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2019 Semiannual Groundwater Monitoring and Corrective Action Report

Plant McIntosh
Ash Pond 1

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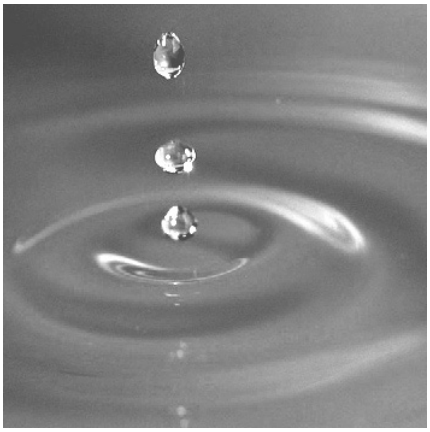

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Certification

PROFESSIONAL ENGINEER CERTIFICATION

This 2019 Semiannual Groundwater Monitoring and Corrective Action Report, Georgia Power Company – Plant McIntosh Ash Pond 1 has been prepared in accordance with the United States Environmental Protection Agency coal combustion residual rule (40 Code of Federal Regulations (CFR) 257 Subpart D) and the Georgia Environmental Protection Division Rules for Solid Waste Management 391-3-4-.10 under the supervision of a licensed professional engineer with GEI Consultants, Inc:

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1. 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; published in 80 FR 21302-21501, April 17, 2015) and the Georgia Environmental Protection Division (EPD) Rules for Solid Waste Management 391-3-4-.10(6)(a), GEI Consultants, Inc. (GEI) has prepared this *2019 Semiannual Groundwater Monitoring and Corrective Action Report* to document groundwater monitoring activities conducted at Georgia Power Company's (GPC) Plant McIntosh (the Site) Ash Pond 1 (AP-1). Semiannual monitoring for the CCR unit is performed in accordance with the monitoring requirements of 40 CFR §257.90 through §257.95 of the federal CCR Rule. Georgia EPD Rules for Solid Waste Management 391-3-4-.10(6)(a) adopt federal CCR rule by reference, as such references to the federal rule herein also apply the Georgia EPD rules. This report documents the groundwater monitoring activities from January to June 2019.

1.1 Site Description and Background

The plant property is located at 981 Old Augusta Road Central, in southeast Effingham County, Georgia, approximately 4 miles northeast of the City of Rincon, and 20 miles north-northwest of the City of Savannah. The plant property is situated on the west bank of the Savannah River at Big Kiffer Point (Figure 1). AP-1 is located on the eastern portion of the plant property, approximately 0.5 miles west of the Savannah River and approximately 0.75 miles south of Lockner Creek (Figure 1).

1.2 Regional Geology and Hydrogeologic Setting

Rincon, Georgia is located within the Coastal Plain Province of Georgia. Coastal Plain sediments are composed of stratified clay, silt, sand, and limestone, resting on much older igneous and metamorphic basement rocks. These older, crystalline rocks dip to the south and east causing the overlying sediments to form a wedge-shaped deposit, which is thickest to the east and the south. The Coastal Plain deposits crop out at the land surface in bands, from the oldest to the most recent, from the Fall Line to the coast. Pleistocene-aged deposits are at the surface in this region. Recharge to the major aquifers in the area is to the northeast of the Site, where these formations outcrop (Southern Company Services Earth Science & Environmental Engineering [SCS ES&EE], 2002).

The Site is situated on sediments that were deposited from Cretaceous to Pleistocene and consist of stratified marine deposits and materials eroded from crystalline rock of the Piedmont Region. Boring logs describe soils at AP-1 as interbedded clays, silts, and sands typical of Coastal Plain sediments.

The uppermost aquifer at AP-1 is the surficial aquifer, characterized by silty to sandy clays, clayey silts, silty sands, and fine to medium grained sands. Monitoring wells and piezometers were screened in the surficial aquifer between 30 and -20 feet (ft) North American Vertical Datum (NAVD)88.

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 designed to monitor groundwater passing the waste boundary of AP-1 within the uppermost aquifer. Wells were located to serve as upgradient and downgradient monitoring points based on groundwater flow direction (Table 1).

2. Groundwater Monitoring Activities

The following subsections describe groundwater monitoring activities performed during the first half of 2019. All groundwater sampling was performed in accordance with §257.93. Samples were collected from each well in the monitoring system shown on Figure 2. Pursuant to §257.90(e)(3), a summary and description of groundwater sampling events completed at AP-1 is shown on Table 2. The current groundwater monitoring network is provided in Table 1.

2.1 Piezometer Installation and Well Maintenance

Two monitoring wells, MGWA-6A and MGWA-24, were installed in January 2019 to provide additional data for characterizing groundwater conditions upgradient of AP-1. Piezometer and monitoring well locations are shown on Figure 2. Well maintenance was performed in April 2019 on the existing groundwater monitoring network, and included the following activities:

- Cleaned well pad
- Removed rust on latches and replaced expansion caps (as needed)
- Drilled weep holes
- Added universal reflective signs containing the well names

2.2 Assessment Monitoring

AP-1 is currently in assessment monitoring. An assessment monitoring program was initiated in 2018 following statistically significant increases (SSIs) of Appendix III constituents during the first detection monitoring event conducted in October 2017. Analytical results and statistical evaluation of those results were provided in the *2017 Annual Groundwater Monitoring and Corrective Action Report* (ERM, 2018). Three groundwater monitoring events were conducted in 2018. The initial assessment event was conducted in March 2018, and two semiannual assessment events were conducted in June and October 2018. Analytical results and statistical evaluation of those results were provided in the *2018 Annual Groundwater Monitoring and Corrective Action Report* (GEI, 2019).

Groundwater samples were collected during two groundwater monitoring events in the first half of 2019. The initial 2019 assessment event was conducted in January 2019. All wells were sampled and analyzed for Appendix IV monitoring parameters pursuant to 40 CFR §257.95(b). Groundwater samples collected during the subsequent semiannual assessment

event in March 2019 were analyzed for Appendix III parameters and Appendix IV detected during the January 2019 event in accordance with 40 CFR §257.95(d). Antimony, beryllium, chromium, lead, mercury, molybdenum, selenium, and thallium were not detected above the laboratory reporting limit (RL) during the January 2019 event; and therefore, were not analyzed during the subsequent semiannual sampling event in March 2019. Analytical methods used for groundwater monitoring parameters are provided in laboratory reports in Appendix A.

2.3 Other Sampling

Monitoring wells MGWA-6A and MGWA-24, following installation and development, were sampled in January 2019 to characterize groundwater conditions upgradient of the Site. MGWA-6A was sampled for the following parameters:

- Appendix III: boron, calcium, chloride, fluoride, pH, sulfate, and total dissolved solids (TDS)
- Appendix IV: antinomy, arsenic, barium, beryllium, cadmium, cobalt, chromium, lead, lithium, molybdenum, selenium, thallium, radium 226, radium 228, and radium 226+228
- Other cations/anions: bicarbonate alkalinity as $CaCO_3$, carbonate alkalinity as $CaCO_3$, total alkalinity as CaCO3, magnesium, potassium, and sodium

MGWA-24 was sampled for the following parameters:

- Appendix III: calcium, chloride, fluoride, pH, sulfate, and TDS
- Appendix IV: arsenic
- Other cations/anions: bicarbonate alkalinity as $CaCO_3$, carbonate alkalinity as $CaCO_3$, total alkalinity as CaCO3, magnesium, potassium, and sodium

The results of these analyses are provided in Appendix A.

3. Sample Methodology and Analyses

GEI conducted all the field work described herein. The field activities and results of the groundwater sampling events are summarized in the following sections. Copies of the laboratory analytical and field sampling reports are included in Appendix A.

3.1 Groundwater Level Measurement

Prior to conducting each groundwater sampling event, groundwater elevations were collected from monitoring wells and piezometers at AP-1 with an electronic water level indicator and measured to the nearest 0.01 foot. During the two sampling events, depth to water ranged from approximately 15 to 16 feet below ground surface (bgs) in the area of MGWC-3 (southeast of AP-1) to approximately 37 feet bgs in the area of MGWC-1 (northeast corner of AP-1). Groundwater elevations range from approximately 22.04 feet NAVD88 near PZ-16 (downgradient of AP-1) to 49.05 feet NAVD88 near MGWA-10 (upgradient of AP-1). The groundwater elevations measured during the 2019 assessment monitoring events are summarized in Table 3.

Potentiometric surface elevation contours and estimated groundwater flow direction were developed using the groundwater elevation data collected in January 2019 and March 2019 (Figure 3 and Figure 4, respectively). Interpretation of the potentiometric surface elevation contours indicates that groundwater flow across AP-1 is generally toward the east but shifts to the southeast and northeast in the northern portion of AP-1 (Figures 3 and 4). This is generally consistent with previous events.

3.2 Groundwater Gradient and Flow Velocity

Horizontal groundwater flow velocity at the AP-1 was calculated using a derivation of Darcy's Law. Specifically,

$$v = linear\ velocity = \frac{Ki}{\eta_e}$$

where :

K = *hydraulic conductivity*

$i = hydraulic\ gradient = \frac{(h_1 - h_2)}{L}$

η_e = *effective porosity*

h_1 *and* h_2 = *groundwater elevation at locations 1 and 2*

L = *distance between locations 1 and 2*

As presented in previous reports and originally detailed in the July 2002 *Savannah Electric Plant McIntosh Proposed Ash Monofill Site Acceptability Report* (SCS ES&EE, 2002), the sandy Unit 3 aquifer was identified as the shallowest, water-bearing unit at the Site and hydrogeologic properties are observed to be very similar throughout the Site. Most wells at the Site are primarily screened in this aquifer, including wells at AP-1. The average hydraulic conductivity of the Unit 3 aquifer was used in the calculations, which is 0.962 feet per day (ft/day) based on slug testing conducted at AP-1 in December 2015. This value is slightly higher than those calculated in previous years due to the evaluation of additional slug test data identified for AP-1. Soils at the screened intervals of the wells are generally classified as silty sands (SM). The default value for effective porosity for this type soil is 0.20 (USEPA 530/SW-89-031, 1989). To calculate an average gradient across AP-1, the hydraulic gradient was calculated between three separate well/piezometer pairs: MGWA-10 and PZ-15, MGWA-6 and PZ-16, and MGWA-9 and PZ-17 (Table 4). The calculated average groundwater flow velocity at AP-1 in March 2019 is 0.044 ft/day or 16.06 feet per year (ft/year).

3.3 Groundwater Sampling

Groundwater samples were collected in accordance with §257.93(a). Wells were purged using a peristaltic pump or submersible bladder pump with disposable tubing. The pumps were lowered into the well so that the intake was at the midpoint of the well screen (or as appropriate determined by the water level). All non-disposable equipment was decontaminated before use and between well locations. Monitoring wells were purged and sampled using low-flow sampling procedures. While the well was being purged, water level data and purge volumes were recorded electronically and by hand, and the following field parameters were collected:

pH (field)	Oxidation Reduction Potential (ORP)	Temperature
Specific Conductivity	Dissolved Oxygen (DO)	Turbidity

A SmarTroll® (In-Situ® field instrument) was used to monitor and record field water quality parameters during well purging to verify stabilization prior to sampling. Turbidity was monitored using a LaMotte 1970-USEPA Compliant Model 2020we® or HANNA Instruments Model HI93703® USEPA and International Organization for Standardization (ISO) Compliant turbidity meter. Groundwater samples were collected when the following stabilization criteria were met:

- ± 0.1 standard units for pH
- ± 5% for specific conductivity

- ± 0.2 milligrams per liter (mg/L) or 10 percent for DO > 0.5 mg/L (whichever is greater). No criterion applies if DO < 0.5 mg/L

- Turbidity measurements less than 10 Nephelometric Turbidity Units (NTU).

Once stabilization was achieved, unfiltered samples were collected in laboratory-supplied bottles, placed in ice-packed coolers, and submitted to TestAmerica, Inc. (TAL) in Pittsburgh, Pennsylvania, following chain-of-custody protocol. Field sampling data sheets are included in Appendix A.

3.4 Laboratory Analyses

Laboratory analytical reports for groundwater monitoring events conducted in January 2019 and March 2019 are included in Appendix A. A summary of Appendix III and IV groundwater analytical data is included in Table 5.

Laboratory analyses were performed TAL, which is accredited by the National Environmental Laboratory Accreditation Program (NELAP) and maintains a NELAP certification for all parameters analyzed during the two groundwater monitoring events in 2019 at AP-1. In addition, TAL is certified by the State of Georgia to perform analysis. Laboratory reports 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) were collected at a rate of one sample per every 10 samples. QA/QC samples included field equipment rinsate blanks (FERB), field blanks (FB), and duplicate (DUP) samples. QA/QC sample data were evaluated during data validation (as discussed below) and are included in Appendix A.

Groundwater quality data in this report was validated in accordance with USEPA guidance (USEPA, 2011) and the analytical methods. Data validation consisted of reviewing holding times, field and equipment blanks, field duplicates, and laboratory control samples, including: matrix spikes/matrix spike duplicate recoveries and relative percent differences (RPDs), post digestions spikes, laboratory duplicate RPDs, and reporting limits to verify sample integrity. Where appropriate, validation qualifiers and flags were applied to the data using USEPA procedures as guidance (USEPA, 2017). Flagged data is identified in the statistical analysis reports described in Section 4.

The data presented in Table 5 are representative of the validated data, and not necessarily that which is included in the laboratory reports. The tables provided in the data validation reports

included in Appendix A summarize the validation actions taken (if warranted) based on data validation.

4. Statistical Analyses

Groundwater monitoring data collected during the semiannual monitoring event in March 2019 was statistically analyzed pursuant to §257.95 following the Professional Engineer-certified statistical method. Appendix III detection monitoring parameters were statistically analyzed to determine if constituents have returned to background levels. Appendix IV assessment monitoring parameters were analyzed to determine if concentrations statistically exceeded the established groundwater protection standards (GWPS). The following subsections provide an overview of the statistical methods used to evaluate Appendix III and IV parameters and statistical analyses results.

4.1 Statistical Methods

The Sanitas™ groundwater statistical software was used to perform the statistical analyses (Sanitas™, 2007). Sanitas™ is a proprietary decision support software package, developed in 1991, that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations and guidance as recommended in the USEPA Unified Guidance (USEPA, 2009) document.

4.1.1 Appendix III Statistical Methods

The statistical test used to evaluate the Appendix III groundwater monitoring data consisted of both interwell (boron, chloride, fluoride, and sulfate) and intrawell (calcium, pH, and total dissolved solids) prediction limit (PL) method combined with the option of a 1-of-2 resample plan. The interwell PLs pool background data from the network of upgradient wells to calculate a PL, while the intrawell PLs use historical data from within a given well to establish a statistical limit for comparison of compliance data at the same well. An initial exceedance occurs when any downgradient well data exceed the PL.

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

4.1.2 Appendix IV Statistical Methods

Appendix IV constituents detected during the initial assessment event (January 2019) were sampled during the subsequent semiannual sampling event (March 2019). To statistically

compare groundwater data to GWPS, confidence intervals are constructed for each of the detected Appendix IV parameters in each downgradient well. Those confidence intervals are compared to both the state and federal GWPS. Only when the entire confidence interval is above a GWPS is the well/constituent considered to exceed its GWPS. If there is an exceedance of the GWPS, a statistically significant level (SSL) is identified.

Background limits were used when determining the GWPS under USEPA rule 40 CFR §257.95(h) and Georgia EPD rule 391-3-4-.10(6)(a). Parametric tolerance limits were used to calculate the 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.

USEPA revised the federal CCR Rule on July 30, 2018, updating GWPS for cobalt, lead, lithium, and molybdenum. As described in 40 CFR §257.95(h)(1-3) the GWPS is:

(1) The maximum contaminant level established under §§141.62 and 141.66 of this title (the "MCL").
(2) Where an MCL has not been established:
    (i) Cobalt 0.006 mg/L
    (ii) Lead 0.015 mg/L
    (iii) Lithium 0.040 mg/L
    (iv) Molybdenum 0.100 mg/L
(3) Background levels for constituents where the background level is higher than the MCL or rule-specified GWPS.

USEPA's updated GWPS have not yet been incorporated under Georgia EPD's CCR Rule. Georgia EPD's CCR rule GWPS are:

(1) The MCL.
(2) Where an MCL has not been established, the background concentration is the GWPS.
(3) Background levels for constituents where the background level is higher than the MCL.

Pursuant to the above requirements, GWPS have been established for statistical comparisons of Appendix IV constituents. Table 6 summarizes the federal and state background limits established at each monitoring well and the GWPS.

4.2 Statistical Analyses Results for the First Semiannual Assessment Event

Analytical data from the March 2019 semiannual assessment monitoring event were statistically analyzed in accordance with the Certified Statistical Methods and Statistical Analysis Method Certification (USEPA, 2009). The results of the Appendix III and IV

assessment monitoring statistics are summarized below. The Sanitas™ statistical outputs for Appendix III and IV parameters are provided in Appendix B.

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).

Appendix IV constituents were identified at SSLs above the established GWPS during the March 2019 semiannual assessment monitoring event.

Using the GWPS established under the federal CCR Rule, statistical analysis of Appendix IV data identified an SSL for cobalt and lithium at monitoring well MGWC-7. Cobalt and lithium at MGWC-7 exceed the federal GWPS of 0.006 mg/L and 0.040 mg/L, respectively.

Using the GWPS established under the state CCR Rule, statistical analysis of Appendix IV data identified SSLs for cobalt and lithium in three groundwater monitoring wells. Cobalt statistically exceeded the GWPS of 0.0025 mg/L in MGWC-2, MGWC-7, and MGWC-8. Lithium statistically exceeded the state GWPS of 0.03 mg/L in MGWC-7.

The statistical evaluation results from the March 2019 data are consistent with the 2018 reporting year statistical results. The SSLs identified during the first semiannual 2019 event can be addressed by the previously submitted Alternative Source Demonstrations (ASDs). Therefore, a groundwater exceedance notification identifying the constituents in appendix IV that have exceeded the groundwater protection standard will be placed in the operating record pursuant to 40 CFR §257.95(g).

5. Alternate Source Demonstrations

In accordance with 40 C.F.R. §257.95, ASDs were completed for cobalt and lithium at AP-1 and were included in the *2018 Semiannual Groundwater Monitoring and Corrective Action Report* (GEI, 2019). The ASDs concluded that the SSLs for cobalt and lithium in wells MGWC-2, MGWC-7, and MGWC-8 are attributed to natural groundwater variability due to soil heterogeneity and mineralogy containing these naturally-occurring trace elements. Small part per billion-level differences in cobalt and lithium concentrations in groundwater would be expected in the geologic setting near Plant McIntosh and the Savannah River having been influenced by Piedmont Region erosion and sediment transport and deposition.

6. Groundwater Monitoring Program Status

SSIs of Appendix III and SSLs of Appendix IV parameters were identified at AP-1 during the March 2019 sampling event. In accordance with 40 CFR §257.95(g)(3), ASDs were completed for the cobalt and lithium SSLs; therefore, there are no Appendix IV SSLs. Since Appendix III parameters exhibit SSIs, AP-1 will remain in assessment monitoring.

7. Conclusions and Future Actions

This *2019 Semiannual Groundwater Monitoring and Corrective Action Report* for GPC's Plant McIntosh AP-1 was prepared to fulfill the requirements of USEPA's CCR Rule and Georgia EPD Rules for Solid Waste Management 391-3-4-.10.

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 GWPS. ASDs were completed for cobalt and lithium; therefore, there are no Appendix IV SSLs. Since Appendix III parameters exhibit SSIs, AP-1 will remain in assessment monitoring.

The initial 2019 assessment event occurred in January and the first semiannual assessment monitoring event was conducted in March 2019. A second semiannual assessment monitoring event is scheduled to follow in the fall of 2019.

8. References

ERM, 2018. *2017 Annual Groundwater Monitoring and Corrective Action Report, Plant McIntosh, Ash Pond 1 (AP-1),* January 31, 2018.

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Southern Company Services - Earth Science and Environmental Engineering (SCS ES&EE), 2002. *Savannah Electric Plant McIntosh Proposed Ash Monofill Site Acceptability Report.* July 2002.

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

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

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

Tables

Table 1. Monitoring Network
2019 Semiannual Groundwater Monitoring and Corrective Action Report
Georgia Power Company
Plant McIntosh Ash Pond 1
Effingham County, Georgia

Well ID	Installation Date	Northing	Easting	Total Depth (ft bTOC)	Ground Surface Elevation (ft)	Top of Casing Elevation (ft)	Top of Screen Elevation (ft)	Bottom of Screen Elevation (ft)	Location and Purpose
MGWC-1	11/10/2015	856813.32	964287.17	56.08	62.00	65.08	19.30	9.30	Downgradient Monitoring Well
MGWC-2	11/11/2015	856400.70	963958.28	37.36	44.90	48.26	21.20	11.20	Downgradient Monitoring Well
MGWC-3	11/11/2015	856033.91	963658.13	38.74	49.60	52.34	23.90	13.90	Downgradient Monitoring Well
MGWC-4	11/18/2015	855555.10	963139.29	67.35	60.70	64.05	7.00	-3.00	Downgradient Piezometer
MGWA-5	11/12/2015	855860.77	962763.08	63.09	61.00	64.09	11.30	1.30	Upgradient Monitoring Well
MGWA-6	11/12/2015	856527.64	963130.05	41.93	57.90	60.83	29.20	19.20	Upgradient Monitoring Well
MGWA-6A	01/16/2019	856521.05	963113.15	39.70	56.79	59.67	30.27	20.27	Upgradient Monitoring Well
MGWC-7	11/13/2015	857417.67	964007.37	42.29	50.90	54.19	22.20	12.20	Downgradient Monitoring Well
MGWC-8	11/10/2015	857177.15	964141.60	52.56	59.30	62.36	20.10	10.10	Downgradient Monitoring Well
MGWA-9	11/17/2015	857129.76	963164.52	43.05	56.00	59.05	26.30	16.30	Upgradient Piezometer
MGWA-10	11/17/2015	855934.18	961406.35	53.09	61.60	64.69	21.90	11.90	Upgradient Monitoring Well
MGWA-11	05/27/2016	855985.27	962070.17	55.81	64.70	67.51	21.90	11.90	Upgradient Monitoring Well
MGWC-12	05/26/2016	855545.62	963110.10	52.90	63.90	66.80	24.10	14.10	Downgradient Monitoring Well
PZ-13	06/3/2016	856124.06	964192.33	26.76	37.80	40.66	24.30	14.30	Downgradient Piezometer
PZ-14	06/4/2016	855727.29	963896.00	41.50	43.80	46.90	15.80	5.80	Downgradient Piezometer
PZ-15	06/26/2018	856157.15	964192.87	28.87	39.01	42.28	23.71	13.71	DowngradientPiezometer
PZ-16	06/26/2018	857077.20	964956.17	42.39	51.23	54.62	22.53	12.53	Downgradient Piezometer
PZ-17	06/27/2018	857656.21	964525.25	45.12	54.04	57.46	22.64	12.64	Downgradient Piezometer
PZ-18	06/27/2018	857542.85	963505.27	41.70	50.11	53.31	21.91	11.91	Upgradient Piezometer
MGWC-19	10/4/2018	857405.11	963973.11	72.70	50.66	53.86	-8.54	-18.54	Downgradient Deep Piezometer
MGWC-20	10/3/2018	857597.80	964282.17	54.77	48.72	51.49	7.02	-2.98	Downgradient Piezometer
MGWC-21	11/28/2018	857158.68	964154.74	82.68	59.81	62.49	-9.89	-19.89	Downgradient Deep Piezometer
MGWC-22	11/29/2018	856382.16	963947.73	67.56	45.02	47.38	-9.88	-19.88	Downgradient Deep Piezometer
MGWC-23	11/30/2018	856939.86	964618.27	42.90	54.75	57.35	24.75	14.75	Downgradient Piezometer
MGWC-24	01/17/2019	856600.35	962884.73	47.00	57.47	60.40	24.60	14.60	Upgradient Piezometer

Notes:
bTOC - below top of casing
ft - feet
All monitoring wells and piezometers are 2 inches in diameter and casing material is polyvinyl chloride (PVC)
Elevations are in feet relative to North American Vertical Datum (NAVD)88
Northing and easting are in feet North American Datum (NAD)83, State Plane Georgia East Zone
During each groundwater monitoring event, monitoring wells are gauged for water levels and sampled for laboratory analysis and piezometers are gauged for water level only.
Well construction information taken from installation logs and the October 2017 Ash Pond Well Design, Installation, Development, and Decommissioning Report (revised in February 2018).

Table 2. Groundwater Sampling Event Summary for 2019

2019 Semiannual Groundwater Monitoring and Corrective Action Report
Georgia Power Company
Plant McIntosh Ash Pond 1
Effingham County, Georgia

Well ID	Hydraulic Location and Purpose	Summary of Sampling Events	
	Sampling Event	Initial Assessment	Assessment 1
	Sampling Dates	January 28-29, 2019	March 25-26, 2019
MGWC-1	Downgradient Monitoring Well	✓	✓
MGWC-2	Downgradient Monitoring Well	✓	✓
MGWC-3	Downgradient Monitoring Well	✓	✓
MGWA-5	Upgradient Monitoring Well	✓	✓
MGWA-6	Upgradient Monitoring Well	✓	✓
MGWA-6A	Upgradient Monitoring Well	✓	✓
MGWC-7	Downgradient Monitoring Well	✓	✓
MGWC-8	Downgradient Monitoring Well	✓	✓
MGWA-10	Upgradient Monitoring Well	✓	✓
MGWA-11	Upgradient Monitoring Well	✓	✓
MGWC-12	Downgradient Monitoring Well	✓	✓

Table 3. Summary of Groundwater Elevations
2019 Semiannual Groundwater Monitoring and Corrective Action Report
Georgia Power Company
Plant McIntosh Ash Pond 1
Effingham County, Georgia

Well ID	Top of Casing Elevation (ft NAVD)	Groundwater Elevations (ft NAVD)	
		January 28, 2019	March 25, 2019
MGWC-1	65.08	28.63	28.42
MGWC-2	48.26	27.81	28.43
MGWC-3	52.34	36.74	35.98
MGWC-4	64.05	39.70	39.20
MGWA-5	64.09	43.48	42.62
MGWA-6	60.83	43.69	42.21
MGWA-6A	59.67	43.88	42.39
MGWC-7	54.19	35.93	34.74
MGWC-8	62.36	33.56	33.14
MGWA-9	59.05	40.75	38.92
MGWA-10	64.69	49.05	47.81
MGWA-11	67.51	48.55	47.53
MGWC-12	66.80	42.80	42.30
PZ-13	40.66	23.99	23.73
PZ-14	46.90	30.55	30.25
PZ-15	42.28	24.04	23.83
PZ-16	54.62	22.04	22.24
PZ-17	57.46	26.91	26.93
PZ-18	53.31	36.45	34.41
MGWC-19	53.86	33.92	32.93
MGWC-20	51.49	30.81	30.16
MGWC-21	62.49	32.43	31.80
MGWC-22	47.38	31.42	30.87
MGWC-23	57.35	24.27	24.42
MGWA-24	60.40	44.10	42.50

Table 4. Groundwater Velocity Calculations - 2019
2019 Semiannual Groundwater Monitoring and Corrective Action Report
Georgia Power Company
Plant McIntosh Ash Pond 1
Effingham County, Georgia

March 2019									
Monitoring Wells and Piezometers	**h_1**	**h_2**	**K (ft/day)**	**n_e**	**dh (ft)**	**dl (ft)**	**i (ft/ft)**	**Velocity (ft/day)**	**Velocity (ft/year)**
MGWA-10 and PZ-15	47.81	23.83	0.962	0.20	23.98	2,795	0.0086	0.041	14.97
MGWA-6 and PZ-16	42.21	22.24			19.97	1,907	0.0105	0.051	18.62
MGWA-9 and PZ-17	38.92	26.93			11.99	1,459	0.0082	0.039	14.24
								Avg. (ft/day)	Avg. (ft/year)
								0.044	16.06

Notes:
ft - feet
h_1 and h_2 - groundwater elevation at location 1 and 2
K - hydraulic conductivity
n_e - effective porosity
dh - difference between h_1 and h_2
dl - distance between locations 1 and 2
i - hydraulic gradient (dh/dl)
Velocity = linear velocity = Ki/n_e
Groundwater elevations measured March 25, 2019

Table 5. Summary of 2019 Assessment Groundwater Analytical Data
2019 Semiannual Groundwater Monitoring and Corrective Action Report
Georgia Power Company
Plant McIntosh Ash Pond 1
Effingham County, Georgia

		Location Name	MGWC-1				MGWC-2		MGWC-3		MGWA-5		MGWA-6				MGWA-6A		
		Sample Date	01/29/19	DUP-Jan.19	03/26/19	DUP-Mar.19	01/29/19	03/26/19	01/29/19	03/26/19	01/29/19	03/25/19	01/29/19	DUP-Jan.19	03/26/19	DUP-Mar.19	1/29/2019-RUSH	01/29/19	03/25/19
Analyte	**Units**	**CAS No.**																	
Field Parameters																			
Specific Conductance	µS/cm	COND	**563.42**		**553.00**		**804.4**	**534.64**	**587.2**	**485.47**	**278.2**	**253.60**	**514.95**		**511.34**		**471.27**	**471.27**	**458.37**
Dissolved Oxygen	mg/L	DO	**4.25**		**0.38**		**0.24**	**0.47**	**0.2**	**0.61**	**0.43**	**0.24**	**0.16**		**0.37**		**0.16**	**0.16**	**0.11**
ORP	mV	ORP	**47.30**		**-25.10**		**-8.4**	**68.59**	**20.2**	**72.23**	**41.3**	**-136.80**	**-5.8**		**24.52**		**-137.5**	**-137.5**	**-161.87**
pH	s.u.	pH	**6.87**		**7.01**		**7.03**	**6.68**	**6.42**	**5.96**	**7.63**	**7.44**	**6.55**		**6.57**		**6.93**	**6.93**	**7.10**
Temperature	deg c	TEMP	**19.94**		**19.99**		**18.92**	**19.13**	**17.94**	**20.60**	**19.04**	**23.13**	**19.49**		**19.49**		**19.23**	**19.23**	**23.46**
Turbidity	ntu	TURB	**1.89**		**1.27**		**2.03**	**0.69**	**1.07**	**1.11**	**1.11**	**0.68**	**1.79**		**1.55**		**4.97**	**4.97**	**5.16**
Appendix III Parameters																			
Boron	mg/L	7440-42-8	--	--	**1.3**	**1.3**	--	**2.6**	--	**1.5**	--	< 0.050 U	--	--	**0.079 J**	**0.15 J**	< 0.0500	< 0.0500	< 0.050 U
Calcium	mg/L	7440-70-2	--	--	**100**	**100**	--	**110**	--	**99**	--	**27**	--	--	**100**	**100**	**95.1**	**95.1**	**89**
Chloride	mg/L	16887-00-6	--	--	**13**	**13**	--	**14**	--	**14**	--	**4.7**	--	--	**5.8**	**6.5**	**4.51**	**4.51**	**4.40**
Fluoride	mg/L	16984-48-8	--	--	**0.16**	**0.14 J**	--	**0.076 J**	--	**0.072 J**	--	**0.072 J**	--	--	**0.065 J**	**0.048 J**	<0.200	<0.200	**0.067 J**
pH	s.u.	pH	--	--	**7.01**		--	**6.68**	--	**5.96**	--	**7.44**	--	--	**6.57**		**6.93**	**6.93**	**7.10**
Sulfate	mg/L	14808-79-8	--	--	**130**	**130**	--	**190**	--	**110**	--	**3.4 J**	--	--	**6.3 J**	**7.9**	**7.08**	**7.08**	**1.8 J**
Total Dissolved Solids	mg/L	TDS	--	--	**370**	**370**	--	**530**	--	**370**	--	**150**	--	--	**290**	**290**	**280**	**280**	**250**
Appendix IV Parameters																			
Antimony	mg/L	7440-36-0	< 0.0011	< 0.0011	--	--	< 0.0011	--	< 0.0011	--	< 0.0011	--	< 0.0011	< 0.0011	--	--	--	< 0.0011	--
Arsenic	mg/L	7440-38-2	**0.0026**	**0.003**	**0.0020**	**0.0021**	< 0.00032	< 0.0013	**0.0014**	**0.0012 J**	0.00034 J	**0.00069 J**	**0.00972**	**0.0097**	**0.0097**	**0.010**	**0.0097**	**0.0118**	**0.0012 J**
Barium	mg/L	7440-39-3	**0.11**	**0.099**	**0.096**	**0.097**	**0.05**	**0.048**	**0.14**	**0.13**	**0.036**	**0.035**	**0.039**	**0.038**	**0.033**	**0.034**	--	**0.0421**	**0.044**
Beryllium	mg/L	7440-41-7	< 0.000057	< 0.000057	--	--	< 0.000057	--	< 0.000057	--	< 0.000057	--	< 0.000057	< 0.000057	--	--	--	< 0.000057	--
Cadmium	mg/L	7440-43-9	0.00015 J	0.00037 J	< 0.0025	< 0.0025	**0.0032**	**0.0019 J**	< 0.00013	< 0.0025	< 0.00013	< 0.0025	< 0.00013	< 0.00013	< 0.0025	< 0.0025	--	< 0.00013	< 0.0025
Chromium	mg/L	7440-47-3	< 0.00063	0.0026 J	--	--	< 0.00063	--	< 0.00063	--	< 0.00063	--	< 0.00063	< 0.00063	--	--	--	< 0.00063	--
Cobalt	mg/L	7440-48-4	0.00025 J	0.00033 J	< 0.0025	< 0.0025	**0.0029**	**0.0030**	0.00052 J	< 0.0025	< 0.000075	< 0.0025	0.00052 J	0.00050 J	< 0.0025	< 0.0025	--	0.00023 J	< 0.0025
Fluoride	mg/L	16984-48-8	--	--	**0.16**	**0.14 J**	--	**0.076 J**	--	**0.072 J**	--	**0.072 J**	--	--	**0.065 J**	**0.048 J**	<0.200	<0.200	**0.067 J**
Lead	mg/L	7439-92-1	< 0.000094	< 0.000094	--	--	< 0.000094	--	< 0.000094	--	< 0.000094	--	< 0.000094	< 0.000094	--	--	--	< 0.000094	--
Lithium	mg/L	7439-93-2	**0.011**	**0.011**	**0.010**	**0.011**	**0.0054**	**0.0051**	**0.011**	**0.012**	**0.0099**	**0.010**	< 0.0026	< 0.0026	< 0.0050	< 0.0050	--	**0.0184**	**0.0052**
Mercury	mg/L	7439-97-6	< 0.00010	< 0.00010	--	--	< 0.00010	--	< 0.00010	--	< 0.00010	--	< 0.00010	< 0.00010	--	--	--	< 0.00010	--
Molybdenum	mg/L	7439-98-7	0.0019 J	0.0020 J	--	--	< 0.00047	--	< 0.00047	--	0.00089 J	--	< 0.00047	< 0.00047	--	--	--	0.0029 J	--
Radium 226 and 228	pci/L	7740-14-4	**1.11**	**1.30**	**1.00**	**1.01**	**0.719**	< 5.00	**1.34**	**1.25**	< 0.381	**0.629**	**0.591**	< 0.510	**0.400**	< 5.00	--	**0.874**	**0.646**
Selenium	mg/L	7782-49-2	< 0.00081	< 0.00081	--	--	< 0.00081	--	< 0.00081	--	< 0.00081	--	< 0.00081	< 0.00081	--	--	--	< 0.00081	--
Thallium	mg/L	7440-28-0	**0.00011 J**	**0.00016 J**	--	--	< 0.000063	--	< 0.000063	--	< 0.000063	--	**0.000079 J**	**0.000074 J**	--	--	--	< 0.000063	--
Additional Cations/Anions																			
Alkalinity	mg/L	ALK	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**270**	--
Bicarbonate alkalinity as CaCO3	mg/L	HCO3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**270**	--
Carbonate Alkalinity as CaCO3	mg/L	CO3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**<5.0**	--
Magnesium	mg/L	7439-95-4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**2.69**	--
Potassium	mg/L	7440-09-7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.732**	--
Sodium	mg/L	7440-23-5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**8.51**	--

General Notes:
CAS No. - Chemical Abstracts Service Registry Number
Bolded - detected value
-- - not analyzed for this constituent
µS/cm - microsiemens per centimeter
mg/L - milligrams per liter
mV - millivolts
NE - not established
ntu - nephelometric turbidity units
pci/L - picocuries per liter
s.u.- Standard Units

Total metals analysis was performed. Temperature, specific conductance, pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity were measured and recorded in the field.

Validator Qualifiers:
The data presented in this table are representative of the validated data, and not necessarily that which is included in the laboratory
< - The analyte was not detected at a concentration above the specified laboratory reporting limit.
J - The result is an estimated value.

Table 5. Summary of 2019 Assessment Groundwater Analytical Data
2019 Semiannual Groundwater Monitoring and Corrective Action Report
Georgia Power Company
Plant McIntosh Ash Pond 1
Effingham County, Georgia

		Location Name	MGWC-7		MGWC-8		MGWA-10		MGWA-11		MGWC-12		MGWA-24		
		Sample Date	01/29/19	03/26/19	01/29/19	03/26/19	01/28/19	03/25/19	01/28/19	03/25/19	01/29/19	03/26/19	1/29/2019-RUSH	01/29/19	03/25/19
Analyte	**Units**	**CAS No.**													
Field Parameters															
Specific Conductance	µS/cm	COND	**521.01**	**830.74**	**871.33**	**281.90**	**63.5**	**64.41**	**230.7**	**297.04**	**295.2**	**750.03**	**295.6**	**295.6**	**384.20**
Dissolved Oxygen	mg/L	DO	**0.27**	**0.19**	**0.29**	**0.19**	**1.86**	**1.86**	**0.16**	**0.31**	**0.17**	**0.45**	**0.26**	**0.26**	**0.10**
ORP	mV	ORP	**41.20**	**128.28**	**74.80**	**-103.70**	**94.00**	**175.85**	**32.8**	**-21.22**	**-160.9**	**36.18**	**-271.5**	**-271.5**	**-225.80**
pH	s.u.	pH	**5.93**	**5.19**	**5.46**	**7.14**	**5.49**	**5.27**	**7.4**	**7.29**	**8.02**	**7.29**	**8.49**	**8.49**	**7.90**
Temperature	deg c	TEMP	**16.56**	**21.86**	**17.31**	**18.83**	**19.88**	**22.91**	**19.65**	**22.55**	**18.77**	**19.83**	**19.1**	**19.1**	**22.71**
Turbidity	ntu	TURB	**1.01**	**0.45**	**0.12**	**0.71**	**1.64**	**0.89**	**0.72**	**0.43**	**0.64**	**2.67**	**4.19**	**4.19**	**4.55**
Appendix III Parameters															
Boron	mg/L	7440-42-8	--	**1.5**	--	**5.1**	--	< 0.050 U	--	< 0.050 U	--	**0.032 J**	--	--	< 0.050 U
Calcium	mg/L	7440-70-2	--	**52**	--	**96**	--	**4.6**	--	**37**	--	**33**	--	**41.8**	**44.0**
Chloride	mg/L	16887-00-6	--	**11**	--	**11**	--	**6.8**	--	**3.4**	--	**3.8**	--	**8.7**	**7.2**
Fluoride	mg/L	16984-48-8	--	**0.19 J**	--	**0.088 J**	--	< 0.10 U	--	**0.087 J**	--	**0.22**	--	**0.23**	**0.16**
pH	s.u.	pH	--	**5.19**	--	**7.14**	--	**5.27**	--	**7.29**	--	**7.29**	--	**8.49**	**7.90**
Sulfate	mg/L	14808-79-8	--	**180**	--	**420**	--	< 1.1 U	--	< 1.3 U	--	**2.9 J**	--	**19**	**30**
Total Dissolved Solids	mg/L	TDS	--	**320**	--	**630**	--	**54**	--	**210**	--	**180**	--	**190**	**200**
Appendix IV Parameters															
Antimony	mg/L	7440-36-0	< 0.0011	**--**	< 0.0011	**--**	< 0.0011	**--**	< 0.0011	**--**	< 0.0011	**--**	--	--	**--**
Arsenic	mg/L	7440-38-2	0.00034 J	< 0.0013	< 0.00032	< 0.0013	< 0.00032	< 0.0013	< 0.00032	**0.0022**	0.00037 J	**0.00079 J**	**0.0014**	--	**0.0016**
Barium	mg/L	7440-39-3	0.0087 J	**0.0086**	**0.034**	**0.032**	**0.025**	**0.023**	**0.083**	**0.11**	**0.06**	**0.060**	--	--	**0.035**
Beryllium	mg/L	7440-41-7	< 0.000057	**--**	0.0015 J	**--**	0.000067 J	**--**	< 0.000057	**--**	< 0.000057	**--**	--	--	**--**
Cadmium	mg/L	7440-43-9	< 0.00013	< 0.0025	0.00063 J	**0.00050 J**	< 0.00013	< 0.0025	< 0.00013	< 0.0025	< 0.00013	< 0.0025	--	--	< 0.0025
Chromium	mg/L	7440-47-3	< 0.00063	--	< 0.00063	**--**	0.0055 J	--	< 0.00063	--	< 0.00063	--	--	--	--
Cobalt	mg/L	7440-48-4	**0.0103**	**0.0090**	**0.0159**	**0.020**	0.00012 J	< 0.0025	< 0.000075	< 0.0025	< 0.000075	< 0.0025	--	--	< 0.0025
Fluoride	mg/L	16984-48-8	--	**0.19 J**	--	**0.088 J**	--	< 0.10 U	--	**0.087 J**	--	**0.22**	--	**0.23**	**0.16**
Lead	mg/L	7439-92-1	< 0.000094	**--**	< 0.000094	**--**	< 0.000094	--	< 0.000094	--	< 0.000094	--	--	--	--
Lithium	mg/L	7439-93-2	**0.112**	**0.12**	**0.036**	**0.043**	**0.0082**	**0.0068**	**0.012**	**0.026**	**0.017**	**0.020**	--	--	**0.0086**
Mercury	mg/L	7439-97-6	< 0.00010	**--**	< 0.00010	**--**	< 0.00010	**--**	< 0.00010	**--**	< 0.00010	**--**	--	--	**--**
Molybdenum	mg/L	7439-98-7	< 0.00047	**--**	< 0.00047	**--**	< 0.00047	**--**	0.0014 J	**--**	0.00053 J	**--**	--	--	**--**
Radium 226 and 228	pci/L	7740-14-4	**1.70**	**0.784**	**1.93**	**1.79**	**0.872 J**	**0.526**	**0.478**	**0.717**	**0.639**	**0.607**	--		**0.631**
Selenium	mg/L	7782-49-2	< 0.00081	--	< 0.00081	--	< 0.00081	--	< 0.00081	--	< 0.00081	--	--	--	--
Thallium	mg/L	7440-28-0	**0.000087 J**	--	**0.00027 J**	--	< 0.000063	--	< 0.000063	--	< 0.000063	--	--	--	--
Additional Cations/Anions															
Alkalinity	mg/L	ALK	--	--	--	--	--	--	--	--	--	--	--	**130**	--
Bicarbonate alkalinity as CaCO3	mg/L	HCO3	--	--	--	--	--	--	--	--	--	--	--	**120**	--
Carbonate Alkalinity as CaCO3	mg/L	CO3	--	--	--	--	--	--	--	--	--	--	--	**12**	--
Magnesium	mg/L	7439-95-4	--	--	--	--	--	--	--	--	--	--	--	**5.00**	--
Potassium	mg/L	7440-09-7	--	--	--	--	--	--	--	--	--	--	--	**1.65**	--
Sodium	mg/L	7440-23-5	--	--	--	--	--	--	--	--	--	--	--	**18.4**	--

General Notes:
CAS No. - Chemical Abstracts Service Registry Number
Bolded - detected value
-- - not analyzed for this constituent
µS/cm - microsiemens per centimeter
mg/L - milligrams per liter
mV - millivolts
NE - not established
ntu - nephelometric turbidity units
pci/L - picocuries per liter
s.u.- Standard Units

Total metals analysis was performed. Temperature, specific conductance, pH, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity were measured and recorded in the field.

Validator Qualifiers:
The data presented in this table are representative of the validated data, and not necessarily that which is included in the laboratory
< - The analyte was not detected at a concentration above the specified laboratory reporting limit.
J - The result is an estimated value.

Table 6. Summary of Background Levels and GWPS

2019 Semiannual Groundwater Monitoring and Corrective Action Report
Georgia Power Company
Plant McIntosh Ash Pond 1
Effingham County, Georgia

Analyte	Units	CAS No.	Background	Federal GWPS	State GWPS
Appendix IV Parameters					
Arsenic	mg/L	7440-38-2	0.0352	0.0352	0.0352
Barium	mg/L	7440-39-3	0.12	2	2
Cadmium	mg/L	7440-43-9	0.0034	0.005	0.005
Cobalt	mg/L	7440-48-4	0.0007	0.006	0.0025
Fluoride	mg/L	16984-48-8	0.2	4	4
Lithium	mg/L	7439-93-2	0.03	0.04	0.03
Total Radium-226/228	pci/L	TRa226_228	1.143	5	5

Notes:

GWPS - Groundwater Protection Standard

mg/L - milligrams per liter

pci/L - picocuries per liter

1. The background limits were then used when determining the GWPS under 40 CFR §257.95(h) and Georgia Environmental Protection Division (EPD) Rule 391-3-4-.10(6)(a).

2. Under 40 CFR §257.95(h)(1-3) the GWPS is: (i) the maximum contaminant level (MCL) established under §§141.62 and 141.66 of this title; (ii) where an MCL has not been established a rule-specific GWPS or regional screen level (RSL) is used; or (iii) background levels for constituents were the background level is higher than the MCL or rule-specified GWPS.

3. Under the existing EPD rules, the GWPS is: (i) the MCL, (ii) where the MCL is not established, the background concentration, or (iii) background levels for constituents were the background level is higher than the MCL.

Figures

LEGEND

Plant McIntosh Approximate Property Boundary

Aerial Photograph:
7/22/2017 by DigitalGlobe

0 3,000 6,000

SCALE: 1 inch = 3000 feet

Semiannual Groundwater Monitoring and Corrective Action Report - Plant McIntosh Ash Pond 1
Effingham County, Georgia

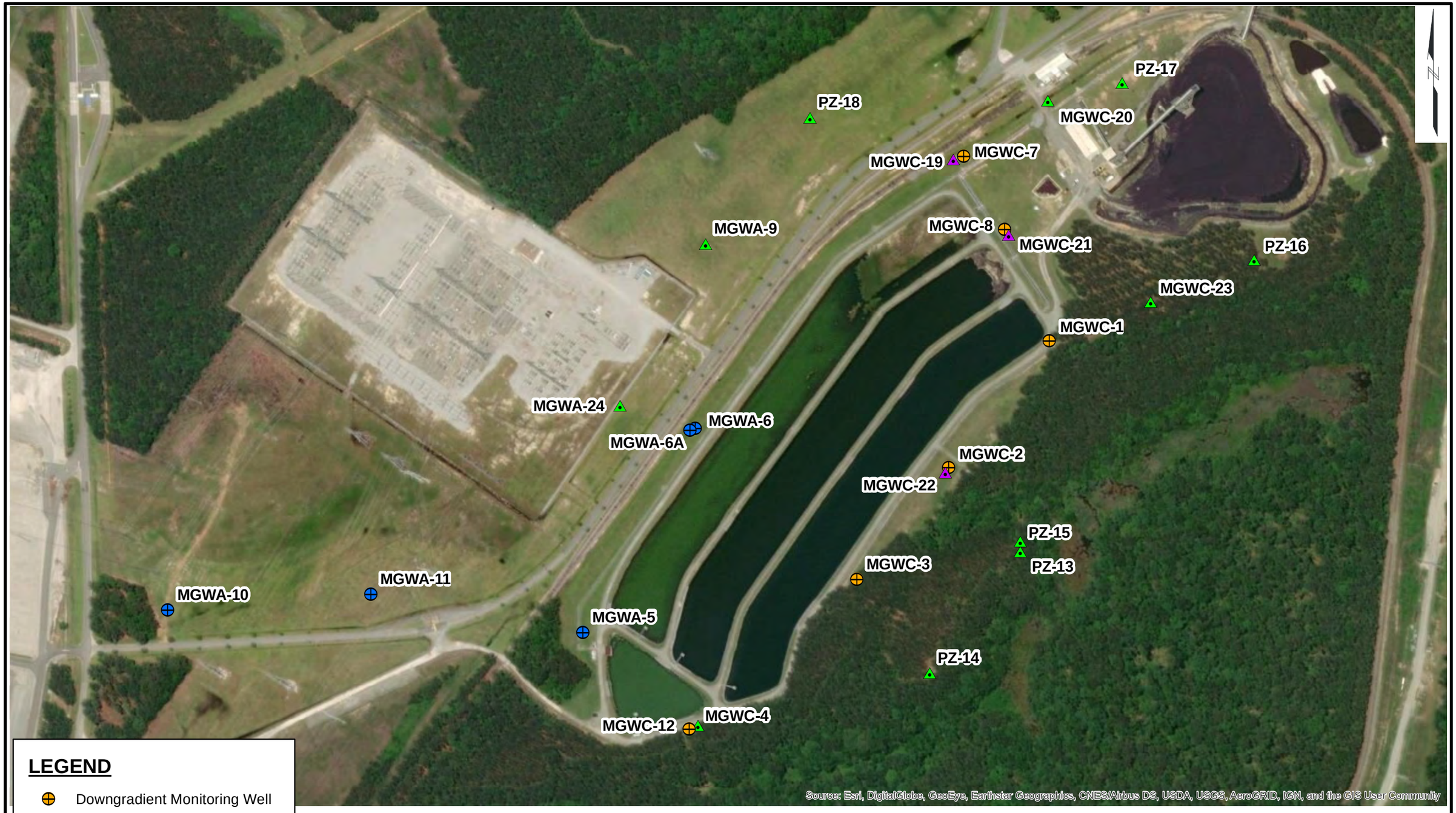
Georgia Power Company
Atlanta, Georgia

GEI Consultants

PLANT MCINTOSH
SITE LOCATION MAP

Project No. 1901973

Prepared January 2019 Fig. 1



LEGEND

- Downgradient Monitoring Well
- Upgradient Monitoring Well
- Piezometer
- Deep Piezometer

0 300 600

SCALE: 1 inch = 300 feet

Semiannual Groundwater Monitoring and Corrective Action Report
Plant McIntosh Ash Pond 1

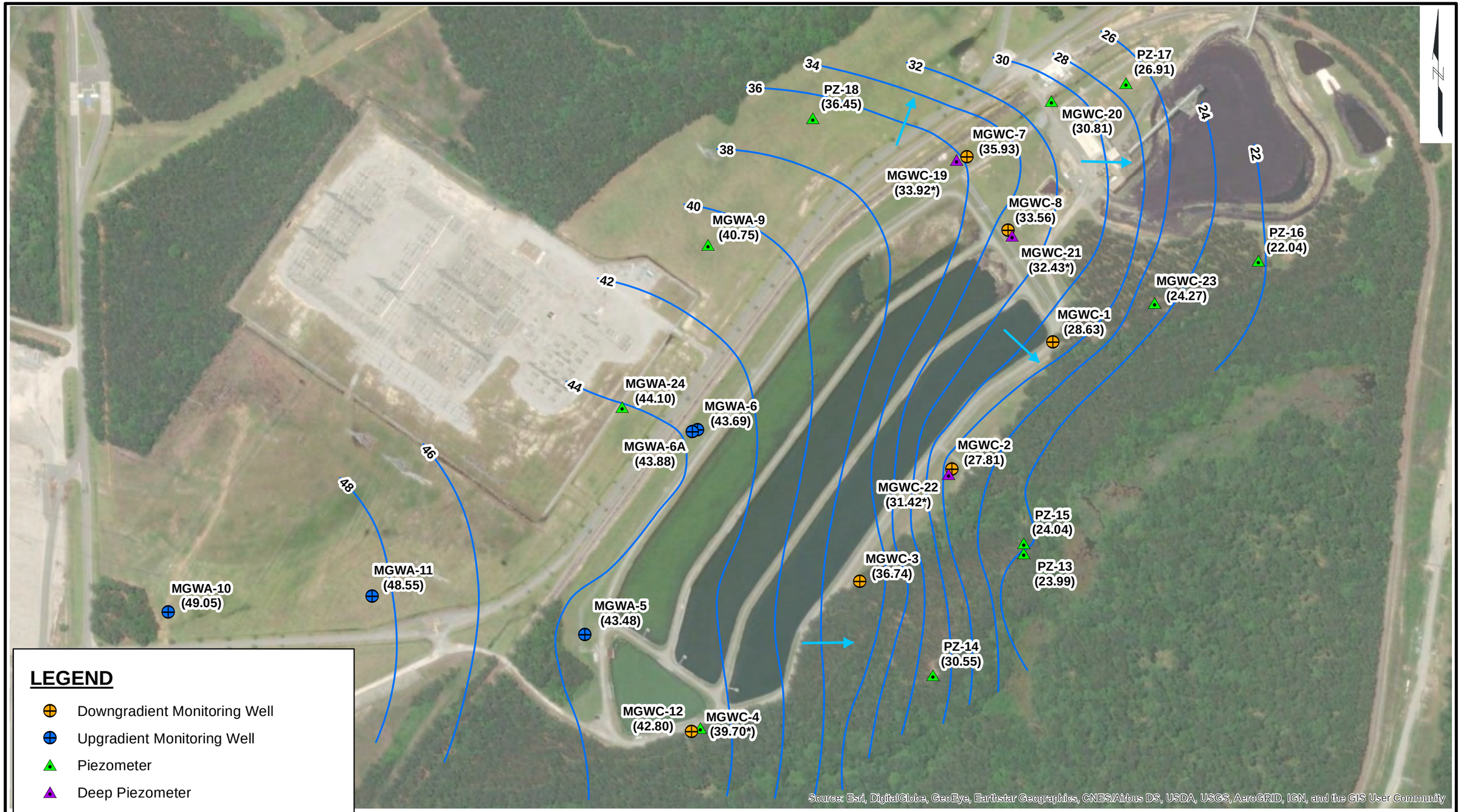
Georgia Power Company
Atlanta, Georgia

GEI Consultants

Project No. 1901973

ASH POND 1
WELL LOCATION MAP

Prepared February 2019 Fig. 2



LEGEND

- Downgradient Monitoring Well
- Upgradient Monitoring Well
- Piezometer
- Deep Piezometer
- Apparent Groundwater Flow Direction
- Apparent Potentiometric Contour

(49.05) = Groundwater elevations measured in feet relative to NAVD88 on 01/28/19

NOTE:

* MGWC-4, MGWC-19, MGWC-21, and MGWC-22 not used in contouring.

0 300 600

SCALE: 1 inch = 300 feet

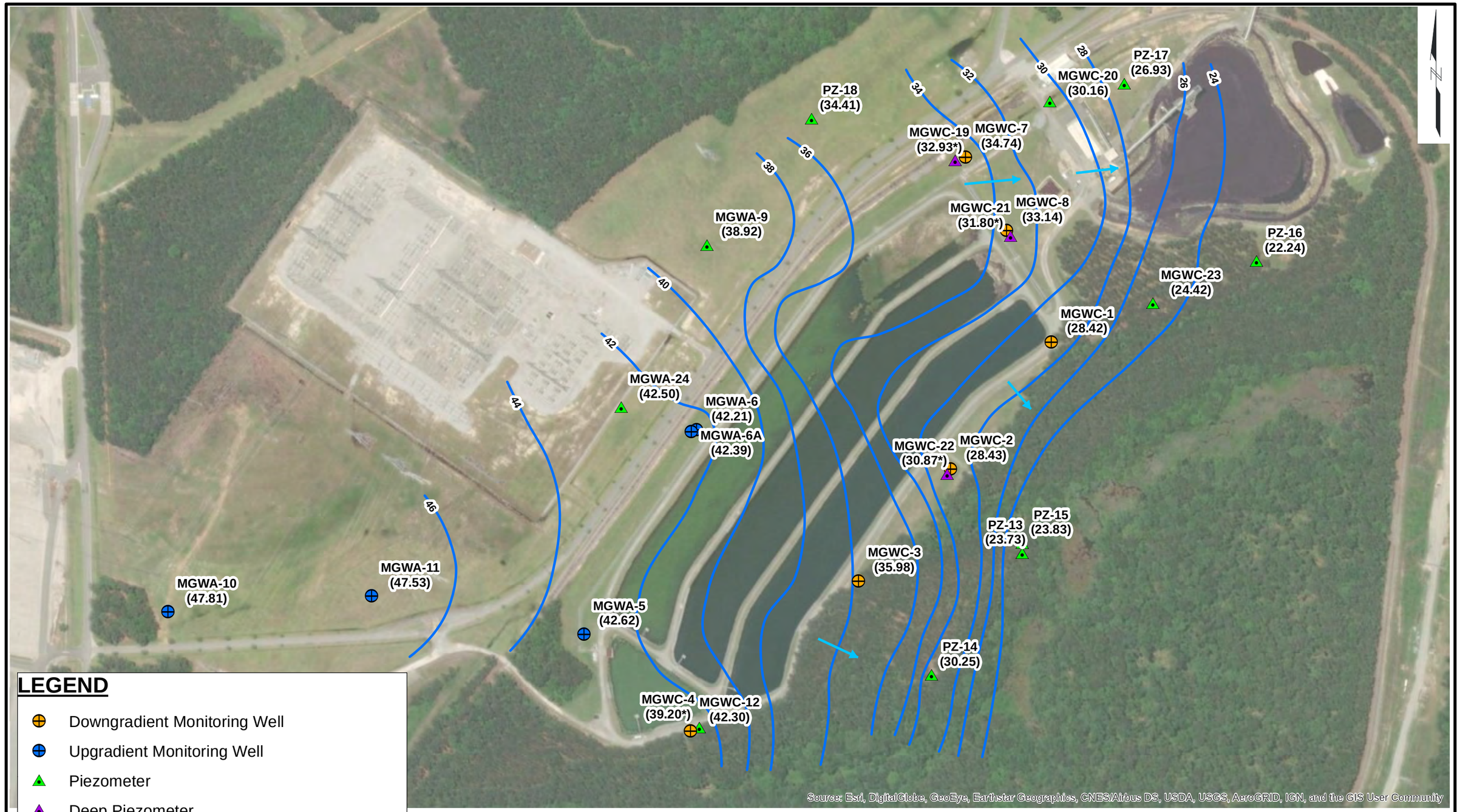
Semiannual Groundwater Monitoring and Corrective Action Report
Plant McIntosh Ash Pond 1

Georgia Power Company
Atlanta, Georgia

GEI Consultants

POTENTIOMETRIC SURFACE CONTOUR MAP
JANUARY 2019

Project No. 1901973 | Prepared February 2019 | Fig. 3



LEGEND

- Downgradient Monitoring Well
- Upgradient Monitoring Well
- Piezometer
- Deep Piezometer
- Apparent Groundwater Flow
- Apparent Potentiometric Surface Contour (feet)

(47.81) = Groundwater elevations measured in feet relative to NAVD88 on 03/25/19

NOTE:

* MGWC-4, MGWC-19, MGWC-21, and MGWC-22 not used in contouring.

0 300 600

SCALE: 1 inch = 300 feet

Semiannual Groundwater Monitoring and Corrective Action Report
Plant McIntosh Ash Pond 1

Georgia Power Company
Atlanta, Georgia

GEI Consultants

Project No. 1901973

POTENTIOMETRIC SURFACE CONTOUR MAP
MARCH 2019

Prepared May 2019 Fig. 4

Appendix A

Laboratory Analytical, Field Sampling, and Data Validation Reports

Water Level Measurement Data Sheet
Plant McIntosh
Georgia Power Company
Date: 1/28/2019
Gauged by: P. Adams, J. Noles, L. Coker

					Provided for reference			
Area	**Well ID**	**Installed Total Depth (ft btoc)**	**Measured Depth to Water (ft btoc)**	**Measured Depth to Bottom (ft btoc)**	**July 2018 Depth to Water (ft btoc)**	**July 2018 Depth to Bottom (ft btoc)**	**Installed Depth to Top of Screen (ft btoc)**	**Notes**
Ash Pond	MGWC-1	56.08	36.45	56.17	37.05	56.11	45.78	
	MGWC-2	37.36	20.45	37.30	20.29	37.29	27.06	
	MGWC-3	38.74	15.60	39.19	16.30	39.13	28.44	
	MGWC-4	67.35	24.35	67.90	24.02	67.80	57.05	
	MGWA-5	63.09	20.61	63.45	21.60	63.40	52.79	
	MGWA-6	41.93	17.14	42.66	18.41	42.16	31.63	
	MGA-6A		15.79	43.21	--	--		not yet surveyed
	MGWC-7	42.29	18.26	42.32	19.84	42.22	31.99	
	MGWC-8	52.56	28.80	52.89	29.40	52.85	42.26	
	MGWA-9	43.05	18.30	43.18	20.39	43.10	32.75	
	MGWA-10	53.09	15.64	53.00	17.33	52.97	42.79	
	MGWA-11	55.81	18.96	56.61	20.25	56.60	45.61	
	MGWC-12	52.90	24.00	53.87	24.42	53.76	42.70	
	PZ-13	26.76	16.67	27.35	17.49	27.30	16.36	
	PZ-14	41.50	16.35	41.80	16.94	41.79	31.10	
	PZ-15	28.87	18.24	29.00	19.02	28.90	18.57	
	PZ-16	42.39	32.58	42.50	32.94	42.56	32.09	
	PZ-17	45.12	30.55	45.24	31.11	45.20	34.82	
	PZ-18	41.70	16.86	41.90	19.30	41.90	31.40	
	MGWC-19	72.70	19.94	72.85	--	--	62.40	
	MGWC-20	54.77	20.68	55.00	--	--	44.47	
	MGWC-21	82.68	30.06	83.30	--	--	72.38	
	MGWC-22	67.56	15.96	68.00	--	--	57.26	
	MGWC-23	42.90	33.08	43.42	--	--	32.60	
	MGWA-24		16.30	48.82	--	--		not yet surveyed
	M1	31.85	17.91	29.94	--	--	21.85	Dike piezometer
	M2	31.85	11.80	30.00	--	--	21.85	Dike piezometer
	M6	21.93	4.21	30.00	--	--	11.93	Dike piezometer
	M7	26.75	14.51	30.00	--	--	16.75	Dike piezometer

Notes: ft = feet NM = Not Measured btoc = below top of casing bgs = below ground surface

Product Name: Low-Flow System

Date: 2019-01-29 11:22:21

Project Information:		Pump Information:	
Operator Name	L Coker	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	50 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369370		
Turbidity Make/Model	Lamotte2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWC-1	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3131711 L
Well Total Depth	56.71 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	16.32 in
Depth to Water	36.45 ft	Total Volume Pumped	6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	10:59:09	600.03	19.85	6.75	521.63	3.41	37.71	3.34	10.59
Last 5	11:04:09	900.02	19.90	6.77	543.44	2.58	37.81	3.63	24.40
Last 5	11:09:09	1200.02	20.01	6.80	550.96	2.00	37.75	4.02	32.60
Last 5	11:14:09	1500.02	20.02	6.84	557.56	1.85	37.76	4.25	34.26
Last 5	11:19:09	1800.02	19.94	6.87	563.42	1.89	37.80	4.25	47.33
Variance 0			0.11	0.04	7.52			0.38	8.20
Variance 1			0.01	0.04	6.61			0.23	1.66
Variance 2			-0.09	0.02	5.85			-0.00	13.07

Notes

Sampled at 1130 DUP-AP-02 taken here

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-29 11:34:51

Project Information:		Pump Information:	
Operator Name	P Adams	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	45 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	445707		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWC-2	Final Pumping Rate	0 mL/min
Well diameter	2 in	Total System Volume	0.290854 L
Well Total Depth	37.30 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	20.45 ft	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	11:13:30	600.02	18.70	6.96	812.46	3.41	20.30	0.28	0.52
Last 5	11:18:30	900.02	18.90	6.99	808.16	3.22	20.35	0.29	-4.63
Last 5	11:23:30	1200.02	18.88	7.02	811.20	2.26	20.38	0.27	-6.22
Last 5	11:28:30	1500.02	18.92	7.02	804.60	2.17	20.41	0.24	-7.13
Last 5	11:33:30	1800.02	18.92	7.03	804.42	2.03	20.41	0.24	-8.36
Variance 0			-0.02	0.03	3.04			-0.02	-1.60
Variance 1			0.04	0.01	-6.60			-0.03	-0.91
Variance 2			0.00	0.01	-0.17			-0.00	-1.23

Notes

Sampled at 1140

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-29 10:33:56

Project Information:		Pump Information:	
Operator Name	P Adams	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	45 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	445707		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWC-3	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.290854 L
Well Total Depth	39.19 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	4 in
Depth to Water	15.6 ft	Total Volume Pumped	6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	10:12:21	600.03	17.37	6.46	588.74	1.37	15.97	0.25	71.44
Last 5	10:17:21	900.15	17.57	6.42	591.69	1.22	15.97	0.24	34.79
Last 5	10:22:21	1200.15	17.83	6.42	588.69	1.23	15.97	0.22	28.60
Last 5	10:27:21	1500.15	17.83	6.42	586.57	1.09	15.97	0.21	22.73
Last 5	10:32:21	1800.15	17.94	6.42	587.19	1.07	15.97	0.20	20.20
Variance 0			0.26	-0.00	-3.00			-0.02	-6.18
Variance 1			-0.00	0.00	-2.12			-0.01	-5.87
Variance 2			0.11	0.00	0.62			-0.01	-2.54

Notes

Sampled at 1045

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-29 09:30:42

Project Information:		Pump Information:	
Operator Name	J Adcock	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	Plant McIntosh	Tubing Length	61 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369555		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	mgwa-5	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3622688 L
Well Total Depth	63.09 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	13.68 in
Depth to Water	20.60 ft	Total Volume Pumped	9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 5%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 10%
Last 5	09:02:17	1199.93	18.77	7.96	280.32	0.80	21.68	2.84	51.81
Last 5	09:07:17	1499.93	18.90	7.84	279.02	0.79	21.69	1.79	49.07
Last 5	09:12:17	1799.93	18.91	7.73	279.86	0.96	21.70	1.03	46.03
Last 5	09:17:17	2099.93	18.86	7.68	278.11	1.07	21.72	0.74	42.60
Last 5	09:22:17	2399.93	19.04	7.63	278.17	1.11	21.73	0.43	41.30
Variance 0			0.01	-0.11	0.84			-0.76	-3.04
Variance 1			-0.04	-0.05	-1.75			-0.28	-3.43
Variance 2			0.17	-0.05	0.06			-0.31	-1.30

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-29 09:39:55

Project Information:		Pump Information:	
Operator Name	L Coker	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	37 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369370		
Turbidity Make/Model	Lamotte2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWA-6	Final Pumping Rate	160 mL/min
Well diameter	2 in	Total System Volume	0.2551467 L
Well Total Depth	42.66 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.72 in
Depth to Water	17.14 ft	Total Volume Pumped	5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	09:17:57	900.02	18.60	6.43	527.13	2.95	17.40	0.18	-7.47
Last 5	09:22:57	1200.02	19.01	6.41	522.25	2.06	17.41	0.16	-7.06
Last 5	09:27:57	1500.02	19.35	6.48	519.86	1.60	17.43	0.14	-4.16
Last 5	09:32:57	1800.02	19.49	6.52	518.01	2.03	17.45	0.13	-3.09
Last 5	09:37:57	2100.02	19.49	6.55	514.95	1.79	17.46	0.16	-5.85
Variance 0			0.34	0.06	-2.39			-0.02	2.90
Variance 1			0.14	0.05	-1.85			-0.01	1.07
Variance 2			-0.00	0.03	-3.06			0.03	-2.76

Notes

Sampled at 0945 DUP-AP-01 taken here

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-28 17:22:08

Project Information:		Pump Information:	
Operator Name	L. Coker	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	34.4 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369370		
Turbidity Make/Model	Lamotte2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWA-6A	Final Pumping Rate	120 mL/min
Well diameter	2 in	Total System Volume	0.2435418 L
Well Total Depth	43.21 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	17.04 in
Depth to Water	15.74 ft	Total Volume Pumped	7.3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	16:57:49	2100.02	19.57	6.84	473.01	5.39	17.05	0.18	-147.75
Last 5	17:02:49	2400.02	19.45	6.86	472.11	5.82	17.07	0.18	-147.49
Last 5	17:07:49	2700.02	19.48	6.89	474.59	5.31	17.10	0.18	-139.58
Last 5	17:12:49	3000.02	19.28	6.91	468.75	5.05	17.11	0.16	-135.87
Last 5	17:17:49	3300.02	19.23	6.93	471.27	4.97	17.12	0.16	-137.46
Variance 0			0.03	0.03	2.48			0.01	7.91
Variance 1			-0.20	0.02	-5.84			-0.03	3.71
Variance 2			-0.05	0.02	2.52			0.00	-1.59

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-29 09:55:23

Project Information:		Pump Information:	
Operator Name	J. Noles	Pump Model/Type	Alexis
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	40 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	601533		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWC-7	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.2685369 L
Well Total Depth	42.22 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	3.36 in
Depth to Water	18.24 ft	Total Volume Pumped	3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10%	+/- 0.1	+/- 5%	+/- 10%		+/- 10%	+/- 10
Last 5	09:32:06	600.02	15.88	5.92	525.46	1.48	18.50	0.51	45.79
Last 5	09:37:06	900.02	16.43	5.91	520.66	1.60	18.50	0.37	42.74
Last 5	09:42:06	1200.02	16.50	5.91	520.57	1.30	18.52	0.31	42.39
Last 5	09:47:06	1500.02	16.61	5.91	522.40	0.91	18.52	0.31	42.36
Last 5	09:52:06	1800.02	16.56	5.93	521.01	1.01	18.52	0.27	41.20
Variance 0			0.07	-0.00	-0.09			-0.06	-0.35
Variance 1			0.11	-0.01	1.84			-0.00	-0.03
Variance 2			-0.05	0.02	-1.39			-0.04	-1.16

Notes

Sampled at 0955 1/29/19

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-29 11:41:55

Project Information:		Pump Information:	
Operator Name	J. Noles	Pump Model/Type	Alexis
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	47 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	601533		
Turbidity Make/Model	Lamotte 2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWC-8	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.2997809 L
Well Total Depth	52.85 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	28.80 ft	Total Volume Pumped	3 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 10%	+/- 0.1	+/- 5%	+/- 10%		+/- 10%	+/- 10
Last 5	11:18:42	1199.83	16.60	5.29	735.51	0.30	28.85	0.47	80.10
Last 5	11:23:42	1499.83	16.74	5.31	811.73	0.25	28.85	0.35	81.45
Last 5	11:28:42	1799.83	16.82	5.39	841.10	0.38	28.85	0.36	78.18
Last 5	11:33:42	2099.83	16.98	5.44	856.58	0.14	28.85	0.31	77.40
Last 5	11:38:42	2399.83	17.31	5.46	871.33	0.12	28.85	0.29	74.76
Variance 0			0.09	0.08	29.37			0.01	-3.27
Variance 1			0.16	0.05	15.48			-0.05	-0.78
Variance 2			0.33	0.02	14.74			-0.02	-2.64

Notes

Sampled at 1143 on 1/29/19.

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-28 15:52:14

Project Information:		Pump Information:	
Operator Name	J Adcock	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	Plant McIntosh	Tubing Length	50 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369555		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWA-10	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3131711 L
Well Total Depth	52.92 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	46.44 in
Depth to Water	15.67 ft	Total Volume Pumped	6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 5%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 10%
Last 5	15:22:57	300.13	18.33	6.04	72.01	1.53	16.80	2.01	129.64
Last 5	15:27:56	600.03	19.61	5.64	64.69	1.79	17.65	1.60	106.75
Last 5	15:37:57	1201.03	19.75	5.54	64.23	1.54	18.95	1.66	96.04
Last 5	15:42:57	1501.03	19.86	5.52	63.88	1.69	19.25	1.71	93.73
Last 5	15:47:57	1801.02	19.88	5.49	63.54	1.64	19.54	1.86	93.99
Variance 0			0.14	-0.10	-0.46			0.06	-10.71
Variance 1			0.11	-0.02	-0.35			0.05	-2.31
Variance 2			0.02	-0.02	-0.34			0.15	0.26

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-28 15:41:21

Project Information:		Pump Information:	
Operator Name	P Adams	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	50 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	445707		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWA-11	Final Pumping Rate	0 mL/min
Well diameter	2 in	Total System Volume	0.3131711 L
Well Total Depth	56.61ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	0 in
Depth to Water	18.96 ft	Total Volume Pumped	0 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	15:19:52	600.57	19.64	7.17	234.07	1.07	19.77	0.35	88.06
Last 5	15:24:52	900.57	19.81	7.23	232.38	0.99	19.90	0.24	65.22
Last 5	15:29:52	1200.57	19.82	7.29	230.84	0.90	19.95	0.19	56.91
Last 5	15:34:54	1502.57	19.83	7.34	231.98	0.80	19.99	0.17	51.12
Last 5	15:39:54	1802.57	19.65	7.40	230.68	0.72	20.01	0.16	32.79
Variance 0			0.01	0.06	-1.54			-0.05	-8.31
Variance 1			0.01	0.05	1.14			-0.01	-5.80
Variance 2			-0.18	0.05	-1.30			-0.01	-18.32

Notes

Sampled at 1550

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-29 11:45:34

Project Information:		Pump Information:	
Operator Name	J Adcock	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	Plant McIntosh	Tubing Length	51 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369555		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWC-12	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3176346 L
Well Total Depth	52.90 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	8.76 in
Depth to Water	24.01 ft	Total Volume Pumped	18 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 5%	+/- 0.1	+/- 5%	+/- 5		+/- 0.2	+/- 10%
Last 5	11:23:49	4200.46	18.64	8.33	309.72	0.77	24.74	0.20	-184.24
Last 5	11:28:49	4500.46	18.73	8.24	307.76	0.68	24.74	0.19	-189.98
Last 5	11:33:49	4800.46	18.79	8.16	300.45	0.64	24.74	0.18	-174.53
Last 5	11:38:49	5100.46	18.70	8.08	298.70	0.57	24.74	0.18	-171.96
Last 5	11:43:49	5400.46	18.77	8.02	295.24	0.64	24.74	0.17	-160.92
Variance 0			0.06	-0.09	-7.31			-0.01	15.44
Variance 1			-0.09	-0.07	-1.75			0.00	2.58
Variance 2			0.07	-0.06	-3.46			-0.01	11.04

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-01-28 16:59:01

Project Information:		Pump Information:	
Operator Name	P Adams	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	50 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	445707		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	3 ft

Well Information:		Pumping Information:	
Well ID	MGWA-24	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.3131711 L
Well Total Depth	48.82 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	6 in
Depth to Water	16.30 ft	Total Volume Pumped	4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	16:35:37	600.02	19.99	8.32	250.75	3.78	16.80	0.40	-225.44
Last 5	16:40:37	900.02	19.80	8.36	259.16	4.02	16.82	0.34	-254.03
Last 5	16:45:37	1200.02	19.33	8.42	288.70	4.17	16.82	0.32	-275.25
Last 5	16:50:37	1500.03	19.32	8.47	293.24	4.57	16.82	0.34	-275.96
Last 5	16:55:37	1800.03	19.10	8.49	295.55	4.19	16.82	0.26	-271.47
Variance 0			-0.48	0.06	29.54			-0.02	-21.22
Variance 1			-0.00	0.05	4.54			0.02	-0.71
Variance 2			-0.22	0.02	2.31			-0.08	4.49

Notes

Sampled at

Grab Samples

Water Level Measurement Data Sheet
Plant McIntosh
Georgia Power Company
Date: 25-Mar-19
Gauged by: J. Adcock, L. Coker, J. Noles

					Provided for reference			
Area	**Well ID**	**Installed Total Depth (ft btoc)**	**Measured Depth to Water (ft btoc)**	**Measured Depth to Bottom (ft btoc)**	**January 2019 Depth to Water (ft btoc)**	**January 2019 Depth to Bottom (ft btoc)**	**Installed Depth to Top of Screen (ft btoc)**	**Notes**
Ash Pond	MGWC-1	56.08	36.66	56.10	36.45	56.17	45.78	
	MGWC-2	37.36	19.83	37.25	20.45	37.30	27.06	
	MGWC-3	38.74	16.36	39.16	15.60	39.19	28.44	
	MGWC-4	67.35	24.85	67.80	24.35	67.90	57.05	
	MGWA-5	63.09	21.47	63.38	20.61	63.45	52.79	
	MGWA-6	41.93	18.62	42.45	17.14	42.66	31.63	
	MGA-6A	42.58	17.28	42.81	15.79	43.21	32.28	
	MGWC-7	42.29	19.45	42.30	18.26	42.32	31.99	
	MGWC-8	52.56	29.22	52.84	28.80	52.89	42.26	
	MGWA-9	43.05	20.13	43.13	18.30	43.18	32.75	
	MGWA-10	53.09	16.88	53.11	15.64	53.00	42.79	
	MGWA-11	55.81	19.98	56.67	18.96	56.61	45.61	
	MGWC-12	52.90	24.50	53.80	24.00	53.87	42.70	
	PZ-13	26.76	16.93	27.32	16.67	27.35	16.36	
	PZ-14	41.50	16.65	41.75	16.35	41.80	31.10	
	PZ-15	28.87	18.45	28.53	18.24	29.00	18.57	
	PZ-16	42.39	32.38	42.55	32.58	42.50	32.09	
	PZ-17	45.12	30.53	45.22	30.55	45.24	34.82	
	PZ-18	41.70	18.90	41.87	16.86	41.90	31.40	
	MGWC-19	72.70	20.93	72.81	19.94	72.85	62.40	
	MGWC-20	54.77	21.33	55.01	20.68	55.00	44.47	
	MGWC-21	82.68	30.69	83.15	30.06	83.30	72.38	
	MGWC-22	67.56	16.51	67.95	15.96	68.00	57.26	
	MGWC-23	42.90	32.93	43.29	33.08	43.42	32.60	
	MGWA-24	49.03	17.90	48.67	16.30	48.82	38.73	
	M1	31.85	NM	NM	17.91	29.94	21.85	Dike piezometer
	M2	31.85	NM	NM	11.80	30.00	21.85	Dike piezometer
	M6	21.93	NM	NM	4.21	30.00	11.93	Dike piezometer
	M7	26.75	NM	NM	14.51	30.00	16.75	Dike piezometer

Notes: ft = feet NM = Not Measured btoc = below top of casing bgs = below ground surface

Product Name: Low-Flow System

Date: 2019-03-26 11:25:30

Project Information:		Pump Information:	
Operator Name	L. Coker	Pump Model/Type	QED Bladder
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	50 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	408206		
Turbidity Make/Model	LaMotte2020we	Pump placement from TOC	2 ft

Well Information:		Pumping Information:	
Well ID	MGWC-1	Final Pumping Rate	120 mL/min
Well diameter	2 in	Total System Volume	0.2685369 L
Well Total Depth	56.10 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	11.3 in
Depth to Water	36.66 ft	Total Volume Pumped	3.6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 0
Last 5	11:35:50	600.06	19.64	6.98	506.80	2.51	37.40	0.65	-36.90
Last 5	11:40:50	900.06	19.96	6.97	524.20	1.61	37.55	0.47	-35.60
Last 5	11:45:50	1200.06	20.08	6.98	538.90	1.37	37.56	0.48	-32.20
Last 5	11:50:50	1500.06	20.02	7.00	548.60	1.35	37.56	0.38	-28.70
Last 5	11:55:50	1800.06	19.99	7.01	553.00	1.27	37.60	0.38	-25.10
Variance 0			0.12	0.00	-1.90			-0.00	-44.27
Variance 1			-0.14	0.02	-2.07			0.10	-14.76
Variance 2			-0.09	-0.00	1.23			-0.11	-16.96

Notes

Sampled at 1200

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-26 11:20:39

Project Information:		Pump Information:	
Operator Name	J. Adcock	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	30 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	598939		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	2 ft

Well Information:		Pumping Information:	
Well ID	MGWC-2	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.2239027 L
Well Total Depth	37.36 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	11.76 in
Depth to Water	19.87 ft	Total Volume Pumped	4.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	10:58:05	600.02	19.35	7.27	749.96	3.29	20.59	1.35	53.33
Last 5	11:03:05	900.02	19.67	7.29	750.07	3.40	20.74	1.02	48.09
Last 5	11:08:12	1207.02	19.72	7.30	749.51	3.32	20.82	0.70	42.90
Last 5	11:13:12	1507.02	19.78	7.31	748.78	3.20	20.84	0.46	38.08
Last 5	11:18:12	1807.01	19.83	7.29	750.03	2.67	20.85	0.45	36.18
Variance 0			0.05	0.01	-0.56			-0.31	-5.19
Variance 1			0.06	0.00	-0.74			-0.24	-4.82
Variance 2			0.06	-0.02	1.25			-0.01	-1.90

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-26 09:58:13

Project Information:		Pump Information:	
Operator Name	J. Adcock	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	36 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	598939		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	2 ft

Well Information:		Pumping Information:	
Well ID	MGWC-3	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.2506832 L
Well Total Depth	38.74 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	4.2 in
Depth to Water	16.36 ft	Total Volume Pumped	4.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	09:35:32	600.01	18.92	6.53	501.74	0.98	16.68	1.20	96.06
Last 5	09:40:32	900.01	19.05	6.57	511.80	1.25	16.68	0.87	85.60
Last 5	09:45:40	1208.01	19.06	6.60	518.76	0.67	16.71	0.75	79.21
Last 5	09:50:40	1508.00	19.01	6.66	530.22	0.54	16.71	0.57	72.19
Last 5	09:55:40	1808.00	19.13	6.68	534.64	0.69	16.71	0.47	68.59
Variance 0			0.00	0.03	6.97			-0.12	-6.39
Variance 1			-0.05	0.06	11.45			-0.18	-7.02
Variance 2			0.11	0.02	4.42			-0.10	-3.59

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-05 15:16:30

Project Information:		Pump Information:	
Operator Name	L. Coker	Pump Model/Type	Alexis Peristalitic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	57 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	408206		
Turbidity Make/Model	LaMotte2020we	Pump placement from TOC	2 ft

Well Information:		Pumping Information:	
Well ID	MGWA-5	Final Pumping Rate	120 mL/min
Well diameter	2 in	Total System Volume	0.2685369 L
Well Total Depth	63.38 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	8.8 in
Depth to Water	21.47 ft	Total Volume Pumped	3.6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 0
Last 5	16:45:50	600.02	22.69	7.58	253.10	0.80	22.15	0.35	-138.40
Last 5	16:50:50	900.02	22.48	7.51	255.60	0.87	22.20	0.28	-138.10
Last 5	16:55:50	1200.02	23.34	7.48	254.60	0.62	22.20	0.27	-139.30
Last 5	17:00:50	1500.02	23.29	7.45	254.70	0.95	22.19	0.25	-138.20
Last 5	17:05:50	1800.02	23.13	7.44	253.60	0.68	22.20	0.24	-136.80
Variance 0			0.13	0.00	-1.90			-0.35	-44.27
Variance 1			-0.12	0.02	-2.07			0.12	-14.76
Variance 2			-0.05	-0.00	1.23			-0.26	-16.96

Notes

Sampled at 1710

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-05 15:16:30

Project Information:		Pump Information:	
Operator Name	J.Noles	Pump Model/Type	Alexis Peristalitic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	40 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369370		
Turbidity Make/Model	LaMotte2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MGWA-6	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.2685369 L
Well Total Depth	42.45 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	2.16 in
Depth to Water	17.69 ft	Total Volume Pumped	5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 0
Last 5	14:52:50	1800.02	19.46	6.53	510.40	1.87	18.87	1.12	108.08
Last 5	14:57:50	2100.02	19.45	6.55	514.08	2.10	18.87	0.86	100.50
Last 5	15:02:50	2400.02	19.58	6.56	512.18	1.38	18.87	0.51	56.24
Last 5	15:07:50	2700.02	19.46	6.58	510.11	1.04	18.87	0.63	41.48
Last 5	15:12:50	3000.02	19.40	6.57	511.34	1.55	18.87	0.37	24.52
Variance 0			0.13	0.00	-1.90			-0.35	-44.27
Variance 1			-0.12	0.02	-2.07			0.12	-14.76
Variance 2			-0.05	-0.00	1.23			-0.26	-16.96

Notes

Sampled at 1025. Last reading: turb=1.55, water level=18.87.

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-04 22:49:21

Project Information:		Pump Information:	
Operator Name	J.Noles	Pump Model/Type	Alexis Peristalitic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	42 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369370		
Turbidity Make/Model	LaMotte2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MGWA-6A	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.2774638 L
Well Total Depth	42.81 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	12.84 in
Depth to Water	17.10 ft	Total Volume Pumped	9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 0
Last 5	22:26:40	4200.02	22.79	7.10	451.95	8.33	18.17	0.13	-154.80
Last 5	22:31:40	4500.02	22.98	7.11	450.86	8.78	18.17	0.12	-159.65
Last 5	22:36:40	4800.02	23.13	7.11	452.38	5.86	18.17	0.12	-159.74
Last 5	22:41:40	5100.02	23.20	7.11	453.39	5.37	18.17	0.11	-162.15
Last 5	22:46:40	5400.02	23.46	7.10	458.37	5.16	18.17	0.11	-161.87
Variance 0			0.15	0.00	1.52			-0.00	-0.09
Variance 1			0.07	-0.00	1.00			-0.00	-2.41
Variance 2			0.26	-0.00	4.98			0.00	0.28

Notes

Sampled at 1800

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-05 17:45:54

Project Information:		Pump Information:	
Operator Name	J.Noles	Pump Model/Type	Alexis Peristalitic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	40 ft
Latitude	0º 0' 0"		
Longitude	0º 0' 0"		
Sonde SN	369370		
Turbidity Make/Model	LaMotte2020we	Pump placement from TOC	ft

Well Information:		Pumping Information:	
Well ID	MGWC-7	Final Pumping Rate	100 mL/min
Well diameter	2 in	Total System Volume	0.2685369 L
Well Total Depth	42.30 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	4.2 in
Depth to Water	19.56 ft	Total Volume Pumped	5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 0
Last 5	17:23:48	1800.02	21.09	6.06	479.63	1.11	19.91	1.20	108.35
Last 5	17:28:48	2100.02	21.28	6.01	478.91	1.40	19.91	0.96	104.63
Last 5	17:33:48	2400.02	20.96	5.97	480.76	1.27	19.91	0.74	92.78
Last 5	17:38:48	2700.02	20.78	5.97	481.96	1.54	19.91	0.70	82.90
Last 5	17:43:48	3000.02	20.60	5.96	485.47	1.11	19.91	0.61	72.23
Variance 0			-0.32	-0.04	1.85			-0.22	-11.86
Variance 1			-0.18	-0.01	1.20			-0.04	-9.88
Variance 2			-0.18	-0.01	3.51			-0.09	-10.67

Notes

Sampled at 1255.

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-26 12:47:32

Project Information:		Pump Information:	
Operator Name	J. Adcock	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	50 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	598939		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	2 ft

Well Information:		Pumping Information:	
Well ID	MGWC-8	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.3131711 L
Well Total Depth	52.56 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	2.4 in
Depth to Water	29.29 ft	Total Volume Pumped	4.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 0		+/- 10%	+/- 0
Last 5	12:24:51	600.02	21.53	5.16	787.71	0.66	29.47	0.34	130.58
Last 5	12:29:51	900.01	21.87	5.12	820.69	0.34	29.47	0.27	127.75
Last 5	12:34:51	1200.02	22.04	5.13	836.65	0.47	29.49	0.22	126.68
Last 5	12:39:51	1500.01	21.82	5.12	839.31	0.65	29.49	0.20	128.97
Last 5	12:44:51	1800.02	21.86	5.19	830.74	0.45	29.49	0.19	128.28
Variance 0			0.18	0.01	15.95			-0.04	-1.07
Variance 1			-0.22	-0.01	2.66			-0.03	2.30
Variance 2			0.04	0.06	-8.57			-0.01	-0.69

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-25 15:09:27

Project Information:		Pump Information:	
Operator Name	J. Adcock	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	50 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	408206		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	2 ft

Well Information:		Pumping Information:	
Well ID	MGWA-10	Final Pumping Rate	200 mL/min
Well diameter	2 in	Total System Volume	0.3131711 L
Well Total Depth	53.09 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	33.12 in
Depth to Water	16.85 ft	Total Volume Pumped	8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5	+/- 0		+/- 10	+/- 0
Last 5	14:31:46	300.07	24.16	5.74	63.53	0.92	17.51	2.14	186.69
Last 5	14:36:46	600.02	22.89	5.37	62.40	1.19	18.18	2.04	180.09
Last 5	14:41:46	900.02	22.76	5.29	62.97	0.67	18.72	2.00	177.88
Last 5	14:48:05	1279.03	22.98	5.28	63.30	0.88	19.03	1.94	187.02
Last 5	15:07:26	2439.90	22.91	5.27	64.41	0.89	19.61	1.86	175.85
Variance 0			-0.13	-0.08	0.56			-0.03	-2.21
Variance 1			0.22	-0.02	0.33			-0.06	9.14
Variance 2			-0.07	-0.00	1.11			-0.09	-11.17

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-25 16:47:18

Project Information:		Pump Information:	
Operator Name	J. Adcock	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	52 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	408206		
Turbidity Make/Model	LaMotte 2020we	Pump placement from TOC	2 ft

Well Information:		Pumping Information:	
Well ID	MGWA-11	Final Pumping Rate	150 mL/min
Well diameter	2 in	Total System Volume	0.322098 L
Well Total Depth	55.81 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	2.28 in
Depth to Water	19.97 ft	Total Volume Pumped	5.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5	+/- 0		+/- 10	+/- 0
Last 5	16:25:21	1133.80	22.49	7.14	287.79	0.69	20.15	0.41	-37.82
Last 5	16:30:21	1433.79	22.67	7.19	294.45	0.79	20.15	0.37	-26.96
Last 5	16:35:21	1733.79	22.52	7.23	300.61	0.62	20.16	0.34	-23.81
Last 5	16:40:21	2033.80	22.86	7.27	298.32	0.36	20.16	0.33	-24.36
Last 5	16:45:25	2337.80	22.55	7.29	297.04	0.43	20.16	0.31	-21.22
Variance 0			-0.15	0.04	6.16			-0.03	3.15
Variance 1			0.34	0.04	-2.29			-0.01	-0.55
Variance 2			-0.31	0.02	-1.28			-0.02	3.14

Notes

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-26 09:40:20

Project Information:		Pump Information:	
Operator Name	L. Coker	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	47 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	408206		
Turbidity Make/Model	LaMotte2020we	Pump placement from TOC	2 ft

Well Information:		Pumping Information:	
Well ID	MGWC-12	Final Pumping Rate	130 mL/min
Well diameter	2 in	Total System Volume	0.2685369 L
Well Total Depth	53.80 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	7.2 in
Depth to Water	24.50 ft	Total Volume Pumped	4.7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 0
Last 5	09:55:50	900.03	18.83	7.59	280.20	0.99	25.05	0.25	-110.10
Last 5	10:00:50	1200.03	18.80	7.36	280.80	1.27	25.08	0.22	-108.50
Last 5	10:05:50	1500.03	18.88	7.24	280.50	1.12	25.08	0.21	-106.70
Last 5	10:10:50	1800.03	18.88	7.18	281.00	0.80	25.10	0.19	-105.60
Last 5	10:15:50	2100.03	18.83	7.14	281.90	0.71	25.10	0.19	-103.70
Variance 0			0.11	0.00	-1.81			-0.00	-41.17
Variance 1			-0.17	0.02	-1.06			0.11	-13.76
Variance 2			-0.10	-0.00	-0.55			-0.10	-15.96

Notes

Sampled at 1020

Grab Samples

Product Name: Low-Flow System

Date: 2019-03-25 14:35:30

Project Information:		Pump Information:	
Operator Name	L. Coker	Pump Model/Type	Alexis Peristaltic
Company Name	GEI	Tubing Type	LDPE
Project Name	AP1	Tubing Diameter	0.17 in
Site Name	McIntosh	Tubing Length	40 ft
Latitude	0° 0' 0"		
Longitude	0° 0' 0"		
Sonde SN	408206		
Turbidity Make/Model	LaMotte2020we	Pump placement from TOC	2 ft

Well Information:		Pumping Information:	
Well ID	MGWA-24	Final Pumping Rate	110 mL/min
Well diameter	2 in	Total System Volume	0.2685369 L
Well Total Depth	48.67 ft	Calculated Sample Rate	300 sec
Screen Length	10 ft	Stabilization Drawdown	5.04 in
Depth to Water	17.90 ft	Total Volume Pumped	10 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond µS/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 0
Last 5	15:25:50	3000.06	22.67	8.05	288.80	1.89	18.30	0.11	-196.00
Last 5	15:30:50	3300.06	22.76	7.92	372.30	4.81	18.30	0.10	-218.70
Last 5	15:35:50	3600.06	22.62	7.92	394.50	4.60	18.32	0.10	-219.90
Last 5	15:40:50	3900.06	24.74	7.89	394.70	4.79	18.32	0.10	-221.00
Last 5	15:45:50	4200.06	22.71	7.90	384.20	4.55	18.32	0.10	-225.80
Variance 0			0.12	0.00	-1.90			-0.35	-44.27
Variance 1			-0.14	0.02	-2.07			0.12	-14.76
Variance 2			-0.09	-0.00	1.23			-0.26	-16.96

Notes

Sampled at 1550

Grab Samples

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 180-86183-1
Laboratory Sample Delivery Group: Ash Pond
Client Project/Site: CCR - Plant McIntosh Ash Pond 1
Revision: 2

For:
Southern Company
PO BOX 2641 GSC8
Birmingham, Alabama 35291

Attn: Ms. Lauren Petty

Veronica Bortot

Authorized for release by:
4/8/2019 4:47:32 PM

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

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

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

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86183-1
SDG: Ash Pond

Job ID: 180-86183-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-86183-1

Revised: Set Lithium RL to historical limits
Revised : formatter change; no flags

Comments
No additional comments.

Receipt
The samples were received on 1/29/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3º C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. There are no sample collection dates on the COC: however they are on the labels.

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 McIntosh Ash Pond 1

Job ID: 180-86183-1
SDG: Ash Pond

Glossary

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86183-1
SDG: Ash Pond

Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86183-1
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-86183-1	MGWA-10	Water	01/28/19 16:00	01/29/19 09:30
180-86183-2	MGWA-11	Water	01/28/19 15:50	01/29/19 09:30
180-86183-3	FB-AP-01	Water	01/28/19 16:40	01/29/19 09:30
180-86183-4	FERB-AP-01	Water	01/28/19 16:40	01/29/19 09:30

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86183-1
SDG: Ash Pond

Method	Method Description	Protocol	Laboratory
EPA 6020	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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

Laboratory References:

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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86183-1
SDG: Ash Pond

Client Sample ID: MGWA-10
Date Collected: 01/28/19 16:00
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-1
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	269371	02/01/19 12:08	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269919	02/07/19 15:14	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	269371	02/01/19 12:08	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269983	02/08/19 11:29	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269600	02/05/19 10:24	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269770	02/06/19 14:52	KAK	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: MGWA-11
Date Collected: 01/28/19 15:50
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-2
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	269371	02/01/19 12:08	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269919	02/07/19 15:18	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	269371	02/01/19 12:08	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269983	02/08/19 11:33	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269600	02/05/19 10:24	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269770	02/06/19 14:55	KAK	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: FB-AP-01
Date Collected: 01/28/19 16:40
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-3
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	269371	02/01/19 12:08	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269919	02/07/19 15:21	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	269371	02/01/19 12:08	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269983	02/08/19 11:36	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269600	02/05/19 10:24	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269770	02/06/19 14:56	KAK	TAL PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86183-1
SDG: Ash Pond

Client Sample ID: FERB-AP-01
Date Collected: 01/28/19 16:40
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-4
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	269371	02/01/19 12:08	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269919	02/07/19 15:24	RSK	TAL PIT
	Instrument ID: A									
Total Recoverable	Prep	3005A			50 mL	50 mL	269371	02/01/19 12:08	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269983	02/08/19 11:46	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269600	02/05/19 10:24	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269770	02/06/19 14:57	KAK	TAL PIT
	Instrument ID: HGZ									

Laboratory References:

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

Analyst References:

Lab: TAL PIT

Batch Type: Prep

NAM = Nicole Marfisi

RJR = Ron Rosenbaum

Batch Type: Analysis

KAK = Kayla Kalamasz

RSK = Robert Kurtz

Client Sample ID: MGWA-10

Lab Sample ID: 180-86183-1

Date Collected: 01/28/19 16:00
Matrix: Water
Date Received: 01/29/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/01/19 12:08	02/07/19 15:14	1
Barium	**0.0249**		0.00250		mg/L		02/01/19 12:08	02/07/19 15:14	1
Beryllium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:14	1
Cobalt	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:14	1
Chromium	**0.00545**		0.00250		mg/L		02/01/19 12:08	02/07/19 15:14	1
Molybdenum	<0.0150		0.0150		mg/L		02/01/19 12:08	02/07/19 15:14	1
Lead	<0.00100		0.00100		mg/L		02/01/19 12:08	02/07/19 15:14	1
Antimony	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:14	1
Selenium	<0.00125		0.00125		mg/L		02/01/19 12:08	02/07/19 15:14	1
Thallium	<0.000500		0.000500		mg/L		02/01/19 12:08	02/07/19 15:14	1
Lithium	**0.00821**		0.00200		mg/L		02/01/19 12:08	02/08/19 11:29	1
Cadmium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:14	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/05/19 10:24	02/06/19 14:52	1

Client Sample ID: MGWA-11

Lab Sample ID: 180-86183-2

Date Collected: 01/28/19 15:50
Matrix: Water
Date Received: 01/29/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/01/19 12:08	02/07/19 15:18	1
Barium	**0.0834**		0.00250		mg/L		02/01/19 12:08	02/07/19 15:18	1
Beryllium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:18	1
Cobalt	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:18	1
Chromium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:18	1
Molybdenum	<0.0150		0.0150		mg/L		02/01/19 12:08	02/07/19 15:18	1
Lead	<0.00100		0.00100		mg/L		02/01/19 12:08	02/07/19 15:18	1
Antimony	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:18	1
Selenium	<0.00125		0.00125		mg/L		02/01/19 12:08	02/07/19 15:18	1
Thallium	<0.000500		0.000500		mg/L		02/01/19 12:08	02/07/19 15:18	1
Lithium	**0.0124**		0.00200		mg/L		02/01/19 12:08	02/08/19 11:33	1
Cadmium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:18	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/05/19 10:24	02/06/19 14:55	1

Client Sample ID: FB-AP-01

Lab Sample ID: 180-86183-3

Date Collected: 01/28/19 16:40
Matrix: Water
Date Received: 01/29/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/01/19 12:08	02/07/19 15:21	1
Barium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:21	1
Beryllium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:21	1
Cobalt	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:21	1
Chromium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:21	1

Client Sample ID: FB-AP-01

Lab Sample ID: 180-86183-3

Date Collected: 01/28/19 16:40
Matrix: Water
Date Received: 01/29/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Molybdenum	<0.0150		0.0150		mg/L		02/01/19 12:08	02/07/19 15:21	1
Lead	<0.00100		0.00100		mg/L		02/01/19 12:08	02/07/19 15:21	1
Antimony	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:21	1
Selenium	<0.00125		0.00125		mg/L		02/01/19 12:08	02/07/19 15:21	1
Thallium	<0.000500		0.000500		mg/L		02/01/19 12:08	02/07/19 15:21	1
Lithium	<0.00200		0.00200		mg/L		02/01/19 12:08	02/08/19 11:36	1
Cadmium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:21	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/05/19 10:24	02/06/19 14:56	1

Client Sample ID: FERB-AP-01

Lab Sample ID: 180-86183-4

Date Collected: 01/28/19 16:40
Matrix: Water
Date Received: 01/29/19 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/01/19 12:08	02/07/19 15:24	1
Barium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:24	1
Beryllium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:24	1
Cobalt	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:24	1
Chromium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:24	1
Molybdenum	<0.0150		0.0150		mg/L		02/01/19 12:08	02/07/19 15:24	1
Lead	<0.00100		0.00100		mg/L		02/01/19 12:08	02/07/19 15:24	1
Antimony	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:24	1
Selenium	<0.00125		0.00125		mg/L		02/01/19 12:08	02/07/19 15:24	1
Thallium	<0.000500		0.000500		mg/L		02/01/19 12:08	02/07/19 15:24	1
Lithium	<0.00200		0.00200		mg/L		02/01/19 12:08	02/08/19 11:46	1
Cadmium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 15:24	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/05/19 10:24	02/06/19 14:57	1

Method: EPA 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-269371/1-A
Matrix: Water
Analysis Batch: 269919

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 269371

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/01/19 12:08	02/07/19 14:11	1
Barium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 14:11	1
Beryllium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 14:11	1
Cobalt	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 14:11	1
Chromium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 14:11	1
Molybdenum	<0.0150		0.0150		mg/L		02/01/19 12:08	02/07/19 14:11	1
Lead	<0.00100		0.00100		mg/L		02/01/19 12:08	02/07/19 14:11	1
Antimony	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 14:11	1
Selenium	<0.00125		0.00125		mg/L		02/01/19 12:08	02/07/19 14:11	1
Thallium	<0.000500		0.000500		mg/L		02/01/19 12:08	02/07/19 14:11	1
Cadmium	<0.00250		0.00250		mg/L		02/01/19 12:08	02/07/19 14:11	1

Lab Sample ID: MB 180-269371/1-A
Matrix: Water
Analysis Batch: 269983

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 269371

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lithium	<0.00200		0.00200		mg/L		02/01/19 12:08	02/08/19 10:27	1

Lab Sample ID: LCS 180-269371/2-A
Matrix: Water
Analysis Batch: 269919

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 269371

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0400	0.04139		mg/L		103	80 - 120
Barium	2.00	2.062		mg/L		103	80 - 120
Beryllium	0.0500	0.04358		mg/L		87	80 - 120
Cobalt	0.500	0.5192		mg/L		104	80 - 120
Chromium	0.200	0.2062		mg/L		103	80 - 120
Molybdenum	1.00	1.060		mg/L		106	80 - 120
Lead	0.0200	0.02104		mg/L		105	80 - 120
Antimony	0.500	0.5183		mg/L		104	80 - 120
Selenium	0.0100	0.01002		mg/L		100	80 - 120
Thallium	0.0500	0.05137		mg/L		103	80 - 120
Calcium	50.0	50.72		mg/L		101	80 - 120
Cadmium	0.0500	0.05191		mg/L		104	80 - 120

Lab Sample ID: LCS 180-269371/2-A
Matrix: Water
Analysis Batch: 269983

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 269371

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lithium	0.0500	0.05481		mg/L		110	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-269600/1-A
Matrix: Water
Analysis Batch: 269770

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269600

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/05/19 10:24	02/06/19 14:50	1

Lab Sample ID: LCS 180-269600/2-A
Matrix: Water
Analysis Batch: 269770

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269600

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00250	0.002488		mg/L		100	80 - 120		

Lab Sample ID: 180-86183-1 MS
Matrix: Water
Analysis Batch: 269770

Client Sample ID: MGWA-10
Prep Type: Total/NA
Prep Batch: 269600

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	<0.000200		0.00100	0.0009970		mg/L		100	75 - 125		

Lab Sample ID: 180-86183-1 MSD
Matrix: Water
Analysis Batch: 269770

Client Sample ID: MGWA-10
Prep Type: Total/NA
Prep Batch: 269600

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00100	0.0009680		mg/L		97	75 - 125	3	20

Metals

Prep Batch: 269371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86183-1	MGWA-10	Total Recoverable	Water	3005A	
180-86183-2	MGWA-11	Total Recoverable	Water	3005A	
180-86183-3	FB-AP-01	Total Recoverable	Water	3005A	
180-86183-4	FERB-AP-01	Total Recoverable	Water	3005A	
MB 180-269371/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-269371/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 269600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86183-1	MGWA-10	Total/NA	Water	7470A	
180-86183-2	MGWA-11	Total/NA	Water	7470A	
180-86183-3	FB-AP-01	Total/NA	Water	7470A	
180-86183-4	FERB-AP-01	Total/NA	Water	7470A	
MB 180-269600/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-269600/2-A	Lab Control Sample	Total/NA	Water	7470A	
180-86183-1 MS	MGWA-10	Total/NA	Water	7470A	
180-86183-1 MSD	MGWA-10	Total/NA	Water	7470A	

Analysis Batch: 269770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86183-1	MGWA-10	Total/NA	Water	EPA 7470A	269600
180-86183-2	MGWA-11	Total/NA	Water	EPA 7470A	269600
180-86183-3	FB-AP-01	Total/NA	Water	EPA 7470A	269600
180-86183-4	FERB-AP-01	Total/NA	Water	EPA 7470A	269600
MB 180-269600/1-A	Method Blank	Total/NA	Water	EPA 7470A	269600
LCS 180-269600/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	269600
180-86183-1 MS	MGWA-10	Total/NA	Water	EPA 7470A	269600
180-86183-1 MSD	MGWA-10	Total/NA	Water	EPA 7470A	269600

Analysis Batch: 269919

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86183-1	MGWA-10	Total Recoverable	Water	EPA 6020	269371
180-86183-2	MGWA-11	Total Recoverable	Water	EPA 6020	269371
180-86183-3	FB-AP-01	Total Recoverable	Water	EPA 6020	269371
180-86183-4	FERB-AP-01	Total Recoverable	Water	EPA 6020	269371
MB 180-269371/1-A	Method Blank	Total Recoverable	Water	EPA 6020	269371
LCS 180-269371/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	269371

Analysis Batch: 269983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86183-1	MGWA-10	Total Recoverable	Water	EPA 6020	269371
180-86183-2	MGWA-11	Total Recoverable	Water	EPA 6020	269371
180-86183-3	FB-AP-01	Total Recoverable	Water	EPA 6020	269371
180-86183-4	FERB-AP-01	Total Recoverable	Water	EPA 6020	269371
MB 180-269371/1-A	Method Blank	Total Recoverable	Water	EPA 6020	269371
LCS 180-269371/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	269371

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

Chain of Custody Record

TestAmerica
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Client Information	Sampler: Peter A., Jake A., Lauren C.	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Joju Abraham	Phone: 4045920096	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 1
Company: Southern Company				Job #:
Address: 241 Ralph McGill Blvd SE	Due Date Requested:			
City: Atlanta	TAT Requested (days): Standard			
State, Zip: GA, 30308				
Phone:	PO #: SCS10347656			
Email: jabraham@southerco.com, lmpetty@southernco.com	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6020, 7470A - Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl																Total Number of containers	Special Instructions/Note:
Preservation Code:							D	D																	
MGWA-10		16:00	G	W	N	N	X	X																2	SCAN
MGWA-11		15:50	↓	↓	↓	↓	↓	↓																	1 cooler
FB-AP-01		16:40																							
FERB-AP-01		16:40																							

180-86183 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Peter Adams	1/28/19 18:00	GEI	[signature]	1-29-19 9:30	TAPIT
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 08/04/2016

ORIGIN ID:SAVA (412) 963-7058
PETER ADAMS

301 ALPHA DR

PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 28JAN19
ACTWGT: 52.70 LB
CAD: 006994919/SSFE1922
DIMS: 24x13x14 IN

BILL THIRD PARTY

TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238

(555) 555-5555 REF:
INV:
PO: DEPT:

FedEx Express

TRK# 0201 7851 8882 1157

TUE - 29 JAN 10:30A
PRIORITY OVERNIGHT

XH AGCA

15238
PA-US PIT

Uncorrected temp 11.7 °C
Thermometer ID 10
CF 0 Initials JJ

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

180-86183 Waybill

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-86183-1
SDG Number: Ash Pond

Login Number: 86183
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

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: 180-86183-2
TestAmerica Sample Delivery Group: Ash Pond
Client Project/Site: CCR - Plant McIntosh Ash Pond 1

For:
Southern Company
PO BOX 2641 GSC8
Birmingham, Alabama 35291

Attn: Ms. Lauren Petty

Authorized for release by:
2/28/2019 1:27:47 PM

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

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

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

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-86183-2

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-86183-2

Comments
No additional comments.

Receipt
The samples were received on 1/29/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3º C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. There are no sample collection dates on the COC: however they are on the labels.

RAD
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 McIntosh Ash Pond 1

TestAmerica Job ID: 180-86183-2
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.
¤	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 McIntosh Ash Pond 1

TestAmerica Job ID: 180-86183-2
SDG: Ash Pond

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	01-31-20
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	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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 / DOE		L2305	04-06-19 *
Arizona	State Program	9	AZ0813	12-08-19
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	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
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

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86183-2
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
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

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86183-2
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-86183-1	MGWA-10	Water	01/28/19 16:00	01/29/19 09:30
180-86183-2	MGWA-11	Water	01/28/19 15:50	01/29/19 09:30
180-86183-3	FB-AP-01	Water	01/28/19 16:40	01/29/19 09:30
180-86183-4	FERB-AP-01	Water	01/28/19 16:40	01/29/19 09:30

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86183-2
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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86183-2
SDG: Ash Pond

Client Sample ID: MGWA-10

Date Collected: 01/28/19 16:00
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.19 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417028	02/27/19 07:32	JLW	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.19 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414837	02/13/19 08:42	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-11

Date Collected: 01/28/19 15:50
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.97 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417028	02/27/19 07:32	JLW	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			999.97 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414837	02/13/19 08:42	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: FB-AP-01

Date Collected: 01/28/19 16:40
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.60 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417028	02/27/19 07:32	JLW	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.60 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414837	02/13/19 08:42	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: FERB-AP-01

Date Collected: 01/28/19 16:40
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.62 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86183-2
SDG: Ash Pond

Client Sample ID: FERB-AP-01

Date Collected: 01/28/19 16:40
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9315		1			417028	02/27/19 07:33	JLW	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			999.62 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414837	02/13/19 08:42	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

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

Analyst References:

Lab: TAL SL

Batch Type: Prep

CLP = Cassandra Park

Batch Type: Analysis

ALS = Aaron Schroder

JLW = Jody Watson

KLS = Kody Saulters

Client Sample ID: MGWA-10

Lab Sample ID: 180-86183-1

Date Collected: 01/28/19 16:00
Matrix: Water
Date Received: 01/29/19 09:30

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.434		0.113	0.120	1.00	0.0813	pCi/L	02/05/19 09:46	02/27/19 07:32	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.4		40 - 110	02/05/19 09:46	02/27/19 07:32	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.438		0.243	0.246	1.00	0.361	pCi/L	02/05/19 10:16	02/13/19 08:42	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	91.4		40 - 110	02/05/19 10:16	02/13/19 08:42	1
Y Carrier	86.4		40 - 110	02/05/19 10:16	02/13/19 08:42	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	0.872		0.268	0.274	5.00	0.361	pCi/L		02/28/19 03:51	1

Client Sample ID: MGWA-11

Lab Sample ID: 180-86183-2

Date Collected: 01/28/19 15:50
Matrix: Water
Date Received: 01/29/19 09:30

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.134		0.0740	0.0750	1.00	0.0882	pCi/L	02/05/19 09:46	02/27/19 07:32	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	83.2		40 - 110	02/05/19 09:46	02/27/19 07:32	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.344	U	0.293	0.295	1.00	0.469	pCi/L	02/05/19 10:16	02/13/19 08:42	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	83.2		40 - 110	02/05/19 10:16	02/13/19 08:42	1
Y Carrier	83.0		40 - 110	02/05/19 10:16	02/13/19 08:42	1

Client Sample ID: MGWA-11

Date Collected: 01/28/19 15:50
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-2

Matrix: Water

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.478		0.302	0.304	5.00	0.469	pCi/L		02/28/19 03:51	1

Client Sample ID: FB-AP-01

Date Collected: 01/28/19 16:40
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-3

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	0.0309	U	0.0426	0.0427	1.00	0.0719	pCi/L	02/05/19 09:46	02/27/19 07:32	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.6*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:32*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.496		0.293	0.296	1.00	0.446	pCi/L	02/05/19 10:16	02/13/19 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.6*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:42*	*1*
Y Carrier	*79.3*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:42*	*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	0.527		0.296	0.299	5.00	0.446	pCi/L		02/28/19 03:51	1

Client Sample ID: FERB-AP-01

Date Collected: 01/28/19 16:40
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-4

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	0.0369	U	0.0469	0.0470	1.00	0.0770	pCi/L	02/05/19 09:46	02/27/19 07:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.2*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:33*	*1*

Client Sample ID: FERB-AP-01

Date Collected: 01/28/19 16:40
Date Received: 01/29/19 09:30

Lab Sample ID: 180-86183-4

Matrix: Water

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.326	U	0.275	0.277	1.00	0.437	pCi/L	02/05/19 10:16	02/13/19 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*80.2*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:42*	*1*
Y Carrier	*81.5*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:42*	*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	0.363	U	0.279	0.281	5.00	0.437	pCi/L		02/28/19 03:51	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-413713/23-A
Matrix: Water
Analysis Batch: 417050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 413713

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02314	U	0.0275	0.0276	1.00	0.0838	pCi/L	02/05/19 09:46	02/27/19 09:55	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*02/05/19 09:46*	*02/27/19 09:55*	*1*

Lab Sample ID: LCS 160-413713/1-A
Matrix: Water
Analysis Batch: 417028

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 413713

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	9.000		0.962	1.00	0.0909	pCi/L	79	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*79.1*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-413718/23-A
Matrix: Water
Analysis Batch: 414688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 413718

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.1522	U	0.176	0.177	1.00	0.351	pCi/L	02/05/19 10:16	02/13/19 08:46	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:46*	*1*
Y Carrier	*86.0*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:46*	*1*

Lab Sample ID: LCS 160-413718/1-A
Matrix: Water
Analysis Batch: 414837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 413718

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.49	9.744		1.19	1.00	0.462	pCi/L	103	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*79.1*		*40 - 110*
Y Carrier	*78.1*		*40 - 110*

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86183-2
SDG: Ash Pond

Rad

Prep Batch: 413713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86183-1	MGWA-10	Total/NA	Water	PrecSep-21	
180-86183-2	MGWA-11	Total/NA	Water	PrecSep-21	
180-86183-3	FB-AP-01	Total/NA	Water	PrecSep-21	
180-86183-4	FERB-AP-01	Total/NA	Water	PrecSep-21	
MB 160-413713/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-413713/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 413718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86183-1	MGWA-10	Total/NA	Water	PrecSep_0	
180-86183-2	MGWA-11	Total/NA	Water	PrecSep_0	
180-86183-3	FB-AP-01	Total/NA	Water	PrecSep_0	
180-86183-4	FERB-AP-01	Total/NA	Water	PrecSep_0	
MB 160-413718/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-413718/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Peter A., Jake A., Lauren C.	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Joju Abraham	Phone: 4045920096	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 1
Company: Southern Company				Job #:
Address: 241 Ralph McGill Blvd SE	Due Date Requested:			
City: Atlanta	TAT Requested (days): Standard			
State, Zip: GA, 30308				
Phone:	PO #: SCS10347656			
Email: jabraham@southerco.com, lmpetty@southernco.com	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6020, 7470A - Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl																Total Number of containers	Special Instructions/Note:
Preservation Code:							D	D																	
MGWA-10		16:00	G	W	N	N	X	X																2	SCAN
MGWA-11		15:50	↓	↓	↓	↓	↓	↓																	1 cooler
FB-AP-01		16:40																							
FERB-AP-01		16:40																							

180-86183 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Peter Adams	1/28/19 18:00	GEI	[signature]	1-29-19 9:30	TAP LT
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 08/04/2016

ORIGIN ID:SAVA (412) 963-7058
PETER ADAMS

301 ALPHA DR

PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 28JAN19
ACTWGT: 52.70 LB
CAD: 006994919/SSFE1922
DIMS: 24x13x14 IN

BILL THIRD PARTY

TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR
RIDC PARK
PITTSBURGH PA 15238

(555) 555-5555 REF:
INV:
PO: DEPT:

FedEx Express

TRK# 0201 7851 8882 1157

TUE - 29 JAN 10:30A
PRIORITY OVERNIGHT

XH AGCA

15238
PA-US PIT

Uncorrected temp 11.7 °C
Thermometer ID 10
CF 0 Initials JJ

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

180-86183 Waybill

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-353854.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-86183-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 2/22/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Standard Target List	9315_Ra226/PrecSep_21 (MOD) Copy Analytes	Ra226Ra228_AS/ (MOD) Copy Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MGWA-10 (180-86183-1)	1/28/19	16:00 Eastern		Water			X	X	X	1	
MGWA-11 (180-86183-2)	1/28/19	15:50 Eastern		Water			X	X	X	1	
FB-AP-01 (180-86183-3)	1/28/19	16:40 Eastern		Water			X	X	X	1	
FERB-AP-01 (180-86183-4)	1/28/19	16:40 Eastern		Water			X	X	X	1	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	2/1/19 1700	[signature]	[signature]	2-2-19/0850	[signature]
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-86183-2
SDG Number: Ash Pond

Login Number: 86183
List Number: 1
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh

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

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-86183-2
SDG Number: Ash Pond

Login Number: 86183
List Number: 2
Creator: Press, Nicholas B

List Source: TestAmerica St. Louis
List Creation: 02/02/19 01:43 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Pittsburgh, PA
Report Nos.: 180-86183-1
Reviewer: Lorie MacKinnon/GEI Consultants
Date: April 9, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWA-10	180-86183-01	Metals
MGWA-11	180-86183-02	Metals
FB-AP-01	180-86183-03	Metals
FERB-AP-01	180-86183-04	Metals

QC Samples: Field/Equipment blanks: FB-AP-01, FERB-AP-01

The above-listed aqueous samples, field, and equipment blanks were collected on January 28, 2019 and were analyzed for select total recoverable metals by SW-846 methods 6020/7470A. The data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017 (USEPA-540-R-2017-001), as well as by the methods referenced and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Method and Field Blanks
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Field Duplicate Results
- Quantitation Limits

All results are usable as reported or usable with minor qualification due to sample matrix or laboratory quality control outliers.

The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, MS/MSD, laboratory duplicate, and LCS results with the following exception: the reporting limits for select metals were incorrect and sample results were to be reported down to reporting limits only. A revision was requested and received for review.

Holding Times and Sample Preservation

All criteria were met.

Method and Field Blanks

Contaminants were not detected in the method and field blanks.

MS/MSD Results

MS/MSD analyses were performed on sample MGWA-10 for mercury. All recovery and precision criteria were met.

Laboratory Duplicate Results

An MSD analysis was performed in lieu of the laboratory duplicate.

LCS Results

All criteria were met.

Quantitation Limits

Detected results were reported down to the laboratory reporting limits only.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Earth City, MO
Report Nos.: 180-86183-2
Reviewer: Lorie MacKinnon/GEI Consultants
Date: March 3, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWA-10	180-86183-01	Radium-226, Radium-228, Radium226-228
MGWA-11	180-86183-02	Radium-226, Radium-228, Radium226-228
FB-AP-01	180-86183-03	Radium-226, Radium-228, Radium226-228
FERB-AP-01	180-86183-04	Radium-226, Radium-228, Radium226-228

QC Samples: Field/Equipment blanks: FB-AP-01, FERB-AP-01

The above-listed aqueous samples and field blanks were collected on January 28, 2019 and were analyzed for Radium-226 by SW-846 method 9315, Radium-228 by SW-46 method 9320, and combined Radium-226 and Radium-228. The data were reviewed based on the US Department of Energy Evaluation of Radiochemical Data Usability, 1997, as well as by the pertinent methods referenced by the data package and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Method and Field Blanks
- Carrier Yields
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Quantitation Limits

All results are usable as reported or usable with minor qualification due to sample matrix or laboratory quality control outliers.

The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, carrier yields, laboratory duplicate, and LCS results. It

should be noted that the laboratory noted that sample collection dates were not recorded on the field chain of custody. The collection date of 01/28/19 was recorded on the sample bottles and this date was used by the laboratory.

Holding Times and Sample Preservation

All criteria were met.

Method and Field Blanks

Radium-226 and Radium-228 were not detected above the minimum detectable concentration (MDC) in the associated laboratory method blank sample. Radium-228 was detected above the minimum detectable concentration (MDC) in field blank sample FB-AP-01. The following table summarizes the contamination and validation actions taken.

Analyte	Blank ID/ Associated Samples	Maximum Blank Concentration (pCi/L)	10x Action Level (pCi/L)	Validation Actions
Radium-228	FB-AP-01: All samples	0.496 (+0.293 Count Uncert.)	7.89	Qualify the result for Radium-228 in sample MGWA-10 as nondetect (U) at the reported value.
Radium-226/228		0.527 (+0.296 Count Uncert.)	8.23	Qualify the result for Radium-226/228 in sample MGWA-10 as estimated (J); Biased high.

Blank Actions:
If the sample result is < method blank and count uncertainty; report the result as nondetect (U) at the reported value.
If the sample result is > blank/uncertainty concentration and < 10x Action Level; professional judgment was taken to report the sample result as estimated (J); biased high.
If the sample result is nondetect or > 10x Action Level; validation action is not required.

As the combined Radium-226/228 result in sample MGWA-11 was due to the detection of Radium-226 only, the combined result (which was below the 10x action level) was not qualified due to field blank contamination which was due to Radium-228 only.

Carrier Yields

All criteria were met.

Laboratory Duplicate Results

Laboratory duplicate analyses were not associated with this sample set.

LCS Results

All criteria were met.

Quantitation Limits

Dilutions were not required.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

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ANALYTICAL REPORT

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

Laboratory Job ID: 180-86194-1
Laboratory Sample Delivery Group: Ash Pond
Client Project/Site: CCR - Plant McIntosh Ash Pond 1
Revision: 2

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

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
4/8/2019 2:40:52 PM

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

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

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

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86194-1
SDG: Ash Pond

Job ID: 180-86194-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-86194-1

Revised: to set Metals RLs to those that were historically reported

Comments
No additional comments.

Receipt
The samples were received on 1/30/2019 10:20 AM; the samples arrived in good condition. The temperatures of the 5 coolers at receipt time were 0.7º C, 2.4º C, 2.4º C, 10.9º C and 11.1º C.

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

Glossary

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86194-1
SDG: Ash Pond

Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86194-1
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-86194-1	MGWA-5	Water	01/29/19 09:30	01/30/19 10:20
180-86194-2	MGWA-6	Water	01/29/19 09:45	01/30/19 10:20
180-86194-3	MGWC-3	Water	01/29/19 10:45	01/30/19 10:20
180-86194-4	MGWC-12	Water	01/29/19 11:45	01/30/19 10:20
180-86194-5	MGWC-2	Water	01/29/19 11:40	01/30/19 10:20
180-86194-6	MGWC-7	Water	01/29/19 09:55	01/30/19 10:20
180-86194-7	MGWC-8	Water	01/29/19 11:43	01/30/19 10:20
180-86194-8	MGWC-1	Water	01/29/19 11:30	01/30/19 10:20
180-86194-9	DUP-AP-01	Water	01/29/19 00:00	01/30/19 10:20
180-86194-10	DUP-AP-02	Water	01/29/19 00:00	01/30/19 10:20
180-86194-11	FB-AP-02	Water	01/29/19 12:05	01/30/19 10:20
180-86194-12	FERB-AP-02	Water	01/29/19 12:01	01/30/19 10:20

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86194-1
SDG: Ash Pond

Method	Method Description	Protocol	Laboratory
EPA 6020	Metals (ICP/MS)	SW846	TAL PIT
EPA 7470A	Mercury (CVAA)	SW846	TAL PIT
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL PIT
7470A	Preparation, Mercury	SW846	TAL PIT

Protocol References:

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

Laboratory References:

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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86194-1
SDG: Ash Pond

Client Sample ID: MGWA-5
Date Collected: 01/29/19 09:30
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-1
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 12:24	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:11	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: MGWA-6
Date Collected: 01/29/19 09:45
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-2
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 12:37	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:12	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: MGWC-3
Date Collected: 01/29/19 10:45
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-3
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 12:40	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:16	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: MGWC-12
Date Collected: 01/29/19 11:45
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-4
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 12:44	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:18	RJR	TAL PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86194-1
SDG: Ash Pond

Client Sample ID: MGWC-2
Date Collected: 01/29/19 11:40
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-5
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 12:54	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:19	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: MGWC-7
Date Collected: 01/29/19 09:55
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-6
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 12:57	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:20	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: MGWC-8
Date Collected: 01/29/19 11:43
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-7
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 13:00	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:21	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: MGWC-1
Date Collected: 01/29/19 11:30
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-8
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 13:04	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:22	RJR	TAL PIT
	Instrument ID: HGZ									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86194-1
SDG: Ash Pond

Client Sample ID: DUP-AP-01
Date Collected: 01/29/19 00:00
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-9
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 13:07	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:23	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: DUP-AP-02
Date Collected: 01/29/19 00:00
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-10
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 13:10	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:24	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: FB-AP-02
Date Collected: 01/29/19 12:05
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-11
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 13:14	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:25	RJR	TAL PIT
	Instrument ID: HGZ									

Client Sample ID: FERB-AP-02
Date Collected: 01/29/19 12:01
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-12
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	269497	02/04/19 12:25	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269685	02/05/19 13:17	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269802	02/07/19 08:27	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269950	02/08/19 09:26	RJR	TAL PIT
	Instrument ID: HGZ									

Laboratory References:

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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86194-1
SDG: Ash Pond

Analyst References:

Lab: TAL PIT

- Batch Type: Prep
  - NAM = Nicole Marfisi
  - RJR = Ron Rosenbaum
- Batch Type: Analysis
  - RJR = Ron Rosenbaum
  - RSK = Robert Kurtz

Client Sample ID: MGWA-5

Lab Sample ID: 180-86194-1

Date Collected: 01/29/19 09:30
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:24	1
Barium	**0.0363**		0.00250		mg/L		02/04/19 12:25	02/05/19 12:24	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:24	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:24	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:24	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:24	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 12:24	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 12:24	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:24	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:24	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 12:24	1
Lithium	**0.00987**		0.00200		mg/L		02/04/19 12:25	02/05/19 12:24	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:11	1

Client Sample ID: MGWA-6

Lab Sample ID: 180-86194-2

Date Collected: 01/29/19 09:45
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00972**		0.00125		mg/L		02/04/19 12:25	02/05/19 12:37	1
Barium	**0.0393**		0.00250		mg/L		02/04/19 12:25	02/05/19 12:37	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:37	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:37	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:37	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:37	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 12:37	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 12:37	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:37	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:37	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 12:37	1
Lithium	<0.00200		0.00200		mg/L		02/04/19 12:25	02/05/19 12:37	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:12	1

Client Sample ID: MGWC-3

Lab Sample ID: 180-86194-3

Date Collected: 01/29/19 10:45
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00143**		0.00125		mg/L		02/04/19 12:25	02/05/19 12:40	1
Barium	**0.138**		0.00250		mg/L		02/04/19 12:25	02/05/19 12:40	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:40	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:40	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:40	1

Client Sample ID: MGWC-3

Lab Sample ID: 180-86194-3

Date Collected: 01/29/19 10:45
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:40	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 12:40	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 12:40	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:40	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:40	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 12:40	1
Lithium	**0.0106**		0.00200		mg/L		02/04/19 12:25	02/05/19 12:40	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:16	1

Client Sample ID: MGWC-12

Lab Sample ID: 180-86194-4

Date Collected: 01/29/19 11:45
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:44	1
Barium	**0.0600**		0.00250		mg/L		02/04/19 12:25	02/05/19 12:44	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:44	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:44	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:44	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:44	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 12:44	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 12:44	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:44	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:44	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 12:44	1
Lithium	**0.0172**		0.00200		mg/L		02/04/19 12:25	02/05/19 12:44	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:18	1

Client Sample ID: MGWC-2

Lab Sample ID: 180-86194-5

Date Collected: 01/29/19 11:40
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:54	1
Barium	**0.0496**		0.00250		mg/L		02/04/19 12:25	02/05/19 12:54	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:54	1
Cadmium	**0.00315**		0.00250		mg/L		02/04/19 12:25	02/05/19 12:54	1
Cobalt	**0.00293**		0.00250		mg/L		02/04/19 12:25	02/05/19 12:54	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:54	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 12:54	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 12:54	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:54	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:54	1

Client Sample ID: MGWC-2

Lab Sample ID: 180-86194-5
Date Collected: 01/29/19 11:40
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 12:54	1
Lithium	**0.00537**		0.00200		mg/L		02/04/19 12:25	02/05/19 12:54	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:19	1

Client Sample ID: MGWC-7

Lab Sample ID: 180-86194-6
Date Collected: 01/29/19 09:55
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:57	1
Barium	**0.00873**		0.00250		mg/L		02/04/19 12:25	02/05/19 12:57	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:57	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:57	1
Cobalt	**0.0103**		0.00250		mg/L		02/04/19 12:25	02/05/19 12:57	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:57	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 12:57	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 12:57	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:57	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:57	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 12:57	1
Lithium	**0.112**		0.00200		mg/L		02/04/19 12:25	02/05/19 12:57	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:20	1

Client Sample ID: MGWC-8

Lab Sample ID: 180-86194-7
Date Collected: 01/29/19 11:43
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 13:00	1
Barium	**0.0344**		0.00250		mg/L		02/04/19 12:25	02/05/19 13:00	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:00	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:00	1
Cobalt	**0.0159**		0.00250		mg/L		02/04/19 12:25	02/05/19 13:00	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:00	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 13:00	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 13:00	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:00	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 13:00	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 13:00	1
Lithium	**0.0361**		0.00200		mg/L		02/04/19 12:25	02/05/19 13:00	1

Client Sample ID: MGWC-8

Lab Sample ID: 180-86194-7
Date Collected: 01/29/19 11:43
Matrix: Water
Date Received: 01/30/19 10:20

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:21	1

Client Sample ID: MGWC-1

Lab Sample ID: 180-86194-8
Date Collected: 01/29/19 11:30
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00255**		0.00125		mg/L		02/04/19 12:25	02/05/19 13:04	1
Barium	**0.107**		0.00250		mg/L		02/04/19 12:25	02/05/19 13:04	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:04	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:04	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:04	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:04	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 13:04	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 13:04	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:04	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 13:04	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 13:04	1
Lithium	**0.0109**		0.00200		mg/L		02/04/19 12:25	02/05/19 13:04	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:22	1

Client Sample ID: DUP-AP-01

Lab Sample ID: 180-86194-9
Date Collected: 01/29/19 00:00
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00969**		0.00125		mg/L		02/04/19 12:25	02/05/19 13:07	1
Barium	**0.0384**		0.00250		mg/L		02/04/19 12:25	02/05/19 13:07	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:07	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:07	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:07	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:07	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 13:07	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 13:07	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:07	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 13:07	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 13:07	1
Lithium	<0.00200		0.00200		mg/L		02/04/19 12:25	02/05/19 13:07	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:23	1

Client Sample ID: DUP-AP-02

Lab Sample ID: 180-86194-10

Date Collected: 01/29/19 00:00
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00300**		0.00125		mg/L		02/04/19 12:25	02/05/19 13:10	1
Barium	**0.0993**		0.00250		mg/L		02/04/19 12:25	02/05/19 13:10	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:10	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:10	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:10	1
Chromium	**0.00261**		0.00250		mg/L		02/04/19 12:25	02/05/19 13:10	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 13:10	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 13:10	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:10	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 13:10	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 13:10	1
Lithium	**0.0106**		0.00200		mg/L		02/04/19 12:25	02/05/19 13:10	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:24	1

Client Sample ID: FB-AP-02

Lab Sample ID: 180-86194-11

Date Collected: 01/29/19 12:05
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 13:14	1
Barium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:14	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:14	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:14	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:14	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:14	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 13:14	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 13:14	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:14	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 13:14	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 13:14	1
Lithium	<0.00200		0.00200		mg/L		02/04/19 12:25	02/05/19 13:14	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:25	1

Client Sample ID: FERB-AP-02

Lab Sample ID: 180-86194-12

Date Collected: 01/29/19 12:01
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 13:17	1
Barium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:17	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:17	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:17	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:17	1

Client Sample ID: FERB-AP-02

Date Collected: 01/29/19 12:01
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-12

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:17	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 13:17	1
Lead	**0.00117**		0.00100		mg/L		02/04/19 12:25	02/05/19 13:17	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 13:17	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 13:17	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 13:17	1
Lithium	<0.00200		0.00200		mg/L		02/04/19 12:25	02/05/19 13:17	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:26	1

Method: EPA 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-269497/1-A
Matrix: Water
Analysis Batch: 269685

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 269497

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:01	1
Barium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:01	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:01	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:01	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:01	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:01	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:25	02/05/19 12:01	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:25	02/05/19 12:01	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:25	02/05/19 12:01	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:25	02/05/19 12:01	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:25	02/05/19 12:01	1
Lithium	<0.00200		0.00200		mg/L		02/04/19 12:25	02/05/19 12:01	1

Lab Sample ID: LCS 180-269497/2-A
Matrix: Water
Analysis Batch: 269685

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 269497

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0400	0.03745		mg/L		94	80 - 120
Barium	2.00	1.926		mg/L		96	80 - 120
Beryllium	0.0500	0.04938		mg/L		99	80 - 120
Cadmium	0.0500	0.05118		mg/L		102	80 - 120
Cobalt	0.500	0.4612		mg/L		92	80 - 120
Chromium	0.200	0.2030		mg/L		102	80 - 120
Molybdenum	1.00	1.018		mg/L		102	80 - 120
Lead	0.0200	0.02013		mg/L		101	80 - 120
Antimony	0.500	0.5004		mg/L		100	80 - 120
Selenium	0.0100	0.009176		mg/L		92	80 - 120
Thallium	0.0500	0.05169		mg/L		103	80 - 120
Lithium	0.0500	0.04550		mg/L		91	80 - 120

Lab Sample ID: 180-86194-1 MS
Matrix: Water
Analysis Batch: 269685

Client Sample ID: MGWA-5
Prep Type: Total Recoverable
Prep Batch: 269497

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00125		0.0400	0.03850		mg/L		95	75 - 125
Barium	0.0363		2.00	2.056		mg/L		101	75 - 125
Beryllium	<0.00250		0.0500	0.05117		mg/L		102	75 - 125
Cadmium	<0.00250		0.0500	0.05324		mg/L		106	75 - 125
Cobalt	<0.00250		0.500	0.4800		mg/L		96	75 - 125
Chromium	<0.00250		0.200	0.2105		mg/L		105	75 - 125
Molybdenum	<0.0150		1.00	1.050		mg/L		105	75 - 125
Lead	<0.00100		0.0200	0.02114		mg/L		106	75 - 125
Antimony	<0.00250		0.500	0.5214		mg/L		104	75 - 125
Selenium	<0.00125		0.0100	0.009290		mg/L		93	75 - 125
Thallium	<0.000500		0.0500	0.05404		mg/L		108	75 - 125
Lithium	0.00987		0.0500	0.05734		mg/L		95	75 - 125

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

Lab Sample ID: 180-86194-1 MSD
Matrix: Water
Analysis Batch: 269685

Client Sample ID: MGWA-5
Prep Type: Total Recoverable
Prep Batch: 269497

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00125		0.0400	0.03905		mg/L		97	75 - 125	1	20
Barium	0.0363		2.00	2.080		mg/L		102	75 - 125	1	20
Beryllium	<0.00250		0.0500	0.05105		mg/L		102	75 - 125	0	20
Cadmium	<0.00250		0.0500	0.05424		mg/L		108	75 - 125	2	20
Cobalt	<0.00250		0.500	0.4864		mg/L		97	75 - 125	1	20
Chromium	<0.00250		0.200	0.2172		mg/L		108	75 - 125	3	20
Molybdenum	<0.0150		1.00	1.081		mg/L		108	75 - 125	3	20
Lead	<0.00100		0.0200	0.02148		mg/L		107	75 - 125	2	20
Antimony	<0.00250		0.500	0.5326		mg/L		107	75 - 125	2	20
Selenium	<0.00125		0.0100	0.01010		mg/L		101	75 - 125	8	20
Thallium	<0.000500		0.0500	0.05516		mg/L		110	75 - 125	2	20
Lithium	0.00987		0.0500	0.05765		mg/L		96	75 - 125	1	20

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-269802/1-A
Matrix: Water
Analysis Batch: 269950

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269802

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		02/07/19 08:27	02/08/19 09:05	1

Lab Sample ID: LCS 180-269802/2-A
Matrix: Water
Analysis Batch: 269950

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269802

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00250	0.002374		mg/L		95	80 - 120		

Metals

Prep Batch: 269497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86194-1	MGWA-5	Total Recoverable	Water	3005A	
180-86194-2	MGWA-6	Total Recoverable	Water	3005A	
180-86194-3	MGWC-3	Total Recoverable	Water	3005A	
180-86194-4	MGWC-12	Total Recoverable	Water	3005A	
180-86194-5	MGWC-2	Total Recoverable	Water	3005A	
180-86194-6	MGWC-7	Total Recoverable	Water	3005A	
180-86194-7	MGWC-8	Total Recoverable	Water	3005A	
180-86194-8	MGWC-1	Total Recoverable	Water	3005A	
180-86194-9	DUP-AP-01	Total Recoverable	Water	3005A	
180-86194-10	DUP-AP-02	Total Recoverable	Water	3005A	
180-86194-11	FB-AP-02	Total Recoverable	Water	3005A	
180-86194-12	FERB-AP-02	Total Recoverable	Water	3005A	
MB 180-269497/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-269497/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-86194-1 MS	MGWA-5	Total Recoverable	Water	3005A	
180-86194-1 MSD	MGWA-5	Total Recoverable	Water	3005A	

Analysis Batch: 269685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86194-1	MGWA-5	Total Recoverable	Water	EPA 6020	269497
180-86194-2	MGWA-6	Total Recoverable	Water	EPA 6020	269497
180-86194-3	MGWC-3	Total Recoverable	Water	EPA 6020	269497
180-86194-4	MGWC-12	Total Recoverable	Water	EPA 6020	269497
180-86194-5	MGWC-2	Total Recoverable	Water	EPA 6020	269497
180-86194-6	MGWC-7	Total Recoverable	Water	EPA 6020	269497
180-86194-7	MGWC-8	Total Recoverable	Water	EPA 6020	269497
180-86194-8	MGWC-1	Total Recoverable	Water	EPA 6020	269497
180-86194-9	DUP-AP-01	Total Recoverable	Water	EPA 6020	269497
180-86194-10	DUP-AP-02	Total Recoverable	Water	EPA 6020	269497
180-86194-11	FB-AP-02	Total Recoverable	Water	EPA 6020	269497
180-86194-12	FERB-AP-02	Total Recoverable	Water	EPA 6020	269497
MB 180-269497/1-A	Method Blank	Total Recoverable	Water	EPA 6020	269497
LCS 180-269497/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	269497
180-86194-1 MS	MGWA-5	Total Recoverable	Water	EPA 6020	269497
180-86194-1 MSD	MGWA-5	Total Recoverable	Water	EPA 6020	269497

Prep Batch: 269802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86194-1	MGWA-5	Total/NA	Water	7470A	
180-86194-2	MGWA-6	Total/NA	Water	7470A	
180-86194-3	MGWC-3	Total/NA	Water	7470A	
180-86194-4	MGWC-12	Total/NA	Water	7470A	
180-86194-5	MGWC-2	Total/NA	Water	7470A	
180-86194-6	MGWC-7	Total/NA	Water	7470A	
180-86194-7	MGWC-8	Total/NA	Water	7470A	
180-86194-8	MGWC-1	Total/NA	Water	7470A	
180-86194-9	DUP-AP-01	Total/NA	Water	7470A	
180-86194-10	DUP-AP-02	Total/NA	Water	7470A	
180-86194-11	FB-AP-02	Total/NA	Water	7470A	
180-86194-12	FERB-AP-02	Total/NA	Water	7470A	
MB 180-269802/1-A	Method Blank	Total/NA	Water	7470A	

Metals (Continued)

Prep Batch: 269802 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-269802/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 269950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86194-1	MGWA-5	Total/NA	Water	EPA 7470A	269802
180-86194-2	MGWA-6	Total/NA	Water	EPA 7470A	269802
180-86194-3	MGWC-3	Total/NA	Water	EPA 7470A	269802
180-86194-4	MGWC-12	Total/NA	Water	EPA 7470A	269802
180-86194-5	MGWC-2	Total/NA	Water	EPA 7470A	269802
180-86194-6	MGWC-7	Total/NA	Water	EPA 7470A	269802
180-86194-7	MGWC-8	Total/NA	Water	EPA 7470A	269802
180-86194-8	MGWC-1	Total/NA	Water	EPA 7470A	269802
180-86194-9	DUP-AP-01	Total/NA	Water	EPA 7470A	269802
180-86194-10	DUP-AP-02	Total/NA	Water	EPA 7470A	269802
180-86194-11	FB-AP-02	Total/NA	Water	EPA 7470A	269802
180-86194-12	FERB-AP-02	Total/NA	Water	EPA 7470A	269802
MB 180-269802/1-A	Method Blank	Total/NA	Water	EPA 7470A	269802
LCS 180-269802/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	269802

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Peter A., Jake A., Lauren C.	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Joju Abraham	Phone: 4045920096	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 2
Company: Southern Company				Job #:
Address: 241 Ralph McGill Blvd SE	Due Date Requested:			
City: Atlanta	TAT Requested (days): Standard			
State, Zip: GA, 30308				
Phone:	PO #: SCS10347656			
Email: jabraham@southerco.com, lmpetty@southernco.com	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9316_Ra226, 9320_Ra228	6020, 7470A - Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl	Total Number of containers	Special Instructions/Note:
				Preservation Code:			D	D		
MGWA-5	1/29/19	09:30	G	W	N	N	X	X	2	SCAN EVENT
MGWA-6	↓	9:45	↓	↓	↓	↓	↓	↓	↓	
MGWC-3		10:45								
MGWC-12		11:45								
MGWC-2		11:40								
MGWC-7		9:55								
MGWC-6		11:43								
MGWC-1		11:30								
DUP-AP-01										
DUP-AP-02										

180-86194 Chain of Custody

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

Sample Disposal (A fee may be assessed if samples are retained longer
☐ Return To Client ☑ Disposal By Lab ☐ Archive For ___

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:		Time:		Method of Shipment:	
Relinquished by: Peter A	Date/Time: 1/29 19:00	Company: GEI	Received by: [signature]		Date/Time: 1-30-19 10:30	Company: TA Pitt	
Relinquished by:	Date/Time:	Company:	Received by:		Date/Time:	Company:	
Relinquished by:	Date/Time:	Company:	Received by:		Date/Time:	Company:	
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:				

Ver: 08/04/2016

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Peter A., Jake A., Lauren C.	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Joju Abraham	Phone: 4045920096	E-Mail: veronica.bortot@testamericainc.com		Page: Page 2 of 2
Company: Southern Company			Analysis Requested	Job #:
Address: 241 Ralph McGill Blvd SE	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Atlanta	TAT Requested (days): Standard			
State, Zip: GA, 30308				
Phone:	PO #: SCS10347656			Other:
Email: jabraham@southerco.com, lmpetty@southernco.com	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6020, 7470A - Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D		
FB-AP-02	1/29/19	12:05	G	W	N	N	X	X	2	SCAN Event
FERB-AP-02	1/29/19	12:01	G	W	N	N	X	X	2	

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

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

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

Special Instructions/QC Requirements:

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Peter A	1/29/19 19:00	GEI	Dallas Watkins	1-30-19 10:20	TAL-PIT
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 08/04/2016


SHIP DATE: 29
ACTWGT: 43.20
CAD: 006994819
DIMS: 24x13x15
BILL THIRD PARTY
ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US
SHIP DATE: 29JAN19
ACTWGT: 56.10 LB
CAD: 006994819/SSFE1922
DIMS: 24x13x15 IN
BILL THIRD PARTY
TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR
PITTSBURGH PA 15238
(555) 555-5555
REF:
DEPT:
FedEx Express
WED - 30 JAN 10:30A
PRIORITY OVERNIGHT
15238
PA-US
PIT
Uncorrected temp
Thermometer ID
Initials
CF
PT-WI-SR-001 effective 11/8/18


ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US
SHIP DATE: 29JAN19
ACTWGT: 19.80 LB
CAD: 006994919/SSFE1922
DIMS: 14x11x11 IN
BILL THIRD PARTY
TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR
PITTSBURGH PA 15238
(555) 555-5555
INV:
PO:
REF:
DEPT:
FedEx
Express
Uncorrected temp 24 °C
Thermometer ID 10
CF 0 Initials TS
PT-WI-SR-001 effective 11/8/18
MPS# 0263 7852
Mstr# 7852
1 of 5
TRK# 0201 7852 1226 6772
MASTER
XH AGCA
WED - 30 JAN
PRIORITY OVERN
PA-US
15238
PIT
RUSH

FedEx

ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 29JAN19
ACTWGT: 29.30 LB
CAD: 006994919/SSFE1922
DIMS: 24x13x15 IN

BILL THIRD PARTY

TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR

PITTSBURGH PA 15238
(555) 555-5555
INV:
PO:
REF:
DEPT:

FedEx Express

5 of 5
MPS# 0263 7852 1226 6810
Mstr# 7852 1226 6772
0201

WED - 30 JAN 10:30A
PRIORITY OVERNIGHT

XH AGCA

15238
PA-US PIT

Uncorrected temp 10.9 C
Thermometer ID 10
CF ♡ Initials TB
PT-WI-SR-001 effective 11/8/18

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-86194-1
SDG Number: Ash Pond

Login Number: 86194
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

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: 180-86194-2
TestAmerica Sample Delivery Group: Ash Pond
Client Project/Site: CCR - Plant McIntosh Ash Pond 1

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

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
2/28/2019 1:51:28 PM

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

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

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

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-86194-2

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-86194-2

Comments
No additional comments.

Receipt
The samples were received on 1/30/2019 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.7º C, 2.4º C, 2.4º C, 10.9º C and 11.1º C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. One of the COC's does not have a relinquished by year listed.

RAD
Method(s) PrecSep_0: Radium 228 Prep Batch 160-413718:

The following samples had matrices that deviated from the typical water matrix: MGWC-1 (180-86194-8) and DUP-AP-02 (180-86194-10). Samples 180-86194-8, 180-86194-10 had suspended white solids.

Method(s) PrecSep-21: Radium 226 Prep Batch 160-413713:

The following samples had matrices that deviated from the typical water matrix: MGWC-1 (180-86194-8) and DUP-AP-02 (180-86194-10). Samples 180-86194-8, 180-86194-10, had suspended white solids.

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 McIntosh Ash Pond 1

TestAmerica Job ID: 180-86194-2
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.
¤	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 McIntosh Ash Pond 1

TestAmerica Job ID: 180-86194-2
SDG: Ash Pond

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	01-31-20
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	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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 / DOE		L2305	04-06-19 *
Arizona	State Program	9	AZ0813	12-08-19
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	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
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

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86194-2
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
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

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86194-2
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-86194-1	MGWA-5	Water	01/29/19 09:30	01/30/19 10:20
180-86194-2	MGWA-6	Water	01/29/19 09:45	01/30/19 10:20
180-86194-3	MGWC-3	Water	01/29/19 10:45	01/30/19 10:20
180-86194-4	MGWC-12	Water	01/29/19 11:45	01/30/19 10:20
180-86194-5	MGWC-2	Water	01/29/19 11:40	01/30/19 10:20
180-86194-6	MGWC-7	Water	01/29/19 09:55	01/30/19 10:20
180-86194-7	MGWC-8	Water	01/29/19 11:43	01/30/19 10:20
180-86194-8	MGWC-1	Water	01/29/19 11:30	01/30/19 10:20
180-86194-9	DUP-AP-01	Water	01/29/19 00:00	01/30/19 10:20
180-86194-10	DUP-AP-02	Water	01/29/19 00:00	01/30/19 10:20
180-86194-11	FB-AP-02	Water	01/29/19 12:05	01/30/19 10:20
180-86194-12	FERB-AP-02	Water	01/29/19 12:01	01/30/19 10:20

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86194-2
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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86194-2
SDG: Ash Pond

Client Sample ID: MGWA-5
Date Collected: 01/29/19 09:30
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.01 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417028	02/27/19 07:33	JLW	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.01 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414837	02/13/19 08:42	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-6
Date Collected: 01/29/19 09:45
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.21 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417028	02/27/19 07:33	JLW	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.21 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414837	02/13/19 08:42	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-3
Date Collected: 01/29/19 10:45
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.44 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417028	02/27/19 07:33	JLW	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			999.44 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414837	02/13/19 08:43	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-12
Date Collected: 01/29/19 11:45
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.93 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86194-2
SDG: Ash Pond

Client Sample ID: MGWC-12
Date Collected: 01/29/19 11:45
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9315		1			417050	02/27/19 07:36	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			999.93 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414837	02/13/19 08:43	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-2
Date Collected: 01/29/19 11:40
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.66 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417050	02/27/19 07:36	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			999.66 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414837	02/13/19 08:43	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-7
Date Collected: 01/29/19 09:55
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.79 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417050	02/27/19 07:36	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			999.79 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414837	02/13/19 08:43	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-8
Date Collected: 01/29/19 11:43
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.68 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86194-2
SDG: Ash Pond

Client Sample ID: MGWC-8
Date Collected: 01/29/19 11:43
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9315		1			417050	02/27/19 07:36	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			1000.68 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414688	02/13/19 08:45	KLS	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-1
Date Collected: 01/29/19 11:30
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.45 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417050	02/27/19 07:36	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			1000.45 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414688	02/13/19 08:45	KLS	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: DUP-AP-01
Date Collected: 01/29/19 00:00
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.37 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417050	02/27/19 07:36	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			1000.37 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414688	02/13/19 08:45	KLS	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: DUP-AP-02
Date Collected: 01/29/19 00:00
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.33 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86194-2
SDG: Ash Pond

Client Sample ID: DUP-AP-02

Date Collected: 01/29/19 00:00
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-10

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	9315		1			417050	02/27/19 07:36	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			1000.33 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414688	02/13/19 08:45	KLS	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: FB-AP-02

Date Collected: 01/29/19 12:05
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.86 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417050	02/27/19 07:50	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			999.86 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414688	02/13/19 08:45	KLS	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: FERB-AP-02

Date Collected: 01/29/19 12:01
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.67 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417050	02/27/19 09:54	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			1000.67 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414688	02/13/19 08:45	KLS	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:51	ALS	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86194-2
SDG: Ash Pond

Analyst References:

Lab: TAL SL

Batch Type: Prep

CLP = Cassandra Park

Batch Type: Analysis

ALS = Aaron Schroder

JLW = Jody Watson

KLS = Kody Saulters

Client Sample ID: MGWA-5

Date Collected: 01/29/19 09:30
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-1

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	0.0466	U	0.0500	0.0502	1.00	0.0778	pCi/L	02/05/19 09:46	02/27/19 07:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.6*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:33*	*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	0.234	0.235	1.00	0.381	pCi/L	02/05/19 10:16	02/13/19 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*82.6*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:42*	*1*
Y Carrier	*85.6*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:42*	*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	0.275	U	0.239	0.240	5.00	0.381	pCi/L		02/28/19 03:51	1

Client Sample ID: MGWA-6

Date Collected: 01/29/19 09:45
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-2

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	**0.304**		0.0969	0.101	1.00	0.0772	pCi/L	02/05/19 09:46	02/27/19 07:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.287	U	0.216	0.218	1.00	0.336	pCi/L	02/05/19 10:16	02/13/19 08:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:42*	*1*
Y Carrier	*83.0*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:42*	*1*

Client Sample ID: MGWA-6

Lab Sample ID: 180-86194-2
Date Collected: 01/29/19 09:45
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.591		0.237	0.240	5.00	0.336	pCi/L		02/28/19 03:51	1

Client Sample ID: MGWC-3

Lab Sample ID: 180-86194-3
Date Collected: 01/29/19 10:45
Matrix: Water
Date Received: 01/30/19 10:20

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.23		0.190	0.220	1.00	0.0836	pCi/L	02/05/19 09:46	02/27/19 07:33	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.8*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:33*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.112	U	0.238	0.238	1.00	0.407	pCi/L	02/05/19 10:16	02/13/19 08:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.8*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:43*	*1*
Y Carrier	*85.2*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:43*	*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	1.34		0.305	0.324	5.00	0.407	pCi/L		02/28/19 03:51	1

Client Sample ID: MGWC-12

Lab Sample ID: 180-86194-4
Date Collected: 01/29/19 11:45
Matrix: Water
Date Received: 01/30/19 10:20

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.226		0.0951	0.0973	1.00	0.103	pCi/L	02/05/19 09:46	02/27/19 07:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:36*	*1*

Client Sample ID: MGWC-12

Lab Sample ID: 180-86194-4

Date Collected: 01/29/19 11:45
Matrix: Water
Date Received: 01/30/19 10:20

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.413		0.266	0.269	1.00	0.410	pCi/L	02/05/19 10:16	02/13/19 08:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*93.8*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:43*	*1*
Y Carrier	*83.4*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:43*	*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	0.639		0.282	0.286	5.00	0.410	pCi/L		02/28/19 03:51	1

Client Sample ID: MGWC-2

Lab Sample ID: 180-86194-5

Date Collected: 01/29/19 11:40
Matrix: Water
Date Received: 01/30/19 10:20

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.223		0.0968	0.0988	1.00	0.106	pCi/L	02/05/19 09:46	02/27/19 07:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.9*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:36*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.495		0.258	0.262	1.00	0.378	pCi/L	02/05/19 10:16	02/13/19 08:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.9*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:43*	*1*
Y Carrier	*83.0*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:43*	*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	0.719		0.276	0.280	5.00	0.378	pCi/L		02/28/19 03:51	1

Client Sample ID: MGWC-7

Date Collected: 01/29/19 09:55
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-6

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	1.07		0.182	0.205	1.00	0.107	pCi/L	02/05/19 09:46	02/27/19 07:36	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		40 - 110	02/05/19 09:46	02/27/19 07:36	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.631		0.290	0.296	1.00	0.425	pCi/L	02/05/19 10:16	02/13/19 08:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	97.1		40 - 110	02/05/19 10:16	02/13/19 08:43	1
Y Carrier	85.2		40 - 110	02/05/19 10:16	02/13/19 08:43	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	1.70		0.342	0.360	5.00	0.425	pCi/L		02/28/19 03:51	1

Client Sample ID: MGWC-8

Date Collected: 01/29/19 11:43
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-7

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	1.11		0.186	0.211	1.00	0.0928	pCi/L	02/05/19 09:46	02/27/19 07:36	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.0		40 - 110	02/05/19 09:46	02/27/19 07:36	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.817		0.290	0.299	1.00	0.398	pCi/L	02/05/19 10:16	02/13/19 08:45	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	95.0		40 - 110	02/05/19 10:16	02/13/19 08:45	1
Y Carrier	85.2		40 - 110	02/05/19 10:16	02/13/19 08:45	1

Client Sample ID: MGWC-8

Lab Sample ID: 180-86194-7
Date Collected: 01/29/19 11:43
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.93		0.345	0.366	5.00	0.398	pCi/L		02/28/19 03:51	1

Client Sample ID: MGWC-1

Lab Sample ID: 180-86194-8
Date Collected: 01/29/19 11:30
Matrix: Water
Date Received: 01/30/19 10:20

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.901		0.169	0.188	1.00	0.0872	pCi/L	02/05/19 09:46	02/27/19 07:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.9*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:36*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.206	U	0.261	0.262	1.00	0.433	pCi/L	02/05/19 10:16	02/13/19 08:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*87.9*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*1*
Y Carrier	*82.2*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*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	1.11		0.311	0.322	5.00	0.433	pCi/L		02/28/19 03:51	1

Client Sample ID: DUP-AP-01

Lab Sample ID: 180-86194-9
Date Collected: 01/29/19 00:00
Matrix: Water
Date Received: 01/30/19 10:20

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.367		0.121	0.125	1.00	0.112	pCi/L	02/05/19 09:46	02/27/19 07:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.6*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:36*	*1*

Client Sample ID: DUP-AP-01

Lab Sample ID: 180-86194-9
Date Collected: 01/29/19 00:00
Matrix: Water
Date Received: 01/30/19 10:20

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0504	U	0.281	0.281	1.00	0.510	pCi/L	02/05/19 10:16	02/13/19 08:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*77.6*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*1*
Y Carrier	*82.2*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*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	0.317	U	0.306	0.308	5.00	0.510	pCi/L		02/28/19 03:51	1

Client Sample ID: DUP-AP-02

Lab Sample ID: 180-86194-10
Date Collected: 01/29/19 00:00
Matrix: Water
Date Received: 01/30/19 10:20

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	**0.913**		0.169	0.188	1.00	0.0980	pCi/L	02/05/19 09:46	02/27/19 07:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.4*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:36*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.389	U	0.256	0.258	1.00	0.393	pCi/L	02/05/19 10:16	02/13/19 08:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.4*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*1*
Y Carrier	*83.4*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*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	**1.30**		0.307	0.319	5.00	0.393	pCi/L		02/28/19 03:51	1

Client Sample ID: FB-AP-02

Lab Sample ID: 180-86194-11

Date Collected: 01/29/19 12:05
Matrix: Water
Date Received: 01/30/19 10:20

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.0200	U	0.0376	0.0376	1.00	0.0948	pCi/L	02/05/19 09:46	02/27/19 07:50	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.7*		*40 - 110*	*02/05/19 09:46*	*02/27/19 07:50*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0640	U	0.217	0.217	1.00	0.402	pCi/L	02/05/19 10:16	02/13/19 08:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*89.7*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*1*
Y Carrier	*84.1*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*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	-0.0841	U	0.220	0.220	5.00	0.402	pCi/L		02/28/19 03:51	1

Client Sample ID: FERB-AP-02

Lab Sample ID: 180-86194-12

Date Collected: 01/29/19 12:01
Matrix: Water
Date Received: 01/30/19 10:20

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0135	U	0.0542	0.0542	1.00	0.105	pCi/L	02/05/19 09:46	02/27/19 09:54	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.6*		*40 - 110*	*02/05/19 09:46*	*02/27/19 09:54*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.114	U	0.210	0.210	1.00	0.358	pCi/L	02/05/19 10:16	02/13/19 08:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.6*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*1*
Y Carrier	*84.9*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*1*

Client Sample ID: FERB-AP-02

Date Collected: 01/29/19 12:01
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86194-12

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	0.127	U	0.217	0.217	5.00	0.358	pCi/L		02/28/19 03:51	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-413713/23-A
Matrix: Water
Analysis Batch: 417050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 413713

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02314	U	0.0275	0.0276	1.00	0.0838	pCi/L	02/05/19 09:46	02/27/19 09:55	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*02/05/19 09:46*	*02/27/19 09:55*	*1*

Lab Sample ID: LCS 160-413713/1-A
Matrix: Water
Analysis Batch: 417028

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 413713

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	9.000		0.962	1.00	0.0909	pCi/L	79	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*79.1*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-413718/23-A
Matrix: Water
Analysis Batch: 414688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 413718

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.1522	U	0.176	0.177	1.00	0.351	pCi/L	02/05/19 10:16	02/13/19 08:46	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:46*	*1*
Y Carrier	*86.0*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:46*	*1*

Lab Sample ID: LCS 160-413718/1-A
Matrix: Water
Analysis Batch: 414837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 413718

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.49	9.744		1.19	1.00	0.462	pCi/L	103	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*79.1*		*40 - 110*
Y Carrier	*78.1*		*40 - 110*

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Prep Batch: 413713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86194-1	MGWA-5	Total/NA	Water	PrecSep-21	
180-86194-2	MGWA-6	Total/NA	Water	PrecSep-21	
180-86194-3	MGWC-3	Total/NA	Water	PrecSep-21	
180-86194-4	MGWC-12	Total/NA	Water	PrecSep-21	
180-86194-5	MGWC-2	Total/NA	Water	PrecSep-21	
180-86194-6	MGWC-7	Total/NA	Water	PrecSep-21	
180-86194-7	MGWC-8	Total/NA	Water	PrecSep-21	
180-86194-8	MGWC-1	Total/NA	Water	PrecSep-21	
180-86194-9	DUP-AP-01	Total/NA	Water	PrecSep-21	
180-86194-10	DUP-AP-02	Total/NA	Water	PrecSep-21	
180-86194-11	FB-AP-02	Total/NA	Water	PrecSep-21	
180-86194-12	FERB-AP-02	Total/NA	Water	PrecSep-21	
MB 160-413713/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-413713/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 413718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86194-1	MGWA-5	Total/NA	Water	PrecSep_0	
180-86194-2	MGWA-6	Total/NA	Water	PrecSep_0	
180-86194-3	MGWC-3	Total/NA	Water	PrecSep_0	
180-86194-4	MGWC-12	Total/NA	Water	PrecSep_0	
180-86194-5	MGWC-2	Total/NA	Water	PrecSep_0	
180-86194-6	MGWC-7	Total/NA	Water	PrecSep_0	
180-86194-7	MGWC-8	Total/NA	Water	PrecSep_0	
180-86194-8	MGWC-1	Total/NA	Water	PrecSep_0	
180-86194-9	DUP-AP-01	Total/NA	Water	PrecSep_0	
180-86194-10	DUP-AP-02	Total/NA	Water	PrecSep_0	
180-86194-11	FB-AP-02	Total/NA	Water	PrecSep_0	
180-86194-12	FERB-AP-02	Total/NA	Water	PrecSep_0	
MB 160-413718/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-413718/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Peter A., Jake A., Lauren C.	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Joju Abraham	Phone: 4045920096	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 2
Company: Southern Company				Job #:

Address: 241 Ralph McGill Blvd SE	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Atlanta	TAT Requested (days): Standard		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: GA, 30308			
Phone:	PO #: SCS10347656		Other:
Email: jabraham@southerco.com, lmpetty@southernco.com	WO #:		
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956		
Site:	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6020, 7470A - Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D		
MGWA-5	1/29/19	09:30	G	W	N	N	X	X	2	SCAN EVENT
MGWA-6		9:45								
MGWC-3		10:45								
MGWC-12		11:45								
MGWC-2		11:40								
MGWC-7		9:55								
MGWC-6		11:43								
MGWC-1		11:30								
DUP-AP-01										
DUP-AP-02										

180-86194 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by: Peter A	Date/Time: 1/29 19:00	Company: GEI	Received by: Jacelle Watson	Date/Time: 1-30-19	Company: TAPitt
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10:30	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 08/04/2016

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Peter A., Jake A., Lauren C.	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Joju Abraham	Phone: 4045920096	E-Mail: veronica.bortot@testamericainc.com		Page: Page 2 of 2
Company: Southern Company			Analysis Requested	Job #:

Address: 241 Ralph McGill Blvd SE	Due Date Requested:	
City: Atlanta	TAT Requested (days): Standard	
State, Zip: GA, 30308		
Phone:	PO #: SCS10347656	
Email: jabraham@southerco.com, lmpetty@southernco.com	WO #:	
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956	
Site:	SSOW#:	

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6020, 7470A - Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D		
FB-AP-02	1/29/19	12:05	G	W	N	N	X	X	2	SCAN Event
FERB-AP-02	1/29/19	12:01	G	W	N	N	X	X	2	

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

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

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

Special Instructions/QC Requirements:

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

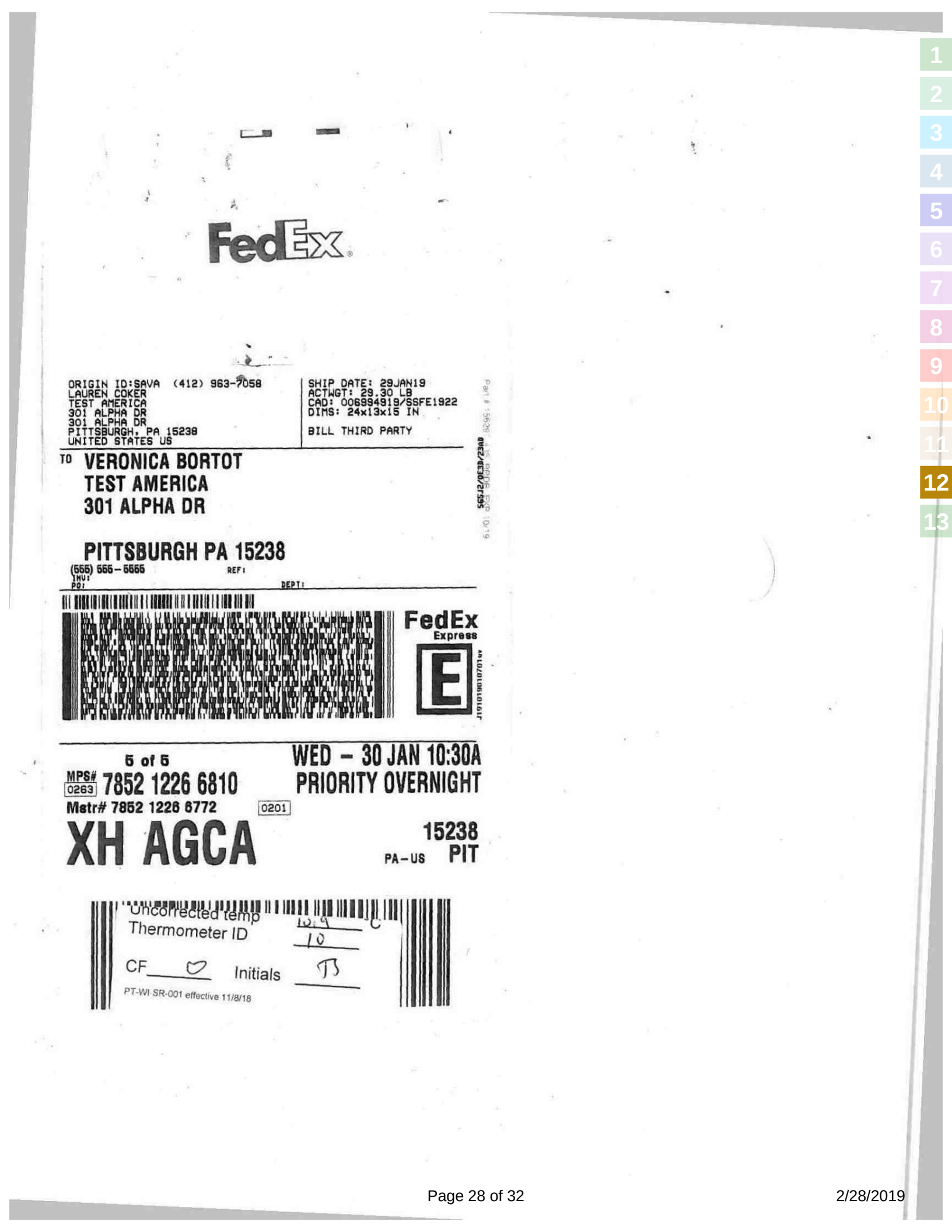
	Date/Time	Company		Date/Time	Company
Relinquished by: Peter A	1/29/19 19:00	GEI	Received by: Dallas Watkins	1-30-19 10:20	TAP
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 08/04/2016


SHIP DATE: 29
ACTWGT: 43.20
CAD: 006994819
DIMS: 24x13x15
BILL THIRD PARTY
ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US
SHIP DATE: 29JAN18
ACTWGT: 56.10 LB
CAD: 006994819/SSFE1922
DIMS: 24x13x15 IN
BILL THIRD PARTY
TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR
PITTSBURGH PA 15238
(555) 555-5555
REF:
DEPT:
FedEx Express
WED - 30 JAN 10:30A
PRIORITY OVERNIGHT
15238
PA-US
PIT
Uncorrected temp
Thermometer ID
Initials
CF
PT-WI-SR-001 effective 11/8/18


ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US
SHIP DATE: 29JAN19
ACTWGT: 19.80 LB
CAD: 006994919/SSFE1922
DIMS: 14x11x11 IN
BILL THIRD PARTY
TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR
PITTSBURGH PA 15238
(555) 555-5555
INV:
PO:
REF:
DEPT:
FedEx
Express
Uncorrected temp 24 °C
Thermometer ID 10
CF 0 Initials TS
PT-WI-SR-001 effective 11/8/18
MPS# 0263 7852
Mstr# 7852
15238
PA-US
PIT
1 of 5
TRK# 0201 7852 1226 6772
MASTER
XH AGCA
WED - 30 JAN
PRIORITY OVERN
PA-US
RUSH



FedEx

ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 29JAN19
ACTWGT: 29.30 LB
CAD: 006994919/SSFE1922
DIMS: 24x13x15 IN

BILL THIRD PARTY

TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR

PITTSBURGH PA 15238
(555) 555-5555
INV:
PO:
REF:
DEPT:

FedEx Express

5 of 5
MPS# 0263 7852 1226 6810
Mstr# 7852 1226 6772
0201

WED - 30 JAN 10:30A
PRIORITY OVERNIGHT

XH AGCA

15238
PA-US PIT

Uncorrected temp 10.9 C
Thermometer ID 10
CF ♡ Initials TB
PT-WI-SR-001 effective 11/8/18

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-353854.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-86194-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 2/22/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Standard Target List	9315_Ra226/PrecSep_21 (MOD) Copy Analytes	Ra226Ra228_AS/ (MOD) Copy Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MGWA-5 (180-86194-1)	1/29/19	09:30 Eastern		Water			X	X	X	1	
MGWA-6 (180-86194-2)	1/29/19	09:45 Eastern		Water			X	X	X	1	
MGWC-3 (180-86194-3)	1/29/19	10:45 Eastern		Water			X	X	X	1	
MGWC-12 (180-86194-4)	1/29/19	11:45 Eastern		Water			X	X	X	1	
MGWC-2 (180-86194-5)	1/29/19	11:40 Eastern		Water			X	X	X	1	
MGWC-7 (180-86194-6)	1/29/19	09:55 Eastern		Water			X	X	X	1	
MGWC-8 (180-86194-7)	1/29/19	11:43 Eastern		Water			X	X	X	1	
MGWC-1 (180-86194-8)	1/29/19	11:30 Eastern		Water			X	X	X	1	
DUP-AP-01 (180-86194-9)	1/29/19	Eastern		Water			X	X	X	1	

Preservation Codes:

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

Other:

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	2/1/19 1200	TAL	[signature]	2-2-19/0850	TAL C
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 09/20/2016

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-353854.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-86194-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 2/22/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Standard Target List	9315_Ra226/PrecSep_21 (MOD) Copy Analytes	Ra226Ra228_AS/ (MOD) Copy Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
DUP-AP-02 (180-86194-10)	1/29/19	Eastern		Water			X	X	X	1	
FB-AP-02 (180-86194-11)	1/29/19	12:05 Eastern		Water			X	X	X	1	
FERB-AP-02 (180-86194-12)	1/29/19	12:01 Eastern		Water			X	X	X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

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

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:			
Relinquished by:	Date/Time: 2/1/19 1700	Company	Received by:	Date/Time: 2-2-19/0850	Company TAST-L	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

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

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-86194-2
SDG Number: Ash Pond

Login Number: 86194
List Number: 1
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh

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

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-86194-2
SDG Number: Ash Pond

Login Number: 86194
List Number: 2
Creator: Press, Nicholas B

List Source: TestAmerica St. Louis
List Creation: 02/02/19 01:40 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Pittsburgh, PA
Report Nos.: 180-86194-1
Reviewer: Lorie MacKinnon/GEI Consultants
Date: April 9, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWA-5	180-86194-01	Metals
MGWA-6	180-86194-02	Metals
MGWC-3	180-86194-03	Metals
MGWC-12	180-86194-04	Metals
MGWC-2	180-86194-05	Metals
MGWC-7	180-86194-06	Metals
MGWC-8	180-86194-07	Metals
MGWC-1	180-86194-08	Metals
DUP-AP-01	180-86194-09	Metals
DUP-AP-02	180-86194-10	Metals
FB-AP-02	180-86194-11	Metals
FERB-AP-02	180-86194-12	Metals

QC Samples:	Field/Equipment blanks:	FB-AP-02, FERB-AP-02
	Field Duplicate pairs:	MGWA-6/DUP-AP-01 and MGWC-1/DUP-AP-02

The above-listed aqueous samples and field blanks were collected on January 29, 2019 and were analyzed for select total recoverable metals by SW-846 methods 6020/7470A. The data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017 (USEPA-540-R-2017-001), as well as by the methods referenced and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Method and Field Blanks
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Field Duplicate Results
- Quantitation Limits

All results are usable as reported.

The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, MS/MSD, laboratory duplicate, and LCS results with the following exception: the reporting limits for select metals were incorrect and sample results were to be reported down to reporting limits only. A revision was requested and received for review.

Holding Times and Sample Preservation

All criteria were met.

Method and Field Blanks

Contamination was not detected in the laboratory method blank samples. Lead was detected in the field blank sample. The following table summarizes the contamination and validation actions required.

Analyte	Blank ID/ Associated Samples	Concentration (mg/L)	10x Action Level (mg/L)	Validation Actions
Lead	FERB-AP-02: All samples	0.0012	0.012	Validations actions were not required as lead was not detected in the project samples.

Blank Actions:
If the sample result is < reporting limit (RL); report the result as nondetect (U) at the RL or reported value.
If the sample result is ≥ RL and <blank contamination detected; report the result as nondetect (U) at the reported value.
If the sample result is ≥ RL and < 10x Action Level; report the sample result as estimated (J); biased high.
If the sample result is nondetect or > 10x Action Level; validation action is not required.

MS/MSD Results

MS/MSD analyses were performed on sample MGWA-5 for ICP metals. All recovery and precision criteria were met.

Laboratory Duplicate Results

An MSD analysis was performed in lieu of the laboratory duplicate.

LCS Results

All criteria were met.

Field Duplicate Results

Samples MGWA-6 and DUP-AP-01 were submitted as the field duplicate pair with this sample set. The following table summarizes the RPDs of the detected analytes in the field duplicate pair, which were within the acceptance criteria.

Analyte	MGWA-6 (mg/L)	DUP-AP-01 (mg/L)	RPD (%)
Arsenic	0.00972	0.00969	0.3
Barium	0.0393	0.0384	2.3
NC – Not calculable Criteria: When both results are ≥5x the RL, RPDs must be <30%. When results are < 5x the RL, professional judgement was taken to estimate results if the absolute difference between the original and field duplicate >RL.			

Samples MGWC-1 and DUP-AP-02 were submitted as the field duplicate pair with this sample set. The following table summarizes the RPDs of the detected analytes in the field duplicate pair, which were within the acceptance criteria.

Analyte	MGWC-1 (mg/L)	DUP-AP-02 (mg/L)	RPD (%)
Arsenic	0.00255	0.00300	16.2
Barium	0.107	0.0993	7.5
Lithium	0.0109	0.0106	2.8
NC – Not calculable Criteria: When both results are ≥5x the RL, RPDs must be <30%. When results are < 5x the RL, professional judgement was taken to estimate results if the absolute difference between the original and field duplicate >RL.			

Quantitation Limits

Detected results were reported down to the laboratory reporting limits only.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Earth City, MO
Report Nos.: 180-86194-2
Reviewer: Lorie MacKinnon/GEI Consultants
Date: March 3, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWA-5	180-86194-01	Radium-226, Radium-228, Radium226-228
MGWA-6	180-86194-02	Radium-226, Radium-228, Radium226-228
MGWC-3	180-86194-03	Radium-226, Radium-228, Radium226-228
MGWC-12	180-86194-04	Radium-226, Radium-228, Radium226-228
MGWC-2	180-86194-05	Radium-226, Radium-228, Radium226-228
MGWC-7	180-86194-06	Radium-226, Radium-228, Radium226-228
MGWC-8	180-86194-07	Radium-226, Radium-228, Radium226-228
MGWC-1	180-86194-08	Radium-226, Radium-228, Radium226-228
DUP-AP-01	180-86194-09	Radium-226, Radium-228, Radium226-228
DUP-AP-02	180-86194-10	Radium-226, Radium-228, Radium226-228
FB-AP-02	180-86194-11	Radium-226, Radium-228, Radium226-228
FERB-AP-02	180-86194-12	Radium-226, Radium-228, Radium226-228

QC Samples:	Field/Equipment blanks:	FB-AP-02, FERB-AP-02
	Field Duplicate pair:	MGWA-6/DUP-AP-01, MGWC-1/DUP-AP-02

The above-listed aqueous samples and field blanks were collected on January 29, 2019 and were analyzed for Radium-226 by SW-846 method 9315, Radium-228 by SW-46 method 9320, and combined Radium-226 and Radium-228. The data were reviewed based on the US Department of Energy Evaluation of Radiochemical Data Usability, 1997, as well as by the pertinent methods referenced by the data package and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Method and Field Blanks
- Carrier Yields
- Laboratory Duplicate Results
- Field Duplicate Results
- Laboratory Control Sample (LCS) Results
- Quantitation Limits

All results are usable as reported.

The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, carrier yields, laboratory duplicate, and LCS results.

Holding Times and Sample Preservation

All criteria were met.

Method and Field Blanks

Radium-226 and Radium-228 were not detected above the minimum detectable concentrations (MDC) in the laboratory method blank samples and field blank samples.

Carrier Yields

All criteria were met.

Laboratory Duplicate Results

Laboratory duplicate analyses were not associated with this sample set. Validation action was not taken on this basis.

Field Duplicate Results

Samples MGWA-6 and DUP-AP-01 were submitted as the field duplicate pair with this sample set. The following table summarizes the evaluation of the analytes in the field duplicate pair, which were within the acceptance criteria.

Analyte	MGWA-6 (pCi/L)	DUP-AP-01 (pCi/L)	DER
Radium-226	0.304	0.367	0.39
Radium-228	0.287 U	-0.0504 U	No action, both results <MDC
Combined Radium 226 + 228	0.591	0.317 U	0.70
Criteria: Duplicate Error Ratio (DER) ≤ 2 MDC – Minimum Detectable Concentration			

Samples MGWC-1 and DUP-AP-02 were submitted as the field duplicate pair with this sample set. The following table summarizes the evaluation of the analytes in the field duplicate pair, which were within the acceptance criteria.

Analyte	MGWC-1 (pCi/L)	DUP-AP-02 (pCi/L)	DER
Radium-226	0.901	0.913	0.06
Radium-228	0.206 U	0.389 U	No action, both results <MDC
Combined Radium 226 + 228	1.11	1.30	0.44
Criteria: Duplicate Error Ratio (DER) $\leq$ 2 MDC – Minimum Detectable Concentration			

LCS Results

All criteria were met.

Quantitation Limits

Dilutions were not required.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 180-86197-1
Laboratory Sample Delivery Group: Ash Pond
Client Project/Site: CCR - Plant McIntosh Ash Pond 1
Revision: 1

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

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
4/8/2019 3:45:48 PM

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

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

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

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86197-1
SDG: Ash Pond

Job ID: 180-86197-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-86197-1

Revised: to set Arsenic RL to historical limits

Comments
No additional comments.

Receipt
The samples were received on 1/30/2019 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.7º C, 2.4º C, 2.4º C, 10.9º C and 11.1º C.

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

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86197-1
SDG: Ash Pond

Glossary

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86197-1
SDG: Ash Pond

Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86197-1
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-86197-1	MGWA-6A-RUSH	Water	01/29/19 08:40	01/30/19 10:20
180-86197-2	MGWA-24-RUSH	Water	01/29/19 09:00	01/30/19 10:20

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86197-1
SDG: Ash Pond

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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86197-1
SDG: Ash Pond

Client Sample ID: MGWA-6A-RUSH

Lab Sample ID: 180-86197-1
Date Collected: 01/29/19 08:40
Matrix: Water
Date Received: 01/30/19 10:20

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	269114	01/30/19 11:36	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1	1.0 mL	1.0 mL	269269	01/30/19 21:51	WTR	TAL PIT
	Instrument ID: M									

Client Sample ID: MGWA-24-RUSH

Lab Sample ID: 180-86197-2
Date Collected: 01/29/19 09:00
Matrix: Water
Date Received: 01/30/19 10:20

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	269114	01/30/19 11:36	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1	1.0 mL	1.0 mL	269269	01/30/19 22:09	WTR	TAL PIT
	Instrument ID: M									

Laboratory References:

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

Analyst References:

Lab: TAL PIT

Batch Type: Prep

NAM = Nicole Marfisi

Batch Type: Analysis

WTR = Bill Reinheimer

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86197-1
SDG: Ash Pond

Client Sample ID: MGWA-6A-RUSH

Lab Sample ID: 180-86197-1
Date Collected: 01/29/19 08:40
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0097		0.0013	0.00032	mg/L		01/30/19 11:36	01/30/19 21:51	1

Client Sample ID: MGWA-24-RUSH

Lab Sample ID: 180-86197-2
Date Collected: 01/29/19 09:00
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0014		0.0013	0.00032	mg/L		01/30/19 11:36	01/30/19 22:09	1

QC Sample Results

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86197-1
SDG: Ash Pond

Method: EPA 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-269114/1-A
Matrix: Water
Analysis Batch: 269269

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 269114

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00032		0.0013	0.00032	mg/L		01/30/19 11:36	01/30/19 21:32	1

Lab Sample ID: LCS 180-269114/2-A
Matrix: Water
Analysis Batch: 269269

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 269114

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0400	0.0394		mg/L		98	80 - 120

Lab Sample ID: 180-86197-1 MS
Matrix: Water
Analysis Batch: 269269

Client Sample ID: MGWA-6A-RUSH
Prep Type: Total Recoverable
Prep Batch: 269114

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0097		0.0400	0.0477		mg/L		95	75 - 125

Lab Sample ID: 180-86197-1 MSD
Matrix: Water
Analysis Batch: 269269

Client Sample ID: MGWA-6A-RUSH
Prep Type: Total Recoverable
Prep Batch: 269114

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.0097		0.0400	0.0496		mg/L		100	75 - 125	4	20

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86197-1
SDG: Ash Pond

Metals

Prep Batch: 269114

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86197-1	MGWA-6A-RUSH	Total Recoverable	Water	3005A	
180-86197-2	MGWA-24-RUSH	Total Recoverable	Water	3005A	
MB 180-269114/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-269114/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-86197-1 MS	MGWA-6A-RUSH	Total Recoverable	Water	3005A	
180-86197-1 MSD	MGWA-6A-RUSH	Total Recoverable	Water	3005A	

Analysis Batch: 269269

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86197-1	MGWA-6A-RUSH	Total Recoverable	Water	EPA 6020	269114
180-86197-2	MGWA-24-RUSH	Total Recoverable	Water	EPA 6020	269114
MB 180-269114/1-A	Method Blank	Total Recoverable	Water	EPA 6020	269114
LCS 180-269114/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	269114
180-86197-1 MS	MGWA-6A-RUSH	Total Recoverable	Water	EPA 6020	269114
180-86197-1 MSD	MGWA-6A-RUSH	Total Recoverable	Water	EPA 6020	269114

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Peter A., Jake A., Lauren C.	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Joju Abraham	Phone: 4045920096	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 1
Company: Southern Company				Job #:
Address: 241 Ralph McGill Blvd SE	Due Date Requested:			
City: Atlanta	TAT Requested (days): RUSH - 24 HOURS			
State, Zip: GA, 30308				
Phone:	PO #: SCS10347656			
Email: jabraham@southerco.com, lmpetty@southernco.com	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020 - As	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D		
~~MGWA-8-RUSH~~ ~~8X~~			~~G~~	~~Water~~	~~N~~	~~N~~	~~X~~	~~1~~	~~Arsenic only~~
MGWA-6A-RUSH	1/29/19	8:40	G	Water	N	N	X	1	Arsenic only
MGWA-24-RUSH	1/29/19	9:00	G	Water	N	N	X	1	Arsenic only

180-86197 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment: FedEx overnight		
Relinquished by: Peter A	Date/Time: 1/29/19 19:00	Company: GES	Received by: [illegible] Watts	Date/Time: 1-30-19	Company: TAPH
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time: 10:20	Company:
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

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

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-86197-1
SDG Number: Ash Pond

Login Number: 86197
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Pittsburgh, PA
Report Nos.: 180-86197
Reviewer: Lorie MacKinnon/GEI Consultants
Date: April 9, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWA-6A-RUSH	180-86197-01	Arsenic
MGWA-24-RUSH	180-86197-02	Arsenic

The above-listed aqueous samples were collected on January 29, 2019 and were analyzed for total recoverable arsenic by SW-846 method 6020. The data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017 (USEPA-540-R-2017-001), as well as by the method referenced and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Method Blanks
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Control Sample (LCS) Results
- Quantitation Limits

All results are usable as reported.

The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, MS/MSD, and LCS results.

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, MS/MSD, laboratory duplicate, and LCS results with the following exception: the reporting limit for arsenic was incorrect. A revision was requested and received for review.

Holding Times and Sample Preservation

All criteria were met.

Method Blanks

The laboratory method blanks were free from contaminants.

MS/MSD Results

MS/MSD analyses were performed on sample MGWA-6A-RUSH for arsenic. All recovery and precision criteria were met.

LCS Results

All criteria were met.

Quantitation Limits

Detected results were reported down to the laboratory reporting limits only.

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 180-86200-1
Laboratory Sample Delivery Group: Ash Pond
Client Project/Site: CCR - Plant McIntosh Ash Pond 1
Revision: 4

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

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
4/8/2019 3:31:22 PM

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

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86200-1
SDG: Ash Pond

Job ID: 180-86200-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-86200-1

Revised: changing RL for Li
Revised : changing formatter to no qualifier
Revised : added calcium to MGWA-24
Revised: revising RLs for metals

Comments
No additional comments.

Receipt
The samples were received on 1/30/2019 10:20 AM; the samples arrived in good condition. The temperatures of the 5 coolers at receipt time were 0.7º C, 2.4º C, 2.4º C, 10.9º C and 11.1º 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.

Glossary

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86200-1
SDG: Ash Pond

Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86200-1
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-86200-1	MGWA-6A	Water	01/29/19 08:55	01/30/19 10:20
180-86200-2	MGWA-24	Water	01/29/19 09:05	01/30/19 10:20

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86200-1
SDG: Ash Pond

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
SM2320 B	Alkalinity, Total	SM18	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"

SM18 = "Standard Methods For The Examination Of Water And Wastewater", 18th Edition, 1992.

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

Laboratory References:

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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86200-1
SDG: Ash Pond

Client Sample ID: MGWA-6A

Date Collected: 01/29/19 08:55
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86200-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			269428	02/02/19 18:47	CMR	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	269501	02/04/19 12:30	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269983	02/08/19 16:41	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Prep	7470A			50 mL	50 mL	269600	02/05/19 10:24	RJR	TAL PIT
Total/NA	Analysis	EPA 7470A		1			269770	02/06/19 14:58	KAK	TAL PIT
	Instrument ID: HGZ									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	269406	02/01/19 17:19	TAM	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM2320 B		1	50 mL	50 mL	269783	02/07/19 10:10	CLL	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-24

Date Collected: 01/29/19 09:05
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86200-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			269428	02/02/19 19:03	CMR	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	269501	02/04/19 12:30	NAM	TAL PIT
Total Recoverable	Analysis	EPA 6020		1			269983	02/08/19 16:44	RSK	TAL PIT
	Instrument ID: A									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	269406	02/01/19 17:19	TAM	TAL PIT
	Instrument ID: NOEQUIP									
Total/NA	Analysis	SM2320 B		1	50 mL	50 mL	269783	02/07/19 10:10	CLL	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

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

Analyst References:

Lab: TAL PIT

Batch Type: Prep

NAM = Nicole Marfisi
RJR = Ron Rosenbaum

Batch Type: Analysis

CLL = Cheryl Loheyde
CMR = Carl Reagle
KAK = Kayla Kalamasz
RSK = Robert Kurtz
TAM = Tessa Mastalski

Client Sample ID: MGWA-6A

Lab Sample ID: 180-86200-1

Date Collected: 01/29/19 08:55
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4.51**		1.00		mg/L			02/02/19 18:47	1
Fluoride	<0.200		0.200		mg/L			02/02/19 18:47	1
Sulfate	**7.08**		1.00		mg/L			02/02/19 18:47	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0118**		0.00125		mg/L		02/04/19 12:30	02/08/19 16:41	1
Boron	<0.0500		0.0500		mg/L		02/04/19 12:30	02/08/19 16:41	1
Barium	**0.0421**		0.00250		mg/L		02/04/19 12:30	02/08/19 16:41	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 16:41	1
Calcium	**95.1**		0.250		mg/L		02/04/19 12:30	02/08/19 16:41	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 16:41	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 16:41	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 16:41	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:30	02/08/19 16:41	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:30	02/08/19 16:41	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 16:41	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:30	02/08/19 16:41	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:30	02/08/19 16:41	1
Lithium	**0.0184**		0.00200		mg/L		02/04/19 12:30	02/08/19 16:41	1
Sodium	**8.51**		0.500		mg/L		02/04/19 12:30	02/08/19 16:41	1
Potassium	**0.732**		0.500		mg/L		02/04/19 12:30	02/08/19 16:41	1
Magnesium	**2.69**		0.500		mg/L		02/04/19 12:30	02/08/19 16:41	1

Method: EPA 7470A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		02/05/19 10:24	02/06/19 14:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**280**		10	10	mg/L			02/01/19 17:19	1
Total Alkalinity as CaCO3 to pH 4.	**270**		5.0	5.0	mg/L			02/07/19 10:10	1
Bicarbonate Alkalinity as CaCO3	**270**		5.0	5.0	mg/L			02/07/19 10:10	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			02/07/19 10:10	1

Client Sample ID: MGWA-24

Lab Sample ID: 180-86200-2

Date Collected: 01/29/19 09:05
Matrix: Water
Date Received: 01/30/19 10:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.7**		1.0	0.71	mg/L			02/02/19 19:03	1
Fluoride	**0.23**		0.20	0.026	mg/L			02/02/19 19:03	1
Sulfate	**19**		1.0	0.38	mg/L			02/02/19 19:03	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**41.8**		0.250		mg/L		02/04/19 12:30	02/08/19 16:44	1
Potassium	**1.65**		0.500		mg/L		02/04/19 12:30	02/08/19 16:44	1
Magnesium	**5.00**		0.500		mg/L		02/04/19 12:30	02/08/19 16:44	1
Sodium	**18.4**		0.500		mg/L		02/04/19 12:30	02/08/19 16:44	1

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86200-1
SDG: Ash Pond

Client Sample ID: MGWA-24

Date Collected: 01/29/19 09:05
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86200-2

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	190		10	10	mg/L			02/01/19 17:19	1
Total Alkalinity as CaCO3 to pH 4.5	130		5.0	5.0	mg/L			02/07/19 10:10	1
Bicarbonate Alkalinity as CaCO3	120		5.0	5.0	mg/L			02/07/19 10:10	1
Carbonate Alkalinity as CaCO3	12		5.0	5.0	mg/L			02/07/19 10:10	1

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

Lab Sample ID: MB 180-269428/6
Matrix: Water
Analysis Batch: 269428

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<1.00		1.00		mg/L			02/02/19 11:07	1
Fluoride	<0.200		0.200		mg/L			02/02/19 11:07	1
Sulfate	<1.00		1.00		mg/L			02/02/19 11:07	1

Lab Sample ID: LCS 180-269428/5
Matrix: Water
Analysis Batch: 269428

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	24.12		mg/L		96	90 - 110
Fluoride	1.25	1.222		mg/L		98	90 - 110
Sulfate	25.0	23.86		mg/L		95	90 - 110

Method: EPA 6020 - Metals (ICP/MS)

Lab Sample ID: MB 180-269501/1-A
Matrix: Water
Analysis Batch: 269983

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 269501

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00125		0.00125		mg/L		02/04/19 12:30	02/08/19 15:17	1
Boron	<0.0500		0.0500		mg/L		02/04/19 12:30	02/08/19 15:17	1
Barium	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 15:17	1
Beryllium	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 15:17	1
Calcium	<0.250		0.250		mg/L		02/04/19 12:30	02/08/19 15:17	1
Cadmium	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 15:17	1
Cobalt	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 15:17	1
Chromium	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 15:17	1
Molybdenum	<0.0150		0.0150		mg/L		02/04/19 12:30	02/08/19 15:17	1
Lead	<0.00100		0.00100		mg/L		02/04/19 12:30	02/08/19 15:17	1
Antimony	<0.00250		0.00250		mg/L		02/04/19 12:30	02/08/19 15:17	1
Selenium	<0.00125		0.00125		mg/L		02/04/19 12:30	02/08/19 15:17	1
Thallium	<0.000500		0.000500		mg/L		02/04/19 12:30	02/08/19 15:17	1
Lithium	<0.00200		0.00200		mg/L		02/04/19 12:30	02/08/19 15:17	1
Sodium	<0.500		0.500		mg/L		02/04/19 12:30	02/08/19 15:17	1
Potassium	<0.500		0.500		mg/L		02/04/19 12:30	02/08/19 15:17	1
Magnesium	<0.500		0.500		mg/L		02/04/19 12:30	02/08/19 15:17	1

Lab Sample ID: LCS 180-269501/2-A
Matrix: Water
Analysis Batch: 269983

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 269501

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0400	0.03810		mg/L		95	80 - 120
Boron	1.00	1.050		mg/L		105	80 - 120
Barium	2.00	2.132		mg/L		107	80 - 120
Beryllium	0.0500	0.05117		mg/L		102	80 - 120
Calcium	50.0	56.39		mg/L		113	80 - 120
Cadmium	0.0500	0.05136		mg/L		103	80 - 120

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

Lab Sample ID: LCS 180-269501/2-A
Matrix: Water
Analysis Batch: 269983

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 269501

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cobalt	0.500	0.4702		mg/L		94	80 - 120
Chromium	0.200	0.2142		mg/L		107	80 - 120
Molybdenum	1.00	1.030		mg/L		103	80 - 120
Lead	0.0200	0.02114		mg/L		106	80 - 120
Antimony	0.500	0.5251		mg/L		105	80 - 120
Selenium	0.0100	0.01128		mg/L		113	80 - 120
Thallium	0.0500	0.05216		mg/L		104	80 - 120
Lithium	0.0500	0.04992		mg/L		100	80 - 120
Sodium	50.0	51.42		mg/L		103	80 - 120
Potassium	50.0	50.86		mg/L		102	80 - 120
Magnesium	50.0	51.95		mg/L		104	80 - 120

Method: EPA 7470A - Mercury (CVAA)

Lab Sample ID: MB 180-269600/1-A
Matrix: Water
Analysis Batch: 269770

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 269600

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00010		0.00020	0.00010	mg/L		02/05/19 10:24	02/06/19 14:50	1

Lab Sample ID: LCS 180-269600/2-A
Matrix: Water
Analysis Batch: 269770

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 269600

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00250	0.00249		mg/L		100	80 - 120

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

Lab Sample ID: MB 180-269406/2
Matrix: Water
Analysis Batch: 269406

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			02/01/19 17:19	1

Lab Sample ID: LCS 180-269406/1
Matrix: Water
Analysis Batch: 269406

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	210		mg/L		103	80 - 120

Method: SM2320 B - Alkalinity, Total

Lab Sample ID: MB 180-269783/2
Matrix: Water
Analysis Batch: 269783

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Alkalinity as CaCO3 to pH 4.5	<5.0		5.0	5.0	mg/L			02/07/19 10:10	1
Bicarbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			02/07/19 10:10	1
Carbonate Alkalinity as CaCO3	<5.0		5.0	5.0	mg/L			02/07/19 10:10	1

Lab Sample ID: LCS 180-269783/1
Matrix: Water
Analysis Batch: 269783

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Alkalinity as CaCO3 to pH 4.5	250	248		mg/L		99	90 - 110

Lab Sample ID: 180-86200-1 DU
Matrix: Water
Analysis Batch: 269783

Client Sample ID: MGWA-6A
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Alkalinity as CaCO3 to pH 4.5	270		275		mg/L		2	20
Bicarbonate Alkalinity as CaCO3	270		275		mg/L		2	20
Carbonate Alkalinity as CaCO3	<5.0		<5.0		mg/L		NC	20

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-86200-1
SDG: Ash Pond

HPLC/IC

Analysis Batch: 269428

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86200-1	MGWA-6A	Total/NA	Water	EPA 300.0 R2.1	
180-86200-2	MGWA-24	Total/NA	Water	EPA 300.0 R2.1	
MB 180-269428/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-269428/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 269501

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86200-1	MGWA-6A	Total Recoverable	Water	3005A	
180-86200-2	MGWA-24	Total Recoverable	Water	3005A	
MB 180-269501/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 180-269501/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 269600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86200-1	MGWA-6A	Total/NA	Water	7470A	
MB 180-269600/1-A	Method Blank	Total/NA	Water	7470A	
LCS 180-269600/2-A	Lab Control Sample	Total/NA	Water	7470A	

Analysis Batch: 269770

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86200-1	MGWA-6A	Total/NA	Water	EPA 7470A	269600
MB 180-269600/1-A	Method Blank	Total/NA	Water	EPA 7470A	269600
LCS 180-269600/2-A	Lab Control Sample	Total/NA	Water	EPA 7470A	269600

Analysis Batch: 269983

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86200-1	MGWA-6A	Total Recoverable	Water	EPA 6020	269501
180-86200-2	MGWA-24	Total Recoverable	Water	EPA 6020	269501
MB 180-269501/1-A	Method Blank	Total Recoverable	Water	EPA 6020	269501
LCS 180-269501/2-A	Lab Control Sample	Total Recoverable	Water	EPA 6020	269501

General Chemistry

Analysis Batch: 269406

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86200-1	MGWA-6A	Total/NA	Water	SM 2540C	
180-86200-2	MGWA-24	Total/NA	Water	SM 2540C	
MB 180-269406/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-269406/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 269783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86200-1	MGWA-6A	Total/NA	Water	SM2320 B	
180-86200-2	MGWA-24	Total/NA	Water	SM2320 B	
MB 180-269783/2	Method Blank	Total/NA	Water	SM2320 B	
LCS 180-269783/1	Lab Control Sample	Total/NA	Water	SM2320 B	
180-86200-1 DU	MGWA-6A	Total/NA	Water	SM2320 B	

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Peter A., Jake A., Lauren C.	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	
Client Contact: Joju Abraham	Phone: 4045920096	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 1
Company: Southern Company				Job #:
Address: 241 Ralph McGill Blvd SE	Due Date Requested:			
City: Atlanta	TAT Requested (days): Standard			
State, Zip: GA, 30308				
Phone:	PO #: SCS10347656			
Email: jabraham@southerco.com, lmpetty@southernco.com	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6020, 7470A - Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl	6020 - Ca, B	TDS, 300_ORGFM_28D chloride, Fluoride, Sulfate	6020 - Mg, Na, K	2320B (Carb and bicarb)									Total Number of containers	Special Instructions
				Preservation Code:			D	D	D	N												
MGWA-6A	1/29/19	8:55	G	W	N	N	X	X	X	X	X	X									4	
MGWA-24	1/29/19	9:05	G	W						X	X	X										
~~MGWA-6A~~ PP																						

180-86200 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☑ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Peter A	1/29/19 9:00	GEI	Pauline Watson	1-30-19	TA Pitt
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 10:20	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 08/04/2016


180-86200 Waybill
ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US
SHIP DATE: 29JAN19
ACTWGT: 19.80 LB
CAD: 006994819/SSFE1922
DIMS: 14x11x11 IN
BILL THIRD PARTY
TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR
PITTSBURGH PA 15238
(555) 555-5555
INV:
PO:
REF:
DEPT:
FedEx
Express
ORIGIN ID:SAVA (412) 963-
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US
TO VERONICA BORTO
TEST AMERICA
301 ALPHA DR
PITTSBURGH PA
(555) 555-5555
INV:
PO:
MPS# 0263 7852
Mstr# 7852
DEPT:
Uncorrected temp 24 °C
Thermometer ID 10
CF 0 Initials TS
PT-WI-SR-001 effective 11/8/18
15238
PA-US PIT
1 of 5
TRK# 0201 7852 1226 6772
MASTER
XH AGCA
WED - 30 JAN
PRIORITY OVERN
PA-US
Uncorrected temp 24 °C
Thermometer ID 10
CF -0 Initials TS
PT-WI-SR-001 effective 11/8/18
RUSH


SHIP DATE: 29-
ACTWGT: 43.20
CAD: 006994919/
DIMS: 24x13x15
BILL THIRD PARTY
ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US
SHIP DATE: 29JAN19
ACTWGT: 56.10 LB
CAD: 006994919/SSFE1922
DIMS: 24x13x15 IN
BILL THIRD PARTY
TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR
PITTSBURGH PA 15238
(555) 555-5555
REF:
DEPT:
FedEx Express
WED - 30 JAN 10:30A
PRIORITY OVERNIGHT
15238
PA-US
PIT
Uncorrected temp
Thermometer ID
Initials
CF
PT-WI-SR-001 effective 11/8/18

FedEx

ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 29JAN19
ACTWGT: 29.30 LB
CAD: 006994919/SSFE1922
DIMS: 24x13x15 IN

BILL THIRD PARTY

TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR

PITTSBURGH PA 15238
(555) 555-5555 REF:
INV:
PO: DEPT:

FedEx Express

5 of 5
MPS# 0263 7852 1226 6810
Mstr# 7852 1226 6772 0201

WED - 30 JAN 10:30A
PRIORITY OVERNIGHT

XH AGCA

15238
PA-US PIT

Uncorrected temp 13.9 C
Thermometer ID 10
CF ♡ Initials TB
PT-WI-SR-001 effective 11/8/18

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-86200-1
SDG Number: Ash Pond

Login Number: 86200
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

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: 180-86200-2
TestAmerica Sample Delivery Group: Ash Pond
Client Project/Site: CCR - Plant McIntosh Ash Pond 1

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

Attn: Joju Abraham

Veronica Bortot

Authorized for release by:
2/28/2019 12:50:07 PM

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

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

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

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-86200-2

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-86200-2

Comments
No additional comments.

Receipt
The samples were received on 1/30/2019 10:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.7º C, 2.4º C, 2.4º C, 10.9º C and 11.1º C.

RAD
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 McIntosh Ash Pond 1

TestAmerica Job ID: 180-86200-2
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.
¤	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 McIntosh Ash Pond 1

TestAmerica Job ID: 180-86200-2
SDG: Ash Pond

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	01-31-20
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	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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 / DOE		L2305	04-06-19 *
Arizona	State Program	9	AZ0813	12-08-19
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	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
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

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86200-2
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
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

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86200-2
SDG: Ash Pond

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-86200-1	MGWA-6A	Water	01/29/19 08:55	01/30/19 10:20

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86200-2
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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86200-2
SDG: Ash Pond

Client Sample ID: MGWA-6A
Date Collected: 01/29/19 08:55
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86200-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.67 mL	1.0 g	413713	02/05/19 09:46	CLP	TAL SL
Total/NA	Analysis	9315		1			417050	02/27/19 09:55	KLS	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			999.67 mL	1.0 g	413718	02/05/19 10:16	CLP	TAL SL
Total/NA	Analysis	9320		1			414688	02/13/19 08:45	KLS	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			417258	02/28/19 03:53	ALS	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

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

Analyst References:

Lab: TAL SL

Batch Type: Prep

CLP = Cassandra Park

Batch Type: Analysis

ALS = Aaron Schroder

KLS = Kody Saulters

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86200-2
SDG: Ash Pond

Client Sample ID: MGWA-6A

Date Collected: 01/29/19 08:55
Date Received: 01/30/19 10:20

Lab Sample ID: 180-86200-1

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	**0.627**		0.145	0.156	1.00	0.103	pCi/L	02/05/19 09:46	02/27/19 09:55	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*02/05/19 09:46*	*02/27/19 09:55*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.246	U	0.268	0.269	1.00	0.439	pCi/L	02/05/19 10:16	02/13/19 08:45	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*1*
Y Carrier	*81.5*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:45*	*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	**0.874**		0.305	0.311	5.00	0.439	pCi/L		02/28/19 03:53	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-413713/23-A
Matrix: Water
Analysis Batch: 417050

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 413713

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.02314	U	0.0275	0.0276	1.00	0.0838	pCi/L	02/05/19 09:46	02/27/19 09:55	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*02/05/19 09:46*	*02/27/19 09:55*	*1*

Lab Sample ID: LCS 160-413713/1-A
Matrix: Water
Analysis Batch: 417028

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 413713

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	9.000		0.962	1.00	0.0909	pCi/L	79	68 - 137		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*79.1*		*40 - 110*

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-413718/23-A
Matrix: Water
Analysis Batch: 414688

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 413718

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.1522	U	0.176	0.177	1.00	0.351	pCi/L	02/05/19 10:16	02/13/19 08:46	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.6*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:46*	*1*
Y Carrier	*86.0*		*40 - 110*	*02/05/19 10:16*	*02/13/19 08:46*	*1*

Lab Sample ID: LCS 160-413718/1-A
Matrix: Water
Analysis Batch: 414837

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 413718

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.49	9.744		1.19	1.00	0.462	pCi/L	103	56 - 140		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*79.1*		*40 - 110*
Y Carrier	*78.1*		*40 - 110*

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

TestAmerica Job ID: 180-86200-2
SDG: Ash Pond

Rad

Prep Batch: 413713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86200-1	MGWA-6A	Total/NA	Water	PrecSep-21	
MB 160-413713/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-413713/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 413718

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-86200-1	MGWA-6A	Total/NA	Water	PrecSep_0	
MB 160-413718/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-413718/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Peter A., Jake A., Lauren C.	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	
Client Contact: Joju Abraham	Phone: 4045920096	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 1
Company: Southern Company				Job #:
Address: 241 Ralph McGill Blvd SE	Due Date Requested:			
City: Atlanta	TAT Requested (days): Standard			
State, Zip: GA, 30308				
Phone:	PO #: SCS10347656			
Email: jabraham@southerco.com, lmpetty@southernco.com	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228	6020, 7470A - Sb, As, Ba, Be, Cd, Cr, Co, Pb, Li, Hg, Mo, Se, Tl	6020 - Ca, B	TDS, 300_ORGFM_28D chloride, Fluoride, Sulfate	6020 - Mg, Na, K	2320B (Carb and bicarb)	Total Number of containers	Special Ir
			Preservation Code:				D	D	D	N				
MGWA-6A	1/29/19	8:55	G	W	N	N	X	X	X	X	X	X	4	
MGWA-24	1/29/19	9:05	G	W						X	X	X		
~~MGWA-6A~~ PP														

180-86200 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Peter A	1/29/19 9:00	GEI	Pauline Watson	1-30-19	TA Pitt
				10:20	

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

Ver: 08/04/2016


180-86200 Waybill
ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US
SHIP DATE: 29JAN19
ACTWGT: 19.80 LB
CAD: 006994819/SSFE1922
DIMS: 14x11x11 IN
BILL THIRD PARTY
TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR
PITTSBURGH PA 15238
(555) 555-5555
INV:
PO:
REF:
DEPT:
FedEx Express
Uncorrected temp 24 °C
Thermometer ID 10
CF 0 Initials TS
PT-WI-SR-001 effective 11/8/18
MPS# 0263 7852
Mstr# 7852
15238
PA-US
PIT
1 of 5
TRK# 0201 7852 1226 6772
MASTER
XH AGCA
WED - 30 JAN
PRIORITY OVERN
PA-US
RUSH


SHIP DATE: 29JAN19
ACTWGT: 56.10 LB
CAD: 006994919/SSFE1922
DIMS: 24x13x15 IN
BILL THIRD PARTY
ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US
TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR
PITTSBURGH PA 15238
(555) 555-5555
REF:
DEPT:
FedEx Express
WED - 30 JAN 10:30A
PRIORITY OVERNIGHT
0201
15238
PA-US
PIT
Uncorrected temp
Thermometer ID
Initials
CF
PT-WI-SR-001 effective 11/8/18

FedEx

ORIGIN ID:SAVA (412) 963-7058
LAUREN COKER
TEST AMERICA
301 ALPHA DR
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 29JAN19
ACTWGT: 29.30 LB
CAD: 006994919/SSFE1922
DIMS: 24x13x15 IN

BILL THIRD PARTY

TO VERONICA BORTOT
TEST AMERICA
301 ALPHA DR

PITTSBURGH PA 15238
(555) 555-5555 REF:
INV:
PO: DEPT:

FedEx Express

5 of 5
MPS# 0263 7852 1226 6810
Mstr# 7852 1226 6772 0201

WED - 30 JAN 10:30A
PRIORITY OVERNIGHT

XH AGCA

15238
PA-US PIT

Uncorrected temp 13.9 C
Thermometer ID 10
CF ♡ Initials TB
PT-WI-SR-001 effective 11/8/18

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-353854.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-86200-2
Address: 13715 Rider Trail North, ,	Due Date Requested: 2/25/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Standard Target List	9315_Ra226/PrecSep_21 (MOD) Copy Analytes	Ra226Ra228_AS/ (MOD) Copy Analytes	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MGWA-6A (180-86200-1)	1/29/19	08:55 Eastern		Water			X	X	X	1	

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

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

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

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	[signature]	2/1/19 1200	[signature]	[signature]	2-2-19/0850	TAL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-86200-2
SDG Number: Ash Pond

Login Number: 86200
List Number: 1
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh

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

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-86200-2
SDG Number: Ash Pond

Login Number: 86200
List Number: 2
Creator: Press, Nicholas B

List Source: TestAmerica St. Louis
List Creation: 02/02/19 01:24 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	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 <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Pittsburgh, PA
Report No.: 180-86200-1
Reviewer: Lorie MacKinnon/GEI Consultants
Date: April 9, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWA-6A	180-86200-01	Metals, Anions, TDS, Alkalinity
MGWA-24	180-86200-02	Metals, Anions, TDS, Alkalinity

The above-listed aqueous samples were collected on January 29, 2019 and were analyzed for select total recoverable metals by SW-846 method 6020/7470A, total dissolved solids (TDS) by Standard Methods SM 2540C, alkalinity by SM 2320B, and anions (chloride, fluoride, and sulfate) by EPA method 300. The data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017 (USEPA-540-R-2017-001), as well as by the methods referenced and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Laboratory Blanks
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Quantitation Limits

All results are usable as reported or usable with minor qualification due to sample matrix or laboratory quality control outliers.

The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, MS/MSD, laboratory duplicate, and LCS results with the following exception: the reporting limits for select metals were incorrect. Additionally, per request of the client, calcium was added to the required analyte list for sample MGWA-24 and a

revision was requested to report detected results down to reporting limits only. A revision was requested and received for review.

Holding Times and Sample Preservation

All criteria were met.

Laboratory Blanks

Contamination was not detected in the laboratory blank samples.

MS/MSD Results

Project MS/MSD analyses were not associated with this sample set.

Laboratory Duplicate Results

A laboratory duplicate analysis was performed on sample MGWA-6A for alkalinity. Criteria were met.

LCS Results

All criteria were met.

Quantitation Limits

Detected results were reported down to the laboratory reporting limits only.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Earth City, MO
Report Nos.: 180-86200-2
Reviewer: Lorie MacKinnon/GEI Consultants
Date: March 3, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWA-6A	180-86200-01	Radium-226, Radium-228, Radium226-228
QC Samples:	Field/Equipment blanks:	FB-AP-01, FERB-AP-01 (reported in 180-86183-2)

The above-listed aqueous sample was collected on January 29, 2019 and was analyzed for Radium-226 by SW-846 method 9315, Radium-228 by SW-46 method 9320, and combined Radium-226 and Radium-228. The data were reviewed based on the US Department of Energy Evaluation of Radiochemical Data Usability, 1997, as well as by the pertinent methods referenced by the data package and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Method and Field Blanks
- Carrier Yields
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Quantitation Limits

All results are usable as reported.

The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, carrier yields, laboratory duplicate, and LCS results.

Holding Times and Sample Preservation

All criteria were met.

Method and Field Blanks

Radium-226 and Radium-228 were not detected above the minimum detectable concentration (MDC) in the associated laboratory method blank sample. Radium-228 was detected above the minimum detectable concentration (MDC) in the associated field blank sample FB-AP-01 reported in 180-86183-2. The following table summarizes the contamination and validation actions taken.

Analyte	Blank ID/ Associated Samples	Maximum Blank Concentration (pCi/L)	10x Action Level (pCi/L)	Validation Actions
Radium-228	FB-AP-01: MGWA-6A	0.496 (+0.293 Count Uncert.)	7.89	Validation action was not required.
Radium-226/228		0.527 (+0.296 Count Uncert.)	8.23	As the combined Radium-226/228 result in sample MGWA-6A was due to the detection of Radium-226 only, the combined result (which was below the 10x action level) was not qualified due to the field blank contamination which was due to Radium-228 only.

Blank Actions:
If the sample result is < method blank and count uncertainty; report the result as nondetect (U) at the reported value.
If the sample result is > blank/uncertainty concentration and < 10x Action Level; professional judgment was taken to report the sample result as estimated (J); biased high.
If the sample result is nondetect or > 10x Action Level; validation action is not required.

Carrier Yields

All criteria were met.

Laboratory Duplicate Results

Laboratory duplicate analyses were not associated with this sample set.

LCS Results

All criteria were met.

Quantitation Limits

Dilutions were not required.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 180-88108-1
Client Project/Site: CCR - Plant McIntosh Ash Pond 1

For:
Southern Company
PO BOX 2641 GSC8
Birmingham, Alabama 35291

Attn: Ms. Lauren Petty

Authorized for release by:
4/12/2019 3:57:09 PM

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

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-1

Job ID: 180-88108-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-88108-1

Comments
No additional comments.

Receipt
The samples were received on 3/26/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7º C.

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

Metals
Method(s) 6020, SM 2340B: The continuing calibration blank (CCB) for analytical batch 400-435553 contained Calcium above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

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

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

Definitions/Glossary

Client: Southern Company
Job ID: 180-88108-1
Project/Site: CCR - Plant McIntosh Ash Pond 1

Qualifiers

HPLC/IC

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

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-88108-1
Project/Site: CCR - Plant McIntosh Ash Pond 1

Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Southern Company
Job ID: 180-88108-1
Project/Site: CCR - Plant McIntosh Ash Pond 1

Laboratory: Eurofins TestAmerica, Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-19
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-19
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA017	12-31-19
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-19
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-20
Rhode Island	State Program	1	LAO00307	12-30-19
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	07-31-19

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-88108-1	MGWA-10	Water	03/25/19 15:12	03/26/19 09:00
180-88108-2	MGWA-11	Water	03/25/19 16:45	03/26/19 09:00
180-88108-3	MGWA-24	Water	03/25/19 15:50	03/26/19 09:00
180-88108-4	MGWA-5	Water	03/25/19 17:10	03/26/19 09:00
180-88108-5	MGWA-6A	Water	03/25/19 18:00	03/26/19 09:00

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-1

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

Protocol References:

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

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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-1

Client Sample ID: MGWA-10
Date Collected: 03/25/19 15:12
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274458	04/01/19 17:17	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/01/19 22:53	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274129	03/27/19 14:16	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-11
Date Collected: 03/25/19 16:45
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274458	04/01/19 17:33	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/01/19 23:12	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274129	03/27/19 14:16	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-24
Date Collected: 03/25/19 15:50
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274458	04/01/19 17:48	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/01/19 23:16	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274129	03/27/19 14:16	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-5
Date Collected: 03/25/19 17:10
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274458	04/01/19 18:03	MJH	TAL PIT
	Instrument ID: CHIC2100A									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-1

Client Sample ID: MGWA-5

Date Collected: 03/25/19 17:10
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-4

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	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/01/19 23:20	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274129	03/27/19 14:16	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-6A

Date Collected: 03/25/19 18:00
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274458	04/01/19 18:19	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/01/19 23:43	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274129	03/27/19 14:16	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Laboratory References:

TAL PEN = Eurofins TestAmerica, Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001
TAL PIT = Eurofins TestAmerica, Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PEN
- Batch Type: Prep
  - AC = Alexis Castaing
- Batch Type: Analysis
  - DRE = Daniel Etscheid

Lab: TAL PIT
- Batch Type: Analysis
  - AVS = Abbey Smith
  - MJH = Matthew Hartman

Client Sample ID: MGWA-10

Date Collected: 03/25/19 15:12
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.8		1.0	0.71	mg/L			04/01/19 17:17	1
Fluoride	<0.026		0.10	0.026	mg/L			04/01/19 17:17	1
Sulfate	1.1		1.0	0.38	mg/L			04/01/19 17:17	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		03/30/19 11:31	04/01/19 22:53	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/01/19 22:53	5
Barium	0.023		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 22:53	5
Calcium	4.6		0.25	0.13	mg/L		03/30/19 11:31	04/01/19 22:53	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 22:53	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 22:53	5
Lithium	0.0068		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 22:53	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	54		10	10	mg/L			03/27/19 14:16	1

Client Sample ID: MGWA-11

Date Collected: 03/25/19 16:45
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.4		1.0	0.71	mg/L			04/01/19 17:33	1
Fluoride	0.087	J	0.10	0.026	mg/L			04/01/19 17:33	1
Sulfate	1.3		1.0	0.38	mg/L			04/01/19 17:33	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0022		0.0013	0.00046	mg/L		03/30/19 11:31	04/01/19 23:12	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/01/19 23:12	5
Barium	0.11		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 23:12	5
Calcium	37		0.25	0.13	mg/L		03/30/19 11:31	04/01/19 23:12	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 23:12	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 23:12	5
Lithium	0.026		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 23:12	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	210		10	10	mg/L			03/27/19 14:16	1

Client Sample ID: MGWA-24

Date Collected: 03/25/19 15:50
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.2		1.0	0.71	mg/L			04/01/19 17:48	1
Fluoride	0.16		0.10	0.026	mg/L			04/01/19 17:48	1
Sulfate	30		1.0	0.38	mg/L			04/01/19 17:48	1

Client Sample ID: MGWA-24

Lab Sample ID: 180-88108-3

Date Collected: 03/25/19 15:50
Matrix: Water
Date Received: 03/26/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0016		0.0013	0.00046	mg/L		03/30/19 11:31	04/01/19 23:16	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/01/19 23:16	5
Barium	0.035		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 23:16	5
Calcium	44		0.25	0.13	mg/L		03/30/19 11:31	04/01/19 23:16	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 23:16	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 23:16	5
Lithium	0.0086		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 23:16	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	200		10	10	mg/L			03/27/19 14:16	1

Client Sample ID: MGWA-5

Lab Sample ID: 180-88108-4

Date Collected: 03/25/19 17:10
Matrix: Water
Date Received: 03/26/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.7		1.0	0.71	mg/L			04/01/19 18:03	1
Fluoride	0.072	J	0.10	0.026	mg/L			04/01/19 18:03	1
Sulfate	3.4		1.0	0.38	mg/L			04/01/19 18:03	1

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		03/30/19 11:31	04/01/19 23:20	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/01/19 23:20	5
Barium	0.035		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 23:20	5
Calcium	27		0.25	0.13	mg/L		03/30/19 11:31	04/01/19 23:20	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 23:20	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 23:20	5
Lithium	0.010		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 23:20	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	150		10	10	mg/L			03/27/19 14:16	1

Client Sample ID: MGWA-6A

Lab Sample ID: 180-88108-5

Date Collected: 03/25/19 18:00
Matrix: Water
Date Received: 03/26/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.4		1.0	0.71	mg/L			04/01/19 18:19	1
Fluoride	0.067	J	0.10	0.026	mg/L			04/01/19 18:19	1
Sulfate	1.8		1.0	0.38	mg/L			04/01/19 18:19	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0012	J	0.0013	0.00046	mg/L		03/30/19 11:31	04/01/19 23:43	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/01/19 23:43	5
Barium	0.044		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 23:43	5

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-1

Client Sample ID: MGWA-6A

Date Collected: 03/25/19 18:00
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Calcium	**89**	**^**	0.25	0.13	mg/L		03/30/19 11:31	04/01/19 23:43	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 23:43	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 23:43	5
Lithium	**0.0052**		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 23:43	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**250**		10	10	mg/L			03/27/19 14:16	1

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

Lab Sample ID: MB 180-274458/41
Matrix: Water
Analysis Batch: 274458

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/01/19 14:59	1
Fluoride	<0.026		0.10	0.026	mg/L			04/01/19 14:59	1
Sulfate	<0.38		1.0	0.38	mg/L			04/01/19 14:59	1

Lab Sample ID: LCS 180-274458/38
Matrix: Water
Analysis Batch: 274458

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.3		mg/L		101	90 - 110
Fluoride	1.25	1.25		mg/L		100	90 - 110
Sulfate	25.0	25.3		mg/L		101	90 - 110

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-435281/1-A ^5
Matrix: Water
Analysis Batch: 435553

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 435281

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		03/30/19 11:31	04/01/19 22:42	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/01/19 22:42	5
Barium	<0.00049		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 22:42	5
Calcium	<0.13		0.25	0.13	mg/L		03/30/19 11:31	04/01/19 22:42	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 22:42	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 22:42	5
Lithium	<0.0011		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 22:42	5

Lab Sample ID: LCS 400-435281/2-A
Matrix: Water
Analysis Batch: 435553

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 435281

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0500	0.0500		mg/L		100	80 - 120
Boron	0.100	0.102		mg/L		102	80 - 120
Barium	0.0500	0.0483		mg/L		97	80 - 120
Calcium	5.00	5.10		mg/L		102	80 - 120
Cadmium	0.0500	0.0475		mg/L		95	80 - 120
Cobalt	0.0500	0.0471		mg/L		94	80 - 120
Lithium	0.0500	0.0500		mg/L		100	80 - 120

Lab Sample ID: 180-88108-1 MS
Matrix: Water
Analysis Batch: 435553

Client Sample ID: MGWA-10
Prep Type: Total Recoverable
Prep Batch: 435281

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00046		0.0500	0.0508		mg/L		102	75 - 125
Boron	<0.021		0.100	0.0940		mg/L		94	75 - 125
Barium	0.023		0.0500	0.0681		mg/L		90	75 - 125
Calcium	4.6		5.00	9.13		mg/L		91	75 - 125

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

Lab Sample ID: 180-88108-1 MS
Matrix: Water
Analysis Batch: 435553

Client Sample ID: MGWA-10
Prep Type: Total Recoverable
Prep Batch: 435281

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cadmium	<0.00034		0.0500	0.0486		mg/L		97	75 - 125
Cobalt	<0.00040		0.0500	0.0481		mg/L		96	75 - 125
Lithium	0.0068		0.0500	0.0575		mg/L		101	75 - 125

Lab Sample ID: 180-88108-1 MSD
Matrix: Water
Analysis Batch: 435553

Client Sample ID: MGWA-10
Prep Type: Total Recoverable
Prep Batch: 435281

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00046		0.0500	0.0556		mg/L		111	75 - 125	9	20
Boron	<0.021		0.100	0.0885		mg/L		89	75 - 125	6	20
Barium	0.023		0.0500	0.0745		mg/L		103	75 - 125	9	20
Calcium	4.6		5.00	9.95		mg/L		107	75 - 125	9	20
Cadmium	<0.00034		0.0500	0.0520		mg/L		104	75 - 125	7	20
Cobalt	<0.00040		0.0500	0.0522		mg/L		104	75 - 125	8	20
Lithium	0.0068		0.0500	0.0574		mg/L		101	75 - 125	0	20

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

Lab Sample ID: MB 180-274129/2
Matrix: Water
Analysis Batch: 274129

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			03/27/19 14:16	1

Lab Sample ID: LCS 180-274129/1
Matrix: Water
Analysis Batch: 274129

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	304	248		mg/L		82	80 - 120

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-1

HPLC/IC

Analysis Batch: 274458

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88108-1	MGWA-10	Total/NA	Water	EPA 300.0 R2.1	
180-88108-2	MGWA-11	Total/NA	Water	EPA 300.0 R2.1	
180-88108-3	MGWA-24	Total/NA	Water	EPA 300.0 R2.1	
180-88108-4	MGWA-5	Total/NA	Water	EPA 300.0 R2.1	
180-88108-5	MGWA-6A	Total/NA	Water	EPA 300.0 R2.1	
MB 180-274458/41	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-274458/38	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 435281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88108-1	MGWA-10	Total Recoverable	Water	3005A	
180-88108-2	MGWA-11	Total Recoverable	Water	3005A	
180-88108-3	MGWA-24	Total Recoverable	Water	3005A	
180-88108-4	MGWA-5	Total Recoverable	Water	3005A	
180-88108-5	MGWA-6A	Total Recoverable	Water	3005A	
MB 400-435281/1-A ^5	Method Blank	Total Recoverable	Water	3005A	
LCS 400-435281/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
180-88108-1 MS	MGWA-10	Total Recoverable	Water	3005A	
180-88108-1 MSD	MGWA-10	Total Recoverable	Water	3005A	

Analysis Batch: 435553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88108-1	MGWA-10	Total Recoverable	Water	6020	435281
180-88108-2	MGWA-11	Total Recoverable	Water	6020	435281
180-88108-3	MGWA-24	Total Recoverable	Water	6020	435281
180-88108-4	MGWA-5	Total Recoverable	Water	6020	435281
180-88108-5	MGWA-6A	Total Recoverable	Water	6020	435281
MB 400-435281/1-A ^5	Method Blank	Total Recoverable	Water	6020	435281
LCS 400-435281/2-A	Lab Control Sample	Total Recoverable	Water	6020	435281
180-88108-1 MS	MGWA-10	Total Recoverable	Water	6020	435281
180-88108-1 MSD	MGWA-10	Total Recoverable	Water	6020	435281

General Chemistry

Analysis Batch: 274129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88108-1	MGWA-10	Total/NA	Water	SM 2540C	
180-88108-2	MGWA-11	Total/NA	Water	SM 2540C	
180-88108-3	MGWA-24	Total/NA	Water	SM 2540C	
180-88108-4	MGWA-5	Total/NA	Water	SM 2540C	
180-88108-5	MGWA-6A	Total/NA	Water	SM 2540C	
MB 180-274129/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-274129/1	Lab Control Sample	Total/NA	Water	SM 2540C	

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

Chain of Custody Record

681-Atlanta

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L. Coker, J. Adcock, J. Noles	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-50377-10410.1
Client Contact: ~~Peter Adams~~ Lauren Coker	Phone: 404-592-0094	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 3
Company: GEI Consultants, Inc.				Job #:
Address: 1375 Peachtree Street NE Suite A15	Due Date Requested:			
City: Atlanta	TAT Requested (days): Standard			
State, Zip: GA, 30309				
Phone: 205-992-5417(Tel)	PO #: SCS10347656			
Email: lcoker@geiconsultants.com ~~padams@geiconsultants.com~~	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	~~6020_7470A~~ 6020 - As, Ba, B, Co, Cd, Co, Li	~~9056_Cl, F, SO4~~, 300_ORGFM_28D, 2540C - TDS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N		
MGWA-10	3/25/19	1512	G	Water	N	N	+	+	+		Assessment
MGWA-11	3/25/19	1645	G	Water	N	N	↓	↓	↓		Event #1
MGWA-24	3/25/19	1550	G	Water	N	N	↓	↓	↓		
MGWA-5	3/25/19	1710	G	Water	N	N	↓	↓	↓		
MGWA-6A	3/25/19	1800	G	Water	N	N	↓	↓	↓		
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

180-88108 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: [signature]	Date/Time: 3/25/19 1900	Company: GEI	Received by: FedEx	Date/Time: 3/25 (FG)	Company: FedEx
Relinquished by:	Date/Time:	Company:	Received by: [signature]	Date/Time: 3-26-19 9:00	Company: TAP
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:

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

Ver: 01/16/2019

ORIGIN ID:SAVA (919) 724-7237
JAKE ADCOCK

SEE CHEERS 5 BEFORE BILL
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 25MAR19
56.30 LB
IN

0 JAKE ADCOCK

RIDC PK
301 ALPHA DR
PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

TRK# 0201 7862 4454 9520

TUE - 26 MAR 10:30A
PRIORITY OVERNIGHT

XH AGCA

15238
PA-US PIT

Uncorrected temp 1.7 °C
Thermometer ID 10
CF 0 Initials TB
PT-WI-SR-001 effective 11/8/18

180-88108 Waybill

ORIGIN ID:SAVA (919) 724-7237
JAKE ADCOCK

SEE CHEERS 5 BEFORE BILL
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 25MAR19
56.30 LB
4919/SSFE2002
IN

TO **JAKE ADCOCK**

RIDC PK
301 ALPHA DR
PITTSBURGH PA 15238

(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx
Express

E

03.26
9520
A
10:30
1
97 RT
FZ

TRK# 0201 **7862 4454 9520**

TUE - 26 MAR 10:30A
PRIORITY OVERNIGHT

XH AGCA

15238
PA-US **PIT**

Uncorrected temp 1.7 °C
Thermometer ID 10
CF 0 Initials TJ
PT-WI-SR-001 effective 11/8/18

180-88108 Waybill

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-358341.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-88108-1
Address: 3355 McLemore Drive,	Due Date Requested: 4/5/2019			
City: Pensacola	TAT Requested (days):			
State, Zip: FL, 32514				
Phone: 850-474-1001(Tel) 850-478-2671(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020/3005A B Ca As Ba Cd Co Li	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MGWA-10 (180-88108-1)	3/25/19	15:12 Eastern		Water			X	1	
MGWA-11 (180-88108-2)	3/25/19	16:45 Eastern		Water			X	1	
MGWA-24 (180-88108-3)	3/25/19	15:50 Eastern		Water			X	1	
MGWA-5 (180-88108-4)	3/25/19	17:10 Eastern		Water			X	1	
MGWA-6A (180-88108-5)	3/25/19	18:00 Eastern		Water			X	1	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	3/27/19 1700	[illegible]			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 3.28.19 9:07	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: C, 1° & IR7

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88108-1

Login Number: 88108
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88108-1

Login Number: 88108
List Number: 3
Creator: Shannon, Jonathon W

List Source: Eurofins TestAmerica, Pensacola
List Creation: 03/28/19 03:00 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	5.1°C IR7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 180-88108-2
Laboratory Sample Delivery Group: Ash
Client Project/Site: CCR - Plant McIntosh Ash Pond 1

For:
Southern Company
PO BOX 2641 GSC8
Birmingham, Alabama 35291

Attn: Ms. Lauren Petty

Veronica Bortot

Authorized for release by:
5/1/2019 4:52:47 PM

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

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

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

PA Lab ID: 02-00416

Table of Contents

Case Narrative

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-2
SDG: Ash

Job ID: 180-88108-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-88108-2

Comments
No additional comments.

Receipt
The samples were received on 3/26/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.7º C.

RAD
Method(s) 903.0, 9315: Ra-226 Prep Batch 160-422783

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

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
MGWA-10 (180-88108-1), MGWA-11 (180-88108-2), MGWA-24 (180-88108-3), (LCS 160-422783/1-A), (LCSD 160-422783/2-A) and (MB 160-422783/23-A)

Method(s) 903.0, 9315: Ra-226 Prep Batch 160-422964

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

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
MGWA-5 (180-88108-4), MGWA-6A (180-88108-5), (LCS 160-422964/1-A), (MB 160-422964/18-A), (400-167635-A-2-C) and (400-167635-A-2-B DU)

Method(s) 904.0, 9320: Ra-228 Prep Batch 160-422966

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

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
MGWA-5 (180-88108-4), MGWA-6A (180-88108-5), (LCS 160-422966/1-A), (MB 160-422966/18-A), (400-167635-A-2-D) and (400-167635-A-2-E DU)

Method(s) 904.0, 9320: Radium-228 Prep Batch 160-422784

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

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
MGWA-10 (180-88108-1), MGWA-11 (180-88108-2), MGWA-24 (180-88108-3), (LCS 160-422784/1-A), (LCSD 160-422784/2-A) and (MB 160-422784/23-A)

Method(s) PrecSep_0: Radium-228 Prep Batch 160-422784:
The following sample was reduced due to sedimentation:

MGWA-24 (180-88108-3)

Job ID: 180-88108-2 (Continued)

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

Method(s) PrecSep-21: Radium-226 Prep Batch 160-422783:

The following sample was reduced due to sedimentation:

MGWA-24 (180-88108-3)

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 McIntosh Ash Pond 1

Job ID: 180-88108-2
SDG: Ash

Qualifiers

Rad

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

Glossary

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-2
SDG: Ash

Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-20
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-2
SDG: Ash

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD / DOE		L2305	04-06-22
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-19 *
Hawaii	State Program	9	NA	06-30-19
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19 *
New York	NELAP	2	11616	03-31-20
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	02-28-20
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-13	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

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

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-2
SDG: Ash

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-88108-1	MGWA-10	Water	03/25/19 15:12	03/26/19 09:00
180-88108-2	MGWA-11	Water	03/25/19 16:45	03/26/19 09:00
180-88108-3	MGWA-24	Water	03/25/19 15:50	03/26/19 09:00
180-88108-4	MGWA-5	Water	03/25/19 17:10	03/26/19 09:00
180-88108-5	MGWA-6A	Water	03/25/19 18:00	03/26/19 09:00

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-2
SDG: Ash

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

Protocol References:

None = None

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

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

Laboratory References:

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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-2
SDG: Ash

Client Sample ID: MGWA-10
Date Collected: 03/25/19 15:12
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.02 mL	1.0 g	422783	04/04/19 18:54	CLP	TAL SL
Total/NA	Analysis	9315		1			426246	04/30/19 07:25	CDR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Prep	PrecSep_0			1000.02 mL	1.0 g	422784	04/04/19 18:58	CLP	TAL SL
Total/NA	Analysis	9320		1			424435	04/19/19 08:49	BLH	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			426330	05/01/19 09:26	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-11
Date Collected: 03/25/19 16:45
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.03 mL	1.0 g	422783	04/04/19 18:54	CLP	TAL SL
Total/NA	Analysis	9315		1			426246	04/30/19 07:25	CDR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Prep	PrecSep_0			1000.03 mL	1.0 g	422784	04/04/19 18:58	CLP	TAL SL
Total/NA	Analysis	9320		1			424435	04/19/19 08:49	BLH	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			426330	05/01/19 09:26	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-24
Date Collected: 03/25/19 15:50
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			750.01 mL	1.0 g	422783	04/04/19 18:54	CLP	TAL SL
Total/NA	Analysis	9315		1			426246	04/30/19 07:25	CDR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Prep	PrecSep_0			750.01 mL	1.0 g	422784	04/04/19 18:58	CLP	TAL SL
Total/NA	Analysis	9320		1	1.0 mL	1.0 mL	424435	04/19/19 08:49	BLH	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			426330	05/01/19 09:26	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-5
Date Collected: 03/25/19 17:10
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.03 mL	1.0 g	422964	04/07/19 14:31	MMO	TAL SL
Total/NA	Analysis	9315		1			426116	04/30/19 07:36	CDR	TAL SL
	Instrument ID: GFPCPROTEAN									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-2
SDG: Ash

Client Sample ID: MGWA-5
Date Collected: 03/25/19 17:10
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			1000.03 mL	1.0 g	422966	04/07/19 14:31	MMO	TAL SL
Total/NA	Analysis	9320		1			424351	04/18/19 08:40	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			426330	05/01/19 09:26	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-6A
Date Collected: 03/25/19 18:00
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.97 mL	1.0 g	422964	04/07/19 14:31	MMO	TAL SL
Total/NA	Analysis	9315		1			426116	04/30/19 07:36	CDR	TAL SL
	Instrument ID: GFPCPROTEAN									
Total/NA	Prep	PrecSep_0			999.97 mL	1.0 g	422966	04/07/19 14:31	MMO	TAL SL
Total/NA	Analysis	9320		1			424351	04/18/19 08:40	KLS	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			426330	05/01/19 09:26	SMP	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

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

Analyst References:

Lab: TAL SL

Batch Type: Prep

CLP = Cassandra Park
MMO = Molly Olson

Batch Type: Analysis

BLH = Brandi Hayes
CDR = Conrad Reuscher
KLS = Kody Saulters
SMP = Siobhan Perry

Client Sample ID: MGWA-10

Date Collected: 03/25/19 15:12
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-1

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	0.285		0.0990	0.102	1.00	0.0984	pCi/L	04/04/19 18:54	04/30/19 07:25	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.8*		*40 - 110*	*04/04/19 18:54*	*04/30/19 07:25*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.241	U	0.210	0.211	1.00	0.335	pCi/L	04/04/19 18:58	04/19/19 08:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.8*		*40 - 110*	*04/04/19 18:58*	*04/19/19 08:49*	*1*
Y Carrier	*87.5*		*40 - 110*	*04/04/19 18:58*	*04/19/19 08:49*	*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	0.526		0.232	0.234	5.00	0.335	pCi/L		05/01/19 09:26	1

Client Sample ID: MGWA-11

Date Collected: 03/25/19 16:45
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-2

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	0.147		0.0729	0.0741	1.00	0.0799	pCi/L	04/04/19 18:54	04/30/19 07:25	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*04/04/19 18:54*	*04/30/19 07:25*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.569		0.239	0.245	1.00	0.333	pCi/L	04/04/19 18:58	04/19/19 08:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*94.1*		*40 - 110*	*04/04/19 18:58*	*04/19/19 08:49*	*1*
Y Carrier	*89.3*		*40 - 110*	*04/04/19 18:58*	*04/19/19 08:49*	*1*

Client Sample ID: MGWA-11
Date Collected: 03/25/19 16:45
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-2
Matrix: Water

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.717		0.250	0.256	5.00	0.333	pCi/L		05/01/19 09:26	1

Client Sample ID: MGWA-24
Date Collected: 03/25/19 15:50
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-3
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	0.246		0.113	0.115	1.00	0.125	pCi/L	04/04/19 18:54	04/30/19 07:25	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.9*		*40 - 110*	*04/04/19 18:54*	*04/30/19 07:25*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.385	U	0.308	0.310	1.00	0.488	pCi/L	04/04/19 18:58	04/19/19 08:49	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.9*		*40 - 110*	*04/04/19 18:58*	*04/19/19 08:49*	*1*
Y Carrier	*95.3*		*40 - 110*	*04/04/19 18:58*	*04/19/19 08:49*	*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	0.631		0.328	0.331	5.00	0.488	pCi/L		05/01/19 09:26	1

Client Sample ID: MGWA-5
Date Collected: 03/25/19 17:10
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-4
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	0.158		0.0899	0.0910	1.00	0.116	pCi/L	04/07/19 14:31	04/30/19 07:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*40 - 110*	*04/07/19 14:31*	*04/30/19 07:36*	*1*

Client Sample ID: MGWA-5

Date Collected: 03/25/19 17:10
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-4

Matrix: Water

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.471		0.252	0.256	1.00	0.375	pCi/L	04/07/19 14:31	04/18/19 08:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*88.5*		*40 - 110*	*04/07/19 14:31*	*04/18/19 08:40*	*1*
Y Carrier	*88.6*		*40 - 110*	*04/07/19 14:31*	*04/18/19 08:40*	*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	0.629		0.268	0.272	5.00	0.375	pCi/L		05/01/19 09:26	1

Client Sample ID: MGWA-6A

Date Collected: 03/25/19 18:00
Date Received: 03/26/19 09:00

Lab Sample ID: 180-88108-5

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	0.244		0.105	0.107	1.00	0.107	pCi/L	04/07/19 14:31	04/30/19 07:36	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.9*		*40 - 110*	*04/07/19 14:31*	*04/30/19 07:36*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.401	U	0.291	0.293	1.00	0.456	pCi/L	04/07/19 14:31	04/18/19 08:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*74.9*		*40 - 110*	*04/07/19 14:31*	*04/18/19 08:40*	*1*
Y Carrier	*88.6*		*40 - 110*	*04/07/19 14:31*	*04/18/19 08:40*	*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	0.646		0.309	0.312	5.00	0.456	pCi/L		05/01/19 09:26	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-422783/23-A
Matrix: Water
Analysis Batch: 426248

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422783

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0006481	U	0.0304	0.0304	1.00	0.0689	pCi/L	04/04/19 18:54	04/30/19 07:30	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*96.8*		*40 - 110*	*04/04/19 18:54*	*04/30/19 07:30*	*1*

Lab Sample ID: LCS 160-422783/1-A
Matrix: Water
Analysis Batch: 426246

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422783

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	9.307		0.976	1.00	0.0829	pCi/L	82	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*103*		*40 - 110*

Lab Sample ID: LCSD 160-422783/2-A
Matrix: Water
Analysis Batch: 426246

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 422783

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.4	9.460		0.989	1.00	0.0798	pCi/L	83	75 - 125	0.08	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*98.2*		*40 - 110*

Lab Sample ID: MB 160-422964/18-A
Matrix: Water
Analysis Batch: 426116

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422964

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.007536	U	0.0355	0.0355	1.00	0.0835	pCi/L	04/07/19 14:31	04/30/19 14:55	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*04/07/19 14:31*	*04/30/19 14:55*	*1*

Lab Sample ID: LCS 160-422964/1-A
Matrix: Water
Analysis Batch: 426116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422964

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	9.722		1.03	1.00	0.0960	pCi/L	86	75 - 125		

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

Lab Sample ID: LCS 160-422964/1-A
Matrix: Water
Analysis Batch: 426116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422964

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	98.5		40 - 110

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-422784/23-A
Matrix: Water
Analysis Batch: 424434

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422784

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.09924	U	0.205	0.205	1.00	0.351	pCi/L	04/04/19 18:58	04/19/19 08:54	1

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	96.8		40 - 110	04/04/19 18:58	04/19/19 08:54	1
Y Carrier	87.9		40 - 110	04/04/19 18:58	04/19/19 08:54	1

Lab Sample ID: LCS 160-422784/1-A
Matrix: Water
Analysis Batch: 424435

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422784

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.29	8.785		0.996	1.00	0.320	pCi/L	95	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	103		40 - 110
Y Carrier	96.1		40 - 110

Lab Sample ID: LCSD 160-422784/2-A
Matrix: Water
Analysis Batch: 424435

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 422784

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.29	8.834		1.01	1.00	0.330	pCi/L	95	75 - 125	0.02	1

Carrier	LCSD %Yield	LCSD Qualifier	Limits
Ba Carrier	98.2		40 - 110
Y Carrier	95.3		40 - 110

Lab Sample ID: MB 160-422966/18-A
Matrix: Water
Analysis Batch: 424353

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422966

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.1009	U	0.165	0.165	1.00	0.279	pCi/L	04/07/19 14:31	04/18/19 08:43	1

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

Lab Sample ID: MB 160-422966/18-A
Matrix: Water
Analysis Batch: 424353

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 422966

Carrier	MB %Yield	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	103		40 - 110	04/07/19 14:31	04/18/19 08:43	1
Y Carrier	91.2		40 - 110	04/07/19 14:31	04/18/19 08:43	1

Lab Sample ID: LCS 160-422966/1-A
Matrix: Water
Analysis Batch: 424351

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 422966

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.29	10.20		1.14	1.00	0.352	pCi/L	110	75 - 125		

Carrier	LCS %Yield	LCS Qualifier	Limits
Ba Carrier	98.5		40 - 110
Y Carrier	86.7		40 - 110

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88108-2
SDG: Ash

Rad

Prep Batch: 422783

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88108-1	MGWA-10	Total/NA	Water	PrecSep-21	
180-88108-2	MGWA-11	Total/NA	Water	PrecSep-21	
180-88108-3	MGWA-24	Total/NA	Water	PrecSep-21	
MB 160-422783/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-422783/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-422783/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 422784

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88108-1	MGWA-10	Total/NA	Water	PrecSep_0	
180-88108-2	MGWA-11	Total/NA	Water	PrecSep_0	
180-88108-3	MGWA-24	Total/NA	Water	PrecSep_0	
MB 160-422784/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-422784/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-422784/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

Prep Batch: 422964

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88108-4	MGWA-5	Total/NA	Water	PrecSep-21	
180-88108-5	MGWA-6A	Total/NA	Water	PrecSep-21	
MB 160-422964/18-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-422964/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	

Prep Batch: 422966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88108-4	MGWA-5	Total/NA	Water	PrecSep_0	
180-88108-5	MGWA-6A	Total/NA	Water	PrecSep_0	
MB 160-422966/18-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-422966/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	

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

Chain of Custody Record

681-Atlanta

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L.Coker, J.Adcock, J.Noles	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-50377-10410.1
Client Contact: ~~Peter Adams~~ Lauren Coker	Phone: 404-592-0094	E-Mail: veronica.bortot@testamericainc.com		Page: Page 1 of 1
Company: GEI Consultants, Inc.		**Analysis Requested**		Job #:
Address: 1375 Peachtree Street NE Suite A15	Due Date Requested:			**Preservation Codes:**
City: Atlanta	TAT Requested (days): Standard			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA; M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: GA, 30309				
Phone: 205-992-5417(Tel)	PO #: SCS10347656			
Email: lcoker@geiconsultants.com ~~padams@geiconsultants.com~~	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	~~6020_24702~~ 6020 - As, Ba, B, Co, Cd, Co, Li	~~9040B_Calcd~~, 300_ORGFM_28D, 2540C - TDS	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	D	N		
MGWA-10	3/25/19	1512	G	Water	N	N	+	+	+		Assessment
MGWA-11	3/25/19	1645	G	Water	N	N	↓	↓	↓		Event #1
MGWA-24	3/25/19	1550	G	Water	N	N	↓	↓	↓		
MGWA-5	3/25/19	1710	G	Water	N	N	↓	↓	↓		
MGWA-6A	3/25/19	1800	G	Water	N	N	↓	↓	↓		
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

180-88108 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:		Method of Shipment:	
Relinquished by: [signature]	Date/Time: 3/25/19 1900	Company: GEI	Received by: FedEx	Date/Time: 3/25 (FCG)	Company: FedEx
Relinquished by:	Date/Time:	Company:	Received by: [signature]	Date/Time: 3-26-19 9:00	Company: TAP
Relinquished by:	Date/Time:	Company:	Received by:	Date/Time:	Company:
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

Ver: 01/16/2019

ORIGIN ID:SAVA (919) 724-7237
JAKE ADCOCK

SEE CHEERS 5 BEFORE BILL
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 25MAR19
56.30 LB
4919/SSFE2002
IN

TO JAKE ADCOCK

RIDC PK
301 ALPHA DR
PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

03.26
9520
A
10:30
1
FZ
RT 97

FedEx
Express

E

TUE - 26 MAR 10:30A
PRIORITY OVERNIGHT

TRK# 0201 7862 4454 9520

XH AGCA

15238
PA-US PIT

Uncorrected temp 1.7 °C
Thermometer ID 10
CF 0 Initials JB
PT-WI-SR-001 effective 11/8/18

180-88108 Waybill

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Thermometer ID 10
CF 0 Initials JB
PT-WI-SR-001 effective 11/8/18

180-88108 Waybill

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-358344.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-88108-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/5/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Standard Target List	9315_Ra226/PrecSep_21 (MOD) Copy Analytes	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
Preservation Code:											
MGWA-10 (180-88108-1)	3/25/19	15:12 Eastern		Water			X	X	X	1	
MGWA-11 (180-88108-2)	3/25/19	16:45 Eastern		Water			X	X	X	1	
MGWA-24 (180-88108-3)	3/25/19	15:50 Eastern		Water			X	X	X	1	
MGWA-5 (180-88108-4)	3/25/19	17:10 Eastern		Water			X	X	X	1	
MGWA-6A (180-88108-5)	3/25/19	18:00 Eastern		Water			X	X	X	1	

Preservation Codes:

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

Other:

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	3/27/19 1700	TA Pitt			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

5/1/2019

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-358344.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-88108-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/5/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Preservation Codes:

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

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Standard Target List	9315_Ra226/PrecSep_21 (MOD) Copy Analytes	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
Preservation Code:											
MGWA-10 (180-88108-1)	3/25/19	15:12 Eastern		Water			X	X	X	1	
MGWA-11 (180-88108-2)	3/25/19	16:45 Eastern		Water			X	X	X	1	
MGWA-24 (180-88108-3)	3/25/19	15:50 Eastern		Water			X	X	X	1	
MGWA-5 (180-88108-4)	3/25/19	17:10 Eastern		Water			X	X	X	1	
MGWA-6A (180-88108-5)	3/25/19	18:00 Eastern		Water			X	X	X	1	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	3/27/19 1700	TA PITT	Michael Heim	3-28-19 09:20	TA STL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88108-2
SDG Number: Ash

Login Number: 88108
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88108-2
SDG Number: Ash

Login Number: 88108
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/28/19 02:03 PM

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

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Pittsburgh, PA and Pensacola, FL
Report No.: 180-88108-1
Reviewer: Lorie MacKinnon/GEI Consultants
Date: June 3, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWA-10	180-88108-01	Metals, Anions, TDS
MGWA-11	180-88108-02	Metals, Anions, TDS
MGWA-24	180-88108-03	Metals, Anions, TDS
MGWA-5	180-88108-04	Metals, Anions, TDS
MGWA-6A	180-88108-05	Metals, Anions, TDS

QC Samples:
Field/Equipment blanks: FB-AP-01, FB-AP-02, FERB-AP-01, FERB-AP-02 (reported in 180-88159)

The above-listed aqueous samples were collected on March 25, 2019 and were analyzed for total recoverable metals by SW-846 method 6020, total dissolved solids (TDS) by Standard Methods SM 2540C, and anions (chloride, fluoride, and sulfate) by EPA method 300. The data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017 (USEPA-540-R-2017-001), as well as by the methods referenced and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Method and Field Blanks
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Quantitation Limits

All results are usable as reported or usable with minor qualification due to sample matrix or laboratory quality control outliers.

The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, MS/MSD, laboratory duplicate, and LCS results.

Holding Times and Sample Preservation

All criteria were met.

Blanks

Laboratory Blank Results

Contamination was not detected in the associated method blanks. The laboratory noted that calcium was detected in the instrument blank associated with the project samples. As the affected sample levels were greater than 10 times the instrument blank contamination level detected, the results for calcium are acceptable without qualification.

Field Blank Results

Low level contamination was detected in the field blanks. The following table summarizes the highest level of contamination and validation actions taken.

Analyte	Blank ID/ Associated Samples	Maximum Contaminant Level (mg/L)	2x Action Level (mg/L)	10x Action Level (mg/L)	Validation Actions
Sulfate	FB-AP-01, FB-AP-02, and FERB-AP-02: All Ash Pond samples	0.70	1.4	7.0	Qualify the results for sulfate as nondetect (U) at the reported values in samples MGWA-10 and MGWA-11. Estimate (J) the positive results for sulfate in samples MGWA-5 and MGWA-6A; High bias.

Blank Actions:
If the sample result is < reporting limit (RL); report the result as nondetect (U) at the RL.
If the sample result is ≥ RL and <2x contamination detected; report the result as nondetect (U) at the reported value.
If the sample result is ≥ RL and <10x Action Level; report the sample result as estimated (J); biased high.
If the sample result is nondetect or > 10x Action Level; validation action is not required.

MS/MSD Results

MS/MSD analyses were performed on sample MGWA-10 for metals. All recovery and precision criteria were met in these analyses.

Laboratory Duplicate Results

MSD analyses were performed for metals in lieu of laboratory duplicate analyses.

LCS Results

All criteria were met.

Quantitation Limits

Results were reported which were below the reporting limit (RL) and above the method detection limit (MDL). These results were qualified as estimated (J) by the laboratory.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Earth City, MO
Report Nos.: 180-88108-2
Reviewer: Lorie MacKinnon/GEI Consultants
Date: May 5, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWA-10	180-88108-01	Radium-226, Radium-228, Radium226-228
MGWA-11	180-88108-02	Radium-226, Radium-228, Radium226-228
MGWA-24	180-88108-03	Radium-226, Radium-228, Radium226-228
MGWA-5	180-88108-04	Radium-226, Radium-228, Radium226-228
MGWA-6A	180-88108-05	Radium-226, Radium-228, Radium226-228

The above-listed aqueous samples were collected on March 25, 2019 and were analyzed for Radium-226 by SW-846 method 9315, Radium-228 by SW-46 method 9320, and combined Radium-226 and Radium-228. The data were reviewed based on the US Department of Energy Evaluation of Radiochemical Data Usability, 1997, as well as by the pertinent methods referenced by the data package and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Method Blanks
- Carrier Yields
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS)/LCS Duplicate (LCSD) Results
- Quantitation Limits

All results are usable as reported.

The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, carrier yields, and LCS\LCSD results.

Holding Times and Sample Preservation

All criteria were met.

Method Blanks

Contaminants were not detected in the associated laboratory method blanks.

Carrier Yields

All criteria were met.

Laboratory Duplicate Results

Laboratory duplicate analyses were not associated with this sample set.

LCS\LCSD Results

All criteria were met.

Quantitation Limits

Dilutions were not required.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 180-88159-1
Laboratory Sample Delivery Group: Ash
Client Project/Site: CCR - Plant McIntosh Ash Pond 1

For:
Southern Company
PO BOX 2641 GSC8
Birmingham, Alabama 35291

Attn: Ms. Lauren Petty

Veronica Bortot

Authorized for release by:
4/11/2019 6:11:19 PM

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

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

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

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-88159-1

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-88159-1

Comments
No additional comments.

Receipt
The samples were received on 3/27/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.0º C, 2.2º C

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed There is no relinquished by time listed on the COC.

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

Metals
Method(s) 6020, SM 2340B: The continuing calibration blank (CCB) for analytical batch 400-435553 contained Calcium above the reporting limit (RL). All reported samples associated with this CCB were either ND for this analyte or contained this analyte at a concentration greater than 10X the value found in the CCB; therefore, re-analysis of samples was not performed.

Method(s) 6020, The following samples were diluted to bring the concentration of target analytes within the calibration range: MGWC-2 (180-88159-4) and MGWC-8 (180-88159-6). Elevated reporting limits (RLs) are provided.

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

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 McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

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

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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 McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19 *
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	01-28-19 *
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

Laboratory: Eurofins TestAmerica, Pensacola

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alabama	State Program	4	40150	06-30-19
ANAB	ISO/IEC 17025		L2471	02-22-20
Arizona	State Program	9	AZ0710	01-12-20
Arkansas DEQ	State Program	6	88-0689	09-01-19
California	State Program	9	2510	06-30-19
Florida	NELAP	4	E81010	06-30-19
Georgia	State Program	4	E81010 (FL)	06-30-19
Illinois	NELAP	5	200041	10-09-19
Iowa	State Program	7	367	08-01-20
Kansas	NELAP	7	E-10253	10-31-19
Kentucky (UST)	State Program	4	53	06-30-19
Kentucky (WW)	State Program	4	98030	12-31-19
Louisiana	NELAP	6	30976	06-30-19
Louisiana (DW)	NELAP	6	LA017	12-31-19
Maryland	State Program	3	233	09-30-19
Massachusetts	State Program	1	M-FL094	06-30-19
Michigan	State Program	5	9912	06-30-19
New Jersey	NELAP	2	FL006	06-30-19
North Carolina (WW/SW)	State Program	4	314	12-31-19
Oklahoma	State Program	6	9810	08-31-19
Pennsylvania	NELAP	3	68-00467	01-31-20
Rhode Island	State Program	1	LAO00307	12-30-19
South Carolina	State Program	4	96026	06-30-19
Tennessee	State Program	4	TN02907	06-30-19
Texas	NELAP	6	T104704286-18-15	09-30-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-18-00148	05-17-21
Virginia	NELAP	3	460166	06-14-19
Washington	State Program	10	C915	05-15-19
West Virginia DEP	State Program	3	136	07-31-19

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-88159-1	MGWC-3	Water	03/26/19 10:00	03/27/19 09:00
180-88159-2	MGWC-12	Water	03/26/19 10:20	03/27/19 09:00
180-88159-3	MGWA-6	Water	03/26/19 10:25	03/27/19 09:00
180-88159-4	MGWC-2	Water	03/26/19 11:23	03/27/19 09:00
180-88159-5	MGWC-1	Water	03/26/19 12:00	03/27/19 09:00
180-88159-6	MGWC-8	Water	03/26/19 12:50	03/27/19 09:00
180-88159-7	MGWC-7	Water	03/26/19 12:55	03/27/19 09:00
180-88159-8	AP-DUP-01	Water	03/26/19 00:00	03/27/19 09:00
180-88159-9	AP-DUP-02	Water	03/26/19 00:00	03/27/19 09:00
180-88159-10	FB-AP-01	Water	03/26/19 13:15	03/27/19 09:00
180-88159-11	FB-AP-02	Water	03/26/19 13:20	03/27/19 09:00
180-88159-12	FERB-AP-01	Water	03/26/19 13:30	03/27/19 09:00
180-88159-13	FERB-AP-02	Water	03/26/19 13:40	03/27/19 09:00

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

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

Protocol References:

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

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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

Client Sample ID: MGWC-3
Date Collected: 03/26/19 10:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274661	04/03/19 07:34	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/01/19 23:47	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274448	03/30/19 13:18	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-12
Date Collected: 03/26/19 10:20
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274532	04/02/19 13:01	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/01/19 23:51	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274448	03/30/19 13:18	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-6
Date Collected: 03/26/19 10:25
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274532	04/02/19 13:16	MJH	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/01/19 23:54	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274448	03/30/19 13:18	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-2
Date Collected: 03/26/19 11:23
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274532	04/02/19 13:32	MJH	TAL PIT
	Instrument ID: CHICS2100B									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

Client Sample ID: MGWC-2
Date Collected: 03/26/19 11:23
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-4
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	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/01/19 23:58	DRE	TAL PEN
	Instrument ID:	ICPMS7700								
Total Recoverable	Prep	3005A	DL		50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020	DL	25			435553	04/02/19 11:17	DRE	TAL PEN
	Instrument ID:	ICPMS7700								
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274448	03/30/19 13:18	AVS	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: MGWC-1
Date Collected: 03/26/19 12:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274532	04/02/19 14:04	MJH	TAL PIT
	Instrument ID:	CHICS2100B								
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/02/19 00:02	DRE	TAL PEN
	Instrument ID:	ICPMS7700								
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274448	03/30/19 13:18	AVS	TAL PIT
	Instrument ID:	NOEQUIP								

Client Sample ID: MGWC-8
Date Collected: 03/26/19 12:50
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274661	04/03/19 07:49	MJH	TAL PIT
	Instrument ID:	CHIC2100A								
Total/NA	Analysis	EPA 300.0 R2.1		5			274661	04/03/19 10:39	MJH	TAL PIT
	Instrument ID:	CHIC2100A								
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/02/19 00:06	DRE	TAL PEN
	Instrument ID:	ICPMS7700								
Total Recoverable	Prep	3005A	DL		50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020	DL	50			435553	04/02/19 11:21	DRE	TAL PEN
	Instrument ID:	ICPMS7700								
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274448	03/30/19 13:18	AVS	TAL PIT
	Instrument ID:	NOEQUIP								

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

Client Sample ID: MGWC-7
Date Collected: 03/26/19 12:55
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274661	04/03/19 11:10	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/02/19 00:09	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274448	03/30/19 13:18	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: AP-DUP-01
Date Collected: 03/26/19 00:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			275006	04/06/19 19:25	JBF	TAL PIT
	Instrument ID: CHICS2100B									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/02/19 00:13	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274448	03/30/19 13:18	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: AP-DUP-02
Date Collected: 03/26/19 00:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274661	04/03/19 07:17	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/02/19 00:17	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274449	03/30/19 13:52	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: FB-AP-01
Date Collected: 03/26/19 13:15
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274661	04/03/19 09:37	MJH	TAL PIT
	Instrument ID: CHIC2100A									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

Client Sample ID: FB-AP-01
Date Collected: 03/26/19 13:15
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-10
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	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/02/19 00:40	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274449	03/30/19 13:52	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: FB-AP-02
Date Collected: 03/26/19 13:20
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274661	04/03/19 09:52	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/02/19 00:44	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274449	03/30/19 13:52	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: FERB-AP-01
Date Collected: 03/26/19 13:30
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274661	04/03/19 10:08	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/02/19 00:48	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274449	03/30/19 13:52	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Client Sample ID: FERB-AP-02
Date Collected: 03/26/19 13:40
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA 300.0 R2.1		1			274661	04/03/19 10:24	MJH	TAL PIT
	Instrument ID: CHIC2100A									
Total Recoverable	Prep	3005A			50 mL	50 mL	435281	03/30/19 11:31	AC	TAL PEN
Total Recoverable	Analysis	6020		5			435553	04/02/19 00:51	DRE	TAL PEN
	Instrument ID: ICPMS7700									
Total/NA	Analysis	SM 2540C		1	100 mL	100 mL	274449	03/30/19 13:52	AVS	TAL PIT
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

Laboratory References:

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

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

Analyst References:

Lab: TAL PEN
- Batch Type: Prep
  - AC = Alexis Castaing
- Batch Type: Analysis
  - DRE = Daniel Etscheid

Lab: TAL PIT
- Batch Type: Analysis
  - AVS = Abbey Smith
  - JBF = Joshua Fritsch
  - MJH = Matthew Hartman

Client Sample Results

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-1
SDG: Ash

Client Sample ID: MGWC-3

Date Collected: 03/26/19 10:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14		1.0	0.71	mg/L			04/03/19 07:34	1
Fluoride	0.072	J	0.20	0.026	mg/L			04/03/19 07:34	1
Sulfate	110		1.0	0.38	mg/L			04/03/19 07:34	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0012	J	0.0013	0.00046	mg/L		03/30/19 11:31	04/01/19 23:47	5
Boron	1.5		0.050	0.021	mg/L		03/30/19 11:31	04/01/19 23:47	5
Barium	0.13		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 23:47	5
Calcium	99	^	0.25	0.13	mg/L		03/30/19 11:31	04/01/19 23:47	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 23:47	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 23:47	5
Lithium	0.012		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 23:47	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	370		10	10	mg/L			03/30/19 13:18	1

Client Sample ID: MGWC-12

Date Collected: 03/26/19 10:20
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.8		1.0	0.71	mg/L			04/02/19 13:01	1
Fluoride	0.22		0.10	0.026	mg/L			04/02/19 13:01	1
Sulfate	2.9		1.0	0.38	mg/L			04/02/19 13:01	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.00079	J	0.0013	0.00046	mg/L		03/30/19 11:31	04/01/19 23:51	5
Boron	0.032	J	0.050	0.021	mg/L		03/30/19 11:31	04/01/19 23:51	5
Barium	0.060		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 23:51	5
Calcium	33	^	0.25	0.13	mg/L		03/30/19 11:31	04/01/19 23:51	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 23:51	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 23:51	5
Lithium	0.020		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 23:51	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	180		10	10	mg/L			03/30/19 13:18	1

Client Sample ID: MGWA-6

Date Collected: 03/26/19 10:25
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	5.8		1.0	0.71	mg/L			04/02/19 13:16	1
Fluoride	0.065	J	0.10	0.026	mg/L			04/02/19 13:16	1
Sulfate	6.3		1.0	0.38	mg/L			04/02/19 13:16	1

Client Sample ID: MGWA-6

Lab Sample ID: 180-88159-3
Date Collected: 03/26/19 10:25
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0097**		0.0013	0.00046	mg/L		03/30/19 11:31	04/01/19 23:54	5
Boron	**0.079**		0.050	0.021	mg/L		03/30/19 11:31	04/01/19 23:54	5
Barium	**0.033**		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 23:54	5
Calcium	**100**	^	0.25	0.13	mg/L		03/30/19 11:31	04/01/19 23:54	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 23:54	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 23:54	5
Lithium	<0.0011		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 23:54	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**290**		10	10	mg/L			03/30/19 13:18	1

Client Sample ID: MGWC-2

Lab Sample ID: 180-88159-4
Date Collected: 03/26/19 11:23
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**14**		1.0	0.71	mg/L			04/02/19 13:32	1
Fluoride	**0.076**	**J**	0.10	0.026	mg/L			04/02/19 13:32	1
Sulfate	**190**		1.0	0.38	mg/L			04/02/19 13:32	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		03/30/19 11:31	04/01/19 23:58	5
Barium	**0.048**		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 23:58	5
Cadmium	**0.0019**	**J**	0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 23:58	5
Cobalt	**0.0030**		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 23:58	5
Lithium	**0.0051**		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 23:58	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		03/30/19 11:31	04/02/19 11:17	25
Calcium	**110**		1.3	0.63	mg/L		03/30/19 11:31	04/02/19 11:17	25

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**530**		10	10	mg/L			03/30/19 13:18	1

Client Sample ID: MGWC-1

Lab Sample ID: 180-88159-5
Date Collected: 03/26/19 12:00
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**13**		1.0	0.71	mg/L			04/02/19 14:04	1
Fluoride	**0.16**		0.10	0.026	mg/L			04/02/19 14:04	1
Sulfate	**130**		1.0	0.38	mg/L			04/02/19 14:04	1

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		03/30/19 11:31	04/02/19 00:02	5

Client Sample ID: MGWC-1

Lab Sample ID: 180-88159-5
Date Collected: 03/26/19 12:00
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	1.3		0.050	0.021	mg/L		03/30/19 11:31	04/02/19 00:02	5
Barium	0.096		0.0025	0.00049	mg/L		03/30/19 11:31	04/02/19 00:02	5
Calcium	100	^	0.25	0.13	mg/L		03/30/19 11:31	04/02/19 00:02	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/02/19 00:02	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/02/19 00:02	5
Lithium	0.010		0.0050	0.0011	mg/L		03/30/19 11:31	04/02/19 00:02	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	370		10	10	mg/L			03/30/19 13:18	1

Client Sample ID: MGWC-8

Lab Sample ID: 180-88159-6
Date Collected: 03/26/19 12:50
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		1.0	0.71	mg/L			04/03/19 07:49	1
Fluoride	0.088	J	0.20	0.026	mg/L			04/03/19 07:49	1
Sulfate	420		5.0	1.9	mg/L			04/03/19 10:39	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		03/30/19 11:31	04/02/19 00:06	5
Barium	0.032		0.0025	0.00049	mg/L		03/30/19 11:31	04/02/19 00:06	5
Calcium	96	^	0.25	0.13	mg/L		03/30/19 11:31	04/02/19 00:06	5
Cadmium	0.00050	J	0.0025	0.00034	mg/L		03/30/19 11:31	04/02/19 00:06	5
Cobalt	0.020		0.0025	0.00040	mg/L		03/30/19 11:31	04/02/19 00:06	5
Lithium	0.043		0.0050	0.0011	mg/L		03/30/19 11:31	04/02/19 00:06	5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Boron	5.1		0.50	0.21	mg/L		03/30/19 11:31	04/02/19 11:21	50

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	630		10	10	mg/L			03/30/19 13:18	1

Client Sample ID: MGWC-7

Lab Sample ID: 180-88159-7
Date Collected: 03/26/19 12:55
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	11		1.0	0.71	mg/L			04/03/19 11:10	1
Fluoride	0.19	J	0.20	0.026	mg/L			04/03/19 11:10	1
Sulfate	180		1.0	0.38	mg/L			04/03/19 11:10	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		03/30/19 11:31	04/02/19 00:09	5
Boron	1.5		0.050	0.021	mg/L		03/30/19 11:31	04/02/19 00:09	5

Client Sample ID: MGWC-7

Lab Sample ID: 180-88159-7
Date Collected: 03/26/19 12:55
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.0086		0.0025	0.00049	mg/L		03/30/19 11:31	04/02/19 00:09	5
Calcium	52	^	0.25	0.13	mg/L		03/30/19 11:31	04/02/19 00:09	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/02/19 00:09	5
Cobalt	0.0090		0.0025	0.00040	mg/L		03/30/19 11:31	04/02/19 00:09	5
Lithium	0.12		0.0050	0.0011	mg/L		03/30/19 11:31	04/02/19 00:09	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	320		10	10	mg/L			03/30/19 13:18	1

Client Sample ID: AP-DUP-01

Lab Sample ID: 180-88159-8
Date Collected: 03/26/19 00:00
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6.5		1.0	0.71	mg/L			04/06/19 19:25	1
Fluoride	0.048	J	0.20	0.026	mg/L			04/06/19 19:25	1
Sulfate	7.9		1.0	0.38	mg/L			04/06/19 19:25	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.010		0.0013	0.00046	mg/L		03/30/19 11:31	04/02/19 00:13	5
Boron	0.15		0.050	0.021	mg/L		03/30/19 11:31	04/02/19 00:13	5
Barium	0.034		0.0025	0.00049	mg/L		03/30/19 11:31	04/02/19 00:13	5
Calcium	100	^	0.25	0.13	mg/L		03/30/19 11:31	04/02/19 00:13	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/02/19 00:13	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/02/19 00:13	5
Lithium	<0.0011		0.0050	0.0011	mg/L		03/30/19 11:31	04/02/19 00:13	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	290		10	10	mg/L			03/30/19 13:18	1

Client Sample ID: AP-DUP-02

Lab Sample ID: 180-88159-9
Date Collected: 03/26/19 00:00
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	13		1.0	0.71	mg/L			04/03/19 07:17	1
Fluoride	0.14	J	0.20	0.026	mg/L			04/03/19 07:17	1
Sulfate	130		1.0	0.38	mg/L			04/03/19 07:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.0021		0.0013	0.00046	mg/L		03/30/19 11:31	04/02/19 00:17	5
Boron	1.3		0.050	0.021	mg/L		03/30/19 11:31	04/02/19 00:17	5
Barium	0.097		0.0025	0.00049	mg/L		03/30/19 11:31	04/02/19 00:17	5
Calcium	100	^	0.25	0.13	mg/L		03/30/19 11:31	04/02/19 00:17	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/02/19 00:17	5

Client Sample ID: AP-DUP-02

Lab Sample ID: 180-88159-9
Date Collected: 03/26/19 00:00
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/02/19 00:17	5
Lithium	**0.011**		0.0050	0.0011	mg/L		03/30/19 11:31	04/02/19 00:17	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**370**		10	10	mg/L			03/30/19 13:52	1

Client Sample ID: FB-AP-01

Lab Sample ID: 180-88159-10
Date Collected: 03/26/19 13:15
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/03/19 09:37	1
Fluoride	<0.026		0.20	0.026	mg/L			04/03/19 09:37	1
Sulfate	**0.70**	**J**	1.0	0.38	mg/L			04/03/19 09:37	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		03/30/19 11:31	04/02/19 00:40	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/02/19 00:40	5
Barium	<0.00049		0.0025	0.00049	mg/L		03/30/19 11:31	04/02/19 00:40	5
Calcium	<0.13		0.25	0.13	mg/L		03/30/19 11:31	04/02/19 00:40	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/02/19 00:40	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/02/19 00:40	5
Lithium	<0.0011		0.0050	0.0011	mg/L		03/30/19 11:31	04/02/19 00:40	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			03/30/19 13:52	1

Client Sample ID: FB-AP-02

Lab Sample ID: 180-88159-11
Date Collected: 03/26/19 13:20
Matrix: Water
Date Received: 03/27/19 09:00

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/03/19 09:52	1
Fluoride	<0.026		0.20	0.026	mg/L			04/03/19 09:52	1
Sulfate	**0.46**	**J**	1.0	0.38	mg/L			04/03/19 09:52	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		03/30/19 11:31	04/02/19 00:44	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/02/19 00:44	5
Barium	<0.00049		0.0025	0.00049	mg/L		03/30/19 11:31	04/02/19 00:44	5
Calcium	<0.13		0.25	0.13	mg/L		03/30/19 11:31	04/02/19 00:44	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/02/19 00:44	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/02/19 00:44	5
Lithium	<0.0011		0.0050	0.0011	mg/L		03/30/19 11:31	04/02/19 00:44	5

Client Sample ID: FB-AP-02
Date Collected: 03/26/19 13:20
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-11
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			03/30/19 13:52	1

Client Sample ID: FERB-AP-01
Date Collected: 03/26/19 13:30
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-12
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/03/19 10:08	1
Fluoride	<0.026		0.20	0.026	mg/L			04/03/19 10:08	1
Sulfate	<0.38		1.0	0.38	mg/L			04/03/19 10:08	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		03/30/19 11:31	04/02/19 00:48	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/02/19 00:48	5
Barium	<0.00049		0.0025	0.00049	mg/L		03/30/19 11:31	04/02/19 00:48	5
Calcium	<0.13		0.25	0.13	mg/L		03/30/19 11:31	04/02/19 00:48	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/02/19 00:48	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/02/19 00:48	5
Lithium	<0.0011		0.0050	0.0011	mg/L		03/30/19 11:31	04/02/19 00:48	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			03/30/19 13:52	1

Client Sample ID: FERB-AP-02
Date Collected: 03/26/19 13:40
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-13
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/03/19 10:24	1
Fluoride	<0.026		0.20	0.026	mg/L			04/03/19 10:24	1
Sulfate	**0.64**	**J**	1.0	0.38	mg/L			04/03/19 10:24	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		03/30/19 11:31	04/02/19 00:51	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/02/19 00:51	5
Barium	<0.00049		0.0025	0.00049	mg/L		03/30/19 11:31	04/02/19 00:51	5
Calcium	<0.13		0.25	0.13	mg/L		03/30/19 11:31	04/02/19 00:51	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/02/19 00:51	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/02/19 00:51	5
Lithium	<0.0011		0.0050	0.0011	mg/L		03/30/19 11:31	04/02/19 00:51	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			03/30/19 13:52	1

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

Lab Sample ID: MB 180-274532/6
Matrix: Water
Analysis Batch: 274532

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/02/19 05:41	1
Fluoride	<0.026		0.10	0.026	mg/L			04/02/19 05:41	1
Sulfate	<0.38		1.0	0.38	mg/L			04/02/19 05:41	1

Lab Sample ID: LCS 180-274532/5
Matrix: Water
Analysis Batch: 274532

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.0	25.6		mg/L		102	90 - 110
Fluoride	1.25	1.24		mg/L		99	90 - 110
Sulfate	25.0	25.2		mg/L		101	90 - 110

Lab Sample ID: MB 180-274661/6
Matrix: Water
Analysis Batch: 274661

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/03/19 06:33	1
Fluoride	<0.026		0.20	0.026	mg/L			04/03/19 06:33	1
Sulfate	<0.38		1.0	0.38	mg/L			04/03/19 06:33	1

Lab Sample ID: LCS 180-274661/5
Matrix: Water
Analysis Batch: 274661

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	27.1		mg/L		108	90 - 110
Fluoride	1.25	1.28		mg/L		103	90 - 110
Sulfate	25.0	26.5		mg/L		106	90 - 110

Lab Sample ID: 180-88159-7 MS
Matrix: Water
Analysis Batch: 274661

Client Sample ID: MGWC-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	11		25.0	39.2		mg/L		114	80 - 120
Fluoride	0.19	J	1.25	1.49		mg/L		104	80 - 120
Sulfate	180		25.0	193	4	mg/L		48	80 - 120

Lab Sample ID: 180-88159-7 MSD
Matrix: Water
Analysis Batch: 274661

Client Sample ID: MGWC-7
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	11		25.0	39.7		mg/L		116	80 - 120	1	20
Fluoride	0.19	J	1.25	1.53		mg/L		107	80 - 120	2	20
Sulfate	180		25.0	195	4	mg/L		55	80 - 120	1	20

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

Lab Sample ID: MB 180-275006/5
Matrix: Water
Analysis Batch: 275006

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.71		1.0	0.71	mg/L			04/06/19 09:38	1
Fluoride	<0.026		0.20	0.026	mg/L			04/06/19 09:38	1
Sulfate	<0.38		1.0	0.38	mg/L			04/06/19 09:38	1

Lab Sample ID: LCS 180-275006/6
Matrix: Water
Analysis Batch: 275006

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.8		mg/L		102	90 - 110
Fluoride	2.50	2.43		mg/L		97	90 - 110
Sulfate	50.0	50.4		mg/L		101	90 - 110

Lab Sample ID: 180-88159-8 MS
Matrix: Water
Analysis Batch: 275006

Client Sample ID: AP-DUP-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	6.5		25.0	32.8		mg/L		105	80 - 120
Fluoride	0.048	J	1.25	1.31		mg/L		101	80 - 120
Sulfate	7.9		25.0	33.7		mg/L		103	80 - 120

Lab Sample ID: 180-88159-8 MSD
Matrix: Water
Analysis Batch: 275006

Client Sample ID: AP-DUP-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	6.5		25.0	32.7		mg/L		105	80 - 120	0	20
Fluoride	0.048	J	1.25	1.29		mg/L		99	80 - 120	2	20
Sulfate	7.9		25.0	32.9		mg/L		100	80 - 120	2	20

Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 400-435281/1-A ^5
Matrix: Water
Analysis Batch: 435553

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 435281

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00046		0.0013	0.00046	mg/L		03/30/19 11:31	04/01/19 22:42	5
Boron	<0.021		0.050	0.021	mg/L		03/30/19 11:31	04/01/19 22:42	5
Barium	<0.00049		0.0025	0.00049	mg/L		03/30/19 11:31	04/01/19 22:42	5
Calcium	<0.13		0.25	0.13	mg/L		03/30/19 11:31	04/01/19 22:42	5
Cadmium	<0.00034		0.0025	0.00034	mg/L		03/30/19 11:31	04/01/19 22:42	5
Cobalt	<0.00040		0.0025	0.00040	mg/L		03/30/19 11:31	04/01/19 22:42	5
Lithium	<0.0011		0.0050	0.0011	mg/L		03/30/19 11:31	04/01/19 22:42	5

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

Lab Sample ID: LCS 400-435281/2-A
Matrix: Water
Analysis Batch: 435553

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 435281

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0500	0.0500		mg/L		100	80 - 120
Boron	0.100	0.102		mg/L		102	80 - 120
Barium	0.0500	0.0483		mg/L		97	80 - 120
Calcium	5.00	5.10		mg/L		102	80 - 120
Cadmium	0.0500	0.0475		mg/L		95	80 - 120
Cobalt	0.0500	0.0471		mg/L		94	80 - 120
Lithium	0.0500	0.0500		mg/L		100	80 - 120

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

Lab Sample ID: MB 180-274448/2
Matrix: Water
Analysis Batch: 274448

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			03/30/19 13:18	1

Lab Sample ID: LCS 180-274448/1
Matrix: Water
Analysis Batch: 274448

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	304	274		mg/L		90	80 - 120

Lab Sample ID: MB 180-274449/2
Matrix: Water
Analysis Batch: 274449

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<10		10	10	mg/L			03/30/19 13:52	1

Lab Sample ID: LCS 180-274449/1
Matrix: Water
Analysis Batch: 274449

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	304	260		mg/L		86	80 - 120

Lab Sample ID: 180-88159-9 DU
Matrix: Water
Analysis Batch: 274449

Client Sample ID: AP-DUP-02
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	370		381		mg/L		4	10

HPLC/IC

Analysis Batch: 274532

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88159-2	MGWC-12	Total/NA	Water	EPA 300.0 R2.1	
180-88159-3	MGWA-6	Total/NA	Water	EPA 300.0 R2.1	
180-88159-4	MGWC-2	Total/NA	Water	EPA 300.0 R2.1	
180-88159-5	MGWC-1	Total/NA	Water	EPA 300.0 R2.1	
MB 180-274532/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-274532/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 274661

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88159-1	MGWC-3	Total/NA	Water	EPA 300.0 R2.1	
180-88159-6	MGWC-8	Total/NA	Water	EPA 300.0 R2.1	
180-88159-6	MGWC-8	Total/NA	Water	EPA 300.0 R2.1	
180-88159-7	MGWC-7	Total/NA	Water	EPA 300.0 R2.1	
180-88159-9	AP-DUP-02	Total/NA	Water	EPA 300.0 R2.1	
180-88159-10	FB-AP-01	Total/NA	Water	EPA 300.0 R2.1	
180-88159-11	FB-AP-02	Total/NA	Water	EPA 300.0 R2.1	
180-88159-12	FERB-AP-01	Total/NA	Water	EPA 300.0 R2.1	
180-88159-13	FERB-AP-02	Total/NA	Water	EPA 300.0 R2.1	
MB 180-274661/6	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-274661/5	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-88159-7 MS	MGWC-7	Total/NA	Water	EPA 300.0 R2.1	
180-88159-7 MSD	MGWC-7	Total/NA	Water	EPA 300.0 R2.1	

Analysis Batch: 275006

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88159-8	AP-DUP-01	Total/NA	Water	EPA 300.0 R2.1	
MB 180-275006/5	Method Blank	Total/NA	Water	EPA 300.0 R2.1	
LCS 180-275006/6	Lab Control Sample	Total/NA	Water	EPA 300.0 R2.1	
180-88159-8 MS	AP-DUP-01	Total/NA	Water	EPA 300.0 R2.1	
180-88159-8 MSD	AP-DUP-01	Total/NA	Water	EPA 300.0 R2.1	

Metals

Prep Batch: 435281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88159-1	MGWC-3	Total Recoverable	Water	3005A	
180-88159-2	MGWC-12	Total Recoverable	Water	3005A	
180-88159-3	MGWA-6	Total Recoverable	Water	3005A	
180-88159-4 - DL	MGWC-2	Total Recoverable	Water	3005A	
180-88159-4	MGWC-2	Total Recoverable	Water	3005A	
180-88159-5	MGWC-1	Total Recoverable	Water	3005A	
180-88159-6	MGWC-8	Total Recoverable	Water	3005A	
180-88159-6 - DL	MGWC-8	Total Recoverable	Water	3005A	
180-88159-7	MGWC-7	Total Recoverable	Water	3005A	
180-88159-8	AP-DUP-01	Total Recoverable	Water	3005A	
180-88159-9	AP-DUP-02	Total Recoverable	Water	3005A	
180-88159-10	FB-AP-01	Total Recoverable	Water	3005A	
180-88159-11	FB-AP-02	Total Recoverable	Water	3005A	
180-88159-12	FERB-AP-01	Total Recoverable	Water	3005A	
180-88159-13	FERB-AP-02	Total Recoverable	Water	3005A	
MB 400-435281/1-A ^5	Method Blank	Total Recoverable	Water	3005A	

Metals (Continued)

Prep Batch: 435281 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 400-435281/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 435553

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88159-1	MGWC-3	Total Recoverable	Water	6020	435281
180-88159-2	MGWC-12	Total Recoverable	Water	6020	435281
180-88159-3	MGWA-6	Total Recoverable	Water	6020	435281
180-88159-4	MGWC-2	Total Recoverable	Water	6020	435281
180-88159-4 - DL	MGWC-2	Total Recoverable	Water	6020	435281
180-88159-5	MGWC-1	Total Recoverable	Water	6020	435281
180-88159-6	MGWC-8	Total Recoverable	Water	6020	435281
180-88159-6 - DL	MGWC-8	Total Recoverable	Water	6020	435281
180-88159-7	MGWC-7	Total Recoverable	Water	6020	435281
180-88159-8	AP-DUP-01	Total Recoverable	Water	6020	435281
180-88159-9	AP-DUP-02	Total Recoverable	Water	6020	435281
180-88159-10	FB-AP-01	Total Recoverable	Water	6020	435281
180-88159-11	FB-AP-02	Total Recoverable	Water	6020	435281
180-88159-12	FERB-AP-01	Total Recoverable	Water	6020	435281
180-88159-13	FERB-AP-02	Total Recoverable	Water	6020	435281
MB 400-435281/1-A ^5	Method Blank	Total Recoverable	Water	6020	435281
LCS 400-435281/2-A	Lab Control Sample	Total Recoverable	Water	6020	435281

General Chemistry

Analysis Batch: 274448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88159-1	MGWC-3	Total/NA	Water	SM 2540C	
180-88159-2	MGWC-12	Total/NA	Water	SM 2540C	
180-88159-3	MGWA-6	Total/NA	Water	SM 2540C	
180-88159-4	MGWC-2	Total/NA	Water	SM 2540C	
180-88159-5	MGWC-1	Total/NA	Water	SM 2540C	
180-88159-6	MGWC-8	Total/NA	Water	SM 2540C	
180-88159-7	MGWC-7	Total/NA	Water	SM 2540C	
180-88159-8	AP-DUP-01	Total/NA	Water	SM 2540C	
MB 180-274448/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-274448/1	Lab Control Sample	Total/NA	Water	SM 2540C	

Analysis Batch: 274449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88159-9	AP-DUP-02	Total/NA	Water	SM 2540C	
180-88159-10	FB-AP-01	Total/NA	Water	SM 2540C	
180-88159-11	FB-AP-02	Total/NA	Water	SM 2540C	
180-88159-12	FERB-AP-01	Total/NA	Water	SM 2540C	
180-88159-13	FERB-AP-02	Total/NA	Water	SM 2540C	
MB 180-274449/2	Method Blank	Total/NA	Water	SM 2540C	
LCS 180-274449/1	Lab Control Sample	Total/NA	Water	SM 2540C	
180-88159-9 DU	AP-DUP-02	Total/NA	Water	SM 2540C	

TestAmerica Pensacola
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (421) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L. Coker, J. Adcock, J. Noles	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Ms. Lauren Petty	Phone: 404-5920094	E-Mail: veronica.bortot@testamericainc.com		Page 1 of 2
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days): Standard			
State, Zip: AL, 35291				
Phone: 205-992-5417(Tel)	PO #: SCS10347656			
Email: lmpetty@southernco.com	WO #:			
Project Name: CCR - Plant McIntosh - Ash Pond	Project #: 40007692			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	6020-As,Ba,B,Ca,Cd,Co,Li,												Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D													
MGWC-3	3/26/19	1000	G	W	N	N	X	X	X												3	Assessment Event
MGWC-12	3/26/19	1020	G	W	N	N	X	X	X												3	
MGWA-6	3/26/19	1025	G	W	N	N	X	X	X												3	
MGWC-2	3/26/19	1123	G	W	N	N	X	X	X												3	
MGWC-1	3/26/19	1200	G	W	N	N	X	X	X												3	
MGWC-8	3/26/19	1250	G	W	N	N	X	X	X												3	
MGWC-7	3/26/19	1255	G	W	N	N	X	X	X												3	
AP-DUP-01	3/26/19	—	G	W	N	N	X	X	X												3	
AP-DUP-02	3/26/19	—	G	W	N	N	X	X	X												3	
FB-AP-01	3/26/19	1315	G	W	N	N	X	X	X												3	
FB-AP-02	3/26/19	1320	G	W	N	N	X	X	X												3	

180-88159 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	3/26/19	GEI	[signature]	3-27-19	TAL-PEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 900	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 08/04/2016

TestAmerica Pensacola
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (421) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L. Coker, J. Adcock, J. Noles	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Ms. Lauren Petty	Phone: 404-5920094	E-Mail: veronica.bortot@testamericainc.com		Page 2 of 2
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days): Standard			
State, Zip: AL, 35291				
Phone: 205-992-5417(Tel)	PO #: SCS10347656			
Email: lmpetty@southernco.com	WO #:			
Project Name: CCR - Plant McIntosh - Ash Pond	Project #: 40007692			
Site:	SSOW#:			

Analysis Requested

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

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	6020-As,Ba,B,Ca,Cd,Co,Li,	Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D		
FERB-AP-01	3/26/19	1330	G	W	N	N	X	X	X	3	Assessment Event
FERB-AP-02	3/26/19	1340	G	W	N	N	X	X	X	3	

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Lauren Petty	3/26/19	GEL	Deelie Walen	3-27-19 900	TAPitt

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

Ver: 08/04/2016

ORIGIN ID:SAVA (919) 724-7237
JAKE ADCOCK

RIDC PARK
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 26MAR19
ACTWGT: 43.60 LB
CAD: 006994919/SSFE2002
DIMS: 24x13x14 IN

BILL THIRD PARTY

0 VERONICA BORTOT
TEST AMERICA – PITTSBURGH
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

1 of 3
TRK# 0201 7862 7008 2007
MASTER
XH AGCA

WED – 27 MAR 10:30A
PRIORITY OVERNIGHT

15238
PA-US PIT

Uncorrected temp 15.7 °C
Thermometer ID Police
CF 0 Initials JB

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

ORIGIN ID:SAVA (919) 724-7237
JAKE ADCOCK

RIDC PARK
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 26MAR19
ACTWGT: 55.00 LB
CAD: 006994919/SSFE2002
DIMS: 24x13x14 IN

BILL THIRD PARTY

0 VERONICA BORTOT
TEST AMERICA – PITTSBURGH
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express

3 of 3
MPS# 0263 7862 7008 2029
Mstr# 7862 7008 2007 0201
XH AGCA

WED – 27 MAR 10:30A
PRIORITY OVERNIGHT

15238
PA-US PIT

Uncorrected temp 22 °C
Thermometer ID 10
CF 0 Initials JB

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

180-88159 Waybill

4/11/2019

ORIGIN ID:SAVA (919) 724-7237
JAKE ADCOCK

RIDC PARK
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 26MAR19
ACTWGT: 51.40 LB
CAD: 006994919/SSFE2002
DIMS: 24x13x14 IN

BILL THIRD PARTY

VERONICA BORTOT
TEST AMERICA – PITTSBURGH
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963 – 7058 REF:
INV:
PO: DEPT:

556J1/4693/23A0

FedEx
Express

E

J191019010701uv

2 of 3
MPS# 7862 7008 2018
0263
Mstr# 7862 7008 2007 0201

WED – 27 MAR 10:30A
PRIORITY OVERNIGHT

XH AGCA

15238
PA – US PIT

Uncorrected temp 2.0 °C
Thermometer ID IO
CF 0 Initials JB
PT-WI-SR-001 effective 11/8/18

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-358456.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-88159-1
Address: 13715 Rider Trail North,	Due Date Requested: 4/8/2019			
City: Earth City	TAT Requested (days):			
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			
Email:	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Standard Target List	9315_Ra226/PrecSep_21 (MOD) Copy Analytes	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
MGWC-3 (180-88159-1)	3/26/19	10:00 Eastern		Water			X	X	X	1	
MGWC-12 (180-88159-2)	3/26/19	10:20 Eastern		Water			X	X	X	1	
MGWA-6 (180-88159-3)	3/26/19	10:25 Eastern		Water			X	X	X	1	
MGWC-2 (180-88159-4)	3/26/19	11:23 Eastern		Water			X	X	X	1	
MGWC-1 (180-88159-5)	3/26/19	12:00 Eastern		Water			X	X	X	1	
MGWC-8 (180-88159-6)	3/26/19	12:50 Eastern		Water			X	X	X	1	
MGWC-7 (180-88159-7)	3/26/19	12:55 Eastern		Water			X	X	X	1	
AP-DUP-01 (180-88159-8)	3/26/19	Eastern		Water			X	X	X	1	
AP-DUP-02 (180-88159-9)	3/26/19	Eastern		Water			X	X	X	1	

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

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

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

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		3/28/19 1700	TAS	Michael Heem	3-29-19 09:00	TAS
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-358456.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-88159-1
Address: 13715 Rider Trail North, ,	Due Date Requested: 4/8/2019			Preservation Codes:
City: Earth City	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: MO, 63045				
Phone: 314-298-8566(Tel) 314-298-8757(Fax)	PO #:			Other:
Email:	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9320_Ra228/PrecSep_0 Standard Target List	9315_Ra226/PrecSep_21 (MOD) Copy Analytes	Ra226Ra228_GFPC	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
FB-AP-01 (180-88159-10)	3/26/19	13:15 Eastern		Water			X	X	X	1	
FB-AP-02 (180-88159-11)	3/26/19	13:20 Eastern		Water			X	X	X	1	
FERB-AP-01 (180-88159-12)	3/26/19	13:30 Eastern		Water			X	X	X	1	
FERB-AP-02 (180-88159-13)	3/26/19	13:40 Eastern		Water			X	X	X	1	

180-88159 Chain of Custody

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody.

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/28/19 17W	TAL PIT		3-29-19 0900	TAL STL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 01/16/2019

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-358450.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-88159-1
Address: 3355 McLemore Drive, ,	Due Date Requested: 4/8/2019			Preservation Codes:
City: Pensacola	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: FL, 32514				
Phone: 850-474-1001(Tel) 850-478-2671(Fax)	PO #:			
Email:	WO #:			Other:
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020/3005A B Ca As Ba Cd Co Li	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MGWC-3 (180-88159-1)	3/26/19	10:00 Eastern		Water			X	1	
MGWC-12 (180-88159-2)	3/26/19	10:20 Eastern		Water			X	1	
MGWA-6 (180-88159-3)	3/26/19	10:25 Eastern		Water			X	1	
MGWC-2 (180-88159-4)	3/26/19	11:23 Eastern		Water			X	1	
MGWC-1 (180-88159-5)	3/26/19	12:00 Eastern		Water			X	1	
MGWC-8 (180-88159-6)	3/26/19	12:50 Eastern		Water			X	1	
MGWC-7 (180-88159-7)	3/26/19	12:55 Eastern		Water			X	1	
AP-DUP-01 (180-88159-8)	3/26/19	Eastern		Water			X	1	
AP-DUP-02 (180-88159-9)	3/26/19	Eastern		Water			X	1	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	3/28/19 1200	TAL PIT			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 3-29-19 8:56	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: 4.5° IR7

Ver: 01/16/2019

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

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No: 180-358450.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: veronica.bortot@testamericainc.com	State of Origin: Georgia	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 180-88159-1
Address: 3355 McLemore Drive, ,	Due Date Requested: 4/8/2019			Preservation Codes:
City: Pensacola	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: FL, 32514				
Phone: 850-474-1001(Tel) 850-478-2671(Fax)	PO #:			Other:
Email:	WO #:			
Project Name: CCR - Plant McIntosh Ash Pond 1	Project #: 18019956			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6020/3005A B Ca As Ba Cd Co Li	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
FB-AP-01 (180-88159-10)	3/26/19	13:15 Eastern		Water			X	1	
FB-AP-02 (180-88159-11)	3/26/19	13:20 Eastern		Water			X	1	
FERB-AP-01 (180-88159-12)	3/26/19	13:30 Eastern		Water			X	1	
FERB-AP-02 (180-88159-13)	3/26/19	13:40 Eastern		Water			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

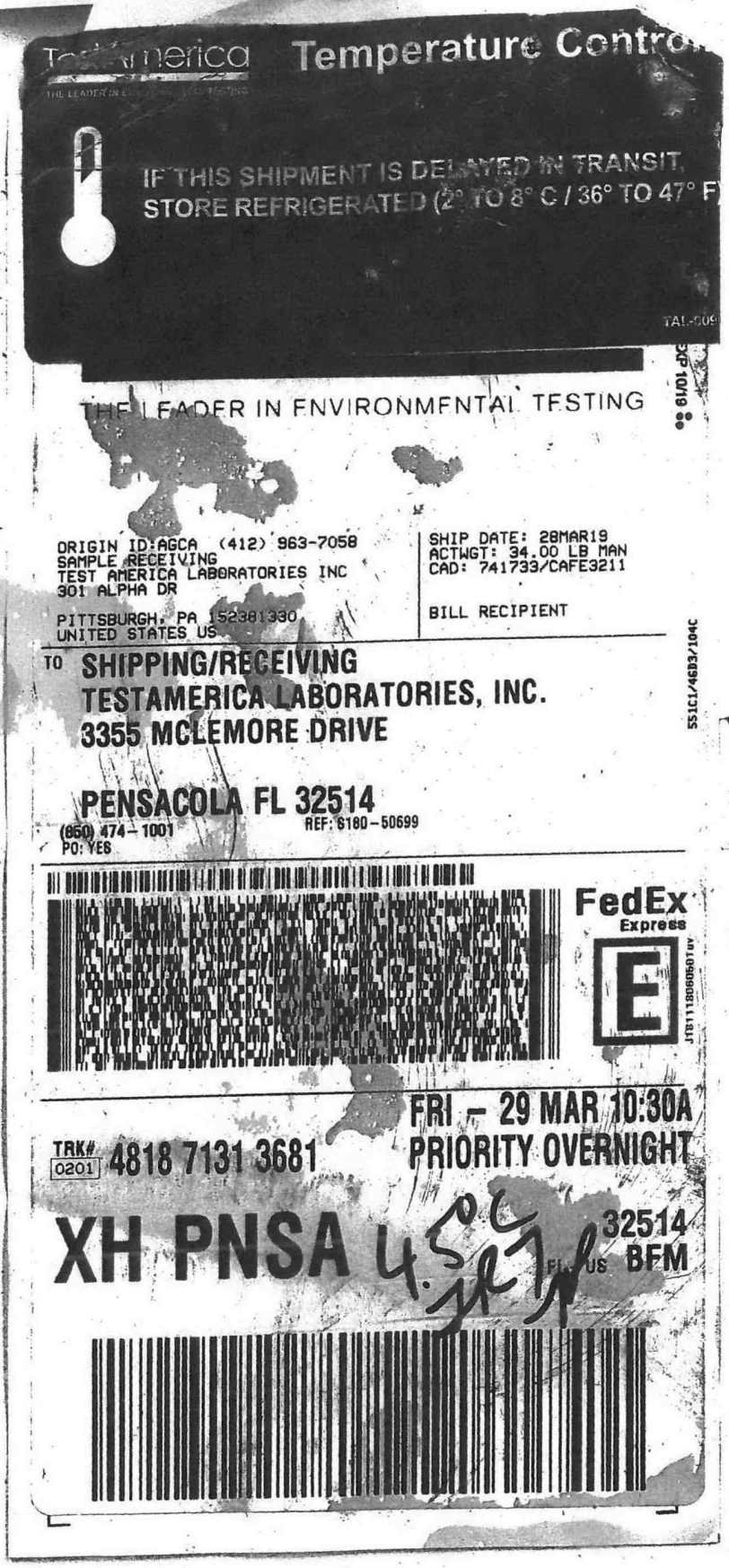
Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	3/26/19 1700	TAL-PIT			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
			[signature]	3-29-19 8:56	

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		4.5° IR7

Ver: 01/16/2019


Temperature Contro
IF THIS SHIPMENT IS DELAYED IN TRANSIT,
STORE REFRIGERATED (2° TO 8° C / 36° TO 47° F)
THE LEADER IN ENVIRONMENTAL TESTING
ORIGIN ID:AGCA (412) 963-7058
SAMPLE RECEIVING
TEST AMERICA LABORATORIES INC
301 ALPHA DR
PITTSBURGH, PA 152381330
UNITED STATES US
SHIP DATE: 28MAR19
ACTWGT: 34.00 LB MAN
CAD: 741733/CAFE3211
BILL RECIPIENT
TO SHIPPING/RECEIVING
TESTAMERICA LABORATORIES, INC.
3355 MCLEMORE DRIVE
PENSACOLA FL 32514
(850) 474-1001
REF: 6180-50699
PO: YES
FedEx
Express
FRI - 29 MAR 10:30A
PRIORITY OVERNIGHT
TRK# 0201 4818 7131 3681
XH PNSA
32514
FL US
BFM

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88159-1
SDG Number: Ash

Login Number: 88159
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88159-1
SDG Number: Ash

Login Number: 88159
List Number: 4
Creator: Conrady, Hank W

List Source: Eurofins TestAmerica, Pensacola
List Creation: 03/29/19 05:33 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.5°C IR-7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 180-88159-2
Laboratory Sample Delivery Group: Ash
Client Project/Site: CCR - Plant McIntosh Ash Pond 1

For:
Southern Company
PO BOX 2641 GSC8
Birmingham, Alabama 35291

Attn: Ms. Lauren Petty

Veronica Bortot

Authorized for release by:
5/10/2019 4:20:06 PM

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

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

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

PA Lab ID: 02-00416

Table of Contents

Job ID: 180-88159-2

Laboratory: Eurofins TestAmerica, Pittsburgh

Narrative

Job Narrative
180-88159-2

Comments
No additional comments.

Receipt
The samples were received on 3/27/2019 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 2.0º C, 2.2º C and 15.7º C.

Receipt Exceptions

The Chain-of-Custody (COC) was incomplete as received and/or improperly completed. There is no relinquished by time listed on the COC.

MGWC-3 (180-88159-1), MGWC-12 (180-88159-2), MGWA-6 (180-88159-3), MGWC-2 (180-88159-4), MGWC-1 (180-88159-5), MGWC-8 (180-88159-6), MGWC-7 (180-88159-7), AP-DUP-01 (180-88159-8), AP-DUP-02 (180-88159-9), FB-AP-01 (180-88159-10), FB-AP-02 (180-88159-11), FERB-AP-01 (180-88159-12) and FERB-AP-02 (180-88159-13) The cooler which was 15.7 had the Rad metals containers inside which do not need to be iced.

RAD
Method(s) 903.0, 9315: Ra-226 Prep Batch 160-423237

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

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
MGWC-3 (180-88159-1), MGWC-12 (180-88159-2), MGWA-6 (180-88159-3), MGWC-2 (180-88159-4), MGWC-1 (180-88159-5), MGWC-8 (180-88159-6), MGWC-7 (180-88159-7), AP-DUP-01 (180-88159-8), AP-DUP-02 (180-88159-9), FB-AP-01 (180-88159-10), FB-AP-02 (180-88159-11), FERB-AP-01 (180-88159-12), FERB-AP-02 (180-88159-13), (LCS 160-423237/1-A), (LCSD 160-423237/2-A) and (MB 160-423237/23-A)

Method(s) 904.0, 9320: Radium-228 Prep Batch 160-423238
Any minimum detectable concentration (MDC), critical value (DLC), or Safe Drinking Water Act detection limit (SDWA DL) is sample-specific unless otherwise stated elsewhere in this narrative.

Radiochemistry sample results are reported with the count date/time applied as the Activity Reference Date.
MGWC-3 (180-88159-1), MGWC-12 (180-88159-2), MGWA-6 (180-88159-3), MGWC-2 (180-88159-4), MGWC-1 (180-88159-5), MGWC-8 (180-88159-6), MGWC-7 (180-88159-7), AP-DUP-01 (180-88159-8), AP-DUP-02 (180-88159-9), FB-AP-01 (180-88159-10), FB-AP-02 (180-88159-11), FERB-AP-01 (180-88159-12) and FERB-AP-02 (180-88159-13)

Method(s) PrecSep_0: Radium 228 Prep Batch 160-423238:

Insufficient sample volume was available to perform a sample duplicate for the following samples: MGWC-3 (180-88159-1), MGWC-12 (180-88159-2), MGWA-6 (180-88159-3), MGWC-2 (180-88159-4), MGWC-1 (180-88159-5), MGWC-8 (180-88159-6), MGWC-7 (180-88159-7), AP-DUP-01 (180-88159-8), AP-DUP-02 (180-88159-9), FB-AP-01 (180-88159-10), FB-AP-02 (180-88159-11), FERB-AP-01 (180-88159-12) and FERB-AP-02 (180-88159-13). 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 160-423237:

Job ID: 180-88159-2 (Continued)

Laboratory: Eurofins TestAmerica, Pittsburgh (Continued)

Insufficient sample volume was available to perform a sample duplicate for the following samples: MGWC-3 (180-88159-1), MGWC-12 (180-88159-2), MGWA-6 (180-88159-3), MGWC-2 (180-88159-4), MGWC-1 (180-88159-5), MGWC-8 (180-88159-6), MGWC-7 (180-88159-7), AP-DUP-01 (180-88159-8), AP-DUP-02 (180-88159-9), FB-AP-01 (180-88159-10), FB-AP-02 (180-88159-11), FERB-AP-01 (180-88159-12) and FERB-AP-02 (180-88159-13). A laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) were prepared instead to demonstrate batch precision.

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

Definitions/Glossary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-2
SDG: Ash

Qualifiers

Rad

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

Glossary

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-2
SDG: Ash

Laboratory: Eurofins TestAmerica, Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19 *
Connecticut	State Program	1	PH-0688	09-30-20
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-20
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-20
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-20
North Carolina (WW/SW)	State Program	4	434	12-31-19
Oregon	NELAP	10	PA-2151	02-06-20
Pennsylvania	NELAP	3	02-00416	04-30-20
South Carolina	State Program	4	89014	04-30-19 *
Texas	NELAP	6	T104704528-15-2	03-31-20
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19 *
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-20
Wisconsin	State Program	5	998027800	08-31-19

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

Accreditation/Certification Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-2
SDG: Ash

Laboratory: Eurofins TestAmerica, St. Louis

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	MO00054	06-30-19
ANAB	DoD		L2305	04-06-22
Arizona	State Program	9	AZ0813	12-08-19
California	State Program	9	2886	06-30-19 *
Connecticut	State Program	1	PH-0241	03-31-21
Florida	NELAP	4	E87689	06-30-19 *
Hawaii	State Program	9	NA	06-30-19
Illinois	NELAP	5	200023	11-30-19
Iowa	State Program	7	373	12-01-20
Kansas	NELAP	7	E-10236	10-31-19
Kentucky (DW)	State Program	4	KY90125	12-31-19
Louisiana	NELAP	6	04080	06-30-19
Louisiana (DW)	NELAP	6	LA011	12-31-19
Maryland	State Program	3	310	09-30-19
Michigan	State Program	5	9005	06-30-19
Missouri	State Program	7	780	06-30-19
Nevada	State Program	9	MO000542018-1	07-31-19
New Jersey	NELAP	2	MO002	06-30-19 *
New York	NELAP	2	11616	03-31-20
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	02-28-20
South Carolina	State Program	4	85002001	06-30-19
Texas	NELAP	6	T104704193-18-13	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

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

Sample Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-2
SDG: Ash

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-88159-1	MGWC-3	Water	03/26/19 10:00	03/27/19 09:00
180-88159-2	MGWC-12	Water	03/26/19 10:20	03/27/19 09:00
180-88159-3	MGWA-6	Water	03/26/19 10:25	03/27/19 09:00
180-88159-4	MGWC-2	Water	03/26/19 11:23	03/27/19 09:00
180-88159-5	MGWC-1	Water	03/26/19 12:00	03/27/19 09:00
180-88159-6	MGWC-8	Water	03/26/19 12:50	03/27/19 09:00
180-88159-7	MGWC-7	Water	03/26/19 12:55	03/27/19 09:00
180-88159-8	AP-DUP-01	Water	03/26/19 00:00	03/27/19 09:00
180-88159-9	AP-DUP-02	Water	03/26/19 00:00	03/27/19 09:00
180-88159-10	FB-AP-01	Water	03/26/19 13:15	03/27/19 09:00
180-88159-11	FB-AP-02	Water	03/26/19 13:20	03/27/19 09:00
180-88159-12	FERB-AP-01	Water	03/26/19 13:30	03/27/19 09:00
180-88159-13	FERB-AP-02	Water	03/26/19 13:40	03/27/19 09:00

Method Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-2
SDG: Ash

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

Protocol References:

None = None

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

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

Laboratory References:

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

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-2
SDG: Ash

Client Sample ID: MGWC-3
Date Collected: 03/26/19 10:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.66 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426518	05/02/19 13:40	CDR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Prep	PrecSep_0			1000.66 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425249	04/23/19 15:37	CDR	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-12
Date Collected: 03/26/19 10:20
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.67 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426518	05/02/19 13:40	CDR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Prep	PrecSep_0			999.67 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425249	04/23/19 15:37	CDR	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWA-6
Date Collected: 03/26/19 10:25
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.31 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426507	05/02/19 13:42	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Prep	PrecSep_0			1000.31 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425249	04/23/19 15:37	CDR	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-2
Date Collected: 03/26/19 11:23
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.60 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426507	05/02/19 13:42	CDR	TAL SL
	Instrument ID: GFPCPURPLE									

Client Sample ID: MGWC-2
Date Collected: 03/26/19 11:23
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep_0			999.60 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425247	04/23/19 15:39	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-1
Date Collected: 03/26/19 12:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.85 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426507	05/02/19 13:42	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Prep	PrecSep_0			999.85 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425247	04/23/19 15:39	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-8
Date Collected: 03/26/19 12:50
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.20 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426507	05/02/19 13:43	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Prep	PrecSep_0			1000.20 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425247	04/23/19 15:39	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: MGWC-7
Date Collected: 03/26/19 12:55
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.07 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426507	05/02/19 13:43	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Prep	PrecSep_0			1000.07 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425247	04/23/19 15:39	CDR	TAL SL
	Instrument ID: GFPCPURPLE									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-2
SDG: Ash

Client Sample ID: MGWC-7
Date Collected: 03/26/19 12:55
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL

Client Sample ID: AP-DUP-01
Date Collected: 03/26/19 00:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			999.84 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426507	05/02/19 13:43	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Prep	PrecSep_0			999.84 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425247	04/23/19 15:40	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: AP-DUP-02
Date Collected: 03/26/19 00:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.54 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426507	05/02/19 13:43	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Prep	PrecSep_0			1000.54 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425247	04/23/19 15:40	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: FB-AP-01
Date Collected: 03/26/19 13:15
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.94 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426507	05/02/19 13:43	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Prep	PrecSep_0			1000.94 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425248	04/23/19 15:41	CDR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Lab Chronicle

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-2
SDG: Ash

Client Sample ID: FB-AP-02
Date Collected: 03/26/19 13:20
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.08 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426507	05/02/19 13:43	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Prep	PrecSep_0			1000.08 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425248	04/23/19 15:41	CDR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: FERB-AP-01
Date Collected: 03/26/19 13:30
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-12
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.06 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426507	05/02/19 13:43	CDR	TAL SL
	Instrument ID: GFPCPURPLE									
Total/NA	Prep	PrecSep_0			1000.06 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425248	04/23/19 15:41	CDR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Client Sample ID: FERB-AP-02
Date Collected: 03/26/19 13:40
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	PrecSep-21			1000.03 mL	1.0 g	423237	04/10/19 14:05	CLP	TAL SL
Total/NA	Analysis	9315		1			426506	05/02/19 14:44	CDR	TAL SL
	Instrument ID: GFPCBLUE									
Total/NA	Prep	PrecSep_0			1000.03 mL	1.0 g	423238	04/10/19 14:07	CLP	TAL SL
Total/NA	Analysis	9320		1			425248	04/23/19 15:42	CDR	TAL SL
	Instrument ID: GFPCORANGE									
Total/NA	Analysis	Ra226_Ra228		1			426560	05/03/19 07:49	SMP	TAL SL
	Instrument ID: NOEQUIP									

Laboratory References:

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

Analyst References:

Lab: TAL SL

Batch Type: Prep

CLP = Cassandra Park

Batch Type: Analysis

CDR = Conrad Reuscher

SMP = Siobhan Perry

Client Sample ID: MGWC-3

Date Collected: 03/26/19 10:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-1

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	0.798		0.153	0.169	1.00	0.0898	pCi/L	04/10/19 14:05	05/02/19 13:40	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110	04/10/19 14:05	05/02/19 13:40	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.456		0.262	0.265	1.00	0.395	pCi/L	04/10/19 14:07	04/23/19 15:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	102		40 - 110	04/10/19 14:07	04/23/19 15:37	1
Y Carrier	80.4		40 - 110	04/10/19 14:07	04/23/19 15:37	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	1.25		0.303	0.314	5.00	0.395	pCi/L		05/03/19 07:49	1

Client Sample ID: MGWC-12

Date Collected: 03/26/19 10:20
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-2

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	0.241		0.0902	0.0928	1.00	0.0842	pCi/L	04/10/19 14:05	05/02/19 13:40	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110	04/10/19 14:05	05/02/19 13:40	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.366	U	0.249	0.251	1.00	0.385	pCi/L	04/10/19 14:07	04/23/19 15:37	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	98.8		40 - 110	04/10/19 14:07	04/23/19 15:37	1
Y Carrier	81.9		40 - 110	04/10/19 14:07	04/23/19 15:37	1

Client Sample ID: MGWC-12

Lab Sample ID: 180-88159-2
Matrix: Water
Date Collected: 03/26/19 10:20
Date Received: 03/27/19 09:00

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	0.607		0.265	0.268	5.00	0.385	pCi/L		05/03/19 07:49	1

Client Sample ID: MGWA-6

Lab Sample ID: 180-88159-3
Matrix: Water
Date Collected: 03/26/19 10:25
Date Received: 03/27/19 09:00

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.321		0.0999	0.104	1.00	0.0869	pCi/L	04/10/19 14:05	05/02/19 13:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.2*		*40 - 110*	*04/10/19 14:05*	*05/02/19 13:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0783	U	0.202	0.202	1.00	0.350	pCi/L	04/10/19 14:07	04/23/19 15:37	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*98.2*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:37*	*1*
Y Carrier	*83.4*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:37*	*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	0.400		0.225	0.227	5.00	0.350	pCi/L		05/03/19 07:49	1

Client Sample ID: MGWC-2

Lab Sample ID: 180-88159-4
Matrix: Water
Date Collected: 03/26/19 11:23
Date Received: 03/27/19 09:00

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.191		0.0817	0.0834	1.00	0.0829	pCi/L	04/10/19 14:05	05/02/19 13:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.9*		*40 - 110*	*04/10/19 14:05*	*05/02/19 13:42*	*1*

Client Sample ID: MGWC-2

Date Collected: 03/26/19 11:23
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-4

Matrix: Water

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.219	U	0.251	0.251	1.00	0.412	pCi/L	04/10/19 14:07	04/23/19 15:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*95.9*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:39*	*1*
Y Carrier	*81.5*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:39*	*1*

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.410	U	0.264	0.264	5.00	0.412	pCi/L		05/03/19 07:49	1

Client Sample ID: MGWC-1

Date Collected: 03/26/19 12:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-5

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	**1.08**		0.180	0.204	1.00	0.0850	pCi/L	04/10/19 14:05	05/02/19 13:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*40 - 110*	*04/10/19 14:05*	*05/02/19 13:42*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	-0.0777	U	0.241	0.241	1.00	0.444	pCi/L	04/10/19 14:07	04/23/19 15:39	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*92.3*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:39*	*1*
Y Carrier	*80.7*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:39*	*1*

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.00**		0.301	0.316	5.00	0.444	pCi/L		05/03/19 07:49	1

Client Sample ID: MGWC-8

Date Collected: 03/26/19 12:50
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-6

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	0.930		0.161	0.182	1.00	0.0692	pCi/L	04/10/19 14:05	05/02/19 13:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	04/10/19 14:05	05/02/19 13:43	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.860		0.273	0.284	1.00	0.354	pCi/L	04/10/19 14:07	04/23/19 15:39	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	04/10/19 14:07	04/23/19 15:39	1
Y Carrier	84.1		40 - 110	04/10/19 14:07	04/23/19 15:39	1

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	1.79		0.317	0.337	5.00	0.354	pCi/L		05/03/19 07:49	1

Client Sample ID: MGWC-7

Date Collected: 03/26/19 12:55
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-7

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	0.601		0.133	0.143	1.00	0.0836	pCi/L	04/10/19 14:05	05/02/19 13:43	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	04/10/19 14:05	05/02/19 13:43	1

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.183	U	0.196	0.197	1.00	0.320	pCi/L	04/10/19 14:07	04/23/19 15:39	1

Carrier	%Yield	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Ba Carrier	101		40 - 110	04/10/19 14:07	04/23/19 15:39	1
Y Carrier	87.5		40 - 110	04/10/19 14:07	04/23/19 15:39	1

Client Sample ID: MGWC-7

Lab Sample ID: 180-88159-7
Date Collected: 03/26/19 12:55
Matrix: Water
Date Received: 03/27/19 09:00

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		0.237	0.243	5.00	0.320	pCi/L		05/03/19 07:49	1

Client Sample ID: AP-DUP-01

Lab Sample ID: 180-88159-8
Date Collected: 03/26/19 00:00
Matrix: Water
Date Received: 03/27/19 09:00

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.143		0.0749	0.0760	1.00	0.0833	pCi/L	04/10/19 14:05	05/02/19 13:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.9*		*40 - 110*	*04/10/19 14:05*	*05/02/19 13:43*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0182	U	0.223	0.223	1.00	0.398	pCi/L	04/10/19 14:07	04/23/19 15:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*90.9*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:40*	*1*
Y Carrier	*86.4*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:40*	*1*

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	0.161	U	0.235	0.236	5.00	0.398	pCi/L		05/03/19 07:49	1

Client Sample ID: AP-DUP-02

Lab Sample ID: 180-88159-9
Date Collected: 03/26/19 00:00
Matrix: Water
Date Received: 03/27/19 09:00

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	1.01		0.166	0.189	1.00	0.0790	pCi/L	04/10/19 14:05	05/02/19 13:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*04/10/19 14:05*	*05/02/19 13:43*	*1*

Client Sample ID: AP-DUP-02

Date Collected: 03/26/19 00:00
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-9

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	0.00212	U	0.187	0.187	1.00	0.339	pCi/L	04/10/19 14:07	04/23/19 15:40	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*100*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:40*	*1*
Y Carrier	*84.9*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:40*	*1*

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

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Combined Radium 226 + 228	**1.01**		0.250	0.266	5.00	0.339	pCi/L		05/03/19 07:49	1

Client Sample ID: FB-AP-01

Date Collected: 03/26/19 13:15
Date Received: 03/27/19 09:00

Lab Sample ID: 180-88159-10

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	0.0231	U	0.0427	0.0427	1.00	0.0768	pCi/L	04/10/19 14:05	05/02/19 13:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*107*		*40 - 110*	*04/10/19 14:05*	*05/02/19 13:43*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.212	U	0.215	0.215	1.00	0.349	pCi/L	04/10/19 14:07	04/23/19 15:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*107*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:41*	*1*
Y Carrier	*83.7*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:41*	*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	0.235	U	0.219	0.219	5.00	0.349	pCi/L		05/03/19 07:49	1

Client Sample ID: FB-AP-02

Lab Sample ID: 180-88159-11
Matrix: Water
Date Collected: 03/26/19 13:20
Date Received: 03/27/19 09:00

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0162	U	0.0387	0.0388	1.00	0.0732	pCi/L	04/10/19 14:05	05/02/19 13:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*108*		*40 - 110*	*04/10/19 14:05*	*05/02/19 13:43*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.136	U	0.203	0.203	1.00	0.341	pCi/L	04/10/19 14:07	04/23/19 15:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*108*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:41*	*1*
Y Carrier	*86.0*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:41*	*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	0.152	U	0.207	0.207	5.00	0.341	pCi/L		05/03/19 07:49	1

Client Sample ID: FERB-AP-01

Lab Sample ID: 180-88159-12
Matrix: Water
Date Collected: 03/26/19 13:30
Date Received: 03/27/19 09:00

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	-0.00487	U	0.0425	0.0425	1.00	0.0905	pCi/L	04/10/19 14:05	05/02/19 13:43	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*04/10/19 14:05*	*05/02/19 13:43*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.138	U	0.242	0.242	1.00	0.409	pCi/L	04/10/19 14:07	04/23/19 15:41	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*101*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:41*	*1*
Y Carrier	*86.4*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:41*	*1*

Client Sample ID: FERB-AP-01

Lab Sample ID: 180-88159-12
Date Collected: 03/26/19 13:30
Matrix: Water
Date Received: 03/27/19 09:00

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	0.133	U	0.246	0.246	5.00	0.409	pCi/L		05/03/19 07:49	1

Client Sample ID: FERB-AP-02

Lab Sample ID: 180-88159-13
Date Collected: 03/26/19 13:40
Matrix: Water
Date Received: 03/27/19 09:00

Method: 9315 - Radium-226 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.0112	U	0.0386	0.0386	1.00	0.0766	pCi/L	04/10/19 14:05	05/02/19 14:44	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*04/10/19 14:05*	*05/02/19 14:44*	*1*

Method: 9320 - Radium-228 (GFPC)

Analyte	Result	Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.0834	U	0.219	0.219	1.00	0.378	pCi/L	04/10/19 14:07	04/23/19 15:42	1

Carrier	*%Yield*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*103*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:42*	*1*
Y Carrier	*83.4*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:42*	*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	0.0946	U	0.222	0.222	5.00	0.378	pCi/L		05/03/19 07:49	1

Method: 9315 - Radium-226 (GFPC)

Lab Sample ID: MB 160-423237/23-A
Matrix: Water
Analysis Batch: 426506

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 423237

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-226	0.01774	U	0.0408	0.0408	1.00	0.0766	pCi/L	04/10/19 14:05	05/02/19 14:45	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*109*		*40 - 110*	*04/10/19 14:05*	*05/02/19 14:45*	*1*

Lab Sample ID: LCS 160-423237/1-A
Matrix: Water
Analysis Batch: 426518

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 423237

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-226			11.4	8.833		0.929	1.00	0.0849	pCi/L	78	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*108*		*40 - 110*

Lab Sample ID: LCSD 160-423237/2-A
Matrix: Water
Analysis Batch: 426518

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 423237

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-226			11.4	8.638		0.912	1.00	0.0972	pCi/L	76	75 - 125	0.11	1

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

Method: 9320 - Radium-228 (GFPC)

Lab Sample ID: MB 160-423238/23-A
Matrix: Water
Analysis Batch: 425108

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 423238

Analyte	MB Result	MB Qualifier	Count Uncert. (2σ+/-)	Total Uncert. (2σ+/-)	RL	MDC	Unit	Prepared	Analyzed	Dil Fac
Radium-228	0.2218	U	0.238	0.239	1.00	0.390	pCi/L	04/10/19 14:07	04/23/19 15:35	1

Carrier	*MB %Yield*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Ba Carrier	*109*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:35*	*1*
Y Carrier	*80.7*		*40 - 110*	*04/10/19 14:07*	*04/23/19 15:35*	*1*

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

Lab Sample ID: LCS 160-423238/1-A
Matrix: Water
Analysis Batch: 425249

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 423238

Analyte			Spike Added	LCS Result	LCS Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits		
Radium-228			9.27	9.610		1.11	1.00	0.384	pCi/L	104	75 - 125		

Carrier	*LCS %Yield*	*LCS Qualifier*	*Limits*
Ba Carrier	*108*		*40 - 110*
Y Carrier	*78.1*		*40 - 110*

Lab Sample ID: LCSD 160-423238/2-A
Matrix: Water
Analysis Batch: 425249

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 423238

Analyte			Spike Added	LCSD Result	LCSD Qual	Total Uncert. (2σ+/-)	RL	MDC	Unit	%Rec	%Rec. Limits	RER	RER Limit
Radium-228			9.27	8.638		1.01	1.00	0.362	pCi/L	93	75 - 125	0.46	1

Carrier	*LCSD %Yield*	*LCSD Qualifier*	*Limits*
Ba Carrier	*107*		*40 - 110*
Y Carrier	*81.5*		*40 - 110*

QC Association Summary

Client: Southern Company
Project/Site: CCR - Plant McIntosh Ash Pond 1

Job ID: 180-88159-2
SDG: Ash

Rad

Prep Batch: 423237

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88159-1	MGWC-3	Total/NA	Water	PrecSep-21	
180-88159-2	MGWC-12	Total/NA	Water	PrecSep-21	
180-88159-3	MGWA-6	Total/NA	Water	PrecSep-21	
180-88159-4	MGWC-2	Total/NA	Water	PrecSep-21	
180-88159-5	MGWC-1	Total/NA	Water	PrecSep-21	
180-88159-6	MGWC-8	Total/NA	Water	PrecSep-21	
180-88159-7	MGWC-7	Total/NA	Water	PrecSep-21	
180-88159-8	AP-DUP-01	Total/NA	Water	PrecSep-21	
180-88159-9	AP-DUP-02	Total/NA	Water	PrecSep-21	
180-88159-10	FB-AP-01	Total/NA	Water	PrecSep-21	
180-88159-11	FB-AP-02	Total/NA	Water	PrecSep-21	
180-88159-12	FERB-AP-01	Total/NA	Water	PrecSep-21	
180-88159-13	FERB-AP-02	Total/NA	Water	PrecSep-21	
MB 160-423237/23-A	Method Blank	Total/NA	Water	PrecSep-21	
LCS 160-423237/1-A	Lab Control Sample	Total/NA	Water	PrecSep-21	
LCSD 160-423237/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep-21	

Prep Batch: 423238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-88159-1	MGWC-3	Total/NA	Water	PrecSep_0	
180-88159-2	MGWC-12	Total/NA	Water	PrecSep_0	
180-88159-3	MGWA-6	Total/NA	Water	PrecSep_0	
180-88159-4	MGWC-2	Total/NA	Water	PrecSep_0	
180-88159-5	MGWC-1	Total/NA	Water	PrecSep_0	
180-88159-6	MGWC-8	Total/NA	Water	PrecSep_0	
180-88159-7	MGWC-7	Total/NA	Water	PrecSep_0	
180-88159-8	AP-DUP-01	Total/NA	Water	PrecSep_0	
180-88159-9	AP-DUP-02	Total/NA	Water	PrecSep_0	
180-88159-10	FB-AP-01	Total/NA	Water	PrecSep_0	
180-88159-11	FB-AP-02	Total/NA	Water	PrecSep_0	
180-88159-12	FERB-AP-01	Total/NA	Water	PrecSep_0	
180-88159-13	FERB-AP-02	Total/NA	Water	PrecSep_0	
MB 160-423238/23-A	Method Blank	Total/NA	Water	PrecSep_0	
LCS 160-423238/1-A	Lab Control Sample	Total/NA	Water	PrecSep_0	
LCSD 160-423238/2-A	Lab Control Sample Dup	Total/NA	Water	PrecSep_0	

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Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L. Coker, J. Adcock, J. Noles	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Ms. Lauren Petty	Phone: 404-5920094	E-Mail: veronica.bortot@testamericainc.com		Page 1 of 2
Company: Southern Company				Job #:
Address: PO BOX 2641 GSC8	Due Date Requested:			
City: Birmingham	TAT Requested (days): Standard			
State, Zip: AL, 35291				
Phone: 205-992-5417(Tel)	PO #: SCS10347656			
Email: lmpetty@southernco.com	WO #:			
Project Name: CCR - Plant McIntosh - Ash Pond	Project #: 40007692			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	6020-As,Ba,B,Ca,Cd,Co,Li,												Total Number of containers	Special Instructions/Note:
			Preservation Code:				D	N	D													
MGWC-3	3/26/19	1000	G	W	N	N	X	X	X												3	Assessment Event
MGWC-12	3/26/19	1020	G	W	N	N	X	X	X												3	
MGWA-6	3/26/19	1025	G	W	N	N	X	X	X												3	
MGWC-2	3/26/19	1123	G	W	N	N	X	X	X												3	
MGWC-1	3/26/19	1200	G	W	N	N	X	X	X												3	
MGWC-8	3/26/19	1250	G	W	N	N	X	X	X												3	
MGWC-7	3/26/19	1255	G	W	N	N	X	X	X												3	
AP-DUP-01	3/26/19	—	G	W	N	N	X	X	X												3	
AP-DUP-02	3/26/19	—	G	W	N	N	X	X	X												3	
FB-AP-01	3/26/19	1315	G	W	N	N	X	X	X												3	
FB-AP-02	3/26/19	1320	G	W	N	N	X	X	X												3	

180-88159 Chain of Custody

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	3/26/19	GEI	[signature]	3-27-19	TAP, FL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 900	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 08/04/2016

5/10/2019

TestAmerica Pensacola
301 Alpha Drive RIDC Park
Pittsburgh, PA 15238
Phone (412) 963-7058 Fax (421) 963-2468

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: L. Coker, J. Adcock, J. Noles	Lab PM: Bortot, Veronica	Carrier Tracking No(s):	COC No:
Client Contact: Ms. Lauren Petty	Phone: 404-5920094	E-Mail: veronica.bortot@testamericainc.com		Page 2 of 2
Company: Southern Company				Job #:

Address: PO BOX 2641 GSC8	Due Date Requested:	Analysis Requested
City: Birmingham	TAT Requested (days): Standard	
State, Zip: AL, 35291		
Phone: 205-992-5417(Tel)	PO #: SCS10347656	
Email: lmpetty@southernco.com	WO #:	
Project Name: CCR - Plant McIntosh - Ash Pond	Project #: 40007692	
Site:	SSOW#:	

Preservation Codes:

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

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9315_Ra226, 9320_Ra228, Ra226Ra228_GFPC	300_ORGFM_28D - Chloride, Fluoride & Sulfate, 2540C - TDS	6020-As,Ba,B,Ca,Cd,Co,Li,	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X	D	N	D	X	
FERB-AP-01	3/26/19	1330	G	W	N	N	X	X	X	3	Assessment Event
FERB-AP-02	3/26/19	1340	G	W	N	N	X	X	X	3	

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

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

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

Special Instructions/QC Requirements:

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	3/26/19	GEI	[signature]	3-27-19 700	APT
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 08/04/2016

ORIGIN ID:SAVA (919) 724-7237
JAKE ADCOCK

RIDC PARK
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 26MAR19
ACTWGT: 43.60 LB
CAD: 006994919/SSFE2002
DIMS: 24x13x14 IN

BILL THIRD PARTY

0 VERONICA BORTOT
TEST AMERICA - PITTSBURGH
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express E

WED - 27 MAR 10:30A
PRIORITY OVERNIGHT

1 of 3
TRK# 0201 7862 7008 2007
MASTER

XH AGCA

15238
PA-US PIT

Uncorrected temp 15.7 °C
Thermometer ID M.Ice
CF 0 Initials JB
PT-WI-SR-001 effective 11/8/18

ORIGIN ID:SAVA (919) 724-7237
JAKE ADCOCK

RIDC PARK
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 26MAR19
ACTWGT: 55.00 LB
CAD: 006994919/SSFE2002
DIMS: 24x13x14 IN

BILL THIRD PARTY

0 VERONICA BORTOT
TEST AMERICA - PITTSBURGH
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963-7058 REF:
INV:
PO: DEPT:

FedEx Express E

WED - 27 MAR 10:30A
PRIORITY OVERNIGHT

3 of 3
MPS# 0263 7862 7008 2029
Mstr# 7862 7008 2007 0201

XH AGCA

15238
PA-US PIT

Uncorrected temp 2.2 °C
Thermometer ID 10
CF 0 Initials JB
PT-WI-SR-001 effective 11/8/18

R1 97

180-88159 Waybill

ORIGIN ID:SAVA (919) 724-7237
JAKE ADCOCK

RIDC PARK
301 ALPHA DR
PITTSBURGH, PA 15238
UNITED STATES US

SHIP DATE: 26MAR19
ACTWGT: 51.40 LB
CAD: 006994919/SSFE2002
DIMS: 24x13x14 IN

BILL THIRD PARTY

VERONICA BORTOT
TEST AMERICA – PITTSBURGH
301 ALPHA DR

PITTSBURGH PA 15238
(412) 963–7058 REF:
INV:
PO: DEPT:

FedEx
Express

E

J191019010701uv

WED – 27 MAR 10:30A
PRIORITY OVERNIGHT

2 of 3
MPS# 0263 **7862 7008 2018**
Mstr# 7862 7008 2007 0201

XH AGCA

15238
PA–US PIT

565J1/4693/23AB

Uncorrected temp 2.0 °C
Thermometer ID 10
CF 0 Initials JB
PT-WI-SR-001 effective 11/8/18

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88159-2
SDG Number: Ash

Login Number: 88159
List Number: 1
Creator: Watson, Debbie

List Source: Eurofins TestAmerica, Pittsburgh

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

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88159-2
SDG Number: Ash

Login Number: 88159
List Number: 2
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/29/19 10:58 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	19.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Southern Company

Job Number: 180-88159-2
SDG Number: Ash

Login Number: 88159
List Number: 3
Creator: Hellm, Michael

List Source: Eurofins TestAmerica, St. Louis
List Creation: 03/29/19 11:00 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	N/A	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	19.0
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Pittsburgh, PA and Pensacola, FL
Report No.: 180-88159-1
Reviewer: Lorie MacKinnon/GEI Consultants
Date: May 31, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWC-3	180-88159-01	Metals, Anions, TDS
MGWC-12	180-88159-02	Metals, Anions, TDS
MGWA-6	180-88159-03	Metals, Anions, TDS
MGWC-2	180-88159-04	Metals, Anions, TDS
MGWC-1	180-88159-05	Metals, Anions, TDS
MGWC-8	180-88159-06	Metals, Anions, TDS
MGWC-7	180-88159-07	Metals, Anions, TDS
AP-DUP-01	180-88159-08	Metals, Anions, TDS
AP-DUP-02	180-88159-09	Metals, Anions, TDS
FB-AP-01	180-88159-10	Metals, Anions, TDS
FB-AP-02	180-88159-11	Metals, Anions, TDS
FERB-AP-01	180-88159-12	Metals, Anions, TDS
FERB-AP-02	180-88159-13	Metals, Anions, TDS

QC Samples:
Field/Equipment blanks: FB-AP-01, FB-AP-02, FERB-AP-01, FERB-AP-02
Field Duplicate pairs: MGWA-6/AP-DUP-01 and MGWC-1/AP-DUP-02

The above-listed aqueous samples and field blank samples were collected on March 26, 2019 and were analyzed for total recoverable metals by SW-846 method 6020, total dissolved solids (TDS) by Standard Methods SM 2540C, and anions (chloride, fluoride, and sulfate) by EPA method 300. The data were reviewed based on the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2017 (USEPA-540-R-2017-001), as well as by the methods referenced and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Method and Field Blanks
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Field Duplicate Results

- Quantitation Limits

All results are usable as reported or usable with minor qualification due to sample matrix or laboratory quality control outliers.

The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, MS/MSD, laboratory duplicate, and LCS results.

Holding Times and Sample Preservation

All criteria were met.

Blanks

Laboratory Blank Results

Contamination was not detected in the associated method blanks. The laboratory noted that calcium was detected in the instrument blank associated with the project samples. As the sample levels were greater than 10 times the instrument blank contamination level detected, the results for calcium are acceptable without qualification.

Field Blank Results

Low level contamination was detected in the field blanks. The following table summarizes the highest level of contamination and validation actions taken.

Analyte	Blank ID/ Associated Samples	Maximum Contaminant Level (mg/L)	2x Action Level (mg/L)	10x Action Level (mg/L)	Validation Actions
Sulfate	FB-AP-01, FB-AP-02, and FERB-AP-02: All Ash Pond samples	0.70	1.4	7.0	Estimate (J) the positive results for sulfate in samples MGWC-12 and MGWA-6; High bias.

Blank Actions:
If the sample result is < reporting limit (RL); report the result as nondetect (U) at the RL.
If the sample result is ≥ RL and <2x contamination detected; report the result as nondetect (U) at the reported value.

If the sample result is ≥ RL and <10x Action Level; report the sample result as estimated (J); biased high.
If the sample result is nondetect or > 10x Action Level; validation action is not required.

MS/MSD Results

MS/MSD analyses were performed on sample MGWC-7 for anions and sample AP-DUP-01 for metals. All recovery and precision criteria were met in these analyses.

Laboratory Duplicate Results

MSD analyses were performed for anions and metals in lieu of laboratory duplicate analyses. A laboratory duplicate analysis was performed on sample AP-DUP-02 for total dissolved solids. All criteria were met.

LCS Results

All criteria were met.

Field Duplicate Results

Samples MGWA-6 and AP-DUP-01 were submitted as the field duplicate pair with this sample set. The following table summarizes the RPDs of the detected analytes in the field duplicate pair, which were within the acceptance criteria except for boron. The positive results for boron in samples MGWA-6 and AP-DUP-01 were qualified as estimated (J). The direction of the bias cannot be determined from this nonconformance.

Analyte	MGWA-6 (mg/L)	AP-DUP-01 (mg/L)	RPD (%)
Chloride	5.8	6.5	11.4
Fluoride	0.065 J	0.048 J	30, Within the RL
Sulfate	6.3	7.9	22.5
Arsenic	0.0097	0.010	3.0
Boron	0.079	0.15	**62, Not within RL**
Barium	0.033	0.034	3.0
Calcium	100	100	0
Total Dissolved Solids	290	290	0
NC – Not calculable Criteria: When both results are ≥5x the RL, RPDs must be <30%. When results are < 5x the RL, professional judgement was taken to estimate results if the absolute difference between the original and field duplicate >RL.			

Samples MGWC-1 and AP-DUP-02 were submitted as the field duplicate pair with this sample set. The following table summarizes the RPDs of the detected analytes in the field duplicate pair, which were within the acceptance criteria.

Analyte	MGWC-1 (mg/L)	AP-DUP-02 (mg/L)	RPD (%)
Chloride	13	13	0
Fluoride	0.16	0.14 J	13.3
Sulfate	130	130	0
Arsenic	0.0020	0.0021	4.9
Barium	0.096	0.097	1.0
Boron	1.3	1.3	0
Calcium	100	100	0
Lithium	0.010	0.011	9.5
Total Dissolved Solids	370	370	0
NC – Not calculable Criteria: When both results are ≥5x the RL, RPDs must be <30%. When results are < 5x the RL, professional judgement was taken to estimate results if the absolute difference between the original and field duplicate >RL.			

Quantitation Limits

Results were reported which were below the reporting limit (RL) and above the method detection limit (MDL). These results were qualified as estimated (J) by the laboratory.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

Site: Georgia Power Plant, Ash Pond
Laboratory: Test America, Earth City, MO
Report No.: 180-88159-2
Reviewer: Lorie MacKinnon/GEI Consultants
Date: June 3, 2019

Samples Reviewed and Evaluation Summary

FIELD ID	LAB ID	FRACTIONS VALIDATED
MGWC-3	180-88159-01	Radium-226, Radium-228, Radium226-228
MGWC-12	180-88159-02	Radium-226, Radium-228, Radium226-228
MGWA-6	180-88159-03	Radium-226, Radium-228, Radium226-228
MGWC-2	180-88159-04	Radium-226, Radium-228, Radium226-228
MGWC-1	180-88159-05	Radium-226, Radium-228, Radium226-228
MGWC-8	180-88159-06	Radium-226, Radium-228, Radium226-228
MGWC-7	180-88159-07	Radium-226, Radium-228, Radium226-228
AP-DUP-01	180-88159-08	Radium-226, Radium-228, Radium226-228
AP-DUP-02	180-88159-09	Radium-226, Radium-228, Radium226-228
FB-AP-01	180-88159-10	Radium-226, Radium-228, Radium226-228
FB-AP-02	180-88159-11	Radium-226, Radium-228, Radium226-228
FERB-AP-01	180-88159-12	Radium-226, Radium-228, Radium226-228
FERB-AP-02	180-88159-13	Radium-226, Radium-228, Radium226-228

QC Samples:
Field/Equipment blanks: FB-AP-01, FB-AP-02, FERB-AP-01, FERB-AP-02
Field Duplicate pairs: MGWA-6/AP-DUP-01 and MGWC-1/AP-DUP-02

The above-listed aqueous samples and field blanks were collected on March 26, 2019 and were analyzed for Radium-226 by SW-846 method 9315, Radium-228 by SW-46 method 9320, and combined Radium-226 and Radium-228. The data were reviewed based on the US Department of Energy Evaluation of Radiochemical Data Usability, 1997, as well as by the pertinent methods referenced by the data package and professional and technical judgment.

The data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Preservation
- Method and Field Blanks
- Carrier Yields
- Laboratory Duplicate Results
- Laboratory Control Sample (LCS) Results
- Field Duplicate Results

- Quantitation Limits

All results are usable as reported. The validation findings were based on the following information.

Data Completeness

The level 2 (reduced deliverable) data package was complete as received by the laboratory and included sample results, method blank, and LCS results.

Holding Times and Sample Preservation

All criteria were met.

Blanks

Laboratory Blank Results

Contamination was not detected in the associated method blanks.

Field Blank Results

Contamination was not detected in the associated field blanks.

Carrier Yields

All criteria were met.

Laboratory Duplicate Results

Due to limited sample volume a project duplicate could not be performed. A laboratory control sample duplicate (LCSD) was prepared instead to demonstrate method precision.

LCS Results

All recovery and precision criteria were met.

Field Duplicate Results

Samples MGWA-6 and AP-DUP-01 were submitted as the field duplicate pair with this sample set. The following table summarizes the evaluation of the analytes in the field duplicate pair,

which were within the acceptance criteria.

Analyte	MGWA-6 (pCi/L)	AP-DUP-01 (pCi/L)	DER (%)
Radium-226	0.321	0.143	1.38
Combined Radium 226 + 228	0.400	0.161 U	0.73
Criteria: Duplicate Error Ratio (DER) ≤ 2			

Samples MGWC-1 and AP-DUP-02 were submitted as the field duplicate pair with this sample set. The following table summarizes the evaluation of the analytes in the field duplicate pair, which were within the acceptance criteria.

Analyte	MGWC-1 (pCi/L)	AP-DUP-02 (pCi/L)	DER (%)
Radium-226	1.08	1.01	0.25
Combined Radium 226 + 228	1.00	1.01	0.02
Criteria: Duplicate Error Ratio (DER) ≤ 2			

Quantitation Limits

Quantitation limit criteria were met.

DATA VALIDATION QUALIFIERS

U - The analyte was analyzed for, but due to blank contamination was flagged as nondetect (U). The result is usable as a nondetect.

J - Data are flagged (J) when a QC analysis fails outside the primary acceptance limits. The qualified "J" data are not excluded from further review or consideration. However, only one flag (J) is applied to a sample result, even though several associated QC analyses may fail. The 'J' data may be biased high or low or the direction of the bias may be indeterminable.

UJ - The analyte was not detected above the reported sample quantitation limit. Data are flagged (UJ) when a QC analysis fails outside the primary acceptance limits. The qualified "UJ" data are not excluded from further review or consideration. However, only one flag is applied to a sample result, even though several associated QC analyses may fail. The 'UJ' data may be biased low.

NJ - The analysis indicates the presence of a compound that has been "tentatively identified" (N) and the associated numerical value represents its approximate (J) concentration.

R - Data rejected (R) on the basis of an unacceptable QC analysis should be excluded from further review or consideration. Data are rejected when associated QC analysis results exceed the expanded control limits of the QC criteria. The rejected data are known to contain significant errors based on documented information. The data user must not use the rejected data to make environmental decisions. The presence or absence of the analyte cannot be verified.

Appendix B

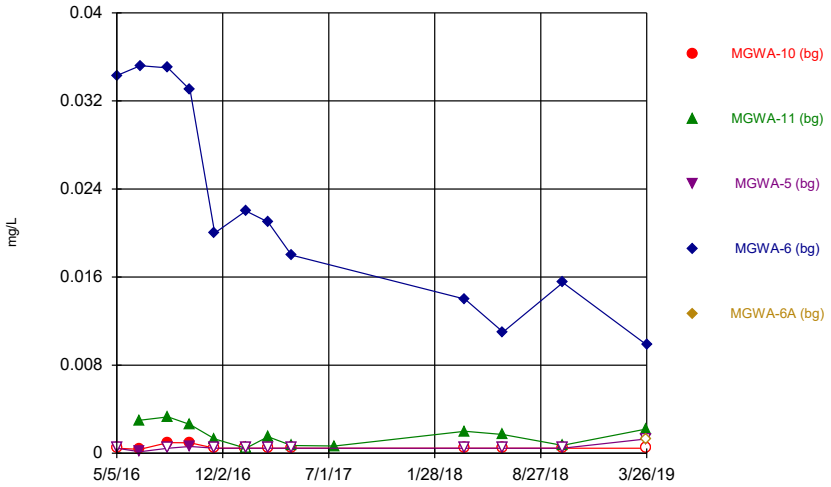
Statistical Analyses

March 2019 Data Statistical Analyses

Federal CCR Program

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG
Hollow symbols indicate censored values.

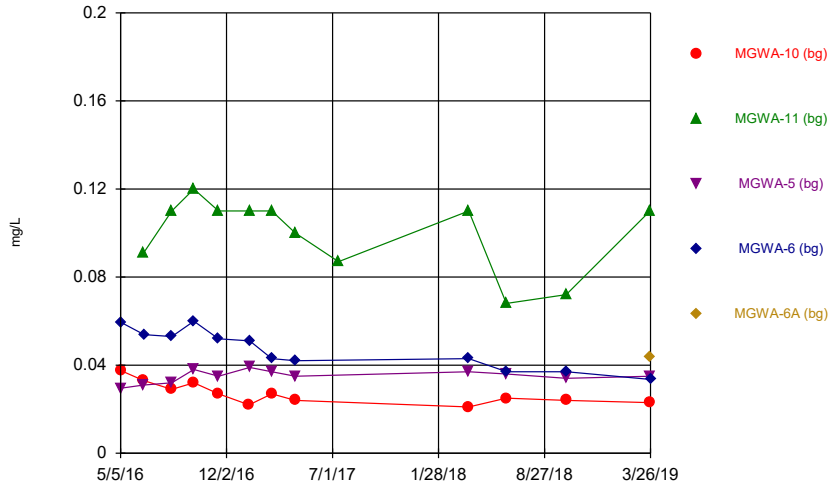
Time Series



Constituent: Arsenic Analysis Run 7/12/2019 9:53 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG

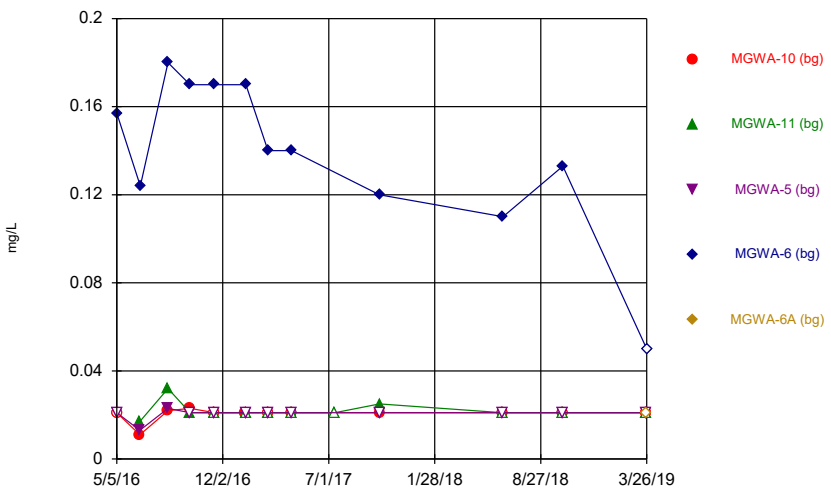
Time Series



Constituent: Barium Analysis Run 7/12/2019 9:53 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG
Hollow symbols indicate censored values.

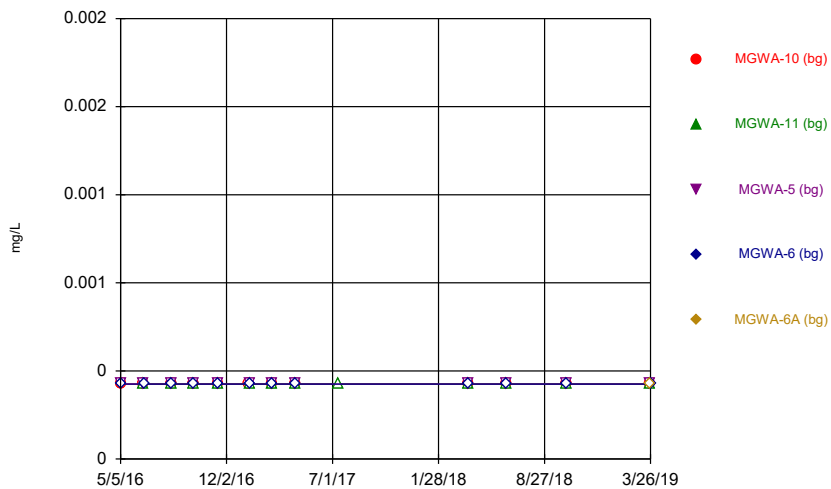
Time Series



Constituent: Boron Analysis Run 7/12/2019 9:53 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG
Hollow symbols indicate censored values.

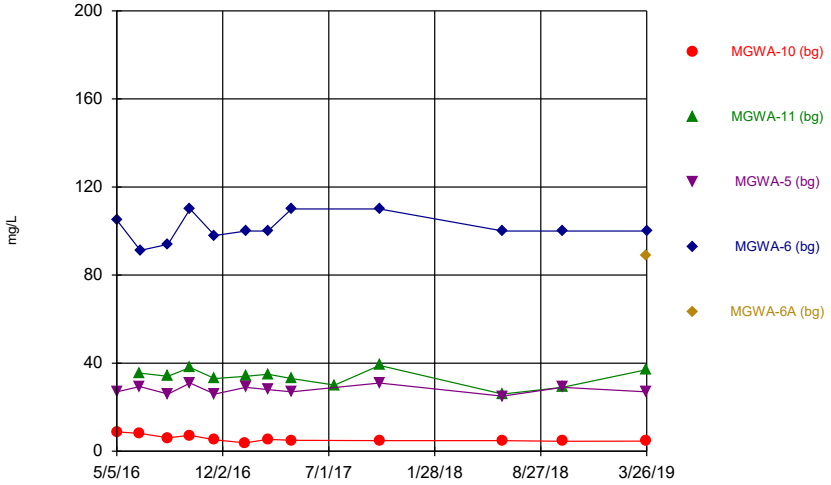
Time Series



Constituent: Cadmium Analysis Run 7/12/2019 9:53 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG

Time Series

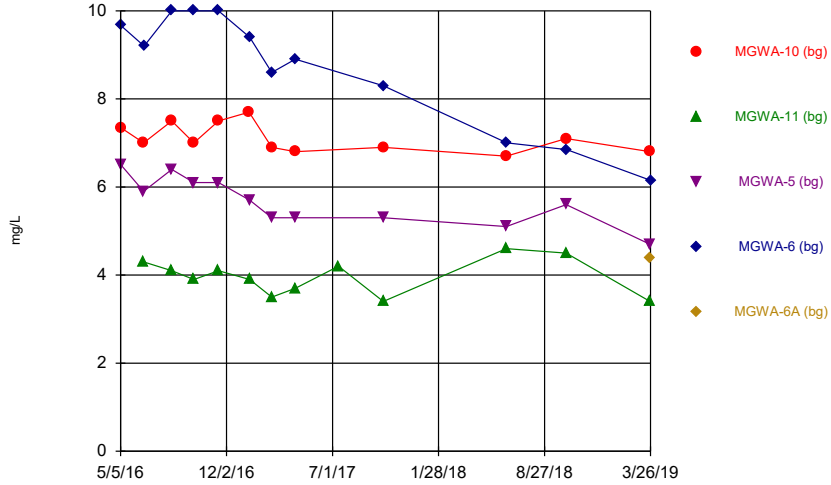


Constituent: Calcium Analysis Run 7/12/2019 9:53 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG

Time Series



Constituent: Chloride Analysis Run 7/12/2019 9:53 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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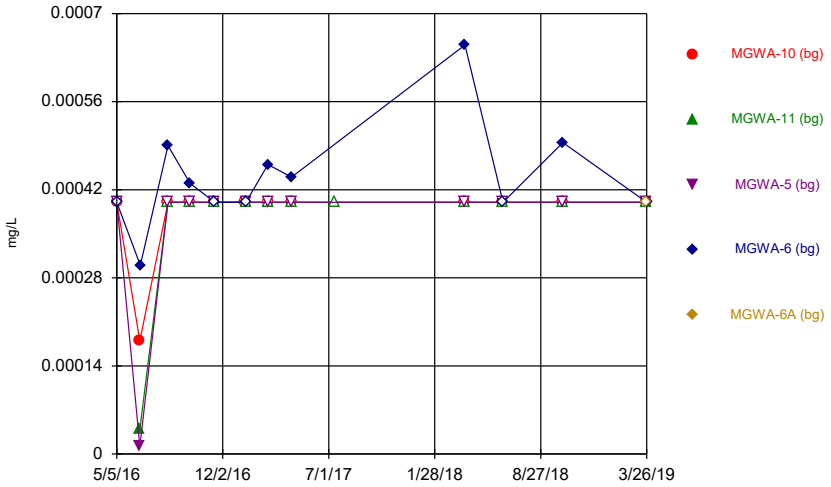
Hollow symbols indicate censored values.

Time Series

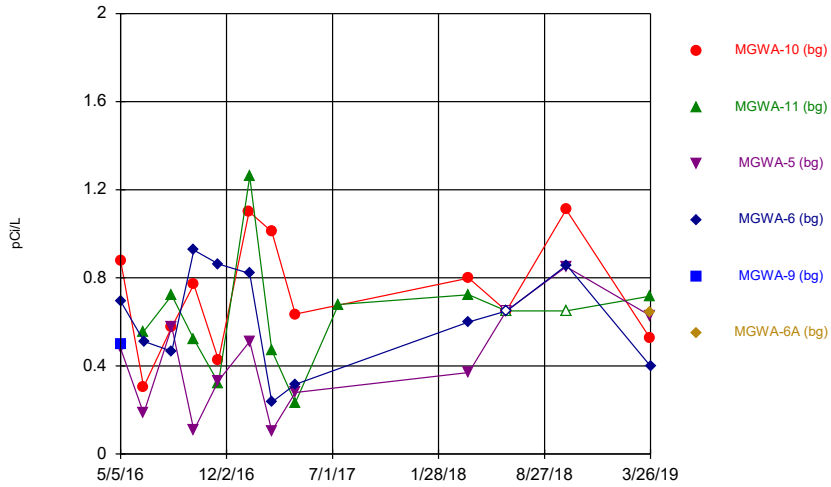


Constituent: Cobalt Analysis Run 7/12/2019 9:53 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG
Hollow symbols indicate censored values.

Time Series

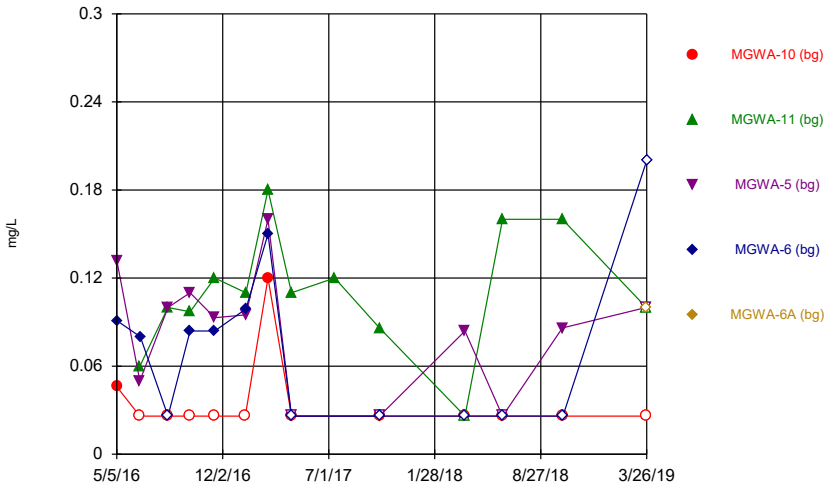


Constituent: Combined Radium 226 + 228 Analysis Run 7/12/2019 9:53 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG
Hollow symbols indicate censored values.

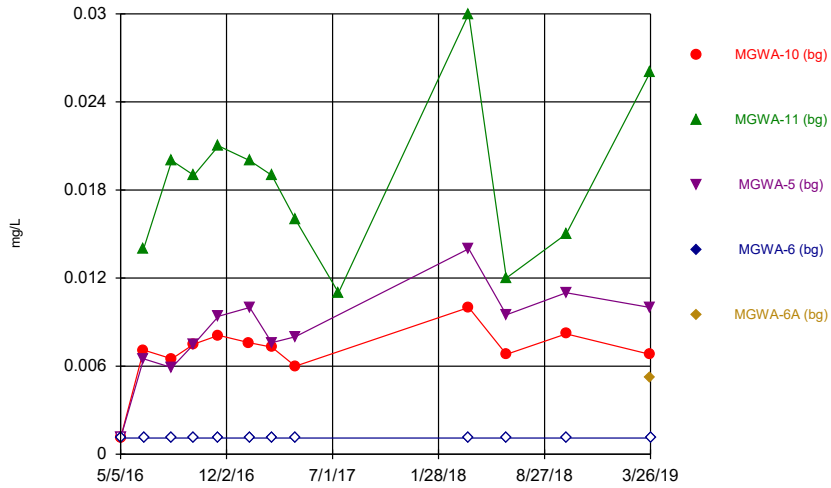
Time Series



Constituent: Fluoride Analysis Run 7/12/2019 9:53 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG
Hollow symbols indicate censored values.

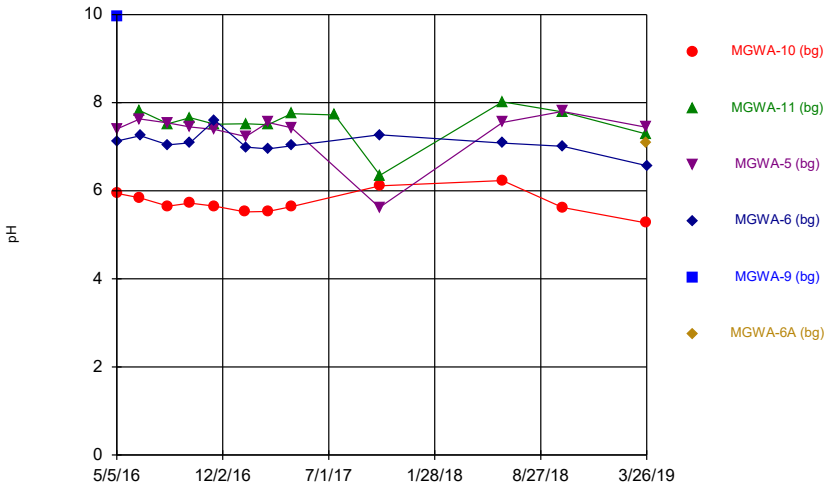
Time Series



Constituent: Lithium Analysis Run 7/12/2019 9:53 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG

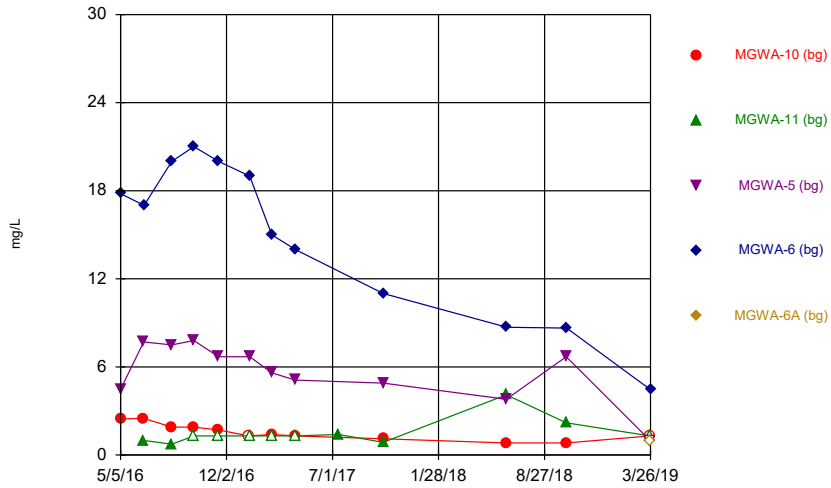
Time Series



Constituent: pH Analysis Run 7/12/2019 9:53 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

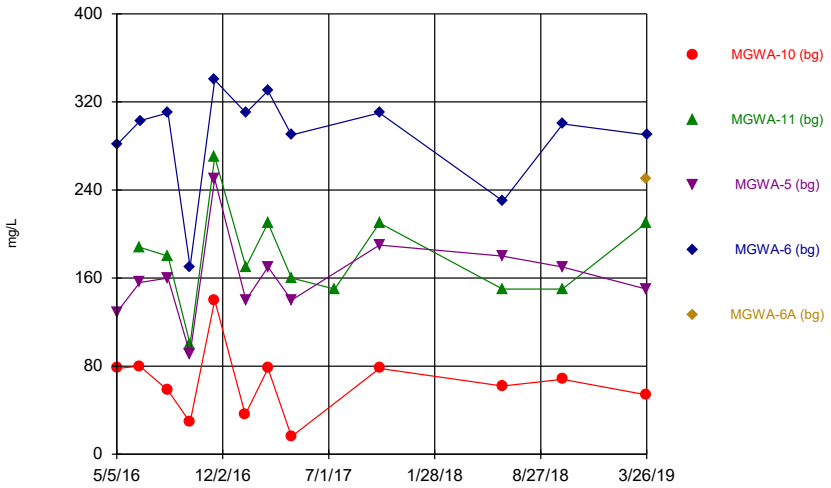
Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG
Hollow symbols indicate censored values.

Time Series



Constituent: Sulfate Analysis Run 7/12/2019 9:53 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Time Series



Constituent: TDS Analysis Run 7/12/2019 9:53 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Interwell Prediction Limit - Significant Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/12/2019, 9:58 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	**MGWC-1**	**0.18**	**n/a**	**3/26/2019**	**1.3**	**Yes**	**49**	**55.1**	**n/a**	**0.0007731**	NP (NDs) 1 of 2
Boron (mg/L)	**MGWC-2**	**0.18**	**n/a**	**3/26/2019**	**2.6**	**Yes**	**49**	**55.1**	**n/a**	**0.0007731**	NP (NDs) 1 of 2
Boron (mg/L)	**MGWC-3**	**0.18**	**n/a**	**3/26/2019**	**1.5**	**Yes**	**49**	**55.1**	**n/a**	**0.0007731**	NP (NDs) 1 of 2
Boron (mg/L)	**MGWC-7**	**0.18**	**n/a**	**3/26/2019**	**1.5**	**Yes**	**49**	**55.1**	**n/a**	**0.0007731**	NP (NDs) 1 of 2
Boron (mg/L)	**MGWC-8**	**0.18**	**n/a**	**3/26/2019**	**5.1**	**Yes**	**49**	**55.1**	**n/a**	**0.0007731**	NP (NDs) 1 of 2
Chloride (mg/L)	**MGWC-1**	**10.1**	**n/a**	**3/26/2019**	**13**	**Yes**	**49**	**0**	**No**	**0.0009403**	Param 1 of 2
Chloride (mg/L)	**MGWC-2**	**10.1**	**n/a**	**3/26/2019**	**14**	**Yes**	**49**	**0**	**No**	**0.0009403**	Param 1 of 2
Chloride (mg/L)	**MGWC-3**	**10.1**	**n/a**	**3/26/2019**	**14**	**Yes**	**49**	**0**	**No**	**0.0009403**	Param 1 of 2
Chloride (mg/L)	**MGWC-7**	**10.1**	**n/a**	**3/26/2019**	**11**	**Yes**	**49**	**0**	**No**	**0.0009403**	Param 1 of 2
Chloride (mg/L)	**MGWC-8**	**10.1**	**n/a**	**3/26/2019**	**11**	**Yes**	**49**	**0**	**No**	**0.0009403**	Param 1 of 2
Fluoride (mg/L)	**MGWC-12**	**0.2**	**n/a**	**3/26/2019**	**0.22**	**Yes**	**53**	**47.17**	**n/a**	**0.0006701**	NP (normality) 1 of 2
Sulfate (mg/L)	**MGWC-1**	**21**	**n/a**	**3/26/2019**	**130**	**Yes**	**49**	**20.41**	**n/a**	**0.0007731**	NP (normality) 1 of 2
Sulfate (mg/L)	**MGWC-2**	**21**	**n/a**	**3/26/2019**	**190**	**Yes**	**49**	**20.41**	**n/a**	**0.0007731**	NP (normality) 1 of 2
Sulfate (mg/L)	**MGWC-3**	**21**	**n/a**	**3/26/2019**	**110**	**Yes**	**49**	**20.41**	**n/a**	**0.0007731**	NP (normality) 1 of 2
Sulfate (mg/L)	**MGWC-7**	**21**	**n/a**	**3/26/2019**	**180**	**Yes**	**49**	**20.41**	**n/a**	**0.0007731**	NP (normality) 1 of 2
Sulfate (mg/L)	**MGWC-8**	**21**	**n/a**	**3/26/2019**	**420**	**Yes**	**49**	**20.41**	**n/a**	**0.0007731**	NP (normality) 1 of 2

Interwell Prediction Limit - All Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/12/2019, 9:58 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	**MGWC-1**	**0.18**	**n/a**	**3/26/2019**	**1.3**	**Yes**	**49**	**55.1**	**n/a**	**0.0007731**	NP (NDs) 1 of 2
Boron (mg/L)	MGWC-12	0.18	n/a	3/26/2019	0.05ND	No	49	55.1	n/a	0.0007731	NP (NDs) 1 of 2
Boron (mg/L)	**MGWC-2**	**0.18**	**n/a**	**3/26/2019**	**2.6**	**Yes**	**49**	**55.1**	**n/a**	**0.0007731**	NP (NDs) 1 of 2
Boron (mg/L)	**MGWC-3**	**0.18**	**n/a**	**3/26/2019**	**1.5**	**Yes**	**49**	**55.1**	**n/a**	**0.0007731**	NP (NDs) 1 of 2
Boron (mg/L)	**MGWC-7**	**0.18**	**n/a**	**3/26/2019**	**1.5**	**Yes**	**49**	**55.1**	**n/a**	**0.0007731**	NP (NDs) 1 of 2
Boron (mg/L)	**MGWC-8**	**0.18**	**n/a**	**3/26/2019**	**5.1**	**Yes**	**49**	**55.1**	**n/a**	**0.0007731**	NP (NDs) 1 of 2
Chloride (mg/L)	**MGWC-1**	**10.1**	**n/a**	**3/26/2019**	**13**	**Yes**	**49**	**0**	**No**	**0.0009403**	Param 1 of 2
Chloride (mg/L)	MGWC-12	10.1	n/a	3/26/2019	3.8	No	49	0	No	0.0009403	Param 1 of 2
Chloride (mg/L)	**MGWC-2**	**10.1**	**n/a**	**3/26/2019**	**14**	**Yes**	**49**	**0**	**No**	**0.0009403**	Param 1 of 2
Chloride (mg/L)	**MGWC-3**	**10.1**	**n/a**	**3/26/2019**	**14**	**Yes**	**49**	**0**	**No**	**0.0009403**	Param 1 of 2
Chloride (mg/L)	**MGWC-7**	**10.1**	**n/a**	**3/26/2019**	**11**	**Yes**	**49**	**0**	**No**	**0.0009403**	Param 1 of 2
Chloride (mg/L)	**MGWC-8**	**10.1**	**n/a**	**3/26/2019**	**11**	**Yes**	**49**	**0**	**No**	**0.0009403**	Param 1 of 2
Fluoride (mg/L)	MGWC-1	0.2	n/a	3/26/2019	0.18	No	53	47.17	n/a	0.0006701	NP (normality) 1 of 2
Fluoride (mg/L)	**MGWC-12**	**0.2**	**n/a**	**3/26/2019**	**0.22**	**Yes**	**53**	**47.17**	**n/a**	**0.0006701**	NP (normality) 1 of 2
Fluoride (mg/L)	MGWC-2	0.2	n/a	3/26/2019	0.1ND	No	53	47.17	n/a	0.0006701	NP (normality) 1 of 2
Fluoride (mg/L)	MGWC-3	0.2	n/a	3/26/2019	0.2ND	No	53	47.17	n/a	0.0006701	NP (normality) 1 of 2
Fluoride (mg/L)	MGWC-7	0.2	n/a	3/26/2019	0.2ND	No	53	47.17	n/a	0.0006701	NP (normality) 1 of 2
Fluoride (mg/L)	MGWC-8	0.2	n/a	3/26/2019	0.2ND	No	53	47.17	n/a	0.0006701	NP (normality) 1 of 2
Sulfate (mg/L)	**MGWC-1**	**21**	**n/a**	**3/26/2019**	**130**	**Yes**	**49**	**20.41**	**n/a**	**0.0007731**	NP (normality) 1 of 2
Sulfate (mg/L)	MGWC-12	21	n/a	3/26/2019	1ND	No	49	20.41	n/a	0.0007731	NP (normality) 1 of 2
Sulfate (mg/L)	**MGWC-2**	**21**	**n/a**	**3/26/2019**	**190**	**Yes**	**49**	**20.41**	**n/a**	**0.0007731**	NP (normality) 1 of 2
Sulfate (mg/L)	**MGWC-3**	**21**	**n/a**	**3/26/2019**	**110**	**Yes**	**49**	**20.41**	**n/a**	**0.0007731**	NP (normality) 1 of 2
Sulfate (mg/L)	**MGWC-7**	**21**	**n/a**	**3/26/2019**	**180**	**Yes**	**49**	**20.41**	**n/a**	**0.0007731**	NP (normality) 1 of 2
Sulfate (mg/L)	**MGWC-8**	**21**	**n/a**	**3/26/2019**	**420**	**Yes**	**49**	**20.41**	**n/a**	**0.0007731**	NP (normality) 1 of 2

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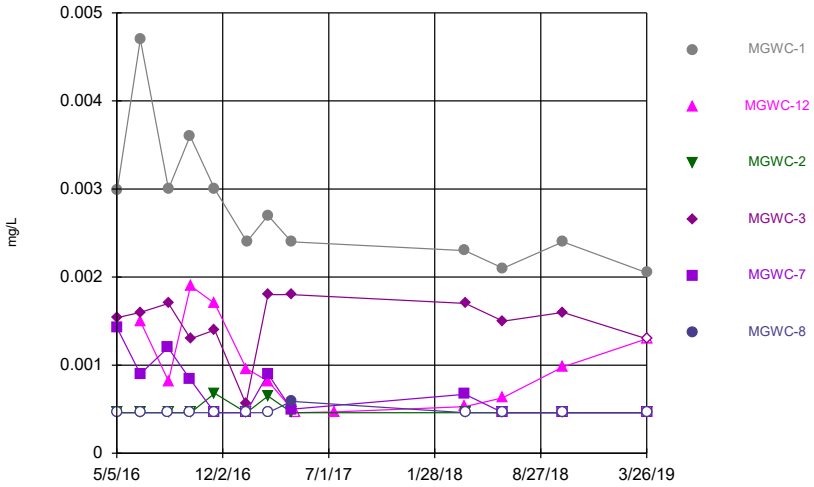
Hollow symbols indicate censored values.

Time Series



Constituent: Arsenic Analysis Run 7/12/2019 9:56 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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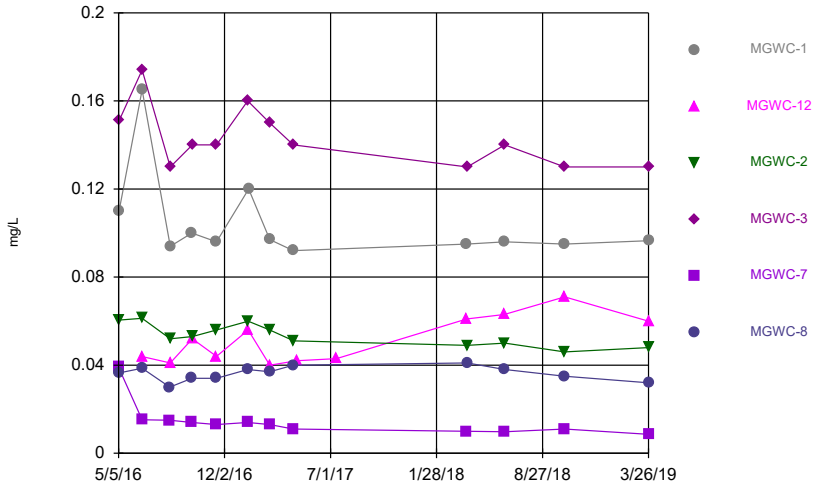
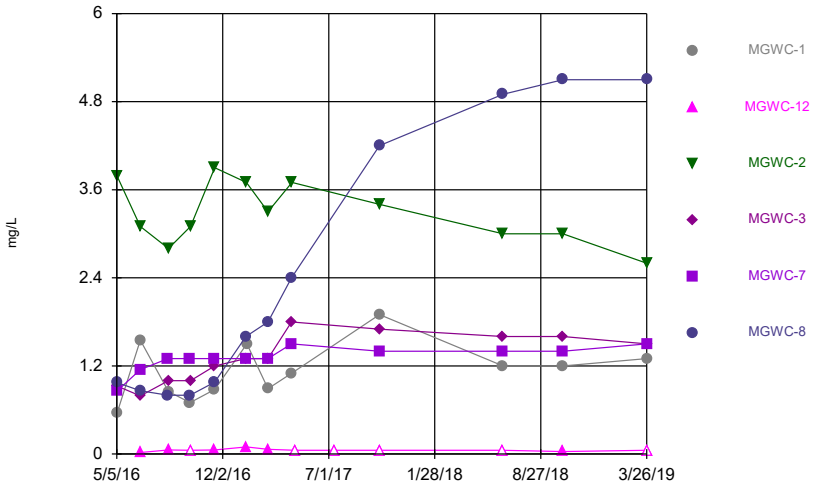
Time Series



Constituent: Barium Analysis Run 7/12/2019 9:56 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG
Hollow symbols indicate censored values.

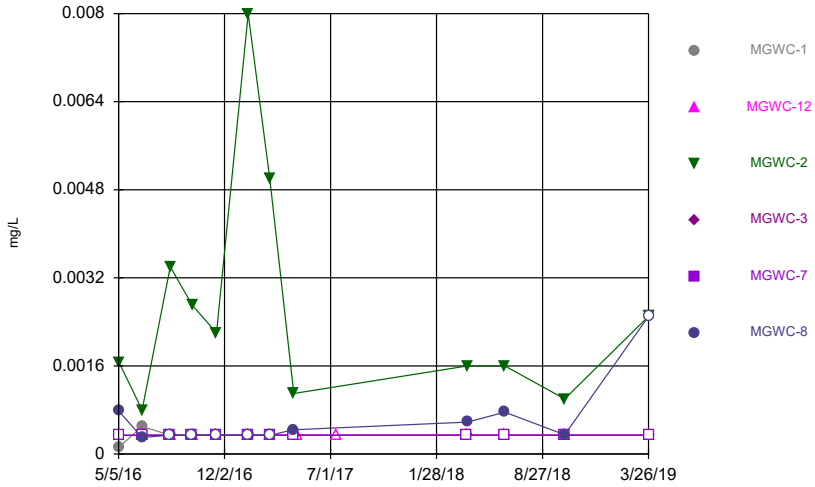
Time Series



Constituent: Boron Analysis Run 7/12/2019 9:56 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG
Hollow symbols indicate censored values.

Time Series



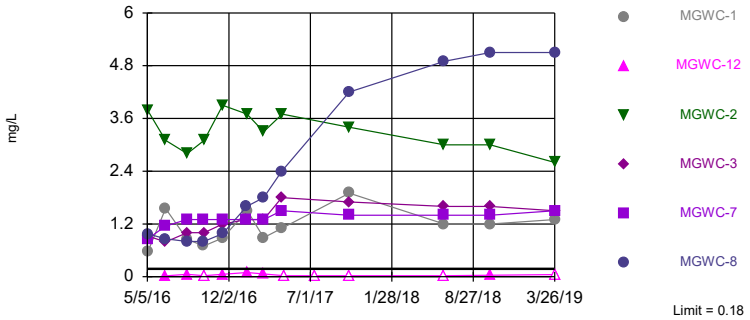
Constituent: Cadmium Analysis Run 7/12/2019 9:56 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG
Hollow symbols indicate censored values.

Exceeds Limit: MGWC-1, MGWC-2, MGWC-3, MGWC-7, MGWC-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 49 background values. 55.1% NDs. Annual per-constituent alpha = 0.0123. Individual comparison alpha = 0.0007731 (1 of 2). Comparing 6 points to limit. Assumes 2 future values.

Constituent: Boron Analysis Run 7/12/2019 9:57 AM

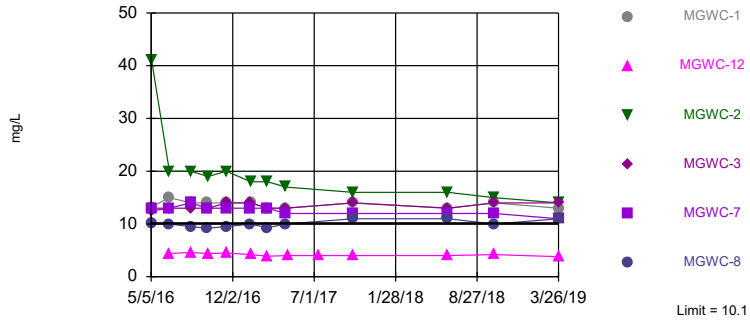
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sanitas™ v.9.6.18 Software licensed to GEI Consultants, Inc. P.C. UG

Exceeds Limit: MGWC-1, MGWC-2, MGWC-3, MGWC-7, MGWC-8

Prediction Limit

Interwell Parametric



Background Data Summary: Mean=6.313, Std. Dev.=1.91, n=49. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9391, critical = 0.929. Kappa = 1.985 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.0009403. Comparing 6 points to limit. Assumes 2 future values.

Constituent: Chloride Analysis Run 7/12/2019 9:57 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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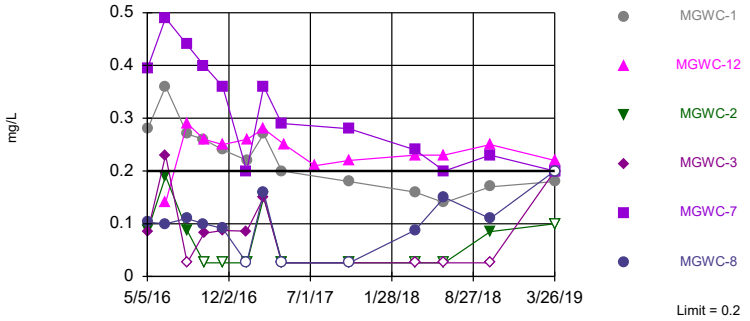
Hollow symbols indicate censored values.

Exceeds Limit: MGWC-12

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 53 background values. 47.17% NDs. Annual per-constituent alpha = 0.01067. Individual comparison alpha = 0.0006701 (1 of 2). Comparing 6 points to limit. Assumes 2 future values.

Constituent: Fluoride Analysis Run 7/12/2019 9:57 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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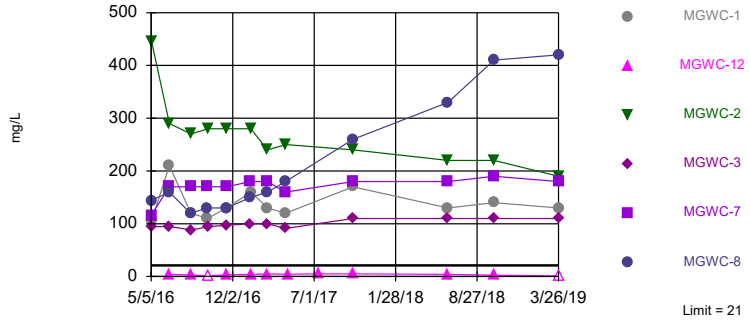
Hollow symbols indicate censored values.

Exceeds Limit: MGWC-1, MGWC-2, MGWC-3, MGWC-7, MGWC-8

Prediction Limit

Interwell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 49 background values. 20.41% NDs. Annual per-constituent alpha = 0.0123. Individual comparison alpha = 0.0007731 (1 of 2). Comparing 6 points to limit. Assumes 2 future values.

Constituent: Sulfate Analysis Run 7/12/2019 9:57 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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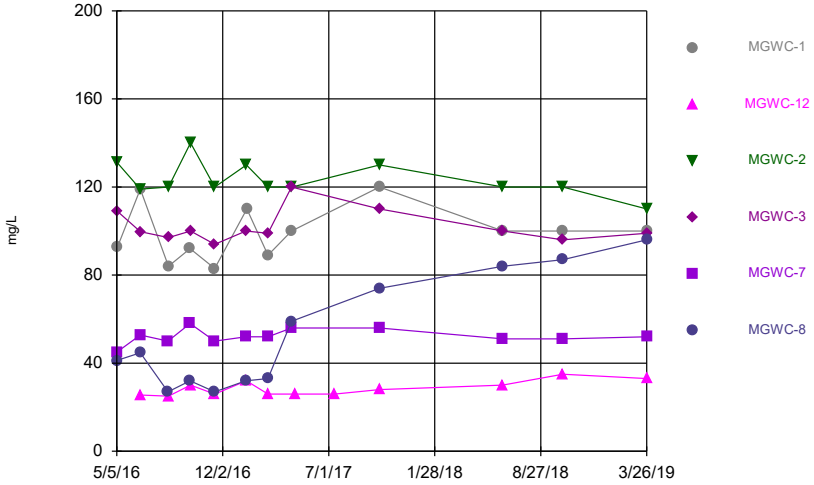
Time Series



Constituent: Calcium Analysis Run 7/12/2019 9:56 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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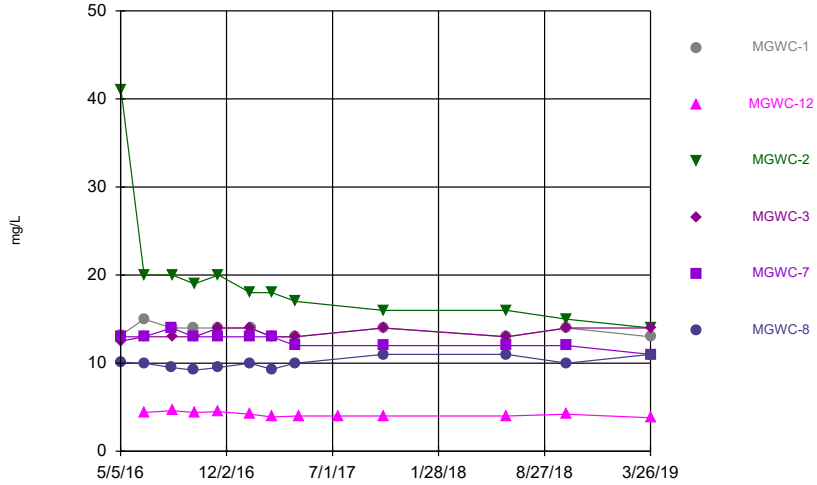
Time Series



Constituent: Chloride Analysis Run 7/12/2019 9:56 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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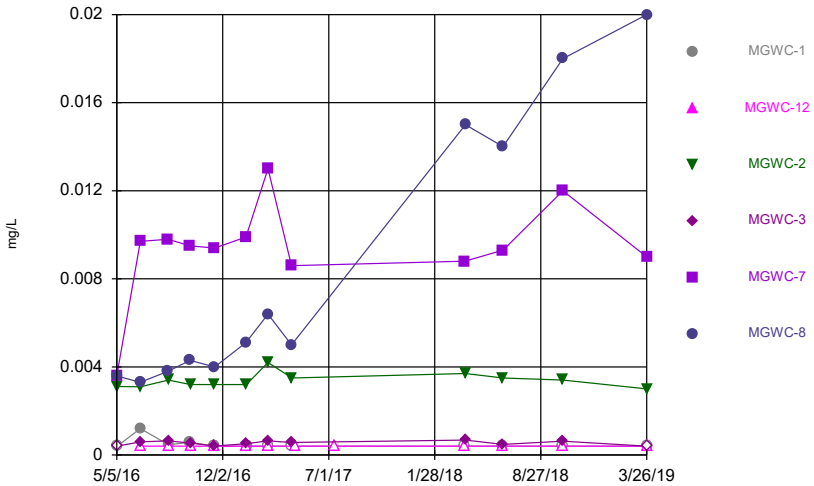
Hollow symbols indicate censored values.

Time Series



Constituent: Cobalt Analysis Run 7/12/2019 9:56 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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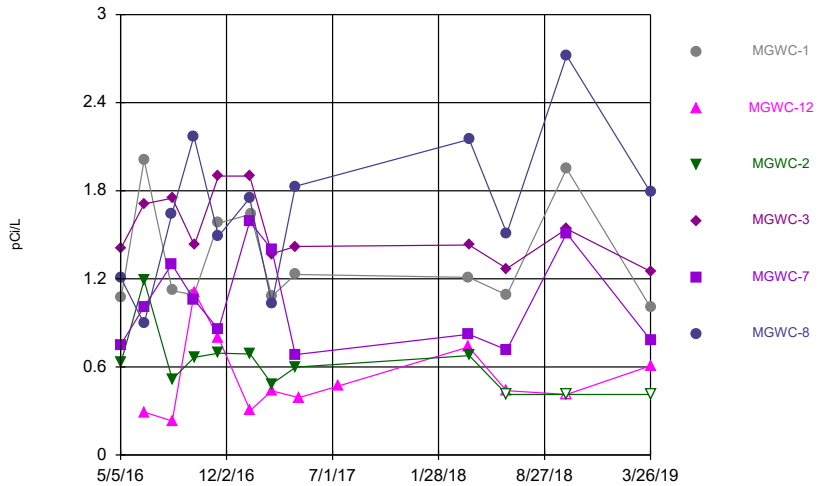
Hollow symbols indicate censored values.

Time Series



Constituent: Combined Radium 226 + 228 Analysis Run 7/12/2019 9:56 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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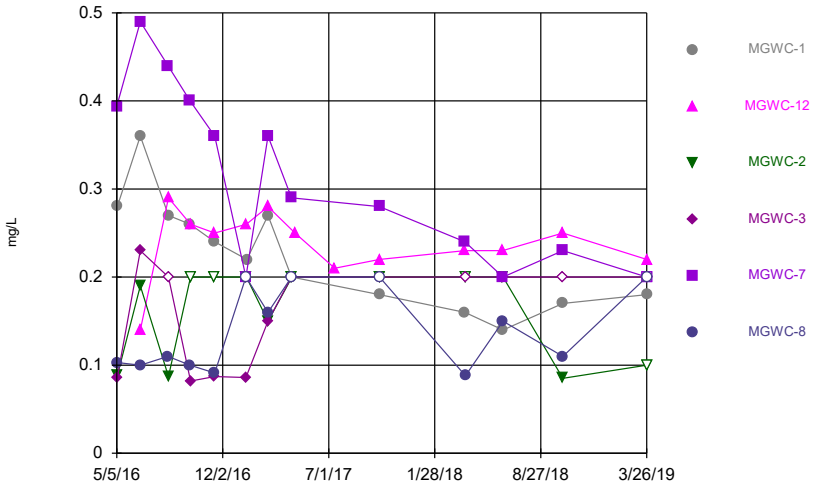
Hollow symbols indicate censored values.

Time Series



Constituent: Fluoride Analysis Run 7/12/2019 9:56 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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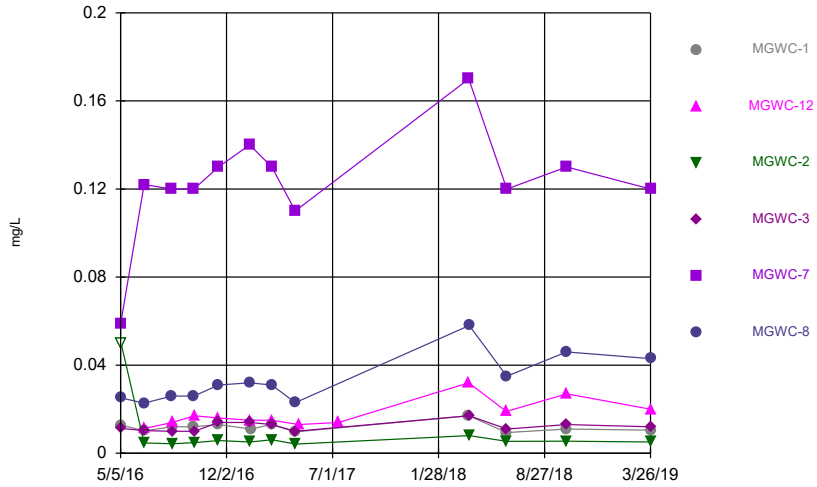
Hollow symbols indicate censored values.

Time Series



Constituent: Lithium Analysis Run 7/12/2019 9:56 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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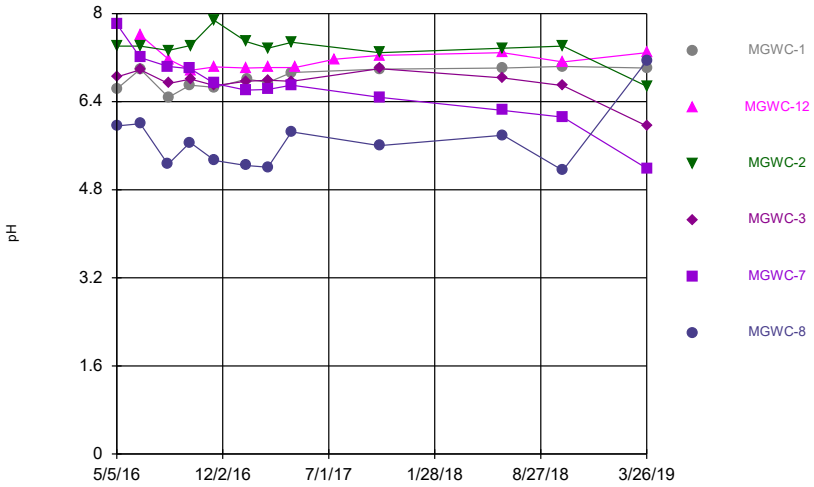
Time Series



Constituent: pH Analysis Run 7/12/2019 9:56 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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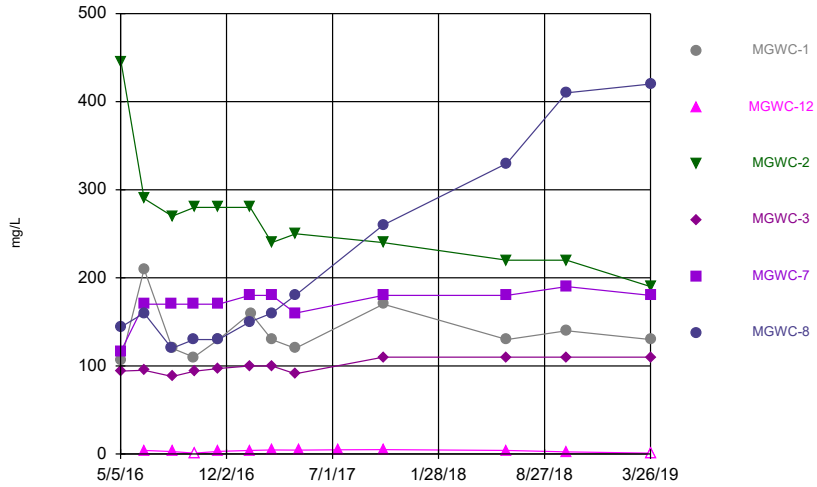
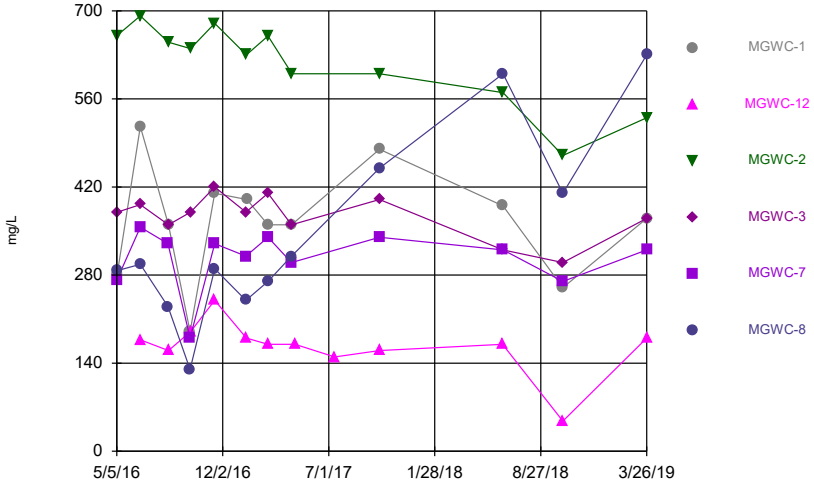
Hollow symbols indicate censored values.

Time Series



Constituent: Sulfate Analysis Run 7/12/2019 9:56 AM
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Time Series



Constituent: TDS Analysis Run 7/12/2019 9:56 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Intrawell Prediction Limit - Significant Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/12/2019, 10:02 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Calcium (mg/L)	**MGWC-12**	**32**	**n/a**	**3/26/2019**	**33**	**Yes**	**8**	**0**	**n/a**	**0.02144**	NP (normality) 1 of 2
Calcium (mg/L)	**MGWC-8**	**69.75**	**n/a**	**3/26/2019**	**96**	**Yes**	**8**	**0**	**No**	**0.0009403**	Param 1 of 2
pH (pH)	**MGWC-2**	**7.87**	**7.33**	**3/26/2019**	**6.68**	**Yes**	**8**	**0**	**n/a**	**0.04288**	NP (normality) 1 of 2
pH (pH)	**MGWC-3**	**7.063**	**6.534**	**3/26/2019**	**5.96**	**Yes**	**8**	**0**	**No**	**0.0004701**	Param 1 of 2
pH (pH)	**MGWC-7**	**8.184**	**5.744**	**3/26/2019**	**5.19**	**Yes**	**8**	**0**	**No**	**0.0004701**	Param 1 of 2
pH (pH)	**MGWC-8**	**6.592**	**4.535**	**3/26/2019**	**7.14**	**Yes**	**8**	**0**	**No**	**0.0004701**	Param 1 of 2
TDS (mg/L)	**MGWC-8**	**432.2**	**n/a**	**3/26/2019**	**630**	**Yes**	**8**	**0**	**No**	**0.0009403**	Param 1 of 2

Intrawell Prediction Limit - All Results

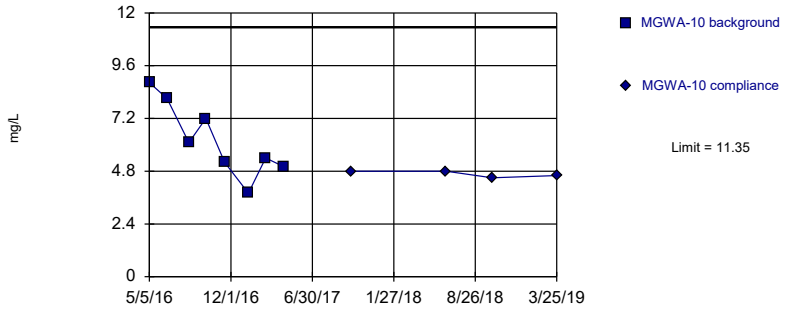
Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/12/2019, 10:02 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Calcium (mg/L)	MGWA-10	11.35	n/a	3/25/2019	4.6	No	8	0	No	0.0009403	Param 1 of 2
Calcium (mg/L)	MGWA-11	41.01	n/a	3/25/2019	37	No	8	0	No	0.0009403	Param 1 of 2
Calcium (mg/L)	MGWA-5	33.26	n/a	3/25/2019	27	No	8	0	No	0.0009403	Param 1 of 2
Calcium (mg/L)	MGWA-6	121.8	n/a	3/26/2019	100	No	8	0	No	0.0009403	Param 1 of 2
Calcium (mg/L)	MGWC-1	134.5	n/a	3/26/2019	100	No	8	0	No	0.0009403	Param 1 of 2
Calcium (mg/L)	**MGWC-12**	**32**	**n/a**	**3/26/2019**	**33**	**Yes**	**8**	**0**	**n/a**	**0.02144**	NP (normality) 1 of 2
Calcium (mg/L)	MGWC-2	148.4	n/a	3/26/2019	110	No	8	0	No	0.0009403	Param 1 of 2
Calcium (mg/L)	MGWC-3	127.4	n/a	3/26/2019	99	No	8	0	No	0.0009403	Param 1 of 2
Calcium (mg/L)	MGWC-7	63.9	n/a	3/26/2019	52	No	8	0	No	0.0009403	Param 1 of 2
Calcium (mg/L)	**MGWC-8**	**69.75**	**n/a**	**3/26/2019**	**96**	**Yes**	**8**	**0**	**No**	**0.0009403**	Param 1 of 2
pH (pH)	MGWA-10	6.122	5.251	3/25/2019	5.27	No	8	0	No	0.0004701	Param 1 of 2
pH (pH)	MGWA-11	8.011	7.239	3/25/2019	7.29	No	8	0	No	0.0004701	Param 1 of 2
pH (pH)	MGWA-5	7.822	7.083	3/25/2019	7.44	No	8	0	No	0.0004701	Param 1 of 2
pH (pH)	MGWA-6	7.767	6.501	3/26/2019	6.57	No	8	0	No	0.0004701	Param 1 of 2
pH (pH)	MGWC-1	7.24	6.25	3/26/2019	7.01	No	8	0	No	0.0004701	Param 1 of 2
pH (pH)	MGWC-12	7.61	6.97	3/26/2019	7.29	No	8	0	n/a	0.04288	NP (normality) 1 of 2
pH (pH)	**MGWC-2**	**7.87**	**7.33**	**3/26/2019**	**6.68**	**Yes**	**8**	**0**	**n/a**	**0.04288**	NP (normality) 1 of 2
pH (pH)	**MGWC-3**	**7.063**	**6.534**	**3/26/2019**	**5.96**	**Yes**	**8**	**0**	**No**	**0.0004701**	Param 1 of 2
pH (pH)	**MGWC-7**	**8.184**	**5.744**	**3/26/2019**	**5.19**	**Yes**	**8**	**0**	**No**	**0.0004701**	Param 1 of 2
pH (pH)	**MGWC-8**	**6.592**	**4.535**	**3/26/2019**	**7.14**	**Yes**	**8**	**0**	**No**	**0.0004701**	Param 1 of 2
TDS (mg/L)	MGWA-10	182.6	n/a	3/25/2019	54	No	8	0	No	0.0009403	Param 1 of 2
TDS (mg/L)	MGWA-11	326.4	n/a	3/25/2019	210	No	8	0	No	0.0009403	Param 1 of 2
TDS (mg/L)	MGWA-5	291.7	n/a	3/25/2019	150	No	8	0	No	0.0009403	Param 1 of 2
TDS (mg/L)	MGWA-6	450.9	n/a	3/26/2019	290	No	8	0	No	0.0009403	Param 1 of 2
TDS (mg/L)	MGWC-1	646.6	n/a	3/26/2019	370	No	8	0	No	0.0009403	Param 1 of 2
TDS (mg/L)	MGWC-12	261.8	n/a	3/26/2019	180	No	8	0	No	0.0009403	Param 1 of 2
TDS (mg/L)	MGWC-2	738.9	n/a	3/26/2019	530	No	8	0	No	0.0009403	Param 1 of 2
TDS (mg/L)	MGWC-3	449.9	n/a	3/26/2019	370	No	8	0	No	0.0009403	Param 1 of 2
TDS (mg/L)	MGWC-7	470.4	n/a	3/26/2019	320	No	8	0	No	0.0009403	Param 1 of 2
TDS (mg/L)	**MGWC-8**	**432.2**	**n/a**	**3/26/2019**	**630**	**Yes**	**8**	**0**	**No**	**0.0009403**	Param 1 of 2

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.204, Std. Dev.=1.706, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9557, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

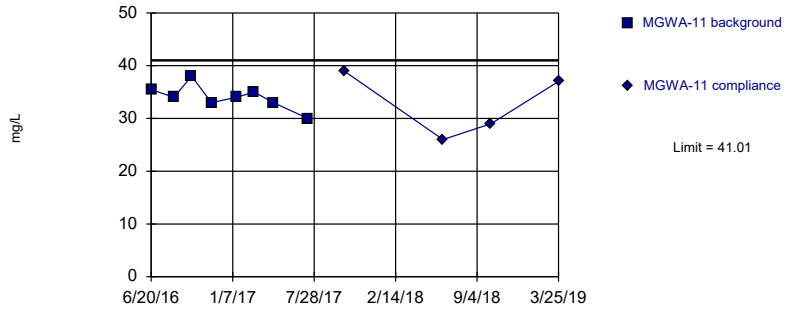
Constituent: Calcium Analysis Run 7/12/2019 10:00 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=34.06, Std. Dev.=2.306, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9612, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

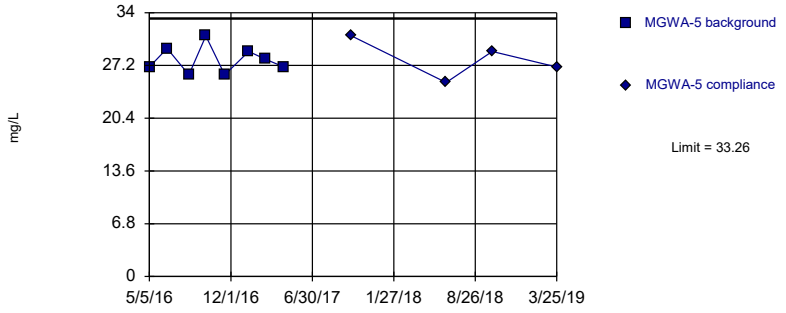
Constituent: Calcium Analysis Run 7/12/2019 10:00 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=27.93, Std. Dev.=1.769, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9267, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

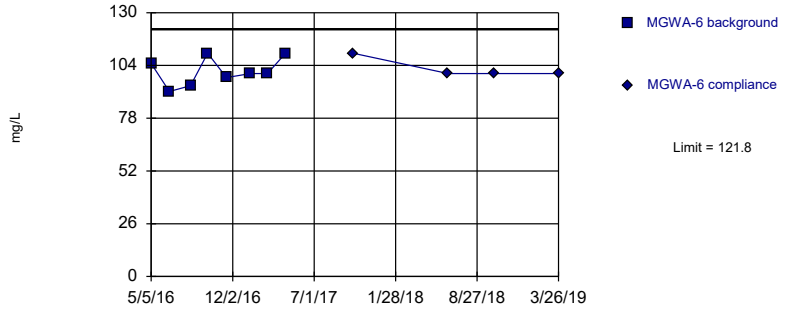
Constituent: Calcium Analysis Run 7/12/2019 10:00 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=101, Std. Dev.=6.908, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9337, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

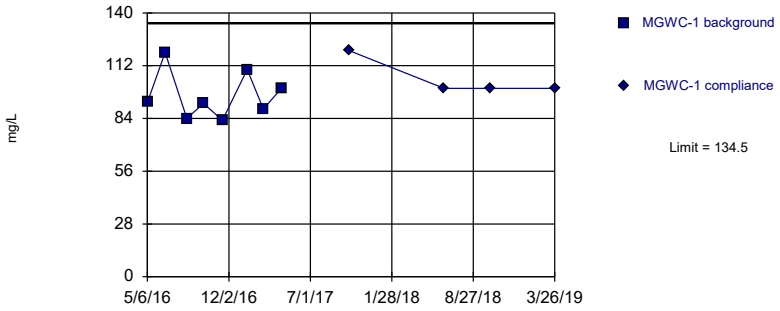
Constituent: Calcium Analysis Run 7/12/2019 10:00 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=96.19, Std. Dev.=12.71, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9031, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

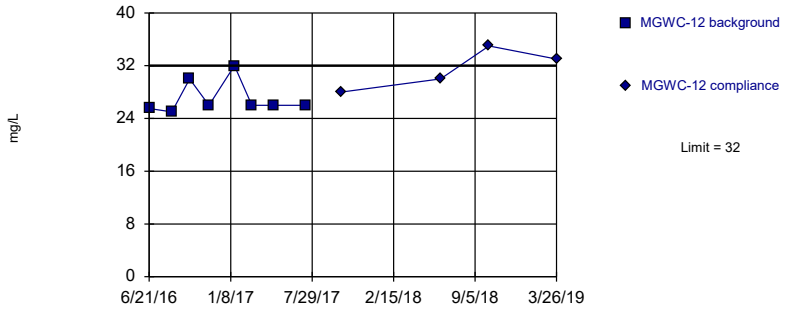
Constituent: Calcium Analysis Run 7/12/2019 10:00 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Exceeds Limit

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 8 background values. Well-constituent pair annual alpha = 0.04242. Individual comparison alpha = 0.02144 (1 of 2).

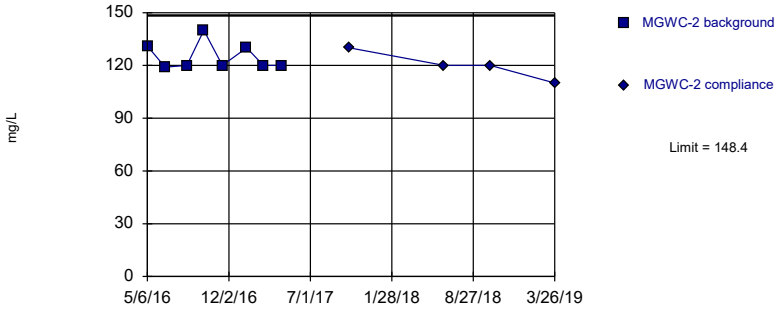
Constituent: Calcium Analysis Run 7/12/2019 10:00 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=125, Std. Dev.=7.764, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.762, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

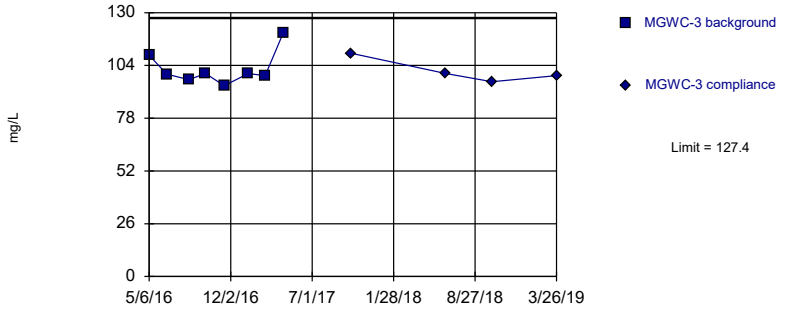
Constituent: Calcium Analysis Run 7/12/2019 10:00 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=102.3, Std. Dev.=8.31, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8048, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

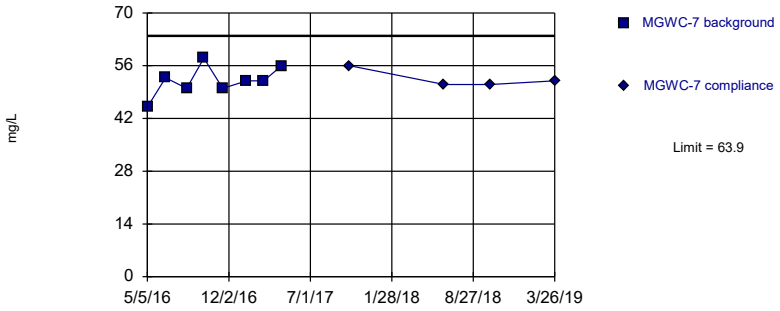
Constituent: Calcium Analysis Run 7/12/2019 10:00 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=51.98, Std. Dev.=3.958, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.959, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

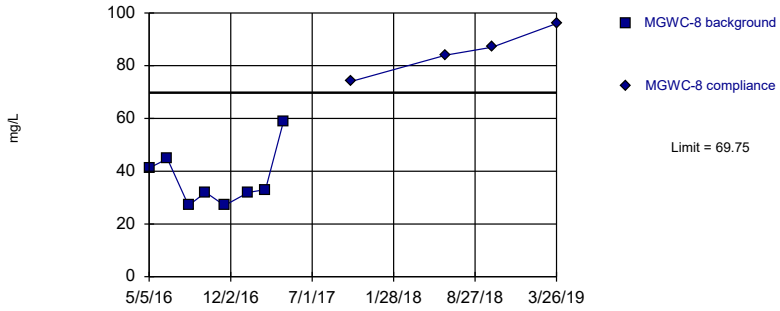
Constituent: Calcium Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=36.99, Std. Dev.=10.87, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8573, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

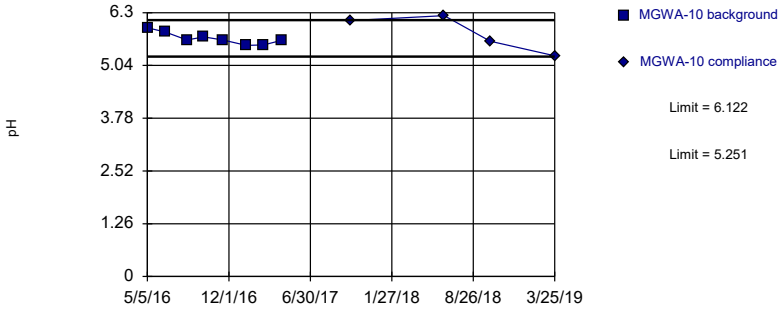
Constituent: Calcium Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=5.686, Std. Dev.=0.1444, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9186, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

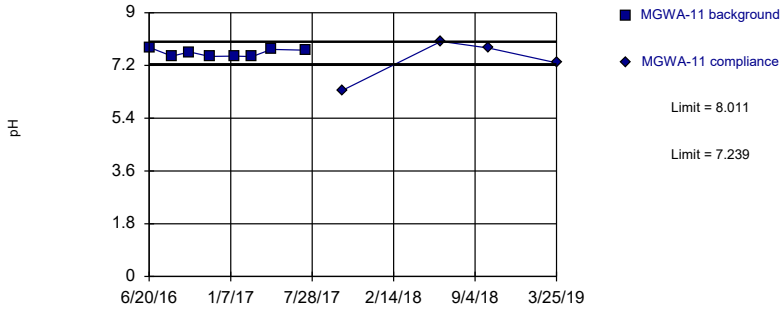
Constituent: pH Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.625, Std. Dev.=0.1281, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8497, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

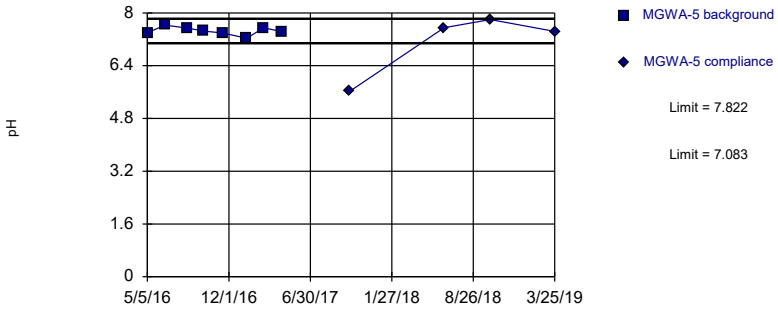
Constituent: pH Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.453, Std. Dev.=0.1227, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9613, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: pH Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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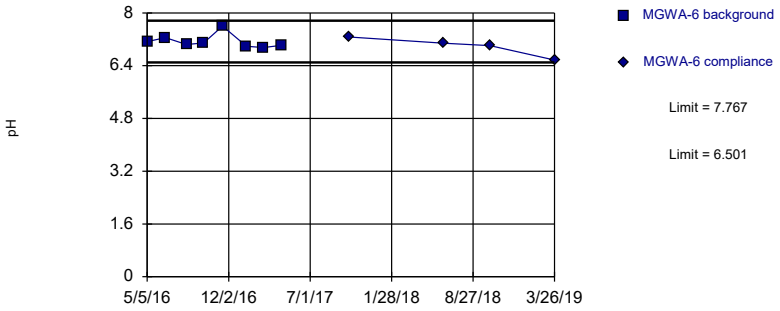
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=7.134, Std. Dev.=0.2101, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8014, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: pH Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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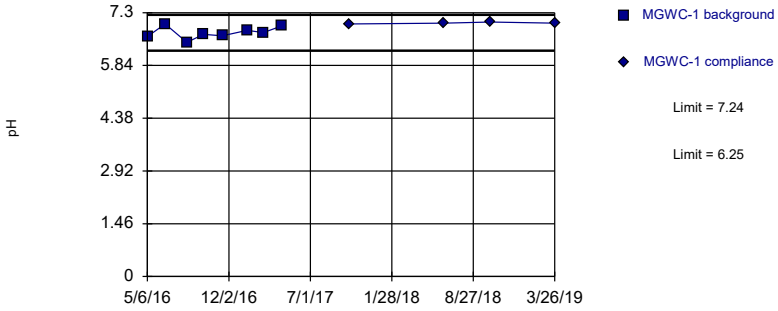
Within Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.745, Std. Dev.=0.1643, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9754, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: pH Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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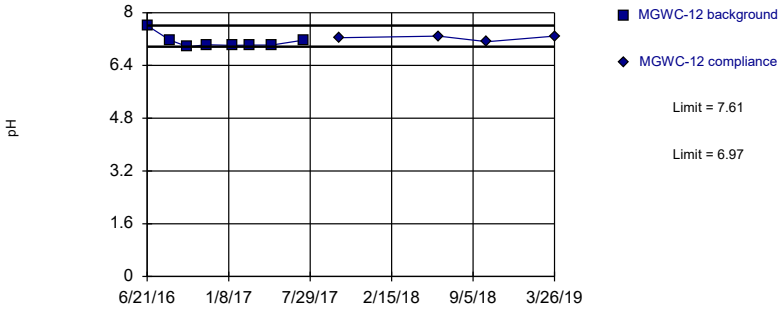
Within Limits

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 8 background values. Well-constituent pair annual alpha = 0.08484. Individual comparison alpha = 0.04288 (1 of 2).

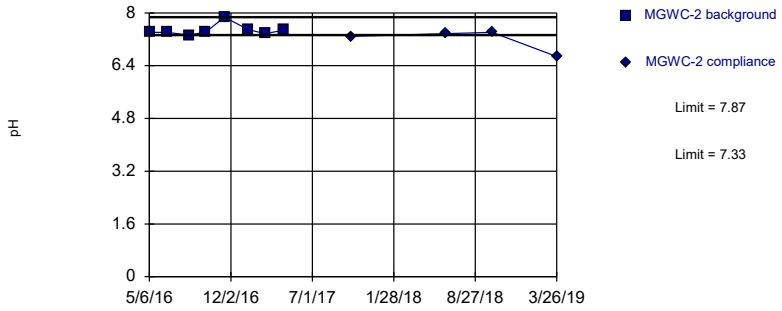
Constituent: pH Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Exceeds Limits

Prediction Limit

Intrawell Non-parametric



Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 8 background values. Well-constituent pair annual alpha = 0.08484. Individual comparison alpha = 0.04288 (1 of 2).

Constituent: pH Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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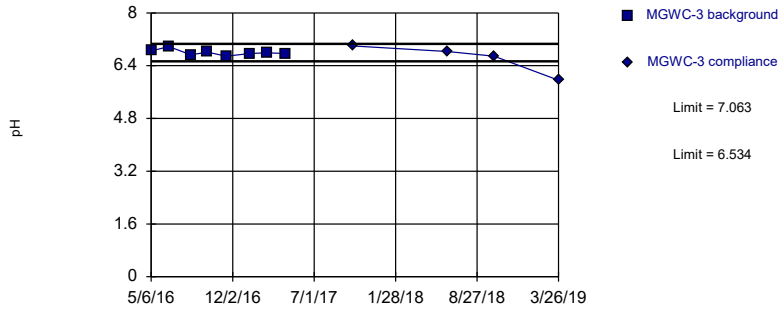
Exceeds Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.799, Std. Dev.=0.08774, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.911, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: pH Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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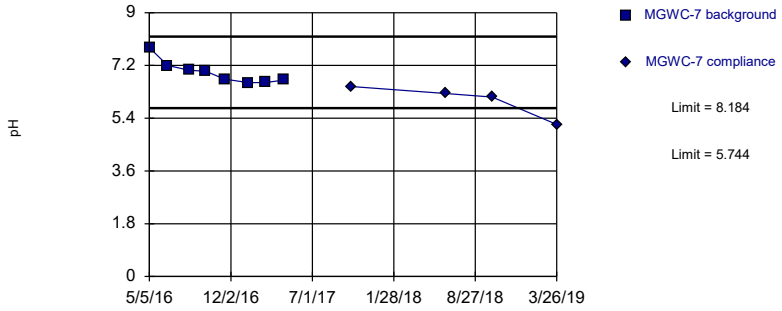
Exceeds Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=6.964, Std. Dev.=0.4047, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8447, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: pH Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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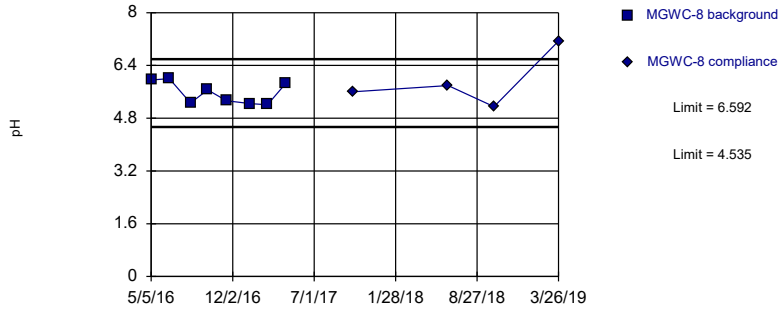
Exceeds Limits

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=5.564, Std. Dev.=0.3413, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8393, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

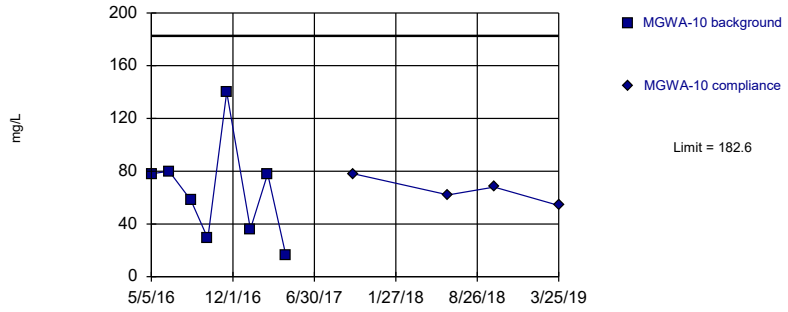
Constituent: pH Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=64.38, Std. Dev.=39.23, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9214, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: TDS Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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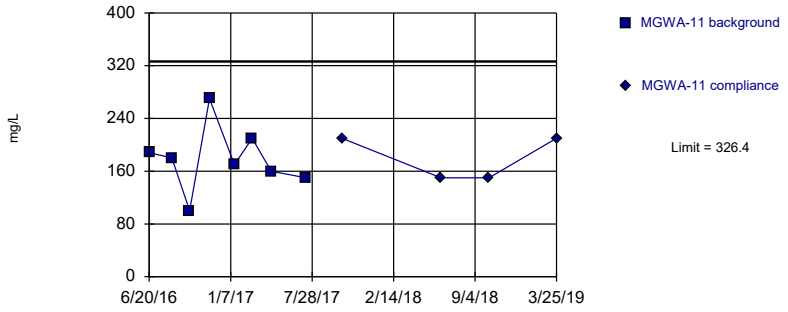
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=178.5, Std. Dev.=49.06, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9621, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: TDS Analysis Run 7/12/2019 10:01 AM

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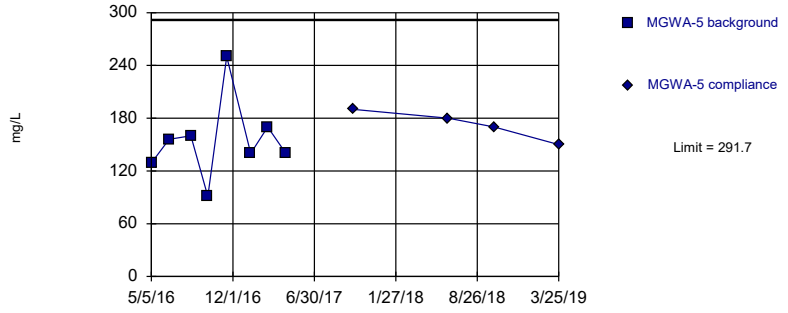
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=154.5, Std. Dev.=45.51, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.89, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: TDS Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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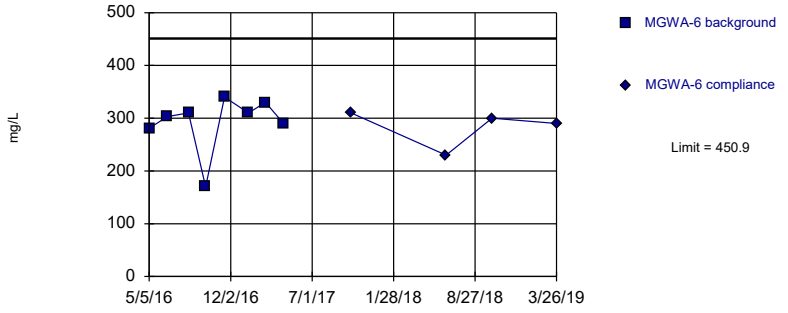
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=291.8, Std. Dev.=52.81, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.7656, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

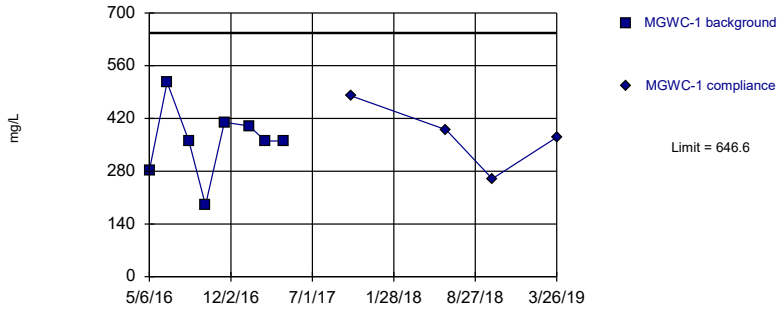
Constituent: TDS Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=359.8, Std. Dev.=95.18, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9447, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: TDS Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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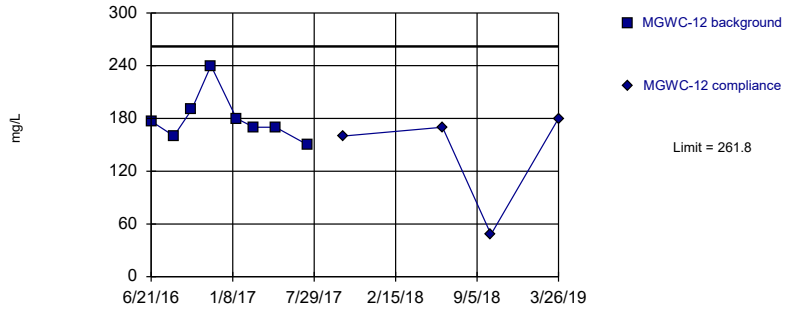
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=179.6, Std. Dev.=27.28, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8389, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: TDS Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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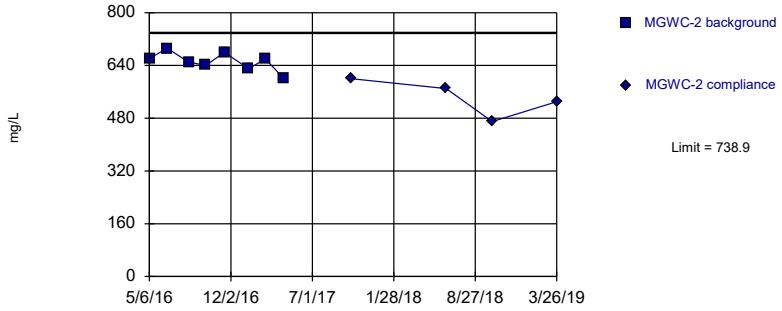
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=651.6, Std. Dev.=28.94, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9778, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: TDS Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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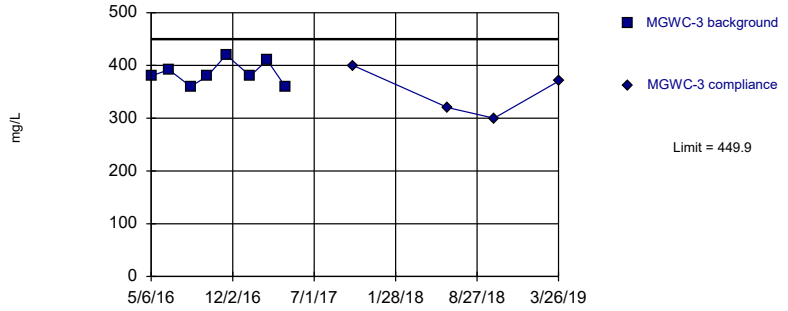
Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=385.3, Std. Dev.=21.46, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9121, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

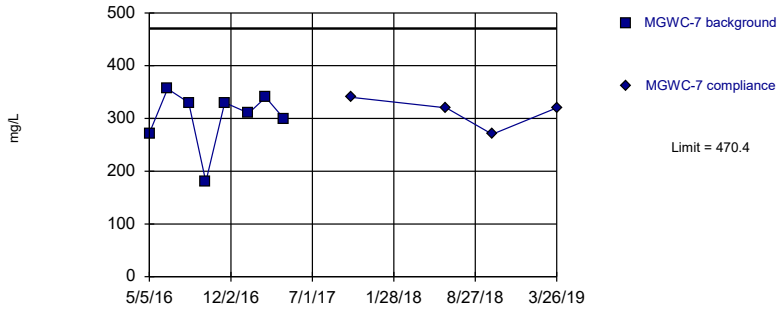
Constituent: TDS Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Within Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=302.3, Std. Dev.=55.78, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8291, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: TDS Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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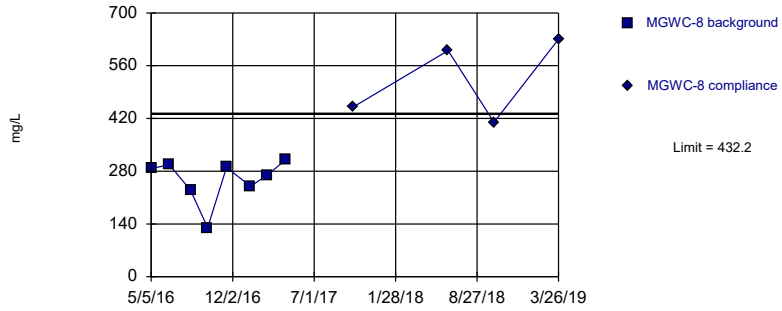
Exceeds Limit

Prediction Limit

Intrawell Parametric



Background Data Summary: Mean=256.8, Std. Dev.=58.2, n=8. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.8242, critical = 0.749. Kappa = 3.014 (c=7, w=8, 1 of 2, event alpha = 0.05132). Report alpha = 0.0009403.

Constituent: TDS Analysis Run 7/12/2019 10:01 AM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Trend Test - Significant Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/2/2019, 3:57 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	**MGWA-6 (bg)**	**-0.02592**	**-36**	**-35**	**Yes**	**12**	**8.333**	**n/a**	**n/a**	**0.02**	**NP**
Boron (mg/L)	**MGWC-3**	**0.3366**	**43**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Boron (mg/L)	**MGWC-7**	**0.09415**	**46**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Boron (mg/L)	**MGWC-8**	**1.837**	**54**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Calcium (mg/L)	**MGWA-10 (bg)**	**-1.276**	**-47**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Calcium (mg/L)	**MGWC-8**	**20.49**	**42**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Chloride (mg/L)	**MGWA-5 (bg)**	**-0.5748**	**-48**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Chloride (mg/L)	**MGWA-6 (bg)**	**-1.416**	**-47**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Chloride (mg/L)	**MGWC-2**	**-2.694**	**-59**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Chloride (mg/L)	**MGWC-7**	**-0.6288**	**-41**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Fluoride (mg/L)	**MGWA-6 (bg)**	**0.0455**	**42**	**39**	**Yes**	**13**	**53.85**	**n/a**	**n/a**	**0.02**	**NP**
Fluoride (mg/L)	**MGWC-1**	**-0.06344**	**-58**	**-39**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.02**	**NP**
pH (pH)	**MGWC-7**	**-0.6279**	**-60**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**MGWA-10 (bg)**	**-0.6507**	**-51**	**-35**	**Yes**	**12**	**16.67**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**MGWA-6 (bg)**	**-5.189**	**-47**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**MGWC-2**	**-36.19**	**-53**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**MGWC-3**	**7.093**	**39**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**MGWC-7**	**7.013**	**36**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**MGWC-8**	**109.6**	**50**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
TDS (mg/L)	**MGWC-8**	**119.6**	**38**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**

Trend Test - All Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/2/2019, 3:57 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Boron (mg/L)	MGWA-10 (bg)	0	-4	-35	No	12	58.33	n/a	n/a	0.02	NP
Boron (mg/L)	MGWA-11 (bg)	0	4	35	No	12	66.67	n/a	n/a	0.02	NP
Boron (mg/L)	MGWA-5 (bg)	0	1	35	No	12	83.33	n/a	n/a	0.02	NP
Boron (mg/L)	**MGWA-6 (bg)**	**-0.02592**	**-36**	**-35**	**Yes**	**12**	**8.333**	**n/a**	**n/a**	**0.02**	**NP**
Boron (mg/L)	MGWC-1	0.201	29	35	No	12	0	n/a	n/a	0.02	NP
Boron (mg/L)	MGWC-2	-0.1938	-21	-35	No	12	0	n/a	n/a	0.02	NP
Boron (mg/L)	**MGWC-3**	**0.3366**	**43**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Boron (mg/L)	**MGWC-7**	**0.09415**	**46**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Boron (mg/L)	**MGWC-8**	**1.837**	**54**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Calcium (mg/L)	**MGWA-10 (bg)**	**-1.276**	**-47**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Calcium (mg/L)	MGWA-11 (bg)	-2.46	-16	-35	No	12	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MGWA-5 (bg)	0	-4	-35	No	12	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MGWA-6 (bg)	0.4244	13	35	No	12	0	n/a	n/a	0.02	NP
Calcium (mg/L)	MGWC-12	2.505	35	35	No	12	0	n/a	n/a	0.02	NP
Calcium (mg/L)	**MGWC-8**	**20.49**	**42**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Chloride (mg/L)	MGWA-10 (bg)	-0.1662	-26	-35	No	12	0	n/a	n/a	0.02	NP
Chloride (mg/L)	MGWA-11 (bg)	-0.1827	-11	-35	No	12	0	n/a	n/a	0.02	NP
Chloride (mg/L)	**MGWA-5 (bg)**	**-0.5748**	**-48**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Chloride (mg/L)	**MGWA-6 (bg)**	**-1.416**	**-47**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Chloride (mg/L)	MGWC-1	-0.03463	-21	-35	No	12	0	n/a	n/a	0.02	NP
Chloride (mg/L)	**MGWC-2**	**-2.694**	**-59**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Chloride (mg/L)	MGWC-3	0.2999	27	35	No	12	0	n/a	n/a	0.02	NP
Chloride (mg/L)	**MGWC-7**	**-0.6288**	**-41**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Chloride (mg/L)	MGWC-8	0.3778	20	35	No	12	0	n/a	n/a	0.02	NP
Fluoride (mg/L)	MGWA-10 (bg)	0	-11	-39	No	13	84.62	n/a	n/a	0.02	NP
Fluoride (mg/L)	MGWA-11 (bg)	0.01905	16	39	No	13	15.38	n/a	n/a	0.02	NP
Fluoride (mg/L)	MGWA-5 (bg)	0.007769	10	39	No	13	30.77	n/a	n/a	0.02	NP
Fluoride (mg/L)	**MGWA-6 (bg)**	**0.0455**	**42**	**39**	**Yes**	**13**	**53.85**	**n/a**	**n/a**	**0.02**	**NP**
Fluoride (mg/L)	**MGWC-1**	**-0.06344**	**-58**	**-39**	**Yes**	**13**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Fluoride (mg/L)	MGWC-12	-0.01515	-20	-39	No	13	0	n/a	n/a	0.02	NP
pH (pH)	MGWA-10 (bg)	-0.1289	-19	-35	No	12	0	n/a	n/a	0.02	NP
pH (pH)	MGWA-11 (bg)	-0.03556	-5	-35	No	12	0	n/a	n/a	0.02	NP
pH (pH)	MGWA-5 (bg)	0.002585	1	35	No	12	0	n/a	n/a	0.02	NP
pH (pH)	MGWA-6 (bg)	-0.1221	-24	-35	No	12	0	n/a	n/a	0.02	NP
pH (pH)	MGWC-2	-0.04323	-16	-35	No	12	0	n/a	n/a	0.02	NP
pH (pH)	MGWC-3	-0.06924	-18	-35	No	12	0	n/a	n/a	0.02	NP
pH (pH)	**MGWC-7**	**-0.6279**	**-60**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
pH (pH)	MGWC-8	-0.05204	-8	-35	No	12	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	**MGWA-10 (bg)**	**-0.6507**	**-51**	**-35**	**Yes**	**12**	**16.67**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	MGWA-11 (bg)	0.2465	27	35	No	12	50	n/a	n/a	0.02	NP
Sulfate (mg/L)	MGWA-5 (bg)	-1.987	-33	-35	No	12	8.333	n/a	n/a	0.02	NP
Sulfate (mg/L)	**MGWA-6 (bg)**	**-5.189**	**-47**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	MGWC-1	5.849	15	35	No	12	0	n/a	n/a	0.02	NP
Sulfate (mg/L)	**MGWC-2**	**-36.19**	**-53**	**-35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**MGWC-3**	**7.093**	**39**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**MGWC-7**	**7.013**	**36**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
Sulfate (mg/L)	**MGWC-8**	**109.6**	**50**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**
TDS (mg/L)	MGWA-10 (bg)	-5.718	-13	-35	No	12	0	n/a	n/a	0.02	NP
TDS (mg/L)	MGWA-11 (bg)	-7.731	-8	-35	No	12	0	n/a	n/a	0.02	NP
TDS (mg/L)	MGWA-5 (bg)	11.25	16	35	No	12	0	n/a	n/a	0.02	NP

Trend Test - All Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/2/2019, 3:57 PM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
TDS (mg/L)	MGWA-6 (bg)	-0.651	-4	-35	No	12	0	n/a	n/a	0.02	NP
TDS (mg/L)	MGWC-1	0	-1	-35	No	12	0	n/a	n/a	0.02	NP
TDS (mg/L)	**MGWC-8**	**119.6**	**38**	**35**	**Yes**	**12**	**0**	**n/a**	**n/a**	**0.02**	**NP**

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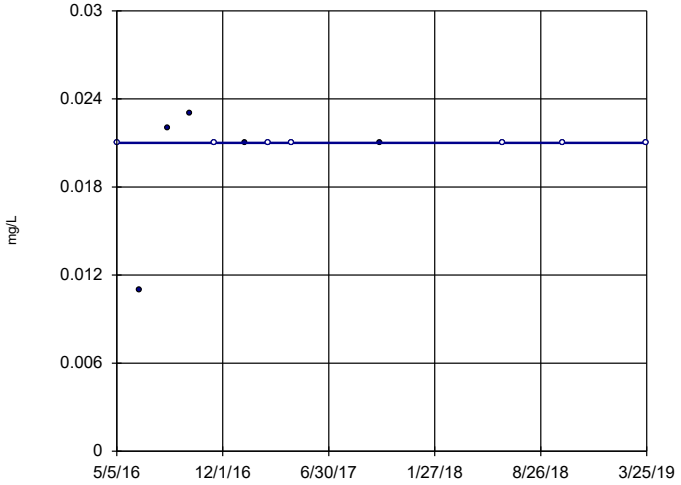
Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-10 (bg)



n = 12

Slope = 0 units per year.

Mann-Kendall statistic = -4
critical = -35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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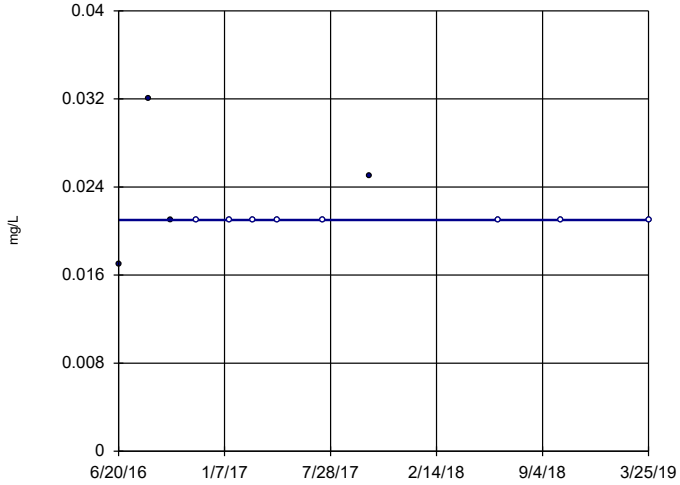
Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-11 (bg)



n = 12

Slope = 0 units per year.

Mann-Kendall statistic = 4
critical = 35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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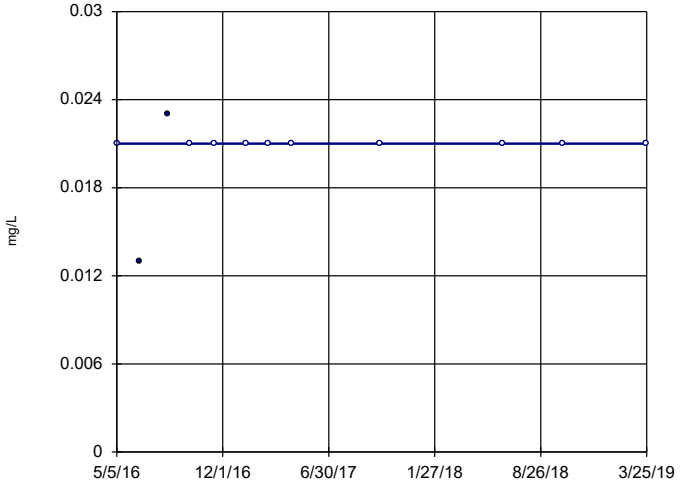
Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-5 (bg)



n = 12

Slope = 0 units per year.

Mann-Kendall statistic = 1
critical = 35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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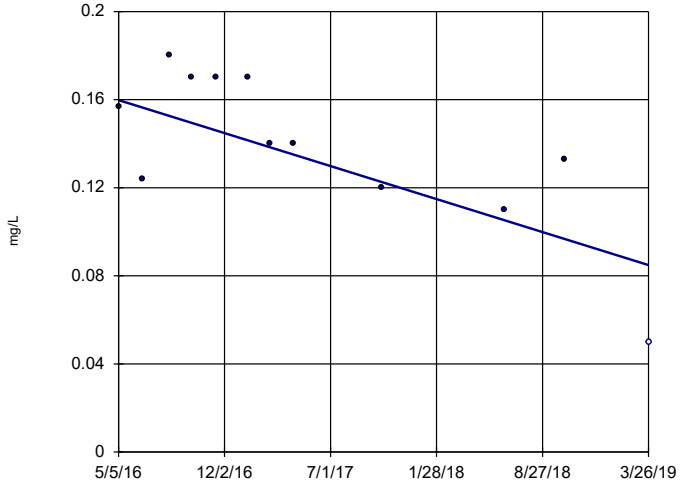
Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-6 (bg)



n = 12

Slope = -0.02592 units per year.

Mann-Kendall statistic = -36
critical = -35

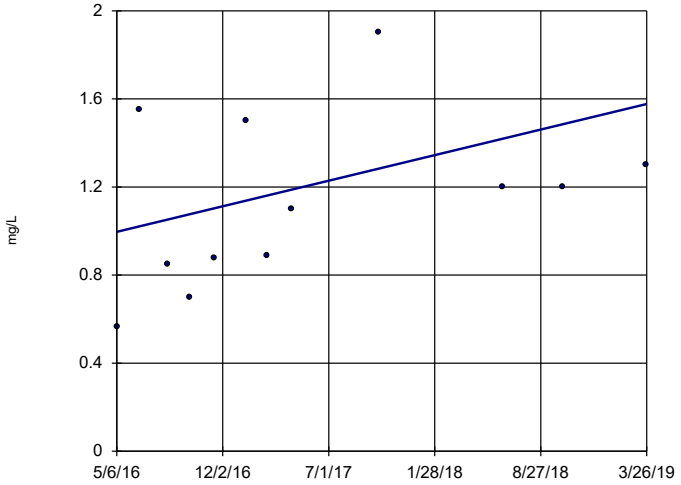
Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-1



n = 12

Slope = 0.201 units per year.

Mann-Kendall statistic = 29 critical = 35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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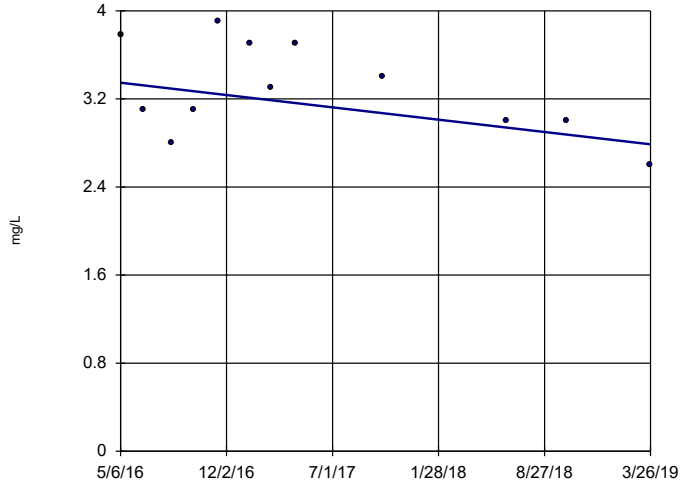
Sen's Slope Estimator

MGWC-2



n = 12

Slope = -0.1938 units per year.

Mann-Kendall statistic = -21 critical = -35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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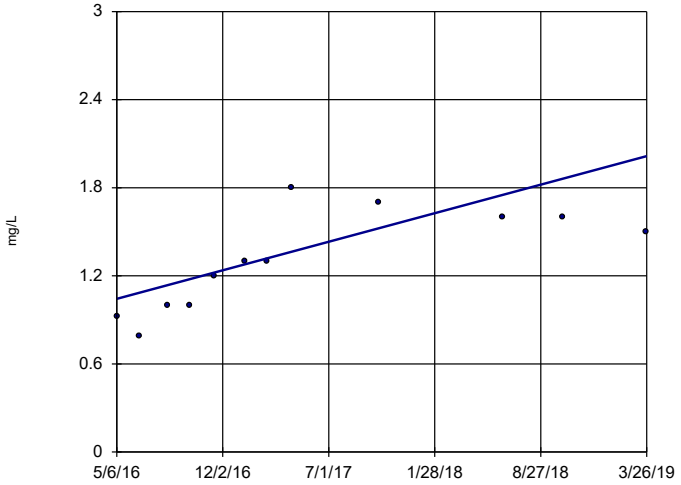
Sen's Slope Estimator

MGWC-3



n = 12

Slope = 0.3366 units per year.

Mann-Kendall statistic = 43 critical = 35

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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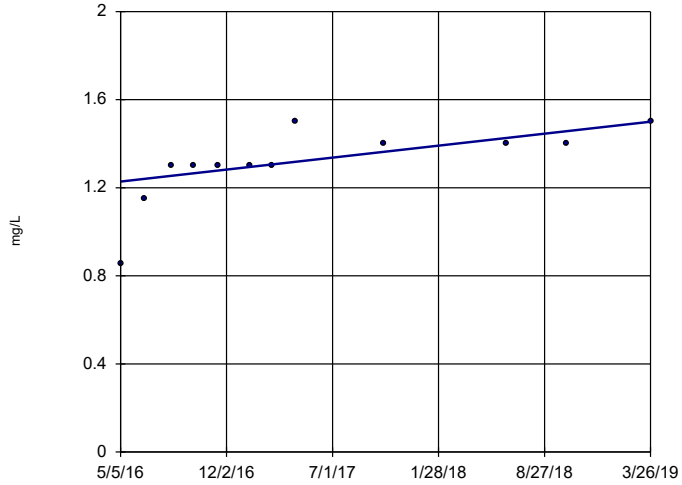
Sen's Slope Estimator

MGWC-7



n = 12

Slope = 0.09415 units per year.

Mann-Kendall statistic = 46 critical = 35

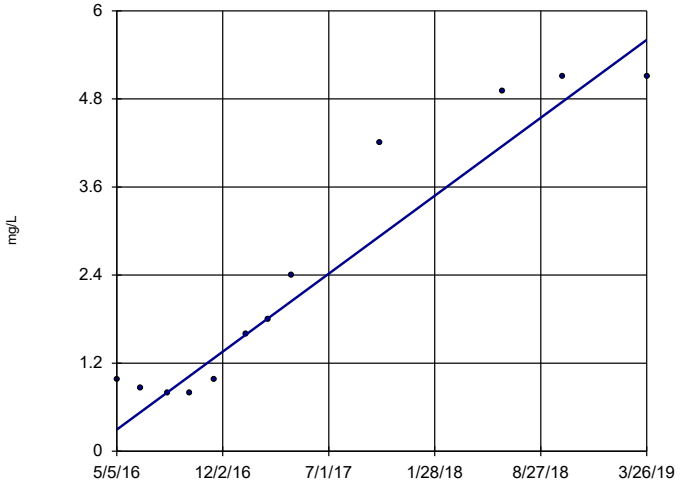
Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-8



n = 12

Slope = 1.837 units per year.

Mann-Kendall statistic = 54
critical = 35

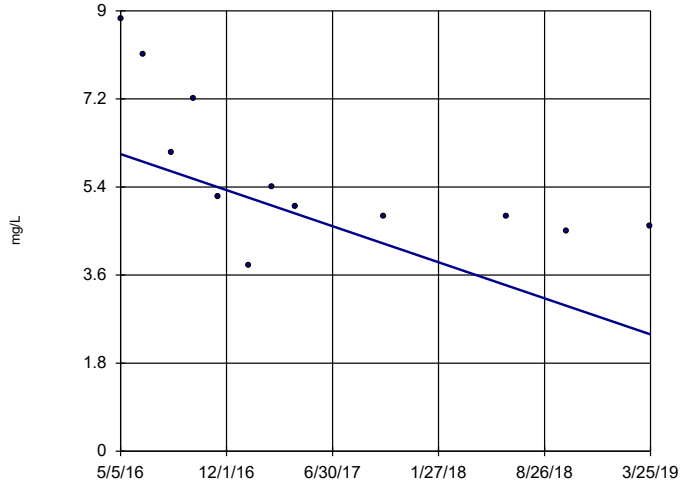
Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Boron Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-10 (bg)



n = 12

Slope = -1.276 units per year.

Mann-Kendall statistic = -47
critical = -35

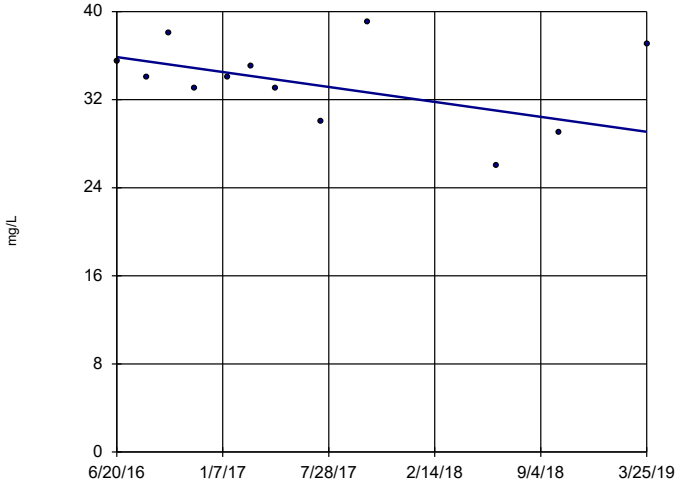
Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Calcium Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-11 (bg)



n = 12

Slope = -2.46 units per year.

Mann-Kendall statistic = -16
critical = -35

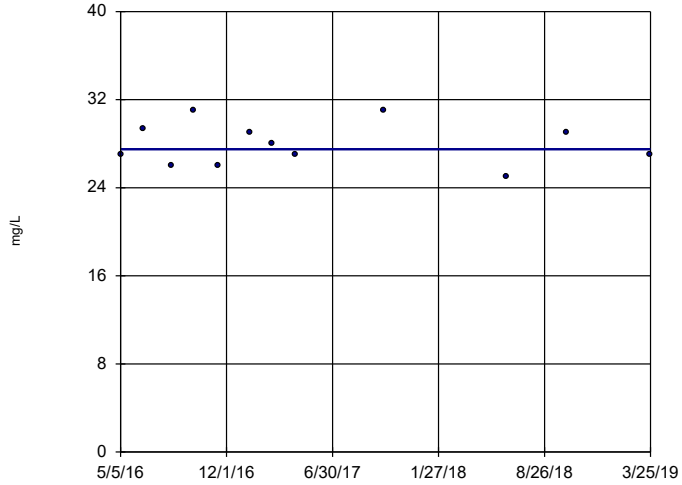
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Calcium Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-5 (bg)



n = 12

Slope = 0 units per year.

Mann-Kendall statistic = -4
critical = -35

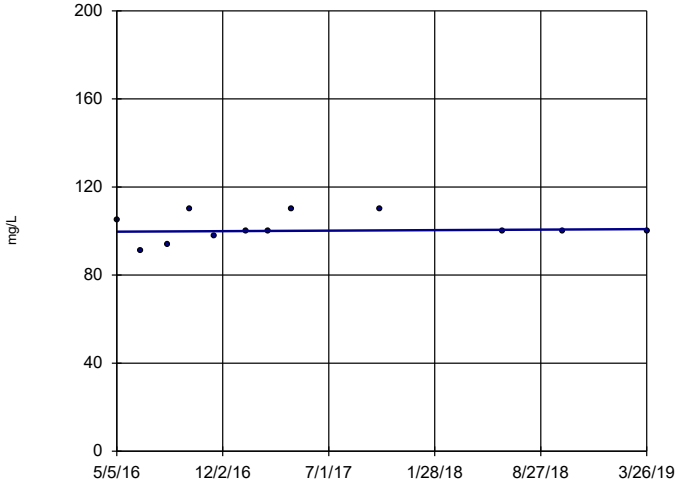
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Calcium Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-6 (bg)



n = 12

Slope = 0.4244 units per year.

Mann-Kendall statistic = 13
critical = 35

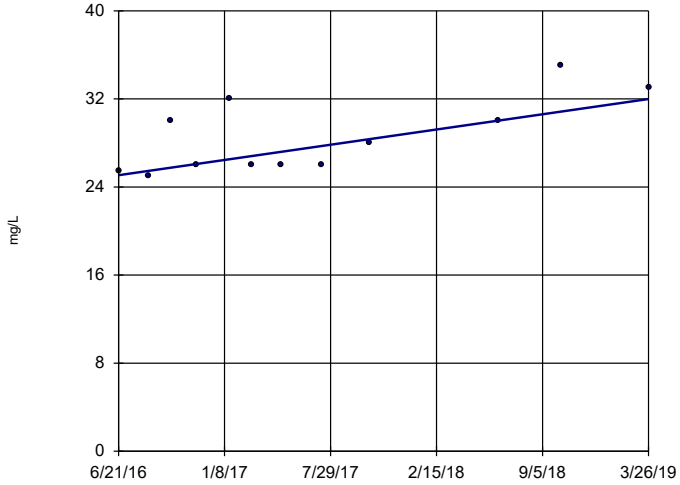
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Calcium Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-12



n = 12

Slope = 2.505 units per year.

Mann-Kendall statistic = 35
critical = 35

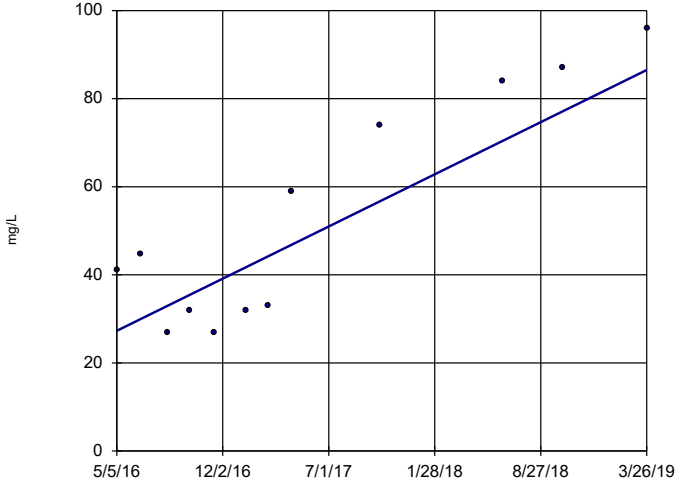
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Calcium Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-8



n = 12

Slope = 20.49 units per year.

Mann-Kendall statistic = 42
critical = 35

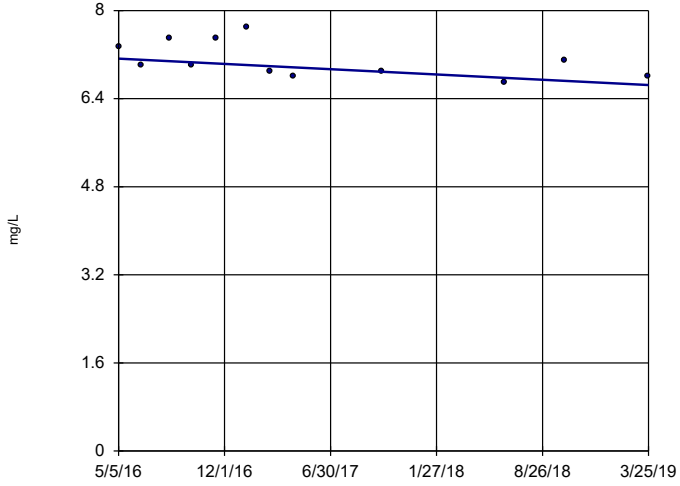
Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Calcium Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-10 (bg)



n = 12

Slope = -0.1662 units per year.

Mann-Kendall statistic = -26
critical = -35

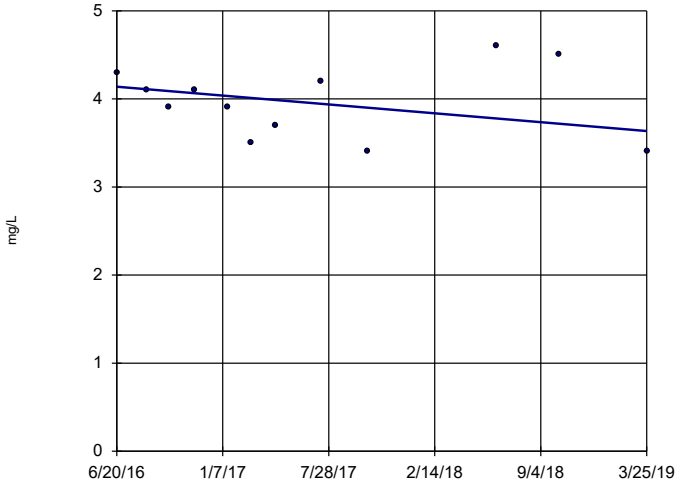
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-11 (bg)



n = 12

Slope = -0.1827 units per year.

Mann-Kendall statistic = -11
critical = -35

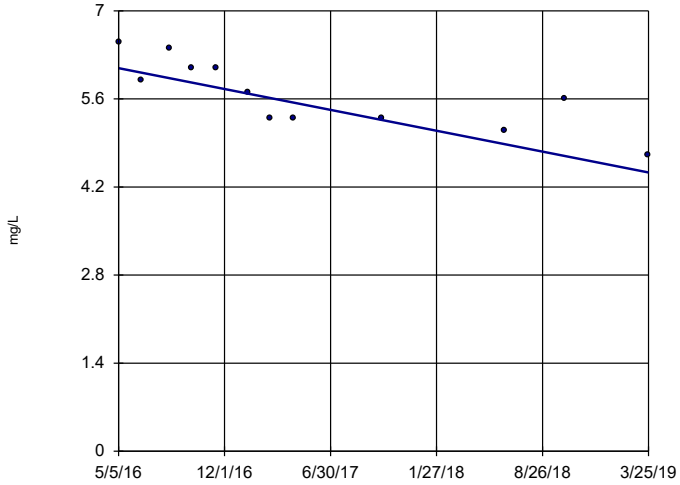
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-5 (bg)



n = 12

Slope = -0.5748 units per year.

Mann-Kendall statistic = -48
critical = -35

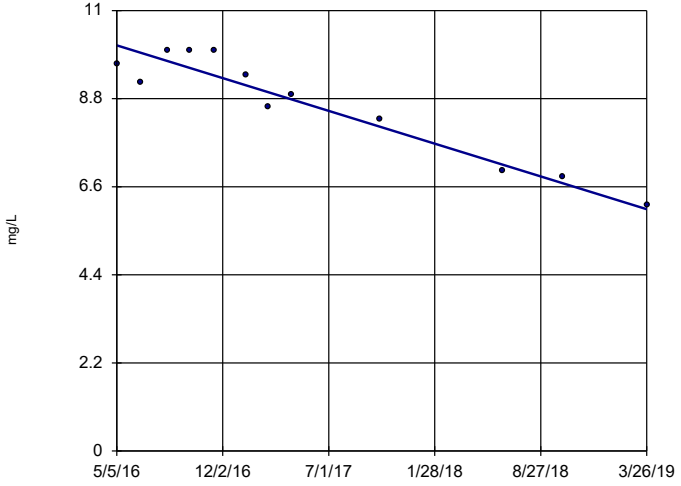
Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-6 (bg)



n = 12

Slope = -1.416 units per year.

Mann-Kendall statistic = -47
critical = -35

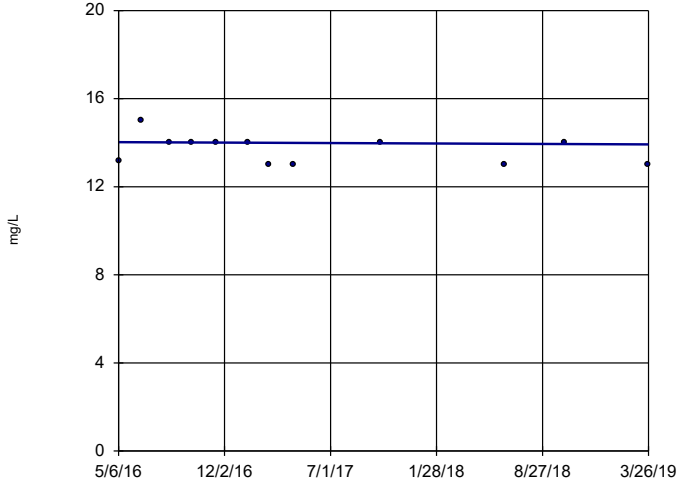
Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-1



n = 12

Slope = -0.03463 units per year.

Mann-Kendall statistic = -21
critical = -35

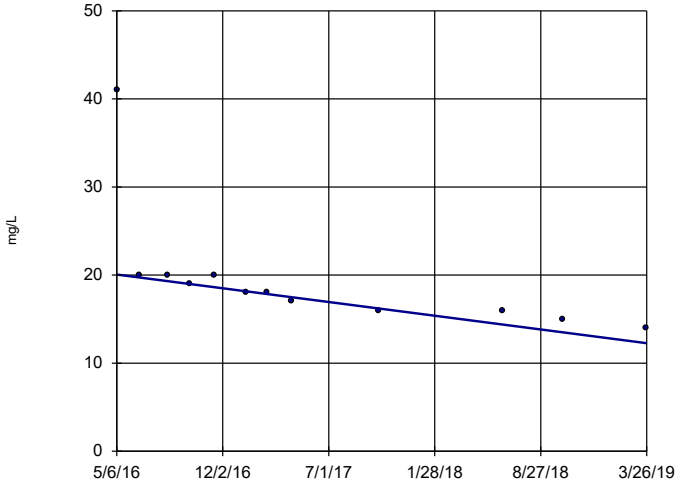
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-2



n = 12

Slope = -2.694 units per year.

Mann-Kendall statistic = -59 critical = -35

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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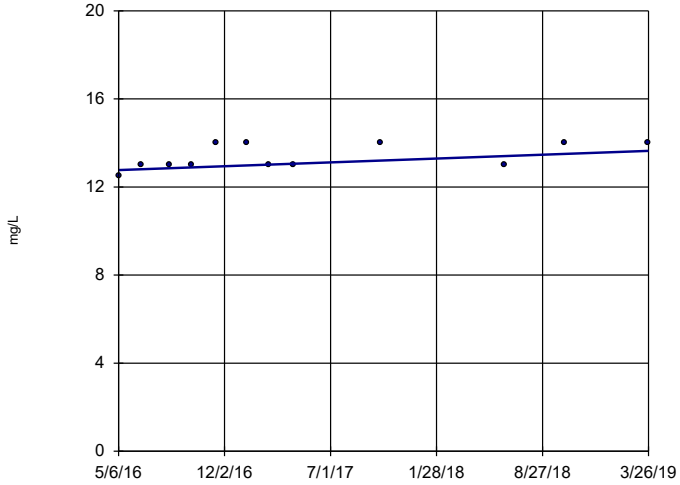
Sen's Slope Estimator

MGWC-3



n = 12

Slope = 0.2999 units per year.

Mann-Kendall statistic = 27 critical = 35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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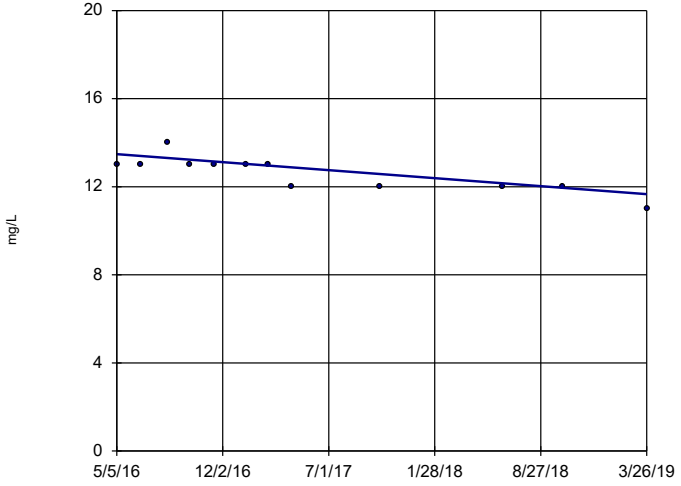
Sen's Slope Estimator

MGWC-7



n = 12

Slope = -0.6288 units per year.

Mann-Kendall statistic = -41 critical = -35

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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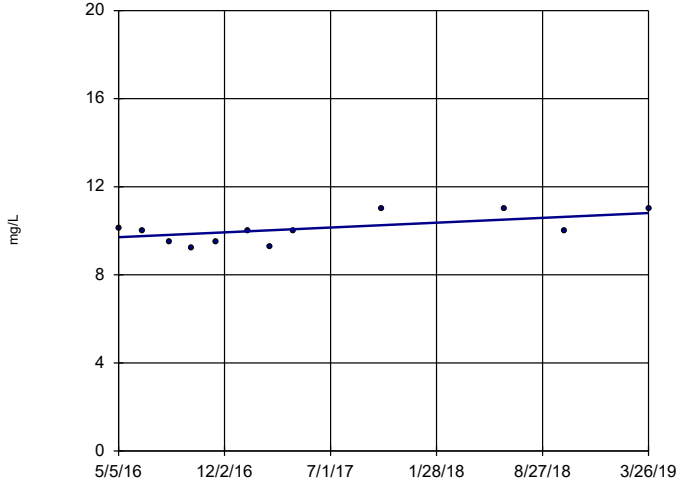
Sen's Slope Estimator

MGWC-8



n = 12

Slope = 0.3778 units per year.

Mann-Kendall statistic = 20 critical = 35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Chloride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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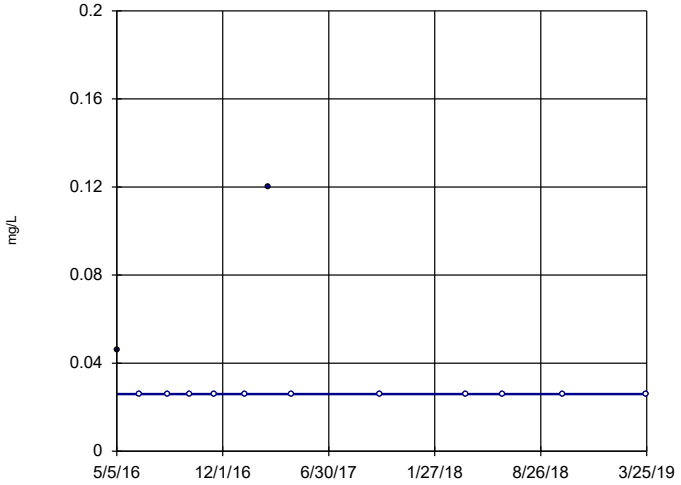
Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-10 (bg)



n = 13

Slope = 0 units per year.

Mann-Kendall statistic = -11
critical = -39

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Fluoride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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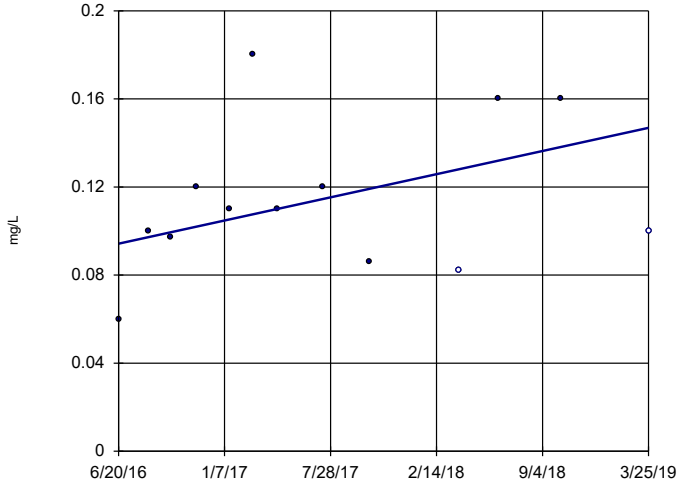
Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-11 (bg)



n = 13

Slope = 0.01905 units per year.

Mann-Kendall statistic = 16
critical = 39

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Fluoride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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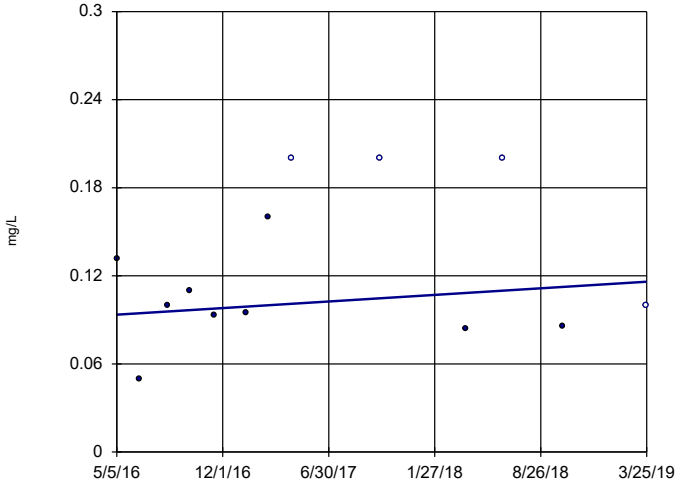
Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-5 (bg)



n = 13

Slope = 0.007769 units per year.

Mann-Kendall statistic = 10
critical = 39

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Fluoride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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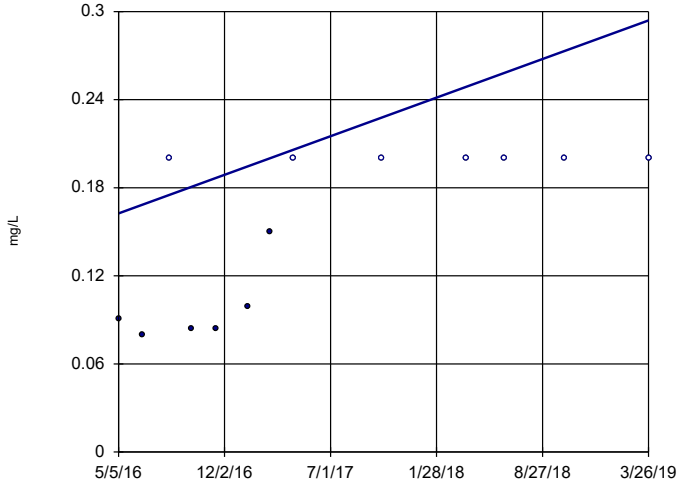
Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-6 (bg)



n = 13

Slope = 0.0455 units per year.

Mann-Kendall statistic = 42
critical = 39

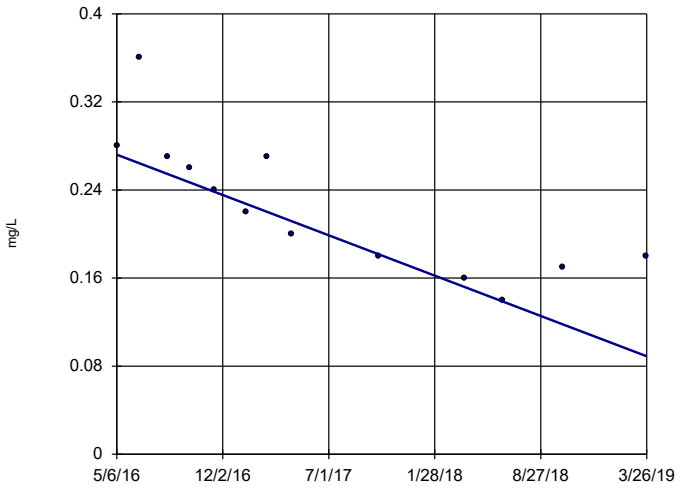
Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Fluoride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-1



n = 13

Slope = -0.06344 units per year.

Mann-Kendall statistic = -58
critical = -39

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Fluoride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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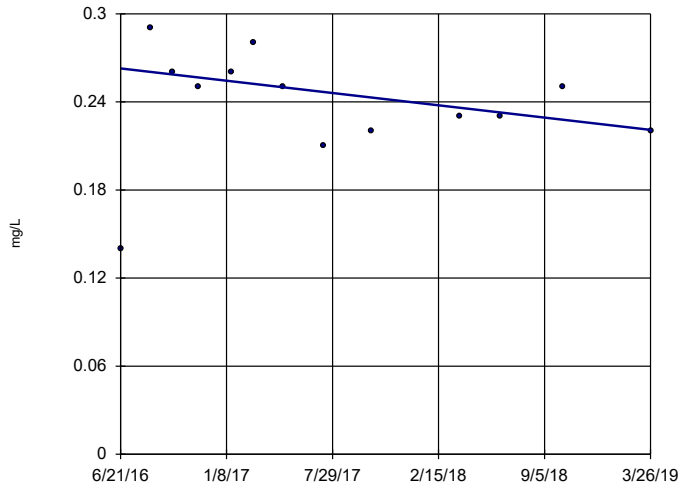
Sen's Slope Estimator

MGWC-12



n = 13

Slope = -0.01515 units per year.

Mann-Kendall statistic = -20
critical = -39

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Fluoride Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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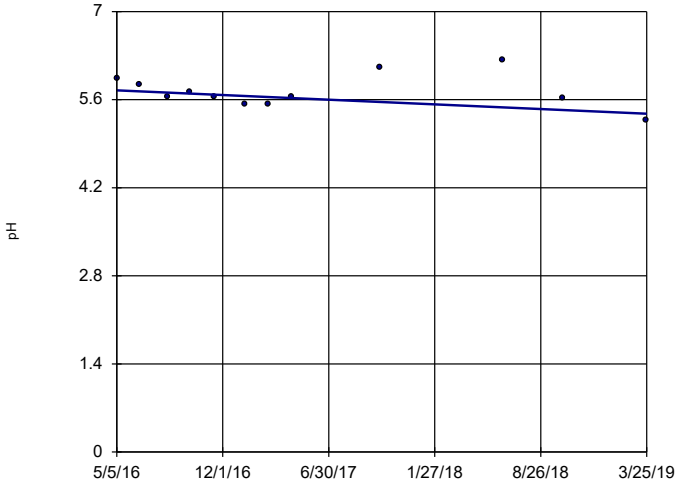
Sen's Slope Estimator

MGWA-10 (bg)



n = 12

Slope = -0.1289 units per year.

Mann-Kendall statistic = -19
critical = -35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: pH Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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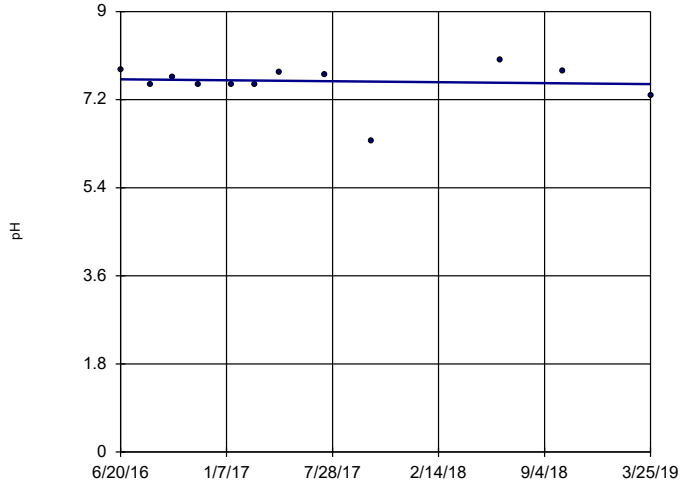
Sen's Slope Estimator

MGWA-11 (bg)



n = 12

Slope = -0.03556 units per year.

Mann-Kendall statistic = -5
critical = -35

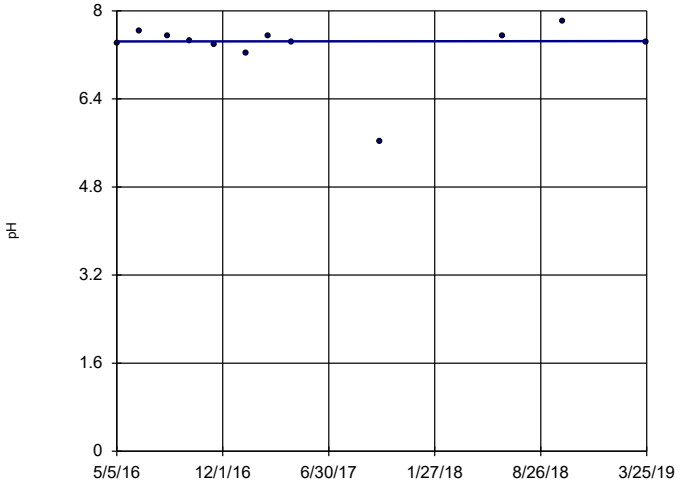
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: pH Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-5 (bg)



n = 12

Slope = 0.002585 units per year.

Mann-Kendall statistic = 1
critical = 35

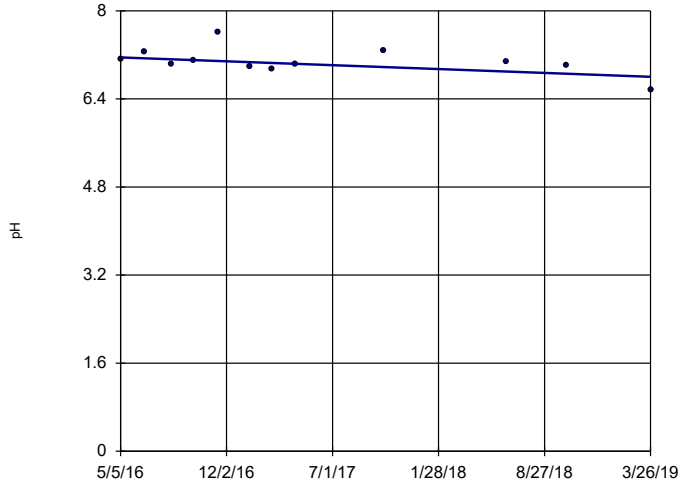
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: pH Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-6 (bg)



n = 12

Slope = -0.1221 units per year.

Mann-Kendall statistic = -24
critical = -35

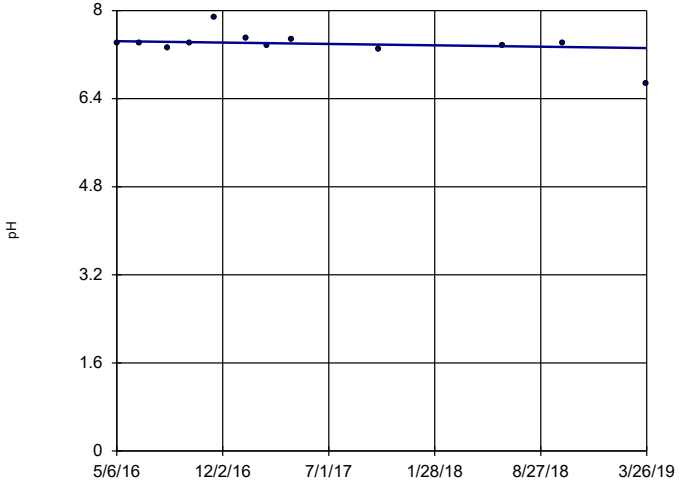
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: pH Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-2



n = 12

Slope = -0.04323 units per year.

Mann-Kendall statistic = -16
critical = -35

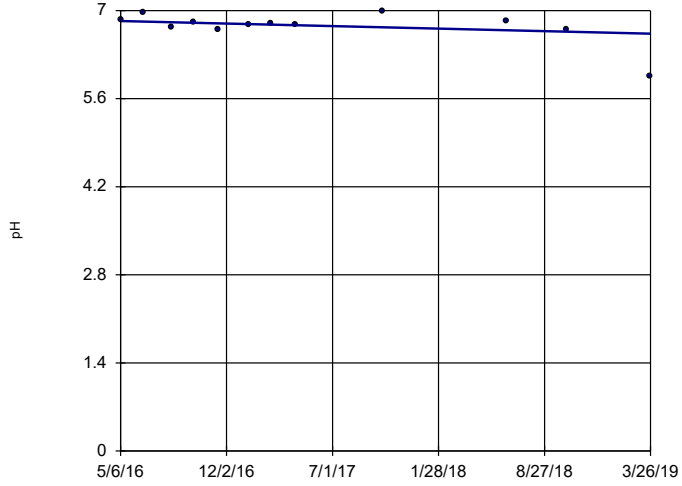
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: pH Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-3



n = 12

Slope = -0.06924 units per year.

Mann-Kendall statistic = -18
critical = -35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: pH Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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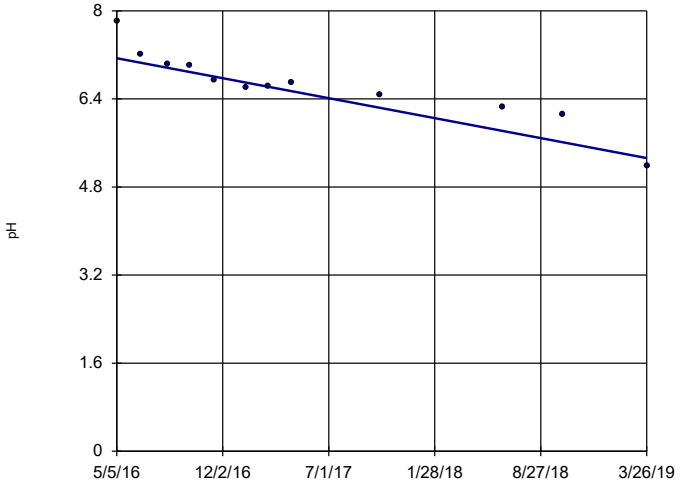
Sen's Slope Estimator

MGWC-7



n = 12

Slope = -0.6279 units per year.

Mann-Kendall statistic = -60
critical = -35

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: pH Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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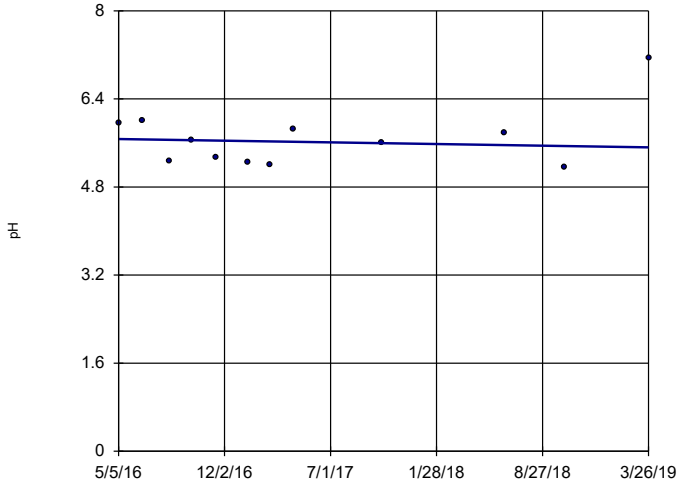
Sen's Slope Estimator

MGWC-8



n = 12

Slope = -0.05204 units per year.

Mann-Kendall statistic = -8
critical = -35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: pH Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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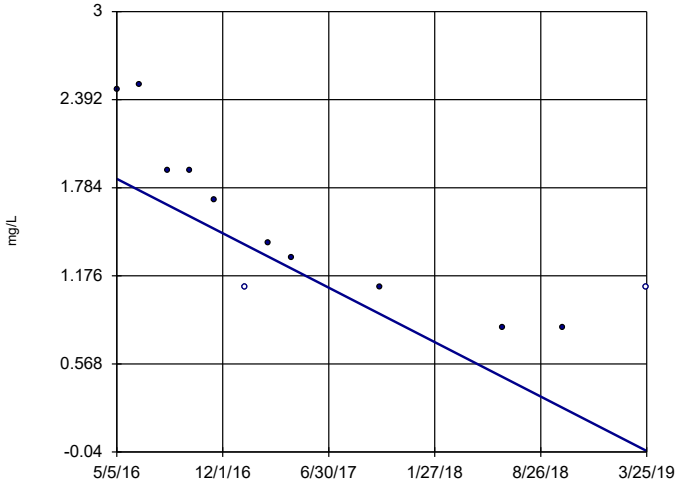
Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-10 (bg)



n = 12

Slope = -0.6507 units per year.

Mann-Kendall statistic = -51
critical = -35

Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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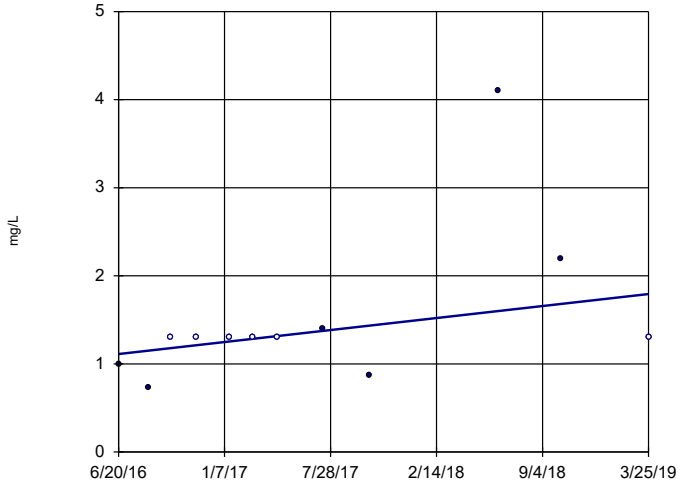
Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-11 (bg)



n = 12

Slope = 0.2465 units per year.

Mann-Kendall statistic = 27
critical = 35

Trend not significant at 98% confidence level (α = 0.01 per tail).

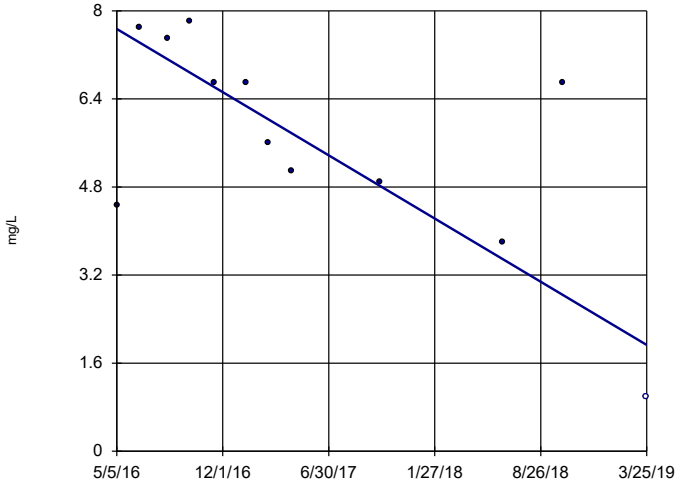
Constituent: Sulfate Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Hollow symbols indicate censored values.

Sen's Slope Estimator

MGWA-5 (bg)



n = 12

Slope = -1.987 units per year.

Mann-Kendall statistic = -33
critical = -35

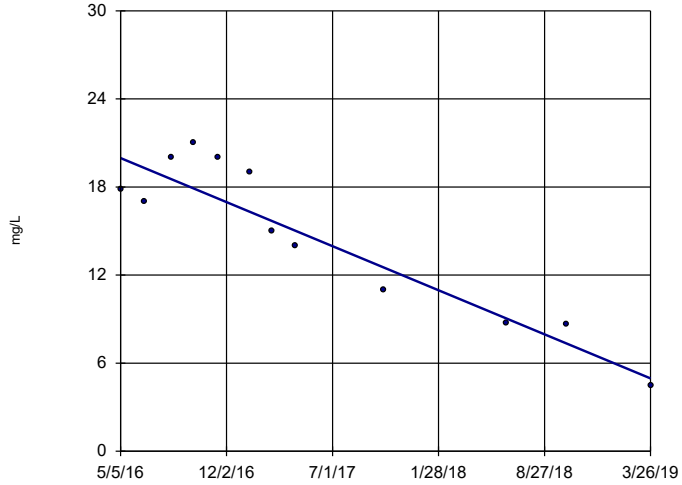
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 7/2/2019 3:55 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-6 (bg)



n = 12

Slope = -5.189 units per year.

Mann-Kendall statistic = -47
critical = -35

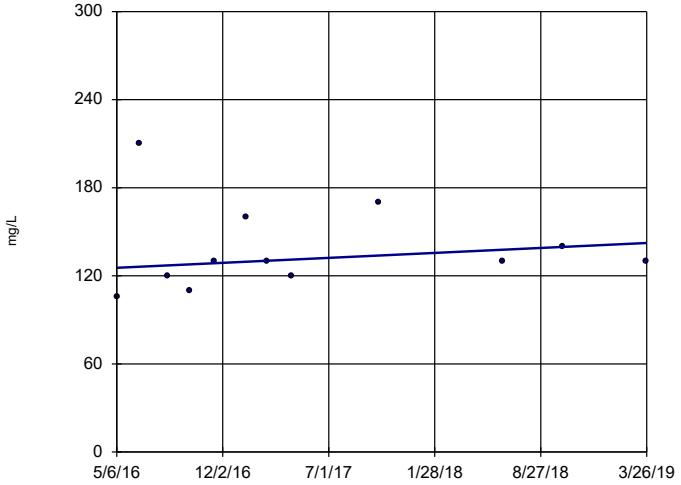
Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-1



n = 12

Slope = 5.849 units per year.

Mann-Kendall statistic = 15
critical = 35

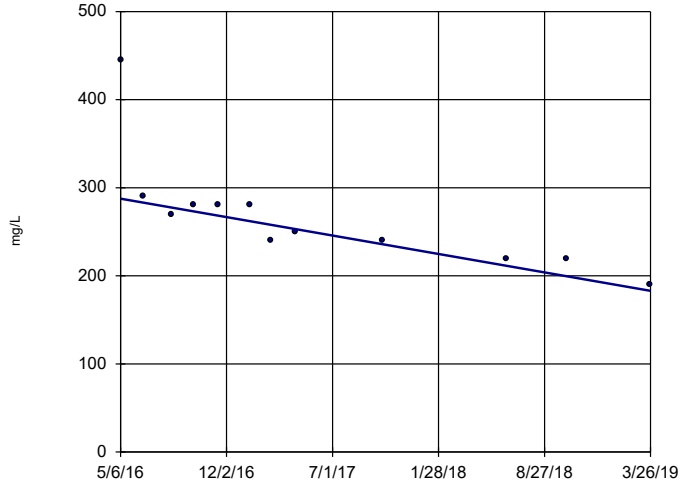
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-2



n = 12

Slope = -36.19 units per year.

Mann-Kendall statistic = -53
critical = -35

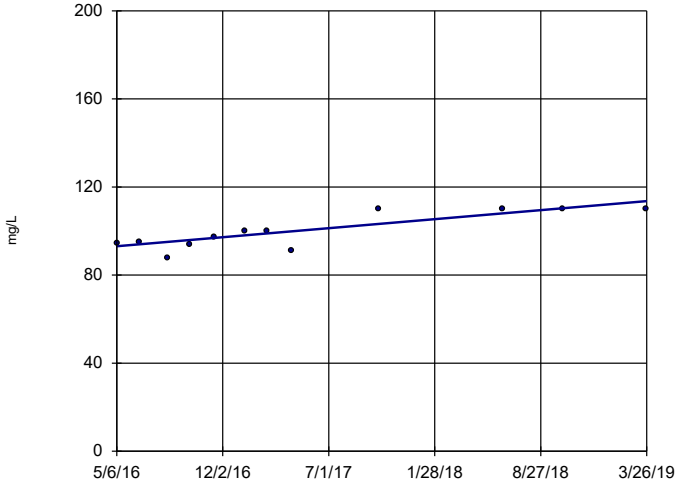
Decreasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-3



n = 12

Slope = 7.093 units per year.

Mann-Kendall statistic = 39
critical = 35

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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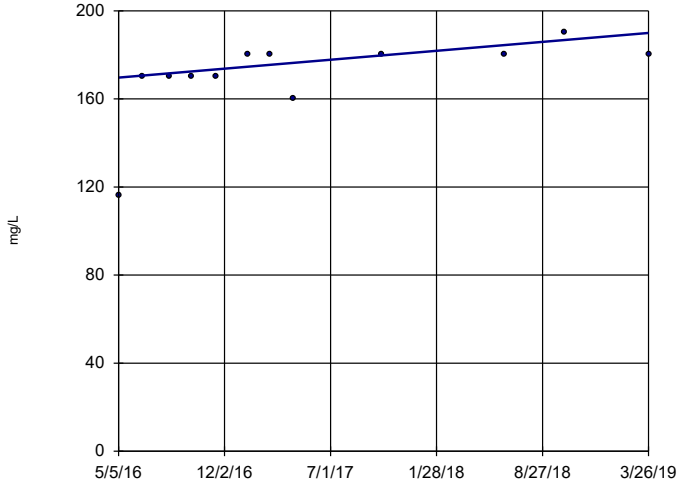
Sen's Slope Estimator

MGWC-7



n = 12

Slope = 7.013 units per year.

Mann-Kendall statistic = 36
critical = 35

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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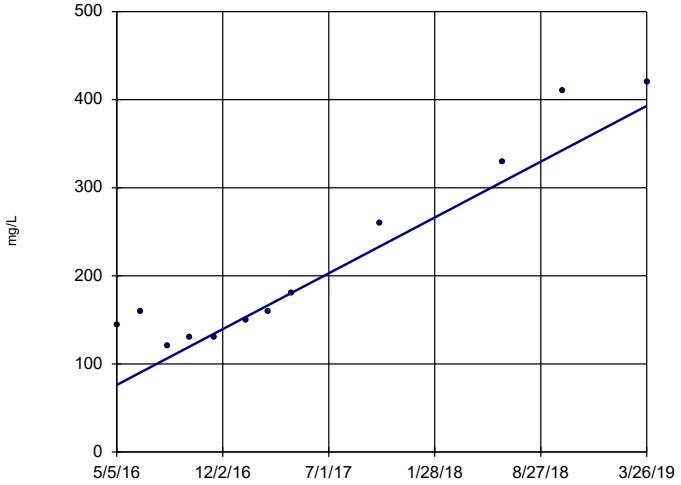
Sen's Slope Estimator

MGWC-8



n = 12

Slope = 109.6 units per year.

Mann-Kendall statistic = 50
critical = 35

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: Sulfate Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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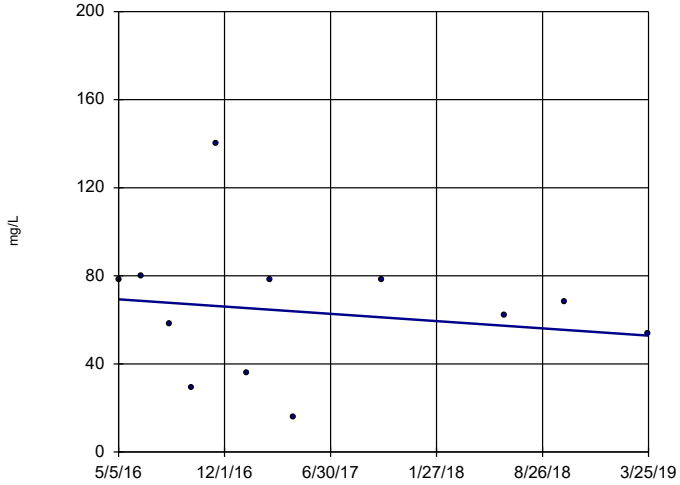
Sen's Slope Estimator

MGWA-10 (bg)



n = 12

Slope = -5.718 units per year.

Mann-Kendall statistic = -13
critical = -35

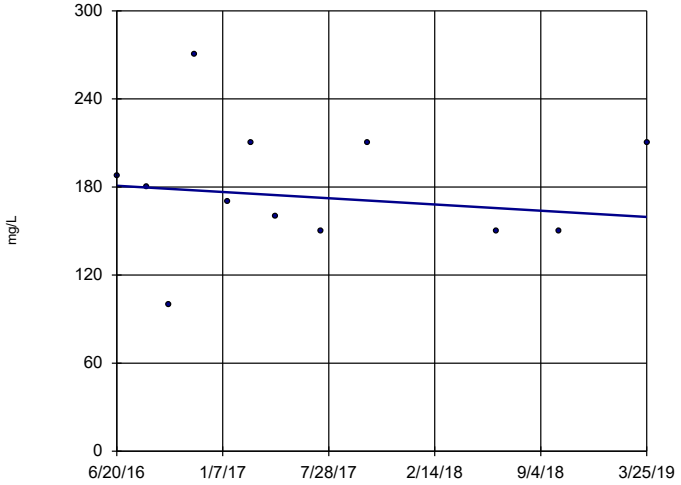
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: TDS Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWA-11 (bg)



n = 12

Slope = -7.731 units per year.

Mann-Kendall statistic = -8
critical = -35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: TDS Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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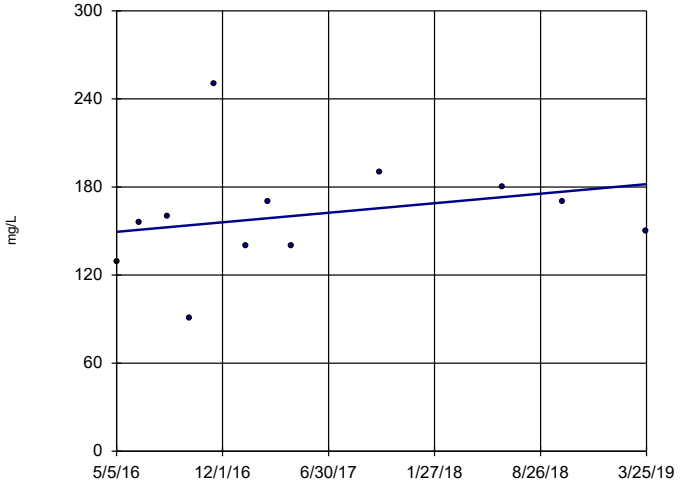
Sen's Slope Estimator

MGWA-5 (bg)



n = 12

Slope = 11.25 units per year.

Mann-Kendall statistic = 16
critical = 35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: TDS Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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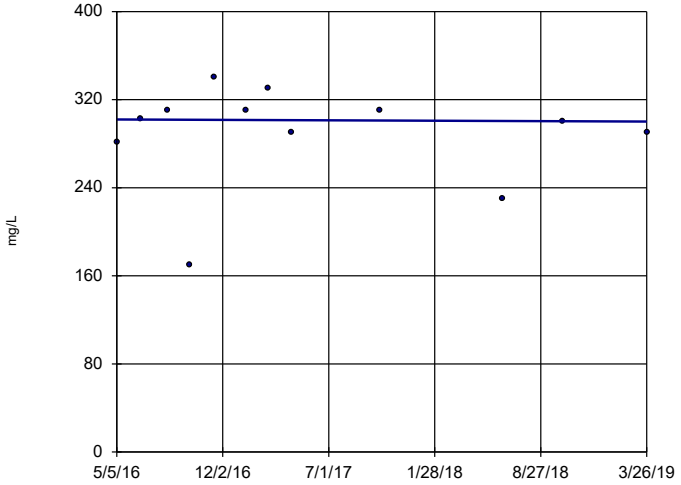
Sen's Slope Estimator

MGWA-6 (bg)



n = 12

Slope = -0.651 units per year.

Mann-Kendall statistic = -4
critical = -35

Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: TDS Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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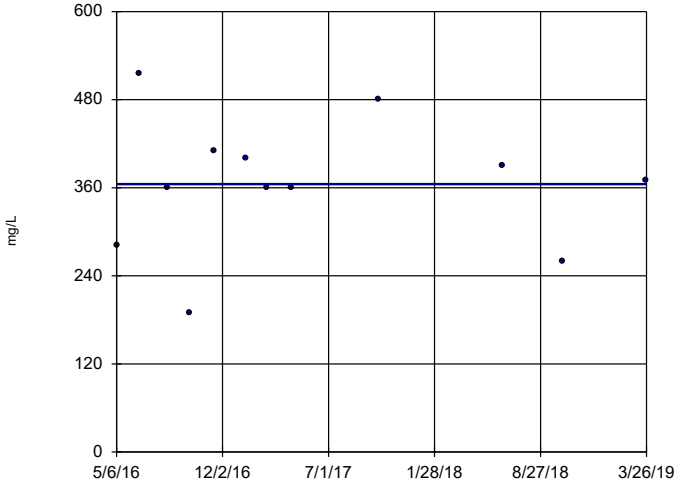
Sen's Slope Estimator

MGWC-1



n = 12

Slope = 0 units per year.

Mann-Kendall statistic = -1
critical = -35

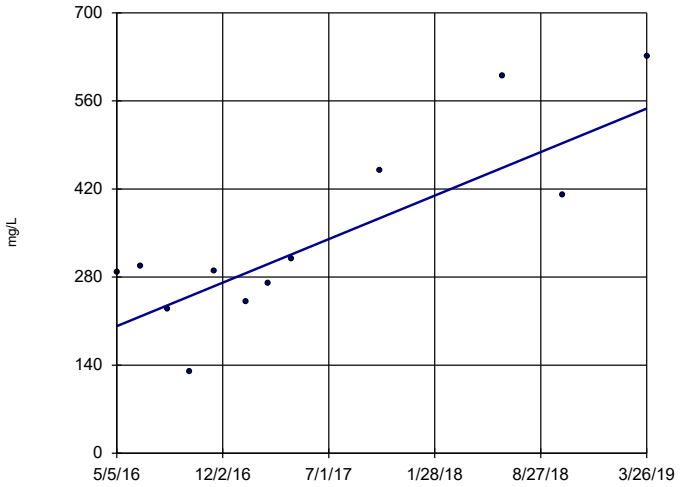
Trend not significant at 98% confidence level (α = 0.01 per tail).

Constituent: TDS Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Sen's Slope Estimator

MGWC-8



n = 12

Slope = 119.6 units per year.

Mann-Kendall statistic = 38
critical = 35

Increasing trend significant at 98% confidence level (α = 0.01 per tail).

Constituent: TDS Analysis Run 7/2/2019 3:56 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Tolerance Limit - Upgradient Wells

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/29/2019, 2:07 PM

Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Arsenic (mg/L)	n/a	0.0352	n/a	n/a	n/a	48	41.67	n/a	0.08526	NP Inter(normal...
Barium (mg/L)	n/a	0.12	n/a	n/a	n/a	48	0	n/a	0.08526	NP Inter(normal...
Cadmium (mg/L)	n/a	0.00034	n/a	n/a	n/a	48	100	n/a	0.08526	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.00065	n/a	n/a	n/a	48	79.17	n/a	0.08526	NP Inter(NDs)
Combined Radium 226 + 228 (pCi/L)	n/a	1.143	n/a	n/a	n/a	48	10.42	No	0.05	Inter
Fluoride (mg/L)	n/a	0.2	n/a	n/a	n/a	52	46.15	n/a	0.06944	NP Inter(normal...
Lithium (mg/L)	n/a	0.03	n/a	n/a	n/a	48	29.17	n/a	0.08526	NP Inter(normal...

Tolerance Limit - Significant Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/2/2019, 4:20 PM

Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Barium (mg/L)	**MGWC-3**	**0.12**	**3/26/2019**	**0.13**	**Yes**	**48**	**0**	**n/a**	**0.01474**	**NP Inter(normality)**
Cobalt (mg/L)	**MGWC-2**	**0.00065**	**3/26/2019**	**0.003**	**Yes**	**48**	**79.17**	**n/a**	**0.01474**	**NP Inter(NDs)**
Cobalt (mg/L)	**MGWC-7**	**0.00065**	**3/26/2019**	**0.009**	**Yes**	**48**	**79.17**	**n/a**	**0.01474**	**NP Inter(NDs)**
Cobalt (mg/L)	**MGWC-8**	**0.00065**	**3/26/2019**	**0.02**	**Yes**	**48**	**79.17**	**n/a**	**0.01474**	**NP Inter(NDs)**
Combined Radium 226 + 228 (pCi/L)	**MGWC-3**	**1.12**	**3/26/2019**	**1.25**	**Yes**	**49**	**10.2**	**No**	**0.008512**	**Inter**
Combined Radium 226 + 228 (pCi/L)	**MGWC-8**	**1.12**	**3/26/2019**	**1.79**	**Yes**	**49**	**10.2**	**No**	**0.008512**	**Inter**
Fluoride (mg/L)	**MGWC-12**	**0.2**	**3/26/2019**	**0.22**	**Yes**	**52**	**46.15**	**n/a**	**0.01192**	**NP Inter(normality)**
Lithium (mg/L)	**MGWC-7**	**0.03**	**3/26/2019**	**0.12**	**Yes**	**48**	**29.17**	**n/a**	**0.01474**	**NP Inter(normality)**
Lithium (mg/L)	**MGWC-8**	**0.03**	**3/26/2019**	**0.043**	**Yes**	**48**	**29.17**	**n/a**	**0.01474**	**NP Inter(normality)**

Tolerance Limit - Significant Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/2/2019, 4:20 PM

Constituent	Well	Upper Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Arsenic (mg/L)	MGWC-1	0.0352	3/26/2019	0.00205	No	48	41.67	n/a	0.01474	NP Inter(normality)
Arsenic (mg/L)	MGWC-12	0.0352	3/26/2019	<0.0013...	No	48	41.67	n/a	0.01474	NP Inter(normality)
Arsenic (mg/L)	MGWC-2	0.0352	3/26/2019	<0.00046	No	48	41.67	n/a	0.01474	NP Inter(normality)
Arsenic (mg/L)	MGWC-3	0.0352	3/26/2019	<0.0013...	No	48	41.67	n/a	0.01474	NP Inter(normality)
Arsenic (mg/L)	MGWC-7	0.0352	3/26/2019	<0.00046	No	48	41.67	n/a	0.01474	NP Inter(normality)
Arsenic (mg/L)	MGWC-8	0.0352	3/26/2019	<0.00046	No	48	41.67	n/a	0.01474	NP Inter(normality)
Barium (mg/L)	MGWC-1	0.12	3/26/2019	0.0965	No	48	0	n/a	0.01474	NP Inter(normality)
Barium (mg/L)	MGWC-12	0.12	3/26/2019	0.06	No	48	0	n/a	0.01474	NP Inter(normality)
Barium (mg/L)	MGWC-2	0.12	3/26/2019	0.048	No	48	0	n/a	0.01474	NP Inter(normality)
Barium (mg/L)	**MGWC-3**	**0.12**	**3/26/2019**	**0.13**	**Yes**	**48**	**0**	**n/a**	**0.01474**	**NP Inter(normality)**
Barium (mg/L)	MGWC-7	0.12	3/26/2019	0.0086	No	48	0	n/a	0.01474	NP Inter(normality)
Barium (mg/L)	MGWC-8	0.12	3/26/2019	0.032	No	48	0	n/a	0.01474	NP Inter(normality)
Cadmium (mg/L)	MGWC-1	0.00034	3/26/2019	<0.0003...	No	48	100	n/a	0.01474	NP Inter(NDs)
Cadmium (mg/L)	MGWC-12	0.00034	3/26/2019	<0.00034	No	48	100	n/a	0.01474	NP Inter(NDs)
Cadmium (mg/L)	MGWC-2	0.00034	3/26/2019	<0.0025...	No	48	100	n/a	0.01474	NP Inter(NDs)
Cadmium (mg/L)	MGWC-3	0.00034	3/26/2019	<0.00034	No	48	100	n/a	0.01474	NP Inter(NDs)
Cadmium (mg/L)	MGWC-7	0.00034	3/26/2019	<0.00034	No	48	100	n/a	0.01474	NP Inter(NDs)
Cadmium (mg/L)	MGWC-8	0.00034	3/26/2019	<0.0025...	No	48	100	n/a	0.01474	NP Inter(NDs)
Cobalt (mg/L)	MGWC-1	0.00065	3/26/2019	<0.0004...	No	48	79.17	n/a	0.01474	NP Inter(NDs)
Cobalt (mg/L)	MGWC-12	0.00065	3/26/2019	<0.0004	No	48	79.17	n/a	0.01474	NP Inter(NDs)
Cobalt (mg/L)	**MGWC-2**	**0.00065**	**3/26/2019**	**0.003**	**Yes**	**48**	**79.17**	**n/a**	**0.01474**	**NP Inter(NDs)**
Cobalt (mg/L)	MGWC-3	0.00065	3/26/2019	<0.0004	No	48	79.17	n/a	0.01474	NP Inter(NDs)
Cobalt (mg/L)	**MGWC-7**	**0.00065**	**3/26/2019**	**0.009**	**Yes**	**48**	**79.17**	**n/a**	**0.01474**	**NP Inter(NDs)**
Cobalt (mg/L)	**MGWC-8**	**0.00065**	**3/26/2019**	**0.02**	**Yes**	**48**	**79.17**	**n/a**	**0.01474**	**NP Inter(NDs)**
Combined Radium 226 + 228 (pCi/L)	MGWC-1	1.12	3/26/2019	1.005	No	49	10.2	No	0.008512	Inter
Combined Radium 226 + 228 (pCi/L)	MGWC-12	1.12	3/26/2019	0.607	No	49	10.2	No	0.008512	Inter
Combined Radium 226 + 228 (pCi/L)	MGWC-2	1.12	3/26/2019	<0.412	No	49	10.2	No	0.008512	Inter
Combined Radium 226 + 228 (pCi/L)	**MGWC-3**	**1.12**	**3/26/2019**	**1.25**	**Yes**	**49**	**10.2**	**No**	**0.008512**	**Inter**
Combined Radium 226 + 228 (pCi/L)	MGWC-7	1.12	3/26/2019	0.784	No	49	10.2	No	0.008512	Inter
Combined Radium 226 + 228 (pCi/L)	**MGWC-8**	**1.12**	**3/26/2019**	**1.79**	**Yes**	**49**	**10.2**	**No**	**0.008512**	**Inter**
Fluoride (mg/L)	MGWC-1	0.2	3/26/2019	0.18	No	52	46.15	n/a	0.01192	NP Inter(normality)
Fluoride (mg/L)	**MGWC-12**	**0.2**	**3/26/2019**	**0.22**	**Yes**	**52**	**46.15**	**n/a**	**0.01192**	**NP Inter(normality)**
Fluoride (mg/L)	MGWC-2	0.2	3/26/2019	<0.1 (J)	No	52	46.15	n/a	0.01192	NP Inter(normality)
Fluoride (mg/L)	MGWC-3	0.2	3/26/2019	<0.2 (J)	No	52	46.15	n/a	0.01192	NP Inter(normality)
Fluoride (mg/L)	MGWC-7	0.2	3/26/2019	<0.2 (J)	No	52	46.15	n/a	0.01192	NP Inter(normality)
Fluoride (mg/L)	MGWC-8	0.2	3/26/2019	<0.2 (J)	No	52	46.15	n/a	0.01192	NP Inter(normality)
Lithium (mg/L)	MGWC-1	0.03	3/26/2019	0.0105	No	48	29.17	n/a	0.01474	NP Inter(normality)
Lithium (mg/L)	MGWC-12	0.03	3/26/2019	0.02	No	48	29.17	n/a	0.01474	NP Inter(normality)
Lithium (mg/L)	MGWC-2	0.03	3/26/2019	0.0051	No	48	29.17	n/a	0.01474	NP Inter(normality)
Lithium (mg/L)	MGWC-3	0.03	3/26/2019	0.012	No	48	29.17	n/a	0.01474	NP Inter(normality)
Lithium (mg/L)	**MGWC-7**	**0.03**	**3/26/2019**	**0.12**	**Yes**	**48**	**29.17**	**n/a**	**0.01474**	**NP Inter(normality)**
Lithium (mg/L)	**MGWC-8**	**0.03**	**3/26/2019**	**0.043**	**Yes**	**48**	**29.17**	**n/a**	**0.01474**	**NP Inter(normality)**

Confidence Interval - Significant Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/3/2019, 12:04 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Cobalt (mg/L)	**MGWC-7**	**0.01106**	**0.00794**	**0.006**	**Yes**	**12**	**0**	**x^2**	**0.01**	**Param.**
Lithium (mg/L)	**MGWC-7**	**0.14**	**0.11**	**0.04**	**Yes**	**12**	**0**	**No**	**0.01**	**NP (normality)**

Confidence Interval - All Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/3/2019, 12:04 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Arsenic (mg/L)	MGWA-10 (bg)	0.00095	0.00036	0.035	No	12	75	No	0.01	NP (normality)
Arsenic (mg/L)	MGWA-11 (bg)	0.002433	0.0009253	0.035	No	12	8.333	No	0.01	Param.
Arsenic (mg/L)	MGWA-5 (bg)	0.00062	0.00014	0.035	No	12	83.33	No	0.01	NP (NDs)
Arsenic (mg/L)	MGWA-6 (bg)	0.02992	0.01489	0.035	No	12	0	No	0.01	Param.
Arsenic (mg/L)	MGWC-1	0.003337	0.002243	0.035	No	12	0	sqrt(x)	0.01	Param.
Arsenic (mg/L)	MGWC-12	0.001551	0.0007234	0.035	No	12	16.67	No	0.01	Param.
Arsenic (mg/L)	MGWC-2	0.00065	0.00046	0.035	No	12	83.33	No	0.01	NP (NDs)
Arsenic (mg/L)	MGWC-3	0.001717	0.001289	0.035	No	12	8.333	x^2	0.01	Param.
Arsenic (mg/L)	MGWC-7	0.0012	0.00046	0.035	No	12	41.67	No	0.01	NP (normality)
Arsenic (mg/L)	MGWC-8	0.00059	0.00046	0.035	No	12	91.67	No	0.01	NP (NDs)
Barium (mg/L)	MGWA-10 (bg)	0.03098	0.02312	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MGWA-11 (bg)	0.1123	0.08959	2	No	12	0	x^3	0.01	Param.
Barium (mg/L)	MGWA-5 (bg)	0.03712	0.03263	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MGWA-6 (bg)	0.05413	0.04002	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MGWC-1	0.12	0.094	2	No	12	0	No	0.01	NP (normality)
Barium (mg/L)	MGWC-12	0.05965	0.04316	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MGWC-2	0.05761	0.04952	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MGWC-3	0.1534	0.1323	2	No	12	0	sqrt(x)	0.01	Param.
Barium (mg/L)	MGWC-7	0.0152	0.0098	2	No	12	0	No	0.01	NP (normality)
Barium (mg/L)	MGWC-8	0.03873	0.0336	2	No	12	0	No	0.01	Param.
Cadmium (mg/L)	MGWA-10 (bg)	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWA-11 (bg)	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWA-5 (bg)	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWA-6 (bg)	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWC-1	0.0005	0.000126	0.005	No	12	83.33	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWC-12	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWC-2	0.003876	0.001197	0.005	No	12	8.333	sqrt(x)	0.01	Param.
Cadmium (mg/L)	MGWC-3	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWC-7	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWC-8	0.000784	0.0003	0.005	No	12	50	No	0.01	NP (normality)
Cobalt (mg/L)	MGWA-10 (bg)	0.0004	0.00018	0.006	No	12	91.67	No	0.01	NP (NDs)
Cobalt (mg/L)	MGWA-11 (bg)	0.0004	0.000039	0.006	No	12	91.67	No	0.01	NP (NDs)
Cobalt (mg/L)	MGWA-5 (bg)	0.0004	0.000012	0.006	No	12	91.67	No	0.01	NP (NDs)
Cobalt (mg/L)	MGWA-6 (bg)	0.0004944	0.0002995	0.006	No	12	41.67	No	0.01	Param.
Cobalt (mg/L)	MGWC-1	0.00058	0.0004	0.006	No	12	66.67	No	0.01	NP (normality)
Cobalt (mg/L)	MGWC-12	0.0004	0.0004	0.006	No	12	100	No	0.01	NP (NDs)
Cobalt (mg/L)	MGWC-2	0.003635	0.003117	0.006	No	12	0	No	0.01	Param.
Cobalt (mg/L)	MGWC-3	0.0006235	0.0004401	0.006	No	12	16.67	No	0.01	Param.
Cobalt (mg/L)	**MGWC-7**	**0.01106**	**0.00794**	**0.006**	**Yes**	**12**	**0**	**x^2**	**0.01**	**Param.**
Cobalt (mg/L)	MGWC-8	0.018	0.00359	0.006	No	12	0	No	0.01	NP (normality)
Combined Radium 226 + 228 (pCi/L)	MGWA-10 (bg)	0.9283	0.4967	5	No	12	8.333	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWA-11 (bg)	0.7924	0.3114	5	No	12	16.67	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWA-5 (bg)	0.5777	0.2285	5	No	12	8.333	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWA-6 (bg)	0.777	0.4066	5	No	12	8.333	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWC-1	1.95	1.07	5	No	12	0	No	0.01	NP (normality)
Combined Radium 226 + 228 (pCi/L)	MGWC-12	0.7176	0.3199	5	No	12	8.333	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWC-2	0.694	0.412	5	No	12	25	No	0.01	NP (Cohens/xfrm)
Combined Radium 226 + 228 (pCi/L)	MGWC-3	1.711	1.353	5	No	12	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWC-7	1.298	0.7825	5	No	12	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWC-8	2.086	1.279	5	No	12	0	No	0.01	Param.

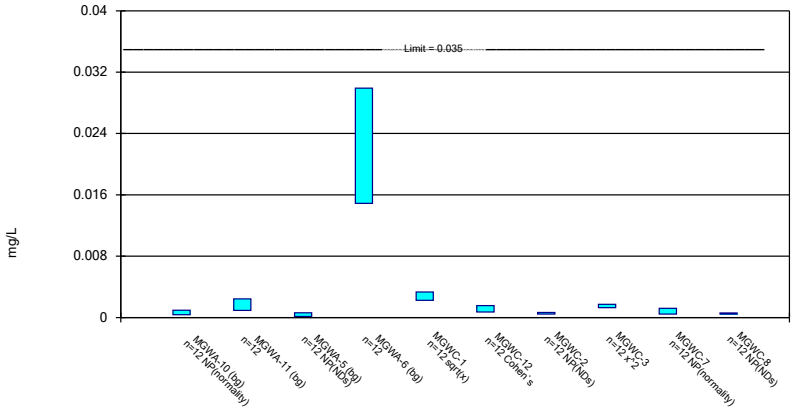
Confidence Interval - All Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/3/2019, 12:04 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Fluoride (mg/L)	MGWA-10 (bg)	0.046	0.026	4	No	13	84.62	No	0.01	NP (NDs)
Fluoride (mg/L)	MGWA-11 (bg)	0.1394	0.08388	4	No	13	15.38	No	0.01	Param.
Fluoride (mg/L)	MGWA-5 (bg)	0.1146	0.05279	4	No	13	30.77	No	0.01	Param.
Fluoride (mg/L)	MGWA-6 (bg)	0.15	0.026	4	No	13	53.85	No	0.01	NP (normality)
Fluoride (mg/L)	MGWC-1	0.2714	0.1794	4	No	13	0	No	0.01	Param.
Fluoride (mg/L)	MGWC-12	0.2657	0.2097	4	No	13	0	No	0.01	Param.
Fluoride (mg/L)	MGWC-2	0.15	0.026	4	No	13	61.54	No	0.01	NP (normality)
Fluoride (mg/L)	MGWC-3	0.2	0.026	4	No	13	53.85	No	0.01	NP (normality)
Fluoride (mg/L)	MGWC-7	0.3879	0.2404	4	No	13	7.692	No	0.01	Param.
Fluoride (mg/L)	MGWC-8	0.1974	0.1036	4	No	13	30.77	No	0.01	Param.
Lithium (mg/L)	MGWA-10 (bg)	0.008358	0.005822	0.04	No	12	8.333	x^2	0.01	Param.
Lithium (mg/L)	MGWA-11 (bg)	0.02293	0.01424	0.04	No	12	0	No	0.01	Param.
Lithium (mg/L)	MGWA-5 (bg)	0.01086	0.005891	0.04	No	12	8.333	No	0.01	Param.
Lithium (mg/L)	MGWA-6 (bg)	0.0011	0.0011	0.04	No	12	100	No	0.01	NP (NDs)
Lithium (mg/L)	MGWC-1	0.01342	0.01018	0.04	No	12	0	No	0.01	Param.
Lithium (mg/L)	MGWC-12	0.02202	0.01324	0.04	No	12	0	sqrt(x)	0.01	Param.
Lithium (mg/L)	MGWC-2	0.006255	0.003762	0.04	No	12	8.333	No	0.01	Param.
Lithium (mg/L)	MGWC-3	0.01383	0.01044	0.04	No	12	0	No	0.01	Param.
Lithium (mg/L)	**MGWC-7**	**0.14**	**0.11**	**0.04**	**Yes**	**12**	**0**	**No**	**0.01**	**NP (normality)**
Lithium (mg/L)	MGWC-8	0.04168	0.02482	0.04	No	12	0	No	0.01	Param.

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 7/3/2019 12:01 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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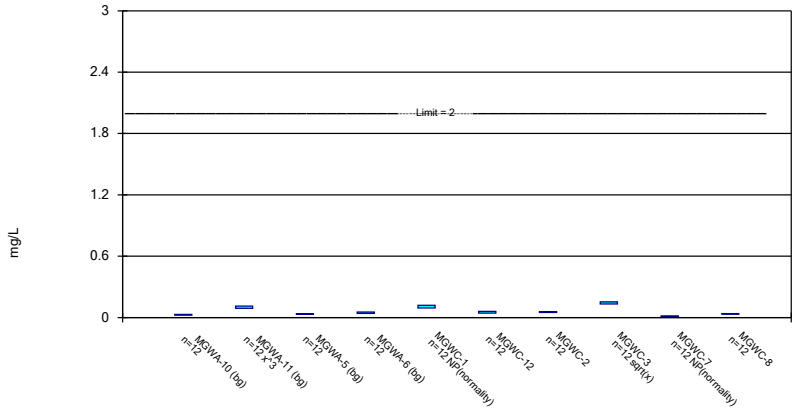
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium Analysis Run 7/3/2019 12:01 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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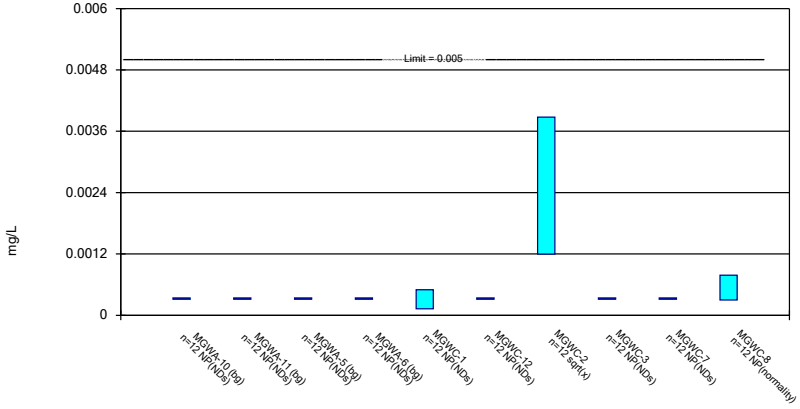
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cadmium Analysis Run 7/3/2019 12:01 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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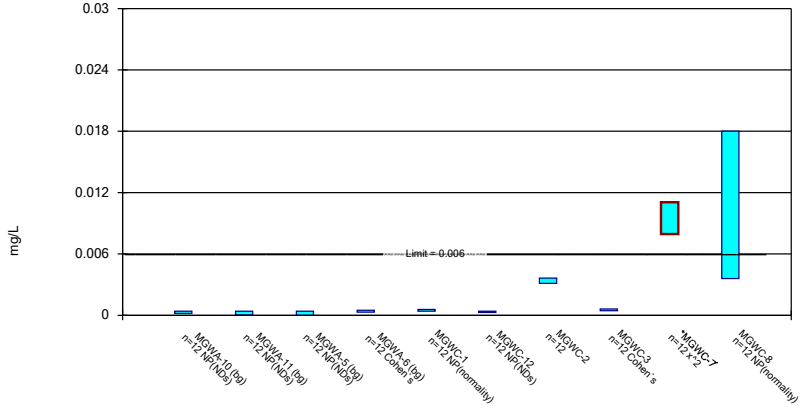
Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

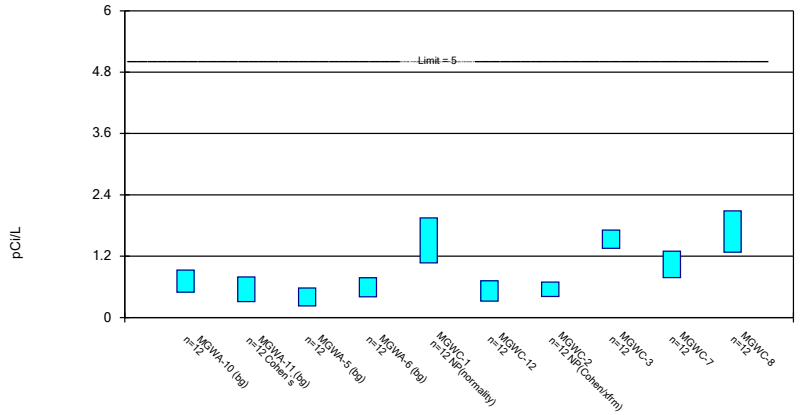


Constituent: Cobalt Analysis Run 7/3/2019 12:01 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

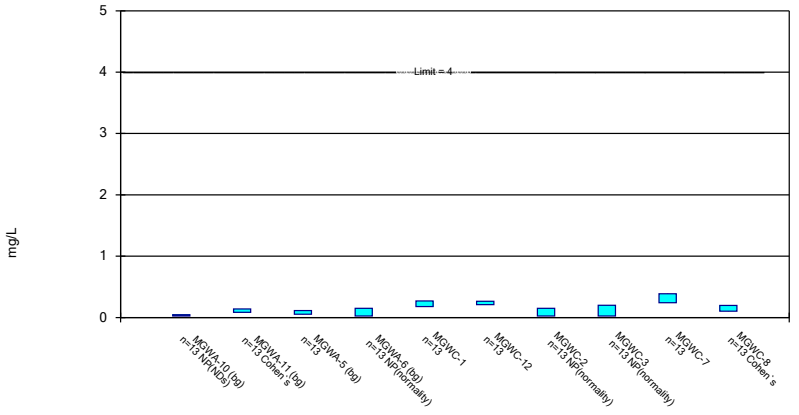


Constituent: Combined Radium 226 + 228 Analysis Run 7/3/2019 12:01 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

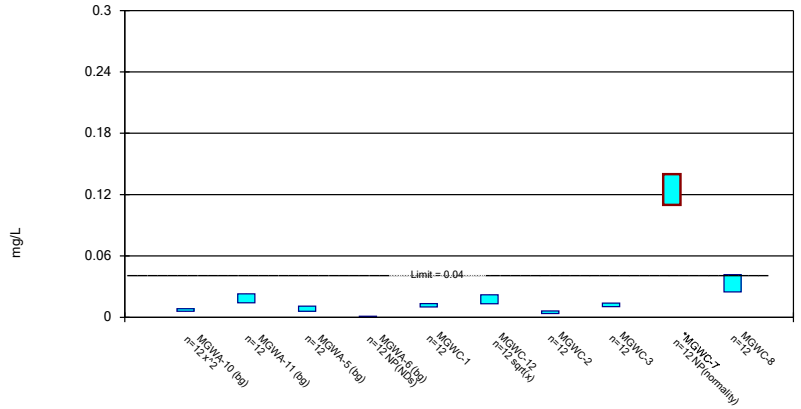


Constituent: Fluoride Analysis Run 7/3/2019 12:01 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 7/3/2019 12:01 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

March 2019 Data Statistical Analyses

Georgia EPD Program

Confidence Interval - Significant Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/3/2019, 12:12 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Cobalt (mg/L)	**MGWC-2**	**0.003635**	**0.003117**	**0.0025**	**Yes**	**12**	**0**	**No**	**0.01**	**Param.**
Cobalt (mg/L)	**MGWC-7**	**0.01106**	**0.00794**	**0.0025**	**Yes**	**12**	**0**	**x^2**	**0.01**	**Param.**
Cobalt (mg/L)	**MGWC-8**	**0.018**	**0.00359**	**0.0025**	**Yes**	**12**	**0**	**No**	**0.01**	**NP (normality)**
Lithium (mg/L)	**MGWC-7**	**0.14**	**0.11**	**0.03**	**Yes**	**12**	**0**	**No**	**0.01**	**NP (normality)**

Confidence Interval - All Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/3/2019, 12:12 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Arsenic (mg/L)	MGWA-10 (bg)	0.00095	0.00036	0.035	No	12	75	No	0.01	NP (normality)
Arsenic (mg/L)	MGWA-11 (bg)	0.002433	0.0009253	0.035	No	12	8.333	No	0.01	Param.
Arsenic (mg/L)	MGWA-5 (bg)	0.00062	0.00014	0.035	No	12	83.33	No	0.01	NP (NDs)
Arsenic (mg/L)	MGWA-6 (bg)	0.02992	0.01489	0.035	No	12	0	No	0.01	Param.
Arsenic (mg/L)	MGWC-1	0.003337	0.002243	0.035	No	12	0	sqrt(x)	0.01	Param.
Arsenic (mg/L)	MGWC-12	0.001551	0.0007234	0.035	No	12	16.67	No	0.01	Param.
Arsenic (mg/L)	MGWC-2	0.00065	0.00046	0.035	No	12	83.33	No	0.01	NP (NDs)
Arsenic (mg/L)	MGWC-3	0.001717	0.001289	0.035	No	12	8.333	x^2	0.01	Param.
Arsenic (mg/L)	MGWC-7	0.0012	0.00046	0.035	No	12	41.67	No	0.01	NP (normality)
Arsenic (mg/L)	MGWC-8	0.00059	0.00046	0.035	No	12	91.67	No	0.01	NP (NDs)
Barium (mg/L)	MGWA-10 (bg)	0.03098	0.02312	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MGWA-11 (bg)	0.1123	0.08959	2	No	12	0	x^3	0.01	Param.
Barium (mg/L)	MGWA-5 (bg)	0.03712	0.03263	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MGWA-6 (bg)	0.05413	0.04002	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MGWC-1	0.12	0.094	2	No	12	0	No	0.01	NP (normality)
Barium (mg/L)	MGWC-12	0.05965	0.04316	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MGWC-2	0.05761	0.04952	2	No	12	0	No	0.01	Param.
Barium (mg/L)	MGWC-3	0.1534	0.1323	2	No	12	0	sqrt(x)	0.01	Param.
Barium (mg/L)	MGWC-7	0.0152	0.0098	2	No	12	0	No	0.01	NP (normality)
Barium (mg/L)	MGWC-8	0.03873	0.0336	2	No	12	0	No	0.01	Param.
Cadmium (mg/L)	MGWA-10 (bg)	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWA-11 (bg)	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWA-5 (bg)	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWA-6 (bg)	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWC-1	0.0005	0.000126	0.005	No	12	83.33	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWC-12	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWC-2	0.003876	0.001197	0.005	No	12	8.333	sqrt(x)	0.01	Param.
Cadmium (mg/L)	MGWC-3	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWC-7	0.00034	0.00034	0.005	No	12	100	No	0.01	NP (NDs)
Cadmium (mg/L)	MGWC-8	0.000784	0.0003	0.005	No	12	50	No	0.01	NP (normality)
Cobalt (mg/L)	MGWA-10 (bg)	0.0004	0.00018	0.0025	No	12	91.67	No	0.01	NP (NDs)
Cobalt (mg/L)	MGWA-11 (bg)	0.0004	0.000039	0.0025	No	12	91.67	No	0.01	NP (NDs)
Cobalt (mg/L)	MGWA-5 (bg)	0.0004	0.000012	0.0025	No	12	91.67	No	0.01	NP (NDs)
Cobalt (mg/L)	MGWA-6 (bg)	0.0004944	0.0002995	0.0025	No	12	41.67	No	0.01	Param.
Cobalt (mg/L)	MGWC-1	0.00058	0.0004	0.0025	No	12	66.67	No	0.01	NP (normality)
Cobalt (mg/L)	MGWC-12	0.0004	0.0004	0.0025	No	12	100	No	0.01	NP (NDs)
Cobalt (mg/L)	**MGWC-2**	**0.003635**	**0.003117**	**0.0025**	**Yes**	**12**	**0**	**No**	**0.01**	**Param.**
Cobalt (mg/L)	MGWC-3	0.0006235	0.0004401	0.0025	No	12	16.67	No	0.01	Param.
Cobalt (mg/L)	**MGWC-7**	**0.01106**	**0.00794**	**0.0025**	**Yes**	**12**	**0**	**x^2**	**0.01**	**Param.**
Cobalt (mg/L)	**MGWC-8**	**0.018**	**0.00359**	**0.0025**	**Yes**	**12**	**0**	**No**	**0.01**	**NP (normality)**
Combined Radium 226 + 228 (pCi/L)	MGWA-10 (bg)	0.9283	0.4967	5	No	12	8.333	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWA-11 (bg)	0.7924	0.3114	5	No	12	16.67	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWA-5 (bg)	0.5777	0.2285	5	No	12	8.333	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWA-6 (bg)	0.777	0.4066	5	No	12	8.333	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWC-1	1.95	1.07	5	No	12	0	No	0.01	NP (normality)
Combined Radium 226 + 228 (pCi/L)	MGWC-12	0.7176	0.3199	5	No	12	8.333	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWC-2	0.694	0.412	5	No	12	25	No	0.01	NP (Cohens/xfrm)
Combined Radium 226 + 228 (pCi/L)	MGWC-3	1.711	1.353	5	No	12	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWC-7	1.298	0.7825	5	No	12	0	No	0.01	Param.
Combined Radium 226 + 228 (pCi/L)	MGWC-8	2.086	1.279	5	No	12	0	No	0.01	Param.

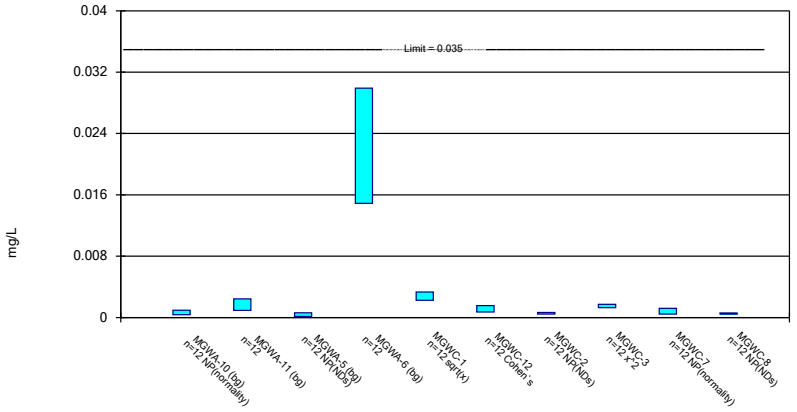
Confidence Interval - All Results

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export Printed 7/3/2019, 12:12 PM

Constituent	Well	Upper Lim.	Lower Lim.	Compliance	Sig.	N	%NDs	Transform	Alpha	Method
Fluoride (mg/L)	MGWA-10 (bg)	0.046	0.026	4	No	13	84.62	No	0.01	NP (NDs)
Fluoride (mg/L)	MGWA-11 (bg)	0.1394	0.08388	4	No	13	15.38	No	0.01	Param.
Fluoride (mg/L)	MGWA-5 (bg)	0.1146	0.05279	4	No	13	30.77	No	0.01	Param.
Fluoride (mg/L)	MGWA-6 (bg)	0.15	0.026	4	No	13	53.85	No	0.01	NP (normality)
Fluoride (mg/L)	MGWC-1	0.2714	0.1794	4	No	13	0	No	0.01	Param.
Fluoride (mg/L)	MGWC-12	0.2657	0.2097	4	No	13	0	No	0.01	Param.
Fluoride (mg/L)	MGWC-2	0.15	0.026	4	No	13	61.54	No	0.01	NP (normality)
Fluoride (mg/L)	MGWC-3	0.2	0.026	4	No	13	53.85	No	0.01	NP (normality)
Fluoride (mg/L)	MGWC-7	0.3879	0.2404	4	No	13	7.692	No	0.01	Param.
Fluoride (mg/L)	MGWC-8	0.1974	0.1036	4	No	13	30.77	No	0.01	Param.
Lithium (mg/L)	MGWA-10 (bg)	0.008358	0.005822	0.03	No	12	8.333	x^2	0.01	Param.
Lithium (mg/L)	MGWA-11 (bg)	0.02293	0.01424	0.03	No	12	0	No	0.01	Param.
Lithium (mg/L)	MGWA-5 (bg)	0.01086	0.005891	0.03	No	12	8.333	No	0.01	Param.
Lithium (mg/L)	MGWA-6 (bg)	0.0011	0.0011	0.03	No	12	100	No	0.01	NP (NDs)
Lithium (mg/L)	MGWC-1	0.01342	0.01018	0.03	No	12	0	No	0.01	Param.
Lithium (mg/L)	MGWC-12	0.02202	0.01324	0.03	No	12	0	sqrt(x)	0.01	Param.
Lithium (mg/L)	MGWC-2	0.006255	0.003762	0.03	No	12	8.333	No	0.01	Param.
Lithium (mg/L)	MGWC-3	0.01383	0.01044	0.03	No	12	0	No	0.01	Param.
Lithium (mg/L)	**MGWC-7**	**0.14**	**0.11**	**0.03**	**Yes**	**12**	**0**	**No**	**0.01**	**NP (normality)**
Lithium (mg/L)	MGWC-8	0.04168	0.02482	0.03	No	12	0	No	0.01	Param.

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Arsenic Analysis Run 7/3/2019 12:11 PM

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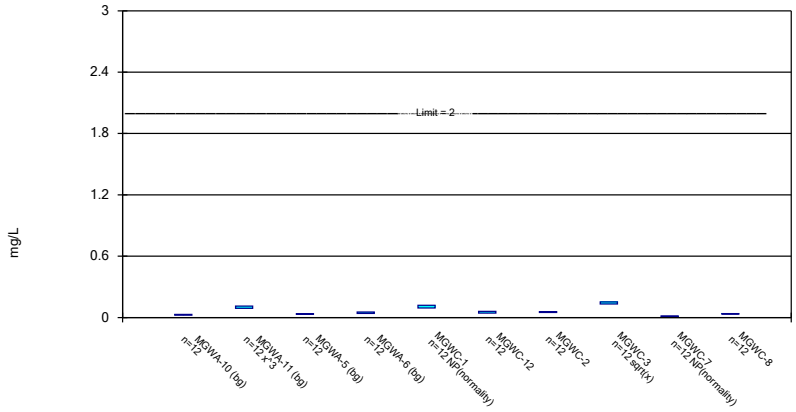
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Barium Analysis Run 7/3/2019 12:11 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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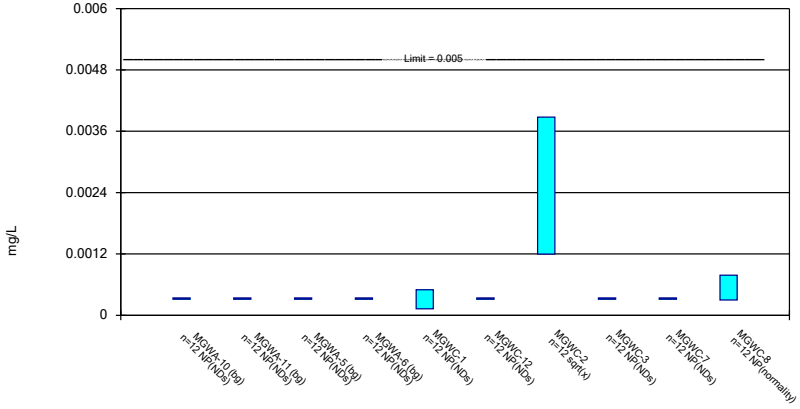
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Cadmium Analysis Run 7/3/2019 12:11 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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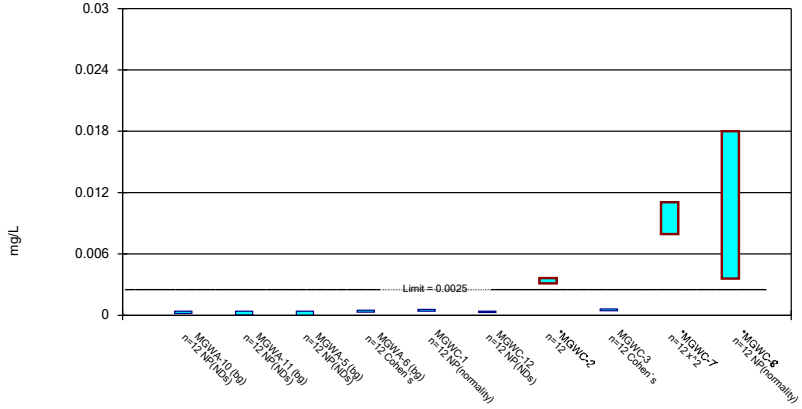
Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.

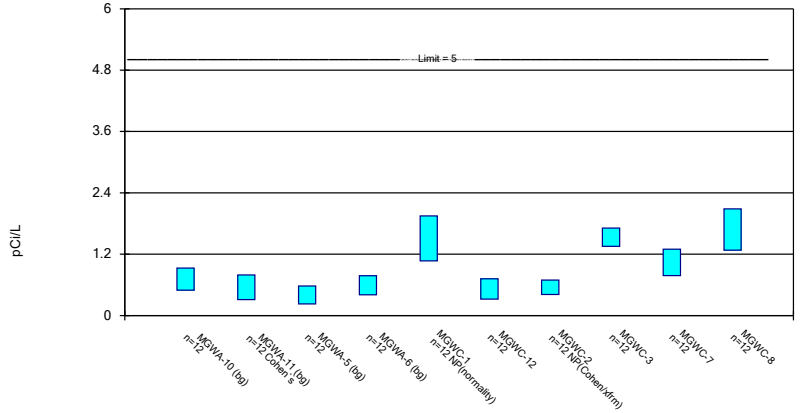


Constituent: Cobalt Analysis Run 7/3/2019 12:11 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Combined Radium 226 + 228 Analysis Run 7/3/2019 12:11 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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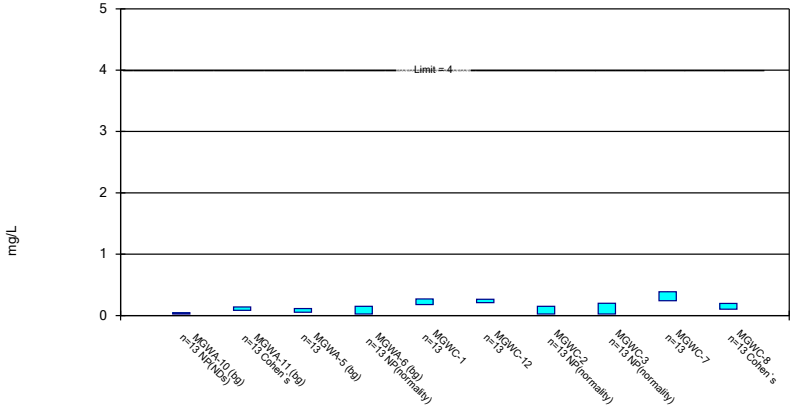
Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Fluoride Analysis Run 7/3/2019 12:12 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export

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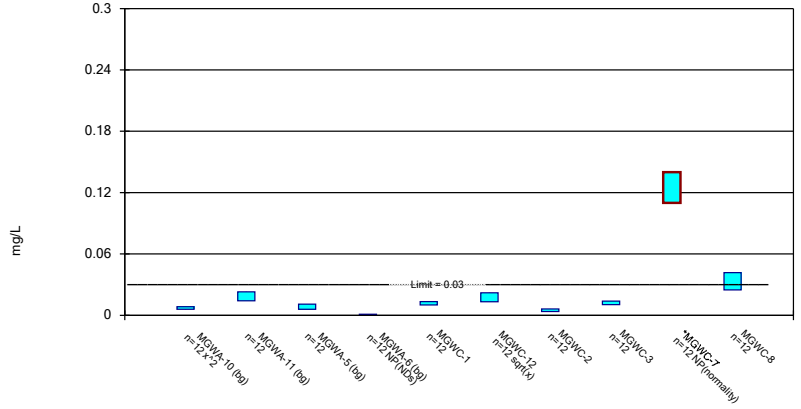
Parametric and Non-Parametric (NP) Confidence Interval

Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk, alpha based on n.



Constituent: Lithium Analysis Run 7/3/2019 12:12 PM

Plant McIntosh Client: GEI Data: McIntosh Ash Pond Export