicken, C.L., Nicholson, S.W., Horton, J.D., Kinney, S.A., Gunther, G., Foose, M.P., and Mueller, J.A.L., 2005b, Integrated geologic map databases for the United States: Delaware, Maryland, New York, Pennsylvania, and Virginia: U.S. Geological Survey Open-File Report 2005-1325, accessed October 31, 2008, at <http://pubs.usgs.gov/of/2005/1325/>.
- Drever, J.I., 1997, The geochemistry of natural waters—Surface and groundwater environments (3d ed.): Upper Saddle River, N.J., Prentice Hall, 436 p.
- Duval, J.S., and Riggle, F.E., 1999, Profiles of gamma-ray and magnetic data from aerial surveys over the conterminous United States: U.S. Geological Survey Data Series Report 31 (release 2).
- Dzombak, D.A., and Morel, F.M.M., 1990, Surface complexation modeling—Hydrous ferric oxide: New York, John Wiley & Sons, Inc., 393 p.
- Echevarria, Guillaume, Sheppard, M.I., and Morel, J.L., 2001, Effect of pH on the sorption of uranium in soils: *Journal Environmental Radioactivity*, v. 53, p. 257–264.
- Ehrlich, H.L., 1990, Geomicrobiology (2d ed.): New York, Marcel-Dekker, Inc., 646 p.
- Faure, Gunter, 1986, Principles of isotope geology (2d ed.): New York, John Wiley and Sons, Inc., 589 p.
- Fenneman, N.M., 1938, Physiography of the eastern United States: New York, McGraw-Hill, 714 p.
- Fenneman, N.M., and Johnson, D.W., 1946, Physical divisions of the United States: U.S. Geological Survey, scale 1:7,000,000, 1 sheet.
- Fischer, J.M., Riva-Murray, Karen, Hickman, R.E., Chichester, D.C., Brightbill, R.A., Romanak, K.M., and Bilger, M.D., 2004, Water quality in the Delaware River Basin, Pennsylvania, New Jersey, New York, and Delaware, 1998–2001: U.S. Geological Survey Circular 1227, 38 p., accessed May 2011 at <http://pubs.usgs.gov/circ/2004/1227/>.
- Fishman, M.J., 1993, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of inorganic and organic constituents in water and fluvial sediments: U.S. Geological Survey Open-File Report 93-125, 217 p.
- Frick, E.A., Hippe, D.J., Buell, G.R., Couch, C.A., Hopkins, E.H., Wangsness, D.J., and Garrett, J.W., 1998, Water quality in the Apalachicola-Chattahoochee-Flint River Basin, Georgia, Alabama, and Florida, 1992–95: U.S. Geological Survey Circular 1164, 38 p., accessed May 2011 at <http://pubs.usgs.gov/circ/circ1164/>.
- Gilliom, R.J., Alley, W.M., and Gurtz, M.E., 1995, Design of the National Water-Quality Assessment Program—Occurrence and distribution of water-quality conditions: U.S. Geological Survey Circular 1112, 33 p.
- Gilliom, R.J., Barbash, J.E., Crawford, C.G., Hamilton, P.A., Martin, J.D., Nakagaki, Naomi, Nowell, L.H., Scott, J.C., Stackelberg, P.E., Thelin, G.P., and Wolock, D.M., 2006, Pesticides in the Nation's streams and ground water, 1992–2001: U.S. Geological Survey Circular 1291, 172 p.

- Hall, F.R., Donahue, P.M., and Eldridge, A.L., 1985, Radon gas in ground water in New Hampshire: National Water Well Association Proceedings of Second Annual Eastern Regional Ground Water Conference, Worthington, Ohio, p. 86–100.
- Hanshaw, B.B., and Back, William, 1979, Major geochemical processes in the evolution of carbonate-aquifer systems: *Journal of Hydrology*, v. 43, p. 287–312.
- Harden, S.L., Chapman, M.J., and Harned, D.A., 2009, Characterization of groundwater quality based on regional geologic setting in the Piedmont and Blue Ridge Physiographic Provinces, North Carolina: U.S. Geological Survey Scientific Investigations Report 2009–5149, 32 p., accessed May 2011 at <http://pubs.usgs.gov/sir/2009/5149/>.
- Harned, D.A., and Daniel, C.C., III, 1992, The transition zone between bedrock and regolith—Conduit for contamination? in Daniel, C.C., III, White, R.K., and Stone, P.A., eds., *Ground water in the Piedmont, Proceedings of a Conference on Ground Water in the Piedmont of the Eastern United States*, Charlotte, N.C., Oct. 16–18, 1989: Clemson, S.C., Clemson University, p. 336–348.
- Heath, R.C., 1984, Ground-water regions of the United States: U.S. Geological Survey Water-Supply Paper 2242, 78 p., accessed May 2011 at <http://pubs.usgs.gov/wsp/wsp2242/pdf/wsp2242.pdf>.
- Helsel, D.R., and Hirsch, R.M., 2002, Statistical methods in water resources: U.S. Geological Survey Techniques of Water-Resources Investigations 04-A3, 523 p.
- Hem, J.D., 1985, Study and interpretation of the chemical characteristics of natural water (3d ed.): U.S. Geological Survey Water-Supply Paper 2254. (Also available at <http://pubs.usgs.gov/wsp/wsp2254/>.)
- Hess, C.T., Michel, J., Horton, T.R., Prichard, H.M., and Coniglio, W.A., 1985, The occurrence of radioactivity in public water supplies in the United States: *Health Physics*, v. 48, p. 553–586.
- Hibbard, J.P., van Staal, C.R., Rankin, D.W., and Williams, H., 2006, Lithotectonic Map of the Appalachian Orogen Canada–United States of America: Geological Survey of Canada “A” Series Map 2096A, 1:1500000.
- Hodge, V.F., Stetzenbach, K.J., and Johannesson, K.H., 1998, Similarities in the chemical composition of carbonate ground waters and seawater: *Environmental Science & Technology*, v. 32, p. 2481–2486.
- Holloway, J.M., Dahlgren, R.A., Hansen, B., and Casey, W.H., 1998, Contributions of bedrock nitrogen to high nitrate concentrations in stream water: *Nature*, v. 395, p. 785–788.
- Hsi, C.D., and Langmuir, Donald, 1985, Adsorption of uranyl onto ferric oxyhydroxides—Application of the surface-complexation site-binding model: *Geochimica et Cosmochimica Acta*, v. 49, p. 1931–1941.
- Hughes, W.B., Abrahamsen, T.A., Maluk, T.L., Reuber, E.J., and Wilhelm, L.J., 2000, Water quality in the Santee River Basin and Coastal Drainages, North and South Carolina, 1995–98: U.S. Geological Survey Circular 1206, 32 p., accessed January 2011 at <http://pubs.water.usgs.gov/circ1206/>.
- Joreskog, K.G., Klován, J.E., and Reymont, R.A., 1976, *Geological factor analysis*: New York, Elsevier, 178 p.
- Kirby, C.S., and Cravotta, C.A., III, 2005, Net alkalinity and net acidity 2—Practical considerations: *Applied Geochemistry*, v. 20, p. 1941–1964.
- Kirk, M.F., Holm, T.R., Park, J., Qusheng, J., Sanford, R.A., Fouke, B.W., and Bethke, C.M., 2004, Bacterial sulfate reduction limits natural arsenic contamination in groundwater: *Geology*, v. 32, p. 953–956.
- Kooner, Z.S., 1993, Comparative study of adsorption behavior of copper, lead, and zinc onto goethite in aqueous systems: *Environmental Geology*, v. 21, p. 242–250.
- Korner, L.A., and Rose, A.W., 1977, Radon in streams and ground waters of Pennsylvania as a guide to uranium deposits: U.S. Energy Research and Development Assoc. Open-File Report GJBX-60(77), Grand Junction, Colo.
- Korte, Nic, 1991, Naturally occurring arsenic in groundwaters of the midwestern United States: *Environmental Geology and Water Science*, v. 18, no. 2, p. 137–141.
- Koterba, M.T., Wilde, F.D., and Lapham, W.W., 1995, Ground-water data-collection protocols and procedures for the National Water-Quality Assessment Program—Collection and documentation of water-quality samples and related data: U.S. Geological Survey Open-File Report 95-399, 113 p.
- Kozar, M.D., Sheets, C.J., and Hughes, C.A., 2001, Ground-water quality and geohydrology of the Blue Ridge Physiographic Province, New River Basin, Virginia and North Carolina: U.S. Geological Survey Water-Resources Investigations Report 00-4270, 36 p.
- Krauskopf, K.B., 1979, *Introduction to geochemistry*: New York, McGraw-Hill, 617 p.
- Landa, E.R., Phillips, E.J.P., and Lovely, D.R., 1991, Release of  $^{226}\text{Ra}$  from uranium mill tailings by microbial Fe(III) reduction: *Applied Geochemistry*, v. 6, p. 647–652.

- Langmuir, Donald, 1971, The geochemistry of some carbonate ground water in waters in central Pennsylvania: *Geochimica et Cosmochimica Acta*, v. 35, p. 1023–1045.
- Langmuir, Donald, 1978, Uranium solution-mineral equilibria at low temperatures with applications to sedimentary ore deposits. *Geochimica et Cosmochimica Acta* v. 42, p. 547–569.
- Langmuir, Donald, 1997, *Aqueous environmental geochemistry*: New Jersey, Prentice-Hall, 600 p.
- Langmuir, Donald, and Herman, J.S., 1980, The mobility of thorium in natural waters at low temperatures: *Geochimica et Cosmochimica Acta*, v. 44, p. 1753–1766.
- Lapham, W.W., Hamilton, P.A., and Myers, D.N., 2005, National Water-Quality Assessment Program—Cycle II Regional Assessment of Aquifers: U.S. Geological Survey Fact Sheet 2005-3013, 4 p., accessed February 2011 at [http://pubs.usgs.gov/fs/2005/3013/pdf/PAS\\_forWeb.pdf](http://pubs.usgs.gov/fs/2005/3013/pdf/PAS_forWeb.pdf).
- Lindsey, B.D., and Ator, S.W., 1996, Radon in ground water of the Lower Susquehanna and Potomac River Basins: U.S. Geological Survey Water-Resources Investigations Report 96-4156, 7 p., accessed May 2011 at [http://pa.water.usgs.gov/reports/wrir\\_96-4156/report.html](http://pa.water.usgs.gov/reports/wrir_96-4156/report.html).
- Lindsey, B.D., Berndt, M.P., Katz, B.G., Ardis, A.F., and Skach, K.A., 2009, Factors affecting water quality in selected carbonate aquifers in the United States, 1993–2005: U.S. Geological Survey Scientific Investigations Report 2008-5240, 117 p., accessed May 2011 at <http://pubs.usgs.gov/sir/2008/5240/>.
- Lindsey, B.D., Falls, W.F., Ferrari, M.J., Zimmerman, T.M., Harned, D.A., Sadorf, E.M., and Chapman, M.J., 2006, Factors affecting occurrence and distribution of selected contaminants in ground water from selected areas in the Piedmont Aquifer System, eastern United States, 1993–2003, U.S. Geological Survey Scientific Investigations Report 2006-5104, 40 p., accessed May 2011 at <http://pubs.usgs.gov/sir/2006/5104/pdf/sir2006-5104.pdf>.
- Lindsey, B.D., Loper, C.A., and Hainly, R.A., 1997, Nitrate in ground water and stream base flow in the lower Susquehanna River Basin, Pennsylvania: U.S. Geological Survey Water-Resources Investigations Report 97-4146, 66 p., accessed May 2011 at [http://pa.water.usgs.gov/reports/wrir\\_97-4146.pdf](http://pa.water.usgs.gov/reports/wrir_97-4146.pdf).
- Loganathan, P., and Burau, R.G., 1973, Sorption of heavy metal ions by a hydrous manganese oxide: *Geochimica et Cosmochimica Acta*, v. 37, p. 1277–1293.
- Logue, B.A., Smith, R.W., and Westall, J.C., 2004, U(VI) adsorption on natural iron-coated sands—Comparison of approaches for modeling adsorption on heterogeneous environmental materials: *Applied Geochemistry*, v. 19, p. 1937–1951.
- Maupin, M.A., and Arnold, T.L., 2010, Estimates for self-supplied domestic withdrawals and population served for selected Principal Aquifers, calendar year 2005: U.S. Geological Survey Open-File Report 2010-1223, 10 p.
- Mays, C.W., Rowland, R.E., and Stehney, A.F., 1985, Cancer risk from the lifetime intake of Ra and U isotopes: *Health Physics*, v. 48, no. 5, p. 635–647.
- McCartan, Lucy, Peper, J.D., Bachman, L.J., and Horton, J.W., Jr., 1998, Application of geologic map information to water quality issues in the southern part of the Chesapeake Bay watershed, Maryland and Virginia, eastern United States: *Journal of Geochemical Exploration*, v. 64, p. 355–376.
- McCurdy, D.E., Garbarino, J.R., and Mullin, A.H., 2008, Interpreting and reporting radiological water-quality data: U.S. Geological Survey Techniques and Methods, book 5, chap. B6, 33 p.
- McMahon, P.B., and Chapelle, F.H., 2008, Redox processes and water quality of selected principal aquifer systems: *Ground Water*, v. 46, p. 259–271.
- Michel, J., 1984, Redistribution of uranium and thorium series isotopes during isovolumetric weathering of granite: *Geochimica et Cosmochimica Acta*, v. 48, p. 1249–1255.
- Miller, J.A., 1990, Ground water atlas of the United States, Segment 6—Alabama, Florida, Georgia, and South Carolina: U.S. Geological Survey Hydrologic Investigations Atlas 730-G, 28 p.
- Moore, W.S., and Reid, D., 1973, Extraction of radium from natural waters using manganese-impregnated acrylic fibers: *Deep Sea Research*, v. 23, p. 647–651.
- Nathwani, J.S., and Phillips, C.R., 1979, Adsorption of  $^{226}\text{Ra}$  by soils in the presence of  $\text{Ca}^{+2}$  ions—Specific adsorption (II): *Chemosphere*, v. 8, no. 5, p. 293–299.
- Nicholson, S.W., Dicken, C.L., Horton, J.D., Foote, M.P., Mueller, J.A.L., and Hon, R., 2006, Preliminary integrated geologic map databases for the United States—Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, Rhode Island, and Vermont, Version 1.1: U.S. Geological Survey Open-File Report 2006-1272, accessed October 31, 2008, at <http://pubs.usgs.gov/of/2006/1272/>.

- Nicholson, S.W., Dicken, C.L., Horton, J.D., Labay, K.A., Foose, M.P., and Mueller, J.A.L., 2005, Preliminary integrated geologic map databases for the United States—Kentucky, Ohio, Tennessee, and West Virginia: U.S. Geological Survey Open-File Report 2005-1324, accessed October 31, 2008, at <http://pubs.usgs.gov/of/2005/1324/>.
- North Carolina Geological Survey, 1985, Geologic map of North Carolina: Raleigh, North Carolina Geological Survey, scale 1:500,000.
- Osmond, J.K., and Cowart, J.B., 1976, The theory and uses of natural uranium isotopic variations in hydrology: *Atomic Energy Review*, v. 14, p. 621–679.
- Parkhurst, D.L., and Appelo, C.A.J., 1999, User's guide to PHREEQC (Version 2)—A computer program for speciation, batch-reaction, one-dimensional transport, and inverse geochemical calculations: U.S. Geological Survey Water-Resources Investigations Report 99-4259, 312 p.
- Patton, C.J., and Truitt, E.P., 1992, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of total phosphorus by a Kjeldahl digestion method and an automated colorimetric finish that includes dialysis: U.S. Geological Survey Open-File Report 92-146, 39 p.
- Paybins, K.S., Messinger, Terence, Eychaner, J.H., Chambers, D.B., and Kozar, M.D., 2000, Water quality in the Kanawha–New River Basin West Virginia, Virginia, and North Carolina, 1996–98: U.S. Geological Survey Circular 1204, 32 p., accessed May 2011 at <http://pubs.water.usgs.gov/circ1204/>.
- Peper, J.D., McCartan, L.B., Horton, J.W., Jr., and Reddy, J.E., 2001, Preliminary lithogeochemical map showing near-surface rock types in the Chesapeake Bay watershed, Virginia and Maryland: U.S. Geological Survey Open-File Report 01-187, 26 p., 1 pl., accessed May 2011 at <http://pubs.usgs.gov/of/2001/of01-187/>.
- Peters, N.E., and Bonelli, J.E., 1982, Chemical composition of bulk precipitation in the north-central and northeastern United States, December 1980 through February 1981: U.S. Geological Survey Circular 874, 63 p.
- Pippin, C.G., 2005, Distribution of total arsenic in ground-water in the North Carolina Piedmont, in National Groundwater Association Naturally Occurring Contaminants Conference on Arsenic, Radium, Radon, and Uranium, February 24–25, 2005, Charleston, S.C., p. 89–102, accessed May 2011 at [http://portal.ncdenr.org/c/document\\_library/get\\_file?uuid=4636eff5-6e44-4949-a19d-fb4778d393a9&groupId=38364](http://portal.ncdenr.org/c/document_library/get_file?uuid=4636eff5-6e44-4949-a19d-fb4778d393a9&groupId=38364).
- Price, C.V., Nakagaki, N., Hitt, K.J., and Clawges, R.M., 2007, Enhanced historical land-use and land-cover data sets of the U.S. Geological Survey: USGS Data Series 240 [digital data], accessed May 2012 at <http://pubs.usgs.gov/ds/2006/240>.
- Puckett, L.J., 1994, Nonpoint and point sources of nitrogen in major watersheds of the United States: U.S. Geological Survey Water-Resources Investigations Report 94-4001, 9 p.
- Roden, E.F., and Zachara, J.M., 1996, Microbial reduction of crystalline iron(III) oxides—Influence of oxide surface area and potential for cell growth: *Environmental Science Technology*, v. 30, p. 1618–1628.
- Rose, A.W., Hawkes, H.E., and Webb, J.S., 1979, Geochemistry in mineral exploration: New York, Academic Press, 657 p.
- SAS Institute, Inc., 2008, SAS 9.2 for Windows: Cary, N.C.
- Senior, L.A., 1996, Ground-water quality and its relation to hydrogeology, land use, and surface-water quality in the Red Creek Basin, Piedmont Physiographic Province, Pennsylvania and Delaware: U.S. Geological Survey Water-Resources Investigations Report 96-4288, 122 p.
- Senior, L.A., 1998, Radon-222 in the ground water of Chester County, Pennsylvania: U.S. Geological Survey Water-Resources Investigations Report 98-4169, 79 p.
- Senior, L.A., and Sloto, R.A., 2000, Radium-224 and its relation to gross-alpha-particle, radium-226, and radium-228 activities in ground water from rocks of the Piedmont Physiographic Province, southeastern Pennsylvania [abstract]: *Geological Society of America Abstracts with Programs, Northeastern Section*, v. 32, no. 1, p. A-73.
- Senior, L.A., and Sloto, R.A., 2006, Arsenic, boron, and fluoride concentrations in groundwater in and near diabase intrusions, Newark Basin, southeastern Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2006-5261, 105 p.
- Senior, L.A., and Vogel, K.L., 1992, Radium and radon in ground water in the Chickies Quartzite, southeastern Pennsylvania: U.S. Geological Survey Water-Resources Investigations Report 92-4088, 145 p.
- Serfes, M.E., 1994, Natural ground-water quality in bedrock aquifer of the Newark Basin, New Jersey: New Jersey Geological Survey Geological Survey Report GSR 35, 34 p.



- Serfes, M.E., 2004, Arsenic in New Jersey ground water: New Jersey Geological Survey Information Circular, 2 p., accessed August 23, 2012, at <http://www.state.nj.us/dep/njgs/enviroed/infocirc/arsenic.pdf>
- Serfes, M.E., Herman, G.C., Spayd, S.E., and Reinfelder, J., 2010, Sources, mobilization, and transport of arsenic in groundwater in the Passaic and Lockatong Formations of the Newark Basin, New Jersey, Chapter E, *in* Herman, G.C., and Serfes, M.E., eds., Contributions to the geology and hydrogeology of the Newark Basin: Trenton, N.J., New Jersey Geological Survey Bulletin 77, p. E1–E40.
- Sloto, R.A., 2000, Naturally occurring radionuclides in ground water of southeastern Pennsylvania: U.S. Geological Survey Fact Sheet 012-00. (Also available at <http://pa.water.usgs.gov/reports/fs012-00.html>.)
- Sloto, R.A., 2002, Geohydrology and ground-water quality, Big Elk Creek basin, Chester County, Pennsylvania, and Cecil County, Maryland: U.S. Geological Survey Water-Resources Investigations Report 2002-4057, 81 p., accessed August 2011 at <http://pubs.er.usgs.gov/publication/wri024057>.
- Sloto, R.A., and Senior, L.A., 1998, Radon in ground water of Chester County, Pennsylvania: U.S. Geological Survey Fact Sheet 120-98, 4 p., accessed August 2011 at [http://pubs.er.usgs.gov/djvu/FS/fs\\_98\\_120.djvu](http://pubs.er.usgs.gov/djvu/FS/fs_98_120.djvu).
- Smedley, P.L., and Kinniburgh, D.G., 2002, A review of the source, behaviour and distribution of arsenic in natural waters: *Applied Geochemistry*, v. 17, no. 5, p. 517–568.
- Smith, R.C., II, 1977, Zinc and lead occurrences in Pennsylvania: Pennsylvania Geological Survey Mineral Resource Report 72, 318 p.
- Speer, J.A., Solberg, T.N., and Becker, S.W., 1981, Petrography of the uranium-bearing minerals of the Liberty Hill Pluton, South Carolina—Phase assemblages and migration of uranium in granitoid rocks: *Economic Geology*, v. 76, p. 2162–2175.
- Stumm, W., and Morgan, J.J., 1996, Aquatic chemistry—Chemical equilibria and rates in natural waters (3d ed.): New York, John Wiley & Sons, Inc., 1022 p.
- Szabo, Zoltan, Fischer, J.M., and Hancock, Tracy, 2012a, Principal aquifers can contribute radium to drinking water under certain geochemical conditions: U.S. Geological Survey Fact Sheet 2010-3113, 6 p. (Also available at <http://pubs.usgs.gov/fs/2010/3113/>.)
- Szabo, Zoltan, dePaul, V.T., Fischer, J.M., Kraemer, T.F., and Jacobsen, Eric, 2012b, Occurrence and geochemistry of radium in aquifers used for drinking water in the United States: *Applied Geochemistry*, v. 27, p. 729–752. [doi:10.1016/j.apgeochem.2011.11.002]
- Szabo, Zoltan, dePaul, V.T., Kraemer, T.F., Parsa, Bahman, 2005, Occurrence of radium-224, radium-226 and radium-228 in water from the unconfined Kirkwood-Cohansey Aquifer System, southern New Jersey: U.S. Geological Survey Scientific Investigations Report 2004-5224, 92 p. (Also available at <http://pubs.usgs.gov/sir/2004/5224/>.)
- Szabo, Zoltan, and Zapecza, O.S., 1991, Geologic and geochemical factors controlling uranium, radium-226, and radon-222 in ground water, Newark Basin, New Jersey, *in* Gundersen, L.C.S., and Wanty, R.B., eds., Field studies of radon in rocks, soils, and water: U.S. Geological Survey Bulletin 1971, p. 243–266.
- Thyne, Geoffrey, Guler, Cuneyt, and Poeter, Eileen, 2004, Sequential analysis of hydrochemical data for watershed characterization: *Ground Water*, v. 42, p. 711–723.
- Toccalino, P.L., Norman, J.E., Booth, N.L., Thompson, J.L., and Zogorski, J.S., 2012, Health-based screening levels—Benchmarks for evaluating water-quality data: U.S. Geological Survey, accessed August 23, 2012, at <http://water.usgs.gov/nawqa/HBSL/>.
- Trapp, Henry, Jr., and Horn, M.A., 1997, Ground water atlas of the United States, Segment 11—Delaware, Maryland, New Jersey, North Carolina, Pennsylvania, Virginia, West Virginia: U.S. Geological Survey Hydrologic Investigations Atlas 730-L, 24 p., accessed May 2011 at [http://pubs.usgs.gov/ha/ha730/ch\\_1/index.html](http://pubs.usgs.gov/ha/ha730/ch_1/index.html).
- Tricca, A., Wasserburg, G.J., Porcelli, D., and Baskaran, M., 2001, The transport of U- and Th-series nuclides in a sandy unconfined aquifer: *Geochimica et Cosmochimica Acta*, v. 65, p. 1187–1210.
- Turner, D.R., Whitfield, M., and Dickson, A.G., 1981, The equilibrium speciation of dissolved components in freshwater and seawater at 25°C and 1 atm pressure: *Geochimica et Cosmochimica Acta*, v. 45, p. 855–881.
- Turner-Peterson, C.E., 1980, Sedimentology and uranium mineralization in the Triassic-Jurassic Newark Basin, Pennsylvania and New Jersey, *in* Turner-Peterson, C.E., ed., Uranium in sedimentary rocks—Application of the facies concept to exploration: Society of Economic Paleontologists and Mineralogists, Rocky Mountain Section, Short Course Notes, Denver, Colo., p. 149–175.
- U.S. Environmental Protection Agency, 1976, Drinking water regulations; radionuclides: *Federal Register*, v. 41, p. 28402.
- U.S. Environmental Protection Agency, 1991, Primary drinking water regulations, Radionuclides, proposed rules: *Federal Register*, v. 56, July 18, 1991, p. 33050.
- U.S. Environmental Protection Agency, 1999, Environmental Radiation Guidance Document No. 13: Washington, D.C., Office of Water Supply, U.S. Environmental Protection Agency Report EPA-2501/10-99-013.

- U.S. Environmental Protection Agency, 2000, National Primary Drinking Water Regulations; Radionuclides; Final rule, 40 CFR, parts 141 and 142: Washington, D.C., Federal Register, v. 65, no. 236.
- U.S. Environmental Protection Agency, 2001, National Primary Drinking Water Regulations; Arsenic and clarifications to compliance and new source contaminants monitoring; Final rule, 40 CFR, parts 141 and 142: Washington, D.C., Federal Register, v. 66, no. 14, p. 6975–7066.
- U.S. Environmental Protection Agency, 2009, 2009 Edition of the drinking water standards and health advisories (fall 2009): Washington, D.C., U.S. Environmental Protection Agency EPA 822-R-09-011, 12 p., accessed May 2011 at <http://water.epa.gov/drink/contaminants/upload/mcl-2.pdf>.
- U.S. Environmental Protection Agency, 2010, Proposed radon in drinking water regulation, accessed January 2011 at <http://water.epa.gov/lawsregs/rulesregs/sdwa/radon/regulations.cfm>.
- U.S. Geological Survey, 2003, Principal aquifers of the 48 conterminous United States, Hawaii, Puerto Rico, and the U.S. Virgin Islands: U.S. Geological Survey, accessed May 2011 at <http://nationalatlas.gov/atlasftp.html>.
- Van Houten, F.B., 1965, Composition of Triassic Lockatong and associated formations of Newark Group, central New Jersey and adjacent Pennsylvania: American Journal of Science, v. 263, no. 10, p. 825–863.
- Vinson, D.S., Vengosh, A., Hirschfeld, D., and Dwyer, G., 2009, Relationship between radium and radon occurrence and hydrochemistry in fresh groundwater from fractured crystalline rocks, North Carolina (USA): Chemical Geology, v. 260, p. 159–171.
- Wanty, R.B., Lawrence, E.P., and Gunderson, L.C.S., 1992, A theoretical model for the flux of radon from rock to ground water, *in* Gates, A.E., and Gunderson, L.C.S., eds., Geologic controls on radon: Boulder, Colo., Geological Society of America Special Paper 271, p. 73–78.
- Welch, A.H., and Stollenwerk, K.G., eds., 2003, Arsenic in ground water—Geochemistry and occurrence: Kluwer Academic Publishers.
- Welch, A.H., Westjohn, D.B., Helsel, D.R., and Wanty, R.B., 2000, Arsenic in ground water of the United States—Occurrence and geochemistry: Ground Water, v. 38, p. 589–604.
- Werner, S.L., Burkhardt, M.R., and DeRousseau, S.N., 1996, Methods of analysis by the U.S. Geological Survey National Water Quality Laboratory—Determination of pesticides in water by Carbopak-B solid-phase extraction and high-performance liquid chromatography: U.S. Geological Survey Open-File Report 96-216, 42 p.
- Zachara, J.M., Cowan, C.E., and Resch, C.T., 1991, Sorption of divalent metals on calcite: Geochimica et Cosmochimica Acta, v. 55, p. 1549–1562.

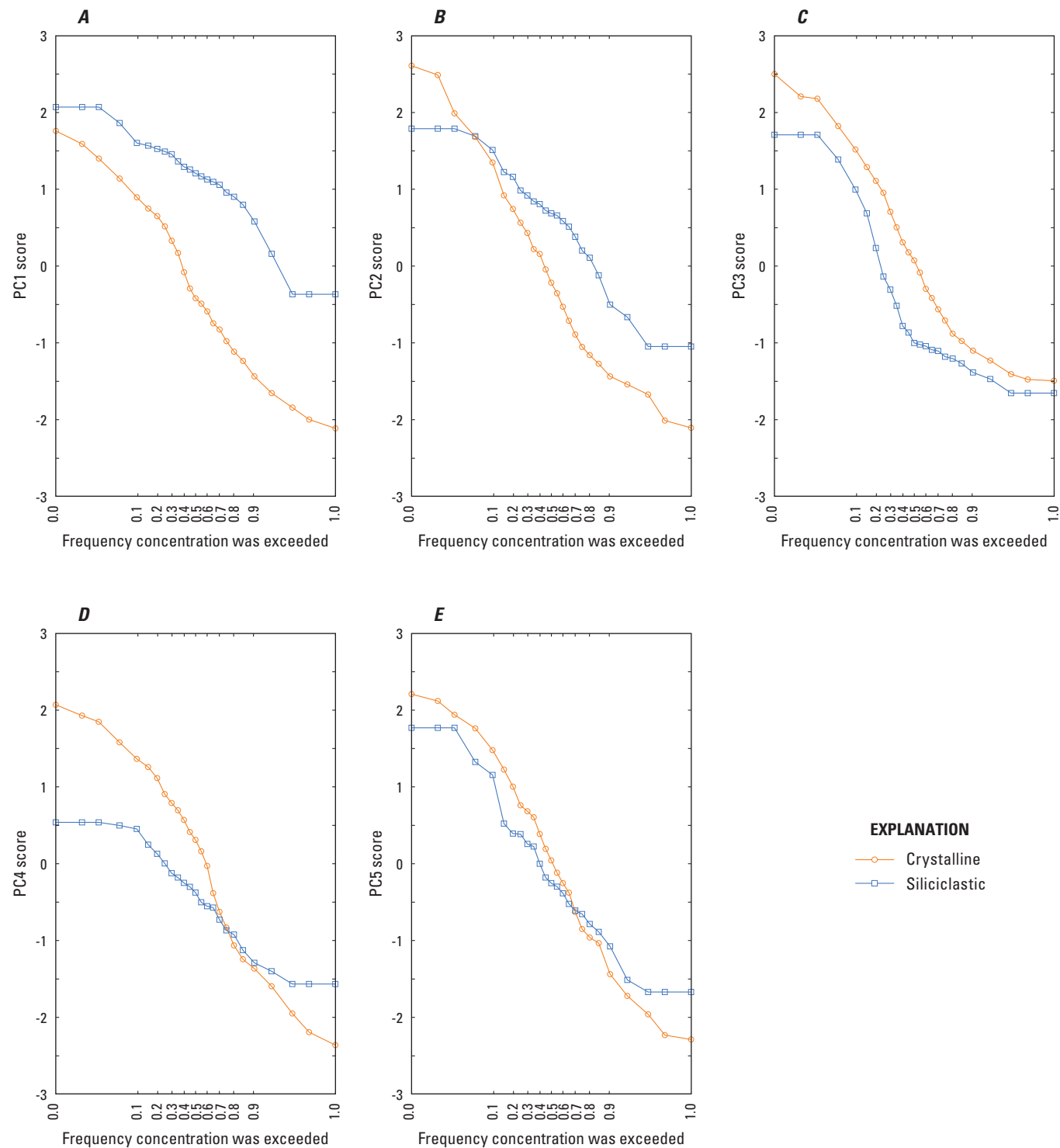
## Appendixes 1, 2, and 3

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**Appendix 1.** Tables. (Excel spreadsheets available online at <http://pubs.usgs.gov/sir/2013/5072/>)

**Appendix 2.** Probability plots of principal components analysis (PCA) scores for groundwater of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces: *A*, PC1 “Alkalinity-pH”; *B*, PC2 “Chloride-Nitrate”; *C*, PC3 “Redox”; *D*, PC4 “Temperature-Silica”; and *E*, “Radon-Potassium”.

**Appendix 3.** Analytical Issues Relating to Defining Radium Occurrence.



**Appendix 2.** Probability plots of principal component analysis (PCA) scores for groundwater of siliclastic-rock and crystalline-rock aquifers in the Piedmont and Blue Ridge Physiographic Provinces: *A*, PC1 “Alkalinity-pH”; *B*, PC2 “Chloride-Nitrate”; *C*, PC3 “Redox”; *D*, PC4 “Temperature-Silica”; and *E*, PC5 “Radon-Potassium”. The PCA model is described in table 5 and appendix table 1-7.



## Appendix 3. Analytical Issues Relating to Defining Radium Occurrence

Interpreting radiological results requires understanding the concepts of detectability and quantification unique to radiochemistry measurements. For measurements of radionuclides in this study, these concepts primarily are important for measurements of radium concentrations. Uranium concentrations were determined by measuring the mass of the uranium-238 isotope present; therefore, issues unique to radiochemistry measurements were not considered. Concentrations of radon-222 were so high that issues regarding detectability and quantification were again not of consideration. Concentrations of radium (Ra) isotopes, however, while showing considerable ranges, were for many samples at or below detection, or if detected, were low enough that guidelines for quantification could not be met. Furthermore, analytical techniques for radium isotopes underwent considerable changes during the period of study as did reporting requirements. A measured (uncensored) concentration value was reported for nearly all the samples (tables 4 and 1-4), although issues relating to analysis, detection, quantification, and reporting of the measured radium isotope concentrations affect understanding of the radium occurrence. Additional information provided with many of the analyses can be useful in determining the statistical likelihood of detection and quantification.

Random radioactive decay, variable radioactive background noise, and other measurement uncertainties cause measurement signal to vary. For a background blank or an environmental sample, a nonzero signal may be produced even when no radionuclide is present. For this reason, the laboratory analyzes an instrument background or blank sample and subtracts the response signal from the gross signal of the measured environmental sample to obtain the net signal. The critical level ( $L_c$ ) is the smallest measured concentration that is statistically different from the instrument background (blank). It is the threshold of detection for whether the radionuclide is actually present. The statistical computation is set to minimize the statistical likelihood of a false detection. Because of the random variability in the background signal, the issue of detection of radioactivity in an individual sample result is not in all cases best represented by the general reporting level, therefore, but rather by comparison with the  $L_c$ . The sample-specific minimum detectable concentration (ssMDC) is a slightly higher (concentration) value than the  $L_c$  that is adequate to distinguish the sample result from that of the blank with statistical confidence. For each sample, the sample-specific parameters such as yield, detector efficiency, and sample aliquot size are used in the formula to determine the SSMD. In the truly simplest case, the SSMD is about twice the  $L_c$  (Currie, 1968). Reported negative values are possible when the result of a sample is less than that of the blank representing background; these values represent non-detection in the case of a single measurement. The precision estimate of the radiological result is the square root of the sum of

variances of the factors that affect measurement precision. For radionuclides, a large component of the measurement precision is defined by the random decay rate of the radionuclide at any instant in time. Though the average rate of decay conforms to that associated with the half life (the time in which half of the radionuclides would decay), at any instant in time, the rate may randomly be greater or lesser than this average rate, resulting in imprecision in the measurement. A sample result implies true detection if the result is greater than the  $L_c$ , but confidence that the value of the result is statistically significantly different from the background is achieved if the value is also greater than the SSMD, and the sample may still have poor precision. For radionuclide samples analyzed for this study before mid-2003, sample-specific critical levels ( $ssL_c$ ) were not reported (McCurdy and others, 2008). Comparisons of detectability are reliant on the assumption that the reported SSMDs were indeed twice the values of the  $ssL_c$ s (Currie, 1968). Importantly, the sensitivities of the analyses were such that concentrations great enough to be considered of concern to human health could readily be detected and quantified.

The concentrations of Ra-226 were greater than the individual SSMDs (when reported, see table 1-4) or  $L_c$ s (stored in USGS databases but not reported in table 1-4) in 85 samples, and the reported raw values were greater than zero in all but one sample. The concentrations of Ra-226 were less than the individual SSMDs in eight samples from the siliclastic lacustrine siltstones of the Early Mesozoic basin sediments, a frequency greater than in the other rock types, even though the highest Ra-226 concentration was also detected in this rock type. The concentrations of Ra-226 in samples collected from the Early Mesozoic basin aquifer were determined by using alpha spectrometry, whereas the radon-emanation method was used for analysis of Ra-226 from samples collected from the remaining aquifers. Alpha spectrometry had a higher detector background than did the radon-emanation method, resulting in the higher SSMDs (or  $L_c$ s). This difference in methodology likely explains why so many sample results were reported as less than the SSMD for samples collected from the Early Mesozoic basin aquifer, but not from samples collected from the remaining aquifers. Of the remaining rock types, the concentrations of Ra-226 were less than the individual SSMDs or  $ssL_c$ s in only one or two samples, except for the metasediments (CLSDMT, table 3) for which three samples had concentrations less than the  $L_c$ . Concentrations of Ra-226 in 53 samples were greater than 0.1 picocurie per liter (pCi/L), but of those, only 1 had a concentration (0.126 pCi/L) that was less than the corresponding SSMD (0.145 pCi/L) (table 1-4). The high frequency of detection in samples relative to that of Ra-228 is partly attributable to the great sensitivity of the radon emanation technique used for detecting Ra-226.

The concentrations of Ra-228 were greater than the individual SSMDs (when reported, see table 1-4) or  $L_c$ s (stored in USGS databases but not reported in table 1-4) in 48 samples, and reported raw values were greater than zero in all but 9 samples (table 4). The SSMDs for the beta-particle

emitting Ra-228 (maximum and 75th-percentile values, 0.906 and 0.569 pCi/L, respectively) were higher than those for either of the other Ra isotopes, which are alpha-particle emitters (table 1-4) and have lower background values. A maximum measured Ra-228 concentration of 0.71 pCi/L in one sample, however, was still less than the respective SSMDC, illustrating the difficulty in interpreting the distribution of Ra-228 concentrations that are less than about 0.7 to 0.9 pCi/L (representing the maximum SSMDC). The concentrations of Ra-228 were greater than 0.9 and 1 pCi/L in 17 and 14 samples, respectively, and were generally found at these concentrations in both siliciclastic and crystalline rock aquifers. An additional 22 samples with concentrations ranging from 0.19 to 0.71 pCi/L were considered as detectable in quantifiable amounts because the concentration was greater than the associated SSMDC or  $L_c$ . The minimum Ra-228 concentration that was greater than the associated SSMDC was 0.593 pCi/L (table 1-4) and that was greater than the associated  $L_c$  that was 0.19 pCi/L.

Ra-224 concentrations were measured in samples only from the sedimentary rock aquifers of the Early Mesozoic basin and were not present at concentrations greater than 1 pCi/L in any of the samples analyzed for this isotope. The median concentration value of 0.10 pCi/L is uncertain (an estimate at best) because it is less than the value of the median of the associated SSMDCs (0.24 pCi/L). The concentrations of Ra-224 for the samples collected from this aquifer were determined by alpha spectrometry, and this technique has high enough SSMDCs to make detection in many samples questionable. The concentrations of Ra-224 were greater than or equal to the individual SSMDCs in 5 samples, and the reported raw values were greater than zero in all but 3 samples (table 4). A maximum measured Ra-224 concentration of 0.47 pCi/L in one sample, however, was still less than the respective SSMDC, illustrating that alpha spectrometry may have performance issues up to a value of about 0.5 pCi/L.

Concentrations of Ra-226 plus Ra-228 (termed combined Ra, the quantity that is specifically considered in drinking water regulations) were quantifiable at about the 1 pCi/L level and could be compared to the 5 pCi/L standard. The concentrations of both these Ra radionuclides were greater than the respective SSMDC or  $ssL_c$  for 44 percent of the samples, with

concentrations of combined radium (Ra-226 plus Ra-228) for these samples about equal to or greater than 1.0 pCi/L (fig. 14). At least one of these two Ra radionuclides was detected with respect to the SSMDC or the  $ssL_c$  for 88 percent of the samples; the SSMDC in all cases when it was reported was less than 1 pCi/L (table 1-4). All samples had at least one of these two Ra radionuclides reported with a value greater than zero (table 4).

For purposes of statistical calculation, and for plots illustrating population distribution characterization, such as probability plots or boxplots (figs. 14, 17, and 21; tables 1-4 and 1-5), the distribution of the raw reported laboratory results were displayed to provide the sense of the distribution of the raw (uncensored) measured values. Values less than zero were censored for descriptive purposes in table 4. This approach eliminated the need for statistical approaches to estimate low concentration values (such as those described by Helsel and Hirsch, 2002). For scatter diagrams (figs. 29, 30, and 31), when only one Ra radionuclide concentration, Ra-226 or Ra-228, was detectable or quantifiable with the prescribed level of statistical certainty, the concentration of that one isotope was used as the concentration to represent the value of combined Ra. When neither Ra radionuclide concentration, Ra-226 or Ra-228, was detectable or quantifiable with the prescribed level of statistical certainty, the lower of the two reported concentrations was used to represent the value of the combined Ra concentration. As detailed above, all samples had at least one of these two Ra radionuclides reported with a value greater than zero (table 4). For purposes of graphical representation in the latter case, when neither Ra radionuclide concentration, Ra-226 or Ra-228, was detectable, the value of either the combined Ra concentration or the individual Ra radionuclide was represented as an open rather than as a closed symbol. For purposes of the simplest description of the distribution, the use of 1 pCi/L as an approximate cutpoint separating concentrations detected with greatest statistical certainty from those concentrations detected with slightly lesser statistical certainty or those not detected at all is reasonably justified by the distribution of the  $ssMDCs$  or  $L_{cs}$ . In terms of the human health benchmark (HHB) of 5 pCi/L, this value represents the 20th percentile, and can be described as 0.2 HHB (fig. 21R; table 4).

Prepared by:

USGS Science Publishing Network  
Raleigh Publishing Service Center  
3916 Sunset Ridge Road  
Raleigh, NC 27607

USGS Publishing Service Center staff:

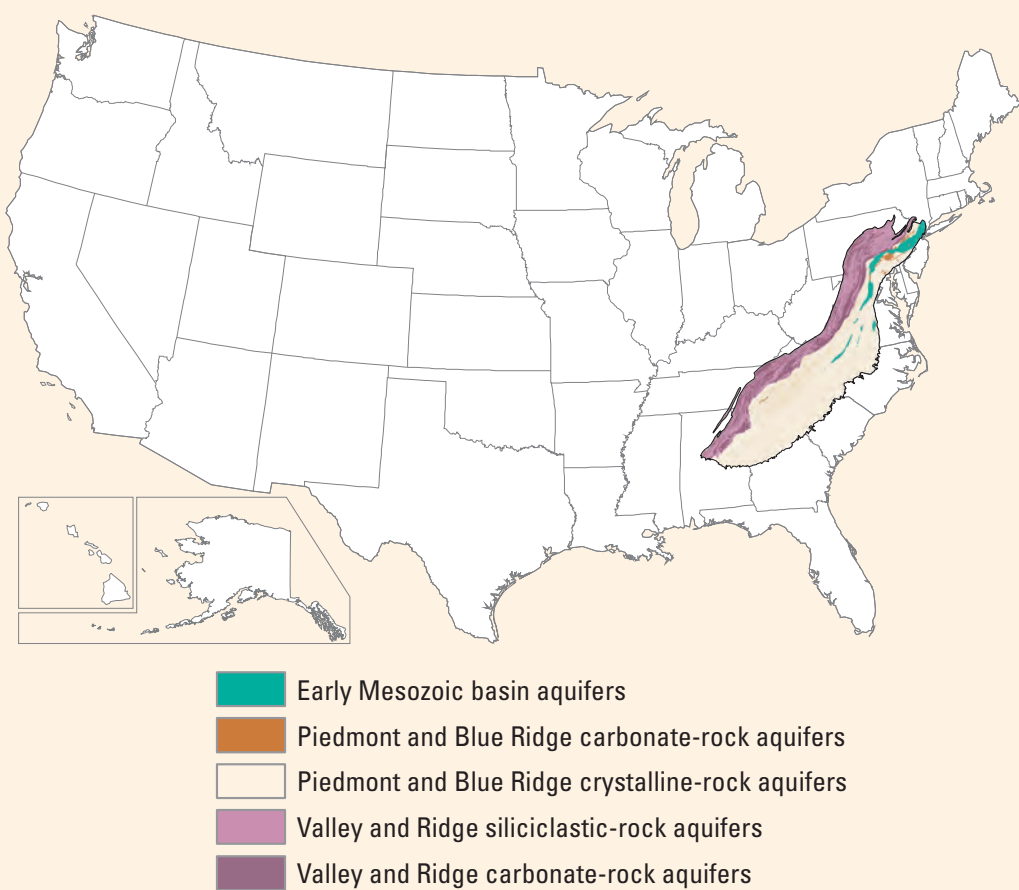
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Gregory L. Simpson, layout

For additional information regarding this publication, contact:

Director  
USGS North Carolina Water Science Center  
3916 Sunset Ridge Road  
Raleigh, NC 27607  
email: [dc\\_nc@usgs.gov](mailto:dc_nc@usgs.gov)

Or visit USGS North Carolina Water Science Center at:

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