



*Prepared for*

**Georgia Power Company**  
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**2019 FIRST SEMIANNUAL  
GROUNDWATER MONITORING &  
CORRECTIVE ACTION REPORT  
GEORGIA POWER COMPANY  
PLANT HAMMOND ASH POND 1 (AP-1)**

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**CERTIFICATION STATEMENT**

This 2019 First Semiannual Groundwater Monitoring & Corrective Action Report, Georgia Power Company - Plant Hammond – Ash Pond 1 (AP-1) has been prepared in compliance 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 by a qualified groundwater scientist or engineer with Geosyntec Consultants.

  
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## LIST OF ACRONYMS

ACM	Assessment of Corrective Measures
AP	ash pond
CCR	coal combustion residuals
CFR	Code of Federal Regulations
cm/sec	centimeters per second
DO	dissolved oxygen
ft AMSL	feet above mean sea level
ft/day	feet per day
ft/ft	feet per foot
GA EPD	Georgia Environmental Protection Division
GPC	Georgia Power Company
GWPS	Groundwater Protection Standard
HAR	Hydrogeologic Assessment Report
MCL	Maximum Contaminant Level
mg/L	milligram per liter
NELAP	National Environmental Laboratory Accreditation Program
NTU	Nephelometric turbidity units
ORP	oxidation-reduction potential
Pace Analytical	Pace Analytical Services, LLC.
PE	professional engineer
QA/QC	Quality Assurance/Quality Control
SSI	statistically significant increase
SSL	statistically significant level
s.u.	standard unit
USEPA	United States Environmental Protection Agency

## 1.0 INTRODUCTION

In accordance with the United States Environmental Protection Agency (USEPA) coal combustion residual (CCR) rule [40 Code of Federal Regulations (CFR) Part 257, Subpart D] and the Georgia Environmental Protection Division (GA EPD) Rules for Solid Waste Management 391-3-4-.10, Geosyntec Consultants has prepared this *2019 First Semiannual Groundwater Monitoring & Corrective Action Report* to document groundwater monitoring activities conducted at Georgia Power Company (GPC) Plant Hammond (Site) Ash Pond 1 (AP-1). GA EPD Rules for Solid Waste Management 391-3-4-.10(6)(a) adopt the Federal CCR rule by reference. For ease of reference, the USEPA CCR rules are cited within this report. This report documents groundwater monitoring activities completed for AP-1 from January through July 2019.

Due to statistically significant levels (SSLs) of arsenic and molybdenum identified in the *2018 Annual Groundwater Monitoring and Corrective Action Report* (Geosyntec, 2019a), GPC initiated an assessment of corrective measures (ACM) program for AP-1 on February 12, 2019. Pursuant to 40 CFR 257.96(b), GPC continues to monitor groundwater associated with AP-1 in accordance with the assessment monitoring program established for the unit in 2018, including semiannual monitoring and reporting pursuant to 40 CFR 257.90 through 40 CFR 257.95 of the Federal CCR rule, and GA EPD Rules for Solid Waste Management 391-3-4-.10(6)(a). The current 2019 data indicate that arsenic and molybdenum concentrations are horizontally delineated and contained within the property boundary.

### 1.1 Site Description and Background

Plant Hammond is located in Floyd County, Georgia, approximately 10 miles west of Rome and is bordered by Georgia Highway 20 (GA-20) on the north, the Coosa River on the south, Cabin Creek and industrial land on the east, and sparsely populated, forested, rural and industrial land on the west (**Figure 1**). The physical address of the plant is 5963 Alabama Highway, Rome, Georgia, 30165.

AP-1 is a 35-acre surface impoundment that received CCR materials from its commission in 1952 until 1969. After 1969, AP-1 was utilized as a co-treatment pond to handle return water flows from the other ponds and for recycling of process water for plant operations. As of April 17, 2019, all process plant flows to AP-1 ceased.

## **1.2 Regional Geology & Hydrogeologic Setting**

The following section summarizes the geologic and hydrogeologic conditions at AP-1 as described in the *Hydrogeologic Assessment Report – AP-1* (HAR) submitted to GA EPD as supporting documents for the closure permit application.

### **1.2.1 Regional and Site Geology**

The Site is located in the Valley and Ridge Physiographic Province of northwest Georgia which is characterized by Paleozoic sedimentary rocks that have been folded and faulted into the ridges and valleys that gave this region its name. Geologic mapping performed at the Site by Petrologic Solutions, Inc. under the direction of Golder (Golder, 2018) indicates that AP-1 is underlain by the middle units of the Cambrian age Conasauga Formation, consisting of mostly shaley limestone. Subsurface investigations at AP-1 describe the bedrock as limestone or shaley limestone. AP-1 is underlain primarily by five lithologic units: (i) fill, (ii) terrace alluvium, (iii) residuum, (iv) highly weathered/fractured shaley limestone bedrock, and (v) competent shaley limestone bedrock.

Based on subsurface investigations the fill material is composed of lean clay or gravelly lean clay with sand from the construction of the pond. The terrace alluvium consists of unconsolidated sediments associated with deposition from the Coosa River and Cabin Creek. Alluvium was variously described as well sorted and poorly sorted sand, clayey sand, sandy gravel, clayey gravel, or gravelly clay. The residuum clay layer or native soils have been derived from the in-place weathering of the shaley limestone bedrock. The residuum is generally described as a lean to fat clay, sometimes silty with some sand, and rarely gravel. The subsurface investigation data suggests the residuum thins out in places and the alluvial deposits is in direct contact with the upper fractured or the unweathered limestone bedrock. Just below the residuum clay layer is a gradational zone of varying proportions of clayey residuum and sand, gravel, and cobble-sized angular pieces of partially weathered limestone, grading into a zone of fractured shaley limestone, before grading into unweathered, fresh shaley limestone bedrock. The upper highly weathered zone appears more as residuum with various sized rock fragments. The lower zone becomes less clayey with depth and is estimated to be approximately 10 feet thick. The limestone is described as medium to dark gray, very finely laminated with lighter and darker gray layers, and contains interbeds of calcareous shale.

### **1.2.2 Hydrogeologic Setting**

The uppermost aquifer at AP-1 is a regional groundwater aquifer that occurs in the terrace alluvium, residuum, and the weathered and fractured bedrock. The uppermost aquifer is considered to be unconfined; however, localized, semi-confined conditions may be encountered due to the low-permeability clayey nature of the residual soils, or as a result of perched groundwater or poorly interconnected fracture networks in the bedrock. Based on observations of soil types and horizontal conductivity values, the movement of groundwater in the soil, and to some degree the highly weathered bedrock zone, can be characterized as low-to moderate permeability, porous media flow. Groundwater flow in the more competent underlying bedrock is characterized as fracture flow. Groundwater flow in the vicinity of AP-1 is to the east and south.

### **1.3 Groundwater Monitoring Well Network**

In accordance with 40 CFR 257.91, a groundwater monitoring system was installed at AP-1 that (1) consists of a sufficient number of wells, (2) is installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer, and (3) represents the groundwater quality both upgradient of the units (i.e., background conditions) and passing the waste boundary of the units. The number, spacing, and depths of the groundwater monitoring wells were selected based on the characterization of site-specific hydrogeologic conditions. The certified compliance monitoring well network for AP-1 consists of ten monitoring wells. The well network was certified by a professional engineer (PE) on October 17, 2017; the certification is maintained in the AP-1 Operating Record.

Eight additional groundwater monitoring wells were installed in 2018 to provide additional data to characterize flow conditions downgradient of AP-1 and to horizontally and vertically delineate groundwater quality conditions at AP-1. Wells MW-19, MW-20, and MW-29 were installed for horizontal delineation and wells MW-24D, MW-25D, MW-26D, MW-27D, and MW-28D were installed for vertical delineation. The delineation well network was supplemented by adding piezometers MW-5, MW-6, and MW-7, which were originally installed in 2014 to gauge water levels downgradient of AP-1. These three piezometers were suitably located downgradient of AP-1 and therefore reallocated as horizontal delineation wells. These eleven delineation wells are sampled concurrently with the compliance monitoring well network.

A network of piezometers has been installed at the Site that are used to gauge water levels to define groundwater flow direction and gradients. There are three piezometers (AP1A-1, MW-1, MW-8) used to gauge groundwater levels in vicinity of AP-1.

The locations of the compliance monitoring wells, delineation wells, and groundwater level monitoring piezometers are shown on **Figure 2**; well construction details are listed in **Table 1**.

## **2.0 GROUNDWATER MONITORING ACTIVITIES**

In accordance with 40 CFR 257.90(e), the following describes monitoring-related activities performed during January through July 2019 and discusses any change in status of the monitoring program. All groundwater sampling was performed in accordance with 40 CFR 257.93.

### **2.1 Monitoring Well Installation and Maintenance**

One additional groundwater monitoring well (MW-30D) was installed in June 2019 to vertically delineate groundwater quality conditions adjacent to well HGWC-7. A detailed boring and well construction log for the new well is provided in **Appendix A**. The location of well MW-30D is shown on **Figure 2**; well construction details are also provided in **Table 1**.

The well and piezometer networks are inspected during each groundwater monitoring event using GA EPD-based inspection criteria. Any issues identified with the wells (e.g., clogged weep holes within the outer protective casing, faded well identification signage, rusted locks and/or latches, etc.) are addressed before the following groundwater sampling event.

Select AP-1 wells and piezometers located south and east of AP-1 along the Coosa River were redeveloped after the river crested the banks in late February 2019. These wells were redeveloped as a precautionary measure and prior to the March 2019 sampling event. The field parameters recorded at each well during the well redevelopment activities were consistent with historical measurements recorded during normal conditions. This indicates the groundwater within these monitoring wells was not impacted by the river.

### **2.2 Assessment Monitoring**

GPC initiated an assessment monitoring program for groundwater at AP-1 in January 2018. Pursuant to 40 CFR 257.95, the compliance monitoring well network was sampled for Appendix IV parameters in April 2018, and again in June and October 2018 for Appendix III parameters and the Appendix IV parameters detected during the April event. Groundwater data collected during the June and October 2018 semiannual monitoring events were statically analyzed in accordance with the professional engineer (PE)-certified statistical method described in Section 4.1. SSLs of arsenic and molybdenum were identified in AP-1 compliance wells. A notification identifying the SSLs was

prepared for AP-1 and placed in the AP-1 Operating Record on November 14, 2018. Additional groundwater monitoring details are provided in the *2018 Annual Groundwater and Corrective Action Monitoring Report* (Geosyntec, 2019a).

Pursuant to 40 CFR 257.96, an assessment of corrective measures was initiated for AP-1 on February 12, 2019. An *Assessment of Corrective Measures (ACM) Report* was subsequently prepared for AP-1 (Geosyntec, 2019b), posted to GPC's website, and submitted to GA EPD. In accordance with 40 CFR 257.96(b), groundwater continues to be monitored at AP-1 under the assessment monitoring program while the ACM phase is implemented.

Assessment monitoring events at AP-1 were conducted in March and April 2019. The number of groundwater samples collected for analysis and the dates the samples were collected at AP-1 during this initial 2019 reporting period is summarized in **Table 2**. Details of these events and analytical results are discussed in Section 3, while the statistical results are discussed in Section 4

### **2.3 Other Sampling**

A groundwater sample was collected from delineation well MW-30D on July 8, 2019, and analyzed for molybdenum by USEPA analytical method 6020B. Molybdenum was detected in well MW-30D at 0.022 milligrams per liter (mg/L). Based on the observed geochemical field parameters and static groundwater level differential between MW-30D and shallower wells (MW-28D, HGWC-7), the preliminary evidence indicates the molybdenum in MW-30D originates from a source other than AP-1. Additional data assessments are required before preparing a memorandum to analyze the lines of evidence supporting this understanding. The field log and laboratory report associated with the July 2019 sampling are included in **Appendix B**.

### 3.0 SAMPLING METHODOLOGY & ANALYSES

The following section presents a summary of the field sampling procedures that were implemented and the groundwater sampling results that were obtained in connection with the assessment monitoring program conducted at AP-1 during this reporting period.

#### 3.1 Groundwater Level Measurement

Prior to each sampling event, a synoptic round of depth to groundwater level measurements were recorded from the AP-1 wells and piezometers and used to calculate the corresponding groundwater elevations. The calculated groundwater elevations for the March and April 2019 events are presented in **Table 3**. The groundwater elevations observed for the March 2019 event ranged from 588.76 feet above mean sea level (ft AMSL) in well HGWA-1 to 569.76 ft AMSL in well MW-7. For the April 2019 event, the groundwater elevations ranged from 585.20 ft AMSL in well HGWA-1 to 565.71 ft AMSL in well MW-7.

The groundwater elevation data were used to prepare potentiometric surface maps for the March and April 2019 events, which are presented on **Figures 3** and **4**, respectively. Groundwater in the AP-1 area flows under the influence of topography from slightly higher elevations on the north side of the Site in a generally easterly and southerly direction.

#### 3.2 Groundwater Gradient and Flow Velocity

The groundwater hydraulic gradients within the uppermost aquifer beneath AP-1 were calculated using the groundwater elevation data from the March and April 2019 events. The supporting calculations are presented in **Table 4**. The presented hydraulic gradients represent the calculated average of the March and April 2019 events. The general trajectory of the flow paths used in the calculations and associated potentiometric contour lines are shown on **Figures 3** and **4**.

As presented in **Table 4**, the average hydraulic gradients along the southerly and easterly groundwater flow path lines associated with AP-1 are 0.050 feet per foot (ft/ft) and 0.030 ft/ft, respectively.

The approximate horizontal flow velocities associated with AP-1 were calculated using the following derivative of Darcy's Law. The calculations are presented on **Table 4**.



$$V = \text{linear velocity} = \frac{K * i}{n_e}$$

where:

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

$$K = \text{Hydraulic Conductivity} \left( \frac{\text{feet}}{\text{day}} \right)$$

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

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

The average hydraulic conductivity for AP-1 of  $4.17 \times 10^{-3}$  centimeters per second (cm/sec) [11.82 feet per day (ft/day)] was computed from slug test data derived from ten locations across the AP-1 area and presented in the HAR. An estimated effective porosity of 0.15 is used to represent average conditions at AP-1, derived based on review of literature, observed site lithology, and professional judgement. With these variables determined, and accounting for the averaged hydraulic gradient discussed above for the two 2019 events, the average groundwater flow velocity in the vicinity of AP-1 was calculated to be 3.2 ft/day (i.e., average of the southerly and easterly flow velocities). The flow velocity calculations are provided in **Table 4**.

### **3.3 Groundwater Sampling Procedures**

Groundwater samples were collected from the compliance monitoring and delineation well networks using low-flow sampling procedures in accordance with 40 CFR 257.93(a). Eight of the 21 wells were purged and sampled using the installed bladder pump with dedicated tubing; the remaining 13 wells were sampled using a peristaltic pump equipped with new disposable polyethylene tubing. All non-disposable equipment was decontaminated before use and between well locations.

A SmarTroll (In-Situ field instrument) was used to monitor and record field water quality parameters [i.e., pH, conductivity, oxidation-reduction potential (ORP), temperature, and dissolved oxygen (DO)] during well purging to verify stabilization prior to sampling. Turbidity was measured using a LaMotte 2020we® portable turbidimeter. Groundwater samples were collected when the following stabilization criteria were met:

- pH  $\pm$  0.1 Standard Units (s.u.).

- Conductivity  $\pm 5\%$ .
- $\pm 0.2$  mg/L or  $\pm 10\%$ , whichever is greater for DO  $> 0.5$  mg/L. No criterion applies if DO  $< 0.5$  mg/L, record only.
- Turbidity measured less than 10 nephelometric turbidity units (NTU).

Once stabilization was achieved, samples were collected into appropriately-preserved laboratory-supplied sample containers. Sample bottles were placed in ice-packed coolers and submitted to Pace Analytical Services, LLC. in Norcross, Georgia following chain-of-custody protocol. The field sampling forms generated during the monitoring events conducted during March through July are provided in **Appendix B**.

### **3.4 Laboratory Analyses**

Laboratory analyses were performed by Pace Analytical Services, LLC. (Pace Analytical), which is accredited by the National Environmental Laboratory Accreditation Program (NELAP). Pace Analytical maintains a NELAP certification for the Appendix III and Appendix IV parameters analyzed for this project. Analytical methods used for groundwater sample analysis are listed in the analytical laboratory reports included in **Appendix B**.

The groundwater analytical results from the March, April, and July 2019 monitoring events are summarized in **Table 5**. The Pace Analytical laboratory reports associated with the results presented in **Table 5** are provided in **Appendix B**.

The 2019 analytical results reported for the horizontal delineation wells (MW-5, MW-6, MW-7, MW-20, MW-29) indicate that SSLs of arsenic and molybdenum are horizontally delineated and contained within the property boundary; for these wells, the arsenic and molybdenum concentrations are below their respective groundwater protection standards (GWPS). The SSL of arsenic in well HGWC-13 has also been vertically delineated by well MW-24D. Similarly, molybdenum concentrations have been vertically delineated to less than the GWPS in wells MW-24D, MW-25D, MW-26D, MW-27D, and MW-30D (delineation memorandum pending for MW-30D as discussed in Section 2.3).

### **3.5 Quality Assurance & Quality Control Summary**

Quality assurance/quality control (QA/QC) samples were collected during the groundwater monitoring events at the rate of one QA/QC sample per 10 groundwater

samples and included the following: field duplicates, equipment blanks, and field blank samples. QA/QC samples were collected in laboratory-provided bottles and submitted under the same chain of custody as the primary samples for analysis of the same parameters by Pace Analytical.

In addition to collecting QA/QC samples, the data were validated based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and applicable federal guidance documents (USEPA, 2011; USEPA, 2017). Where necessary, the data were qualified with supporting documentation and justifications. The associated data validation report is provided in **Appendix B** with the laboratory reports.

## 4.0 STATISTICAL ANALYSIS

The following section presents a summary of the statistical approach applied to assess the 2019 groundwater analytical data in downgradient compliance wells relative to the available historical dataset. Groundwater monitoring data collected during the semiannual monitoring event in April 2019 were statically analyzed pursuant to 40 CFR 257.95 following the PE-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 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<sup>™</sup> groundwater statistical software was used to perform the statistical analyses. Sanitas<sup>™</sup> is a decision-support software package, that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations and guidance as recommended in the USEPA document *Statistical Analysis of Groundwater Data at RCRA Facilities Unified Guidance* (Unified Guidance) (USEPA, 2009).

Time series plots generated by Sanitas<sup>™</sup> are used to identify suspected outliers, or extreme values that would result in limits that are not representative of the current background data population. Suspected outliers at all wells for Appendix III and Appendix IV parameters are formally tested using Tukey's box plot method and, when identified, flagged in the computer database with "o" and deselected prior to construction of statistical limits. Background well data were updated following the Unified Guidance recommendation, evaluating recent background data using Tukey's box plot method for outliers and Sen's Slope/Mann-Kendall methods for potential trends.

#### 4.1.1 Appendix III Statistical Methods

Statistical tests used to evaluate the groundwater monitoring data consist of interwell prediction limits combined with a 1-of-2 verification resample plan for each of the Appendix III parameters. Interwell prediction limits pool upgradient well data to establish a background limit for an individual constituent, and the most recent sample from each downgradient well is compared to the same limit for each parameter. If the most recent sample exceeds its respective background statistical limit, an initial

statistically significant increase (SSI) is identified. The results are discussed in Section 4.2 and tabulated in **Table C-1, Appendix C**.

#### 4.1.2 Appendix IV Statistical Methods

Appendix IV constituents detected during the March 2019 assessment monitoring event were sampled during the April 2019 semiannual sampling event. 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 pair considered to exceed its GWPS. If there is an exceedance of the established standard, an SSL exceedance is identified.

Background limits were used when determining the GWPS under USEPA rule 40 CFR 257.95(h) and GA EPD CCR Rule 391-3-4-.10(6)(a). Parametric tolerance limits were used to calculate background limits from pooled upgradient well data for Appendix IV parameters with a target of 95% confidence and 95% coverage. The confidence and coverage levels for nonparametric tolerance limits are dependent upon the number of background samples.

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 (MCL) established under 40 CFR 141.62 and 141.66.
- (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; and
  - (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 GA EPD's CCR Rule. The GA EPD CCR Rule GWPS is:

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

Following the above federal and state rule requirements, GWPS have been established for statistical comparison of Appendix IV constituents and are presented in **Table 6**. Additional details are presented in the statistical analysis packages provided in **Appendix C**.

#### **4.2 Statistical Analyses Results**

Analytical data from the April 2019 semiannual monitoring event were statistically analyzed in accordance with the Statistical Analysis Method Certification (October 2017). Appendix III statistical analysis was performed to determine if constituents have returned to background levels. Appendix IV assessment monitoring parameters were evaluated to determine if concentrations statistically exceeded the established GWPS.

Using the Tukey box plot method, outliers were identified with the dataset for the background wells. However, the values are either the most recent recorded value or similar to remaining measurements within a given well or neighboring wells and therefore no change to the dataset is recommended at this time. The Sen's Slope/Mann-Kendall methods for potential trends identified both increasing and marginally decreasing trends in the dataset for the background wells, however, no action is recommended at this time given the limited dataset size ( $n < 20$ ). A summary of the findings is included in **Appendix C**.

Based on review of the Appendix III statistical analysis presented in **Table C-1**, no pH exceedances over background PLs were identified; however, the remaining Appendix III constituents previously identified to exceed respective PLs have not returned to background levels and assessment monitoring should continue pursuant to 40 CFR 257.95(f).

A summary of the Sanitas<sup>™</sup> outputs for the April 2019 assessment event is provided in **Appendix C**. Based on the statistical analysis of Appendix IV parameters as described in Section 4.1.2, the following parameters were found to exceed the GWPS:

AP-1 (Federal CCR Rule):

- Arsenic: HGWC-13;
- Molybdenum: HGWC-8

AP-1 (GA EPD CCR Rule):

- Arsenic: HGWC-13;
- Molybdenum: HGWC-7, HGWC-8, HGWC-9, HGWC-11, HGWC-12, and HGWC-13

The April 2019 statistical evaluation results are consistent with the 2018 reporting year statistical results. A groundwater exceedance notification will be placed in the operating record pursuant to 40 CFR §257.95(g).

## **5.0 MONITORING PROGRAM STATUS**

Pursuant to 40 CFR 257.96(b), GPC will continue to monitor the groundwater at AP-1 in accordance with the assessment monitoring program regulations of 40 CFR 257.95 while ACM efforts are implemented to address SSL concentrations of arsenic and molybdenum in select AP-1 wells.



## 6.0 CONCLUSIONS & FUTURE ACTIONS

This *2019 First Semiannual Groundwater Monitoring & Corrective Action Report* for Plant Hammond AP-1 was prepared to fulfill the requirements of USEPA's CCR Rule and GA EPD Rules for Solid Waste Management 391-3-4-.10. Statistical evaluations of the April 2019 groundwater monitoring data for AP-1 confirmed the continued presence of SSLs of arsenic and molybdenum in select AP-1 compliance monitoring wells. However, groundwater data indicate that arsenic and molybdenum contributions from AP-1 are horizontally and vertically delineated and contained within the property boundary. Based on the current data, groundwater in the vicinity of AP-1 will continue to be monitored under the current assessment monitoring program. Concurrently, GPC will continue efforts to assess corrective measures as presented in the ACM Report (Geosyntec, 2019b).

The second semiannual assessment monitoring event is scheduled to occur in the fall of 2019.

## 7.0 REFERENCES

- Geosyntec Consultants, 2019a. *2018 Annual Groundwater Monitoring and Corrective Action Report - Plant Hammond Ash Ponds 1 & 2 (AP-1 and AP-2)*. January 2019.
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# TABLES

**Table 1**  
Monitoring Well Network Summary  
Plant Hammond AP-1, Floyd County, Georgia

Well ID	Hydraulic Location	Installation Date	Northing <sup>(1)</sup>	Easting <sup>(1)</sup>	Top of Casing Elevation (ft AMSL)	Top of Screen Elevation (ft AMSL)	Bottom of Screen Elevation (ft AMSL)	Well Depth (ft BTOC) <sup>(2)</sup>	Screen Interval Length
<b><i>Compliance Monitoring Well</i></b>									
HGWA-1	Upgradient	12/3/2014	1550423.69	1940773.31	595.50	573.40	563.40	32.50	10
HGWA-2	Upgradient	12/2/2015	1549796.40	1939845.20	588.18	570.23	560.23	27.95	10
HGWA-3	Upgradient	12/2/2015	1549793.93	1939833.46	588.06	553.19	543.19	44.87	10
HGWC-7	Downgradient	12/3/2015	1549520.39	1942319.97	579.49	561.32	551.32	28.17	10
HGWC-8	Downgradient	12/8/2015	1549114.34	1942392.75	580.08	563.43	553.43	26.65	10
HGWC-9	Downgradient	12/9/2015	1548692.82	1942215.01	580.60	543.62	533.62	46.98	10
HGWC-10	Downgradient	12/8/2015	1548469.50	1941644.41	579.66	566.66	556.66	23.00	10
HGWC-11	Downgradient	12/15/2015	1548477.54	1941146.65	580.96	565.48	555.48	25.78	10
HGWC-12	Downgradient	12/9/2015	1548475.82	1941152.08	581.01	555.33	545.33	35.68	10
HGWC-13	Downgradient	12/10/2015	1548628.52	1940900.41	594.83	559.76	549.76	45.07	10
<b><i>Groundwater Level Monitoring Piezometer</i></b>									
AP1A-1	Upgradient	12/15/2015	1550080.50	1941613.87	587.72	576.17	566.17	21.85	10
MW-1	Upgradient	12/2/2014	1549936.35	1941590.63	588.82	568.10	558.10	31.12	10
MW-8	Downgradient	10/29/2014	1548174.39	1940014.36	587.37	565.50	555.50	32.27	10
<b><i>Delineation Monitoring Well</i></b>									
MW-5	Downgradient	11/4/2014	1548430.93	1942445.51	581.02	560.60	550.60	30.82	10
MW-6	Downgradient	11/4/2014	1548381.08	1941686.62	581.90	559.30	549.30	33.00	10
MW-7	Downgradient	10/30/2014	1548230.07	1941084.33	577.90	561.50	551.50	26.80	10
MW-19	Downgradient	9/26/2018	1548421.73	1940943.35	580.77	561.20	551.20	29.87	10
MW-20	Downgradient	9/27/2018	1549029.01	1942735.47	579.18	554.82	544.82	34.36	10
MW-24D	Downgradient	11/7/2018	1548637.48	1940900.52	594.67	531.56	521.56	73.11	10
MW-25D	Downgradient	11/6/2018	1548471.80	1941161.62	580.64	527.61	517.61	63.03	10
MW-26D	Downgradient	11/14/2018	1548699.09	1942223.22	580.48	512.57	502.57	77.91	10
MW-27D	Downgradient	11/8/2018	1549103.69	1942391.99	579.74	526.87	516.87	62.97	10
MW-28D	Downgradient	11/13/2018	1549511.13	1942322.32	579.20	531.06	521.06	58.14	10
MW-29	Downgradient	11/13/2018	1549437.24	1942632.41	575.00	556.89	546.89	28.21	10
MW-30D	Downgradient	6/19/2019	1549530.25	1942319.66	578.97	481.57	471.57	107.50	10

Notes:

ft = feet

AMSL = above mean sea level

BTOC = below top of casing

(1) Coordinates in North American Datum (NAD) 1983, State Plane, Georgia-West, feet.

(2) Total well depth accounts for sump if data provided on well construction logs.

**Table 2**  
 Groundwater Sampling Event Summary  
 Plant Hammond AP-1, Floyd County, Georgia

Well ID	Hydraulic Location	Mar 11-15, 2019	Apr 1-8, 2019	Status of Monitoring Well
<b>Purpose of Sampling Event:</b>		<b>App. IV Scan</b>	<b>Assessment</b>	
<i>Compliance Monitoring Well</i>				
HGWA-1	Upgradient	S01	A01	Assessment
HGWA-2	Upgradient	S01	A01	Assessment
HGWA-3	Upgradient	S01	A01	Assessment
HGWC-7	Downgradient	S01	A01	Assessment
HGWC-8	Downgradient	S01	A01	Assessment
HGWC-9	Downgradient	S01	A01	Assessment
HGWC-10	Downgradient	S01	A01	Assessment
HGWC-11	Downgradient	S01	A01	Assessment
HGWC-12	Downgradient	S01	A01	Assessment
HGWC-13	Downgradient	S01	A01	Assessment

Notes:

S## = Full Appendix IV parameters scan event number

A## = Assessment monitoring event number

**Table 3**  
 Summary of Groundwater Elevations  
 Plant Hammond AP-1, Floyd County, Georgia

Well ID	Top of Casing Elevation (ft AMSL)	Mar 11, 2019		Apr 1, 2019	
		Depth to Water (ft BTOC)	Groundwater Elevations (ft AMSL)	Depth to Water (ft BTOC)	Groundwater Elevations (ft AMSL)
<b><i>Compliance Monitoring Well Network</i></b>					
HGWA-1	595.50	6.74	588.76	10.30	585.20
HGWA-2	588.18	3.87	584.31	5.51	582.67
HGWA-3	588.06	3.46	584.60	5.19	582.87
HGWC-7	579.49	3.53	575.96	4.05	575.44
HGWC-8	580.08	1.94	578.14	2.25	577.83
HGWC-9	580.60	8.48	572.12	12.10	568.50
HGWC-10	579.66	6.17	573.49	11.85	567.81
HGWC-11	580.96	9.55	571.41	13.59	567.37
HGWC-12	581.01	9.71	571.30	13.73	567.28
HGWC-13	594.83	16.67	578.16	18.35	576.48
<b><i>Groundwater Level Monitoring Piezometer</i></b>					
AP1A-1	587.72	5.51	582.21	7.02	580.70
MW-1	588.82	6.65	582.17	8.17	580.65
MW-8	587.37	15.92	571.45	17.84	569.53
<b><i>Delineation Monitoring Well</i></b>					
MW-5	581.02	10.99	570.03	15.15	565.87
MW-6	581.90	10.59	571.31	15.36	566.54
MW-7	577.90	8.14	569.76	12.19	565.71
MW-19	580.77	7.32	573.45	10.48	570.29
MW-20	579.18	8.25	570.93	11.98	567.20
MW-24D	594.67	21.00	573.67	24.00	570.67
MW-25D	580.64	9.72	570.92	13.68	566.96
MW-26D	580.48	8.55	571.93	12.20	568.28
MW-27D	579.74	1.91	577.83	3.16	576.58
MW-28D	579.20	3.41	575.79	4.00	575.20
MW-29	575.00	3.82	571.18	5.20	569.80
<b><i>Surface Water Gauge (ft AMSL)</i></b>					
AP-1	--	--	584.70	--	584.55
Coosa River	--	--	571.0	--	565.0

Notes:

-- = not applicable

ft AMSL = feet above mean sea level

ft BTOC = feet below top of casing

**Table 4**  
Groundwater Gradient and Flow Velocity Calculations  
Plant Hammond AP-1, Floyd County, Georgia

Flow Path Direction <sup>(1)</sup>	Mar 11, 2019				Apr 1, 2019				Average $\Delta h/\Delta l$ (ft/ft)
	$h_1$ (ft)	$h_2$ (ft)	$\Delta l$ (ft)	$\Delta h/\Delta l$ (ft/ft)	$h_1$ (ft)	$h_2$ (ft)	$\Delta l$ (ft)	$\Delta h/\Delta l$ (ft/ft)	
Southerly Flow Path	582	571.31	244	0.044	580	566.54	240	0.056	0.050
Easterly Flow Path	582	570.93	425	0.026	580	567.20	388	0.033	0.030

Flow Path Direction <sup>(1)</sup>	K (ft/d)	n	Averaged for 2019		
			$\Delta h/\Delta l$ (ft/ft)	V (ft/d) <sup>(2)</sup>	V (ft/d) <sup>(3)</sup>
Southerly Flow Path	11.82	0.15	0.050	3.9	3.2
Easterly Flow Path	11.82	0.15	0.030	2.4	

Notes:

ft = feet

ft/d = feet per day

ft/ft = feet per foot

ft/yr = feet per year

$h_1, h_2$  = point of interpreted groundwater elevation

$\Delta h/\Delta l$  = hydraulic gradient

K = hydraulic conductivity

$\Delta l$  = distance between location 1 and 2

n = effective porosity

V = groundwater flow velocity

(1) Flow path direction relative to the orientation of AP-1 and illustrated on Figures 3 and 4 of associated report.

(2) Groundwater flow velocity equation:  $V = [K * (\Delta h/\Delta l)] / n$

(3) Average groundwater flow velocity for unit.

**Table 5**  
**Summary of Groundwater Analytical Data**  
**Plant Hammond AP-1, Floyd County, Georgia**

Well ID:	HGWA-1	HGWA-1	HGWA-2	HGWA-2	HGWA-3	HGWA-3	HGWC-7	HGWC-7	HGWC-8	HGWC-8	HGWC-9	HGWC-9	HGWC-10	HGWC-10	HGWC-11	HGWC-11	
Sample Date:	3/12/2019	4/2/2019	3/12/2019	4/2/2019	3/12/2019	4/1/2019	3/13/2019	4/2/2019	3/12/2019	4/3/2019	3/13/2019	4/3/2019	3/13/2019	4/3/2019	3/13/2019	4/3/2019	
Parameter (1,2,3)																	
<b>APPENDIX III</b>	<b>Boron*</b>	--	ND (0.016 J)	--	ND (0.034 J)	--	ND (0.0066 J)	--	0.99	--	2.8	--	2.3	--	0.66	--	0.23
	<b>Calcium*</b>	--	132	--	ND (22.5 J)	--	80.5	--	101	--	125	--	164	--	137	--	112
	<b>Chloride*</b>	--	20.3	--	5.8	--	6.5	--	55.5	--	91.6	--	130	--	49.3	--	4.6
	<b>Fluoride*</b>	ND (0.29 J)	ND (0.10 J)	ND (0.038 J)	ND (0.071 J)	ND (0.072 J)	ND (0.029 J)	ND (0.12 J)	ND (0.097 J)	0.58	0.63	ND (0.14 J)	ND (0.14 J)	ND (0.17 J)	ND (0.082 J)	0.51	0.43
	<b>pH*</b>	7.03	6.86	5.42	5.41	7.29	7.16	7.27	7.27	6.91	6.85	7.06	6.88	6.70	6.55	5.92	5.69
	<b>Sulfate*</b>	--	84.3	--	48.7	--	50.4	--	127	--	194	--	214	--	159	--	298
	<b>TDS*</b>	--	452	--	133	--	284	--	428	--	543	--	673	--	525	--	483
<b>APPENDIX IV</b>	<b>Antimony</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	<b>Arsenic<sup>+</sup></b>	ND	ND	ND (0.00069 J)	ND	ND (0.00063 J)	ND	ND	ND	ND	ND	ND (0.00075 J)	ND	ND	ND	ND (0.00024 J)	ND (0.00094 J)
	<b>Barium</b>	0.042	0.040	0.12	0.13	0.13	0.13	0.083	0.072	0.062	0.066	0.10	0.12	0.044	0.076	0.024	0.023
	<b>Beryllium</b>	ND	ND	ND (0.00017 J)	ND (0.00015 J)	ND	ND	ND	ND	ND	ND (0.000074 J)	ND	ND	ND	ND	ND (0.00010 J)	ND (0.00017 J)
	<b>Cadmium</b>	ND	ND	ND (0.00013 J)	ND (0.00015 J)	ND	ND	ND	ND	ND (0.00020 J)	ND (0.00032 J)	ND	ND	ND	ND (0.0001 J)	ND	ND (0.000096 J)
	<b>Chromium</b>	ND	ND	ND	ND (0.0079 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.020	ND	ND
	<b>Cobalt</b>	ND	ND	0.017	0.019	ND	ND	ND (0.00067 J)	ND (0.00069 J)	ND (0.002 J)	ND (0.0019 J)	ND (0.00065 J)	ND (0.00069 J)	ND	ND	ND (0.00098 J)	ND (0.0018 J)
	<b>Fluoride</b>	ND (0.29 J)	ND (0.10 J)	ND (0.038 J)	ND (0.071 J)	ND (0.072 J)	ND (0.029 J)	ND (0.12 J)	ND (0.097 J)	0.58	0.63	ND (0.14 J)	ND (0.14 J)	ND (0.17 J)	ND (0.082 J)	0.51	0.43
	<b>Lead</b>	ND	ND	ND	ND	ND	ND	ND	--	ND	--	ND	--	ND	--	ND	--
	<b>Lithium</b>	ND (0.0010 J)	ND (0.0010 J)	ND (0.0018 J)	ND (0.0018 J)	ND (0.0032 J)	ND (0.0032 J)	ND (0.0024 J)	ND (0.0020 J)	ND (0.0025 J)	ND (0.0025 J)	ND (0.0040 J)	ND (0.0040 J)	ND	ND	ND	ND
	<b>Mercury</b>	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
	<b>Molybdenum<sup>+</sup></b>	ND	ND	ND	ND	ND	ND	0.040	0.041	0.50	0.50	0.028	0.030	ND	ND (0.0021 J)	0.012	0.010
	<b>Comb. Radium 226/228</b>	0.327 U	0.739 U	0.454 U	0.651 U	1.01 U	0.760 U	0.403 U	0.865 U	0.544 U	0.885 U	1.00 U	0.156 U	1.19 U	1.82 U	0.584 U	0.360 U
	<b>Selenium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.0015 J)	ND	0.023	0.016
<b>Thallium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:

-- = Parameter was not analyzed

J = Indicates the parameter was estimated and detected between the method detection limit (MDL) and the reporting limit (RL)

ND = Indicates the parameter was not detected above the analytical MDL

TDS = total dissolved solids

U = Indicates the parameter was not detected above the analytical MDL (Specific to combined radium)

(1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).

(2) Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and combined radium by EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.

(3) Appendix III parameters with a "\*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly, Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the April 2019 assessment monitoring event.

(4) Well is designated a delineation monitoring well.

(5) Value J-flagged by laboratory due to an elevated dilution factor required to process the sample. The result is above the RL of 0.1 mg/L for a dilution factor of 1.



**Table 5**  
**Summary of Groundwater Analytical Data**  
**Plant Hammond AP-1, Floyd County, Georgia**

Well ID:	HGWC-12	HGWC-12	HGWC-13	HGWC-13	MW-5 <sup>(4)</sup>	MW-5	MW-6 <sup>(4)</sup>	MW-6	MW-7 <sup>(4)</sup>	MW-7	MW-19 <sup>(4)</sup>	MW-19	MW-20 <sup>(4)</sup>	MW-20	MW-24D <sup>(4)</sup>	MW-24D	
Sample Date:	3/14/2019	4/3/2019	3/13/2019	4/5/2019	3/13/2019	4/3/2019	3/13/2019	4/3/2019	3/13/2019	4/3/2019	3/14/2019	4/3/2019	3/13/2019	4/2/2019	3/13/2019	4/8/2019	
Parameter (1,2,3)																	
<b>APPENDIX III</b>	<b>Boron*</b>	--	1.8	--	0.86 J <sup>(5)</sup>	--	ND (0.030 J)	--	0.67	--	0.094	--	0.63	--	0.11	--	0.47 J <sup>(5)</sup>
	<b>Calcium*</b>	--	114	--	77.1	--	82	--	178	--	50.2	--	74.9	--	109	--	83.0
	<b>Chloride*</b>	--	62.8	--	36.4	--	1.8	--	60.9	--	5.6	--	19.5	--	27.5	--	43.3
	<b>Fluoride*</b>	1.1	ND (0.30 J)	0.78	0.83	ND (0.10 J)	ND (0.049 J)	ND (0.19 J)	ND (0.15 J)	ND (0.069 J)	ND	0.35	ND (0.19 J)	ND (0.072 J)	ND	ND (0.074 J)	ND (0.048 J)
	<b>pH*</b>	7.09	6.96	7.24	7.24	6.16	5.96	6.86	6.77	6.37	6.19	6.48	6.14	6.75	6.70	7.58	7.47
	<b>Sulfate*</b>	--	176	--	105	--	218	--	228	--	75.3	--	105	--	122	--	97.3
	<b>TDS*</b>	--	462	--	331	--	396	--	437	--	213	--	310	--	435	--	323
<b>APPENDIX IV</b>	<b>Antimony</b>	ND	ND	ND	ND (0.00021 J)	ND	ND	ND	ND	ND (0.00086 J)	ND	ND	ND	ND	ND	ND	
	<b>Arsenic<sup>+</sup></b>	ND (0.0026 J)	ND (0.0022 J)	0.42	0.36	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.0023 J)	ND	ND	
	<b>Barium</b>	0.081	0.077	0.10	0.079	0.056	0.049	0.10	0.090	0.063	0.058	0.060	0.050	0.087	0.080	0.053	0.043
	<b>Beryllium</b>	ND	ND	ND (0.000062 J)	ND	ND	ND	ND	ND	ND	ND (0.000051 J)	ND	ND	ND	ND	ND	
	<b>Cadmium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
	<b>Chromium</b>	ND (0.0025 J)	ND	ND	ND	ND (0.0030 J)	ND (0.0030 J)	ND	ND	ND	ND (0.0023 J)	ND	ND	ND	ND	ND	
	<b>Cobalt</b>	ND (0.0011 J)	ND (0.0011 J)	ND (0.0022 J)	ND (0.0017 J)	ND	ND	ND (0.00055 J)	ND	ND	ND	0.025	0.036	ND (0.0011 J)	ND	ND	ND (0.00025 J)
	<b>Fluoride</b>	1.1	ND (0.30 J)	0.78	0.83	ND (0.10 J)	ND (0.049 J)	ND (0.19 J)	ND (0.15 J)	ND (0.069 J)	ND	0.35	ND (0.19 J)	ND (0.072 J)	ND	ND (0.074 J)	ND (0.048 J)
	<b>Lead</b>	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
	<b>Lithium</b>	ND (0.0058 J)	ND (0.0066 J)	ND (0.029 J)	ND (0.023 J)	ND	ND	ND	ND	ND	ND	ND (0.0089 J)	ND (0.0061 J)	ND (0.0016 J)	ND (0.0015 J)	ND (0.0029 J)	ND (0.0027 J)
	<b>Mercury</b>	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
	<b>Molybdenum<sup>+</sup></b>	0.046	0.049	0.033	0.030	ND	ND	ND (0.0021 J)	ND (0.0021 J)	ND	ND	0.057	0.040	ND	ND	ND	ND (0.00027 J)
	<b>Comb. Radium 226/228</b>	0.992 U	0.734 U	0.390 U	0.422 U	0.621 U	0.932 U	2.07	0.872 U	1.23	1.05 U	0.347 U	0.884 U	0.538 U	1.02 U	0.311 U	0.573 U
<b>Selenium</b>	ND	ND	ND	ND (0.00018 J)	ND (0.0033 J)	ND (0.0027 J)	ND	ND	ND (0.0016 J)	ND	ND	ND (0.0070 J)	ND	ND	ND	ND	
<b>Thallium</b>	ND	ND	ND (0.00039 J)	ND (0.00034 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

Notes:

-- = Parameter was not analyzed

J = Indicates the parameter was estimated and detected between the method detection limit (MDL) and the reporting limit (RL)

ND = Indicates the parameter was not detected above the analytical MDL

TDS = total dissolved solids

U = Indicates the parameter was not detected above the analytical MDL (Specific to combined radium)

(1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).

(2) Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and combined radium by EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.

(3) Appendix III parameters with a "\*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly, Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the April 2019 assessment monitoring event.

(4) Well is designated a delineation monitoring well.

(5) Value J-flagged by laboratory due to an elevated dilution factor required to process the sample. The result is above the RL of 0.1 mg/L for a dilution factor of 1.

**Table 5**  
**Summary of Groundwater Analytical Data**  
**Plant Hammond AP-1, Floyd County, Georgia**

Well ID:	MW-25D <sup>(4)</sup>	MW-25D	MW-26D <sup>(4)</sup>	MW-26	MW-27D <sup>(4)</sup>	MW-27D	MW-28D <sup>(4)</sup>	MW-28D	MW-29 <sup>(4)</sup>	MW-29	MW-30D <sup>(4)</sup>	
Sample Date:	3/14/2019	4/3/2019	3/13/2019	4/3/2019	3/13/2019	4/4/2019	3/12/2019	4/2/2019	3/12/2019	4/2/2019	7/8/2019	
Parameter (1,2,3)												
<b>APPENDIX III</b>	<b>Boron*</b>	--	0.37	--	1.5	--	(0.12 J) <sup>(5)</sup>	--	0.17	--	1.2	--
	<b>Calcium*</b>	--	25.4	--	122	--	26.3	--	64.6	--	131	--
	<b>Chloride*</b>	--	32.0	--	90.6	--	26.9	--	44	--	80.9	--
	<b>Fluoride*</b>	2.2	1.6	ND (0.052 J)	ND (0.044 J)	ND (0.28 J)	ND (0.26 J)	ND (0.24 J)	ND (0.18 J)	ND (0.07 J)	ND (0.045 J)	--
	<b>pH*</b>	7.67	7.56	7.40	7.25	7.78	7.63	7.46	7.40	7.20	6.91	8.07
	<b>Sulfate*</b>	--	53.0	--	131	--	11.8	--	67.7	--	151	--
	<b>TDS*</b>	--	ND (15.0 J)	--	493	--	203	--	350	--	548	--
<b>APPENDIX IV</b>	<b>Antimony</b>	ND	ND	ND	ND	ND	ND (0.00016 J)	ND	ND	ND	ND	--
	<b>Arsenic<sup>+</sup></b>	ND (0.0019 J)	ND	ND	ND	ND	ND (0.0002 J)	ND	ND	ND	ND	--
	<b>Barium</b>	0.44	0.38	0.099	0.12	1.5	1.2	0.82	0.37	0.089	0.078	--
	<b>Beryllium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
	<b>Cadmium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
	<b>Chromium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
	<b>Cobalt</b>	ND	ND	ND	ND	ND	ND (0.000091 J)	ND	ND	ND (0.00057 J)	ND (0.00084 J)	--
	<b>Fluoride</b>	2.2	1.6	ND (0.052 J)	ND (0.044 J)	ND (0.28 J)	ND (0.26 J)	ND (0.24 J)	ND (0.18 J)	ND (0.07 J)	ND (0.045 J)	--
	<b>Lead</b>	ND	--	ND	--	ND	--	ND	--	ND	--	--
	<b>Lithium</b>	0.050	ND (0.047 J)	ND (0.0033 J)	ND (0.0034 J)	ND (0.0097 J)	ND (0.0069 J)	ND (0.011 J)	ND (0.0052 J)	ND (0.0024 J)	ND (0.0021 J)	--
	<b>Mercury</b>	ND	--	ND	--	ND	--	ND	--	ND	--	--
	<b>Molybdenum<sup>+</sup></b>	ND (0.0022 J)	ND	ND	ND (0.0083 J)	ND	ND (0.0018 J)	0.013	0.028	ND (0.0038 J)	ND (0.0028 J)	0.022
	<b>Comb. Radium 226/228</b>	1.28 U	0.662 U	0.627 U	0.205 U	1.81	1.33	0.926 U	0.479 U	1.37	0.620 U	--
	<b>Selenium</b>	ND	ND	ND	ND	ND	ND (0.00012 J)	ND	ND	ND	ND	--
<b>Thallium</b>	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	

Notes:

-- = Parameter was not analyzed

J = Indicates the parameter was estimated and detected between the method detection limit (MDL) and the reporting limit (RL)

ND = Indicates the parameter was not detected above the analytical MDL

TDS = total dissolved solids

U = Indicates the parameter was not detected above the analytical MDL (Specific to combined radium)

(1) Appendix III/IV parameter per 40 CFR 257 Subpart D. Parameters are reported in units of milligrams per liter (mg/L), except for pH reported as s.u. (standard units) and combined radium reported as picocuries per liter (pCi/L).

(2) Metals were analyzed by EPA Method 6020B, anions were analyzed by EPA Method 300.0, TDS was analyzed by SM2540C, and combined radium by EPA Methods 9315/9320. The pH value presented was recorded at the time of sample collection in the field.

(3) Appendix III parameters with a "\*" exhibited statistically significant increases (SSIs) over background concentrations during the October 2017 detection monitoring event. Similarly, Appendix IV parameters with a "+" exhibited statistically significant levels (SSLs) over established Groundwater Protection Standards (GWPS) during the April 2019 assessment monitoring event.

(4) Well is designated a delineation monitoring well.

(5) Value J-flagged by laboratory due to an elevated dilution factor required to process the sample. The result is above the RL of 0.1 mg/L for a dilution factor of 1.

**Table 6**  
**Summary of Background Concentrations and Groundwater Protection Standards**  
**Plant Hammond AP-1, Floyd County, Georgia**

Analyte	Units	Background <sup>(1)</sup>	Federal GWPS <sup>(2)</sup>	State GWPS <sup>(3)</sup>
Antimony	mg/L	0.003	0.006	0.006
Arsenic	mg/L	0.005	0.01	0.01
Barium	mg/L	0.14	2	2
Beryllium	mg/L	0.003	0.004	0.004
Cadmium	mg/L	0.001	0.005	0.005
Chromium	mg/L	0.01	0.1	0.1
Cobalt	mg/L	0.029	0.029	0.029
Fluoride	mg/L	0.36	4	4
Lead	mg/L	0.005	0.015 <sup>(4)</sup>	0.005
Lithium	mg/L	Federal 0.025 <sup>(5)</sup> State 0.05	0.04	0.05
Mercury	mg/L	0.0005	0.002	0.002
Molybdenum	mg/L	0.01	0.1	0.01
Selenium	mg/L	0.01	0.05	0.05
Thallium	mg/L	0.001	0.002	0.002
Combined Radium-226/228	pCi/L	1.34	5	5

Notes:

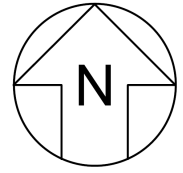
"mg/L" = milligrams per liter

"pCi/L" = picocuries per liter

1. The background limits were used when determining the groundwater protection standard (GWPS) under 40 CFR §257.95(h) and Georgia Environmental Protection Division (EPD) Rule 391-3-4-.10(6)(a).
2. Under 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 concentrations for constituents where the background level is higher than the MCL or rule-specified GWPS.
3. Under the existing Georgia EPD rules, the GWPS is: (i) the MCL, (ii) where the MCL is not established, the background concentration, or (iii) background concentrations for constituents where the background level is higher than the MCL.
4. Currently, there is no Environmental Protection Agency (EPA) MCL established for lead. The value listed as GWPS is the established EPA Action Level for drinking water.
5. The background tolerance limit (TL) used to evaluate GWPS for this analyte equals half the laboratory specified reporting limit (RL). Per the Statistical Analysis Plan (SAP), and in accordance with the Unified Guidance, a non-parametric TL approach was used since the data set contained greater than 50% non-detect (ND) results for this analyte. Under this approach, the TL equals the highest value reported, for which is the laboratory RL. Since a RL may be influenced due to sample matrix interference at the time of analysis, half the RL was applied in this select case.

# FIGURES





Notes:  
 1. Aerial photograph source: Google Earth Pro, February 2018.



**SITE LOCATION MAP**

GEORGIA POWER COMPANY  
 PLANT HAMMOND AP-1  
 FLOYD COUNTY, GEORGIA

Prepared For:  Georgia Power

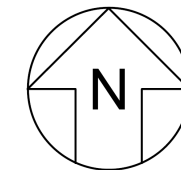
Prepared By:  Geosyntec  
 consultants

KENNESAW, GA

JUNE 2019

**FIGURE  
 1**





- LEGEND**
- Compliance Monitoring Well
  - Delineation Monitoring Well
  - Groundwater Level Monitoring Piezometer



Note:  
1. Aerial photograph source: Google Earth Pro, February 2018.



**MONITORING WELL NETWORK MAP**

GEORGIA POWER COMPANY  
PLANT HAMMOND AP-1  
ROME, FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec  
consultants

KENNESAW, GA

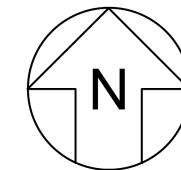
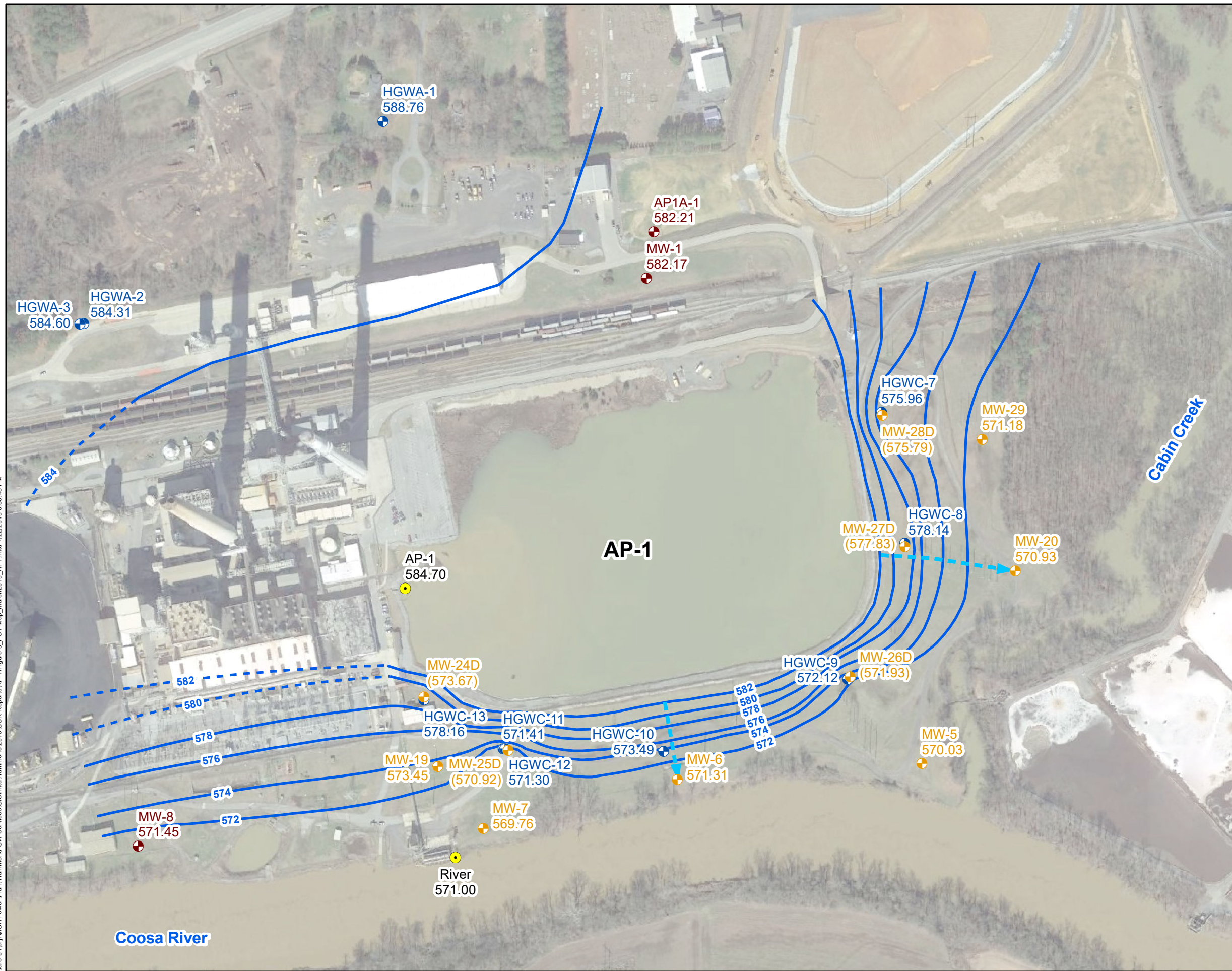
JULY 2019

**FIGURE  
2**

N:\GA Power\Plant Hammond\GIS\mxd\Hammond2019\CCR\_Reports\AP-1\Figure 2\_WellMap.mxd 7/1/2019 7:41:29 AM



\\are-01\proj1\GAPower\Plant\_Hammond\GIS\mxd\Hammond2019\DCR\_Reports\AP-1\Figure\_3\_POT\_Map\_March2019\_AP1.mxd, 7/22/2019 3:35:43 PM



- LEGEND**
- ⊕ Compliance Monitoring Well
  - ⊕ Delineation Monitoring Well
  - ⊕ Groundwater Level Monitoring Piezometer
  - Surface Water Staff Gauge
  - Groundwater Elevation Iso-Contour (inferred where dashed)
  - ➔ Approximate Groundwater Flow Direction



- Notes:**
1. Water level elevation recorded on March 11, 2019. Surface water level elevation recorded on March 14, 2019. Elevation provided in feet above mean sea level (ft AMSL) in North American Vertical Datum (NAVD) 88.
  2. Water elevation in parentheses were not used in development of groundwater contours due to wells being screened at a different elevation in the formation/aquifer.
  3. The AP-1 surface water staff gauge measurement was not used in development of groundwater contours.
  4. Aerial photograph source: Google Earth Pro, February 2018.



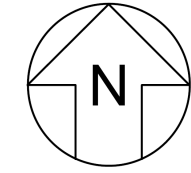
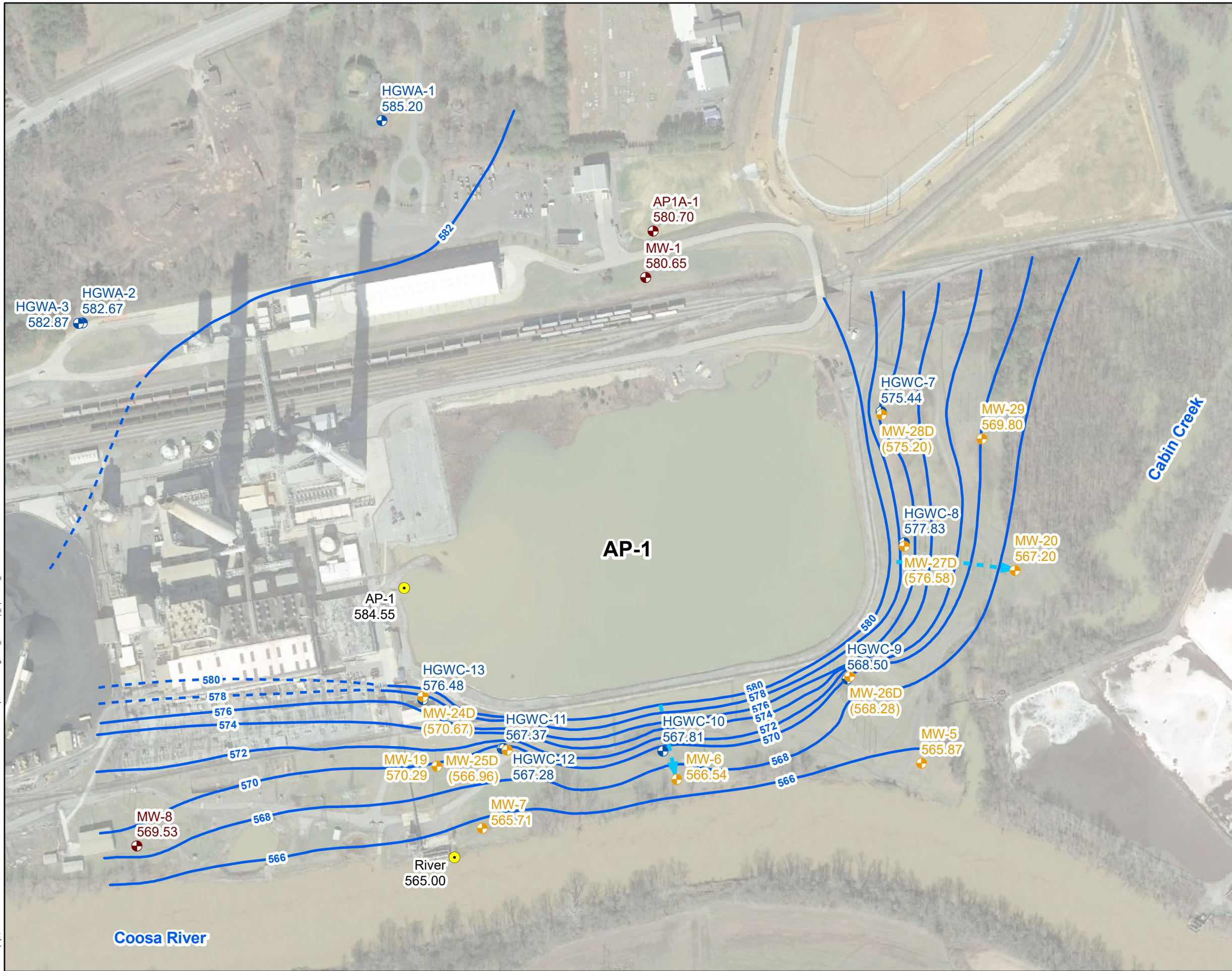
**POTENTIOMETRIC SURFACE CONTOUR  
MAP - MARCH 2019**

GEORGIA POWER COMPANY  
PLANT HAMMOND AP-1  
ROME, FLOYD COUNTY, GEORGIA

Prepared For:  Georgia Power	<b>FIGURE 3</b>
Prepared By:  Geosyntec consultants	
KENNESAW, GA	JULY 2019



\\are-01\proj1\GA Power\Plant Hammond\_GW Services\GIS\mxd\Hammond\2019\CCR Reports\AP-1\Figure 4\_POT Map\_April2019\_AP1.mxd 7/22/2019 3:39:51 PM



- LEGEND**
- Compliance Monitoring Well
  - Delineation Monitoring Well
  - Groundwater Level Monitoring Piezometer
  - Surface Water Staff Gauge
  - Groundwater Elevation Iso-Contour (inferred where dashed)
  - Approximate Groundwater Flow Direction



- Notes:**
1. Water level elevation recorded on April 1, 2019. Elevation provided in feet above mean sea level (ft AMSL) in North American Vertical Datum (NAVD) 88.
  2. Water elevation in parentheses were not used in development of groundwater contours due to wells being screened at a different elevation in the formation/aquifer.
  3. The AP-1 surface water staff gauge measurement was not used in development of groundwater contours.
  4. Aerial photograph source: Google Earth Pro, February 2018.



**POTENTIOMETRIC SURFACE CONTOUR  
MAP - APRIL 2019**

GEORGIA POWER COMPANY  
PLANT HAMMOND AP-1  
ROME, FLOYD COUNTY, GEORGIA

Prepared For:	Georgia Power	<b>FIGURE 4</b>
Prepared By:	Geosyntec consultants	
KENNESAW, GA	JULY 2019	

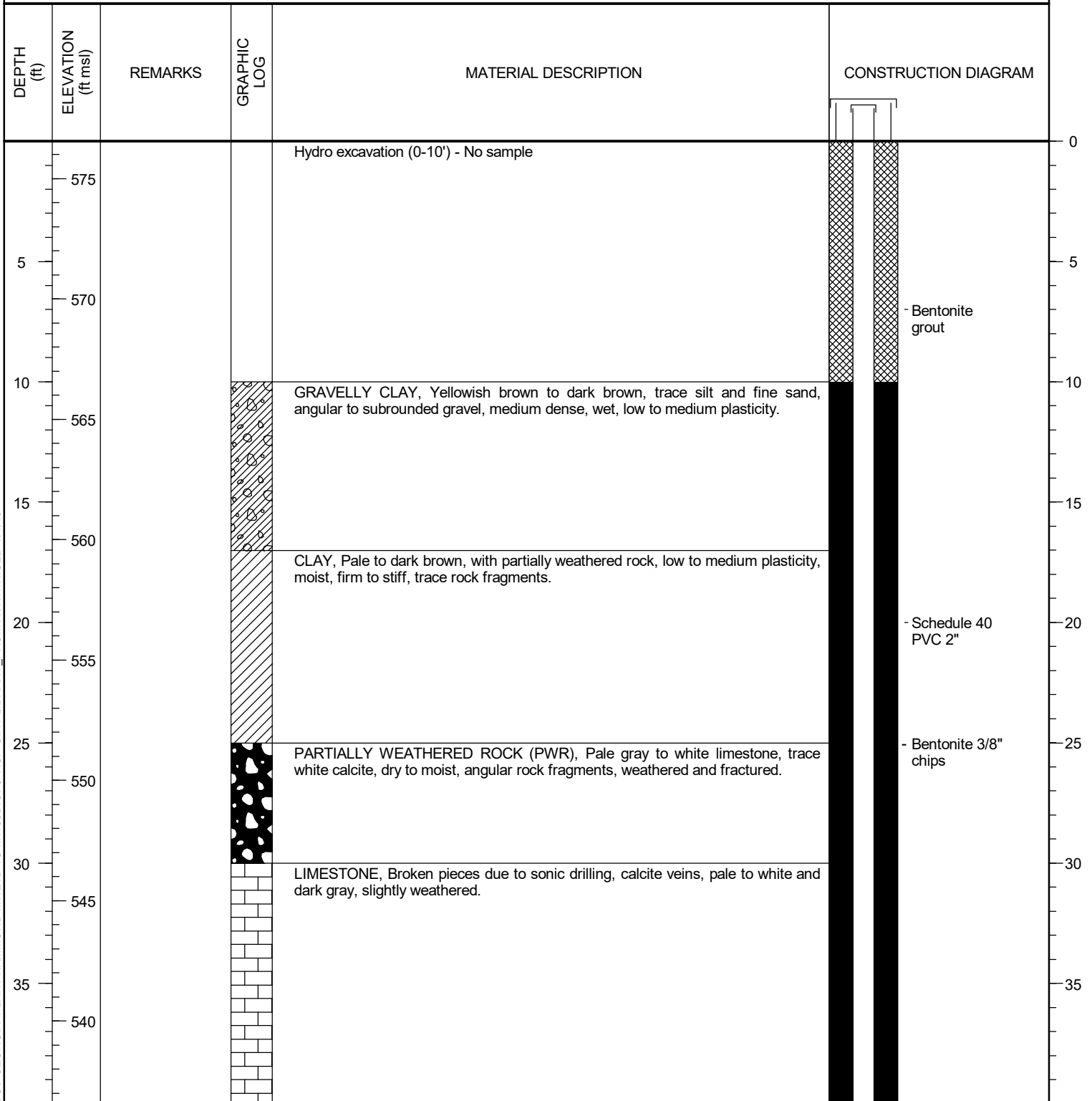


# APPENDIX A

## Boring and Well Construction Log MW-30D

<b>CLIENT</b> Southern Company Services	<b>PROJECT NAME</b> Plant Hammond Well Installation
<b>PROJECT NUMBER</b> GW6581B	<b>PROJECT LOCATION</b> Plant Hammond
<b>DATE STARTED</b> 6/19/19	<b>COMPLETED</b> 6/20/19
<b>DRILLER</b> Cascade Drilling	<b>NORTHING</b> 1549530.24 ft
<b>DRILLING METHOD</b> Sonic	<b>EASTING</b> 1942319.6 ft
<b>SAMPLING METHOD</b> Core barrel (4")	<b>GROUND ELEVATION</b> 576.56 ft
<b>RIG TYPE</b> Geoprobe 8140LC	<b>BORING DIAMETER</b> 6 in
	<b>TOP OF CASING ELEVATION</b> 578.96 ft
	<b>GEOPHYSICAL CONTRACTOR</b> ---
	<b>LOGGED BY</b> N.Tilahun
	<b>CHECKED BY</b> J. Ivanowski

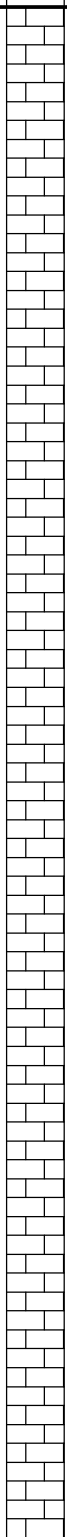

SCS GEORGIA PLANT HAMMOND MW21D TO MW30D.GPJ ACP GINT LIBRARY FROM ASHWIN.GLB 7/1/19



(Continued Next Page)

CLIENT Southern Company Services PROJECT NAME Plant Hammond Well Installation

PROJECT NUMBER GW6581B PROJECT LOCATION Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
40 45 50 55 60 65 70 75 80 85	535 530 525 520 515 510 505 500 495			LIMESTONE, Broken pieces due to sonic drilling, calcite veins, pale to white and dark gray, slightly weathered. (continued)	 <p>- Bentonite 3/8" chips</p>

SCS GEORGIA PLANT HAMMOND MW21D TO MW30D.GPJ ACP GINT LIBRARY FROM ASHWIN.GLB 7/1/19

(Continued Next Page)

CLIENT Southern Company Services PROJECT NAME Plant Hammond Well Installation  
PROJECT NUMBER GW6581B PROJECT LOCATION Plant Hammond

DEPTH (ft)	ELEVATION (ft msl)	REMARKS	GRAPHIC LOG	MATERIAL DESCRIPTION	CONSTRUCTION DIAGRAM
------------	--------------------	---------	-------------	----------------------	----------------------

90	490			LIMESTONE, Broken pieces due to sonic drilling, calcite veins, pale to white and dark gray, slightly weathered. (continued)	
----	-----	--	--	---	--

Bottom of borehole at 105.0 feet.

110	470				
115	465				
120	460				
125	455				
130	450				

SCS GEORGIA PLANT HAMMOND MW21D TO MW30D.GPJ ACP GINT LIBRARY FROM ASHWIN.GLB 7/1/19

-20/40 Silica Sand  
-0.010 slot size, Schedule 40 PVC 2" screen

# APPENDIX B

## Laboratory Analytical and Field Sampling Reports

Appendix B1: Laboratory Analytical Data Packages and Data  
Validation Reports

Appendix B2: Field Data Sheets

## APPENDIX B1

# Laboratory Analytical Data Packages and Data Validation Reports

# Laboratory Reports

March 20, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616036

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616036

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

---

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616036

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616036001	HGWA-1	Water	03/12/19 14:31	03/13/19 14:00
2616036002	HGWA-2	Water	03/12/19 10:45	03/13/19 14:00
2616036003	HGWA-3	Water	03/12/19 10:00	03/13/19 14:00
2616036004	FB-01	Water	03/12/19 19:15	03/13/19 14:00
2616036005	EB-01	Water	03/12/19 19:50	03/13/19 14:00

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616036

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616036001	HGWA-1	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616036002	HGWA-2	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616036003	HGWA-3	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616036004	FB-01	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616036005	EB-01	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond  
Pace Project No.: 2616036

Sample: HGWA-1		Lab ID: 2616036001		Collected: 03/12/19 14:31		Received: 03/13/19 14:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/14/19 14:26	03/15/19 23:24	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/14/19 14:26	03/15/19 23:24	7440-38-2	
Barium	<b>0.042</b>	mg/L	0.010	0.00078	1	03/14/19 14:26	03/15/19 23:24	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/14/19 14:26	03/15/19 23:24	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/14/19 14:26	03/15/19 23:24	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/14/19 14:26	03/15/19 23:24	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/14/19 14:26	03/15/19 23:24	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/14/19 14:26	03/15/19 23:24	7439-92-1	
Lithium	<b>0.0010J</b>	mg/L	0.050	0.00097	1	03/14/19 14:26	03/15/19 23:24	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/14/19 14:26	03/15/19 23:24	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/14/19 14:26	03/15/19 23:24	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/14/19 14:26	03/15/19 23:24	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 17:47	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.29J</b>	mg/L	0.30	0.029	1		03/16/19 05:19	16984-48-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616036

Sample: HGWA-2		Lab ID: 2616036002		Collected: 03/12/19 10:45		Received: 03/13/19 14:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 17:46	7440-36-0	
Arsenic	<b>0.00069J</b>	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 17:46	7440-38-2	B
Barium	<b>0.12</b>	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 17:46	7440-39-3	
Beryllium	<b>0.00017J</b>	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 17:46	7440-41-7	
Cadmium	<b>0.00013J</b>	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 17:46	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 17:46	7440-47-3	
Cobalt	<b>0.017</b>	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 17:46	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 17:46	7439-92-1	
Lithium	<b>0.0018J</b>	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 17:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 17:46	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 17:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 17:46	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 17:50	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.038J</b>	mg/L	0.30	0.029	1		03/16/19 05:42	16984-48-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616036

Sample: HGWA-3		Lab ID: 2616036003		Collected: 03/12/19 10:00		Received: 03/13/19 14:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 17:51	7440-36-0		
Arsenic	<b>0.00063J</b>	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 17:51	7440-38-2	B	
Barium	<b>0.13</b>	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 17:51	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 17:51	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 17:51	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 17:51	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 17:51	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 17:51	7439-92-1		
Lithium	<b>0.0032J</b>	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 17:51	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 17:51	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 17:51	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 17:51	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 17:52	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	<b>0.072J</b>	mg/L	0.30	0.029	1		03/16/19 07:36	16984-48-8		

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616036

Sample: <b>FB-01</b>		Lab ID: <b>2616036004</b>		Collected: 03/12/19 19:15		Received: 03/13/19 14:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 17:57	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 17:57	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 17:57	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 17:57	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 17:57	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 17:57	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 17:57	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 17:57	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 17:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 17:57	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 17:57	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 17:57	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 17:59	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/16/19 07:59	16984-48-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616036

Sample: EB-01		Lab ID: 2616036005		Collected: 03/12/19 19:50		Received: 03/13/19 14:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 18:03	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 18:03	7440-38-2		
Barium	ND	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 18:03	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 18:03	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 18:03	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 18:03	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 18:03	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 18:03	7439-92-1		
Lithium	ND	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 18:03	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 18:03	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 18:03	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 18:03	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:10	03/15/19 18:02	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/16/19 08:22	16984-48-8		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616036

QC Batch: 24380

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

METHOD BLANK: 109357

Matrix: Water

Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000036	03/15/19 17:12	

LABORATORY CONTROL SAMPLE: 109358

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0025	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109378

109379

Parameter	Units	2615967001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0026	100	102	75-125	3	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616036

QC Batch: 24312 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616036001

METHOD BLANK: 108896 Matrix: Water  
Associated Lab Samples: 2616036001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/15/19 18:30	
Arsenic	mg/L	ND	0.0050	0.00057	03/15/19 18:30	
Barium	mg/L	ND	0.010	0.00078	03/15/19 18:30	
Beryllium	mg/L	ND	0.0030	0.000050	03/15/19 18:30	
Cadmium	mg/L	ND	0.0010	0.000093	03/15/19 18:30	
Chromium	mg/L	ND	0.010	0.0016	03/15/19 18:30	
Cobalt	mg/L	ND	0.010	0.00052	03/15/19 18:30	
Lead	mg/L	ND	0.0050	0.00027	03/15/19 18:30	
Lithium	mg/L	ND	0.050	0.00097	03/15/19 18:30	
Molybdenum	mg/L	ND	0.010	0.0019	03/15/19 18:30	
Selenium	mg/L	ND	0.010	0.0014	03/15/19 18:30	
Thallium	mg/L	ND	0.0010	0.00014	03/15/19 18:30	

LABORATORY CONTROL SAMPLE: 108897

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	110	80-120	
Arsenic	mg/L	0.1	0.10	102	80-120	
Barium	mg/L	0.1	0.10	104	80-120	
Beryllium	mg/L	0.1	0.099	99	80-120	
Cadmium	mg/L	0.1	0.10	102	80-120	
Chromium	mg/L	0.1	0.10	103	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	102	80-120	
Lithium	mg/L	0.1	0.10	100	80-120	
Molybdenum	mg/L	0.1	0.10	105	80-120	
Selenium	mg/L	0.1	0.11	107	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 108898 108899

Parameter	Units	2616034004 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	MSD Spike Conc.						
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	112	109	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20	
Barium	mg/L	0.029	0.1	0.1	0.13	0.13	106	102	75-125	3	20	
Beryllium	mg/L	0.0024J	0.1	0.1	0.098	0.098	95	95	75-125	0	20	
Cadmium	mg/L	0.0024	0.1	0.1	0.10	0.11	102	103	75-125	1	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616036

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 108898		108899		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2616034004 Result	MS Spike Conc.	MSD Spike Conc.								
Chromium	mg/L	ND	0.1	0.1	0.095	0.097	95	97	75-125	2	20	
Cobalt	mg/L	0.062	0.1	0.1	0.16	0.16	99	95	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	20	
Lithium	mg/L	0.0053J	0.1	0.1	0.099	0.10	93	95	75-125	1	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	106	106	75-125	0	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	104	102	75-125	2	20	
Thallium	mg/L	0.00025J	0.1	0.1	0.098	0.098	98	98	75-125	0	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616036

QC Batch: 24384 Analysis Method: EPA 6020B  
 QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
 Associated Lab Samples: 2616036002, 2616036003, 2616036004, 2616036005

METHOD BLANK: 109374 Matrix: Water  
 Associated Lab Samples: 2616036002, 2616036003, 2616036004, 2616036005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/18/19 17:34	
Arsenic	mg/L	0.00071J	0.0050	0.00057	03/18/19 17:34	
Barium	mg/L	ND	0.010	0.00078	03/18/19 17:34	
Beryllium	mg/L	ND	0.0030	0.000050	03/18/19 17:34	
Cadmium	mg/L	ND	0.0010	0.000093	03/18/19 17:34	
Chromium	mg/L	ND	0.010	0.0016	03/18/19 17:34	
Cobalt	mg/L	ND	0.010	0.00052	03/18/19 17:34	
Lead	mg/L	ND	0.0050	0.00027	03/18/19 17:34	
Lithium	mg/L	ND	0.050	0.00097	03/18/19 17:34	
Molybdenum	mg/L	ND	0.010	0.0019	03/18/19 17:34	
Selenium	mg/L	ND	0.010	0.0014	03/18/19 17:34	
Thallium	mg/L	ND	0.0010	0.00014	03/18/19 17:34	

LABORATORY CONTROL SAMPLE: 109375

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	109	80-120	
Arsenic	mg/L	0.1	0.10	104	80-120	
Barium	mg/L	0.1	0.10	102	80-120	
Beryllium	mg/L	0.1	0.11	108	80-120	
Cadmium	mg/L	0.1	0.11	105	80-120	
Chromium	mg/L	0.1	0.11	107	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	104	80-120	
Lithium	mg/L	0.1	0.11	107	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Selenium	mg/L	0.1	0.10	105	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109376 109377

Parameter	Units	2616039003 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	MSD Result						
Antimony	mg/L	ND	0.1	0.11	0.11	0.11	106	107	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.11	0.10	0.10	106	103	75-125	3	20	
Barium	mg/L	0.20	0.1	0.29	0.30	0.30	95	103	75-125	2	20	
Beryllium	mg/L	ND	0.1	0.097	0.094	0.094	97	94	75-125	3	20	
Cadmium	mg/L	ND	0.1	0.10	0.10	0.10	104	101	75-125	3	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616036

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109376		109377		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2616039003 Result	MS Spike Conc.	MSD Spike Conc.								
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	104	103	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	3	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.096	101	95	75-125	5	20	
Lithium	mg/L	0.011J	0.1	0.1	0.11	0.10	97	91	75-125	5	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	103	104	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	106	102	75-125	4	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616036

QC Batch: 24402 Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

METHOD BLANK: 109496

Matrix: Water

Associated Lab Samples: 2616036001, 2616036002, 2616036003, 2616036004, 2616036005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/15/19 20:10	

LABORATORY CONTROL SAMPLE: 109497

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	10.4	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109498 109499

Parameter	Units	2616034001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.052J	10	10	10.4	10.4	103	103	90-110	0	15	

MATRIX SPIKE SAMPLE: 109500

Parameter	Units	2616034002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.082J	10	10.1	100	90-110	

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616036

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

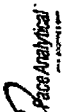
Pace Project No.: 2616036

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616036001	HGWA-1	EPA 3005A	24312	EPA 6020B	24340
2616036002	HGWA-2	EPA 3005A	24384	EPA 6020B	24419
2616036003	HGWA-3	EPA 3005A	24384	EPA 6020B	24419
2616036004	FB-01	EPA 3005A	24384	EPA 6020B	24419
2616036005	EB-01	EPA 3005A	24384	EPA 6020B	24419
2616036001	HGWA-1	EPA 7470A	24380	EPA 7470A	24416
2616036002	HGWA-2	EPA 7470A	24380	EPA 7470A	24416
2616036003	HGWA-3	EPA 7470A	24380	EPA 7470A	24416
2616036004	FB-01	EPA 7470A	24380	EPA 7470A	24416
2616036005	EB-01	EPA 7470A	24380	EPA 7470A	24416
2616036001	HGWA-1	EPA 300.0	24402		
2616036002	HGWA-2	EPA 300.0	24402		
2616036003	HGWA-3	EPA 300.0	24402		
2616036004	FB-01	EPA 300.0	24402		
2616036005	EB-01	EPA 300.0	24402		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 3

**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road, Atlanta, GA 30339  
 Phone: (404) 506-7239  
 Requested Due Date: **Standard TAT**

**Section B**  
 Required Project Information:  
 Report To: Jolii Abraham / Lauren Peaty  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
 Invoice Information:  
 Attention: **SCSInvoices@southernco.com**  
 Company Name:  
 Address:  
 Pace Quote: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327.4 (AP) or 328.5 (HUM)  
 Regulatory Agency: State / Location: GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES				ANALYSES TEST	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)		
			START DATE	END DATE				UNPRESERVED	H2SO4	HNO3	HCl							NaOH	Na2S2O3
1	Drinking Water	DW	3/12/19 14:10	3/12/19 14:31	DM	DM	4												
2	Waste Water	WW																	
3	Process Water	P																	
4	Product	SL																	
5	Solid	CL																	
6	Wipe	VP																	
7	Air	AR																	
8	Other	OT																	
9	Tissue	TS																	

**NO# : 2616036**

**2616036**

RELINQUISHER BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Noelia Myles	3/12/19	17:05	DM	3/12/19	22:05	
ETS Lowry/Geosyntec	3/13/19	9:43	DM	3/13/19	09:44	
			DM	3/13/19	14:00	
					2:58	

TEMP in C: \_\_\_\_\_  
 Received on: \_\_\_\_\_  
 Ice: \_\_\_\_\_  
 Sealed: \_\_\_\_\_  
 Custody: \_\_\_\_\_  
 Cooler: \_\_\_\_\_  
 Samples Intact (Y/N): \_\_\_\_\_

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: **Noelia Myles**  
 SIGNATURE of SAMPLER: *Noelia Myles*

DATE Signed: 3/12/19



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2 of 3

Section A  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Marner Road  
 Atlanta, GA 30339  
 Email: [jabraham@southemco.com](mailto:jabraham@southemco.com)  
 Phone: (404)506-7239 Fax:  
 Requested Due Date: Standard TAT

Section B  
 Required Project Information:  
 Report To: John Abraham / Lauren Petty  
 Copy To: Geosyntec  
 Purchase Order #: SCS 0548606  
 Project Name: Plant Hammond  
 Project #:

Section C  
 Invoice Information:  
 Attention: [scsinvoices@southemco.com](mailto:scsinvoices@southemco.com)  
 Company Name:  
 Address:  
 Pace Quoter:  
 Pace Project Manager: [betsey.medaniel@pacelabs.com](mailto:betsey.medaniel@pacelabs.com)  
 Pace Profile #: 327.4 (AP) or 328.5 (Hurl)  
 Regulatory Agency:  
 State/Location: GA

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analytes Test	App. IV Metals	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)
			START DATE	END DATE											
1	Drinking Water	DW	3/12/19 10:29 AM	3/12/19 10:58 AM	G	1950	Unpreserved	H2SO4	Y	Y	Y	N	N	N	N
2	Water	WT													
3	Waste Water	WW													
4	Waste Water Product	WP													
5	Soil/Solid	SL													
6	Oil	OL													
7	Wipe	WP													
8	Air	AR													
9	Other	OT													
10	Tissue	TS													

NO#: 2616036  
 PH: BM Due Date: 03/20/19  
 CLIENT: GAPower-CCR

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Grant Walker / Geosyntec	3/12/19	1950	Media Malcom	3/12/19	1950	2.5 4 4 4 4
Media Malcom	3/12/19	2205	Grant Walker	3/12/19	2205	
Geosyntec	3/13/19	943	Joe Puse	3/13/19	0943	
Joe Puse	3/13/19	1400	Joe Puse	3/13/19	1400	

TEMP in C  
 Received on  
 Ice (Y/N)  
 Custody (Y/N)  
 Sealed (Y/N)  
 Cooler (Y/N)  
 Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE: Grant Walker  
 PRINT Name of SAMPLER: Grant Walker  
 SIGNATURE of SAMPLER: [Signature]  
 DATE Signed: 03/12/19



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

3 of 3

Page: 1 of 3  
Shah

**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Report To: Jitu Abraham / Lauren Peby  
 Address: 2480 Marner Road  
 Atlanta, GA 30339  
 Email: labraham@southemco.com  
 Phone: (404)506-7239 Fax: \_\_\_\_\_  
 Requested Due Date: 3/13/19

**Section B**  
 Required Project Information:  
 Report To: Jitu Abraham / Lauren Peby  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #: \_\_\_\_\_

**Section C**  
 Invoice Information:  
 Attention: scsinvoices@southemco.com  
 Company Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 Pace Quote: \_\_\_\_\_  
 Pace Project Manager: beisy.mcdaniel@paceciabs.com  
 Pace Profile #: 327.4 (API) or 328.5 (Huf)

**Regulatory Agency:** \_\_\_\_\_  
**State/Location:** GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	UNPRESERVED	PRESERVATIVES							ANALYZE TEST Y/N	Residuals	Residuals Chlorine (Y/N)
			START DATE	END DATE					H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other			
1	Drinking Water	DW	3/12/19 10:00	3/12/19 10:00	G	W16	4											
2	Waste Water	WW	3/12/19 19:15	3/12/19 19:15	G	W16	4											
3	Product	P	3/12/19 19:50	3/12/19 19:50	G	W16	4											
4	Scrubber	SL																
5	Oil	OL																
6	Wipe	WP																
7	Air	AR																
8	Other	OT																
9	Tissue	TS																
10																		
11																		
12																		

**NOH: 2616036**  
 PH: BM Due Date: 03/20/19  
 CLIENT: GAPower-CCR

REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Inact (Y/N)
<u>Maria M. Johnson</u>	3/12/19	19:50	<u>Maria M. Johnson</u>	3/12/19	19:50						
<u>LeBB Leary/Geosyntec</u>	3/13/19	9:43	<u>LeBB Leary</u>	3/13/19	9:44	2.5					
<u>LeBB Leary/Geosyntec</u>	3/13/19	14:00	<u>M. Dalman</u>	3/13/19	14:00	2.5					

**SAMPLER NAME AND SIGNATURE:** \_\_\_\_\_  
**PRINT Name of SAMPLER:** BOYAN UGHA-TICKHE  
**SIGNATURE of SAMPLER:** Boyan  
**DATE Signed:** 03/16/19



Sample Condition Upon Receipt

Client Name: GIA Power

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

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.5 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

**WO#: 2616036**

PM: BM Due Date: 03/20/19  
CLIENT: GAPower-CCR

Samples on ice, cooling process has begun  
Date and initials of person examining contents: 3/13/19 MR

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

**Client Notification/ Resolution:** \_\_\_\_\_ **Field Data Required?** Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Project Manager Review:** \_\_\_\_\_ **Date:** \_\_\_\_\_

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

March 29, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616037

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616037

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616037

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616037001	HGWA-1	Water	03/12/19 14:31	03/13/19 14:00
2616037002	HGWA-2	Water	03/12/19 10:45	03/13/19 14:00
2616037003	HGWA-3	Water	03/12/19 10:00	03/13/19 14:00
2616037004	FB-01	Water	03/12/19 19:15	03/13/19 14:00
2616037005	EB-01	Water	03/12/19 19:50	03/13/19 14:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616037

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616037001	HGWA-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616037002	HGWA-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616037003	HGWA-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616037004	FB-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616037005	EB-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

**Sample: HGWA-1**      **Lab ID: 2616037001**      Collected: 03/12/19 14:31      Received: 03/13/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.263 ± 0.240 (0.452)</b> C:82% T:NA	pCi/L	03/25/19 08:34	13982-63-3	
Radium-228	EPA 9320	<b>0.0637 ± 0.372 (0.848)</b> C:72% T:83%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.327 ± 0.612 (1.30)</b>	pCi/L	03/27/19 11:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

**Sample: HGWA-2**      **Lab ID: 2616037002**      Collected: 03/12/19 10:45      Received: 03/13/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.228 ± 0.190 (0.332)</b> C:94% T:NA	pCi/L	03/25/19 08:34	13982-63-3	
Radium-228	EPA 9320	<b>0.226 ± 0.318 (0.681)</b> C:74% T:89%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.454 ± 0.508 (1.01)</b>	pCi/L	03/27/19 11:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

**Sample: HGWA-3**      **Lab ID: 2616037003**      Collected: 03/12/19 10:00      Received: 03/13/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.387 ± 0.232 (0.327)</b> C:90% T:NA	pCi/L	03/25/19 08:33	13982-63-3	
Radium-228	EPA 9320	<b>0.626 ± 0.376 (0.699)</b> C:78% T:84%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.01 ± 0.608 (1.03)</b>	pCi/L	03/27/19 11:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

**Sample: FB-01**      **Lab ID: 2616037004**      Collected: 03/12/19 19:15      Received: 03/13/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.248 ± 0.204 (0.334)</b> <b>C:79% T:NA</b>	pCi/L	03/25/19 08:34	13982-63-3	
Radium-228	EPA 9320	<b>0.111 ± 0.352 (0.792)</b> <b>C:76% T:82%</b>	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.359 ± 0.556 (1.13)</b>	pCi/L	03/27/19 11:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

**Sample: EB-01**      **Lab ID: 2616037005**      Collected: 03/12/19 19:50      Received: 03/13/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.160 ± 0.197 (0.405)</b> <b>C:82% T:NA</b>	pCi/L	03/25/19 08:31	13982-63-3	
Radium-228	EPA 9320	<b>0.386 ± 0.383 (0.790)</b> <b>C:76% T:78%</b>	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.546 ± 0.580 (1.20)</b>	pCi/L	03/27/19 11:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

QC Batch: 334698

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

METHOD BLANK: 1628718

Matrix: Water

Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.482 ± 0.254 (0.327) C:96% T:NA	pCi/L	03/25/19 08:31	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616037

QC Batch: 334688

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

METHOD BLANK: 1628693

Matrix: Water

Associated Lab Samples: 2616037001, 2616037002, 2616037003, 2616037004, 2616037005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.978 ± 0.447 (0.755) C:76% T:82%	pCi/L	03/26/19 12:53	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616037

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616037

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616037001	HGWA-1	EPA 9315	334698		
2616037002	HGWA-2	EPA 9315	334698		
2616037003	HGWA-3	EPA 9315	334698		
2616037004	FB-01	EPA 9315	334698		
2616037005	EB-01	EPA 9315	334698		
2616037001	HGWA-1	EPA 9320	334688		
2616037002	HGWA-2	EPA 9320	334688		
2616037003	HGWA-3	EPA 9320	334688		
2616037004	FB-01	EPA 9320	334688		
2616037005	EB-01	EPA 9320	334688		
2616037001	HGWA-1	Total Radium Calculation	335714		
2616037002	HGWA-2	Total Radium Calculation	335714		
2616037003	HGWA-3	Total Radium Calculation	335714		
2616037004	FB-01	Total Radium Calculation	335714		
2616037005	EB-01	Total Radium Calculation	335714		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 3

**Section A**  
 Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jabraham@southernco.com  
 Phone: (404) 506-7239  
 Requested Due Date: Standard

**Section B**  
 Required Project Information:  
 Report To: Joju Abraham / Lauren Petty  
 Copy To: Geosyntec  
 Purchase Order #: SCS10948606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
 Invoice Information:  
 Attention: SCSinvoices@southernco.com  
 Company Name:  
 Address:  
 Pico Project Manager: betsy.mcdonnet@picolabs.com  
 Pico Profile #: 327.4 (AP) or 328.5 (Hudf)

Regulatory Agency: GA  
 State/Location:

ITEM #	MATRIX	CODE	COLLECTED		DATE	TIME	SAMPLER TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analytes Test	App. IV Metals	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)
			START DATE	END DATE												
1	Drinking Water	DW	3/12/19	1410	3/12/19	1431	4	None	Y	None	None	None	None	None	None	None
2	Water	WT														
3	Waste Water	WW														
4	Precipitated Solids	P														
5	Sludge	SL														
6	Wipe	WP														
7	Air	AR														
8	Other	OT														
9	Tissue	TS														

**ADDITIONAL COMMENTS**  
 Noelia Myles  
 ETS Low/Case, etc

**RELINQUISHED BY / AFFILIATION**  
 DATE: 3/17/19 2205  
 TIME: 2205  
 SIGNATURE: Noelia Myles

**ACCEPTED BY / AFFILIATION**  
 DATE: 3/13/19 0944  
 TIME: 0944  
 SIGNATURE: Noelia Myles

**SAMPLE CONDITIONS**  
 Received on: 3/13/19 1400  
 Temp in C: 2.5  
 Sealed: Y  
 Cooled: Y  
 Samples Intact: Y

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Noelia Myles  
 SIGNATURE of SAMPLER: Noelia Myles

**DATE SIGNED:** 3/12/19

NO# : 2616037



**CHAIN-OF-CUSTODY / Analytical Request Document**

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 3

**Section A**

**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: [abraham@southernco.com](mailto:abraham@southernco.com)  
 Phone: (404)506-7239  
 Requested Due Date: Standard TAT

**Required Project Information:**  
 Report To: Joy Abraham / Lauren Petty  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Invoice Information:**  
 Attention: [scsinvoices@southernco.com](mailto:scsinvoices@southernco.com)  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: [deisy.mcdaniel@pacelabs.com](mailto:deisy.mcdaniel@pacelabs.com)  
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)

**Regulatory Agency:** GA  
**State / Location:**

**Section B**

**MATRIX**  
 Drinking Water, Water, Waste Water, Product, Oil, Wipe, Air, Other, Tissue

**MATRIX CODE** (see valid codes to left)

**SAMPLE ID**  
 One Character per box.  
 (A-Z, 0-9, /, -, )  
 Sample IDs must be unique

**COLLECTED**  
 START DATE, END DATE, TIME

**SAMPLE TYPE** (G-GRAB, C-COMP)

**SAMPLE TEMP AT COLLECTION**

**Preservatives**  
 Unpreserved, H2SO4, HNO3, HCl, NaOH, Na2S2O3, Methanol, Other

**Analyses Test**  
 App. IV Metals, Fluoride by 300.0, Radium 226/228, Metals (As, B, Co, Mo), Sulfate by 300.0

**Requested/Analysis Filtered (Y/N)**

**Section C**

**ADDITIONAL COMMENTS**

**RELINQUISHED BY / AFFILIATION**  
 Grant Walker / Geosyntec  
 Mella Mylon  
 ETS/Geosyntec

**DATE**  
 03/20/19  
 3/12/17  
 3/13/19

**TIME**  
 1950  
 2205  
 943

**ACCEPTED BY / AFFILIATION**  
 Mella Mylon  
 ETS/Geosyntec  
 M. Palaman

**DATE**  
 3/12/19  
 3/12/19  
 5.15.19  
 3/13/19

**TIME**  
 1950  
 2205  
 0845  
 1400

**SAMPLE CONDITIONS**  
 Received on Ice (Y/N)  
 Custody Sealed (Y/N)  
 Cooler (Y/N)  
 Samples Intact (Y/N)

**TEMP in C**  
 25

**DATE SIGNED:** 03/12/19  
**SIGNATURE OF SAMPLER:** Grant Walker  
**PRINT NAME OF SAMPLER:** Grant Walker  
**SIGNATURE OF SAMPLER:** [Signature]

NO#: 2616037  
PM: BM Due Date: 04/10/19  
CLIENT: GAPower-CCR

GN 03/12/19



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

3 of 3

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manner Road, Atlanta, GA 30339  
 Phone: (404)506-7239  
 Fax: (404)506-7239  
 Requested Due Date: 5/14/19

**Section B**  
**Required Project Information:**  
 Report To: Jaja Abraham / Lauren Petty  
 Copy To: Geosynlec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #: 514-1102-1A

**Section C**  
**Invoice Information:**  
 Attention: SCSinvoicess@southernco.com  
 Company Name: Southern Company  
 Address: 190 Peachtree Street, N.W., Atlanta, GA 30333  
 Pace Project Manager: bobby.moderate@poco.com  
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)  
 Regulatory Agency: GA

ITEM #	MATRIX	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						Analytes Test Y/N	Requested Analysis Filtered (Y/N)	Metals (As, B, Co, Mo) Sulfate by 300.0	Residual Chlorine (Y/N)
			START DATE	END DATE			H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol				
1	DW	WT	5/12/19	5/12/19	25	4										
2	WT	WT	5/12/19	5/12/19	25	4										
3	WT	WT	5/12/19	5/12/19	25	4										
4	WT	WT	5/12/19	5/12/19	25	4										
5	WT	WT	5/12/19	5/12/19	25	4										
6	WT	WT	5/12/19	5/12/19	25	4										
7	WT	WT	5/12/19	5/12/19	25	4										
8	WT	WT	5/12/19	5/12/19	25	4										
9	WT	WT	5/12/19	5/12/19	25	4										
10	WT	WT	5/12/19	5/12/19	25	4										
11	WT	WT	5/12/19	5/12/19	25	4										
12	WT	WT	5/12/19	5/12/19	25	4										

**NO# : 2616037**  
 PM: BM Due Date: 04/10/19  
 CLIENT: GAPover-CCR

REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Media M... L... Rose	3/12/19	1930	Media M... L... Rose	3/12/19	1950	
Media M... L... Rose	3/12/19	2205	Media M... L... Rose	3/12/19	2205	
Media M... L... Rose	3/13/19	943	Media M... L... Rose	3/13/19	0944	
Media M... L... Rose	3/13/19	1400	Media M... L... Rose	3/13/19	1400	

TEMP in C: 25 F  
 Received on: 3/13/19  
 Ice (Y/N):  
 Sealed (Y/N):  
 Custody (Y/N):  
 Samples Intact (Y/N):

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Bryan McGinnis-Tickler  
 SIGNATURE of SAMPLER: Bryan McGinnis-Tickler  
 DATE Signed: 03/12/19



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616037**

PM: **BM**

Due Date: **04/10/19**

CLIENT: **GAPower-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.5 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 3/13/19 MK

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

March 20, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616042

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616042

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616042

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616042001	MW-28D	Water	03/12/19 17:25	03/13/19 14:00
2616042002	HGWC-8	Water	03/12/19 16:27	03/13/19 14:00
2616042003	MW-29	Water	03/12/19 18:23	03/13/19 14:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616042

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616042001	MW-28D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616042002	HGWC-8	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616042003	MW-29	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond  
Pace Project No.: 2616042

Sample: MW-28D		Lab ID: 2616042001		Collected: 03/12/19 17:25		Received: 03/13/19 14:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 18:54	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 18:54	7440-38-2		
Barium	<b>0.82</b>	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 18:54	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 18:54	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 18:54	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 18:54	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 18:54	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 18:54	7439-92-1		
Lithium	<b>0.011J</b>	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 18:54	7439-93-2		
Molybdenum	<b>0.013</b>	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 18:54	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 18:54	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 18:54	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:12	03/15/19 14:56	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	<b>0.24J</b>	mg/L	0.30	0.029	1		03/19/19 00:09	16984-48-8		

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616042

Sample: HGWC-8		Lab ID: 2616042002		Collected: 03/12/19 16:27		Received: 03/13/19 14:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 19:00	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 19:00	7440-38-2		
Barium	<b>0.062</b>	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 19:00	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 19:00	7440-41-7		
Cadmium	<b>0.00020J</b>	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 19:00	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 19:00	7440-47-3		
Cobalt	<b>0.0020J</b>	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 19:00	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 19:00	7439-92-1		
Lithium	<b>0.0025J</b>	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 19:00	7439-93-2		
Molybdenum	<b>0.50</b>	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 19:00	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 19:00	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 19:00	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:12	03/15/19 15:13	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	<b>0.58</b>	mg/L	0.30	0.029	1		03/19/19 00:32	16984-48-8		

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616042

Sample: MW-29		Lab ID: 2616042003		Collected: 03/12/19 18:23		Received: 03/13/19 14:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/15/19 12:41	03/18/19 19:06	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 19:06	7440-38-2		
Barium	<b>0.089</b>	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 19:06	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 19:06	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 19:06	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 19:06	7440-47-3		
Cobalt	<b>0.00057J</b>	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 19:06	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 19:06	7439-92-1		
Lithium	<b>0.0024J</b>	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 19:06	7439-93-2		
Molybdenum	<b>0.0038J</b>	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 19:06	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 19:06	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 19:06	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/15/19 12:12	03/15/19 15:15	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	<b>0.070J</b>	mg/L	0.30	0.029	1		03/19/19 00:55	16984-48-8		

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616042

QC Batch: 24399

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2616042001, 2616042002, 2616042003

METHOD BLANK: 109482

Matrix: Water

Associated Lab Samples: 2616042001, 2616042002, 2616042003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000036	03/15/19 14:51	

LABORATORY CONTROL SAMPLE: 109483

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0029	117	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109484

109485

Parameter	Units	109484		109485		% Rec	% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		2616042001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Mercury	mg/L	ND	0.0025	0.0025	0.0026	0.0025	105	101	75-125	4	20		

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616042

QC Batch: 24384 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616042001, 2616042002, 2616042003

METHOD BLANK: 109374 Matrix: Water  
Associated Lab Samples: 2616042001, 2616042002, 2616042003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/18/19 17:34	
Arsenic	mg/L	0.00071J	0.0050	0.00057	03/18/19 17:34	
Barium	mg/L	ND	0.010	0.00078	03/18/19 17:34	
Beryllium	mg/L	ND	0.0030	0.000050	03/18/19 17:34	
Cadmium	mg/L	ND	0.0010	0.000093	03/18/19 17:34	
Chromium	mg/L	ND	0.010	0.0016	03/18/19 17:34	
Cobalt	mg/L	ND	0.010	0.00052	03/18/19 17:34	
Lead	mg/L	ND	0.0050	0.00027	03/18/19 17:34	
Lithium	mg/L	ND	0.050	0.00097	03/18/19 17:34	
Molybdenum	mg/L	ND	0.010	0.0019	03/18/19 17:34	
Selenium	mg/L	ND	0.010	0.0014	03/18/19 17:34	
Thallium	mg/L	ND	0.0010	0.00014	03/18/19 17:34	

LABORATORY CONTROL SAMPLE: 109375

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	109	80-120	
Arsenic	mg/L	0.1	0.10	104	80-120	
Barium	mg/L	0.1	0.10	102	80-120	
Beryllium	mg/L	0.1	0.11	108	80-120	
Cadmium	mg/L	0.1	0.11	105	80-120	
Chromium	mg/L	0.1	0.11	107	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	104	80-120	
Lithium	mg/L	0.1	0.11	107	80-120	
Molybdenum	mg/L	0.1	0.10	104	80-120	
Selenium	mg/L	0.1	0.10	105	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109376 109377

Parameter	Units	2616039003 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	MSD Result						
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	106	107	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.11	0.10	106	103	75-125	3	20	
Barium	mg/L	0.20	0.1	0.1	0.29	0.30	95	103	75-125	2	20	
Beryllium	mg/L	ND	0.1	0.1	0.097	0.094	97	94	75-125	3	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616042

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109376		109377		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2616039003 Result	MS Spike Conc.	MSD Spike Conc.								
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	104	103	75-125	1	20	
Cobalt	mg/L	ND	0.1	0.1	0.10	0.098	101	98	75-125	3	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.096	101	95	75-125	5	20	
Lithium	mg/L	0.011J	0.1	0.1	0.11	0.10	97	91	75-125	5	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	103	104	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	106	102	75-125	4	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.097	100	97	75-125	3	20	

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

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616042

QC Batch: 24522 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2616042001, 2616042002, 2616042003

METHOD BLANK: 110051 Matrix: Water  
Associated Lab Samples: 2616042001, 2616042002, 2616042003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/18/19 21:29	

LABORATORY CONTROL SAMPLE: 110052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	9.8	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110053 110054

Parameter	Units	2616039001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.035J	10	10	10.2	10.3	102	102	90-110	0	15	

MATRIX SPIKE SAMPLE: 110055

Parameter	Units	2616039002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.079J	10	10.3	103	90-110	

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616042

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616042

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616042001	MW-28D	EPA 3005A	24384	EPA 6020B	24419
2616042002	HGWC-8	EPA 3005A	24384	EPA 6020B	24419
2616042003	MW-29	EPA 3005A	24384	EPA 6020B	24419
2616042001	MW-28D	EPA 7470A	24399	EPA 7470A	24404
2616042002	HGWC-8	EPA 7470A	24399	EPA 7470A	24404
2616042003	MW-29	EPA 7470A	24399	EPA 7470A	24404
2616042001	MW-28D	EPA 300.0	24522		
2616042002	HGWC-8	EPA 300.0	24522		
2616042003	MW-29	EPA 300.0	24522		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 3

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manser Road, Atlanta, GA 30359  
 Email: jabraham@southemco.com  
 Phone: (404) 506-7239  
 Requested Due Date: 3/13/19

**Section B**  
**Required Project Information:**  
 Report To: Joji Abraham / Lauren Petty  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
**Invoice Information:**  
 Attention: SCSinvoicess@southemco.com  
 Company Name:  
 Address:  
 Pace Quote: baisy.mcdaniel@pacelabs.com  
 Pace Project Manager:  
 Pace Profile #: 327.4 (AP) or 328.5 (Huf)

**Regulatory Agency:**  
**State/Location:** GA

ITEM #	MATRIX CODE (A-Z, 0-9 /, -) One Character per box. Sample Ids must be unique	COLLECTED		DATE	TIME	DATE	TIME	REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
		START	END											
1	MW-28D at 3/13/19			3/12/19	19:50	3/12/19	19:50	Joy A. [Signature]	3/12/19	19:50	Melton [Signature]	3/12/19	19:50	
2				3/12/19	22:05	3/12/19	22:05	Media [Signature]	3/12/19	22:05	W. [Signature]	3/12/19	22:05	
3				3/13/19	9:43	3/13/19	9:43	[Signature]	3/13/19	9:43	M. [Signature]	3/13/19	9:43	
4														
5														
6														
7														
8														
9														
10														
11														
12														

NO# : 2616042

2616042

**ADDITIONAL COMMENTS:**

**SAMPLER NAME AND SIGNATURE:** [Signature]

**PRINT Name of SAMPLER:** BEYONN UJOJA TICKETS

**SIGNATURE of SAMPLER:** [Signature]

**DATE Signed:** 03/12/19

**TEMP in C:**

**Received on:**

**Intact (Y/N):**

**Samples Sealed (Y/N):**

**Cooler (Y/N):**

**Custody (Y/N):**

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2 of 3

<b>Section A</b> Required Client Information: Company: Georgia Power - Coal Combustion Residuals Address: 2480 Marret Road Atlanta, GA 30339 Email: labraham@southemco.com Phone: (404)506-7239 Requested Due Date: Standard TAT		<b>Section B</b> Required Project Information: Report To: Jolij Abraham / Lauren Peffy Copy To: Geosyntec Purchase Order #: SC510348606 Project Name: Plant Hammond Project #: Standard TAT	
<b>Section C</b> Invoice Information: Attention: scsinvoices@southemco.com Company Name: Address: Pace Quote: Pace Project Manager: baisy.modiano@pacelabs.com Pace Profile #: 327.4 (AP) or 328.5 (Huf)		Regulatory Agency: State / Location: GA	

ITEM #	MATRIX	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSIS TEST	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo) Sulfate by 300.0	Residual Chlorine (Y/N)
		START DATE TIME	END DATE TIME								
1	WG-WWA	12/06 0822	16-27 1541	1950	3	H2SO4, Unpreserved	Y				N
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

*Handwritten notes:*  
 - Item 1: HGWC-8  
 - Item 1: GSN  
 - Item 1: 03/12/19  
 - Additional Comments: Great Wastes Geosyntec 03/12/19 1950, Media Mpham 3/12/19 2205, ESTS Lead/Geosyntec 3/13/19 993, MDG Luman 3/13/19 1400 2.5 Y Y

**NO# : 2616042**

PN: BM Due Date: 03/20/19  
 CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
							Received on	Temp in C	Sealed	Cooler
Great Wastes Geosyntec	Great Wastes	03/12/19	1950	Media Mpham	3/12/19	2205	Y	Y	Y	Y
Media Mpham	ESTS Lead/Geosyntec	3/13/19	993	MDG Luman	3/13/19	1400	Y	Y	Y	Y

SAMPLER NAME AND SIGNATURE:  
 PRINT Name of SAMPLER: Great Wastes  
 SIGNATURE of SAMPLER: [Signature]  
 DATE Signed: 03/12/19

# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 3 of 3

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: [labraham@southhamco.com](mailto:labraham@southhamco.com)  
 Phone: (404)506-7239  
 Requested Due Date: 5/20/19

**Section B**  
**Required Project Information:**  
 Report To: Jiju Abraham / Lauren Petty  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
**Invoice Information:**  
 Attention: [scsinvoices@southhamco.com](mailto:scsinvoices@southhamco.com)  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: [betsy.mcdaniels@pacelabs.com](mailto:betsy.mcdaniels@pacelabs.com)  
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)

Regulatory Agency: GA  
 State / Location:

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see vial codes to left)	# OF CONTAINERS	PRESERVATIVES							ANALYSES TEST	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo) Sulfate by 300.0	Residual Chlorine (Y/N)
			START DATE	END DATE				UNPRESERVED	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol					
1	Drinking Water	DW	3/12/19				4												
2	Water	WT																	
3	Waste Water	WW																	
4	Product	P																	
5	Soil/Solid	SL																	
6	Oil	OL																	
7	Wipe	VP																	
8	Air	AR																	
9	Other	OT																	
10	Tissue	TS																	
SAMPLE ID			HG @ MW-29 N/A 3/12/19																

**NO# : 2616042**

PN: BM Due Date: 03/20/19  
 CLIENT: GAPover-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Loc (Y/N)	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
	Madia Musher	3/19	2205	3/12/19	2205								
	W. Blair / Geosyntec	3/13/19	943	Pace	3/13/19	0943							
				Madia Musher	3/13/19	1400							

SAMPLER NAME AND SIGNATURE  
 PRINT Name of SAMPLER: Noelia Muskus  
 SIGNATURE of SAMPLER: *Noelia Muskus*

DATE Signed: 3/12/19



Sample Condition Upon Receipt

Client Name: GIA Power

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

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

**WO#: 2616042**

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

PM: BM Due Date: **03/20/19**  
CLIENT: **GRPower-CCR**

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 2.5 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 3/13/19 MK

Temp should be above freezing to 6°C

Comments:

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

March 29, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616043

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 13, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616043

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616043

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616043001	MW-28D	Water	03/12/19 17:25	03/13/19 14:00
2616043002	HGWC-8	Water	03/12/19 16:27	03/13/19 14:00
2616043003	MW-29	Water	03/12/19 18:23	03/13/19 14:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616043

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616043001	MW-28D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616043002	HGWC-8	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616043003	MW-29	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

**Sample: MW-28D**      **Lab ID: 2616043001**      Collected: 03/12/19 17:25      Received: 03/13/19 14:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.395 ± 0.214 (0.242)</b> C:95% T:NA	pCi/L	03/25/19 10:08	13982-63-3	
Radium-228	EPA 9320	<b>0.531 ± 0.380 (0.742)</b> C:73% T:88%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.926 ± 0.594 (0.984)</b>	pCi/L	03/27/19 11:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

**Sample: HGWC-8**      **Lab ID: 2616043002**      Collected: 03/12/19 16:27      Received: 03/13/19 14:00      Matrix: Water

PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.187 ± 0.174 (0.291)</b> C:76% T:NA	pCi/L	03/25/19 08:32	13982-63-3	
Radium-228	EPA 9320	<b>0.357 ± 0.366 (0.760)</b> C:75% T:87%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.544 ± 0.540 (1.05)</b>	pCi/L	03/27/19 11:32	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

**Sample: MW-29**      **Lab ID: 2616043003**      Collected: 03/12/19 18:23      Received: 03/13/19 14:00      Matrix: Water

PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.188 ± 0.159 (0.241)</b> <b>C:91% T:NA</b>	pCi/L	03/25/19 10:08	13982-63-3	
Radium-228	EPA 9320	<b>1.18 ± 0.482 (0.767)</b> <b>C:74% T:90%</b>	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.37 ± 0.641 (1.01)</b>	pCi/L	03/28/19 15:28	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

QC Batch: 334698

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616043001, 2616043002, 2616043003

METHOD BLANK: 1628718

Matrix: Water

Associated Lab Samples: 2616043001, 2616043002, 2616043003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.482 ± 0.254 (0.327) C:96% T:NA	pCi/L	03/25/19 08:31	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616043

QC Batch: 334688

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616043001, 2616043002, 2616043003

METHOD BLANK: 1628693

Matrix: Water

Associated Lab Samples: 2616043001, 2616043002, 2616043003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.978 ± 0.447 (0.755) C:76% T:82%	pCi/L	03/26/19 12:53	

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

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616043

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616043

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616043001	MW-28D	EPA 9315	334698		
2616043002	HGWC-8	EPA 9315	334698		
2616043003	MW-29	EPA 9315	334698		
2616043001	MW-28D	EPA 9320	334688		
2616043002	HGWC-8	EPA 9320	334688		
2616043003	MW-29	EPA 9320	334688		
2616043001	MW-28D	Total Radium Calculation	335714		
2616043002	HGWC-8	Total Radium Calculation	335714		
2616043003	MW-29	Total Radium Calculation	335989		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1 of 3

Section A  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jabraham@southemco.com  
 Phone: (404)506-7239 Fax  
 Requested Due Date: 3/12/19

Section B  
 Required Project Information:  
 Report To: Jojo Abraham / Lauren Petty  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348806  
 Project Name: Plant Hammond  
 Project #:

Section C  
 Invoice Information:  
 Attention: SCSInvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Project Manager: *petey.mcdonnie@pacelabs.com*  
 Pace Quote: 327.4 (AP) or 328.5 (Huff)  
 Regulatory Agency: GA  
 State P/Location:

Page: 1 of 3

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see viald codes to left)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	Y/N	REQUESTED ANALYSES FILTERED (Y/N)	
			START DATE	END DATE								DATE	TIME
1	Drinking Water	DW											
2	Waste Water	WW											
3	Water	W											
4	Product	P											
5	Solid	SL											
6	Oil	OL											
7	Wipe	WIP											
8	Air	AR											
9	Other	OT											
10	Tissue	TS											
11													
12													

NO# : 2616043

Barcode: 2616043

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP IN C	Received on	Y/N	Custody	Sealed	Cooler	Samples	Intact
<i>Jojo Abraham</i>	3/12/19	1950	<i>Modia Johnson</i>	3/12/19	1950								
<i>Modia Johnson</i>	3/12/19	2205	<i>Geosyntec</i>	3/12/19	2205								
<i>Geosyntec</i>	3/13/19	0943	<i>Modia Johnson</i>	3/13/19	1400	25.7							

DATE SIGNED: 03/12/19

**CHAIN-OF-CUSTODY / Analytical Request Document**

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

2053

**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Meador Road  
 Atlanta, GA 30339  
 Email: jabraham@southernco.com  
 Phone: (404)506-7239  
 Requested Due Date: Standard TAT

**Section B**  
 Required Project Information:  
 Report To: Joji Abraham / Lauren Peity  
 Copy To: Geosyntec  
 Project Name: Plant Hammond  
 Purchase Order #: SCS 0548606  
 Project Address: 327 4 (AP) or 328.5 (thuf)

**Section C**  
 Invoice Information:  
 Attention: scsinvoices@southernco.com  
 Company Name:  
 Address:  
 Paces Quota:  
 Paces Project Manager: betsy.mcdonnel@paciabios.com  
 Paces Profile #: 327 4 (AP) or 328.5 (thuf)  
 Regulatory Agency:  
 State Location: GA

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME		H2SO4	HNO3				
1		WT GARB	18:06 02/21/19	16:27 03/12/19	4			Y			N
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

**WO#: 2616043**  
 PM: BM Due Date: 04/10/19  
 CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP IN C	Received on	Ice (Y/N)	Custody Sealed	Cooler (Y/N)	Samples Intact (Y/N)
	Grant Walter / Geosyntec	03/12/19	1950	Medina M...	3/12/19	1950						
	Medina M...	3/12/19	2205	Ed B...	3/12/19	2205						
	Ed B...	3/13/19	943	Pace	3/13/19	944						
	Ed B...	3/13/19	1400	Medina M...	3/13/19	1400	25					

SAMPLER NAME AND SIGNATURE:  
 PRINT Name of SAMPLER: Grant Walter  
 SIGNATURE of SAMPLER: [Signature]

DATE Signed: 03/12/19



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

3 of 3

Section A  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: [abraham@southermco.com](mailto:abraham@southermco.com)  
 Phone: (404)506-7239  
 Fax:   
 Requested Due Date: 3/12/19

Section B  
 Required Project Information:  
 Report To: Joji Abraham / Lauren Petty  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

Section C  
 Invoice Information:  
 Attention: [scsinvoices@southermco.com](mailto:scsinvoices@southermco.com)  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: [betsy.medianta@pacelabs.com](mailto:betsy.medianta@pacelabs.com)  
 Pace Profile #: 327.4 (AP) or 328.5 (HAF)

Regulatory Agency: State of Georgia  
 State:

Page: 3 of 3  
3/12/19

ITEM #	MATRIX CODE Drinking Water Waste Water Product Soil/Solid Oil Air Char Tissue	SAMPLE ID One Character per box. (A-Z, 0-9 / , -) Sample IDs must be unique	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)
					START DATE	END DATE								
1		<u>HTG MW-29</u>	<u>HTG</u>	<u>GRAB</u>	<u>3/12/19 10:00</u>	<u>3/12/19 10:00</u>	<u>4</u>	<u>Unpreserved</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>N</u>	<u>N</u>	<u>N</u>
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

## NO# : 2616043

PN: BH Due Date: 04/10/19  
CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<u>Media Muskus</u>	<u>3/12/19</u>	<u>2205</u>	<u>Media Muskus</u>	<u>3/12/19</u>	<u>2205</u>	
	<u>W. Blaw / Geosyntec</u>	<u>3/13/19</u>	<u>9453</u>	<u>Media Muskus</u>	<u>3/13/19</u>	<u>094531</u>	
				<u>Media Muskus</u>	<u>3/13/19</u>	<u>1400</u>	
							<u>TEMP in C</u>
							<u>Ice</u>
							<u>Sealed</u>
							<u>Custody</u>
							<u>Cooler</u>
							<u>Intact</u>
							<u>Samples (Y/N)</u>

SAMPLER NAME AND SIGNATURE  
 PRINT Name of SAMPLER: Noelia Muskus  
 SIGNATURE of SAMPLER: Noelia Muskus  
 DATE Signed: 3/12/19



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616043**

PM: **BH** Due Date: **04/10/19**

CLIENT: **GAPower-CCR**

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

Tracking #: \_\_\_\_\_

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.5 Biological Tissue is Frozen: Yes No  Samples on ice, cooling process has begun

Temp should be above freezing to 6°C

Date and Initials of person examining contents: 3/13/19 MR

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

March 21, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616120

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 14, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616120

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616120

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616120001	MW-7	Water	03/13/19 17:46	03/14/19 12:45
2616120002	MW-26D	Water	03/13/19 13:36	03/14/19 12:45
2616120003	HGWC-9	Water	03/13/19 11:46	03/14/19 12:45
2616120004	MW-27D	Water	03/13/19 09:24	03/14/19 12:45
2616120005	MW-6	Water	03/13/19 11:06	03/14/19 12:45
2616120006	HGWC-10	Water	03/13/19 12:10	03/14/19 12:45
2616120007	MW-24D	Water	03/13/19 14:48	03/14/19 12:45
2616120008	HGWC-13	Water	03/13/19 15:40	03/14/19 12:45
2616120009	FD-1	Water	03/13/19 00:00	03/14/19 12:45
2616120010	MW-20	Water	03/13/19 10:53	03/14/19 12:45
2616120011	MW-5	Water	03/13/19 12:33	03/14/19 12:45
2616120012	HGWC-7	Water	03/13/19 16:03	03/14/19 12:45
2616120013	HGWC-11	Water	03/13/19 17:34	03/14/19 12:45

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616120

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616120001	MW-7	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120002	MW-26D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120003	HGWC-9	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120004	MW-27D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120005	MW-6	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120006	HGWC-10	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120007	MW-24D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120008	HGWC-13	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120009	FD-1	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120010	MW-20	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120011	MW-5	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120012	HGWC-7	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616120013	HGWC-11	EPA 6020B	CSW	12

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616120

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<b>Lab ID</b>	<b>Sample ID</b>	<b>Method</b>	<b>Analysts</b>	<b>Analytes Reported</b>
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: MW-7		Lab ID: 2616120001		Collected: 03/13/19 17:46		Received: 03/14/19 12:45		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	<b>0.00086J</b>	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 14:32	7440-36-0	B	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 14:32	7440-38-2		
Barium	<b>0.063</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 14:32	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 14:32	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 14:32	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 14:32	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 14:32	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 14:32	7439-92-1		
Lithium	ND	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 14:32	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 14:32	7439-98-7		
Selenium	<b>0.0016J</b>	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 14:32	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 14:32	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 14:44	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	<b>0.069J</b>	mg/L	0.30	0.029	1		03/19/19 01:18	16984-48-8		

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: MW-26D		Lab ID: 2616120002		Collected: 03/13/19 13:36		Received: 03/14/19 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 14:38	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 14:38	7440-38-2	
Barium	<b>0.099</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 14:38	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 14:38	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 14:38	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 14:38	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 14:38	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 14:38	7439-92-1	
Lithium	<b>0.0033J</b>	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 14:38	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 14:38	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 14:38	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 14:38	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/20/19 09:33	03/20/19 13:26	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.052J</b>	mg/L	0.30	0.029	1		03/19/19 01:40	16984-48-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: HGWC-9		Lab ID: 2616120003		Collected: 03/13/19 11:46		Received: 03/14/19 12:45		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 14:44	7440-36-0		
Arsenic	<b>0.00075J</b>	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 14:44	7440-38-2		
Barium	<b>0.10</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 14:44	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 14:44	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 14:44	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 14:44	7440-47-3		
Cobalt	<b>0.00065J</b>	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 14:44	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 14:44	7439-92-1		
Lithium	<b>0.0040J</b>	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 14:44	7439-93-2		
Molybdenum	<b>0.028</b>	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 14:44	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 14:44	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 14:44	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 14:53	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	<b>0.14J</b>	mg/L	0.30	0.029	1		03/19/19 03:35	16984-48-8		

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: MW-27D		Lab ID: 2616120004		Collected: 03/13/19 09:24		Received: 03/14/19 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 14:49	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 14:49	7440-38-2	
Barium	<b>1.5</b>	mg/L	0.10	0.0078	10	03/18/19 13:34	03/21/19 13:04	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 14:49	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 14:49	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 14:49	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 14:49	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 14:49	7439-92-1	
Lithium	<b>0.0097J</b>	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 14:49	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 14:49	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 14:49	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 14:49	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 14:55	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.28J</b>	mg/L	0.30	0.029	1		03/19/19 03:58	16984-48-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: MW-6		Lab ID: 2616120005		Collected: 03/13/19 11:06		Received: 03/14/19 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 14:55	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 14:55	7440-38-2	
Barium	<b>0.10</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 14:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 14:55	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 14:55	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 14:55	7440-47-3	
Cobalt	<b>0.00055J</b>	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 14:55	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 14:55	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 14:55	7439-93-2	
Molybdenum	<b>0.0021J</b>	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 14:55	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 14:55	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 14:55	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 14:58	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.19J</b>	mg/L	0.30	0.029	1		03/19/19 04:43	16984-48-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: HGWC-10		Lab ID: 2616120006		Collected: 03/13/19 12:10		Received: 03/14/19 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:01	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:01	7440-38-2	
Barium	<b>0.044</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:01	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:01	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:01	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:01	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:01	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:01	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:01	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:01	7439-98-7	
Selenium	<b>0.0015J</b>	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:01	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:01	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:00	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.17J</b>	mg/L	0.30	0.029	1		03/19/19 05:06	16984-48-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: MW-24D		Lab ID: 2616120007		Collected: 03/13/19 14:48		Received: 03/14/19 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:07	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:07	7440-38-2	
Barium	<b>0.053</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:07	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:07	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:07	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:07	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:07	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:07	7439-92-1	
Lithium	<b>0.0029J</b>	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:07	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:07	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:07	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:07	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:07	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.074J</b>	mg/L	0.30	0.029	1		03/19/19 05:29	16984-48-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: HGWC-13		Lab ID: 2616120008		Collected: 03/13/19 15:40		Received: 03/14/19 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:12	7440-36-0	
Arsenic	<b>0.42</b>	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:12	7440-38-2	
Barium	<b>0.10</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:12	7440-39-3	
Beryllium	<b>0.000062J</b>	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:12	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:12	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:12	7440-47-3	
Cobalt	<b>0.0022J</b>	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:12	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:12	7439-92-1	
Lithium	<b>0.029J</b>	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:12	7439-93-2	
Molybdenum	<b>0.033</b>	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:12	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:12	7782-49-2	
Thallium	<b>0.00039J</b>	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:12	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:10	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.78</b>	mg/L	0.30	0.029	1		03/19/19 05:52	16984-48-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: <b>FD-1</b>		Lab ID: <b>261612009</b>		Collected: 03/13/19 00:00		Received: 03/14/19 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	<b>0.00088J</b>	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:50	7440-36-0	B
Arsenic	<b>0.42</b>	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:50	7440-38-2	
Barium	<b>0.099</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:50	7440-39-3	
Beryllium	<b>0.000089J</b>	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:50	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:50	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:50	7440-47-3	
Cobalt	<b>0.0023J</b>	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:50	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:50	7439-92-1	
Lithium	<b>0.029J</b>	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:50	7439-93-2	
Molybdenum	<b>0.033</b>	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:50	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:50	7782-49-2	
Thallium	<b>0.00043J</b>	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:50	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:12	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.81</b>	mg/L	0.30	0.029	1		03/19/19 06:15	16984-48-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: MW-20		Lab ID: 2616120010		Collected: 03/13/19 10:53		Received: 03/14/19 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 15:55	7440-36-0	
Arsenic	<b>0.0023J</b>	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 15:55	7440-38-2	
Barium	<b>0.087</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 15:55	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 15:55	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 15:55	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 15:55	7440-47-3	
Cobalt	<b>0.0011J</b>	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 15:55	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 15:55	7439-92-1	
Lithium	<b>0.0016J</b>	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 15:55	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 15:55	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 15:55	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 15:55	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:14	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.072J</b>	mg/L	0.30	0.029	1		03/19/19 06:38	16984-48-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: MW-5		Lab ID: 2616120011		Collected: 03/13/19 12:33		Received: 03/14/19 12:45		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 16:01	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 16:01	7440-38-2	
Barium	<b>0.056</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 16:01	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 16:01	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 16:01	7440-43-9	
Chromium	<b>0.0030J</b>	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 16:01	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 16:01	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 16:01	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 16:01	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 16:01	7439-98-7	
Selenium	<b>0.0033J</b>	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 16:01	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 16:01	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:17	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>0.10J</b>	mg/L	0.30	0.029	1		03/19/19 07:01	16984-48-8	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

Sample: HGWC-7		Lab ID: 2616120012		Collected: 03/13/19 16:03		Received: 03/14/19 12:45		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 16:07	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 16:07	7440-38-2		
Barium	<b>0.083</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 16:07	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 16:07	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 16:07	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 16:07	7440-47-3		
Cobalt	<b>0.00067J</b>	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 16:07	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 16:07	7439-92-1		
Lithium	<b>0.0024J</b>	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 16:07	7439-93-2		
Molybdenum	<b>0.040</b>	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 16:07	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 16:07	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 16:07	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:19	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	<b>0.12J</b>	mg/L	0.30	0.029	1		03/19/19 08:55	16984-48-8		

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616120

**Sample: HGWC-11**      **Lab ID: 2616120013**      Collected: 03/13/19 17:34      Received: 03/14/19 12:45      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				

**6020B MET ICPMS**

Analytical Method: EPA 6020B      Preparation Method: EPA 3005A

Antimony	ND	mg/L	0.0030	0.00078	1	03/18/19 13:34	03/20/19 16:13	7440-36-0	
Arsenic	<b>0.0024J</b>	mg/L	0.0050	0.00057	1	03/18/19 13:34	03/20/19 16:13	7440-38-2	
Barium	<b>0.024</b>	mg/L	0.010	0.00078	1	03/18/19 13:34	03/20/19 16:13	7440-39-3	
Beryllium	<b>0.00010J</b>	mg/L	0.0030	0.000050	1	03/18/19 13:34	03/20/19 16:13	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/18/19 13:34	03/20/19 16:13	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/18/19 13:34	03/20/19 16:13	7440-47-3	
Cobalt	<b>0.00098J</b>	mg/L	0.010	0.00052	1	03/18/19 13:34	03/20/19 16:13	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/18/19 13:34	03/20/19 16:13	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/18/19 13:34	03/20/19 16:13	7439-93-2	
Molybdenum	<b>0.012</b>	mg/L	0.010	0.0019	1	03/18/19 13:34	03/20/19 16:13	7439-98-7	
Selenium	<b>0.023</b>	mg/L	0.010	0.0014	1	03/18/19 13:34	03/20/19 16:13	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/18/19 13:34	03/20/19 16:13	7440-28-0	

**7470 Mercury**

Analytical Method: EPA 7470A      Preparation Method: EPA 7470A

Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:21	7439-97-6	
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**300.0 IC Anions 28 Days**

Analytical Method: EPA 300.0

Fluoride	<b>0.51</b>	mg/L	0.30	0.029	1		03/19/19 09:18	16984-48-8	
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**QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2616120

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QC Batch: 24464 Analysis Method: EPA 7470A  
 QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury  
 Associated Lab Samples: 2616120001, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, 2616120009,  
 2616120010, 2616120011, 2616120012, 2616120013

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METHOD BLANK: 109864 Matrix: Water  
 Associated Lab Samples: 2616120001, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, 2616120009,  
 2616120010, 2616120011, 2616120012, 2616120013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000036	03/19/19 14:39	

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LABORATORY CONTROL SAMPLE: 109865

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	102	80-120	

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MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109866 109867

Parameter	Units	2616120001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0025	101	102	75-125	1	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616120

QC Batch: 24639	Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A	Analysis Description: 7470 Mercury
Associated Lab Samples: 2616120002	

METHOD BLANK: 110677 Matrix: Water  
Associated Lab Samples: 2616120002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000036	03/20/19 13:07	

LABORATORY CONTROL SAMPLE: 110678

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0024	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110679 110680

Parameter	Units	2616179001 Result	MS		MSD		% Rec	% Rec	% Rec	Limits	Max		Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result					RPD	RPD	
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0025	99	99	75-125	0	20		

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616120

QC Batch: 24489 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616120001, 2616120002, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, 2616120009, 2616120010, 2616120011, 2616120012, 2616120013

METHOD BLANK: 109939 Matrix: Water  
Associated Lab Samples: 2616120001, 2616120002, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, 2616120009, 2616120010, 2616120011, 2616120012, 2616120013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	0.0014J	0.0030	0.00078	03/20/19 14:21	
Arsenic	mg/L	ND	0.0050	0.00057	03/20/19 14:21	
Barium	mg/L	ND	0.010	0.00078	03/20/19 14:21	
Beryllium	mg/L	ND	0.0030	0.000050	03/20/19 14:21	
Cadmium	mg/L	ND	0.0010	0.000093	03/20/19 14:21	
Chromium	mg/L	ND	0.010	0.0016	03/20/19 14:21	
Cobalt	mg/L	ND	0.010	0.00052	03/20/19 14:21	
Lead	mg/L	ND	0.0050	0.00027	03/20/19 14:21	
Lithium	mg/L	ND	0.050	0.00097	03/20/19 14:21	
Molybdenum	mg/L	ND	0.010	0.0019	03/20/19 14:21	
Selenium	mg/L	ND	0.010	0.0014	03/20/19 14:21	
Thallium	mg/L	ND	0.0010	0.00014	03/20/19 14:21	

LABORATORY CONTROL SAMPLE: 109940

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	107	80-120	
Arsenic	mg/L	0.1	0.098	98	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.10	102	80-120	
Cadmium	mg/L	0.1	0.097	97	80-120	
Chromium	mg/L	0.1	0.10	101	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lead	mg/L	0.1	0.098	98	80-120	
Lithium	mg/L	0.1	0.10	101	80-120	
Molybdenum	mg/L	0.1	0.10	101	80-120	
Selenium	mg/L	0.1	0.10	104	80-120	
Thallium	mg/L	0.1	0.099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109941 109942

Parameter	Units	2616120008 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Antimony	mg/L	ND	0.1	0.11	0.1	0.11	105	105	75-125	0	20	
Arsenic	mg/L	0.42	0.1	0.51	0.1	0.53	99	113	75-125	3	20	
Barium	mg/L	0.10	0.1	0.18	0.1	0.18	76	75	75-125	1	20	
Beryllium	mg/L	0.000062J	0.1	0.094	0.1	0.095	94	95	75-125	2	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616120

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109941		109942		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2616120008 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Cadmium	mg/L	ND	0.1	0.1	0.097	0.097	97	97	75-125	0	20	
Chromium	mg/L	ND	0.1	0.1	0.097	0.099	97	99	75-125	2	20	
Cobalt	mg/L	0.0022J	0.1	0.1	0.098	0.099	96	96	75-125	1	20	
Lead	mg/L	ND	0.1	0.1	0.093	0.096	93	96	75-125	3	20	
Lithium	mg/L	0.029J	0.1	0.1	0.12	0.12	92	94	75-125	2	20	
Molybdenum	mg/L	0.033	0.1	0.1	0.13	0.13	96	99	75-125	2	20	
Selenium	mg/L	ND	0.1	0.1	0.099	0.10	99	104	75-125	6	20	
Thallium	mg/L	0.00039J	0.1	0.1	0.095	0.096	94	96	75-125	1	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616120

QC Batch: 24522 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 2616120001, 2616120002, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, 2616120009, 2616120010, 2616120011, 2616120012, 2616120013

METHOD BLANK: 110051 Matrix: Water  
 Associated Lab Samples: 2616120001, 2616120002, 2616120003, 2616120004, 2616120005, 2616120006, 2616120007, 2616120008, 2616120009, 2616120010, 2616120011, 2616120012, 2616120013

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/18/19 21:29	

LABORATORY CONTROL SAMPLE: 110052

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	9.8	98	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110053 110054

Parameter	Units	2616039001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	0.035J	10	10	10.2	10.3	102	102	90-110	0	15	

MATRIX SPIKE SAMPLE: 110055

Parameter	Units	2616039002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	0.079J	10	10.3	103	90-110	

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616120

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616120

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616120001	MW-7	EPA 3005A	24489	EPA 6020B	24530
2616120002	MW-26D	EPA 3005A	24489	EPA 6020B	24530
2616120003	HGWC-9	EPA 3005A	24489	EPA 6020B	24530
2616120004	MW-27D	EPA 3005A	24489	EPA 6020B	24530
2616120005	MW-6	EPA 3005A	24489	EPA 6020B	24530
2616120006	HGWC-10	EPA 3005A	24489	EPA 6020B	24530
2616120007	MW-24D	EPA 3005A	24489	EPA 6020B	24530
2616120008	HGWC-13	EPA 3005A	24489	EPA 6020B	24530
2616120009	FD-1	EPA 3005A	24489	EPA 6020B	24530
2616120010	MW-20	EPA 3005A	24489	EPA 6020B	24530
2616120011	MW-5	EPA 3005A	24489	EPA 6020B	24530
2616120012	HGWC-7	EPA 3005A	24489	EPA 6020B	24530
2616120013	HGWC-11	EPA 3005A	24489	EPA 6020B	24530
2616120001	MW-7	EPA 7470A	24464	EPA 7470A	24540
2616120002	MW-26D	EPA 7470A	24639	EPA 7470A	24703
2616120003	HGWC-9	EPA 7470A	24464	EPA 7470A	24540
2616120004	MW-27D	EPA 7470A	24464	EPA 7470A	24540
2616120005	MW-6	EPA 7470A	24464	EPA 7470A	24540
2616120006	HGWC-10	EPA 7470A	24464	EPA 7470A	24540
2616120007	MW-24D	EPA 7470A	24464	EPA 7470A	24540
2616120008	HGWC-13	EPA 7470A	24464	EPA 7470A	24540
2616120009	FD-1	EPA 7470A	24464	EPA 7470A	24540
2616120010	MW-20	EPA 7470A	24464	EPA 7470A	24540
2616120011	MW-5	EPA 7470A	24464	EPA 7470A	24540
2616120012	HGWC-7	EPA 7470A	24464	EPA 7470A	24540
2616120013	HGWC-11	EPA 7470A	24464	EPA 7470A	24540
2616120001	MW-7	EPA 300.0	24522		
2616120002	MW-26D	EPA 300.0	24522		
2616120003	HGWC-9	EPA 300.0	24522		
2616120004	MW-27D	EPA 300.0	24522		
2616120005	MW-6	EPA 300.0	24522		
2616120006	HGWC-10	EPA 300.0	24522		
2616120007	MW-24D	EPA 300.0	24522		
2616120008	HGWC-13	EPA 300.0	24522		
2616120009	FD-1	EPA 300.0	24522		
2616120010	MW-20	EPA 300.0	24522		
2616120011	MW-5	EPA 300.0	24522		
2616120012	HGWC-7	EPA 300.0	24522		
2616120013	HGWC-11	EPA 300.0	24522		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 3 Of 3

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Marner Road, Atlanta, GA 30339  
 Email: labraham@southernco.com  
 Phone: (404)506-7239  
 Requested Due Date: Standard TAT

**Section B**  
**Required Project Information:**  
 Report To: Joji Abraham / Lauren Petty  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
**Invoice Information:**  
 Attention: scsinvoices@southernco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327.4 (AP) or 328.5 (Huf)

**Regulatory Agency:**  
 State/Location: GA

ITEM #	MATRIX	MATRIX CODE (see valid codes to left)	COLLECTED		# OF CONTAINERS	PRESERVATIVES							ANALYSES TEST	Requested Analysis Parameters (Y/N)	Residual Chlorine (Y/N)		
			START DATE	END DATE		UNPRESERVED	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol				Other	
1	Drinking Water	DW	3/13 12:28	3/13 12:46	1												
2	Waste Water	WW	3/13 13:15	3/13 13:36	1												
3	Process Water	PW	3/13 11:25	3/13 11:46	1												
4	Sludge	SL															
5	Soil/Solid	SS															
6	Oil	OL															
7	Sludge	SL															
8	Other	OT															
9	Other	OT															
10	Other	OT															
11	Other	OT															
12	Other	OT															

**ADDITIONAL COMMENTS:**  
 RELINQUISHED BY / AFFILIATION: BETH TICKNER 3/15/19  
Maria Mubambwa 3/13/19  
Almar/Geosyntec 3/14/19  
 TIME: 1823  
 DATE: 3/15/19  
 TIME: 2018  
 DATE: 3/14/19  
 TIME: 1135  
 DATE: 3/14/19  
 TIME: 1245  
 DATE: 3/14/19

**ACCEPTED BY / AFFILIATION:**  
Maria Mubambwa  
Maria Mubambwa  
Maria Mubambwa

**TEMP IN C:**  
 Received on: [ ]  
 Custody Sealed: [ ]  
 Cooler (Y/N): [ ]  
 Samples (Intact) (Y/N): [ ]

**SAMPLER NAME AND SIGNATURE:**  
 PRINT Name of SAMPLER: Beth Tickner  
 SIGNATURE of SAMPLER: [Signature]  
 DATE Signed: 03/13/19

MO# : 2616120



# CHAIN-OF-CUSTODY / Analytical Request Document

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<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
<b>Required Client Information:</b>		<b>Required Project Information:</b>		<b>Invoice Information:</b>	
Company: Georgia Power - Coal Combustion Residuals	Report To: Jaji Abraham / Lauren Petty	Attention: SCSInvoices@southernco.com	Company Name: SCSInvoices@southernco.com	Address:	
Address: 2480 Maner Road	Copy To: Geosyntec	Purchase Order #: SCS10348606	Address:		City:
Allantia, GA 30039		Project Name: Plant Hammond	Address:		State:
Email: j.abraham@southernco.com		Project #: Standard 1A1	Address:		Zip:
Phone: (404)506-7239	Fax:		Address:		
Requested Due Date: Standard 1A1			Address:		

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES						ANALYSES TEST	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)	
			START	END				H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol							Other
1	Drinking Water	DW	3/13 8:54	3/13 9:24	U6		4													
2	Waste Water	WW	3/13 10:51	3/13 11:06	U6		4													
3	Process Water	PW	3/13 11:50	3/13 12:20	U6		4													
4	Process Water	PW	3/13 10:22	3/13 10:48	U6		4													
5	Process Water	PW	3/13 15:27	3/13 16:40	U6		4													
6	Other	OT	3/13		U6		4													
7	Tissue	TS																		

**WO#: 2616120**

PM: BM Due Date: 03/21/19  
CLIENT: GAPower-CCR

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Grant Walker / Geosyntec	02/14	1623	Apollia Mphah	3/13/19	1623	
Apollia Mphah / Geosyntec	3/13/19	2018	Lee Brown / Geosyntec	3/13/19	2018	
Lee Brown / Geosyntec	3/14/19	1175	Mda Luman	3/14/19	1135	
Mda Luman	3/14/19	1248		3/14/19	1248	

SAMPLER NAME AND SIGNATURE: Grant Walker  
PRINT Name of SAMPLER: Grant Walker  
SIGNATURE of SAMPLER: [Signature]  
DATE Signed: 03/13/19





# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<b>Section A</b>	<b>Section B</b>	<b>Section C</b>
<b>Required Client Information:</b> Company: Georgia Power - Coal Combustion Residuals Address: 2480 Marner Road, Atlanta, GA 30339 Email: jbrahram@southernco.com Phone: (404)506-7239 Requested Due Date:	<b>Required Project Information:</b> Report To: Jaji Abraham / Lauren Petty Copy To: Geosyntec Purchase Order #: SCS10348506 Project Name: Plant Hammond Project #:	<b>Invoice Information:</b> Attention: scsinvoices@southernco.com Company Name: Address: Pace Quote: bely.mcdaniel@pacelabs.com Pace Project Manager: Pace Profile #: 327.4 (AP) or 328.5 (HUF)
Regulatory Agency: GA		State/Location:

Page: 3 of 3

ITEM #	MATRIX CODE Drinking Water Waste Water Process Soil/Sediment Oil Air Other Tissue	MATRIX CODE DM WT WW P SL OL WP AR OT TS	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		PRESERVATIVES		# OF CONTAINERS	UNPRESERVED	ANALYSES TEST		REQUESTED ANALYSIS		TEMP IN C	RECEIVED ON	CUSTODY	SEALED	COOLER	SAMPLER	SAMPLES	INTACT (Y/N)	
					START DATE	START TIME	END DATE	END TIME			H2SO4	HNO3	HCl	NaOH									Na2S2O3
1	MW-20		WTG	G	9/10/19	1032	9/10/19	1033	41	3	Y	Y	Y	N	N	N	N						
2	MW-5		WTG	G	9/10/19	1212	9/10/19	1233	41	3	Y	Y	Y	N	N	N	N						
3	HGWC-7		WTG	G	9/10/19	1542	9/10/19	1603	41	3	Y	Y	Y	N	N	N	N						
4	HGWC-11		WTG	G	9/10/19	1313	9/10/19	1324	41	3	Y	Y	Y	N	N	N	N						
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							

WO# : 2616120

PM: IBM Due Date: 03/21/19

CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP IN C	RECEIVED ON	CUSTODY	SEALED	COOLER	SAMPLER	SAMPLES	INTACT (Y/N)
	Nedela Muskus / Geosyntec	3/13/19	2018	Nedela Muskus / Geosyntec	3/13/19	2018								
	Nedela Muskus / Geosyntec	3/14/19	1135	Pass	3/14/19	1135								
				Nedelman	3/14/19	1245	2.1							
				Nedela Muskus	3/13/19									



Sample Condition Upon Receipt

Client Name: GCA Power

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

WO#: **2616120**

PM: **BM**

Due Date: **03/21/19**

CLIENT: **GAPower-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.1 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 3/14/19 nkk

Comments:

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

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

April 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616121

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 14, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616121

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616121

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616121001	MW-7	Water	03/13/19 17:46	03/14/19 12:45
2616121002	MW-26D	Water	03/13/19 13:36	03/14/19 12:45
2616121003	HGWC-9	Water	03/13/19 11:46	03/14/19 12:45
2616121004	MW-27D	Water	03/13/19 09:24	03/14/19 12:45
2616121005	MW-6	Water	03/13/19 11:06	03/14/19 12:45
2616121006	HGWC-10	Water	03/13/19 12:10	03/14/19 12:45
2616121007	MW-24D	Water	03/13/19 14:48	03/14/19 12:45
2616121008	HGWC-13	Water	03/13/19 15:40	03/14/19 12:45
2616121009	FD-1	Water	03/13/19 00:00	03/14/19 12:45
2616121010	MW-20	Water	03/13/19 10:53	03/14/19 12:45
2616121011	MW-5	Water	03/13/19 12:33	03/14/19 12:45
2616121012	HGWC-7	Water	03/13/19 16:03	03/14/19 12:45
2616121013	HGWC-11	Water	03/13/19 17:34	03/14/19 12:45

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616121

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616121001	MW-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121002	MW-26D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121003	HGWC-9	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121004	MW-27D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121005	MW-6	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121006	HGWC-10	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121007	MW-24D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121008	HGWC-13	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121009	FD-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121010	MW-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121011	MW-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121012	HGWC-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616121013	HGWC-11	EPA 9315	LAL	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616121

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: MW-7**      **Lab ID: 2616121001**      Collected: 03/13/19 17:46      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.279 ± 0.224 (0.348)</b> C:83% T:NA	pCi/L	03/27/19 09:28	13982-63-3	
Radium-228	EPA 9320	<b>0.947 ± 0.444 (0.758)</b> C:76% T:84%	pCi/L	03/27/19 12:58	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.23 ± 0.668 (1.11)</b>	pCi/L	03/28/19 15:33	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

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**Sample: MW-26D**                      **Lab ID: 2616121002**      Collected: 03/13/19 13:36      Received: 03/14/19 12:45      Matrix: Water  
PWS:                                      Site ID:                                      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.322 ± 0.223 (0.355)</b> <b>C:84% T:NA</b>	pCi/L	03/25/19 10:07	13982-63-3	
Radium-228	EPA 9320	<b>0.305 ± 0.363 (0.764)</b> <b>C:72% T:77%</b>	pCi/L	03/26/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.627 ± 0.586 (1.12)</b>	pCi/L	03/28/19 15:33	7440-14-4	

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: HGWC-9**      **Lab ID: 2616121003**      Collected: 03/13/19 11:46      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.276 ± 0.215 (0.363)</b> C:84% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228	EPA 9320	<b>0.727 ± 0.437 (0.815)</b> C:75% T:82%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.00 ± 0.652 (1.18)</b>	pCi/L	03/28/19 15:33	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: MW-27D**      **Lab ID: 2616121004**      Collected: 03/13/19 09:24      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.588 ± 0.331 (0.516)</b> C:82% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228	EPA 9320	<b>1.22 ± 0.457 (0.682)</b> C:76% T:93%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.81 ± 0.788 (1.20)</b>	pCi/L	03/28/19 15:28	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: MW-6**      **Lab ID: 2616121005**      Collected: 03/13/19 11:06      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.840 ± 0.406 (0.563)</b> C:66% T:NA	pCi/L	03/25/19 09:49	13982-63-3	
Radium-228	EPA 9320	<b>1.23 ± 0.526 (0.866)</b> C:77% T:77%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>2.07 ± 0.932 (1.43)</b>	pCi/L	03/28/19 15:33	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: HGWC-10**      **Lab ID: 2616121006**      Collected: 03/13/19 12:10      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.105 ± 0.189 (0.430)</b> <b>C:82% T:NA</b>	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228	EPA 9320	<b>1.08 ± 0.472 (0.789)</b> <b>C:76% T:89%</b>	pCi/L	03/26/19 16:05	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.19 ± 0.661 (1.22)</b>	pCi/L	03/28/19 15:33	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: MW-24D**      **Lab ID: 2616121007**      Collected: 03/13/19 14:48      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.0299 ± 0.156 (0.402)</b> C:93% T:NA	pCi/L	03/25/19 10:07	13982-63-3	
Radium-228	EPA 9320	<b>0.281 ± 0.360 (0.763)</b> C:71% T:84%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.311 ± 0.516 (1.17)</b>	pCi/L	03/28/19 15:33	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: HGWC-13**      **Lab ID: 2616121008**      Collected: 03/13/19 15:40      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.365 ± 0.227 (0.309)</b> C:88% T:NA	pCi/L	03/25/19 10:07	13982-63-3	
Radium-228	EPA 9320	<b>0.0254 ± 0.267 (0.627)</b> C:74% T:89%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.390 ± 0.494 (0.936)</b>	pCi/L	03/28/19 15:33	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: FD-1**      **Lab ID: 2616121009**      Collected: 03/13/19 00:00      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.668 ± 0.300 (0.282)</b> C:80% T:NA	pCi/L	03/25/19 09:48	13982-63-3	
Radium-228	EPA 9320	<b>1.02 ± 0.464 (0.778)</b> C:76% T:83%	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.69 ± 0.764 (1.06)</b>	pCi/L	03/28/19 15:28	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: MW-20**      **Lab ID: 2616121010**      Collected: 03/13/19 10:53      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.315 ± 0.254 (0.460)</b> <b>C:83% T:NA</b>	pCi/L	03/25/19 09:49	13982-63-3	
Radium-228	EPA 9320	<b>0.223 ± 0.386 (0.843)</b> <b>C:76% T:83%</b>	pCi/L	03/26/19 16:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.538 ± 0.640 (1.30)</b>	pCi/L	03/28/19 15:28	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: MW-5**      **Lab ID: 2616121011**      Collected: 03/13/19 12:33      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.442 ± 0.247 (0.330)</b> C:87% T:NA	pCi/L	03/25/19 10:07	13982-63-3	
Radium-228	EPA 9320	<b>0.179 ± 0.313 (0.684)</b> C:73% T:85%	pCi/L	03/26/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.621 ± 0.560 (1.01)</b>	pCi/L	03/28/19 15:33	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: HGWC-7**      **Lab ID: 2616121012**      Collected: 03/13/19 16:03      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.210 ± 0.199 (0.367)</b> C:79% T:NA	pCi/L	03/25/19 07:59	13982-63-3	
Radium-228	EPA 9320	<b>0.193 ± 0.292 (0.630)</b> C:74% T:75%	pCi/L	03/26/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.403 ± 0.491 (0.997)</b>	pCi/L	03/28/19 15:33	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

**Sample: HGWC-11**      **Lab ID: 2616121013**      Collected: 03/13/19 17:34      Received: 03/14/19 12:45      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.352 ± 0.225 (0.296)</b> C:98% T:NA	pCi/L	03/27/19 09:28	13982-63-3	
Radium-228	EPA 9320	<b>0.232 ± 0.305 (0.647)</b> C:77% T:78%	pCi/L	03/26/19 14:39	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.584 ± 0.530 (0.943)</b>	pCi/L	03/28/19 15:33	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

QC Batch: 334699

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616121001, 2616121013

METHOD BLANK: 1628719

Matrix: Water

Associated Lab Samples: 2616121001, 2616121013

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.248 ± 0.200 (0.320) C:97% T:NA	pCi/L	03/27/19 09:28	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616121

QC Batch: 334689

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616121001

METHOD BLANK: 1628695

Matrix: Water

Associated Lab Samples: 2616121001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.0633 ± 0.285 (0.651) C:77% T:86%	pCi/L	03/27/19 12:58	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616121

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616121

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616121001	MW-7	EPA 9315	334699		
2616121002	MW-26D	EPA 9315	334698		
2616121003	HGWC-9	EPA 9315	334698		
2616121004	MW-27D	EPA 9315	334698		
2616121005	MW-6	EPA 9315	334698		
2616121006	HGWC-10	EPA 9315	334698		
2616121007	MW-24D	EPA 9315	334698		
2616121008	HGWC-13	EPA 9315	334698		
2616121009	FD-1	EPA 9315	334698		
2616121010	MW-20	EPA 9315	334698		
2616121011	MW-5	EPA 9315	334698		
2616121012	HGWC-7	EPA 9315	334698		
2616121013	HGWC-11	EPA 9315	334699		
2616121001	MW-7	EPA 9320	334689		
2616121002	MW-26D	EPA 9320	334688		
2616121003	HGWC-9	EPA 9320	334688		
2616121004	MW-27D	EPA 9320	334688		
2616121005	MW-6	EPA 9320	334688		
2616121006	HGWC-10	EPA 9320	334688		
2616121007	MW-24D	EPA 9320	334688		
2616121008	HGWC-13	EPA 9320	334688		
2616121009	FD-1	EPA 9320	334688		
2616121010	MW-20	EPA 9320	334688		
2616121011	MW-5	EPA 9320	334688		
2616121012	HGWC-7	EPA 9320	334688		
2616121013	HGWC-11	EPA 9320	334688		
2616121001	MW-7	Total Radium Calculation	335990		
2616121002	MW-26D	Total Radium Calculation	335990		
2616121003	HGWC-9	Total Radium Calculation	335990		
2616121004	MW-27D	Total Radium Calculation	335989		
2616121005	MW-6	Total Radium Calculation	335990		
2616121006	HGWC-10	Total Radium Calculation	335990		
2616121007	MW-24D	Total Radium Calculation	335990		
2616121008	HGWC-13	Total Radium Calculation	335990		
2616121009	FD-1	Total Radium Calculation	335989		
2616121010	MW-20	Total Radium Calculation	335989		
2616121011	MW-5	Total Radium Calculation	335990		
2616121012	HGWC-7	Total Radium Calculation	335990		
2616121013	HGWC-11	Total Radium Calculation	335990		

### REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Marner Road  
 Atlanta, GA 30339  
 Email: jbraham@southemco.com  
 Phone: (404)508-7289  
 Requested Due Date: Standard TAP

**Section B**  
 Required Project Information:  
 Report To: Jeph Abraham / Lauren Pety  
 Copy To: Geosyntec  
 Purchase Order #: SCS 10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
 Invoice Information:  
 Attention: SCSInvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: beisy.mcdaniel@pacelabs.com  
 Pace Profile #: 327.4 (AP) or 328.5 (Hudf)  
 Regulatory Agency:  
 State Location: GA

ITEM #	MATRIX CODE <small>DW Drinking Water            WT Wastewater            WW Waste Water            P Product            SL Soil/Solid            O Oil            WP Wipe            AR Air            Other            TS Tissue</small>	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives <small>Unpreserved            H2SO4            HNO3            HCl            NaOH            Na2S2O3            Methanol            Other</small>	Analyse Test <small>Y/N</small>	App. IV Metals <small>Fluoride by 300.0            Radium 226/228            Metals (As, B, Co, Mo)            Sulfate by 300.0</small>	Requested Analysis Filtered (Y/N)	TEMP in C	Received on <small>Ice (Y/N)            Custody (Y/N)            Sealed (Y/N)            Samples Intact (Y/N)</small>
				START DATE TIME	END DATE TIME								
1		WT	G	3/13 12:25	3/13 12:46	10	4		Y	Y			
2		WT	G	3/13 13:15	3/13 13:30	14	4		Y	Y			
3		WT	G	3/13 11:25	3/13 11:46	10	4		Y	Y			
4													
5													
6													
7													
8													
9													
10													
11													
12													

NO# : 2616121

2616121

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
BEA TICKET	3/13/19	823	Melina Johnson	3/13/19	1023	
Christina Williams/Geosyntec	3/13/19	2018	Geosyntec	3/13/19	20:18	
Chlor/Geosyntec	3/14/19	1135	MCA LMAN	3/14/19	11:55	
	3/14/19	1245		3/14/19	12:45	

SAMPLER NAME AND SIGNATURE  
 PRINT Name of SAMPLER: BEA TICKET  
 SIGNATURE of SAMPLER: [Signature]

DATE Signed: 03/13/19



CHAIN-OF-CUSTODY / Analytical Request Document

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**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manor Road, Atlanta, GA 30339  
 Email: [abraham@southernco.com](mailto:abraham@southernco.com)  
 Phone: (404) 508-7239 Fax:   
 Requested Due Date: **Standard**

**Section B**  
**Required Project Information:**  
 Report To: Jaja Abraham / Lauren Polty  
 Copy To: Geosyntec  
 Project Name: Plant Hammond  
 Purchase Order #: SCS10348606  
 Project #: **JAJ**

**Section C**  
**Invoice Information:**  
 Attention: [scsinvoices@southernco.com](mailto:scsinvoices@southernco.com)  
 Company Name:   
 Address:   
 Paces Quote: [betsy.mcdaniel@pccolibs.com](mailto:betsy.mcdaniel@pccolibs.com)  
 Paces Project Manager:   
 Paces Profile #: 327.4 (AP) or 328.5 (Luf)

**Regulatory Agency:** GA  
**State / Location:** GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (C=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						ANALYSES TEST	Y/N	Requested Analysis Filtered (Y/N)	Metals (As, B, Co, Mo) Sulfate by 300.0	Residual Chlorine (Y/N)
			START DATE	END TIME				H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol					
1	DW	DW	3/13 8:54	9:21	S6	12	4	3										
2	WW	WW	3/13 10:51	11:06	S6	10	4	3										
3	WW	WW	3/13 11:50	12:00	S6	16	4	3										
4	WW	WW	3/13 10:22	11:40	S6	10	4	3										
5	WW	WW	3/13 15:27	16:40	S6	19	4	3										
6	FD	FD	3/13	-	S6	19	4	3										
7																		
8																		
9																		
10																		
11																		
12																		

WO#: 2616121

PM: 9M Due Date: 04/11/19  
CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Loc (Y/N)	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
	Grant Walker / Geosyntec	03/13/19	10:25	Melicia Minton	3/13/19	18:25							
	Melicia Minton / Geosyntec	3/13/19	20:18	Geosyntec / Geosyntec	3/13/19	20:18							
	Geosyntec / Geosyntec	3/14/19	11:25	Grant Walker	3/14/19	11:25							
	Geosyntec / Geosyntec	3/14/19	12:48	Melicia Minton	3/14/19	12:48							

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Grant Walker  
 SIGNATURE of SAMPLER: *Grant Walker*  
 DATE Signed: 03/13/19



# CHAIN-OF-CUSTODY / Analytical Request Document

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Page: **3** of **3**

<b>Section A</b>	<b>Section B</b>	<b>Section C</b>
<b>Required Client Information:</b> Company: Georgia Power - Coal Combustion Residuals Report To: Joji Abraham / Lauren Pety Address: 2480 Maner Road Atlanta, GA 30339 Email: j.abraham@southemco.com Phone: (404)506-7239 Requested Due Date:	<b>Required Project Information:</b> Report To: Joji Abraham / Lauren Pety Copy To: Geosyntec Purchase Order #: SCS10348606 Project Name: Plant Hammond Project #:	<b>Invoice Information:</b> Attention: SCSinvoices@southemco.com Company Name: Address: Pace Project Manager: baisy.mcdaniels@pacelabs.com Pace Profile #: 327.4 (AP) or 328.5 (Huff) GA Regulatory Agency: State Location:

ITEM #	MATRIX CODE <small>Drinking Water, Water, Waste Water, Product, Soil/Solid, Wipe, Air, Other, Tissue</small> CODE <small>DW, WT, WW, P, SL, WP, AR, OT, TS</small>	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES				ANALYSES TEST	REQUESTED ANALYSES FILTERED (Y/N)				TEMP IN C	RECEIVED ON	ICE (Y/N)	CUSTODY	SEALED	COOLER	SAMPLES	INACT (Y/N)													
		START DATE	START TIME				END DATE	END TIME	H2SO4	HNO3		HCl	NaOH	Na2S2O3	Methanol									Other	App. IV Metals	Fluoride by 300.0	Radium 226/228	Metals (As, B Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)						
1	MW-20	3/13/19	1032	3/13/19	1033	41	Unpreserved					Y	Y	Y	N	N	N																			
2	MW-5	3/13/19	1212	3/13/19	1233	41	Unpreserved					Y	Y	Y	N	N	N																			
3	HGWC-7	3/13/19	1542	3/13/19	1609	41	Unpreserved					Y	Y	Y	N	N	N																			
4	HGWC-11	3/13/19	1313	3/13/19	1324	41	Unpreserved					Y	Y	Y	N	N	N																			
5																																				
6																																				
7																																				
8																																				
9																																				
10																																				
11																																				
12																																				

3/13/19

N/A

**WO#: 2616121**  
 PM: BM Due Date: 04/11/19  
 CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP IN C	RECEIVED ON	ICE (Y/N)	CUSTODY	SEALED	COOLER	SAMPLES	INACT (Y/N)
	Abigail M. Pety / Geosyntec	3/13/19	20:18	Abigail M. Pety / Geosyntec	3/13/19	20:18								
	Abigail M. Pety / Geosyntec	3/14/19	11:35	Pass	3/14/19	11:35								
	Maria Muskus	3/14/19	12:45	Maria Muskus	3/14/19	12:45	21							

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Abigail M. Pety  
 SIGNATURE of SAMPLER: Abigail M. Pety

**DATE SIGNED:** 3/13/19



Sample Condition Upon Receipt

Client Name: GCA Power

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

WO#: **2616121**

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

PM: **BM** Due Date: **04/11/19**  
CLIENT: **GAPower-CCR**

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.1 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Samples on ice, cooling process has begun  
Date and Initials of person examining contents: 3/14/19 *MM*

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

March 25, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616161

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 15, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616161

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616161

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616161001	HGWC-12	Water	03/14/19 09:46	03/15/19 13:00
2616161002	MW-25D	Water	03/14/19 11:41	03/15/19 13:00
2616161003	MW-19	Water	03/14/19 14:21	03/15/19 13:00

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616161

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616161001	HGWC-12	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616161002	MW-25D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616161003	MW-19	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616161

Sample: HGWC-12		Lab ID: 2616161001		Collected: 03/14/19 09:46		Received: 03/15/19 13:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:15	03/20/19 23:27	7440-36-0	
Arsenic	<b>0.0026J</b>	mg/L	0.0050	0.00057	1	03/19/19 12:15	03/20/19 23:27	7440-38-2	
Barium	<b>0.081</b>	mg/L	0.010	0.00078	1	03/19/19 12:15	03/20/19 23:27	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/19/19 12:15	03/20/19 23:27	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/19/19 12:15	03/20/19 23:27	7440-43-9	
Chromium	<b>0.0025J</b>	mg/L	0.010	0.0016	1	03/19/19 12:15	03/20/19 23:27	7440-47-3	
Cobalt	<b>0.0011J</b>	mg/L	0.010	0.00052	1	03/19/19 12:15	03/20/19 23:27	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:15	03/20/19 23:27	7439-92-1	
Lithium	<b>0.0058J</b>	mg/L	0.050	0.00097	1	03/19/19 12:15	03/20/19 23:27	7439-93-2	
Molybdenum	<b>0.046</b>	mg/L	0.010	0.0019	1	03/19/19 12:15	03/20/19 23:27	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:15	03/20/19 23:27	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:15	03/20/19 23:27	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:24	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>1.1</b>	mg/L	0.30	0.029	1		03/22/19 01:03	16984-48-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616161

<b>Sample: MW-25D</b>		<b>Lab ID: 2616161002</b>		Collected: 03/14/19 11:41		Received: 03/15/19 13:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:15	03/20/19 23:33	7440-36-0	
Arsenic	<b>0.0019J</b>	mg/L	0.0050	0.00057	1	03/19/19 12:15	03/20/19 23:33	7440-38-2	
Barium	<b>0.44</b>	mg/L	0.010	0.00078	1	03/19/19 12:15	03/21/19 15:23	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/19/19 12:15	03/20/19 23:33	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/19/19 12:15	03/20/19 23:33	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:15	03/20/19 23:33	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/19/19 12:15	03/20/19 23:33	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:15	03/20/19 23:33	7439-92-1	
Lithium	<b>0.050</b>	mg/L	0.050	0.00097	1	03/19/19 12:15	03/20/19 23:33	7439-93-2	
Molybdenum	<b>0.0022J</b>	mg/L	0.010	0.0019	1	03/19/19 12:15	03/20/19 23:33	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:15	03/20/19 23:33	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:15	03/20/19 23:33	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 15:26	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	<b>2.2</b>	mg/L	0.30	0.029	1		03/22/19 01:28	16984-48-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616161

Sample: MW-19		Lab ID: 2616161003		Collected: 03/14/19 14:21		Received: 03/15/19 13:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:15	03/20/19 23:39	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	03/19/19 12:15	03/20/19 23:39	7440-38-2		
Barium	<b>0.060</b>	mg/L	0.010	0.00078	1	03/19/19 12:15	03/20/19 23:39	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/19/19 12:15	03/20/19 23:39	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/19/19 12:15	03/20/19 23:39	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:15	03/20/19 23:39	7440-47-3		
Cobalt	<b>0.025</b>	mg/L	0.010	0.00052	1	03/19/19 12:15	03/20/19 23:39	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:15	03/20/19 23:39	7439-92-1		
Lithium	<b>0.0089J</b>	mg/L	0.050	0.00097	1	03/19/19 12:15	03/20/19 23:39	7439-93-2		
Molybdenum	<b>0.057</b>	mg/L	0.010	0.0019	1	03/19/19 12:15	03/20/19 23:39	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:15	03/20/19 23:39	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:15	03/20/19 23:39	7440-28-0		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00050	0.000036	1	03/18/19 10:52	03/19/19 16:37	7439-97-6		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Fluoride	<b>0.35</b>	mg/L	0.30	0.029	1		03/22/19 01:52	16984-48-8		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616161

QC Batch: 24464 Analysis Method: EPA 7470A  
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury  
Associated Lab Samples: 2616161001, 2616161002, 2616161003

METHOD BLANK: 109864 Matrix: Water

Associated Lab Samples: 2616161001, 2616161002, 2616161003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000036	03/19/19 14:39	

LABORATORY CONTROL SAMPLE: 109865

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0026	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 109866 109867

Parameter	Units	2616120001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0025	0.0025	101	102	75-125	1	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616161

QC Batch: 24594 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616161001, 2616161002, 2616161003

METHOD BLANK: 110479 Matrix: Water  
Associated Lab Samples: 2616161001, 2616161002, 2616161003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/20/19 18:52	
Arsenic	mg/L	ND	0.0050	0.00057	03/20/19 18:52	
Barium	mg/L	ND	0.010	0.00078	03/20/19 18:52	
Beryllium	mg/L	ND	0.0030	0.000050	03/20/19 18:52	
Cadmium	mg/L	ND	0.0010	0.000093	03/20/19 18:52	
Chromium	mg/L	ND	0.010	0.0016	03/20/19 18:52	
Cobalt	mg/L	ND	0.010	0.00052	03/20/19 18:52	
Lead	mg/L	ND	0.0050	0.00027	03/20/19 18:52	
Lithium	mg/L	ND	0.050	0.00097	03/20/19 18:52	
Molybdenum	mg/L	ND	0.010	0.0019	03/20/19 18:52	
Selenium	mg/L	ND	0.010	0.0014	03/20/19 18:52	
Thallium	mg/L	ND	0.0010	0.00014	03/20/19 18:52	

LABORATORY CONTROL SAMPLE: 110480

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	106	80-120	
Arsenic	mg/L	0.1	0.10	101	80-120	
Barium	mg/L	0.1	0.097	97	80-120	
Beryllium	mg/L	0.1	0.10	100	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Chromium	mg/L	0.1	0.10	102	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lead	mg/L	0.1	0.096	96	80-120	
Lithium	mg/L	0.1	0.10	101	80-120	
Molybdenum	mg/L	0.1	0.098	98	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.096	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110481 110482

Parameter	Units	2616160006 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	MSD Spike Conc.						
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	2	20	
Barium	mg/L	0.026	0.1	0.1	0.11	0.11	86	85	75-125	1	20	
Beryllium	mg/L	0.00017J	0.1	0.1	0.093	0.090	93	90	75-125	4	20	
Cadmium	mg/L	0.00058J	0.1	0.1	0.096	0.097	96	96	75-125	1	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616161

Parameter	Units	110481		110482		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2616160006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Chromium	mg/L	ND	0.1	0.1	0.10	0.099	99	99	75-125	0	20	
Cobalt	mg/L	0.0099J	0.1	0.1	0.11	0.10	96	95	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.091	0.091	91	91	75-125	0	20	
Lithium	mg/L	0.0061J	0.1	0.1	0.098	0.095	91	89	75-125	3	20	
Molybdenum	mg/L	ND	0.1	0.1	0.093	0.094	93	94	75-125	1	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.091	0.092	91	92	75-125	1	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616161

QC Batch: 24743

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2616161001, 2616161002, 2616161003

METHOD BLANK: 111327

Matrix: Water

Associated Lab Samples: 2616161001, 2616161002, 2616161003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/21/19 21:46	

LABORATORY CONTROL SAMPLE: 111328

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	10.4	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 111329 111330

Parameter	Units	2616160010 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Fluoride	mg/L	ND	10	10	11.5	11.2	115	112	90-110	2	15	M1

MATRIX SPIKE SAMPLE: 111331

Parameter	Units	2616160011 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L		1.6	10	13.6	120	90-110 M1

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616161

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616161

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616161001	HGWC-12	EPA 3005A	24594	EPA 6020B	24646
2616161002	MW-25D	EPA 3005A	24594	EPA 6020B	24646
2616161003	MW-19	EPA 3005A	24594	EPA 6020B	24646
2616161001	HGWC-12	EPA 7470A	24464	EPA 7470A	24540
2616161002	MW-25D	EPA 7470A	24464	EPA 7470A	24540
2616161003	MW-19	EPA 7470A	24464	EPA 7470A	24540
2616161001	HGWC-12	EPA 300.0	24743		
2616161002	MW-25D	EPA 300.0	24743		
2616161003	MW-19	EPA 300.0	24743		

### REPORT OF LABORATORY ANALYSIS

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WO#: 2616161

CHAIN-OF-CUSTODY /  
The Chain-of-Custody is a LEGAL DC



Section A

Required Client Information:

Company: Georgia Power - Coal Combustion Residuals  
Address: 2480 Mazer Road  
Atlanta, GA 30339  
Email: jabraham@southernco.com  
Phone: (404)506-7239 Fax:  
Requested Due Date: Standard TAP

Section B

Required Project Information:

Report To: Joju Abraham / Lauren Peaty  
Copy To: Geosyntec  
Purchase Order #: SCS10346806  
Project Name: Plant Hammond  
Project #:

Section C

Invoice Information:

Attention: SCSInvoices@southernco.com  
Company Name:  
Address:  
Pace Quote:  
Pace Project Manager: betsy.mcdaniel@pascalabs.com  
Pace Profile #: 327.4 (AP) or 328.5 (Huff)

2616161

Regulatory Agency:  
State / Location:  
GA

ITEM #	MATRIX CODE (A-Z, 0-9 / . -)	MATRIX Drinking Water Waste Water Product Oil Vapor Air Other Tissue	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES				Analytes Test Y/N	Fluoride by 300.0 Radium 226/228 Metals (As, B, Co, Mo) Sulfate by 300.0	Requested / Analytes Filled (Y/N)	TEMP in C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)	
			START DATE	END DATE				UNPRESERVED	H2SO4	HNO3	HCl									NaOH
1	HGWC-12		3/14/19 0946	3/14/19 0946	h	1	3													
2	MW-25D		3/14/19 1141	3/14/19 1141	h	1	3													
3	MW-19		3/14/19 1321	3/14/19 1321	h	1	3													
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

ADDITIONAL COMMENTS	REQUIRED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Pat M / Geo	3/14/19	1840	Analytic Lab	3/14/19	1840	
	Marta John / Geo	3/14/19	2026	Geo Lab / Geosyntec	3/14/19	2026	
	Ellen / Geosyntec	3/15/19	1129	M. RATTMAN	3/15/19	1129	
				Jessie With Pace	3/15/19	1300	4.5 Y N Y

SAMPLER NAME AND SIGNATURE  
PRINT Name of SAMPLER: PEN TICKNER  
SIGNATURE of SAMPLER: [Signature]  
DATE Signed: 3/14/19



Sample Condition Upon Receipt

WO#: 2616161

Client Name: GA Power - CCR

PM: BM

Due Date: 03/22/19

CLIENT: GAPower-CCR

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other Courier

Tracking #: \_\_\_\_\_ Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 083 Type of Ice: Wet Blue None  Samples on ice, cooling process has begun

Cooler Temperature 4.5°C Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C Comments:

Options  
Proj. Due Date:  
Proj. Name:

Date and Initials of person examining contents: 3/15/19 JW

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

Client Notification/ Resolution: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

April 02, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616168

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 15, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616168

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

---

## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616168

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616168001	HGWC-12	Water	03/14/19 09:46	03/15/19 13:00
2616168002	MW-25D	Water	03/14/19 11:41	03/15/19 13:00
2616168003	MW-19	Water	03/14/19 14:21	03/15/19 13:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616168

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616168001	HGWC-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616168002	MW-25D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616168003	MW-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

**Sample: HGWC-12**      **Lab ID: 2616168001**      Collected: 03/14/19 09:46      Received: 03/15/19 13:00      Matrix: Water

PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.327 ± 0.118 (0.142)</b> C:92% T:NA	pCi/L	03/26/19 21:15	13982-63-3	
Radium-228	EPA 9320	<b>0.665 ± 0.471 (0.903)</b> C:79% T:83%	pCi/L	03/27/19 18:19	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.992 ± 0.589 (1.05)</b>	pCi/L	03/28/19 15:44	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

**Sample: MW-25D**      **Lab ID: 2616168002**      Collected: 03/14/19 11:41      Received: 03/15/19 13:00      Matrix: Water

PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.552 ± 0.177 (0.228)</b> C:90% T:NA	pCi/L	03/26/19 21:15	13982-63-3	
Radium-228	EPA 9320	<b>0.732 ± 0.732 (1.53)</b> C:74% T:91%	pCi/L	03/27/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.28 ± 0.909 (1.76)</b>	pCi/L	03/28/19 15:44	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

**Sample: MW-19**      **Lab ID: 2616168003**      Collected: 03/14/19 14:21      Received: 03/15/19 13:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.347 ± 0.127 (0.158)</b> C:91% T:NA	pCi/L	03/26/19 21:15	13982-63-3	
Radium-228	EPA 9320	<b>-0.259 ± 0.590 (1.41)</b> C:76% T:87%	pCi/L	03/27/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.347 ± 0.717 (1.57)</b>	pCi/L	03/28/19 15:44	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

---

QC Batch:	334699	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2616168001, 2616168002, 2616168003		

---

METHOD BLANK:	1628719	Matrix:	Water
Associated Lab Samples:	2616168001, 2616168002, 2616168003		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.248 ± 0.200 (0.320) C:97% T:NA	pCi/L	03/27/19 09:28	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616168

QC Batch: 334690

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616168001, 2616168002, 2616168003

METHOD BLANK: 1628696

Matrix: Water

Associated Lab Samples: 2616168001, 2616168002, 2616168003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.646 ± 0.338 (0.565) C:74% T:86%	pCi/L	03/27/19 16:14	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616168

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond  
Pace Project No.: 2616168

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616168001	HGWC-12	EPA 9315	334699		
2616168002	MW-25D	EPA 9315	334699		
2616168003	MW-19	EPA 9315	334699		
2616168001	HGWC-12	EPA 9320	334690		
2616168002	MW-25D	EPA 9320	334690		
2616168003	MW-19	EPA 9320	334690		
2616168001	HGWC-12	Total Radium Calculation	335993		
2616168002	MW-25D	Total Radium Calculation	335993		
2616168003	MW-19	Total Radium Calculation	335993		

**REPORT OF LABORATORY ANALYSIS**

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NO#: 2616168

CHAIN-OF-CUSTODY / AI  
The Chain-of-Custody is a LEGAL DOC



21 of 12

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manor Road  
 Atlanta, GA 30339  
 Email: labraham@southernco.com  
 Phone: (404)508-7239  
 Fax: [ ]  
 Requested Due Date: Standard 1st

**Section B**  
**Required Project Information:**  
 Report To: Joju Abraham / Lauren Peity  
 Copy To: Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
**Invoice Information:**  
 Attention: SCSInvoices@southernco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)  
 GA  
 Regulatory Agency:  
 State / Location:

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		DATE	TIME	DATE	TIME	DATE	TIME	ANALYSE TEST Y/N	App. IV Metals	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)	Received on	Ice (Y/N)	Sealed (Y/N)	Custody (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)	
			START	END																				
1	HGWC-12	WTG	3/14/19	10:46	3/14/19	10:46	10:46	10:46	3/14/19	10:46	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2	MW-25D	WTG	3/14/19	11:41	3/14/19	11:41	11:41	11:41	3/14/19	11:41	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
3	MW-19	WTG	3/14/19	14:21	3/14/19	14:21	14:21	14:21	3/14/19	14:21	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

**ADDITIONAL COMMENTS:**  
 Relinquished by Affiliation: [ ]  
 Date: [ ]  
 Time: [ ]  
 Accepted by / Affiliation: [ ]  
 Date: [ ]  
 Time: [ ]  
 Signature: [ ]  
 Date Signed: 3/14/19



Sample Condition Upon Receipt

WO#: 2616168

Client Name: GA Power - CCR

PM: BM Due Date: 04/12/19
CLIENT: GAPower-CCR

Courier: Fed Ex UPS USPS Client Commercial Pace Other Courier

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

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used 083 Type of Ice: Wet Blue None

Cooler Temperature 4.5 C Biological Tissue is Frozen: Yes No

Optional Proj. Due Date: Proj. Name:

Samples on ice, cooling process has begun Date and initials of person examining contents: 3/15/19 JW

Table with 16 rows of checklist items (Chain of Custody Present, Filled Out, Relinquished, etc.) and checkboxes for Yes, No, N/A.

Client Notification/ Resolution: Person Contacted: Date/Time: Field Data Required? Y / N

Project Manager Review: Date:

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



March 25, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616230

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 18, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Eben Buchanan for  
Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616230

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2616230

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616230001	FB-02	Water	03/15/19 14:50	03/18/19 12:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616230

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Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616230001	FB-02	EPA 6020B	CSW	13
		EPA 7470A	DRB	1
		EPA 300.0	RLC	2

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616230

Sample: <b>FB-02</b>		Lab ID: <b>2616230001</b>		Collected: 03/15/19 14:50		Received: 03/18/19 12:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/20/19 14:34	03/21/19 23:21	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/20/19 14:34	03/21/19 23:21	7440-38-2	
Barium	ND	mg/L	0.010	0.00078	1	03/20/19 14:34	03/21/19 23:21	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/20/19 14:34	03/21/19 23:21	7440-41-7	
Boron	<b>0.011J</b>	mg/L	0.040	0.0039	1	03/20/19 14:34	03/21/19 23:21	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/20/19 14:34	03/21/19 23:21	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/20/19 14:34	03/21/19 23:21	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/20/19 14:34	03/21/19 23:21	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/20/19 14:34	03/21/19 23:21	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/20/19 14:34	03/21/19 23:21	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/20/19 14:34	03/21/19 23:21	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/20/19 14:34	03/21/19 23:21	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/20/19 14:34	03/21/19 23:21	7440-28-0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	mg/L	0.00050	0.000036	1	03/25/19 08:02	03/25/19 13:58	7439-97-6	
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/24/19 17:35	16984-48-8	
Sulfate	ND	mg/L	1.0	0.017	1		03/24/19 17:35	14808-79-8	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616230

QC Batch: 24983	Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A	Analysis Description: 7470 Mercury
Associated Lab Samples: 2616230001	

METHOD BLANK: 112752 Matrix: Water

Associated Lab Samples: 2616230001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00050	0.000036	03/25/19 12:52	

LABORATORY CONTROL SAMPLE: 112753

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0023	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 112754 112755

Parameter	Units	112754		112755		% Rec	% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		2616228001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Mercury	mg/L	ND	0.0025	0.0025	0.0023	0.0024	92	95	75-125	3	20		

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616230

QC Batch: 24707 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616230001

METHOD BLANK: 111121 Matrix: Water  
Associated Lab Samples: 2616230001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/21/19 19:09	
Arsenic	mg/L	ND	0.0050	0.00057	03/21/19 19:09	
Barium	mg/L	ND	0.010	0.00078	03/21/19 19:09	
Beryllium	mg/L	ND	0.0030	0.000050	03/21/19 19:09	
Boron	mg/L	ND	0.040	0.0039	03/21/19 19:09	
Cadmium	mg/L	ND	0.0010	0.000093	03/21/19 19:09	
Chromium	mg/L	ND	0.010	0.0016	03/21/19 19:09	
Cobalt	mg/L	ND	0.010	0.00052	03/21/19 19:09	
Lead	mg/L	ND	0.0050	0.00027	03/21/19 19:09	
Lithium	mg/L	ND	0.050	0.00097	03/21/19 19:09	
Molybdenum	mg/L	ND	0.010	0.0019	03/21/19 19:09	
Selenium	mg/L	ND	0.010	0.0014	03/21/19 19:09	
Thallium	mg/L	ND	0.0010	0.00014	03/21/19 19:09	

LABORATORY CONTROL SAMPLE: 111122

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	107	80-120	
Arsenic	mg/L	0.1	0.10	104	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.099	99	80-120	
Boron	mg/L	1	1.0	100	80-120	
Cadmium	mg/L	0.1	0.10	105	80-120	
Chromium	mg/L	0.1	0.11	106	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.10	101	80-120	
Molybdenum	mg/L	0.1	0.11	108	80-120	
Selenium	mg/L	0.1	0.10	105	80-120	
Thallium	mg/L	0.1	0.10	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 111123 111124

Parameter	Units	2616193001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result						
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	107	106	75-125	2	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	103	105	75-125	2	20	
Barium	mg/L	0.028	0.1	0.1	0.13	0.13	101	100	75-125	1	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616230

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 111123		111124		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2616193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Beryllium	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20		
Boron	mg/L	0.0070J	1	1	0.96	0.99	95	98	75-125	3	20		
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	102	103	75-125	1	20		
Chromium	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	1	20		
Cobalt	mg/L	ND	0.1	0.1	0.098	0.096	97	96	75-125	1	20		
Lead	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20		
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20		
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.11	107	105	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	105	103	75-125	2	20		
Thallium	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	1	20		

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616230

QC Batch: 24985

Analysis Method: EPA 300.0

QC Batch Method: EPA 300.0

Analysis Description: 300.0 IC Anions

Associated Lab Samples: 2616230001

METHOD BLANK: 112760

Matrix: Water

Associated Lab Samples: 2616230001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	03/24/19 14:11	
Sulfate	mg/L	ND	1.0	0.017	03/24/19 14:11	

LABORATORY CONTROL SAMPLE: 112761

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	10	9.9	99	90-110	
Sulfate	mg/L	10	9.4	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 112762

112763

Parameter	Units	2616191001 Result	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Fluoride	mg/L	ND	10	10	9.0	9.5	90	95	90-110	5	15			
Sulfate	mg/L	22.0	10	10	28.9	29.2	69	72	90-110	1	15	M1		

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616230

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616230

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616230001	FB-02	EPA 3005A	24707	EPA 6020B	24750
2616230001	FB-02	EPA 7470A	24983	EPA 7470A	25042
2616230001	FB-02	EPA 300.0	24985		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.



Section A  
Required Client Information:  
Company: Georgia Power - Coal Combustion Residuals  
Address: 2460 Marner Road  
Atlanta, GA 30339  
Email: labraham@southernco.com  
Phone: (404) 506-7239  
Requested Due Date: Send and TAT

Section B  
Report To: Joji Abraham / Lauren Petty  
Copy To: Geosyntec  
Purchase Order #: SCS10348806  
Project Name: Plant Hammond  
Project #:

Section C  
Invoice Information:  
Attention: scsinvoices@southernco.com  
Company Name:  
Address:  
Peace Quote:  
Peace Project Manager: betsy.mcdaniel@pacelabs.com.  
Peace Profile #: 327.4 (AP) or 328.5 (Luft)

ITEM #	MATRIX CODE (see void codes to left)	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST		Requested/Analytical Filtered (Y/N)	Residual Chlorine (Y/N)							
		START DATE TIME	END DATE TIME			UNPRESERVED	H2SO4	HNO3	HCl			NaOH	Na2S2O3	Methanol	Other	App. IV Metals	Fluoride by 300.0	Radium 226/228
1		3/18/19	3/15/19	20	4	1	3											
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

**SAMPLE ID**  
One Character per box.  
(A-Z, 0-9 / .)

Sample IDs must be unique

FB-02

AM

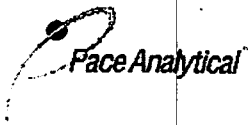
31519

WO# : 2616230  
2616230

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	RECEIVED ON	TEMP IN C	Received on	Is (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
	Apelia Musher Loughton	3/18/19	1026	Feathal Spymon	3/19	1026							
	Apelia Musher Loughton	3/18/19	1200	Maalman	3/18/19	1200							

SAMPLER NAME AND SIGNATURE  
PRINT Name of SAMPLER: Noelia Muskus  
SIGNATURE of SAMPLER: Noelia Muskus

DATE Signed: 3/15/19



Sample Condition Upon Receipt

Client Name: GIA Power

Project #

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 4.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

WO#: **2616230**

PM: BM

Due Date: 03/25/19

CLIENT: GAPower-CCR

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 3/18/19 [Signature]

Comments:

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

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_

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

April 10, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616231

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on March 18, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616231

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616231

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616231001	FB-02	Water	03/15/19 14:50	03/18/19 12:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616231

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616231001	FB-02	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616231

---

**Sample: FB-02**                      **Lab ID: 2616231001**      Collected: 03/15/19 14:50      Received: 03/18/19 12:00      Matrix: Water  
PWS:                                      Site ID:                                      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.285 ± 0.233 (0.397)</b> <b>C:91% T:NA</b>	pCi/L	03/27/19 08:15	13982-63-3	
Radium-228	EPA 9320	<b>0.313 ± 0.326 (0.671)</b> <b>C:70% T:84%</b>	pCi/L	03/29/19 14:37	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.598 ± 0.559 (1.07)</b>	pCi/L	04/02/19 13:34	7440-14-4	

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616231

QC Batch: 334703

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616231001

METHOD BLANK: 1628726

Matrix: Water

Associated Lab Samples: 2616231001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.496 ± 0.336 (0.636) C:77% T:84%	pCi/L	03/29/19 11:27	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616231

QC Batch: 334701

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616231001

METHOD BLANK: 1628722

Matrix: Water

Associated Lab Samples: 2616231001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.317 ± 0.219 (0.286) C:97% T:NA	pCi/L	03/27/19 08:17	

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616231

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616231

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616231001	FB-02	EPA 9315	334701		
2616231001	FB-02	EPA 9320	334703		
2616231001	FB-02	Total Radium Calculation	336613		

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C			
Required Client Information:		Required Project Information:		Invoice Information:			
Company: Georgia Power - Coal Combustion Residuals		Report To: Joji Abraham / Lauren Petty		Attention: <a href="mailto:scsinvoices@southhamco.com">scsinvoices@southhamco.com</a>			
Address: 2480 Maner Road		Copy To: Geosyntec		Company Name:			
Atlanta, GA 30339		Purchase Order #: SCS10348606		Address:			
Email: <a href="mailto:abraham@southhamco.com">abraham@southhamco.com</a>		Project Name: Plant Hammond		Pace Quote:			
Phone: (404)506-7239		Project #: <i>Stand and TR</i>		Pace Project Manager: <a href="mailto:betsy.mcdaniel@pancelabs.com">betsy.mcdaniel@pancelabs.com</a>			
Requested Due Date: <i>Stand and TR</i>				Pace Profile #: 327.4 (AP) or 328.5 (Huf)			
State: GA		Regulatory Agency:		State Location:			

ITEM #	MATRIX	CODE	COLLECTED		DATE	TIME	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples (Y/N)	
			START	END														START
1	MATRIX: Drinking Water, Water, Waste Water, Product, Soil/Sediment, Oil, Wipe, Air, Other, Tissue	DW			3/15/14	1445	3/17/14	1400										
2		WT																
3		WW																
4		P																
5		SL																
6		OL																
7		WP																
8		AR																
9		OT																
10		TS																
11																		
12																		

MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	App. IV Metals	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)
WT	G	3	4	H2SO4, Unpreserved, HNO3, HCl, NaOH, Na2S2O3, Methanol, Other	Y	Y	Y	Y	Y	Y

**NO#: 2616231**

**315119**

ANM

3/15/14

APR

REMOVED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
<i>Noelia Mustkus Geosyntec</i>	3/15/14	1026	<i>Joji Abraham</i>	3/18/14	1026	
<i>Noelia Mustkus</i>	3/18/14	1200	<i>Joji Abraham</i>	3/18/14	1200	

SAMPLER NAME AND SIGNATURE	PRINT Name of SAMPLER:	DATE Signed:
<i>Noelia Mustkus</i>	Noelia Mustkus	3/15/14
<i>Noelia Mustkus</i>	Noelia Mustkus	



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616231**

PM: **BM** Due Date: **04/15/19**  
CLIENT: **GAPower-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 4.2 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun  
Date and Initials of person examining contents: 3/18/19 mm

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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



April 09, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616885

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 02, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616885

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616885

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616885001	HGWA-3	Water	04/01/19 17:25	04/02/19 11:30

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616885

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<b>Lab ID</b>	<b>Sample ID</b>	<b>Method</b>	<b>Analysts</b>	<b>Analytes Reported</b>
<b>2616885001</b>	<b>HGWA-3</b>	EPA 6020B	CSW	14
		SM 2540C	RLC	1
		EPA 300.0	RLC	3

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616885

Sample: HGWA-3		Lab ID: 2616885001		Collected: 04/01/19 17:25		Received: 04/02/19 11:30		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 14:47	04/08/19 18:46	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 18:46	7440-38-2		
Barium	<b>0.13</b>	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 18:46	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 18:46	7440-41-7		
Boron	<b>0.0066J</b>	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 18:46	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 18:46	7440-43-9		
Calcium	<b>80.5</b>	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 18:52	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 18:46	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 18:46	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 18:46	7439-92-1		
Lithium	<b>0.0032J</b>	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 18:46	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 18:46	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 18:46	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 18:46	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>284</b>	mg/L	25.0	10.0	1		04/04/19 17:45			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>6.5</b>	mg/L	0.25	0.024	1		04/06/19 01:13	16887-00-6	M1	
Fluoride	<b>0.029J</b>	mg/L	0.30	0.029	1		04/06/19 01:13	16984-48-8		
Sulfate	<b>50.4</b>	mg/L	10.0	0.17	10		04/08/19 20:01	14808-79-8	M1	

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616885

QC Batch: 25905 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616885001

METHOD BLANK: 116813 Matrix: Water  
Associated Lab Samples: 2616885001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/08/19 18:23	
Arsenic	mg/L	ND	0.0050	0.00057	04/08/19 18:23	
Barium	mg/L	ND	0.010	0.00078	04/08/19 18:23	
Beryllium	mg/L	ND	0.0030	0.000050	04/08/19 18:23	
Boron	mg/L	ND	0.040	0.0039	04/08/19 18:23	
Cadmium	mg/L	ND	0.0010	0.000093	04/08/19 18:23	
Calcium	mg/L	ND	0.50	0.014	04/08/19 18:23	
Chromium	mg/L	ND	0.010	0.0016	04/08/19 18:23	
Cobalt	mg/L	ND	0.010	0.00052	04/08/19 18:23	
Lead	mg/L	ND	0.0050	0.00027	04/08/19 18:23	
Lithium	mg/L	ND	0.050	0.00097	04/08/19 18:23	
Molybdenum	mg/L	ND	0.010	0.0019	04/08/19 18:23	
Selenium	mg/L	ND	0.010	0.0014	04/08/19 18:23	
Thallium	mg/L	ND	0.0010	0.00014	04/08/19 18:23	

LABORATORY CONTROL SAMPLE: 116814

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	108	80-120	
Arsenic	mg/L	0.1	0.10	103	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Boron	mg/L	1	1.0	105	80-120	
Cadmium	mg/L	0.1	0.11	109	80-120	
Calcium	mg/L	1	1.0	104	80-120	
Chromium	mg/L	0.1	0.11	108	80-120	
Cobalt	mg/L	0.1	0.11	107	80-120	
Lead	mg/L	0.1	0.10	103	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.11	105	80-120	
Selenium	mg/L	0.1	0.11	106	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116815 116816

Parameter	Units	2616901004 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	MS Result	MSD Spike Conc.	MSD Result					
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	110	107	75-125	3	20

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616885

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116815			116816									
Parameter	Units	2616901004 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
			Spike Conc.	MS Conc.	MS Result	MSD Result						
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Barium	mg/L	0.027	0.1	0.1	0.13	0.13	105	100	75-125	4	20	
Beryllium	mg/L	0.00015J	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Boron	mg/L	0.63	1	1	1.6	1.6	102	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	105	105	75-125	0	20	
Calcium	mg/L	11.9J	1	1	13.1J	17.2J	129	532	75-125	27	20	M6, R1
Chromium	mg/L	0.0030J	0.1	0.1	0.11	0.11	106	106	75-125	0	20	
Cobalt	mg/L	0.0022J	0.1	0.1	0.11	0.10	103	101	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	102	101	75-125	0	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616885

QC Batch: 25772

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2616885001

LABORATORY CONTROL SAMPLE: 116265

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	403	101	84-108	

SAMPLE DUPLICATE: 116266

Parameter	Units	2616783001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	87.0	115	28	10	D6

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616885

QC Batch: 25881 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2616885001

METHOD BLANK: 116727 Matrix: Water  
Associated Lab Samples: 2616885001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.069J	0.25	0.024	04/05/19 23:23	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 23:23	
Sulfate	mg/L	0.028J	1.0	0.017	04/05/19 23:23	

LABORATORY CONTROL SAMPLE: 116728

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.3	103	90-110	
Fluoride	mg/L	10	10.3	103	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116729 116730

Parameter	Units	2616881001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	mg/L	4.0	10	10	13.8	13.7	99	97	90-110	1	15	
Fluoride	mg/L	0.042J	10	10	10.0	9.9	100	99	90-110	1	15	
Sulfate	mg/L	1.7	10	10	11.4	11.4	97	96	90-110	1	15	

MATRIX SPIKE SAMPLE: 116731

Parameter	Units	2616885001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	6.5	10	15.5	89	90-110	M1
Fluoride	mg/L	0.029J	10	9.5	95	90-110	
Sulfate	mg/L	50.4	10	54.7	43	90-110	E,M1

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616885

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616885

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
2616885001	HGWA-3	EPA 3005A	25905	EPA 6020B	25922
2616885001	HGWA-3	SM 2540C	25772		
2616885001	HGWA-3	EPA 300.0	25881		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manser Road  
 Atlanta, GA 30339  
 Email: jbrahman@southemco.com  
 Phone: (404)506-7239  
 Requested Due Date: **Standard TAT**

**Section B**  
**Required Project Information:**  
 Report To: Jiju Abraham  
 Copy To: Lauren Pethy, Geosyntec  
 Purchase Order #: SCS-10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
**Invoice Information:**  
 Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)

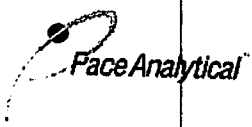
ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES	ANALYSES TESTED	Requester/Analyst/Fielded (Y/N)
			START	END			DATE	TIME				
1	Drinking Water	DW			WG		4/11/19	1700	3	Unpreserved	Metals (App. III & App. IV) Metals (App. III, App. IV, D&O) TDS, Cl, F, SO4 Radium 226/228	Y
2	Waste Water	WW										
3	Waste Water Product	WP										
4	Oil	OL										
5	Wipe	WP										
6	Air	AR										
7	Other	OT										
8	Tissue	TS										
9												
10												
11												
12												

**ADDITIONAL COMMENTS:**  
 Appendix IV (I): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Thallium, Lead, Lithium, Molybdenum, Selenium, Thallium

**TEMP IN C**  
 Received on: 4/11/19  
 Ice (Y/N):  
 Custody Sealed (Y/N):  
 Samples Intact (Y/N):

**SAMPLER NAME AND SIGNATURE:**  
 PRINT Name of SAMPLER: Noelia Muskus  
 SIGNATURE of SAMPLER: *Noelia Muskus*  
 DATE Signed: 4/11/19

**NO# : 2616885**



Sample Condition Upon Receipt

Client Name: GIA Power

Project #

WO#: **2616885**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

PM: **BM** Due Date: **04/09/19**

Tracking #: \_\_\_\_\_ Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes  no

CLIENT: **GAPower-CCR**

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 2.0 Biological Tissue is Frozen: Yes No  Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/2/19 MR

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

Client Notification/ Resolution: \_\_\_\_\_

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

Field Data Required? Y / N

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

April 25, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616886

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 02, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616886

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616886

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616886001	HGWA-3	Water	04/01/19 17:25	04/02/19 11:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616886

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616886001	HGWA-3	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616886

---

**Sample: HGWA-3**                      **Lab ID: 2616886001**      Collected: 04/01/19 17:25      Received: 04/02/19 11:30      Matrix: Water  
PWS:                                      Site ID:                                      Sample Type:

---

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.388 ± 0.261 (0.385)</b> C:94% T:NA	pCi/L	04/12/19 08:04	13982-63-3	
Radium-228	EPA 9320	<b>0.372 ± 0.422 (0.887)</b> C:75% T:83%	pCi/L	04/16/19 16:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.760 ± 0.683 (1.27)</b>	pCi/L	04/17/19 13:15	7440-14-4	

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616886

QC Batch: 337341

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616886001

METHOD BLANK: 1641952

Matrix: Water

Associated Lab Samples: 2616886001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.438 ± 0.343 (0.679) C:77% T:88%	pCi/L	04/16/19 13:06	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616886

QC Batch: 337391

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616886001

METHOD BLANK: 1642068

Matrix: Water

Associated Lab Samples: 2616886001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.148 ± 0.194 (0.401) C:93% T:NA	pCi/L	04/12/19 08:12	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616886

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616886

---

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616886001	HGWA-3	EPA 9315	337391		
2616886001	HGWA-3	EPA 9320	337341		
2616886001	HGWA-3	Total Radium Calculation	338683		

### REPORT OF LABORATORY ANALYSIS

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**CHAIN-OF-CUSTODY / Analytical Request Document**

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road, Atlanta, GA 30339  
 Email: jbraham@southernco.com  
 Phone: (404) 506-7239 Fax  
 Requested Due Date: Standard TAT

**Section B**  
**Required Project Information:**  
 Report To: Joju Abraham  
 Copy To: Lauren Peaty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
**Invoice Information:**  
 Attention: scsinvoic@southernco.com  
 Company Name:  
 Address:  
 Pace Project Manager: betsy.mcdaniel@parclabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)  
 State: GA

ITEM #	MATRIX	COLLECTED		SAMPLE TYPE (G-RAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	UNPRESERVED	ANALYSES TEST				RESIDUAL CHLORINE (Y/N)
		START DATE TIME	END DATE TIME					Metals (App. III & App. IV)	Metals (App. III, App. IV, D&O)	TDS, Cl, F, SO4	Radium 226/228	
1	HGWA-3 MIX	4/11/19 1700	4/11/19 1725	3	WGS	3	Y	Y	Y	Y	Y	

**APPROVED BY APPROVAL**  
 NAME: Noelia Muskus, TITLE: Manager, SIGNATURE: *Noelia Muskus*, DATE SIGNED: 4/11/19

**APPROVED BY APPROVAL**  
 NAME: Noelia Muskus, TITLE: Manager, SIGNATURE: *Noelia Muskus*, DATE SIGNED: 4/11/19

**APPROVED BY APPROVAL**  
 NAME: Noelia Muskus, TITLE: Manager, SIGNATURE: *Noelia Muskus*, DATE SIGNED: 4/11/19

**APPROVED BY APPROVAL**  
 NAME: Noelia Muskus, TITLE: Manager, SIGNATURE: *Noelia Muskus*, DATE SIGNED: 4/11/19

**APPROVED BY APPROVAL**  
 NAME: Noelia Muskus, TITLE: Manager, SIGNATURE: *Noelia Muskus*, DATE SIGNED: 4/11/19

**APPROVED BY APPROVAL**  
 NAME: Noelia Muskus, TITLE: Manager, SIGNATURE: *Noelia Muskus*, DATE SIGNED: 4/11/19

**APPROVED BY APPROVAL**  
 NAME: Noelia Muskus, TITLE: Manager, SIGNATURE: *Noelia Muskus*, DATE SIGNED: 4/11/19

**APPROVED BY APPROVAL**  
 NAME: Noelia Muskus, TITLE: Manager, SIGNATURE: *Noelia Muskus*, DATE SIGNED: 4/11/19



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616886**

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

PM: **BM** Due Date: **04/30/19**

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

CLIENT: **GAPower-CCR**

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 2.0 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/2/19 MR

Comments:

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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



April 10, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616925

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616925

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616925

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616925001	HGWA-1	Water	04/02/19 10:02	04/03/19 11:10
2616925002	HGWA-2	Water	04/02/19 13:40	04/03/19 11:10

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616925

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616925001	HGWA-1	EPA 6020B	CSW	14
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616925002	HGWA-2	EPA 6020B	CSW	14
		SM 2540C	RLC	1
		EPA 300.0	RLC	3

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616925

Sample: HGWA-1		Lab ID: 2616925001		Collected: 04/02/19 10:02		Received: 04/03/19 11:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 14:47	04/08/19 22:29	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 22:29	7440-38-2		
Barium	<b>0.040</b>	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 22:29	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 22:29	7440-41-7		
Boron	<b>0.016J</b>	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 22:29	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 22:29	7440-43-9		
Calcium	<b>132</b>	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 22:35	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 22:29	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 22:29	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 22:29	7439-92-1		
Lithium	<b>0.0010J</b>	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 22:29	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 22:29	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 22:29	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 22:29	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>452</b>	mg/L	25.0	10.0	1		04/08/19 15:30			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>20.3</b>	mg/L	0.25	0.024	1		04/06/19 10:16	16887-00-6		
Fluoride	<b>0.10J</b>	mg/L	0.30	0.029	1		04/06/19 10:16	16984-48-8		
Sulfate	<b>84.3</b>	mg/L	5.0	0.085	5		04/06/19 11:43	14808-79-8		

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616925

Sample: HGWA-2		Lab ID: 2616925002		Collected: 04/02/19 13:40		Received: 04/03/19 11:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 14:47	04/08/19 22:52	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 22:52	7440-38-2		
Barium	<b>0.13</b>	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 22:52	7440-39-3		
Beryllium	<b>0.00015J</b>	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 22:52	7440-41-7		
Boron	<b>0.034J</b>	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 22:52	7440-42-8		
Cadmium	<b>0.00015J</b>	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 22:52	7440-43-9		
Calcium	<b>22.5J</b>	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 22:58	7440-70-2	D3	
Chromium	<b>0.0079J</b>	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 22:52	7440-47-3		
Cobalt	<b>0.019</b>	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 22:52	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 22:52	7439-92-1		
Lithium	<b>0.0018J</b>	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 22:52	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 22:52	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 22:52	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 22:52	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>133</b>	mg/L	25.0	10.0	1		04/08/19 15:31			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>5.8</b>	mg/L	0.25	0.024	1		04/06/19 10:38	16887-00-6		
Fluoride	<b>0.071J</b>	mg/L	0.30	0.029	1		04/06/19 10:38	16984-48-8		
Sulfate	<b>48.7</b>	mg/L	1.0	0.017	1		04/06/19 10:38	14808-79-8		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616925

QC Batch: 25905 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616925001, 2616925002

METHOD BLANK: 116813 Matrix: Water  
Associated Lab Samples: 2616925001, 2616925002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/08/19 18:23	
Arsenic	mg/L	ND	0.0050	0.00057	04/08/19 18:23	
Barium	mg/L	ND	0.010	0.00078	04/08/19 18:23	
Beryllium	mg/L	ND	0.0030	0.000050	04/08/19 18:23	
Boron	mg/L	ND	0.040	0.0039	04/08/19 18:23	
Cadmium	mg/L	ND	0.0010	0.000093	04/08/19 18:23	
Calcium	mg/L	ND	0.50	0.014	04/08/19 18:23	
Chromium	mg/L	ND	0.010	0.0016	04/08/19 18:23	
Cobalt	mg/L	ND	0.010	0.00052	04/08/19 18:23	
Lead	mg/L	ND	0.0050	0.00027	04/08/19 18:23	
Lithium	mg/L	ND	0.050	0.00097	04/08/19 18:23	
Molybdenum	mg/L	ND	0.010	0.0019	04/08/19 18:23	
Selenium	mg/L	ND	0.010	0.0014	04/08/19 18:23	
Thallium	mg/L	ND	0.0010	0.00014	04/08/19 18:23	

LABORATORY CONTROL SAMPLE: 116814

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.11	108	80-120	
Arsenic	mg/L	0.1	0.10	103	80-120	
Barium	mg/L	0.1	0.10	103	80-120	
Beryllium	mg/L	0.1	0.10	101	80-120	
Boron	mg/L	1	1.0	105	80-120	
Cadmium	mg/L	0.1	0.11	109	80-120	
Calcium	mg/L	1	1.0	104	80-120	
Chromium	mg/L	0.1	0.11	108	80-120	
Cobalt	mg/L	0.1	0.11	107	80-120	
Lead	mg/L	0.1	0.10	103	80-120	
Lithium	mg/L	0.1	0.10	102	80-120	
Molybdenum	mg/L	0.1	0.11	105	80-120	
Selenium	mg/L	0.1	0.11	106	80-120	
Thallium	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116815 116816

Parameter	Units	2616901004 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result						
Antimony	mg/L	ND	0.1	0.1	0.11	0.11	110	107	75-125	3	20

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616925

Parameter	Units	116815		116816		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2616901004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Barium	mg/L	0.027	0.1	0.1	0.13	0.13	105	100	75-125	4	20	
Beryllium	mg/L	0.00015J	0.1	0.1	0.10	0.10	100	100	75-125	0	20	
Boron	mg/L	0.63	1	1	1.6	1.6	102	101	75-125	0	20	
Cadmium	mg/L	ND	0.1	0.1	0.11	0.10	105	105	75-125	0	20	
Calcium	mg/L	11.9J	1	1	13.1J	17.2J	129	532	75-125	27	20	M6, R1
Chromium	mg/L	0.0030J	0.1	0.1	0.11	0.11	106	106	75-125	0	20	
Cobalt	mg/L	0.0022J	0.1	0.1	0.11	0.10	103	101	75-125	2	20	
Lead	mg/L	ND	0.1	0.1	0.10	0.10	102	101	75-125	0	20	
Lithium	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Molybdenum	mg/L	ND	0.1	0.1	0.11	0.10	107	103	75-125	4	20	
Selenium	mg/L	ND	0.1	0.1	0.10	0.10	101	100	75-125	1	20	
Thallium	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616925

QC Batch: 25999 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 2616925001, 2616925002

LABORATORY CONTROL SAMPLE: 117377

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	411	103	84-108	

SAMPLE DUPLICATE: 117378

Parameter	Units	2617086001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	226	203	11	10	D6

SAMPLE DUPLICATE: 117379

Parameter	Units	2616901015 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	ND	13.0J		10	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616925

QC Batch: 25881 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2616925001, 2616925002

METHOD BLANK: 116727 Matrix: Water  
Associated Lab Samples: 2616925001, 2616925002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.069J	0.25	0.024	04/05/19 23:23	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 23:23	
Sulfate	mg/L	0.028J	1.0	0.017	04/05/19 23:23	

LABORATORY CONTROL SAMPLE: 116728

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.3	103	90-110	
Fluoride	mg/L	10	10.3	103	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116729 116730

Parameter	Units	2616881001		2616885001		2616885001		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Chloride	mg/L	4.0	10	10	13.8	13.7	99	97	90-110	1	15
Fluoride	mg/L	0.042J	10	10	10.0	9.9	100	99	90-110	1	15
Sulfate	mg/L	1.7	10	10	11.4	11.4	97	96	90-110	1	15

MATRIX SPIKE SAMPLE: 116731

Parameter	Units	2616885001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	6.5	10	15.5	89	90-110	M1
Fluoride	mg/L	0.029J	10	9.5	95	90-110	
Sulfate	mg/L	50.4	10	54.7	43	90-110	E,M1

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616925

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

E Analyte concentration exceeded the calibration range. The reported result is estimated.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

R1 RPD value was outside control limits.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616925

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616925001	HGWA-1	EPA 3005A	25905	EPA 6020B	25922
2616925002	HGWA-2	EPA 3005A	25905	EPA 6020B	25922
2616925001	HGWA-1	SM 2540C	25999		
2616925002	HGWA-2	SM 2540C	25999		
2616925001	HGWA-1	EPA 300.0	25881		
2616925002	HGWA-2	EPA 300.0	25881		

### REPORT OF LABORATORY ANALYSIS

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**CHAIN-OF-CUSTODY / Analytical Request Document**

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 2

**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jbrabham@southemco.com  
 Phone: (404) 506-7239 Fax  
 Requested Due Date: Standard TBT

**Section B**  
 Required Project Information:  
 Report To: Joli Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SC51048606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
 Invoice Information:  
 Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: belys.mcdaniel@paceilabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)  
 GA

ITEM #	MATRIX CODE Drinking Water Waste Water Product Soils/Sed Oil Wipe Air Other Tissue	CODE DW MT WW P SL WP AR OT TS	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see vhid codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	ANALYSES (Y/N)																														
			START DATE TIME	END DATE TIME			H2SO4	HNO3		HCl	NaOH	Na2S2O3	Methanol	Other	Metals (App. III & App. IV)	Metals (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)																				
1			04/02 09:48	04/02 10:02	WT 6		1745	5 2 3	Y																															
SAMPLE ID One Character per box. (A-Z, 0-9 /, -) Sample IDs must be unique HGWA-1												<b>WOM# : 2616925</b>  2616925																												

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME	TEMP in C	Received on Ice (Y/N)	Custody (Y/N)	Sealed Cooler (Y/N)	Samples Intact (Y/N)	
04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	1745					
04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	04/02/19	1745	1745					
04/02/19	0954	04/02/19	0954	04/02/19	0954	04/02/19	0954	04/02/19	0954	04/02/19	0954	04/02/19	0954	04/02/19	0954	04/02/19	0954	0954					
04/02/19	1110	04/02/19	1110	04/02/19	1110	04/02/19	1110	04/02/19	1110	04/02/19	1110	04/02/19	1110	04/02/19	1110	04/02/19	1110	1110					
SIGNATURE OF SAMPLER: <u>Grant Walter</u> PRINT Name of SAMPLER: <u>Grant Walter</u> SIGNATURE OF SAMPLER: <u>Grant Walter</u> DATE Signed: <u>04/02/19</u>										SAMPLE MEASUREMENT SIGNATURE <u>Maria Nijman / Geosyntec</u> <u>Edith / Geosyntec</u> <u>h.p. / Geosyntec</u> <u>Madaliman</u> <u>Madaliman</u>													



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A** Required Client Information: Company: Georgia Power - Coal Combustion Residuals, Address: 2480 Manor Road, Atlanta, GA 30339, Email: jbrahram@southarmco.com, Phone: (404)506-7239, Requested Due Date: 2/28/2019

**Section B** Required Project Information: Report To: Joju Abraham, Copy To: Lauren Petty, Geosyntec, Address: Atlanta, GA 30339, Purchase Order #: 60510348606, Project Name: Plant Hammond, Project #: 18T

**Section C** Invoice Information: Attention: sctinvoices@southarmco.com, Company Name: Southarmco, Address: 1000 Peachtree Avenue, Atlanta, GA 30309, Pace Project Manager: betsy.mcdaniel@pacelabs.com, Pace Profile #: 327 (AP) or 328 (Huff)

Page: 2 of 2

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see viald codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST (Y/N)	Requester's Analytical Method (Y/N)	Residual Chlorine (Y/N)
			START DATE	END DATE			TIME	TIME					
1	Drinking Water	DW	4/21/19	4/21/19	G		17:45	17:45	3	H2SO4, HNO3, HCl, NaOH, Na2S2O3, Methanol, Other	Metals (App. III & App. IV), Metals (App. III & D&O), TDS, Cl, F, SO4, Radium 226/228	Y	Y
2	Waste Water	WW											
3	Waste Water Product	WP											
4	Soil/Sediment	SL											
5	Oil	OL											
6	Wipe	WP											
7	Air	AR											
8	Other	OT											
9	Tissue	TS											

ANALYTICAL ELEMENTS	REQUESTED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	RECEIVED ON	TEMP IN C	Ice (Y/N)	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
APP IV (1): Antimony, Arsenic, Barium, Dalton Anderson (605) 4/21/19 17:45	Maria Mphah (Geosyntec)	4/21/19	17:45	Maria Mphah (Geosyntec)	4/21/19	17:45							
Beryllium, Cadmium, Chromium, Cobalt, Muelria (605) 4/21/19 19:30	BB Lewis (Geosyntec)	4/21/19	19:30	BB Lewis (Geosyntec)	4/21/19	19:30							
Fluoride, Lead, Lithium, Molybdenum, Nitrate, Selenium, Thallium	BB Lewis (Geosyntec)	4/21/19	19:30	M. Rahman (Pace)	4/21/19	19:30							
	M. Rahman (Pace)	4/21/19	19:30	M. Rahman (Pace)	4/21/19	19:30							

NO#: 2616925



Sample Condition Upon Receipt

Client Name: GAPower

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

WO#: **2616925**

PM: **BM**

Due Date: **04/10/19**

CLIENT: **GAPower-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 23 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.0 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/3/19 MR

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

April 25, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616926

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616926

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616926

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616926001	HGWA-1	Water	04/02/19 10:02	04/03/19 11:10
2616926002	HGWA-2	Water	04/02/19 13:40	04/03/19 11:10

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616926

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616926001	HGWA-1	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616926002	HGWA-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

**Sample: HGWA-1**      **Lab ID: 2616926001**      Collected: 04/02/19 10:02      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.426 ± 0.282 (0.418)</b> C:85% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	<b>0.313 ± 0.501 (1.09)</b> C:74% T:89%	pCi/L	04/16/19 19:38	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.739 ± 0.783 (1.51)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

**Sample: HGWA-2**      **Lab ID: 2616926002**      Collected: 04/02/19 13:40      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.472 ± 0.275 (0.348)</b> <b>C:88% T:NA</b>	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	<b>0.179 ± 0.465 (1.04)</b> <b>C:77% T:89%</b>	pCi/L	04/16/19 18:32	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.651 ± 0.740 (1.39)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

QC Batch: 337392

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616926001, 2616926002

METHOD BLANK: 1642069

Matrix: Water

Associated Lab Samples: 2616926001, 2616926002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.117 ± 0.178 (0.382) C:94% T:NA	pCi/L	04/12/19 08:07	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616926

QC Batch: 337342

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616926001, 2616926002

METHOD BLANK: 1641953

Matrix: Water

Associated Lab Samples: 2616926001, 2616926002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.245 ± 0.294 (0.748) C:78% T:79%	pCi/L	04/16/19 16:22	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616926

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

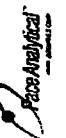
Project: Plant Hammond

Pace Project No.: 2616926

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616926001	HGWA-1	EPA 9315	337392		
2616926002	HGWA-2	EPA 9315	337392		
2616926001	HGWA-1	EPA 9320	337342		
2616926002	HGWA-2	EPA 9320	337342		
2616926001	HGWA-1	Total Radium Calculation	338683		
2616926002	HGWA-2	Total Radium Calculation	338683		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jbrahant@southernco.com  
 Phone: (404)506-7239 Fax  
 Requested Due Date: Standard TBT

**Section B**  
 Required Project Information:  
 Report To: Joju Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
 Invoice Information:  
 Attention: sctservices@southernco.com  
 Company Name:  
 Address:  
 Pace Project Manager: Detsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)  
 GA

Page: 1 of 2

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES				ANALYSES TEST	Metals (App. III & App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
			START DATE	END DATE				START TIME	END TIME	H2SO4	HNO3						
1	Drinking Water	DW	4/10/19	4/10/19	G-GRAB C-COMP	WT 6	5	2	3				Y	Y	Y	Y	
2	Waste Water	WW															
3	Waste Water	WW															
4	Product	P															
5	Sorbald	SL															
6	Oil	OL															
7	Wipe	WP															
8	Air	AR															
9	Other	OT															
10	Tissue	TS															
11																	
12																	

**W0# : 2616926**

DATE: 4/10/19 1745  
 DATE: 4/12/19 1930  
 DATE: 4/13/19 0954  
 DATE: 4/13/19 1110

RECEIVED BY / AFFILIATION: Grant Walter / Geosyntec  
 RECEIVED BY / AFFILIATION: Joju Abraham / Geosyntec  
 RECEIVED BY / AFFILIATION: Detsy McDaniel / Geosyntec  
 RECEIVED BY / AFFILIATION: M. Goldman

TEMP in C: 10

Received on Ice (Y/N):  
 Sealed (Y/N):  
 Cooled (Y/N):  
 Samples Inter (Y/N):

SAMPLE NAME AND SIGNATURE: Grant Walter  
 PRINT NAME OF SAMPLER: Grant Walter  
 SIGNATURE OF SAMPLER: Grant Walter  
 DATE SIGNED: 04/02/19



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: **2** of **2**

<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
<b>Required Client Information:</b>		<b>Required Project Information:</b>		<b>Invoice Information:</b>	
Company: Georgia Power - Coal Combustion Residuals	Report To: Joji Abraham	Company Name: SCS	Attention: scsinvoices@southhamco.com	Invoice #:	Invoice Date:
Address: 2480 Manor Road	Copy To: Lauren Petty, Geosyntec	Project Name: Plant Hammond	Address:	Company Name:	Company Address:
Atlanta, GA 30339		Purchase Order #: SCS10348606	Pace Profile #:	Company Name:	Company Address:
Email: jabraham@southhamco.com		Project Name: Plant Hammond	Pace Profile #:	Company Name:	Company Address:
Phone: (404)506-7239	Fax:	Project #:	Pace Profile #:	Company Name:	Company Address:
Requested Due Date: <b>Standard</b>			Pace Profile #:	Company Name:	Company Address:

ITEM #	MATRIX	CODE	COLLECTED		DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSES TESTED	RESIDUAL CHLORINE (Y/N)
			START	END							
1	Drinking Water	DW	4/12/19	13:40	4/12/19	13:40	5	2	3	Metals (App. III & App. IV), Metals (App. III, IV, D&O), TDS, Cl, F, SO4, Radium 226/228	
2	Water	WT									
3	Waste Water	WW									
4	Product	P									
5	Soil/Sediment	SL									
6	Oil	OL									
7	Wipe	WP									
8	Air	AR									
9	Other	OT									
10	Tissue	TS									

**NO# : 2616926**

PM: 8M Due Date: 05/01/19

CLIENT: GAPower-CCR

RECEIVED BY / REFLECTION	DATE	RECEIVED BY / REFLECTION	DATE
Maria Mufson Geosyntec	4/2/19 17:45	Maria Mufson Geosyntec	4/2/19 17:45
EBLAW / Geosyntec	4/2/19 19:30	EBLAW / Geosyntec	4/2/19 19:30
M. J. Anderson	4/3/19 09:54	M. J. Anderson	4/3/19 09:54
M. J. Anderson	4/3/19 11:00	M. J. Anderson	4/3/19 11:00

TEMP in C

Received on

Ice (Y/N)

Custody (Y/N)

Sealed (Y/N)

Cooler (Y/N)

Interact (Y/N)

Samples (Y/N)

PRINT Name of SAMPLER: Dalton Anderson

SIGNATURE of SAMPLER: Dalton Anderson

DATE Signed: 4/2/19



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616926**

PM: **BM** Due Date: **05/01/19**  
CLIENT: **GAPower-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun  
Date and initials of person examining contents: 4/3/19 MK

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

April 10, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616933

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616933

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616933

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616933001	MW-29	Water	04/02/19 14:05	04/03/19 11:10
2616933002	MW-20	Water	04/02/19 15:54	04/03/19 11:10
2616933003	MW-28D	Water	04/02/19 16:30	04/03/19 11:10
2616933004	HGWC-7	Water	04/02/19 17:15	04/03/19 11:10

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616933

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616933001	MW-29	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616933002	MW-20	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616933003	MW-28D	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616933004	HGWC-7	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616933

Sample: MW-29		Lab ID: 2616933001		Collected: 04/02/19 14:05		Received: 04/03/19 11:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 19:46	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 19:46	7440-38-2		
Barium	<b>0.078</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 19:46	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 19:46	7440-41-7		
Boron	<b>1.2</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 19:46	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 19:46	7440-43-9		
Calcium	<b>131</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 19:51	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 19:46	7440-47-3		
Cobalt	<b>0.00084J</b>	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 19:46	7440-48-4		
Lithium	<b>0.0021J</b>	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 19:46	7439-93-2		
Molybdenum	<b>0.0028J</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 19:46	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 19:46	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 19:46	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>548</b>	mg/L	25.0	10.0	1		04/09/19 18:49			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>80.9</b>	mg/L	2.5	0.24	10		04/08/19 18:53	16887-00-6		
Fluoride	<b>0.045J</b>	mg/L	0.30	0.029	1		04/05/19 20:15	16984-48-8		
Sulfate	<b>151</b>	mg/L	10.0	0.17	10		04/08/19 18:53	14808-79-8		

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616933

Sample: MW-20		Lab ID: 2616933002		Collected: 04/02/19 15:54		Received: 04/03/19 11:10		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 19:57	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 19:57	7440-38-2	
Barium	<b>0.080</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 19:57	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 19:57	7440-41-7	
Boron	<b>0.11</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 19:57	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 19:57	7440-43-9	
Calcium	<b>109</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 20:03	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 19:57	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 19:57	7440-48-4	
Lithium	<b>0.0015J</b>	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 19:57	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 19:57	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 19:57	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 19:57	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>435</b>	mg/L	25.0	10.0	1		04/09/19 18:49		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>27.5</b>	mg/L	0.25	0.024	1		04/05/19 22:17	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/05/19 22:17	16984-48-8	
Sulfate	<b>122</b>	mg/L	10.0	0.17	10		04/08/19 19:15	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616933

Sample: MW-28D		Lab ID: 2616933003		Collected: 04/02/19 16:30		Received: 04/03/19 11:10		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 20:08	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 20:08	7440-38-2		
Barium	<b>0.37</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 20:08	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 20:08	7440-41-7		
Boron	<b>0.17</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 20:08	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 20:08	7440-43-9		
Calcium	<b>64.6</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 20:14	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 20:08	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 20:08	7440-48-4		
Lithium	<b>0.0052J</b>	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 20:08	7439-93-2		
Molybdenum	<b>0.028</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 20:08	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 20:08	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 20:08	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>350</b>	mg/L	25.0	10.0	1		04/09/19 18:49			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>44.0</b>	mg/L	0.25	0.024	1		04/05/19 22:42	16887-00-6		
Fluoride	<b>0.18J</b>	mg/L	0.30	0.029	1		04/05/19 22:42	16984-48-8		
Sulfate	<b>67.7</b>	mg/L	10.0	0.17	10		04/08/19 19:38	14808-79-8		

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616933

Sample: HGWC-7		Lab ID: 2616933004		Collected: 04/02/19 17:15		Received: 04/03/19 11:10		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 20:31	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 20:31	7440-38-2	
Barium	<b>0.072</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 20:31	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 20:31	7440-41-7	
Boron	<b>0.99</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 20:31	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 20:31	7440-43-9	
Calcium	<b>101</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 20:37	7440-70-2	M6
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 20:31	7440-47-3	
Cobalt	<b>0.00069J</b>	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 20:31	7440-48-4	
Lithium	<b>0.0020J</b>	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 20:31	7439-93-2	
Molybdenum	<b>0.041</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 20:31	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 20:31	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 20:31	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>428</b>	mg/L	25.0	10.0	1		04/09/19 18:49		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>55.5</b>	mg/L	2.5	0.24	10		04/06/19 04:05	16887-00-6	
Fluoride	<b>0.097J</b>	mg/L	0.30	0.029	1		04/05/19 23:31	16984-48-8	
Sulfate	<b>127</b>	mg/L	10.0	0.17	10		04/06/19 04:05	14808-79-8	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616933

QC Batch: 25906 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

METHOD BLANK: 116817 Matrix: Water  
Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/09/19 18:14	
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 18:14	
Barium	mg/L	ND	0.010	0.00078	04/09/19 18:14	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 18:14	
Boron	mg/L	ND	0.040	0.0039	04/09/19 18:14	
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 18:14	
Calcium	mg/L	ND	0.50	0.014	04/09/19 18:14	
Chromium	mg/L	ND	0.010	0.0016	04/09/19 18:14	
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 18:14	
Lithium	mg/L	ND	0.050	0.00097	04/09/19 18:14	
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 18:14	
Selenium	mg/L	ND	0.010	0.0014	04/09/19 18:14	
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 18:14	

LABORATORY CONTROL SAMPLE: 116818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.096	96	80-120	
Boron	mg/L	1	0.94	94	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	0.97	97	80-120	
Chromium	mg/L	0.1	0.10	101	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.096	96	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116819 116820

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2616933004 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	108	105	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Barium	mg/L	0.072	0.1	0.1	0.18	0.18	109	105	75-125	2	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616933

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116819		116820		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2616933004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Beryllium	mg/L	ND	0.1	0.1	0.092	0.092	92	92	75-125	1	20		
Boron	mg/L	0.99	1	1	1.9	2.0	92	96	75-125	2	20		
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20		
Calcium	mg/L	101	1	1	140	115	3930	1380	75-125	20	20	M6	
Chromium	mg/L	ND	0.1	0.1	0.11	0.10	105	103	75-125	2	20		
Cobalt	mg/L	0.00069J	0.1	0.1	0.10	0.10	102	100	75-125	2	20		
Lithium	mg/L	0.0020J	0.1	0.1	0.094	0.095	91	93	75-125	2	20		
Molybdenum	mg/L	0.041	0.1	0.1	0.15	0.15	112	110	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	105	102	75-125	3	20		
Thallium	mg/L	ND	0.1	0.1	0.097	0.096	97	95	75-125	2	20		

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616933

QC Batch:	26059	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
Associated Lab Samples:	2616933001, 2616933002, 2616933003, 2616933004		

LABORATORY CONTROL SAMPLE: 117667

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	407	102	84-108	

SAMPLE DUPLICATE: 117668

Parameter	Units	2616931001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	540	670	21	10	D6

SAMPLE DUPLICATE: 117669

Parameter	Units	2617082006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	728	766	5	10	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616933

QC Batch: 25882 Analysis Method: EPA 300.0  
 QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
 Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

METHOD BLANK: 116732 Matrix: Water  
 Associated Lab Samples: 2616933001, 2616933002, 2616933003, 2616933004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.029J	0.25	0.024	04/05/19 15:47	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 15:47	
Sulfate	mg/L	ND	1.0	0.017	04/05/19 15:47	

LABORATORY CONTROL SAMPLE: 116733

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.5	105	90-110	
Fluoride	mg/L	10	10.4	104	90-110	
Sulfate	mg/L	10	10.2	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116734 116735

Parameter	Units	2616927001		2616927002		2616927003		2616927004		% Rec Limits	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec			
Chloride	mg/L	4.4	10	10	10	14.5	14.6	101	102	90-110	0	15
Fluoride	mg/L	ND	10	10	10	10.6	10.6	106	106	90-110	0	15
Sulfate	mg/L	4.9	10	10	10	14.3	14.4	94	95	90-110	0	15

MATRIX SPIKE SAMPLE: 116736

Parameter	Units	2616927002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	1.7	10	11.3	96	90-110	
Fluoride	mg/L	0.12J	10	10.4	103	90-110	
Sulfate	mg/L	23.8	10	30.8	70	90-110 M1	

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616933

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2616933

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616933001	MW-29	EPA 3005A	25906	EPA 6020B	25928
2616933002	MW-20	EPA 3005A	25906	EPA 6020B	25928
2616933003	MW-28D	EPA 3005A	25906	EPA 6020B	25928
2616933004	HGWC-7	EPA 3005A	25906	EPA 6020B	25928
2616933001	MW-29	SM 2540C	26059		
2616933002	MW-20	SM 2540C	26059		
2616933003	MW-28D	SM 2540C	26059		
2616933004	HGWC-7	SM 2540C	26059		
2616933001	MW-29	EPA 300.0	25882		
2616933002	MW-20	EPA 300.0	25882		
2616933003	MW-28D	EPA 300.0	25882		
2616933004	HGWC-7	EPA 300.0	25882		

### REPORT OF LABORATORY ANALYSIS

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### CHAIN-OF-CUSTODY / Analytical Request Document


The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
<b>Required Client Information:</b>		<b>Required Project Information:</b>		<b>Invoice Information:</b>	
Company: Georgia Power - Coal Combustion Residuals	Report To: Jofu Abraham	Report To: Jofu Abraham	Attention: scsinvoices@scouthamco.com	Attention: scsinvoices@scouthamco.com	Company Name:
Address: 248D Maner Road	Copy To: Lauren Petty, Geosyntec	Address:		Address:	
Atlanta, GA 30339	Purchase Order #: SCS10248806	Purchase Order #: SCS10248806		Purchase Order:	
Email: jabraham@southamco.com	Project Name: Plant Hammond	Project Name: Plant Hammond		Peace Project Manager: betsy.modanai@pacorlabs.com	
Phone: (404)505-7239	Project #: <b>Standard FTI</b>	Project #: <b>Standard FTI</b>		Peace Profile #: 327 (AP) or 328 (Huff)	
Requested Due Date:	GA				

Page: 1 of 3

ITEM #	MATRIX	CODE	COLLECTED		SAMPLER TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	SAMPLER TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	RESIDUAL TEST	RESIDUAL CHLORINE (Y/N)
			START DATE TIME	END DATE TIME			DATE TIME	DATE TIME					
1	Drinking Water	DW	04/02 13:52	04/02 14:05	WT-G		16.5	2	H2SO4	Y	Y	Y	Y
2	Waste Water	WW	04/02 15:35	04/02 15:54	WT-G		19.5	2	H2SO4	Y	Y	Y	Y
3	Waste Water	WW	GW 04/02/19										
4	Waste Water	WW											
5	Product	P											
6	Solid/Semi	SL											
7	On	OL											
8	Wipe	WP											
9	Air	AR											
10	Other	OT											
11	Tissue	TS											
12													

**NO# : 2616933**



2616933

DATE	TIME	DATE	TIME	DATE	TIME
04/02/19	1745	04/02/19	1745	04/12/19	1745
04/02/19	1930	04/02/19	1930	04/12/19	1930
04/02/19	0954	04/02/19	0954	04/12/19	0954
04/02/19	1110	04/02/19	1110	04/12/19	1110
<b>RECEIVED ON</b> Received on Job (Y/N) Custody Sealed Cooler (Y/N) Samples Intact (Y/N)					

**SAMPLER NAME AND SIGNATURE:** Grant Water  
**PRINT Name of SAMPLER:** Grant Water  
**SIGNATURE OF SAMPLER:** Grant Water  
**DATE Signed:** 04/02/19



# CHAIN-OF-CUSTODY / Analytical Request Document

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Page: **2** of **3**

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Jotu Abraham	Attention:	scsinvoices@southamco.com
Address:	2480 Maner Road Atlanta, GA 30339	Copy To:	Lauren Petty, Geosyntec	Company Name:	
Email:	jabraham@southamco.com	Purchase Order #:	SCS10048608	Pace Quote:	
Phone:	(404)505-7239	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniel@pacelabs.com
Requested Due Date:	Standard TAT	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-RAB C-COMP)	MATRIX CODE (see vild codes to left)	# OF CONTAINERS	SAMPLE TEMP AT COLLECTION	PRESERVATIVES	ANALYSES REQUESTED (Y/N)	TEMP in C	Received on Job (Y/N)	Custody Sealed (Y/N)	Samples In/Out (Y/N)
			START DATE	END DATE										
1	Drinking Water	DW	4/21/19 15:54	4/21/19 16:00	G-RAB		5	17.45	Unpreserved	Metals (App. III & App. IV), Metals (App. III & D&O), TDS, Cl, F, SO4, Radium 226/228				
2	Waste Water	WW	DCA											
3	Water Product	P	DCA											
4	Soft/Solid	SL	DCA											
5	Oil	OP	DCA											
6	Wipe	WP	DCA											
7	Air	AT	DCA											
8	Other	OT	DCA											
9	Tissue	TS	DCA											

NO#: 2616933

PM: BM Due Date: 04/10/19  
CLIENT: GAPower-CCR

APPROVAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE COMMENTS
	Dalton Anderson (G)	4/21/19	17:45	Maelia Mumban	4/21/19	17:45	
	Maelia Mumban / Geosyntec	4/21/19	19:30	Geosyntec	4/21/19	19:30	
	Lauren Petty / Geosyntec	4/21/19	09:54	Lauren Petty	4/21/19	09:54	
	Maelia Mumban	4/21/19	11:10	Maelia Mumban	4/21/19	11:10	



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 3 of 3

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Mener Road  
 Atlanta, GA 30339  
 Email: jbratham@southhamco.com  
 Phone: (404) 506-7239  
 Requested Due Date: Standard Fax

**Section B**  
**Required Project Information:**  
 Report To: Joju Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SCS10048606  
 Project Name: Plant Hammond  
 Project #: **Standard Fax**

**Section C**  
**Invoice Information:**  
 Attention: scs@voices@southhamco.com  
 Company Name:  
 Address:  
 Pace Quoter:  
 Pace Project Manager: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	UNPRESERVED	HZSO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	ANALYSIS TESTS	Metals (App. III & App. IV)	Metals (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radum 226/226	Residual Chlorine (Y/N)	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)		
			START DATE	END DATE																										
1	Drinking Water	DW	4/2/19	4/2/19	T	N T	5	2		3						Y	Y													
2	Waste Water	WW																												
3	Process	P																												
4	Soil/Solid	SL																												
5	Oil	OL																												
6	Wipe	WP																												
7	Air	AR																												
8	Other	OT																												
9	Tissue	TS																												
10																														
11																														
12																														

**NO# : 2616933**  
 PM: BM Due Date: 04/10/19  
 CLIENT: GAPower-CCR

DATE	TIME	DATE	TIME	DATE	TIME	DATE	TIME
4/2/19	1645	4/2/19	1715	4/2/19	1930	4/2/19	1930
						4/3/19	0854
						4/3/19	1110

**APPROVED BY:**  
 PRINT Name of SAMPLER: Noelia Muskos  
 SIGNATURE of SAMPLER: Noelia Muskos  
 DATE Signed: 4/2/19

**RECEIVED BY:**  
 PRINT Name of SAMPLER: Noelia Muskos  
 SIGNATURE of SAMPLER: Noelia Muskos  
 DATE Signed: 4/2/19

**COMMENTS:**  
 App. IV (2): Antimony, Arsenic, Barium, Bismuth, Cadmium, Chromium, Cobalt, Copper, Lead, Lithium, Molybdenum, Selenium, Thallium  
 N/A  
 4/2/19



Sample Condition Upon Receipt

Client Name: GIA Power

Project #

WO#: **2616933**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/3/19 ML

Comments:

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

Client Notification/ Resolution:

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

Field Data Required? Y / N

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

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_

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

April 25, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616935

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616935

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616935

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616935001	MW-29	Water	04/02/19 14:05	04/03/19 11:10
2616935002	MW-20	Water	04/02/19 15:54	04/03/19 11:10
2616935003	MW-28D	Water	04/02/19 16:30	04/03/19 11:10
2616935004	HGWC-7	Water	04/02/19 17:15	04/03/19 11:10

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616935

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616935001	MW-29	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616935002	MW-20	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616935003	MW-28D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616935004	HGWC-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

**Sample: MW-29**      **Lab ID: 2616935001**      Collected: 04/02/19 14:05      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.218 ± 0.272 (0.567)</b> C:86% T:NA	pCi/L	04/12/19 08:04	13982-63-3	
Radium-228	EPA 9320	<b>0.402 ± 0.408 (0.847)</b> C:76% T:82%	pCi/L	04/16/19 16:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.620 ± 0.680 (1.41)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

**Sample: MW-20**      **Lab ID: 2616935002**      Collected: 04/02/19 15:54      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.780 ± 0.360 (0.385)</b> C:89% T:NA	pCi/L	04/12/19 08:05	13982-63-3	
Radium-228	EPA 9320	<b>0.238 ± 0.422 (0.922)</b> C:73% T:76%	pCi/L	04/16/19 16:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.02 ± 0.782 (1.31)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

**Sample: MW-28D**      **Lab ID: 2616935003**      Collected: 04/02/19 16:30      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.312 ± 0.266 (0.489)</b> <b>C:95% T:NA</b>	pCi/L	04/12/19 08:07	13982-63-3	
Radium-228	EPA 9320	<b>0.167 ± 0.434 (0.966)</b> <b>C:70% T:88%</b>	pCi/L	04/16/19 16:21	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.479 ± 0.700 (1.46)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

**Sample: HGWC-7**      **Lab ID: 2616935004**      Collected: 04/02/19 17:15      Received: 04/03/19 11:10      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.445 ± 0.341 (0.626)</b> <b>C:88% T:NA</b>	pCi/L	04/12/19 08:08	13982-63-3	
Radium-228	EPA 9320	<b>0.420 ± 0.405 (0.834)</b> <b>C:76% T:85%</b>	pCi/L	04/16/19 16:22	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.865 ± 0.746 (1.46)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337392

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616935003, 2616935004

METHOD BLANK: 1642069

Matrix: Water

Associated Lab Samples: 2616935003, 2616935004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.117 ± 0.178 (0.382) C:94% T:NA	pCi/L	04/12/19 08:07	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337341

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616935001, 2616935002, 2616935003

METHOD BLANK: 1641952

Matrix: Water

Associated Lab Samples: 2616935001, 2616935002, 2616935003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.438 ± 0.343 (0.679) C:77% T:88%	pCi/L	04/16/19 13:06	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337342

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616935004

METHOD BLANK: 1641953

Matrix: Water

Associated Lab Samples: 2616935004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.245 ± 0.294 (0.748) C:78% T:79%	pCi/L	04/16/19 16:22	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616935

QC Batch: 337391

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616935001, 2616935002

METHOD BLANK: 1642068

Matrix: Water

Associated Lab Samples: 2616935001, 2616935002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.148 ± 0.194 (0.401) C:93% T:NA	pCi/L	04/12/19 08:12	

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

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2616935

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616935

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616935001	MW-29	EPA 9315	337391		
2616935002	MW-20	EPA 9315	337391		
2616935003	MW-28D	EPA 9315	337392		
2616935004	HGWC-7	EPA 9315	337392		
2616935001	MW-29	EPA 9320	337341		
2616935002	MW-20	EPA 9320	337341		
2616935003	MW-28D	EPA 9320	337341		
2616935004	HGWC-7	EPA 9320	337342		
2616935001	MW-29	Total Radium Calculation	338683		
2616935002	MW-20	Total Radium Calculation	338683		
2616935003	MW-28D	Total Radium Calculation	338683		
2616935004	HGWC-7	Total Radium Calculation	338683		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 3

**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Meador Road  
 Atlanta, GA 30339  
 Email: jabraham@southemco.com  
 Phone: (404) 506-7239  
 Requested Due Date: Standard Fax

**Section B**  
 Required Project Information:  
 Report To: Jiju Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
 Invoice Information:  
 Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.mcDaniel@pace-labs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)

GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES					ANALYSIS TEST	Metals (App. III & App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
			START DATE	END DATE				START TIME	END TIME	H2SO4	HNO3	HCl						
1	Drinking Water	DW	04/02	04/02	G	WTG	5	2	3						Y	Y	-	
2	Waste Water	WW	04/02	04/02	G	WTG	5	2	3						Y	Y	-	
3	Product	P																
4	Soil/Sediment	SL																
5	Oil	OL																
6	Wipe	WP																
7	Air	AR																
8	Other	OT																
9	Tissue	TS																

MW-29  
MW-20  
GW 04/02/19

NO# : 2616935



APPROVED SIGNATURE	DATE	APPROVED SIGNATURE	DATE	RECEIVED ON	TEMP IN C	Ice (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
Grant Walker / Geosyntec	04/02/19	Mollie Mathew / Geosyntec	4/2/19	1745					
Mollie Mathew / Geosyntec	4/2/19	Geosyntec	4/2/19	1935					
Geosyntec	4/3/19	Geosyntec	4/3/19	0954					
Grant Walker / Geosyntec	4/9/19	Mollie Mathew / Geosyntec	4/9/19	1110	1-0	7	7	7	7

SAMPLER NAME AND SIGNATURE: Grant Walker  
 PRINT Name of SAMPLER: Grant Walker  
 SIGNATURE of SAMPLER: Grant Walker  
 DATE Signed: 04/02/19



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A** Required Client Information: **Section B** Required Project Information: **Section C** Invoice Information:

Company: Georgia Power - Coal Combustion Residuals Report To: Jopi Abraham  
 Address: 2480 Maner Road Copy To: Lauren Petty, Geosyntec  
 Atlanta, GA 30339  
 Email: labraham@southemco.com Purchase Order #: SCS10348606  
 Phone: (404)508-7239 Project Name: Plant Hartmond  
 Requested Due Date: Standard TAT Project #:   
 Attention: scsinvoices@southemco.com  
 Company Name:   
 Address:   
 Pace Project Manager: betsy.mcdaniel@pacetabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)  
 GA

Page: 2 of 3

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	SAMPLE TEMP AT COLLECTION	PRESERVATIVES		Other	Metals (App. III & App. IV) Metals (App. III, App. IV, D&O) TDS, Cl, F, SO4 Radium 226/228	Residual Chlorine (Y/N)
			START	END					H2SO4	HNO3			
1	MW-28D	DW	4/21/19	4/21/19	G		52	3					
2		WT											
3		WW											
4		P											
5		SL											
6		OL											
7		WP											
8		AR											
9		OT											
10		TS											
11													
12													

**ADDITIONAL COMMENTS**  
 APPEL (2) Anthony, Arsenic, Barium, Dalton Anderson (4/21/19) 17:45 Madia Johnson  
 Besyllum, Cadmium, Chromium, Madia Johnson/Geosyntec 4/21/19 19:30  
 Colwell, Fivoid, Lithium, Molybdenum, Geosyntec, 4/21/19 09:54  
 Selenium, Thallium, Madia Johnson 4/21/19 11:10

**RELINQUISHED BY / RELATION**  
 DATE: 4/21/2019  
 SIGNATURE: DCA

**RECEIVED BY / RELATION**  
 DATE: 4/21/2019  
 SIGNATURE: Dalton Anderson

**TEMP in C**  
 Received on ice (Y/N)  
 Sealed (Y/N)  
 Cooler (Y/N)  
 Samples Intact (Y/N)

**CLIENT: GAPower-CCR**  
**PM: BM**  
**Due Date: 05/01/19**  
**WO#: 2616935**

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Dalton Anderson  
 SIGNATURE of SAMPLER: *[Signature]*  
 DATE Signed: 4/21/19



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
 Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manor Road  
 Atlanta, GA 30339  
 Email: jabraham@southernco.com  
 Phone: (404)506-7239  
 Requested Due Date: Standard

**Section B**  
 Required Project Information:  
 Report To: Jogi Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
 Invoice Information:  
 Attention: scsimvoices@southernco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.mcdaniel@pecolabs.com  
 Pace Profile #: 327 (AP) or 328 (Huf)  
 State: GA

Page: 3 of 3

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST (Y/N)	Metals (App. III & App. IV) Metals (App. III, App. M, D&O) Metals (App. III & D&O) TBS, Cl, F, SO4 Radium 226/228	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME						
1	HGWC-7	N T	4/2/19 1645	4/2/19 1715	52	3	H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol Other	Y	Y	Y
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										

4/2/19  
NA

WO#: 2616935  
PM: BM Due Date: 05/01/19  
CLIENT: GAPower-CCR

RECEIVED BY / EVALUATION	DATE	TEMP in C	Received on	Sealed	Cooler	Samples Intact
Maria-Melba / Geosyntec	4/2/19 1930	19.80	4/2/19 1930	Y	Y	Y
Maria-Melba / Geosyntec	4/3/19 0854	10.84	4/3/19 0854	Y	Y	Y
Maria-Melba / Geosyntec	4/5/19 1110	11.0	4/5/19 1110	Y	Y	Y

SAMPLE NAME AND SIGNATURE  
 PRINT Name of SAMPLER: Noelia Muskus  
 SIGNATURE of SAMPLER: Noelia Muskus  
 DATE SIGNED: 4/2/19



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2616935**

PM: BM

Due Date: 05/01/19

CLIENT: GAPower-CCR

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/3/19 MR

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.0 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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



April 11, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616997

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2616997

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616997

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616997001	HGWC-9	Water	04/03/19 10:05	04/04/19 11:00
2616997002	MW-26D	Water	04/03/19 11:38	04/04/19 11:00
2616997003	MW-19	Water	04/03/19 14:50	04/04/19 11:00
2616997004	MW-5	Water	04/03/19 13:12	04/04/19 11:00
2616997005	HGWC-8	Water	04/03/19 11:24	04/04/19 11:00
2616997006	HGWC-10	Water	04/03/19 13:38	04/04/19 11:00
2616997007	MW-6	Water	04/03/19 15:10	04/04/19 11:00
2616997008	MW-7	Water	04/03/19 10:45	04/04/19 11:00
2616997009	HGWC-11	Water	04/03/19 12:40	04/04/19 11:00
2616997010	HGWC-12	Water	04/03/19 14:20	04/04/19 11:00
2616997011	MW-25D	Water	04/03/19 16:15	04/04/19 11:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616997

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616997001	HGWC-9	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997002	MW-26D	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997003	MW-19	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997004	MW-5	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997005	HGWC-8	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997006	HGWC-10	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997007	MW-6	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997008	MW-7	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997009	HGWC-11	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997010	HGWC-12	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616997011	MW-25D	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: HGWC-9		Lab ID: 2616997001		Collected: 04/03/19 10:05		Received: 04/04/19 11:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:09	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:09	7440-38-2		
Barium	<b>0.12</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:09	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:09	7440-41-7		
Boron	<b>2.3</b>	mg/L	2.0	0.20	50	04/05/19 15:23	04/09/19 22:14	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:09	7440-43-9		
Calcium	<b>164</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 22:14	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:09	7440-47-3		
Cobalt	<b>0.00069J</b>	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:09	7440-48-4		
Lithium	<b>0.0040J</b>	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:09	7439-93-2		
Molybdenum	<b>0.030</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:09	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:09	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:09	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>673</b>	mg/L	25.0	10.0	1		04/10/19 16:41			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>130</b>	mg/L	2.5	0.24	10		04/05/19 20:32	16887-00-6	M1	
Fluoride	<b>0.14J</b>	mg/L	0.30	0.029	1		04/05/19 14:08	16984-48-8		
Sulfate	<b>214</b>	mg/L	10.0	0.17	10		04/05/19 20:32	14808-79-8	M1	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: MW-26D		Lab ID: 2616997002		Collected: 04/03/19 11:38		Received: 04/04/19 11:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:20	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:20	7440-38-2		
Barium	<b>0.12</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:20	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:20	7440-41-7		
Boron	<b>1.5</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 22:20	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:20	7440-43-9		
Calcium	<b>122</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 22:26	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:20	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:20	7440-48-4		
Lithium	<b>0.0034J</b>	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:20	7439-93-2		
Molybdenum	<b>0.0083J</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:20	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:20	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:20	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>493</b>	mg/L	25.0	10.0	1		04/10/19 16:41			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>90.6</b>	mg/L	2.5	0.24	10		04/11/19 13:12	16887-00-6		
Fluoride	<b>0.044J</b>	mg/L	0.30	0.029	1		04/05/19 15:12	16984-48-8		
Sulfate	<b>131</b>	mg/L	10.0	0.17	10		04/11/19 13:12	14808-79-8		

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: MW-19		Lab ID: 2616997003		Collected: 04/03/19 14:50		Received: 04/04/19 11:00		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:43	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:43	7440-38-2	
Barium	<b>0.050</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:43	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:43	7440-41-7	
Boron	<b>0.63</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 22:43	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:43	7440-43-9	
Calcium	<b>74.9</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 22:49	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:43	7440-47-3	
Cobalt	<b>0.036</b>	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:43	7440-48-4	
Lithium	<b>0.0061J</b>	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:43	7439-93-2	
Molybdenum	<b>0.040</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:43	7439-98-7	
Selenium	<b>0.0070J</b>	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:43	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:43	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>310</b>	mg/L	25.0	10.0	1		04/10/19 16:41		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>19.5</b>	mg/L	0.25	0.024	1		04/05/19 15:34	16887-00-6	
Fluoride	<b>0.19J</b>	mg/L	0.30	0.029	1		04/05/19 15:34	16984-48-8	
Sulfate	<b>105</b>	mg/L	10.0	0.17	10		04/11/19 13:34	14808-79-8	

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: MW-5		Lab ID: 2616997004		Collected: 04/03/19 13:12		Received: 04/04/19 11:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 22:55	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 22:55	7440-38-2		
Barium	<b>0.049</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 22:55	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 22:55	7440-41-7		
Boron	<b>0.030J</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 22:55	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 22:55	7440-43-9		
Calcium	<b>82.0</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 23:00	7440-70-2		
Chromium	<b>0.0030J</b>	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 22:55	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 22:55	7440-48-4		
Lithium	ND	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 22:55	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 22:55	7439-98-7		
Selenium	<b>0.0027J</b>	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 22:55	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 22:55	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>396</b>	mg/L	25.0	10.0	1		04/10/19 16:42			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>1.8</b>	mg/L	0.25	0.024	1		04/05/19 15:55	16887-00-6		
Fluoride	<b>0.049J</b>	mg/L	0.30	0.029	1		04/05/19 15:55	16984-48-8		
Sulfate	<b>218</b>	mg/L	10.0	0.17	10		04/11/19 13:57	14808-79-8		

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: HGWC-8		Lab ID: 2616997005		Collected: 04/03/19 11:24		Received: 04/04/19 11:00		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 23:06	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 23:06	7440-38-2	
Barium	<b>0.066</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 23:06	7440-39-3	
Beryllium	<b>0.000074J</b>	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 23:06	7440-41-7	
Boron	<b>2.8</b>	mg/L	2.0	0.20	50	04/05/19 15:23	04/09/19 23:12	7440-42-8	
Cadmium	<b>0.00032J</b>	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 23:06	7440-43-9	
Calcium	<b>125</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 23:12	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 23:06	7440-47-3	
Cobalt	<b>0.0019J</b>	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 23:06	7440-48-4	
Lithium	<b>0.0025J</b>	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 23:06	7439-93-2	
Molybdenum	<b>0.50</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 23:06	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 23:06	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 23:06	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>543</b>	mg/L	25.0	10.0	1		04/10/19 16:42		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>91.6</b>	mg/L	2.5	0.24	10		04/05/19 20:53	16887-00-6	
Fluoride	<b>0.63</b>	mg/L	0.30	0.029	1		04/05/19 16:16	16984-48-8	
Sulfate	<b>194</b>	mg/L	10.0	0.17	10		04/05/19 20:53	14808-79-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: HGWC-10		Lab ID: 2616997006		Collected: 04/03/19 13:38		Received: 04/04/19 11:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	04/05/19 15:23	04/09/19 23:17	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 23:17	7440-38-2	
Barium	<b>0.076</b>	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 23:17	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 23:17	7440-41-7	
Boron	<b>0.66</b>	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 23:17	7440-42-8	
Cadmium	<b>0.00010J</b>	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 23:17	7440-43-9	
Calcium	<b>137</b>	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 23:23	7440-70-2	
Chromium	<b>0.020</b>	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 23:17	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 23:17	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 23:17	7439-93-2	
Molybdenum	<b>0.0021J</b>	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 23:17	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 23:17	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 23:17	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>525</b>	mg/L	25.0	10.0	1		04/10/19 16:42		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>49.3</b>	mg/L	0.25	0.024	1		04/05/19 16:37	16887-00-6	
Fluoride	<b>0.082J</b>	mg/L	0.30	0.029	1		04/05/19 16:37	16984-48-8	
Sulfate	<b>159</b>	mg/L	10.0	0.17	10		04/05/19 21:15	14808-79-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: MW-6		Lab ID: 2616997007		Collected: 04/03/19 15:10		Received: 04/04/19 11:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:00	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:00	7440-38-2	
Barium	<b>0.090</b>	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:00	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:00	7440-41-7	
Boron	<b>0.67</b>	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:00	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:00	7440-43-9	
Calcium	<b>178</b>	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:12	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:00	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:00	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:00	7439-93-2	
Molybdenum	<b>0.0021J</b>	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:00	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:00	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>437</b>	mg/L	25.0	10.0	1		04/10/19 16:42		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>60.9</b>	mg/L	2.5	0.24	10		04/11/19 14:20	16887-00-6	
Fluoride	<b>0.15J</b>	mg/L	0.30	0.029	1		04/05/19 16:59	16984-48-8	
Sulfate	<b>228</b>	mg/L	10.0	0.17	10		04/11/19 14:20	14808-79-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: MW-7		Lab ID: 2616997008		Collected: 04/03/19 10:45		Received: 04/04/19 11:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:23	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:23	7440-38-2		
Barium	<b>0.058</b>	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:23	7440-39-3		
Beryllium	<b>0.000051J</b>	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:23	7440-41-7		
Boron	<b>0.094</b>	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:23	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:23	7440-43-9		
Calcium	<b>50.2</b>	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:29	7440-70-2		
Chromium	<b>0.0023J</b>	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:23	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:23	7440-48-4		
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:23	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:23	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:23	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:23	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>213</b>	mg/L	25.0	10.0	1		04/10/19 16:42			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>5.6</b>	mg/L	0.25	0.024	1		04/05/19 17:20	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		04/05/19 17:20	16984-48-8		
Sulfate	<b>75.3</b>	mg/L	10.0	0.17	10		04/11/19 13:18	14808-79-8		

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: HGWC-11		Lab ID: 2616997009		Collected: 04/03/19 12:40		Received: 04/04/19 11:00		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:29	7440-36-0	
Arsenic	<b>0.00094J</b>	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:29	7440-38-2	
Barium	<b>0.023</b>	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:29	7440-39-3	
Beryllium	<b>0.00017J</b>	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:29	7440-41-7	
Boron	<b>0.23</b>	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:29	7440-42-8	
Cadmium	<b>0.000096J</b>	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:29	7440-43-9	
Calcium	<b>112</b>	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:35	7440-70-2	
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:29	7440-47-3	
Cobalt	<b>0.0018J</b>	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:29	7440-48-4	
Lithium	ND	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:29	7439-93-2	
Molybdenum	<b>0.010</b>	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:29	7439-98-7	
Selenium	<b>0.016</b>	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:29	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:29	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>483</b>	mg/L	25.0	10.0	1		04/10/19 16:42		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>4.6</b>	mg/L	0.25	0.024	1		04/05/19 19:07	16887-00-6	
Fluoride	<b>0.43</b>	mg/L	0.30	0.029	1		04/05/19 19:07	16984-48-8	
Sulfate	<b>298</b>	mg/L	10.0	0.17	10		04/11/19 14:52	14808-79-8	

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: HGWC-12		Lab ID: 2616997010		Collected: 04/03/19 14:20		Received: 04/04/19 11:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:35	7440-36-0		
Arsenic	<b>0.0022J</b>	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:35	7440-38-2		
Barium	<b>0.077</b>	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:35	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:35	7440-41-7		
Boron	<b>1.8</b>	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:35	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:35	7440-43-9		
Calcium	<b>114</b>	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:40	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:35	7440-47-3		
Cobalt	<b>0.0011J</b>	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:35	7440-48-4		
Lithium	<b>0.0066J</b>	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:35	7439-93-2		
Molybdenum	<b>0.049</b>	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:35	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:35	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:35	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>462</b>	mg/L	25.0	10.0	1		04/10/19 16:42			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>62.8</b>	mg/L	1.2	0.12	5		04/05/19 21:57	16887-00-6		
Fluoride	<b>0.30J</b>	mg/L	0.30	0.029	1		04/05/19 19:28	16984-48-8		
Sulfate	<b>176</b>	mg/L	5.0	0.085	5		04/05/19 21:57	14808-79-8		

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616997

Sample: MW-25D		Lab ID: 2616997011		Collected: 04/03/19 16:15		Received: 04/04/19 11:00		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020B MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3005A								
Antimony	ND	mg/L	0.0030	0.00078	1	04/08/19 11:33	04/10/19 01:41	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	04/08/19 11:33	04/10/19 01:41	7440-38-2		
Barium	<b>0.38</b>	mg/L	0.010	0.00078	1	04/08/19 11:33	04/10/19 01:41	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/08/19 11:33	04/10/19 01:41	7440-41-7		
Boron	<b>0.37</b>	mg/L	0.040	0.0039	1	04/08/19 11:33	04/10/19 01:41	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/08/19 11:33	04/10/19 01:41	7440-43-9		
Calcium	<b>25.4</b>	mg/L	25.0	0.69	50	04/08/19 11:33	04/10/19 10:46	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/08/19 11:33	04/10/19 01:41	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/08/19 11:33	04/10/19 01:41	7440-48-4		
Lithium	<b>0.047J</b>	mg/L	0.050	0.00097	1	04/08/19 11:33	04/10/19 01:41	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/08/19 11:33	04/10/19 01:41	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/08/19 11:33	04/10/19 01:41	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/08/19 11:33	04/10/19 01:41	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>15.0J</b>	mg/L	25.0	10.0	1		04/10/19 16:42			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>32.0</b>	mg/L	0.25	0.024	1		04/05/19 20:11	16887-00-6		
Fluoride	<b>1.6</b>	mg/L	0.30	0.029	1		04/05/19 20:11	16984-48-8		
Sulfate	<b>53.0</b>	mg/L	10.0	0.17	10		04/11/19 15:13	14808-79-8		

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616997

QC Batch: 25906 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006

METHOD BLANK: 116817 Matrix: Water  
Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/09/19 18:14	
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 18:14	
Barium	mg/L	ND	0.010	0.00078	04/09/19 18:14	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 18:14	
Boron	mg/L	ND	0.040	0.0039	04/09/19 18:14	
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 18:14	
Calcium	mg/L	ND	0.50	0.014	04/09/19 18:14	
Chromium	mg/L	ND	0.010	0.0016	04/09/19 18:14	
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 18:14	
Lithium	mg/L	ND	0.050	0.00097	04/09/19 18:14	
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 18:14	
Selenium	mg/L	ND	0.010	0.0014	04/09/19 18:14	
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 18:14	

LABORATORY CONTROL SAMPLE: 116818

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.10	100	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.096	96	80-120	
Boron	mg/L	1	0.94	94	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	0.97	97	80-120	
Chromium	mg/L	0.1	0.10	101	80-120	
Cobalt	mg/L	0.1	0.10	100	80-120	
Lithium	mg/L	0.1	0.096	96	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.10	101	80-120	
Thallium	mg/L	0.1	0.098	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116819 116820

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2616933004 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.11	0.10	108	105	75-125	3	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Barium	mg/L	0.072	0.1	0.1	0.18	0.18	109	105	75-125	2	20	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616997

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116819		116820		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2616933004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
Beryllium	mg/L	ND	0.1	0.1	0.092	0.092	92	92	75-125	1	20		
Boron	mg/L	0.99	1	1	1.9	2.0	92	96	75-125	2	20		
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	104	101	75-125	3	20		
Calcium	mg/L	101	1	1	140	115	3930	1380	75-125	20	20	M6	
Chromium	mg/L	ND	0.1	0.1	0.11	0.10	105	103	75-125	2	20		
Cobalt	mg/L	0.00069J	0.1	0.1	0.10	0.10	102	100	75-125	2	20		
Lithium	mg/L	0.0020J	0.1	0.1	0.094	0.095	91	93	75-125	2	20		
Molybdenum	mg/L	0.041	0.1	0.1	0.15	0.15	112	110	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.11	0.10	105	102	75-125	3	20		
Thallium	mg/L	ND	0.1	0.1	0.097	0.096	97	95	75-125	2	20		

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616997

QC Batch: 25997 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3005A Analysis Description: 6020B MET  
Associated Lab Samples: 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

METHOD BLANK: 117367 Matrix: Water  
Associated Lab Samples: 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	04/09/19 23:46	
Arsenic	mg/L	ND	0.0050	0.00057	04/09/19 23:46	
Barium	mg/L	ND	0.010	0.00078	04/09/19 23:46	
Beryllium	mg/L	ND	0.0030	0.000050	04/09/19 23:46	
Boron	mg/L	ND	0.040	0.0039	04/09/19 23:46	
Cadmium	mg/L	ND	0.0010	0.000093	04/09/19 23:46	
Calcium	mg/L	ND	0.50	0.014	04/09/19 23:46	
Chromium	mg/L	ND	0.010	0.0016	04/09/19 23:46	
Cobalt	mg/L	ND	0.010	0.00052	04/09/19 23:46	
Lithium	mg/L	ND	0.050	0.00097	04/09/19 23:46	
Molybdenum	mg/L	ND	0.010	0.0019	04/09/19 23:46	
Selenium	mg/L	ND	0.010	0.0014	04/09/19 23:46	
Thallium	mg/L	ND	0.0010	0.00014	04/09/19 23:46	

LABORATORY CONTROL SAMPLE: 117368

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	102	80-120	
Arsenic	mg/L	0.1	0.096	96	80-120	
Barium	mg/L	0.1	0.098	98	80-120	
Beryllium	mg/L	0.1	0.094	94	80-120	
Boron	mg/L	1	0.95	95	80-120	
Cadmium	mg/L	0.1	0.10	100	80-120	
Calcium	mg/L	1	0.98	98	80-120	
Chromium	mg/L	0.1	0.10	104	80-120	
Cobalt	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.094	94	80-120	
Molybdenum	mg/L	0.1	0.10	102	80-120	
Selenium	mg/L	0.1	0.097	97	80-120	
Thallium	mg/L	0.1	0.096	96	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117369 117370

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2616997007 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	102	102	75-125	0	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.099	100	99	75-125	1	20	
Barium	mg/L	0.090	0.1	0.1	0.18	0.18	90	93	75-125	1	20	

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**QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2616997

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117369		117370		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2616997007 Result	MS Spike Conc.	MSD Spike Conc.									
Beryllium	mg/L	ND	0.1	0.1	0.090	0.088	90	88	75-125	2	20		
Boron	mg/L	0.67	1	1	1.5	1.5	85	86	75-125	0	20		
Cadmium	mg/L	ND	0.1	0.1	0.099	0.099	99	99	75-125	0	20		
Calcium	mg/L	178	1	1	173	179	-513	1	75-125	3	20		
Chromium	mg/L	ND	0.1	0.1	0.099	0.10	99	102	75-125	3	20		
Cobalt	mg/L	ND	0.1	0.1	0.096	0.097	95	97	75-125	2	20		
Lithium	mg/L	ND	0.1	0.1	0.090	0.091	90	90	75-125	0	20		
Molybdenum	mg/L	0.0021J	0.1	0.1	0.10	0.11	103	104	75-125	1	20		
Selenium	mg/L	ND	0.1	0.1	0.097	0.10	97	100	75-125	3	20		
Thallium	mg/L	ND	0.1	0.1	0.092	0.094	92	94	75-125	2	20		

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616997

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QC Batch: 26129 Analysis Method: SM 2540C  
 QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
 Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008,  
 2616997009, 2616997010, 2616997011

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LABORATORY CONTROL SAMPLE: 117954

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	412	103	84-108	

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SAMPLE DUPLICATE: 118270

Parameter	Units	2616972001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	290	303	4	10	

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SAMPLE DUPLICATE: 118610

Parameter	Units	2616992002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	369	359	3	10	

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2616997

QC Batch: 25883 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

METHOD BLANK: 116739 Matrix: Water  
Associated Lab Samples: 2616997001, 2616997002, 2616997003, 2616997004, 2616997005, 2616997006, 2616997007, 2616997008, 2616997009, 2616997010, 2616997011

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.057J	0.25	0.024	04/05/19 13:26	
Fluoride	mg/L	ND	0.30	0.029	04/05/19 13:26	
Sulfate	mg/L	0.026J	1.0	0.017	04/05/19 13:26	

LABORATORY CONTROL SAMPLE: 116740

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	10.1	101	90-110	
Sulfate	mg/L	10	10.0	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116741 116742

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2616997001 Result	Spike Conc.	Spike Conc.	MS Result						
Chloride	mg/L	130	10	10	111	111	-190	90-110	0	15	E,M1
Fluoride	mg/L	0.14J	10	10	10.4	10.2	103	90-110	2	15	
Sulfate	mg/L	214	10	10	165	165	-494	90-110	0	15	E,M1

MATRIX SPIKE SAMPLE: 116743

Parameter	Units	2616997002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	90.6	10	90.3	-2	90-110	E
Fluoride	mg/L	0.044J	10	9.2	92	90-110	
Sulfate	mg/L	131	10	122	-98	90-110	E

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616997

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616997

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616997001	HGWC-9	EPA 3005A	25906	EPA 6020B	25928
2616997002	MW-26D	EPA 3005A	25906	EPA 6020B	25928
2616997003	MW-19	EPA 3005A	25906	EPA 6020B	25928
2616997004	MW-5	EPA 3005A	25906	EPA 6020B	25928
2616997005	HGWC-8	EPA 3005A	25906	EPA 6020B	25928
2616997006	HGWC-10	EPA 3005A	25906	EPA 6020B	25928
2616997007	MW-6	EPA 3005A	25997	EPA 6020B	26011
2616997008	MW-7	EPA 3005A	25997	EPA 6020B	26011
2616997009	HGWC-11	EPA 3005A	25997	EPA 6020B	26011
2616997010	HGWC-12	EPA 3005A	25997	EPA 6020B	26011
2616997011	MW-25D	EPA 3005A	25997	EPA 6020B	26011
2616997001	HGWC-9	SM 2540C	26129		
2616997002	MW-26D	SM 2540C	26129		
2616997003	MW-19	SM 2540C	26129		
2616997004	MW-5	SM 2540C	26129		
2616997005	HGWC-8	SM 2540C	26129		
2616997006	HGWC-10	SM 2540C	26129		
2616997007	MW-6	SM 2540C	26129		
2616997008	MW-7	SM 2540C	26129		
2616997009	HGWC-11	SM 2540C	26129		
2616997010	HGWC-12	SM 2540C	26129		
2616997011	MW-25D	SM 2540C	26129		
2616997001	HGWC-9	EPA 300.0	25883		
2616997002	MW-26D	EPA 300.0	25883		
2616997003	MW-19	EPA 300.0	25883		
2616997004	MW-5	EPA 300.0	25883		
2616997005	HGWC-8	EPA 300.0	25883		
2616997006	HGWC-10	EPA 300.0	25883		
2616997007	MW-6	EPA 300.0	25883		
2616997008	MW-7	EPA 300.0	25883		
2616997009	HGWC-11	EPA 300.0	25883		
2616997010	HGWC-12	EPA 300.0	25883		
2616997011	MW-25D	EPA 300.0	25883		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jbraham@southemco.com  
 Phone: (404)506-7239  
 Requested Due Date: **Standard TRX**

**Section B**  
**Required Project Information:**  
 Report To: Jofu Abraham  
 Copy To: Lauren Petty, Geosynke  
 Purchase Order #: 9CS10348008  
 Project Name: Plant Hammond  
 Project #: **Standard TRX**

**Section C**  
**Invoice Information:**  
 Attention: scsinvoic@southemco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: beisy.mcdaniel@pacelabs.com  
 Pace Profile #: 327 (AP) or 328 (Huf)  
 GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION		PRESERVATIVES		ANALYSES TEST	Metals (App. III & App. IV, D&O)	Metals (App. III & App. IV, D&O)	TDS, Cl, F, SO4	Residual Chlorine (Y/N)
			START DATE	START TIME			END DATE	END TIME	# OF CONTAINERS	Unpreserved					
1	HGW-9	WT G	04/03	09:43	04/03	10:05	18	5	2	3	Y	Y	Y	Y	Residual Chlorine (Y/N)
2	MW-26D	WT G	04/03	11:15	04/03	11:38	18	5	2	3	Y	Y	Y	Y	
3	MW-19	WT G	04/03	14:27	04/03	14:50	19	5	2	3	Y	Y	Y	Y	
4	MW-5	WT G	04/03	13:55	04/03	13:12	19	5	2	3	Y	Y	Y	Y	
5															
6															
7															
8															
9															
10															
11															
12															

GW 04/03/19

NO#: 2616997



REQUISITION NUMBER	REQUISITION AFFILIATION	DATE	TIME	RECEIVED BY/AFFILIATION	DATE	TIME	TEMP In C	Received on Ice (Y/N)	Custody Sealed (Y/N)	Samples Intact (Y/N)
APR 12	Antimony, Arsenic, Barium	Grand Walter / Geosynke	04/03/19	10:10	Media / M / M / Geosynke	4/3/19	1810			
	Beryllium, Cadmium, Chromium	Media / M / M / Geosynke	4/3/19	19:00	Media / M / M / Geosynke	4/5/19	1900			
	Cobalt, Fluoride, Lithium	Media / M / M / Geosynke	4/4/19		Media / M / M / Geosynke	4/4/19	0905			
	Molybdenum, Selenium, Thallium	Media / M / M / Geosynke	4/4/19		Media / M / M / Geosynke	4/4/19	1100	3.5	9	9

DATE SIGNED: 04/03/19  
 SIGNATURE OF SAMPLER: Grand Walter  
 SIGNATURE OF SAMPLER: *Grand Walter*





# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 2 of 3

### Section A

#### Required Client Information:

Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Nanner Road  
 Atlanta, GA 30339  
 Email: jabraham@southemco.com  
 Phone: (404) 506-7239  
 Requested Due Date: **Standard TAT**

### Section B

#### Required Project Information:

Report To: Joju Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:  
 Pace Project Manager: betsy.mcdaniel@paceilabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)

### Section C

#### Invoice Information:

Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Quota:  
 State: GA

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see void codes to left)	# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	REQUIRED ANALYSES (Y/N)				RECEIVED ON	TEMP IN C	COOL	SEAL	CUSTODY	SAMPLE COMMENTS
			START DATE	END DATE						START TIME	END TIME	Metals (App. III & App. IV)	Metals (App. III & D&O)						
1	Drinking Water	OW	4/3/19	4/3/19	G	WT	5	Unpreserved	Y	Y	Y	Y							
2	Waste Water	WW	4/3/19	4/3/19	G	WT	5	H2SO4	Y	Y	Y	Y							
3	Waste Water	WW	4/3/19	4/3/19	G	WT	5	HNO3	Y	Y	Y	Y							
4	Waste Water	WW	4/3/19	4/3/19	G	WT	5	HCl	Y	Y	Y	Y							
5	Waste Water	WW	4/3/19	4/3/19	G	WT	5	NaOH	Y	Y	Y	Y							
6	Waste Water	WW	4/3/19	4/3/19	G	WT	5	Na2SO3	Y	Y	Y	Y							
7	Waste Water	WW	4/3/19	4/3/19	G	WT	5	Methanol	Y	Y	Y	Y							
8	Waste Water	WW	4/3/19	4/3/19	G	WT	5	Other	Y	Y	Y	Y							

## WO# : 2616997

PN: BM Due Date: 04/11/19  
 CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	FINISHED BY / LOCATION	DATE	TIME	ASSIGNED BY / LOCATION	DATE	TIME	RECEIVED ON	TEMP IN C	COOL	SEAL	CUSTODY	SAMPLE COMMENTS
App. IV (2): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lithium, Molybdenum, Selenium, Thallium	Moelia Musher / Geosyntec	4/3/19	1700	Lauren Petty / Geosyntec	4/3/19	1400						
	Moelia Musher / Geosyntec	4/4/19		Lauren Petty / Geosyntec	4/4/19	0900						
	Moelia Musher	4/4/19	1100	Moelia Musher	4/4/19	1100	357					

DATE Signed: 4/3/19  
 SIGNATURE OF SAMPLER: Moelia Musher  
 PRINT Name of SAMPLER: Moelia Musher



**CHAIN-OF-CUSTODY / Analytical Request Document**  
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
 Required Client Information: Company: Georgia Power - Coal Combustion Residuals, Address: 2480 Maner Road, Atlanta, GA 30339, Email: j.abraham@southernco.com, Phone: (404) 505-7239, Requested Due Date: Standard  
 Required Project Information: Report To: Joju Abraham, Copy To: Lauren Petty, Geosyntec, Purchase Order #: SCS10348806, Project Name: Plant Hammond, Project #: [blank]  
 Invoice Information: Attention: scsinvoices@southernco.com, Company Name: [blank], Address: [blank], Pace Quote: [blank], Pace Project Manager: betsy.modaniel@pacelabs.com, Pace Profile #: 327 (AP) or 328 (Huff)

ITEM #	MATRIX CODE DW, WT, WW, P, SL, CL, WP, AP, OT, TS Drinking Water, Waste Water, Product, Soil/Solid, Oil, Wipe, Air, Other, Tissue	SAMPLE ID One Character per box, (A-Z, 0-9 / , -) Sample IDs must be unique	COLLECTED		MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-RAB C-COMP)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES Unpreserved, H2SO4, HNO3, HCl, NaOH, Na2S2O3, Methanol, Other	ANALYSIS TEST Metals (App. III & App. IV), Metals (App. III, App. IV, D&O), Metals (App. III & D&O), TDS, Cl, F, SO4, Radium 226/228	Requester (Name & Title) (Y/N)	Requester Location (Y/N)	GA
			START DATE TIME	END DATE TIME			DATE	TIME						
1		MW-7	4/13/19 10:25	4/13/19 10:45	G	G-RAB	18:10	18:10	3		Y	Y		
2		HGWC-11	4/13/19 10:20	4/13/19 12:00	G	G-RAB	18:00	18:00	3		Y	Y		
3		HGWC-12	4/13/19 15:34	4/13/19 14:20	G	G-RAB	18:00	18:00	3		Y	Y		
4		MW-25D	4/13/19 15:44	4/13/19 16:15	G	G-RAB	18:00	18:00	3		Y	Y		
5														
6														
7														
8														
9														
10														
11														
12														

**NO# : 2616997**  
 PM: BM Due Date: 04/11/19  
 CLIENT: GAPower-CCR

DATE	TIME	ACCEPTED BY (STATION)	DATE	TIME	SAMPLE COMMENTS
4/13/19	18:10	Melvin Mumber Geosyntec	4/13/19	18:10	
4/13/19	18:00	Lauren Petty / Geosyntec	4/13/19	18:00	
4/13/19	18:00	Betsy Modaniel / Geosyntec	4/13/19	18:00	
4/14/19	11:00	Lauren Petty	4/14/19	11:00	
4/14/19	11:00	Lauren Petty	4/14/19	11:00	

SAMPLE NAME AND SIGNATURE: Dalton Anderson  
 PRINT NAME OF SAMPLER: Dalton Anderson  
 SIGNATURE OF SAMPLER: [Signature]  
 DATE SIGNED: 4/13/19

Received on	Temp in C	Sealed	Cooler	Custody	Samples	Intact
Y/N		Y/N	Y/N	Y/N	Y/N	Y/N
Y	3.5	Y	Y	Y	Y	Y



Sample Condition Upon Receipt

Client Name: GIA Power

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

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

**WO#: 2616997**

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

PM: **BM** Due Date: **04/11/19**  
CLIENT: **GAPower-CCR**

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 3.5 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/4/19

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

April 26, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2616998

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 04, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2616998

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2616998

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616998001	HGWC-9	Water	04/03/19 10:05	04/04/19 11:00
2616998002	MW-26D	Water	04/03/19 11:38	04/04/19 11:00
2616998003	MW-19	Water	04/03/19 14:50	04/04/19 11:00
2616998004	MW-5	Water	04/03/19 13:12	04/04/19 11:00
2616998005	HGWC-8	Water	04/03/19 11:24	04/04/19 11:00
2616998006	HGWC-10	Water	04/03/19 13:38	04/04/19 11:00
2616998007	MW-6	Water	04/03/19 15:10	04/04/19 11:00
2616998008	MW-7	Water	04/03/19 10:45	04/04/19 11:00
2616998009	HGWC-11	Water	04/03/19 12:40	04/04/19 11:00
2616998010	HGWC-12	Water	04/03/19 14:20	04/04/19 11:00
2616998011	MW-25D	Water	04/03/19 16:15	04/04/19 11:00

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2616998

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616998001	HGWC-9	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998002	MW-26D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998003	MW-19	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998004	MW-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998005	HGWC-8	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998006	HGWC-10	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998007	MW-6	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998008	MW-7	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998009	HGWC-11	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998010	HGWC-12	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616998011	MW-25D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: HGWC-9**      **Lab ID: 2616998001**      Collected: 04/03/19 10:05      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.147 ± 0.211 (0.452)</b> <b>C:86% T:NA</b>	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	<b>0.00881 ± 0.442 (1.03)</b> <b>C:76% T:82%</b>	pCi/L	04/16/19 18:33	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.156 ± 0.653 (1.48)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-26D**      **Lab ID: 2616998002**      Collected: 04/03/19 11:38      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.205 ± 0.207 (0.378)</b> C:94% T:NA	pCi/L	04/12/19 09:36	13982-63-3	
Radium-228	EPA 9320	<b>-0.0700 ± 0.421 (1.00)</b> C:77% T:80%	pCi/L	04/16/19 18:37	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.205 ± 0.628 (1.38)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-19**      **Lab ID: 2616998003**      Collected: 04/03/19 14:50      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.276 ± 0.229 (0.387)</b> C:89% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	<b>0.608 ± 0.805 (1.72)</b> C:77% T:83%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.884 ± 1.03 (2.11)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-5**      **Lab ID: 2616998004**      Collected: 04/03/19 13:12      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.607 ± 0.360 (0.575)</b> C:92% T:NA	pCi/L	04/12/19 09:37	13982-63-3	
Radium-228	EPA 9320	<b>0.325 ± 0.807 (1.79)</b> C:79% T:83%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.932 ± 1.17 (2.37)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: HGWC-8**      **Lab ID: 2616998005**      Collected: 04/03/19 11:24      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.291 ± 0.241 (0.415)</b> C:92% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	<b>0.594 ± 0.544 (1.11)</b> C:77% T:79%	pCi/L	04/16/19 18:37	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.885 ± 0.785 (1.53)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: HGWC-10**      **Lab ID: 2616998006**      Collected: 04/03/19 13:38      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>1.80 ± 0.587 (0.524)</b> C:83% T:NA	pCi/L	04/12/19 09:39	13982-63-3	
Radium-228	EPA 9320	<b>0.0170 ± 0.700 (1.61)</b> C:80% T:80%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.82 ± 1.29 (2.13)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-6**      **Lab ID: 2616998007**      Collected: 04/03/19 15:10      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.789 ± 0.376 (0.497)</b> C:91% T:NA	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	<b>0.0827 ± 0.817 (1.86)</b> C:79% T:80%	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.872 ± 1.19 (2.36)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-7**      **Lab ID: 2616998008**      Collected: 04/03/19 10:45      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.310 ± 0.233 (0.379)</b> C:99% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	<b>0.741 ± 0.545 (1.07)</b> C:75% T:84%	pCi/L	04/16/19 18:35	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.05 ± 0.778 (1.45)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: HGWC-11**      **Lab ID: 2616998009**      Collected: 04/03/19 12:40      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.302 ± 0.263 (0.475)</b> C:90% T:NA	pCi/L	04/12/19 09:37	13982-63-3	
Radium-228	EPA 9320	<b>0.0575 ± 0.452 (1.04)</b> C:79% T:82%	pCi/L	04/16/19 18:37	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.360 ± 0.715 (1.52)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: HGWC-12**      **Lab ID: 2616998010**      Collected: 04/03/19 14:20      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.344 ± 0.249 (0.412)</b> <b>C:94% T:NA</b>	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	<b>0.390 ± 0.755 (1.66)</b> <b>C:76% T:83%</b>	pCi/L	04/16/19 21:13	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.734 ± 1.00 (2.07)</b>	pCi/L	04/17/19 13:15	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

**Sample: MW-25D**      **Lab ID: 2616998011**      Collected: 04/03/19 16:15      Received: 04/04/19 11:00      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.361 ± 0.333 (0.652)</b> <b>C:82% T:NA</b>	pCi/L	04/12/19 09:49	13982-63-3	
Radium-228	EPA 9320	<b>0.301 ± 0.482 (1.05)</b> <b>C:74% T:77%</b>	pCi/L	04/25/19 11:04	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.662 ± 0.815 (1.70)</b>	pCi/L	04/26/19 09:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 337393

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616998003, 2616998004, 2616998006, 2616998007, 2616998009, 2616998010, 2616998011

METHOD BLANK: 1642070

Matrix: Water

Associated Lab Samples: 2616998003, 2616998004, 2616998006, 2616998007, 2616998009, 2616998010, 2616998011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.123 ± 0.274 (0.633) C:65% T:NA	pCi/L	04/12/19 09:37	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

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QC Batch:	337392	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2616998001, 2616998002, 2616998005, 2616998008		

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METHOD BLANK:	1642069	Matrix:	Water
Associated Lab Samples:	2616998001, 2616998002, 2616998005, 2616998008		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.117 ± 0.178 (0.382) C:94% T:NA	pCi/L	04/12/19 08:07	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

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QC Batch:	337342	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2616998001, 2616998002, 2616998003, 2616998004, 2616998005, 2616998006, 2616998007, 2616998008, 2616998009, 2616998010		

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METHOD BLANK:	1641953	Matrix:	Water
Associated Lab Samples:	2616998001, 2616998002, 2616998003, 2616998004, 2616998005, 2616998006, 2616998007, 2616998008, 2616998009, 2616998010		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	-0.245 ± 0.294 (0.748) C:78% T:79%	pCi/L	04/16/19 16:22	

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

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616998

QC Batch: 338745

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616998011

METHOD BLANK: 1648702

Matrix: Water

Associated Lab Samples: 2616998011

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.552 ± 0.362 (0.681) C:81% T:74%	pCi/L	04/25/19 11:04	

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

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616998

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond  
Pace Project No.: 2616998

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616998001	HGWC-9	EPA 9315	337392		
2616998002	MW-26D	EPA 9315	337392		
2616998003	MW-19	EPA 9315	337393		
2616998004	MW-5	EPA 9315	337393		
2616998005	HGWC-8	EPA 9315	337392		
2616998006	HGWC-10	EPA 9315	337393		
2616998007	MW-6	EPA 9315	337393		
2616998008	MW-7	EPA 9315	337392		
2616998009	HGWC-11	EPA 9315	337393		
2616998010	HGWC-12	EPA 9315	337393		
2616998011	MW-25D	EPA 9315	337393		
2616998001	HGWC-9	EPA 9320	337342		
2616998002	MW-26D	EPA 9320	337342		
2616998003	MW-19	EPA 9320	337342		
2616998004	MW-5	EPA 9320	337342		
2616998005	HGWC-8	EPA 9320	337342		
2616998006	HGWC-10	EPA 9320	337342		
2616998007	MW-6	EPA 9320	337342		
2616998008	MW-7	EPA 9320	337342		
2616998009	HGWC-11	EPA 9320	337342		
2616998010	HGWC-12	EPA 9320	337342		
2616998011	MW-25D	EPA 9320	338745		
2616998001	HGWC-9	Total Radium Calculation	338684		
2616998002	MW-26D	Total Radium Calculation	338684		
2616998003	MW-19	Total Radium Calculation	338684		
2616998004	MW-5	Total Radium Calculation	338684		
2616998005	HGWC-8	Total Radium Calculation	338684		
2616998006	HGWC-10	Total Radium Calculation	338684		
2616998007	MW-6	Total Radium Calculation	338684		
2616998008	MW-7	Total Radium Calculation	338684		
2616998009	HGWC-11	Total Radium Calculation	338684		
2616998010	HGWC-12	Total Radium Calculation	338684		
2616998011	MW-25D	Total Radium Calculation	340066		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<b>Section A</b>		<b>Section B</b>	
<b>Required Client Information:</b>		<b>Required Project Information:</b>	
Company: Georgia Power - Coal Combustion Residuals	Report To: Jogi Abraham	Invoice Information:	
Address: 2480 Manor Road	Copy To: Lauren Petty, Geosyntec	Attention: scsinfo@southernco.com	Company Name:
Allanta, GA 30339		Address:	
Email: j.abraham@southernco.com	Purchase Order #: SC510348808	Pace Quote:	
Phone: (404)506-7239	Project Name: Plant Hammond	Pace Project Manager: betsy.mcdaniel@pacelabs.com	
Requested Due Date: <b>Standard TX</b>	Project #:	Pace Profile #: 327 (AP) or 328 (thru)	GA

Page : 1 of 3

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES				Residual Chlorine (Y/N)			
			START DATE TIME	END DATE TIME				Unpreserved	H2SO4	HNO3	HCl		NaOH	Na2S2O3	Methanol
1	HG-WC-9	WT	04/03 9:43	04/03 10:05	G	WTG	5	2	3						
2	MW-26D	WT	04/03 11:15	04/03 11:38	G	WTG	5	2	3						
3	MW-19	WT	04/03 14:27	04/03 14:50	G	WTG	5	2	3						
4	MW-S	WT	04/03 13:55	04/03 13:12	G	WTG	5	2	3						
5															
6															
7															
8															
9															
10															
11															
12															

**NO# : 2616998**

REQUISITION #	DATE	TIME	REQUESTED BY	DATE	TIME	RECEIVED BY	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
0410204	04/10/03	1810	Grant Walker / Geosyntec	04/10/03	1810	Martin Newman / Geosyntec	4/12/19	1810						
47319	4/3/19	1400	Martin Newman / Geosyntec	4/3/19	1400	Jeff Blawie / Geosyntec	4/5/19	1400						
41419	4/14/19	0905	Grant Walker / Geosyntec	4/14/19	0905	Grant Walker	4/14/19	1100	3.5					

PRINT Name of SAMPLER: **Grant Walker**  
 SIGNATURE of SAMPLER: **Grant Walker**  
 DATE Signed: **04/03/19**



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jabraham@southernco.com  
 Phone: (404) 506-7239  
 Requested Due Date: **Standard TAT**

**Section B**  
 Required Project Information:  
 Report To: Jopi Abraham  
 Copy To: Lauren Felty, Geosyntec  
 Purchase Order #: SCS 0948606  
 Project Name: Plant Hammond

**Section C**  
 Invoice Information:  
 Attention: sesinvoices@southernco.com  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)  
 GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	ANALYSES TEST		PRESERVATIVES	# OF CONTAINERS	SAMPLE TEMP AT COLLECTION	METS (App. III & App. IV, D&O)	METS (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME			Y	N								
1	DW	DW	4/3/19 1054	4/3/19 1124	G					5	2	3				
2	WT	WT	4/3/19 1310	4/3/19 1330	G					5	2	3				
3	WT	WT	4/3/19 1450	4/3/19 1510	G					5	2	3				
4																
5																
6																
7																
8																
9																
10																
11																
12																

**WO# : 2616998**  
 RM: BM Due Date: 05/02/19  
 CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	RECEIVED BY / AFFILIATION	DATE	TEMP IN C	Ice Received on	Custody (Y/N)	Sealed Cooler (Y/N)	Samples Intact (Y/N)
App. IV (2): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Gallium, Hydrogen, Selenium, Thallium	Noelia Mueses / Geosyntec	4/3/19 1100	Lauren Felty / Geosyntec	4/3/19 1400					
	Noelia Mueses / Geosyntec	4/4/19	Lauren Felty / Geosyntec	4/4/19 0900					
	Noelia Mueses	4/4/19 1100	Lauren Felty / Geosyntec	4/4/19 1100					

DATE Signed: 4/3/19  
 SIGNATURE OF SAMPLER: Noelia Mueses  
 SIGNATURE OF SAMPLER: Noelia Mueses



# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

<b>Section A</b>		<b>Section B</b>		<b>Section C</b>	
<b>Requested Client Information:</b> Company: Georgia Power - Coal Combustion Residuals Address: 2480 Maner Road Atlanta, GA 30339 Email: jbrahams@southernco.com Phone: (404)506-7239 Requested Due Date: <b>Standard</b>		<b>Required Project Information:</b> Report To: Joji Abraham Copy To: Lauren Petty, Geosyntec Purchase Order #: SCS10248506 Project Name: Plant Hammond Project #: <b>Standard</b>		<b>Invoice Information:</b> Attention: scsinvoices@southernco.com Company Name: Address: Pace Quote: Pace Project Manager: beisy.mcdaniel@pacelabs.com Pace Profile #: 327 (AP) or 328 (HUF)	
<b>State:</b> GA <b>City:</b>		<b>State:</b> GA <b>City:</b>		<b>State:</b> GA <b>City:</b>	

ITEMS #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-RAB C-COMP)	COLLECTED		DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES										Residual Chlorine (Y/N)						
			START	END					H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Mele (App. III & App. IV)	Mele (App. III, App. IV, D&O)	Mele (App. III & D&O)		TDS, Cl, F, SO4	Radium 226/228				
1	MW-7	G	4/31/19 10:25	4/31/19 10:45	4/31/19	10:45	15	3																	
2	HGWC-11	G	4/31/19 12:20	4/31/19 12:40	4/31/19	12:40	15	3																	
3	HGWC-12	G	4/31/19 13:58	4/31/19 14:25	4/31/19	14:25	15	3																	
4	MW-25D	G	4/31/19 15:34	4/31/19 16:05	4/31/19	16:05	15	3																	

APPROVED FOR DELIVERY	DELIVERED BY (LOCATION)	DATE	RECEIVED BY (LOCATION)	DATE	TEMP IN C	Received on	Sealed	Cooler	Samples	Initial
APR 31 19 15:10	Dalton Anderson	4/31/19	Marsha Simpson	4/31/19	1010	4/31/19	Y	Y	Y	Y
	Marsha Simpson	4/31/19	Geosyntec	4/31/19	1900	4/31/19	Y	Y	Y	Y
	Geosyntec	4/31/19	Geosyntec	4/31/19	0928	4/4/19	Y	Y	Y	Y
	Geosyntec	4/31/19	Geosyntec	4/4/19	1100	4/4/19	Y	Y	Y	Y

**WQH: 2616998**  
 PN: BM Due Date: 05/02/19  
 CLIENT: GAPower-CCR

SAMPLER NAME AND SIGNATURE  
 PRINT Name of SAMPLER: Dalton Anderson  
 SIGNATURE of SAMPLER: *[Signature]*  
 DATE: 4/3/19

APPROVED FOR DELIVERY  
 DELIVERED BY (LOCATION)  
 DATE  
 RECEIVED BY (LOCATION)  
 DATE  
 TEMP IN C  
 Received on  
 Sealed  
 Cooler  
 Samples  
 Initial



Sample Condition Upon Receipt

Client Name: GA Power

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

WO#: **2616998**

PM: **BM** Due Date: **05/02/19**  
CLIENT: **GA Power-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 3.5 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun  
Date and Initials of person examining contents: 4/29/19 MR

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

Client Notification/ Resolution: \_\_\_\_\_

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

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

Field Data Required? Y / N

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617067

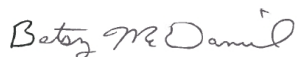
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/12/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617067

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### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617067

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617067001	MW-27D	Water	04/04/19 09:48	04/05/19 11:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2617067

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617067001	MW-27D	EPA 6020B	JMW1	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617067

Sample: MW-27D		Lab ID: 2617067001		Collected: 04/04/19 09:48		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Antimony	<b>0.00016J</b>	mg/L	0.0030	0.00011	1	04/09/19 10:55	04/10/19 02:00	7440-36-0	
Arsenic	<b>0.00020J</b>	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 02:00	7440-38-2	
Barium	<b>1.2</b>	mg/L	0.050	0.00030	5	04/09/19 10:55	04/11/19 01:16	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 02:00	7440-41-7	
Boron	<b>0.12J</b>	mg/L	0.20	0.0051	2	04/09/19 10:55	04/11/19 01:12	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 02:00	7440-43-9	
Calcium	<b>26.3</b>	mg/L	2.5	0.10	5	04/09/19 10:55	04/11/19 01:16	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 02:00	7440-47-3	
Cobalt	<b>0.000091J</b>	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 02:00	7440-48-4	
Lithium	<b>0.0069J</b>	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 02:00	7439-93-2	
Molybdenum	<b>0.0018J</b>	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 02:00	7439-98-7	
Selenium	<b>0.00012J</b>	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 02:00	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 02:00	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>203</b>	mg/L	25.0	10.0	1		04/11/19 19:34		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>26.9</b>	mg/L	0.25	0.024	1		04/09/19 09:48	16887-00-6	
Fluoride	<b>0.26J</b>	mg/L	0.30	0.029	1		04/09/19 09:48	16984-48-8	
Sulfate	<b>11.8</b>	mg/L	1.0	0.017	1		04/09/19 09:48	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617067

QC Batch: 468126 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3010A Analysis Description: 6020 MET  
Associated Lab Samples: 2617067001

METHOD BLANK: 2543175 Matrix: Water  
Associated Lab Samples: 2617067001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/10/19 00:56	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 00:58	
Barium	mg/L	ND	0.010	0.000060	04/11/19 00:58	
Beryllium	mg/L	ND	0.0030	0.000050	04/10/19 00:56	
Boron	mg/L	ND	0.10	0.0026	04/11/19 00:58	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 00:58	
Calcium	mg/L	ND	0.50	0.021	04/11/19 00:58	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 00:58	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 00:58	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 00:58	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 00:58	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 00:58	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 00:58	

LABORATORY CONTROL SAMPLE: 2543176

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	98	80-120	
Beryllium	mg/L	0.01	0.0095	95	80-120	
Boron	mg/L	0.05	0.047J	94	80-120	
Cadmium	mg/L	0.01	0.010	101	80-120	
Calcium	mg/L	0.62	0.63	101	80-120	
Chromium	mg/L	0.05	0.050	99	80-120	
Cobalt	mg/L	0.01	0.010J	100	80-120	
Lithium	mg/L	0.05	0.050J	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.050	99	80-120	
Thallium	mg/L	0.01	0.0099	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2543177 2543178

Parameter	Units	2543177		2543178		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	102	100	75-125	2	20	
Arsenic	mg/L	0.00017J	0.01	0.01	0.010	0.010	102	99	75-125	3	20	
Barium	mg/L	0.018	0.05	0.05	0.069	0.068	101	99	75-125	1	20	

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

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**QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2617067

Parameter	Units	2543177		2543178		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Beryllium	mg/L	ND	0.01	0.01	0.0088	0.0084	87	84	75-125	4	20	
Boron	mg/L	2.3	0.05	0.05	2.4	2.4	205	248	75-125	1	20	M6
Cadmium	mg/L	0.0018	0.01	0.01	0.012	0.011	97	96	75-125	1	20	
Calcium	mg/L	214	0.62	0.62	218	216	575	271	75-125	1	20	M6
Chromium	mg/L	ND	0.05	0.05	0.050	0.049	99	98	75-125	1	20	
Cobalt	mg/L	0.035	0.01	0.01	0.044	0.044	97	94	75-125	1	20	
Lithium	mg/L	0.00090J	0.05	0.05	0.046J	0.045J	90	88	75-125	2	20	
Molybdenum	mg/L	ND	0.05	0.05	0.052	0.052	104	103	75-125	1	20	
Selenium	mg/L	0.00021J	0.05	0.05	0.050	0.049	99	97	75-125	2	20	
Thallium	mg/L	ND	0.01	0.01	0.010	0.010	104	102	75-125	1	20	

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**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617067

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QC Batch:	26251	Analysis Method:	SM 2540C
QC Batch Method:	SM 2540C	Analysis Description:	2540C Total Dissolved Solids
Associated Lab Samples:	2617067001		

---

LABORATORY CONTROL SAMPLE: 118507

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	404	101	84-108	

---

SAMPLE DUPLICATE: 118508

Parameter	Units	2617035009 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	85.0	50.0	52	10	D6

---

SAMPLE DUPLICATE: 118509

Parameter	Units	2617069003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	340	341	0	10	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617067

QC Batch: 25956 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2617067001

METHOD BLANK: 117263 Matrix: Water  
Associated Lab Samples: 2617067001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.066J	0.25	0.024	04/08/19 22:43	
Fluoride	mg/L	ND	0.30	0.029	04/08/19 22:43	
Sulfate	mg/L	0.045J	1.0	0.017	04/08/19 22:43	

LABORATORY CONTROL SAMPLE: 117264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	9.8	98	90-110	
Fluoride	mg/L	10	9.7	97	90-110	
Sulfate	mg/L	10	9.7	97	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117265 117266

Parameter	Units	2617035001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
Chloride	mg/L	4.3	10	10	14.3	14.4	100	101	90-110	1	15		
Fluoride	mg/L	ND	10	10	9.7	9.8	97	98	90-110	1	15		
Sulfate	mg/L	8.5	10	10	17.6	17.7	91	92	90-110	0	15		

MATRIX SPIKE SAMPLE: 117267

Parameter	Units	2617035002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	4.2	10	13.9	96	90-110	
Fluoride	mg/L	ND	10	9.3	93	90-110	
Sulfate	mg/L	2.1	10	11.2	91	90-110	

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617067

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond  
Pace Project No.: 2617067

<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
2617067001	MW-27D	EPA 3010A	468126	EPA 6020B	468248
2617067001	MW-27D	SM 2540C	26251		
2617067001	MW-27D	EPA 300.0	25956		

**REPORT OF LABORATORY ANALYSIS**

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

### Section A

#### Required Client Information:

Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jbraham@southemco.com  
 Phone: (404) 505-7239  
 Requested Due Date: **Standard TAT**

### Section B

#### Invoice Information:

Report To: Jolu Abraham  
 Copy To: Lauren Peaty, Geosyntec  
 Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 State: GA  
 City: Marietta  
 Zip: 30067  
 Project Name: Plant Hammond  
 Project #: 327 (AP) or 328 (Huff)  
 Pace Order #: SCS10348606  
 Pace Project Manager: betsy.mcdaniels@paceelabs.com  
 Pace Profile #:

### Section C

#### Required Analytical Information:

Matrix Code (see valid codes to left)  
 Sample Type (G=GRAB C=COMP)  
 # of Containers  
 Sample Temp at Collection

ITEM #	MATRIX CODE DW: Drinking Water WT: Waste Water P: Product SL: Solid CL: Oil WP: Wipe AR: Air OT: Other TS: Trace	COLLECTED		DATE	TIME	DATE	TIME	RECEIVED BY	LABORATORY	DATE	TIME	RECEIVED ON	TEMP IN C	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)	
		START	END															
1	AW-280			4/4/19	09:15	4/4/19	09:18	NIM										
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

NO# 2617067

MATRIX CODE (see valid codes to left)  
 SAMPLE TYPE (G=GRAB C=COMP)  
 # OF CONTAINERS  
 SAMPLE TEMP AT COLLECTION

RECEIVED BY VERIFICATION  
 DATE TIME  
 RECEIVED BY VERIFICATION  
 DATE TIME

RECEIVED ON TEMP IN C  
 Ice (Y/N)  
 Custody Sealed (Y/N)  
 Cooler (Y/N)  
 Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE  
 PRINT NAME of SAMPLER: Nodia M/MSW  
 SIGNATURE of SAMPLER: Nodia M/MSW  
 DATE Signed: 4/4/19





Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2617067**

PN: **BM** Due Date: **04/12/19**  
CLIENT: **GAPower-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.2 Biological Tissue is Frozen: Yes No  Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/5/19 MK

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

Client Notification/ Resolution: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

April 29, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617068

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 05, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2617068

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617068

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617068001	MW-27D	Water	04/04/19 09:48	04/05/19 11:20

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2617068

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617068001	MW-27D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617068

**Sample: MW-27D**      **Lab ID: 2617068001**      Collected: 04/04/19 09:48      Received: 04/05/19 11:20      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.983 ± 0.386 (0.350)</b> C:98% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228	EPA 9320	<b>0.348 ± 0.348 (0.722)</b> C:87% T:79%	pCi/L	04/18/19 12:29	15262-20-1	
Total Radium	Total Radium Calculation	<b>1.33 ± 0.734 (1.07)</b>	pCi/L	04/22/19 11:17	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617068

QC Batch: 337911

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617068001

METHOD BLANK: 1644521

Matrix: Water

Associated Lab Samples: 2617068001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.526 ± 0.315 (0.569) C:87% T:76%	pCi/L	04/18/19 12:31	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617068

QC Batch: 337917

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617068001

METHOD BLANK: 1644525

Matrix: Water

Associated Lab Samples: 2617068001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.221 ± 0.211 (0.378) C:90% T:NA	pCi/L	04/17/19 08:36	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2617068

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond  
Pace Project No.: 2617068

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617068001	MW-27D	EPA 9315	337917		
2617068001	MW-27D	EPA 9320	337911		
2617068001	MW-27D	Total Radium Calculation	339290		

**REPORT OF LABORATORY ANALYSIS**

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manser Road  
 Atlanta, GA 30339  
 Email: jabraham@southernco.com  
 Phone: (404) 506-7239 | Fax  
 Requested Due Date: Standard TAT

**Section B**  
**Required Project Information:**  
 Report To: Joju Abraham  
 Copy To: Lauren Peity, Geosyntec  
 Address:  
 Purchase Order #: 66610348606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
**Invoice Information:**  
 Attention: scsinvoices@southernco.com  
 Company Name:  
 Address:  
 Pace Project Manager: betsy.mcdaniel@pace-labs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)  
 State/Location: GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST (Y/N)	Requested Analysis/Filtered (Y/N)	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)	
			START DATE TIME	END DATE TIME				H2SO4	HNO3									HCl
1	Drinking Water	DW	4/4/19 0928	4/4/19 0928	G	WT	5	H2SO4	3									
2	Water	WT																
3	Waste Water	WW																
4	Product	P																
5	SemiSolid	SS																
6	Oil	OL																
7	Wipe	WP																
8	Air	AR																
9	Other	OT																
10	Tissue	TS																
11																		
12																		

**ADDITIONAL COMMENTS:**

**RELINQUISHED BY / AFFILIATION:** Geosyntec DATE: 4/4/19 TIME: 1804

**ACCEPTED BY / AFFILIATION:** Plant Hammond DATE: 4/5/19 TIME: 0933

**RECEIVED BY / AFFILIATION:** Plant Hammond DATE: 4/5/19 TIME: 1120

**TEMP in C:** 1.2

**Received on:** 4/5/19

**Ice (Y/N):** Y

**Custody Sealed (Y/N):** Y

**Cooler (Y/N):** Y

**Samples Intact (Y/N):** Y

**SAMPLER NAME AND SIGNATURE:** Nadia Mjwos

**PRINT Name of SAMPLER:** Nadia Mjwos

**SIGNATURE of SAMPLER:** Nadia Mjwos

**DATE Signed:** 4/4/19

NO# : 2617068

2617068



### Sample Condition Upon Receipt

Client Name: GLA Power

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

**WO#: 2617068**

PM: **BM** Due Date: **05/03/19**  
CLIENT: **GRPower-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.2 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/5/19 MK

Comments: \_\_\_\_\_

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

Client Notification/ Resolution: \_\_\_\_\_

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

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

Field Data Required? Y / N

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617146

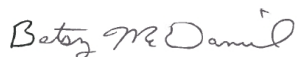
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/15/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617146

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617146

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Received</b>
2617146001	HGWC-13	Water	04/05/19 16:03	04/08/19 15:30

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2617146

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617146001	HGWC-13	EPA 6020B	JMW1	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617146

Sample: HGWC-13		Lab ID: 2617146001		Collected: 04/05/19 16:03		Received: 04/08/19 15:30		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Antimony	<b>0.00021J</b>	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 09:34	7440-36-0	
Arsenic	<b>0.36</b>	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-38-2	
Barium	<b>0.079</b>	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 09:34	7440-41-7	
Boron	<b>0.86J</b>	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 23:20	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 09:34	7440-43-9	
Calcium	<b>77.1</b>	mg/L	10.0	0.41	20	04/10/19 19:59	04/11/19 23:20	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 09:34	7440-47-3	
Cobalt	<b>0.0017J</b>	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 09:34	7440-48-4	
Lithium	<b>0.023J</b>	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 09:34	7439-93-2	
Molybdenum	<b>0.030</b>	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 09:34	7439-98-7	
Selenium	<b>0.00018J</b>	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 09:34	7782-49-2	
Thallium	<b>0.00034J</b>	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 09:34	7440-28-0	
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C							
Total Dissolved Solids	<b>331</b>	mg/L	25.0	10.0	1		04/11/19 20:53		
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0							
Chloride	<b>36.4</b>	mg/L	0.25	0.024	1		04/10/19 09:10	16887-00-6	
Fluoride	<b>0.83</b>	mg/L	0.30	0.029	1		04/10/19 09:10	16984-48-8	
Sulfate	<b>105</b>	mg/L	10.0	0.17	10		04/10/19 13:29	14808-79-8	

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617146

QC Batch: 468622 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3010A Analysis Description: 6020 MET  
Associated Lab Samples: 2617146001

METHOD BLANK: 2545263 Matrix: Water  
Associated Lab Samples: 2617146001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	

LABORATORY CONTROL SAMPLE: 2545264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2545265 2545266

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2617144001 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Antimony	mg/L		0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Arsenic	mg/L		0.01	0.01	0.0091J	0.0089J	91	89	75-125	2	20	
Barium	mg/L		0.05	0.05	0.085	0.085	85	85	75-125	0	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617146

Parameter	Units	2545265		2545266		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Beryllium	mg/L		0.01	0.01	0.0086	0.0089	86	89	75-125	4	20	
Boron	mg/L	1010J ug/L	0.05	0.05	1.0J	1.0J	67	48	75-125	1	20	M6
Cadmium	mg/L		0.01	0.01	0.011	0.011	99	99	75-125	0	20	
Calcium	mg/L	70000 ug/L	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L		0.05	0.05	0.048	0.048	96	95	75-125	1	20	
Cobalt	mg/L		0.01	0.01	0.015	0.015	97	96	75-125	1	20	
Lithium	mg/L		0.05	0.05	0.043J	0.044J	82	85	75-125	3	20	
Molybdenum	mg/L		0.05	0.05	0.050	0.049	99	99	75-125	1	20	
Selenium	mg/L		0.05	0.05	0.044	0.044	89	88	75-125	1	20	
Thallium	mg/L		0.01	0.01	0.0096	0.0096	96	96	75-125	0	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617146

---

QC Batch: 26252	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617146001	

---

LABORATORY CONTROL SAMPLE: 118510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

---

SAMPLE DUPLICATE: 118512

Parameter	Units	2617150003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2310	2380	3	10	

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617146

QC Batch: 26064 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2617146001

METHOD BLANK: 117680 Matrix: Water  
Associated Lab Samples: 2617146001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	ND	0.25	0.024	04/10/19 01:27	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 01:27	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 01:27	

LABORATORY CONTROL SAMPLE: 117681

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	10.2	102	90-110	
Sulfate	mg/L	10	10.1	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117682 117683

Parameter	Units	2617086001 Result	MS Spike Conc.	MSD Spike Conc.	117682		117683		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Chloride	mg/L	4.2	10	10	14.3	14.3	101	101	90-110	0	15	
Fluoride	mg/L	0.047J	10	10	10.4	10.4	103	103	90-110	0	15	
Sulfate	mg/L	10.8	10	10	19.6	19.6	89	88	90-110	0	15 M1	

MATRIX SPIKE SAMPLE: 117684

Parameter	Units	2617086002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L		1.6	10	10.7	91	90-110
Fluoride	mg/L		ND	10	9.2	92	90-110
Sulfate	mg/L		5.2	10	13.7	85	90-110 M1

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### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617146

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond  
Pace Project No.: 2617146

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617146001	HGWC-13	EPA 3010A	468622	EPA 6020B	468673
2617146001	HGWC-13	SM 2540C	26252		
2617146001	HGWC-13	EPA 300.0	26064		

**REPORT OF LABORATORY ANALYSIS**

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
 Required Client Information:  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Mamer Road  
 Atlanta, GA 30339  
 Email: jbraham@southemco.com  
 Phone: (404)506-7239 Fax:  
 Requested Due Date: Standard TAT

**Section B**  
 Required Project Information:  
 Report To: Joji Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Atlanta, GA 30339  
 Purchase Order #: SCS103-48606  
 Project Name: Plant Hammond  
 Project #:

**Section C**  
 Invoice Information:  
 Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Order #:  
 Pace Project Manager: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327 (AP) or 328 (HUF)

Page: 1 Of 1

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES	TESTS		Requested Analytes (Y/N)		
			START DATE	END DATE			START TIME	END TIME			Other	ANALYST			
1	Drinking Water	DW	4/15/19	4/15/19	1553	MG	1603	52	3	H2SO4 HNO3 HCl NaOH Na2SO3 Methanol	7	7	Metals (App. III & App. IV) Metals (App. III & D&O) TDS, Cl, F, SO4 Radium 226/228	Residual Chlorine (Y/N)	
2	Waste Water	WW													
3	Product	P													
4	Soil/Sediment	SL													
5	Oil	OL													
6	Wipe	WP													
7	Air	AR													
8	Other	OT													
9	Tissue	TS													

**ADDITIONAL COMMENTS**  
 App. I (C): Antimony, Arsenic, Barium, Cadmium, Chromium, Cobalt, H. Duval, Lithium, Molybdenum, Selenium, Thallium  
 App. II (C): Lead, Lead, Lead, etc.  
 App. III (C): Lead, Lead, Lead, etc.  
 App. IV (C): Lead, Lead, Lead, etc.

**RECEIVED BY / AFFILIATION**  
 4/15/19 1945  
 4/15/19 1146  
 4/15/19 1945  
 4/15/19 1146  
 4/15/19 1945  
 4/15/19 1146

**DATE**  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19

**TIME**  
 1945  
 1146  
 1945  
 1146  
 1945  
 1146

**TEMP IN C**  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19

**Received on**  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19

**Intact Samples (Y/N)**  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19

**Cooler Sealed (Y/N)**  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19

**Custody (Y/N)**  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19

**DATE SIGNED**  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19  
 4/15/19

**SIGNATURE OF SAMPLER**  
 Noelia Muskus  
 Noelia Muskus

**PRINT NAME OF SAMPLER**  
 Noelia Muskus

**SAMPLER NAME AND SIGNATURE**  
 Noelia Muskus





Sample Condition Upon Receipt

Client Name: GIA Power

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

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

**WO#: 2617146**

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

PM: BM Due Date: 04/15/19  
CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 1.1 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/8/19 MR

Temp should be above freezing to 6°C

Comments: \_\_\_\_\_

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617147

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617147

---

### **Pennsylvania Certification IDs**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617147

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617147001	HGWC-13	Water	04/05/19 16:03	04/08/19 15:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617147

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617147001	HGWC-13	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617147

Sample: HGWC-13		Lab ID: 2617147001	Collected: 04/05/19 16:03	Received: 04/08/19 15:30	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.422 ± 0.319 (0.565)</b>		pCi/L	04/18/19 08:06	13982-63-3	
Radium-228	EPA 9320	<b>-0.0205 ± 0.300 (0.711)</b>		pCi/L	04/18/19 12:31	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.422 ± 0.619 (1.28)</b>		pCi/L	04/22/19 11:27	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Plant Hammond

Pace Project No.: 2617147

QC Batch: 337915

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617147001

METHOD BLANK: 1644524

Matrix: Water

Associated Lab Samples: 2617147001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.664 ± 0.303 (0.504) C:90% T:91%	pCi/L	04/18/19 12:31	

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

**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617147

QC Batch: 337923

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617147001

METHOD BLANK: 1644541

Matrix: Water

Associated Lab Samples: 2617147001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.170 ± 0.213 (0.439) C:94% T:NA	pCi/L	04/18/19 08:05	

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617147

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617147

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
2617147001	HGWC-13	EPA 9315	337923		
2617147001	HGWC-13	EPA 9320	337915		
2617147001	HGWC-13	Total Radium Calculation	339294		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B	
Required Client Information:		Required Project Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham	Invoice Information:	Attention: sssinvoices@southernco.com
Address: 2480 Menar Road Atlanta, GA 30339	Copy To: Lauren Petty, Geosyntec	Company Name:	Address:
Email: jlabraham@southernco.com	Purchaser Order #: SCS10348606	Pace Order#:	Pace Project Manager: betsy.mcdaniel@pacelabs.com
Phone: (404) 506-7239	Project Name: Plant Hammond	Pace Profile #:	327 (AP) or 328 (Huff)
Requested Due Date: <b>Standard TAT</b>	Project #:	State / Location:	GA
Regulatory Agency:		Regulatory Agency:	

Page: | Of |

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see void codes to left)	FOR CONTAINERS	PRESERVATIVES			ANALYSES TEST	Requested Analysis Filtered (Y/N)	TEMP in C	Received on	Sealed	Cooled	Samples
			START DATE	END DATE				Unpreserved	H2SO4	HNO3							
1	Dredging Water	DW	4/15/19 1553	4/15/19 1603	WGC	WGC	3										
2	Waste Water	WW															
3	Product	P															
4	Semi-solid	SL															
5	Oil	OL															
6	Wipe	WP															
7	Air	AR															
8	Other	OT															
9	Tissue	TS															
10																	
11																	
12																	

**SAMPLE ID**  
One Character per box.  
(A-Z, 0-9 / , ' )  
Sample IDs must be unique

AGWC-13

*Handwritten:* N/A 4/15/19

**WO#: 2617147**

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
App. IV(L): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Iodine, Lithium, Molybdenum, Selenium, Thallium	Noelia Muskus / Geosyntec	4/15/19	1945	Noelia Muskus / Geosyntec	4/15/19	1945	
	Noelia Muskus / Geosyntec	4/18/19	1116	Noelia Muskus / Geosyntec	4/18/19	1116	
	Noelia Muskus / Geosyntec	4/18/19	1530	Noelia Muskus / Geosyntec	4/18/19	1530	

**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: Noelia Muskus  
SIGNATURE of SAMPLER: *Noelia Muskus*

DATE Signed: 4/15/19



Sample Condition Upon Receipt

Client Name: GIA Power

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

WO#: **2617147**

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

PM: **BM** Due Date: **05/06/19**  
CLIENT: **GAPower-CCR**

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used \_\_\_\_\_ Type of Ice:  Wet  Blue  None  Samples on ice, cooling process has begun

Cooler Temperature 1.1 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Date and Initials of person examining contents: 4/8/19 MB

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617205

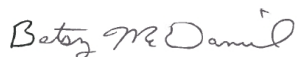
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/16/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617205

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617205

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617205001	MW-24D	Water	04/08/19 11:06	04/09/19 13:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2617205

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617205001	MW-24D	EPA 6020B	JMW1	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617205

Sample: MW-24D		Lab ID: 2617205001		Collected: 04/08/19 11:06		Received: 04/09/19 13:30		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Antimony	ND	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 09:41	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-38-2		
Barium	<b>0.043</b>	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 09:41	7440-41-7		
Boron	<b>0.47J</b>	mg/L	2.0	0.051	20	04/10/19 19:59	04/12/19 01:33	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 09:41	7440-43-9		
Calcium	<b>83.0</b>	mg/L	10.0	0.41	20	04/10/19 19:59	04/12/19 01:33	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 09:41	7440-47-3		
Cobalt	<b>0.00025J</b>	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 09:41	7440-48-4		
Lithium	<b>0.0027J</b>	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 09:41	7439-93-2		
Molybdenum	<b>0.00027J</b>	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 09:41	7439-98-7		
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 09:41	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 09:41	7440-28-0		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>323</b>	mg/L	25.0	10.0	1		04/11/19 20:54			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>43.3</b>	mg/L	0.25	0.024	1		04/11/19 00:33	16887-00-6		
Fluoride	<b>0.048J</b>	mg/L	0.30	0.029	1		04/11/19 00:33	16984-48-8		
Sulfate	<b>97.3</b>	mg/L	10.0	0.17	10		04/15/19 23:14	14808-79-8		

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617205

QC Batch: 468622 Analysis Method: EPA 6020B  
QC Batch Method: EPA 3010A Analysis Description: 6020 MET  
Associated Lab Samples: 2617205001

METHOD BLANK: 2545263 Matrix: Water  
Associated Lab Samples: 2617205001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	

LABORATORY CONTROL SAMPLE: 2545264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2545265 2545266

Parameter	Units	2617144001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Antimony	mg/L		0.1	0.1	0.099	0.099	99	99	75-125	0	20	
Arsenic	mg/L		0.01	0.01	0.0091J	0.0089J	91	89	75-125	2	20	
Barium	mg/L		0.05	0.05	0.085	0.085	85	85	75-125	0	20	

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

### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA**

Project: Plant Hammond

Pace Project No.: 2617205

Parameter	Units	2545265		2545266		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Beryllium	mg/L		0.01	0.01	0.0086	0.0089	86	89	75-125	4	20	
Boron	mg/L	1010J ug/L	0.05	0.05	1.0J	1.0J	67	48	75-125	1	20	M6
Cadmium	mg/L		0.01	0.01	0.011	0.011	99	99	75-125	0	20	
Calcium	mg/L	70000 ug/L	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L		0.05	0.05	0.048	0.048	96	95	75-125	1	20	
Cobalt	mg/L		0.01	0.01	0.015	0.015	97	96	75-125	1	20	
Lithium	mg/L		0.05	0.05	0.043J	0.044J	82	85	75-125	3	20	
Molybdenum	mg/L		0.05	0.05	0.050	0.049	99	99	75-125	1	20	
Selenium	mg/L		0.05	0.05	0.044	0.044	89	88	75-125	1	20	
Thallium	mg/L		0.01	0.01	0.0096	0.0096	96	96	75-125	0	20	

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**REPORT OF LABORATORY ANALYSIS**

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617205

QC Batch: 26252

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 2617205001

LABORATORY CONTROL SAMPLE: 118510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

SAMPLE DUPLICATE: 118512

Parameter	Units	2617150003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2310	2380	3	10	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617205

QC Batch: 26135 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2617205001

METHOD BLANK: 117979 Matrix: Water  
Associated Lab Samples: 2617205001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.064J	0.25	0.024	04/10/19 21:47	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 21:47	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 21:47	

LABORATORY CONTROL SAMPLE: 117980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.0	100	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117981 117982

Parameter	Units	2617207001 Result	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Chloride	mg/L	0.25J	10	10	9.9	10	96	97	90-110	1	15			
Fluoride	mg/L	ND	10	10	9.5	9.6	95	96	90-110	1	15			
Sulfate	mg/L	0.13J	10	10	9.5	9.6	94	94	90-110	1	15			

MATRIX SPIKE SAMPLE: 117983

Parameter	Units	2617150001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	131	10	10.5	-1210	90-110	
Fluoride	mg/L	0.13J	10	9.4	93	90-110	
Sulfate	mg/L	392	10	13.7	-3780	90-110	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617205

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond  
Pace Project No.: 2617205

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617205001	MW-24D	EPA 3010A	468622	EPA 6020B	468673
2617205001	MW-24D	SM 2540C	26252		
2617205001	MW-24D	EPA 300.0	26135		

**REPORT OF LABORATORY ANALYSIS**

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A**  
**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manser Road  
 Atlanta, GA 30339  
 Email: jbrahman@southernco.com  
 Phone: (404)506-7239  
 Requested Due Date: **Standard TR1**

**Section B**  
**Required Project Information:**  
 Report To: Joju Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Atlanta, GA 30339  
 Purchase Order #: SC510348606  
 Project Name: Plant Hammond  
 Project #: **TR1**

**Section C**  
**Invoice Information:**  
 Attention: scsimvoibes@southhamco.com  
 Company Name:  
 Address:  
 Pace Project Manager: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327 (AP) or 328 (Huf)

ITEM #	MATRIX	CODE	COLLECTED		DATE	TIME	SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES	ANALYSES TESTS	RECEIVED BY AFFILIATION	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Samples Intact (Y/N)	
			START	END																
1	MW - 240	DW	4/8/19	10:06	4/8/19	11:27	WF5	5	2	H2SO4 HNO3 HCl NaOH Mn2S2O3 Methanol Other	Metals (App. III & App. IV) Metals (App. III, IV, D&O) TDS, Cl, F, SO4 Radium 226/228	4/8/19	2210	4.9.19	1127	4/8/19	1350.7	4	4	4
2		WT	4/8/19	10:06	4/8/19	11:27	WF5	5	2											

WO#: 2617205

**ADMITTED/COMPLIANTS**  
 App TO (G): Arsenic, Boron, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Polychlorinated Biphenyls, Selenium, Thallium

**RETURNED BY AFFILIATION**  
 Madeline Mpanambano  
 Geosyntec

**ACCEPTED BY AFFILIATION**  
 Madeline Mpanambano  
 Geosyntec

**SAMPLER NAME AND SIGNATURE**  
 PRINT Name of SAMPLER: Noelia Mustos  
 SIGNATURE of SAMPLER: Noelia Mpanambano  
 DATE Signed: 4/8/19



**Sample Condition Upon Receipt**



Client Name: GIA Power

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

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

**WO#: 2617205**

Tracking #: \_\_\_\_\_  
Custody Seal on Cooler/Box Present:  yes  no Seals intact:  yes

PH: BM Due Date: 04/16/19  
CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 0.7 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/9/19 NR

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N  
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617206

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2617206

---

### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2617206

---

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617206001	MW-24D	Water	04/08/19 11:06	04/09/19 13:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond  
Pace Project No.: 2617206

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617206001	MW-24D	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617206

**Sample: MW-24D**      **Lab ID: 2617206001**      Collected: 04/08/19 11:06      Received: 04/09/19 13:30      Matrix: Water

PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.127 ± 0.0949 (0.162)</b> C:91% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	<b>0.446 ± 0.375 (0.749)</b> C:79% T:73%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.573 ± 0.470 (0.911)</b>	pCi/L	04/26/19 09:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617206

QC Batch: 338631

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617206001

METHOD BLANK: 1648339

Matrix: Water

Associated Lab Samples: 2617206001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.146 ± 0.0893 (0.139) C:90% T:NA	pCi/L	04/22/19 21:19	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617206

QC Batch: 338745

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617206001

METHOD BLANK: 1648702

Matrix: Water

Associated Lab Samples: 2617206001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.552 ± 0.362 (0.681) C:81% T:74%	pCi/L	04/25/19 11:04	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2617206

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond  
Pace Project No.: 2617206

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617206001	MW-24D	EPA 9315	338631		
2617206001	MW-24D	EPA 9320	338745		
2617206001	MW-24D	Total Radium Calculation	340066		

**REPORT OF LABORATORY ANALYSIS**

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Section B

Section C

Invoice Information:

**Required Client Information:**  
 Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Manor Road  
 Atlanta, GA 30339  
 Email: jbraham@southemco.com  
 Phone: (404)506-7239  
 Requested Due Date: **Standard TAT**

**Required Project Information:**  
 Report To: Joju Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: GC910348606  
 Project Name: Plant Hammond  
 Project #: **Standard TAT**

**Company Name:** sctinvoices@southemco.com  
**Address:**  
**City/State:** GA  
**Regulatory Agency:**

**Pace Order:** betsy.mcdaniel@pacelabs.com  
**Pace Project Manager:** betsy.mcdaniel@pacelabs.com  
**Pace Profile #:** 327 (AP) or 328 (Hurt)

ITEM #	MATRIX	CODE	COLLECTED		DATE	TIME	DATE	TIME	SAMPLER NAME AND SIGNATURE	DATE SIGNED	TEMP IN C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)	
			START	END													
1	MW - 240	DW	4/18/19	10:06	4/18/19	10:06	25	3	Moelia Muskus / Geosyntec	4/18/19	23.0						
2		WT															
3		WW															
4		P															
5		SL															
6		OL															
7		WP															
8		AR															
9		OT															
10		TS															
11																	
12																	

**COMMON COMMENTS:** App To (2): Arsenic, Antimony, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Manganese, Selenium, Thallium

**RECEIVED BY / AFFILIATION:** Moelia Muskus / Geosyntec

**DATE:** 4/18/19

**TIME:** 11:27

**ACCEPTED BY / AFFILIATION:** Moelia Muskus / Geosyntec

**DATE:** 4/19/19

**TIME:** 13:30

**TEMP IN C:** 23.0

**Received on:** 4/19/19

**Ice (Y/N):** Y

**Custody Sealed (Y/N):** Y

**Cooler (Y/N):** Y

**Samples Intact (Y/N):** Y

**Signature of Sampler:** Moelia Muskus

**DATE SIGNED:** 4/18/19

**Signature of Sampler:** Moelia Muskus

MO#: 2617206

**Sample Condition Upon Receipt**

Face Analytical

Client Name: GIA Power

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

**WO#: 2617206**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: \_\_\_\_\_

PM: **BM** Due Date: **05/07/19**  
**CLIENT: GAPower-CCR**

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83

Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 0.7

Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/9/19 NR

Temp should be above freezing to 6°C

Comments:

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

Client Notification/ Resolution:

Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_

Date: \_\_\_\_\_

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

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617148

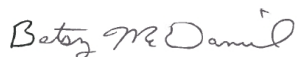
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/16/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617148

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617148

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Received</b>
2617148001	FB-01	Water	04/05/19 08:50	04/08/19 15:30

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617148

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617148001	FB-01	EPA 6020B	SER	19	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617148

Sample: FB-01		Lab ID: 2617148001		Collected: 04/05/19 08:50		Received: 04/08/19 15:30		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Antimony	ND	mg/L	0.0030	0.00011	1	04/16/19 07:51	04/16/19 18:55	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-38-2		
Barium	<b>0.000078J</b>	mg/L	0.010	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-41-7		
Boron	ND	mg/L	0.10	0.0026	1	04/16/19 07:51	04/16/19 18:55	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/16/19 07:51	04/16/19 18:55	7440-43-9		
Calcium	<b>0.024J</b>	mg/L	0.50	0.021	1	04/16/19 07:51	04/16/19 18:55	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/16/19 07:51	04/16/19 18:55	7440-47-3		
Cobalt	ND	mg/L	0.010	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-48-4		
Copper	ND	mg/L	0.025	0.00023	1	04/16/19 07:51	04/16/19 18:55	7440-50-8		
Lead	ND	mg/L	0.0050	0.000050	1	04/16/19 07:51	04/16/19 18:55	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/16/19 07:51	04/16/19 18:55	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/16/19 07:51	04/16/19 18:55	7439-98-7		
Nickel	ND	mg/L	0.010	0.00011	1	04/16/19 07:51	04/16/19 18:55	7440-02-0		
Selenium	ND	mg/L	0.010	0.000080	1	04/16/19 07:51	04/16/19 18:55	7782-49-2		
Silver	ND	mg/L	0.010	0.000050	1	04/16/19 07:51	04/16/19 18:55	7440-22-4		
Thallium	ND	mg/L	0.0010	0.000060	1	04/16/19 07:51	04/16/19 18:55	7440-28-0		
Vanadium	ND	mg/L	0.010	0.00012	1	04/16/19 07:51	04/16/19 18:55	7440-62-2		
Zinc	<b>0.017</b>	mg/L	0.010	0.0011	1	04/16/19 07:51	04/16/19 18:55	7440-66-6	C0	
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/11/19 21:25	04/15/19 18:37	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	ND	mg/L	25.0	10.0	1		04/11/19 20:53			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>0.11J</b>	mg/L	0.25	0.024	1		04/10/19 22:29	16887-00-6	B	
Fluoride	ND	mg/L	0.30	0.029	1		04/10/19 22:29	16984-48-8		
Sulfate	<b>0.069J</b>	mg/L	1.0	0.017	1		04/10/19 22:29	14808-79-8		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617148

QC Batch: 468895	Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A	Analysis Description: 7470 Mercury
Associated Lab Samples: 2617148001	

METHOD BLANK: 2546716 Matrix: Water

Associated Lab Samples: 2617148001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.00010	04/15/19 18:06	

LABORATORY CONTROL SAMPLE: 2546717

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0021	83	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2546718 2546719

Parameter	Units	92424398001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Spike Conc.	MSD Result						
Mercury	mg/L	ND	0.0025	0.0019	0.0025	0.0019	77	77	75-125	0	25	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617148

QC Batch: 469500

Analysis Method: EPA 6020B

QC Batch Method: EPA 3010A

Analysis Description: 6020 MET

Associated Lab Samples: 2617148001

METHOD BLANK: 2549697

Matrix: Water

Associated Lab Samples: 2617148001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/16/19 18:48	
Arsenic	mg/L	ND	0.0050	0.000060	04/16/19 18:48	
Barium	mg/L	ND	0.010	0.000060	04/16/19 18:48	
Beryllium	mg/L	ND	0.0030	0.000050	04/16/19 18:48	
Boron	mg/L	ND	0.10	0.0026	04/16/19 18:48	
Cadmium	mg/L	ND	0.0010	0.000070	04/16/19 18:48	
Calcium	mg/L	ND	0.50	0.021	04/16/19 18:48	
Chromium	mg/L	ND	0.010	0.00042	04/16/19 18:48	
Cobalt	mg/L	ND	0.010	0.000050	04/16/19 18:48	
Copper	mg/L	ND	0.025	0.00023	04/16/19 18:48	
Lead	mg/L	ND	0.0050	0.000050	04/16/19 18:48	
Lithium	mg/L	ND	0.050	0.00042	04/16/19 18:48	
Molybdenum	mg/L	ND	0.010	0.00010	04/16/19 18:48	
Nickel	mg/L	ND	0.010	0.00011	04/16/19 18:48	
Selenium	mg/L	ND	0.010	0.000080	04/16/19 18:48	
Silver	mg/L	ND	0.010	0.000050	04/16/19 18:48	
Thallium	mg/L	ND	0.0010	0.000060	04/16/19 18:48	
Vanadium	mg/L	ND	0.010	0.00012	04/16/19 18:48	
Zinc	mg/L	ND	0.010	0.0011	04/16/19 18:48	

LABORATORY CONTROL SAMPLE: 2549698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.098	98	80-120	
Arsenic	mg/L	0.01	0.0096	96	80-120	
Barium	mg/L	0.05	0.049	98	80-120	
Beryllium	mg/L	0.01	0.0096	96	80-120	
Boron	mg/L	0.05	0.048J	95	80-120	
Cadmium	mg/L	0.01	0.0099	99	80-120	
Calcium	mg/L	0.62	0.64	103	80-120	
Chromium	mg/L	0.05	0.048	97	80-120	
Cobalt	mg/L	0.01	0.0098J	98	80-120	
Copper	mg/L	0.05	0.049	98	80-120	
Lead	mg/L	0.05	0.050	99	80-120	
Lithium	mg/L	0.05	0.049J	98	80-120	
Molybdenum	mg/L	0.05	0.049	98	80-120	
Nickel	mg/L	0.05	0.049	97	80-120	
Selenium	mg/L	0.05	0.050	100	80-120	
Silver	mg/L	0.025	0.025	99	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617148

LABORATORY CONTROL SAMPLE: 2549698

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vanadium	mg/L	0.05	0.049	98	80-120	
Zinc	mg/L	0.05	0.049	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2549699 2549700

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		2617148001 Result	Spike Conc.	Spike Conc.	MS Result						
Antimony	mg/L	ND	0.1	0.1	0.099	0.098	99	98	75-125	1	20
Arsenic	mg/L	ND	0.01	0.01	0.0098	0.0097	98	97	75-125	1	20
Barium	mg/L	0.000078J	0.05	0.05	0.049	0.050	99	99	75-125	0	20
Beryllium	mg/L	ND	0.01	0.01	0.0097	0.0097	97	97	75-125	0	20
Boron	mg/L	ND	0.05	0.05	0.049J	0.050J	93	95	75-125	2	20
Cadmium	mg/L	ND	0.01	0.01	0.010	0.0099	100	99	75-125	1	20
Calcium	mg/L	0.024J	0.62	0.62	0.65	0.65	100	101	75-125	1	20
Chromium	mg/L	ND	0.05	0.05	0.050	0.049	99	97	75-125	2	20
Cobalt	mg/L	ND	0.01	0.01	0.010J	0.0099J	100	98	75-125	1	20
Copper	mg/L	ND	0.05	0.05	0.050	0.050	101	99	75-125	2	20
Lead	mg/L	ND	0.05	0.05	0.050	0.050	100	99	75-125	1	20
Lithium	mg/L	ND	0.05	0.05	0.050J	0.048J	99	96	75-125	4	20
Molybdenum	mg/L	ND	0.05	0.05	0.050	0.050	100	99	75-125	1	20
Nickel	mg/L	ND	0.05	0.05	0.050	0.049	100	98	75-125	1	20
Selenium	mg/L	ND	0.05	0.05	0.050	0.050	101	100	75-125	1	20
Silver	mg/L	ND	0.025	0.025	0.025	0.025	100	100	75-125	0	20
Thallium	mg/L	ND	0.01	0.01	0.010	0.0099	100	99	75-125	1	20
Vanadium	mg/L	ND	0.05	0.05	0.050	0.049	99	98	75-125	1	20
Zinc	mg/L	0.017	0.05	0.05	0.067	0.066	99	98	75-125	1	20

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617148

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QC Batch: 26252	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617148001	

---

LABORATORY CONTROL SAMPLE: 118510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

---

SAMPLE DUPLICATE: 118512

Parameter	Units	2617150003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2310	2380	3	10	

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617148

QC Batch: 26135 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2617148001

METHOD BLANK: 117979 Matrix: Water  
Associated Lab Samples: 2617148001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.064J	0.25	0.024	04/10/19 21:47	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 21:47	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 21:47	

LABORATORY CONTROL SAMPLE: 117980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.0	100	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117981 117982

Parameter	Units	2617207001 Result	MS		MSD		MS		MSD		% Rec Limits	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Chloride	mg/L	0.25J	10	10	9.9	10	96	97	90-110	1	15		
Fluoride	mg/L	ND	10	10	9.5	9.6	95	96	90-110	1	15		
Sulfate	mg/L	0.13J	10	10	9.5	9.6	94	94	90-110	1	15		

MATRIX SPIKE SAMPLE: 117983

Parameter	Units	2617150001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	131	10	10.5	-1210	90-110	
Fluoride	mg/L	0.13J	10	9.4	93	90-110	
Sulfate	mg/L	392	10	13.7	-3780	90-110	

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617148

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

C0 Result confirmed by second analysis.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617148

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617148001	FB-01	EPA 3010A	469500	EPA 6020B	469558
2617148001	FB-01	EPA 7470A	468895	EPA 7470A	468941
2617148001	FB-01	SM 2540C	26252		
2617148001	FB-01	EPA 300.0	26135		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

### Section A

#### Required Client Information:

Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jahrahm@southemco.com  
 Phone: (404) 506-7239  
 Requested Due Date: Standard TR

### Section B

#### Required Project Information:

Report To: Jolu Abraham  
 Copy To: Lauren Petty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

### Section C

#### Invoice Information:

Attention: sesinvoic@southemco.com  
 Company Name:  
 Address:  
 Pace Quibbe:  
 Pace Project Manager: betsy.mcdaniel@paceilabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST	REQUESTED ANALYSIS REFERENCE (Y/N)	RECEIVED ON	TEMP IN C	CUSTODY	SEALED	COOLER	SAMPLER COMMENTS	
			START DATE	END DATE				H2SO4	HNO3									HCl
1	Drinking Water	DW	4/15/19 0940	4/15/19 0950	17	WTG	5	Unpreserved										
2	Waste Water	WW					3											
3	Waste Water	WW																
4	Process	P																
5	Process	P																
6	Oil	OL																
7	Water	WP																
8	Air	AR																
9	Other	OT																
10	Tissue	TS																
11																		
12																		

**SAMPLE ID**  
 One Character per box.  
 (A-Z, 0-9 /, -)  
 Sample IDs must be unique

FB-01

4/15/19

AM

NO#: 2617148



2617148

ADDITIONAL COMMENTS	RELINQUISHED BY (AFFILIATION)	DATE	TIME	RECEIVED BY (AFFILIATION)	DATE	TIME	TEMP IN C	RECEIVED ON	TEMP IN C	COOLER	SEALED	CUSTODY	LOC (Y/N)	SAMPLE COMMENTS
	Apollia Mufson/Geosyntec	4/15/19	1945	Apollia Mufson/Geosyntec	4/15/19	1945								
	Jeppson/Geosyntec	4/18/19	1116	Jeppson/Geosyntec	4/18/19	1116								
				Madalman	4/18/19	1530								

SAMPLER NAME AND SIGNATURE  
 PRINT Name of SAMPLER: Nodia Muskus  
 SIGNATURE of SAMPLER: *Nodia Muskus*  
 DATE Signed: 4/15/19



Sample Condition Upon Receipt

Client Name: GTA Power

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

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

WO#: **2617148**

PM: **BM** Due Date: **04/15/19**  
CLIENT: **GAPower-CCR**

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.1 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/8/19 MR

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

Client Notification/Resolution: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617149

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 08, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617149

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 9526

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617149

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Received</b>
2617149001	FB-01	Water	04/05/19 08:50	04/08/19 15:30

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617149

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617149001	FB-01	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617149

**Sample: FB-01**      **Lab ID: 2617149001**      Collected: 04/05/19 08:50      Received: 04/08/19 15:30      Matrix: Water  
PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.114 ± 0.161 (0.330)</b> <b>C:92% T:NA</b>	pCi/L	04/18/19 08:25	13982-63-3	
Radium-228	EPA 9320	<b>0.160 ± 0.258 (0.561)</b> <b>C:88% T:76%</b>	pCi/L	04/18/19 12:31	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.274 ± 0.419 (0.891)</b>	pCi/L	04/22/19 11:27	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617149

QC Batch: 337915

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617149001

METHOD BLANK: 1644524

Matrix: Water

Associated Lab Samples: 2617149001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.664 ± 0.303 (0.504) C:90% T:91%	pCi/L	04/18/19 12:31	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617149

QC Batch: 337923

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617149001

METHOD BLANK: 1644541

Matrix: Water

Associated Lab Samples: 2617149001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.170 ± 0.213 (0.439) C:94% T:NA	pCi/L	04/18/19 08:05	

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

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2617149

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

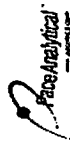
Pace Project No.: 2617149

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<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
2617149001	FB-01	EPA 9315	337923		
2617149001	FB-01	EPA 9320	337915		
2617149001	FB-01	Total Radium Calculation	339294		

## REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 Of 1

### Section A

#### Required Client Information:

Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Maner Road  
 Atlanta, GA 30339  
 Email: jbrahman@southernco.com  
 Phone: (404)505-7239  
 Requested Due Date: Standard

### Section B

#### Required Project Information:

Report To: Joju Abraham  
 Copy To: Lauren Peity, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

### Section C

#### Invoice Information:

Attention: sccinvoic@southernco.com  
 Company Name: Pace Project Manager  
 Address: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)  
 State/ Location: GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION			ANALYSES TEST	PRESERVATIVES	OTHER	Requested Analysis Filtered (Y/N)	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)																				
			START DATE	START TIME			END DATE	END TIME	DATE											TIME	DATE	TIME																	
			DATE	TIME			DATE	TIME	DATE											TIME	DATE	TIME																	
1		FB-01	4/15/19	0940	4/15/19	0850	1752	3			Y	Metals (App. III & App. IV) D&O	Metals (App. III & App. IV) D&O	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228																							
2																																							
3																																							
4																																							
5																																							
6																																							
7																																							
8																																							
9																																							
10																																							
11																																							
12																																							

WO#: 2617149



2617149

AM 4/15/19

ADDITIONAL COMMENTS	RELINQUISHED BY/AFFILIATION	DATE	TIME	ACCEPTED BY/AFFILIATION	DATE	TIME
	Apollia McFarland/Geosyntec	4/15/19	1945	Robert/C-sec/pace	4/15/19	1945
	Robert/C-sec/pace	4/15/19	1116	Bob/Pace	4/19/19	1116
				Robertman	4/18/19	1530

SAMPLER NAME AND SIGNATURE: Apollia McFarland

PRINT NAME of SAMPLER: Apollia Muskus

SIGNATURE of SAMPLER: Apollia McFarland

DATE Signed: 4/15/19

**Sample Condition Upon Receipt**



Client Name: GTA Power

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

**WO#: 2617149**

PM: **BM** Due Date: **05/06/19**  
 CLIENT: **GAPower-CCR**

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

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 1.1 Biological Tissue is Frozen: Yes No

Samples on ice, cooling process has begun  
 Date and Initials of person examining contents: 4/8/19 MB

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

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

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

May 03, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617207

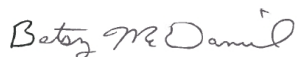
Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This revised report replaces the one issued on 4/16/2019. The report has been revised to correct metals units per consultant request. No other changes have been made to this report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2617207

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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### Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2617207

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617207001	FB-02	Water	04/08/19 17:45	04/09/19 13:30
2617207002	EB-01	Water	04/08/19 18:00	04/09/19 13:30

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617207

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617207001	FB-02	EPA 6020B	JMW1	19	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617207002	EB-01	EPA 6020B	JMW1	19	PASI-A
		EPA 7470A	RDT	1	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond  
Pace Project No.: 2617207

Sample: <b>FB-02</b>		Lab ID: <b>2617207001</b>		Collected: 04/08/19 17:45		Received: 04/09/19 13:30		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Antimony	ND	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 01:04	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 01:04	7440-38-2		
Barium	ND	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 01:04	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 01:04	7440-41-7		
Boron	ND	mg/L	0.10	0.0026	1	04/10/19 19:59	04/12/19 01:04	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 01:04	7440-43-9		
Calcium	ND	mg/L	0.50	0.021	1	04/10/19 19:59	04/12/19 01:04	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 01:04	7440-47-3		
Cobalt	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:04	7440-48-4		
Copper	ND	mg/L	0.025	0.00023	1	04/10/19 19:59	04/12/19 01:04	7440-50-8		
Lead	ND	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 01:04	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 01:04	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 01:04	7439-98-7		
Nickel	ND	mg/L	0.010	0.00011	1	04/10/19 19:59	04/12/19 01:04	7440-02-0		
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 01:04	7782-49-2		
Silver	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:04	7440-22-4		
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 01:04	7440-28-0		
Vanadium	ND	mg/L	0.010	0.00012	1	04/10/19 19:59	04/12/19 01:04	7440-62-2		
Zinc	ND	mg/L	0.010	0.0011	1	04/10/19 19:59	04/12/19 01:04	7440-66-6		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/11/19 21:25	04/15/19 18:39	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>14.0J</b>	mg/L	25.0	10.0	1		04/11/19 20:54			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>0.25J</b>	mg/L	0.25	0.024	1		04/11/19 00:54	16887-00-6	B	
Fluoride	ND	mg/L	0.30	0.029	1		04/11/19 00:54	16984-48-8		
Sulfate	<b>0.13J</b>	mg/L	1.0	0.017	1		04/11/19 00:54	14808-79-8		

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617207

Sample: EB-01		Lab ID: 2617207002		Collected: 04/08/19 18:00		Received: 04/09/19 13:30		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
<b>6020 MET ICPMS</b>		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Antimony	ND	mg/L	0.0030	0.00011	1	04/10/19 19:59	04/12/19 01:08	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.000060	1	04/10/19 19:59	04/12/19 01:08	7440-38-2		
Barium	ND	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 01:08	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 01:08	7440-41-7		
Boron	ND	mg/L	0.10	0.0026	1	04/10/19 19:59	04/12/19 01:08	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 01:08	7440-43-9		
Calcium	ND	mg/L	0.50	0.021	1	04/10/19 19:59	04/12/19 01:08	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 01:08	7440-47-3		
Cobalt	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:08	7440-48-4		
Copper	ND	mg/L	0.025	0.00023	1	04/10/19 19:59	04/12/19 01:08	7440-50-8		
Lead	ND	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 01:08	7439-92-1		
Lithium	ND	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 01:08	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 01:08	7439-98-7		
Nickel	ND	mg/L	0.010	0.00011	1	04/10/19 19:59	04/12/19 01:08	7440-02-0		
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 01:08	7782-49-2		
Silver	ND	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 01:08	7440-22-4		
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 01:08	7440-28-0		
Vanadium	ND	mg/L	0.010	0.00012	1	04/10/19 19:59	04/12/19 01:08	7440-62-2		
Zinc	ND	mg/L	0.010	0.0011	1	04/10/19 19:59	04/12/19 01:08	7440-66-6		
<b>7470 Mercury</b>		Analytical Method: EPA 7470A Preparation Method: EPA 7470A								
Mercury	ND	mg/L	0.00020	0.00010	1	04/11/19 21:25	04/15/19 18:41	7439-97-6		
<b>2540C Total Dissolved Solids</b>		Analytical Method: SM 2540C								
Total Dissolved Solids	<b>12.0J</b>	mg/L	25.0	10.0	1		04/11/19 20:54			
<b>300.0 IC Anions 28 Days</b>		Analytical Method: EPA 300.0								
Chloride	<b>0.22J</b>	mg/L	0.25	0.024	1		04/11/19 03:19	16887-00-6	B	
Fluoride	ND	mg/L	0.30	0.029	1		04/11/19 03:19	16984-48-8		
Sulfate	<b>0.38J</b>	mg/L	1.0	0.017	1		04/11/19 03:19	14808-79-8		

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617207

QC Batch: 468895                      Analysis Method: EPA 7470A  
 QC Batch Method: EPA 7470A            Analysis Description: 7470 Mercury  
 Associated Lab Samples: 2617207001, 2617207002

METHOD BLANK: 2546716                      Matrix: Water  
 Associated Lab Samples: 2617207001, 2617207002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Mercury	mg/L	ND	0.00020	0.00010	04/15/19 18:06	

LABORATORY CONTROL SAMPLE: 2546717

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/L	0.0025	0.0021	83	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2546718                      2546719

Parameter	Units	92424398001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	Spike Conc.	MSD Result						
Mercury	mg/L	ND	0.0025	0.0025	0.0019	0.0019	77	77	75-125	0	25	

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

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617207

QC Batch: 468622 Analysis Method: EPA 6020B

QC Batch Method: EPA 3010A Analysis Description: 6020 MET

Associated Lab Samples: 2617207001, 2617207002

METHOD BLANK: 2545263 Matrix: Water

Associated Lab Samples: 2617207001, 2617207002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00011	04/11/19 20:42	
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:42	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:42	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:42	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:42	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:42	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:42	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:42	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Copper	mg/L	ND	0.025	0.00023	04/11/19 20:42	
Lead	mg/L	ND	0.0050	0.000050	04/11/19 20:42	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:42	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:42	
Nickel	mg/L	ND	0.010	0.00011	04/11/19 20:42	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:42	
Silver	mg/L	ND	0.010	0.000050	04/11/19 20:42	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:42	
Vanadium	mg/L	ND	0.010	0.00012	04/11/19 20:42	
Zinc	mg/L	ND	0.010	0.0011	04/11/19 20:42	

LABORATORY CONTROL SAMPLE: 2545264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	mg/L	0.1	0.10	100	80-120	
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	99	80-120	
Beryllium	mg/L	0.01	0.010	104	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	102	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.051	102	80-120	
Cobalt	mg/L	0.01	0.010	102	80-120	
Copper	mg/L	0.05	0.051	103	80-120	
Lead	mg/L	0.05	0.050	100	80-120	
Lithium	mg/L	0.05	0.050	100	80-120	
Molybdenum	mg/L	0.05	0.051	102	80-120	
Nickel	mg/L	0.05	0.051	102	80-120	
Selenium	mg/L	0.05	0.051	101	80-120	
Silver	mg/L	0.025	0.025	102	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617207

LABORATORY CONTROL SAMPLE: 2545264

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vanadium	mg/L	0.05	0.051	101	80-120	
Zinc	mg/L	0.05	0.051	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2545265 2545266

Parameter	Units	2545265		2545266		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Antimony	mg/L	0.1	0.1	0.099	0.099	99	99	75-125	0	20		
Arsenic	mg/L	0.01	0.01	0.0091J	0.0089J	91	89	75-125	2	20		
Barium	mg/L	0.05	0.05	0.085	0.085	85	85	75-125	0	20		
Beryllium	mg/L	0.01	0.01	0.0086	0.0089	86	89	75-125	4	20		
Boron	mg/L	1.0J	0.05	0.05	1.0J	67	48	75-125	1	20	M6	
Cadmium	mg/L	0.01	0.01	0.011	0.011	99	99	75-125	0	20		
Calcium	mg/L	70.0	0.62	0.62	71.3	74.8	207	759	75-125	5	20	M6
Chromium	mg/L	0.05	0.05	0.048	0.048	96	95	75-125	1	20		
Cobalt	mg/L	0.01	0.01	0.015	0.015	97	96	75-125	1	20		
Copper	mg/L	0.05	0.05	0.049	0.048	98	97	75-125	1	20		
Lead	mg/L	0.05	0.05	0.048	0.048	96	96	75-125	0	20		
Lithium	mg/L	0.05	0.05	0.043J	0.044J	82	85	75-125	3	20		
Molybdenum	mg/L	0.05	0.05	0.050	0.049	99	99	75-125	1	20		
Nickel	mg/L	0.05	0.05	0.051	0.051	96	96	75-125	0	20		
Selenium	mg/L	0.05	0.05	0.044	0.044	89	88	75-125	1	20		
Silver	mg/L	0.025	0.025	0.023	0.023	92	91	75-125	1	20		
Thallium	mg/L	0.01	0.01	0.0096	0.0096	96	96	75-125	0	20		
Vanadium	mg/L	0.05	0.05	0.050	0.050	100	100	75-125	0	20		
Zinc	mg/L	0.05	0.05	0.047	0.047	86	86	75-125	0	20		

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617207

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QC Batch: 26252	Analysis Method: SM 2540C
QC Batch Method: SM 2540C	Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2617207001, 2617207002	

---

LABORATORY CONTROL SAMPLE: 118510

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	400	408	102	84-108	

---

SAMPLE DUPLICATE: 118512

Parameter	Units	2617150003 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	2310	2380	3	10	

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### QUALITY CONTROL DATA

Project: Plant Hammond  
Pace Project No.: 2617207

QC Batch: 26135 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 2617207001, 2617207002

METHOD BLANK: 117979 Matrix: Water  
Associated Lab Samples: 2617207001, 2617207002

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.064J	0.25	0.024	04/10/19 21:47	
Fluoride	mg/L	ND	0.30	0.029	04/10/19 21:47	
Sulfate	mg/L	ND	1.0	0.017	04/10/19 21:47	

LABORATORY CONTROL SAMPLE: 117980

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.2	102	90-110	
Fluoride	mg/L	10	10.0	100	90-110	
Sulfate	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117981 117982

Parameter	Units	2617207001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Result	MSD Result						
Chloride	mg/L	0.25J	10	10	9.9	10	96	97	90-110	1	15	
Fluoride	mg/L	ND	10	10	9.5	9.6	95	96	90-110	1	15	
Sulfate	mg/L	0.13J	10	10	9.5	9.6	94	94	90-110	1	15	

MATRIX SPIKE SAMPLE: 117983

Parameter	Units	2617150001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	131	10	10.5	-1210	90-110	
Fluoride	mg/L	0.13J	10	9.4	93	90-110	
Sulfate	mg/L	392	10	13.7	-3780	90-110	

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617207

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-A Pace Analytical Services - Asheville

PASI-GA Pace Analytical Services - Atlanta, GA

### ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

M6 Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL DATA CROSS REFERENCE TABLE**

Project: Plant Hammond

Pace Project No.: 2617207

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617207001	FB-02	EPA 3010A	468622	EPA 6020B	468673
2617207002	EB-01	EPA 3010A	468622	EPA 6020B	468673
2617207001	FB-02	EPA 7470A	468895	EPA 7470A	468941
2617207002	EB-01	EPA 7470A	468895	EPA 7470A	468941
2617207001	FB-02	SM 2540C	26252		
2617207002	EB-01	SM 2540C	26252		
2617207001	FB-02	EPA 300.0	26135		
2617207002	EB-01	EPA 300.0	26135		

**REPORT OF LABORATORY ANALYSIS**

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A

Section B

Section C

Required Client Information:

Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Wiener Road  
 Atlanta, GA 30339  
 Email: j.abraham@southemco.com  
 Phone: (404)508-7239  
 Requested Date: Standard TXI

Report To: Joju Abraham  
 Copy To: Lauren Peaty, Geosyntec  
 Purchase Order #: SCS10348606  
 Project Name: Plant Hammond  
 Project #:

Invoice Information:

Attention: scsinvoices@southemco.com  
 Company Name:  
 Address:  
 Pace Project Manager: baisy.mcdaniel@paceilabs.com  
 Pace Profile #: 327 (AP) or 328 (Huff)

Page: 1 of 1

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	RECEIVED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody	Sealed	Cooler (Y/N)	Samples Intact (Y/N)
			START	END															
1	Drinking Water	DW	4/8/19 1740	4/8/19 1745	WT6		H2SO4 Unpreserved	Metals (App. III & App. IV) Metals (App. III, App. IV, D&O) TDS, Cl, F, SO4 Radium 226/228	4/8/19 2010	EB Law / Geosyntec	4/8/19 1127	2010	4/8/19 1127						
2	Waste Water	WW	4/8/19 1755	4/8/19 1800	WT6		HNO3 Unpreserved	Metals (App. III & App. IV) Metals (App. III, App. IV, D&O) TDS, Cl, F, SO4 Radium 226/228	4/8/19 2010	EB Law / Geosyntec	4/8/19 1127	2010	4/8/19 1127						

NO#: 2617207

NM 4/8/19

SAAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Noelia Mustos  
 SIGNATURE of SAMPLER: Noelia Mustos  
 DATE Signed: 4/8/19

**Sample Condition Upon Receipt**



Client Name: GIA Power

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

**WO#: 2617207**

PM: **BM** Due Date: **04/16/19**  
 CLIENT: **GAPower-CCR**

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other

Tracking #: \_\_\_\_\_

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Cooler Temperature 0.7 Biological Tissue is Frozen: Yes No

Temp should be above freezing to 6°C

Samples on ice, cooling process has begun

Date and Initials of person examining contents: 4/9/19 MK

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

Client Notification/ Resolution: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Field Data Required? Y / N

Person Contacted: \_\_\_\_\_

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

May 01, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2617208

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on April 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond  
Pace Project No.: 2617208

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### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: Plant Hammond  
Pace Project No.: 2617208

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617208001	FB-02	Water	04/08/19 17:45	04/09/19 13:30
2617208002	EB-01	Water	04/08/19 18:00	04/09/19 13:30

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617208

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617208001	FB-02	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617208002	EB-01	EPA 9315	JJY	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

**Sample: FB-02**      **Lab ID: 2617208001**      Collected: 04/08/19 17:45      Received: 04/09/19 13:30      Matrix: Water

PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.170 ± 0.1000 (0.159)</b> C:93% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	<b>0.521 ± 0.334 (0.615)</b> C:78% T:79%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.691 ± 0.434 (0.774)</b>	pCi/L	04/26/19 09:32	7440-14-4	

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

**Sample: EB-01**      **Lab ID: 2617208002**      Collected: 04/08/19 18:00      Received: 04/09/19 13:30      Matrix: Water

PWS:      Site ID:      Sample Type:

Comments: • Sample collection time on containers does not match COC; client was notified.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 9315	<b>0.108 ± 0.128 (0.243)</b> C:87% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	<b>0.370 ± 0.318 (0.634)</b> C:81% T:75%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	<b>0.478 ± 0.446 (0.877)</b>	pCi/L	04/26/19 09:32	7440-14-4	

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

QC Batch: 338631

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617208001, 2617208002

METHOD BLANK: 1648339

Matrix: Water

Associated Lab Samples: 2617208001, 2617208002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.146 ± 0.0893 (0.139) C:90% T:NA	pCi/L	04/22/19 21:19	

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

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, LLC.

### QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617208

QC Batch: 338745

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617208001, 2617208002

METHOD BLANK: 1648702

Matrix: Water

Associated Lab Samples: 2617208001, 2617208002

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.552 ± 0.362 (0.681) C:81% T:74%	pCi/L	04/25/19 11:04	

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

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: Plant Hammond  
Pace Project No.: 2617208

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

Act - Activity

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

Gamma Spec = Expanded Uncertainty (95.4% Confidence Interval)

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

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

TNI - The NELAC Institute.

### LABORATORIES

PASI-PA Pace Analytical Services - Greensburg

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2617208

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617208001	FB-02	EPA 9315	338631		
2617208002	EB-01	EPA 9315	338631		
2617208001	FB-02	EPA 9320	338745		
2617208002	EB-01	EPA 9320	338745		
2617208001	FB-02	Total Radium Calculation	340066		
2617208002	EB-01	Total Radium Calculation	340066		

### REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Section A		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company:	Georgia Power - Coal Combustion Residuals	Report To:	Joy Abraham	Attention:	sesinvoic@scouthernco.com
Address:	2480 Minter Road Atlanta, GA 30339	Copy To:	Lauron Peby, Geosyntec	Company Name:	
Email:	jabraham@scouthernco.com	Purchase Order #:	9C57034866	Address:	
Phone:	(404)506-7239	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdanis@paceelabs.com
Requested Due Date:	Standard TX	Project #:		Pace Profile #:	327 (AP) or 328 (Huff)
Regulatory Agency:		State Location:		GA	

Page: 1 of 1

ITEM #	MATRIX CODE DW Drinking Water WT Waste Water P Product SL Soil/Solid OI Oil WI Wipe AR Air OT Other TS Tissue	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		DATE	TIME	SAMPLE TEMP AT COLLECTION	PRESERVATIVES	ANALYSES TEST	REQUESTED ANALYSIS FILTERED (Y/N)	RESIDUAL CHLORINE (Y/N)
			START	END							
1		WT 6	4/8/19 1340	4/8/19 1345	19	5	2	3			
2	FB -02	WT 6	4/8/19 1355	4/8/19 1800	19	5	2	3			
3	EB -01										
4											
5											
6											
7											
8											
9											
10											
11											
12											

RM 4/13/19

WO#: 2617208

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME	TEMP IN C	Received on	Sealed	Cooler	Samples
	Noelia Munson Geosyntec	4/8/19	2010	EB Low / Geosyntec	4/8/19	2010					
	EB Low / Geosyntec	4/9/19	1127	1 Pace	4/9/19	1127					
				Noelia Munson	4/9/19	1330	0.7				

SAMPLER NAME AND SIGNATURE  
 PRINT NAME of SAMPLER: Noelia Munson  
 SIGNATURE of SAMPLER: Noelia Munson  
 DATE SIGNED: 4/8/19

**Sample Condition Upon Receipt**



Client Name: GIA Power

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

**WO#: 2617208**

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

Tracking #: \_\_\_\_\_

PM: BM Due Date: 05/07/19

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

CLIENT: GAPower-CCR

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used 83 Type of Ice:  Wet  Blue  None

Samples on ice, cooling process has begun

Cooler Temperature 0.7 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/9/19 NR

Temp should be above freezing to 6°C Comments: \_\_\_\_\_

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

Client Notification/Resolution: \_\_\_\_\_ Field Data Required? Y / N

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

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

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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



July 10, 2019

Joju Abraham  
Georgia Power - Coal Combustion Residuals  
2480 Maner Road  
Atlanta, GA 30339

RE: Project: Plant Hammond  
Pace Project No.: 2620547

Dear Joju Abraham:

Enclosed are the analytical results for sample(s) received by the laboratory on July 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,



Betsy McDaniel  
betsy.mcdaniel@pacelabs.com  
(770)734-4200  
Project Manager

Enclosures

cc: Whitney Law, Geosyntec Consultants  
Noelia Muskus, Geosyntec Consultants  
Lauren Petty, Southern Company Services, Inc.  
Rebecca Thornton, Pace Analytical Atlanta



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: Plant Hammond

Pace Project No.: 2620547

---

### Atlanta Certification IDs

110 Technology Parkway Peachtree Corners, GA 30092

Florida DOH Certification #: E87315

Georgia DW Inorganics Certification #: 812

Georgia DW Microbiology Certification #: 812

North Carolina Certification #: 381

South Carolina Certification #: 98011001

Virginia Certification #: 460204

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## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2620547

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>Matrix</b>	<b>Date Collected</b>	<b>Date Received</b>
<b>2620547001</b>	<b>MW-30D</b>	Water	07/08/19 19:50	07/09/19 12:00

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2620547

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>Method</b>	<b>Analysts</b>	<b>Analytes Reported</b>
2620547001	MW-30D	EPA 6020B	KLH	1

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2620547

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>Sample: MW-30D</b>									
<b>Lab ID: 2620547001</b>									
Collected: 07/08/19 19:50    Received: 07/09/19 12:00    Matrix: Water									
<b>6020B MET ICPMS</b>									
Analytical Method: EPA 6020B    Preparation Method: EPA 3005A									
Molybdenum	<b>0.022</b>	mg/L	0.010	0.00095	1	07/10/19 06:49	07/10/19 12:22	7439-98-7	

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2620547

QC Batch: 31548	Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A	Analysis Description: 6020B MET
Associated Lab Samples: 2620547001	

METHOD BLANK: 141738 Matrix: Water

Associated Lab Samples: 2620547001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Molybdenum	mg/L	ND	0.010	0.00095	07/10/19 11:42	

LABORATORY CONTROL SAMPLE: 141739

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Molybdenum	mg/L	0.1	0.10	103	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 141740 141741

Parameter	Units	MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		2620544001 Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
Molybdenum	mg/L	0.034	0.1	0.1	0.13	0.13	98	100	75-125	1	20		

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## QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2620547

---

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond

Pace Project No.: 2620547

---

<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
2620547001	MW-30D	EPA 3005A	31548	EPA 6020B	31551

---

## REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

**Section A** Required Client Information: Company: Georgia Power - Coal Combustion Residuals  
 Address: 2480 Warner Road Atlanta, GA 30339  
 Email: jbrahant@southernco.com Phone: (404)506-7239  
 Requested Due Date: 2 day TAT

**Section B** Required Project Information: Report To: Jaju Abraham  
 Copy To:  
 Purchase Order #:  
 Project Name: Plant Hammond  
 Project #: 6N16581B

**Section C** Invoice Information: Attention:  
 Company Name:  
 Address:  
 Pace Quote:  
 Pace Project Manager: betsy.mcdaniel@pacelabs.com  
 Pace Profile #: 327.3

Regulatory Agency: GA  
 State / Location: GA

Page: 1 Of 1

#	ITEMS	MATRIX	CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST	Residual Chlorine (Y/N)
					START DATE TIME	END DATE TIME		UNPRESERVED	H2SO4		
1	MW-30D	Drinking Water	DW	G	7/19/19 9:45	7/19/19 9:52	1			X	
2		Waste Water	WW								
3		Waste Water Product	WP								
4		Soil/Sediment	SL								
5		Oil	OL								
6		Wipe	WP								
7		Air	AR								
8		Other	OT								
9		Tissue	TS								
10											
11											
12											

WO#: 2620547

2620547

**ADDITIONAL COMMENTS:** Dalton Anderson (620) 7/19/19 4:39 M. KATHMAN 7/19/19 0939  
 Mda Uman 7/19/19 1200

**RELEASED BY / AFFILIATION:** Dalton Anderson (620) 7/19/19 4:39 M. KATHMAN 7/19/19 0939  
 Mda Uman 7/19/19 1200

**RECEIVED BY / AFFILIATION:** Dalton Anderson (620) 7/19/19 4:39 M. KATHMAN 7/19/19 0939  
 Mda Uman 7/19/19 1200

**TEMP IN C:** 21.2

**Received on:** 7/19/19

**Ice (Y/N):** Y

**Custody Sealed (Y/N):** Y

**Cooler (Y/N):** Y

**Samples Intact (Y/N):** Y

**SAMPLER NAME AND SIGNATURE:** Dalton Anderson

**PRINT Name of SAMPLER:** Dalton Anderson

**SIGNATURE of SAMPLER:** Dalton Anderson

**DATE Signed:** 7/19/19



Sample Condition Upon Receipt

Client Name: GCA Power

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

WO#: **2620547**

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

PM: **BM** Due Date: **07/11/19**  
CLIENT: **GAPower-CCR**

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

Packing Material:  Bubble Wrap  Bubble Bags  None  Other \_\_\_\_\_

Thermometer Used B3 Type of Ice:  Wet  Blue  None  Samples on ice, cooling process has begun

Cooler Temperature 2.2 Biological Tissue is Frozen: Yes No  
Temp should be above freezing to 6°C

Date and Initials of person examining contents: 7/9/19 MK

		Comments:
Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	7. <u>48 hr. TAT.</u>
Sufficient Volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix:	<u>W</u>	
All containers needing preservation have been checked.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Initial when completed
		Lot # of added preservative
Samples checked for dechlorination:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Headspace in VOA Vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	16.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):	_____	

Client Notification/ Resolution: \_\_\_\_\_ Field Data Required? Y / N  
Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Comments/ Resolution: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_

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

# Data Validation Reports

## Memorandum

Date: June 5, 2019  
To: Whitney Law  
From: Kristoffer Henderson  
CC: J. Caprio  
Subject: **Stage 2A Data Validations - Level II Data Deliverables – Pace Analytical Services, LLC Project Numbers 2616036, 2616037, 2616039, 2616040, 2616042, 2616043, 2616120, 2616121, 2616161, 2616162, 2616168, 2616170, 2616228, 2616229, 2616230 and 2616231**

**SITE: Plant Hammond AP**

### INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of thirty-two aqueous samples, two field duplicate samples, one equipment blank and two field blanks, collected 12-15 March 2019, as part of the Plant Hammond AP on-site sampling event.

The samples were analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Metals by Environmental Protection Agency (EPA) Methods 3005A/6020B
- Mercury by EPA Method 7470A
- Anions by EPA Method 300.0

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by EPA Method 9315
- Radium-228 by EPA Method 9320
- Total Radium by Calculation

### EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. The qualified data should be used within the limitations of the qualification.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001);
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012); and,
- Southern Company Services, Inc., Standard Operating Procedure (hereafter referred to as the SOP) for Level 2A Verification of Coal Combustion Residuals Data, Environmental Testing Laboratory Program, Draft, November 21, 2017, Revision 0, Prepared by Environmental Standards, Inc., Valley Forge, Pennsylvania.

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2616036001	HGWA-1
2616036002	HGWA-2
2616036003	HGWA-3
2616036004	FB-01
2616036005	EB-01
2616037001	HGWA-1
2616037002	HGWA-2
2616037003	HGWA-3
2616037004	FB-01
2616037005	EB-01
2616039001	HGWA-4
2616039002	HGWA-5
2616039003	HGWA-6
2616040001	HGWA-4
2616040002	HGWA-5
2616040003	HGWA-6
2616042001	MW-28D
2616042002	HGWC-8
2616042003	MW-29
2616043001	MW-28D
2616043002	HGWC-8
2616043003	MW-29
2616120001	MW-7

Laboratory ID	Client ID
2616120002	MW-26D
2616120003	HGWC-9
2616120004	MW-27D
2616120005	MW-6
2616120006	HGWC-10
2616120007	MW-24D
2616120008	HGWC-13
2616120009	FD-1
2616120010	MW-20
2616120011	MW-5
2616120012	HGWC-7
2616120013	HGWC-11
2616121001	MW-7
2616121002	MW-26D
2616121003	HGWC-9
2616121004	MW-27D
2616121005	MW-6
2616121006	HGWC-10
2616121007	MW-24D
2616121008	HGWC-13
2616121009	FD-1
2616121010	MW-20
2616121011	MW-5

Laboratory ID	Client ID
2616121012	HGWC-7
2616121013	HGWC-11
2616161001	HGWC-12
2616161002	MW-25D
2616161003	MW-19
2616162001	HGWC-15
2616162002	FD-2
2616162003	HGWC-18
2616162004	MW-23D
2616162005	HGWC-14
2616168001	HGWC-12
2616168002	MW-25D
2616168003	MW-19
2616170001	HGWC-15
2616170002	FD-2

Laboratory ID	Client ID
2616170003	HGWC-18
2616170004	MW-23D
2616170005	HGWC-14
2616228001	MW-22
2616228002	HGWC-16
2616228003	MW-21D
2616228004	HGWC-17
2616229001	MW-22
2616229002	HGWC-16
2616229003	MW-21D
2616229004	HGWC-17
2616230001	FB-02
2616231001	FB-02

The samples were received within 0-6 degrees Celsius (°C). No sample preservation issues were noted by the laboratory.

The following issues were noted with the chain of custody (COC) forms:

- The relinquishing signature, date and time were missing for the final sample transfer on the COCs.
- 2616120, 2616121, 2616162 and 2616170: There were no times of collection listed on the COCs for the field duplicates, FD-01 and FD-02. The laboratory assigned collection times of 00:00.
- 2616042, 2616043, 2616120, 26166121, 2616162 and 2616170: The years were missing from the start and end collection times.
- 2616228: The collection start and end times were not listed on the COC for sample HGWC-17. The sample was logged in per the information on the sample container.
- 2616036, 2616037, 2616039, 2616040, 2616042 and 2616043: There were time discrepancies between the *relinquished by* times and *received by* times. The *relinquished by* times were documented as March 13, 2019 0943 and the *received by* times were documented as March 13, 2019 0944.

## 1.0 METALS

The samples were analyzed by EPA methods 3005A/6020B (Mercury evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ⊗ Electronic Data Deliverables Review

### **1.1 Overall Assessment**

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

### **1.2 Holding Time**

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

### **1.3 Method Blank**

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Six method blanks were reported (batches 24312, 24384, 24489, 24594, 24597 and 24707). Metals were not detected in the method blanks above the method detection limits (MDLs), with the following exceptions.

2616036, 2616039 and 2616042: Arsenic was detected at an estimated concentration greater than the MDL and less than the reporting limit (RL) in the method blank in batch 24384. Therefore, the arsenic concentrations in the associated samples less than five times the method blank concentration were U\* qualified as not detected at the reported concentrations.

2616120: Antimony was detected at an estimated concentration greater than the MDL and less than the RL in the method blank in batch 24489. Therefore, the antimony concentrations in the associated samples less than five times the method blank concentration were U\* qualified as not detected at the reported concentrations.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
MW-7	Antimony	0.00086	J	0.00086	U*	BL
FD-1	Antimony	0.00088	J	0.00088	U*	BL
HGWA-2	Arsenic	0.00069	J	0.00069	U*	BL
HGWA-3	Arsenic	0.00063	J	0.00063	U*	BL

mg/L- milligram per liter

J- estimated concentration greater than the MDL and less than the RL

\* Validation qualifiers are defined in Attachment 1 at the end of this report

\*\*Reason codes are defined in Attachment 2 at the end of this report

#### **1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)**

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two sample set specific MS/MSD pairs were reported using samples HGWA-6 and HGWC-13. The recovery and relative percent difference (RPD) results were within the laboratory and SOP specified acceptance criteria.

Four batch MS/MSD pairs were also reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

#### **1.5 Laboratory Control Sample (LCS)**

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Six LCSs were reported. The recovery results were within the laboratory and SOP specified acceptance criteria.

#### **1.6 Equipment Blank**

One equipment blank was collected with the sample sets, EB-01. Metals were not detected in the equipment blank above the MDLs.

#### **1.7 Field Blank**

Two field blanks were collected with the sample sets, FB-01 and FB-02. Metals were not detected in the field blanks above the MDLs, with the following exception.



Boron was detected at an estimated concentration greater than the MDL and less than the RL in FB-02. Since boron was not reported for the associated samples, no qualifications were applied to the data.

### **1.8 Field Duplicate**

Two field duplicate samples were collected with the sample sets, FD-01 and FD-02. Acceptable precision ( $RPD \leq 20\%$  or the difference between the concentrations  $< RL$ ) was demonstrated between the field duplicates and the original samples HGWC-13 and HGWC-15, respectively.

### **1.9 Sensitivity**

The samples were reported to the MDLs. Elevated nondetect results were not reported.

### **1.10 Electronic Data Deliverables (EDDs) Review**

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flags D3, M6 and B used in the level II reports were not included in the EDDs. In addition, there were several laboratory report specific EDDs that included project data for samples from a different laboratory report or analytes were included in the EDDs that were not requested or reported in the laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

## **2.0 MERCURY**

The samples were analyzed for mercury by EPA method 7470A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity

⊗ Electronic Data Deliverables Review

**2.1 Overall Assessment**

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

**2.2 Holding Time**

The holding time for mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

**2.3 Method Blank**

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Five method blanks were reported (batches 24380, 24399, 24464, 24639 and 24983). Mercury was not detected in the method blanks above the MDL.

**2.4 Matrix Spike/Matrix Spike Duplicate**

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Three sample set specific MS/MSD pairs were reported using samples MW-28D, MW-7 and MW-22. The recovery and RPD results were within the laboratory and SOP specified acceptance criteria.

Two batch MS/MSD pairs were also reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

**2.5 Laboratory Control Sample**

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Five LCSs were reported. The recovery results were within the laboratory and SOP specified acceptance criteria.

**2.6 Equipment Blank**

One equipment blank was collected with the sample sets, EB-01. Mercury was not detected in the equipment blank above the MDL.

## 2.7 Field Blank

Two field blanks were collected with the sample sets, FB-01 and FB-02. Mercury was not detected in the field blanks above the MDL.

## 2.8 Field Duplicate

Two field duplicate samples were collected with the sample sets, FD-01 and FD-02. Acceptable precision ( $RPD \leq 20\%$  or the difference between the concentrations  $< RL$ ) was demonstrated between the field duplicates and the original samples HGWC-13 and HGWC-15, respectively.

## 2.9 Sensitivity

The samples were reported to the MDL. No elevated nondetect results were reported.

## 2.10 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. There were several laboratory report specific EDDs that included project data for samples from a different laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

## 3.0 ANIONS

The samples were analyzed for fluoride by EPA method 300.0.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ⊗ Electronic Data Deliverables Review

### **3.1 Overall Assessment**

The fluoride data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for these analyses, for this dataset is 100%.

### **3.2 Holding Times**

The holding time for the fluoride analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

### **3.3 Method Blank**

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four method blanks were reported (batches 24402, 24522, 24743 and 24985). Fluoride was not detected in the method blanks above the MDL.

### **3.4 Matrix Spike/Matrix Spike Duplicate**

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two sample set specific MS/MSD pairs were reported, using samples HGWA-6 and HGWA-4 and two sample set specific MSs were reported using samples HGWA-5 and MW-22. The recovery and RPD results were within the laboratory and SOP specified acceptance criteria.

Two batch MSs and three batch MS/MSD pairs were also reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

### **3.5 Laboratory Control Sample**

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four LCSs were reported. The recovery results were within the laboratory and SOP specified acceptance criteria.

### **3.6 Equipment Blank**

One equipment blank was collected with the sample sets, EB-01. Fluoride was not detected in the equipment blank above the MDL.

### **3.7 Field Blank**

Two field blanks were collected with the sample sets, FB-01 and FB-02. Fluoride was not detected in the field blanks above the MDL.

### **3.8 Field Duplicate**

Two field duplicate samples were collected with the sample sets, FD-01 and FD-02. Acceptable precision ( $RPD \leq 20\%$  or the difference between the concentrations  $< RL$ ) was demonstrated between the field duplicates and the original samples HGWC-13 and HGWC-15, respectively.

### **3.9 Sensitivity**

The samples were reported to the MDL. No elevated nondetect results were reported.

### **3.10 Electronic Data Deliverables Review**

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flags D6, M1 and B used in the level II reports were not included in the EDDs. In addition, there were several laboratory report specific EDDs that included project data for samples from a different laboratory report or analytes were included in the EDDs that were not requested or reported in the laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

## **4.0 RADIOCHEMISTRY**

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers

- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

#### **4.1 Overall Assessment**

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

#### **4.2 Holding Times**

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

#### **4.3 Method Blank**

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four method blanks were reported for the radium-228 data (batches 334688, 334703, 334699 and 334690). Three method blanks were reported for the radium-226 data (batches 334698, 334701 and 334689). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs), with the following exceptions.

2616037: Radium-226 was detected above the MDC in the method blank in batch 334698. Therefore, the radium-226 concentration in the associated sample less than the method blank concentration was U\* qualified as not detected at the reported concentration.

2616037 and 2616043: Radium-228 was detected above the MDC in the method blank in batch 334688. Therefore, the radium-228 concentration in the associated sample greater than the method blank concentration with a normalized absolute difference (NAD) < 2.58 was U\* qualified as not detected at the reported concentration.

2616040, 2616170, 2616229 and 2616231: Radium-226 was detected above the MDC in the method blank in batch 334701. Therefore, the radium-226 concentration in the associated sample less than the method blank concentration and the radium-226 concentrations in the associated samples greater than the method blank concentration with a NAD < 2.58 were U\* qualified as not detected at the reported concentrations.

2616168 and 2616170: Radium-228 was detected above the MDC in the method blank in batch 334690. Since radium-228 was not detected above the MDC in the associated samples, no qualifications were applied to the data.

In addition, the combined radium-226 + 228 concentrations were qualified as following:

- Combined radium-226 + 228 concentrations with either radium-226 or radium-228 less than the MDC and the second component with a concentration that was U\* qualified as not detected at the reported concentration were also U\* qualified as not detected at the reported concentration.
- Combined radium-226 + 228 concentration with a radium-226 concentration that was U\* qualified as not detected at the reported concentration and a radium-228 concentration greater than the MDC was J qualified as estimated.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
MW-29	Radium-228	1.18	NA	1.18	U*	BL
MW-29	Combined Radium 226 + 228	1.37	NA	1.37	U*	BL
HGWA-4	Radium-226	0.244	NA	0.244	U*	BL
HGWA-3	Radium-226	0.387	NA	0.387	U*	BL
MW-22	Radium-226	0.335	NA	0.335	U*	BL
MW-22	Combined Radium 226 + 228	0.977	NA	0.977	U*	BL
MW-23D	Radium-226	0.328	NA	0.328	U*	BL
HGWC-14	Radium-226	0.759	NA	0.759	U*	BL
HGWC-14	Combined Radium 226 + 228	1.50	NA	1.50	J	BL

pCi/L- picocuries per liter

NA-not applicable

#### **4.4 Matrix Spike/Matrix Spike Duplicate**

MS/MSD pairs were not reported with the data.

#### **4.5 Laboratory Control Sample**

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs and one LCS/LCS duplicate (LCSD) pair were reported for radium-226. Four LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma ( $2\sigma$ )] results were within the laboratory and SOP specified acceptance criteria.

#### **4.6 Laboratory Duplicate**

Three sample set specific laboratory duplicates were reported for radium-226 using samples MW-29, HGWC-17 and MW-21D. The RER ( $2\sigma$ ) results were within the laboratory and SOP specified acceptance criteria.

One batch laboratory duplicate was also reported for radium-226. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

#### **4.7 Tracers and Carriers**

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory and SOP specified acceptance criteria.

#### **4.8 Equipment Blank**

One equipment blank was collected with the sample sets, EB-01. Radium-226 and Radium-228 were not detected in the equipment blank above the MDCs.

#### **4.9 Field Blank**

Two field blanks were collected with the sample sets, FB-01 and FB-02. Radium-226 and Radium-228 were not detected in the field blanks above the MDCs.

#### **4.10 Field Duplicate**

Two field duplicate samples were collected with the sample sets, FD-01 and FD-02. Acceptable precision ( $RER(2\sigma) < 3$ ) was demonstrated between the field duplicates and the original samples HGWC-13 and HGWC-15, respectively.

#### **4.11 Sensitivity**

The samples were reported to the MDCs. No elevated nondetect results were reported.

#### **4.12 Electronic Data Deliverables Review**

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

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\* \* \* \* \*

**ATTACHMENT 1**  
**DATA VALIDATION QUALIFIER DEFINITIONS**  
**AND INTERPRETATION KEY**  
**Assigned by Geosyntec's Data Validation Team per the SOP**

**DATA QUALIFIER DEFINITIONS**

- U\* This analyte should be considered “not-detected” because it was detected in an associated blank at a similar level.
  
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
  
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

**ATTACHMENT 2**  
**DATA VALIDATION REASON CODES**  
**Assigned by Geosyntec's Data Validation Team per the SOP**

<b>Reason Code</b>	<b>Explanation</b>
BL	Laboratory blank contamination. The result should be considered "not-detected."
L	LCS and LCSD recoveries outside acceptance limits, indeterminate bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.

## Memorandum

Date: June 6, 2019  
To: Whitney Law  
From: Kristoffer Henderson  
CC: J. Caprio  
Subject: **Stage 2A Data Validations - Level II Data Deliverables – Pace Analytical Services, LLC Project Numbers 2616885, 2616886, 2616925, 2616926, 2616927, 2616928, 2616933, 2616935, 2616997, 2616998, 2617067, 2617068, 2617069, 2617072, 2617073, 2617146, 2617147, 2617148, 2617149, 2617150, 2617152, 2617205, 2617206, 2617207 and 2617208**

**SITE: Plant Hammond AP**

### INTRODUCTION

This report summarizes the findings of the Stage 2A data validation of thirty-five aqueous samples, one field duplicate sample, one equipment blank and two field blanks, collected 1-8 April 2019, as part of the Plant Hammond AP on-site sampling event.

The samples were analyzed at Pace Analytical Services, LLC, Peachtree Corners, Georgia, for the following analytical tests:

- Metals by Environmental Protection Agency (EPA) Methods 3005A/6020B
- Mercury by EPA Method 7470A
- Anions (Fluoride, Chloride, and Sulfate) by EPA Method 300.0
- Total Dissolved Solid (TDS) by Standard Method 2540C

The samples were analyzed at Pace Analytical Services, LLC, Greensburg, Pennsylvania, for the following analytical tests:

- Radium-226 by EPA Method 9315
- Radium-228 by EPA Method 9320
- Total Radium by Calculation

### EXECUTIVE SUMMARY

Based on the Stage 2A data validation covering the quality control (QC) parameters listed below and the information provided, the data as qualified are usable for meeting project objectives. The qualified data should be used within the limitations of the qualification.

The data were reviewed based on the pertinent methods referenced in the laboratory reports, professional and technical judgment and the following documents:

- US EPA Region IV Data Validation Standard Operating Procedures (US EPA Region IV, September 2011);
- USEPA National Functional Guidelines for Inorganic Superfund Methods Data Review, January 2017 (EPA 540-R-2017-001);
- American National Standard, Verification and Validation of Radiological Data for use in Waste Management and Environmental Remediation, February 15, 2012 (ANSI/ANS-41.5-2012); and,
- Southern Company Services, Inc., Standard Operating Procedure (hereafter referred to as the SOP) for Level 2A Verification of Coal Combustion Residuals Data, Environmental Testing Laboratory Program, Draft, November 21, 2017, Revision 0, Prepared by Environmental Standards, Inc., Valley Forge, Pennsylvania.

The following samples were analyzed and reported in the laboratory reports:

Laboratory ID	Client ID
2616885001	HGWA-3
2616886001	HGWA-3
2616925001	HGWA-1
2616925002	HGWA-2
2616926001	HGWA-1
2616926002	HGWA-2
2616927001	HGWA-4
2616927002	HGWA-5
2616927003	HGWA-6
2616928001	HGWA-4
2616928002	HGWA-5
2616928003	HGWA-6
2616933001	MW-29
2616933002	MW-20
2616933003	MW-28D
2616933004	HGWC-7
2616935001	MW-29
2616935002	MW-20
2616935003	MW-28D
2616935004	HGWC-7
2616997001	HGWC-9
2616997002	MW-26D
2616997003	MW-19

Laboratory ID	Client ID
2616997004	MW-5
2616997005	HGWC-8
2616997006	HGWC-10
2616997007	MW-6
2616997008	MW-7
2616997009	HGWC-11
2616997010	HGWC-12
2616997011	MW-25D
2616998001	HGWC-9
2616998002	MW-26D
2616998003	MW-19
2616998004	MW-5
2616998005	HGWC-8
2616998006	HGWC-10
2616998007	MW-6
2616998008	MW-7
2616998009	HGWC-11
2616998010	HGWC-12
2616998011	MW-25D
2617067001	MW-27D
2617068001	MW-27D
2617069001	HGWC-103
2617069002	FD-01

Laboratory ID	Client ID
2617069003	HGWC-105
2617069004	HGWC-101
2617072001	HGWC-15
2617072002	HGWC-16
2617072003	MW-21D
2617073001	HGWC-15
2617073002	HGWC-16
2617073003	MW-21D
2617146001	HGWC-13
2617147001	HGWC-13
2617148001	FB-01
2617149001	FB-01
2617150001	MW-22
2617150002	MW-23D
2617150003	HGWC-14

Laboratory ID	Client ID
2617150004	HGWC-17
2617150005	HGWC-18
2617152001	MW-22
2617152002	MW-23D
2617152003	HGWC-14
2617152004	HGWC-17
2617152005	HGWC-18
2617205001	MW-24D
2617206001	MW-24D
2617207001	FB-02
2617207002	EB-01
2617208001	FB-02
2617208002	EB-01

The samples were received within 0-6 degrees Celsius (°C). No sample preservation issues were noted by the laboratory.

The following issues were noted with the chain of custody (COC) forms:

- The relinquishing signature, date and time were missing for the final sample transfer on the COCs.
- 2617069: There was no time of collection listed on the COC for the field duplicate, FD-01. The laboratory assigned collection time of 00:00.
- 2616933, 2616935, 2616997, 2616998, 2617072, 2617073, 2617150 and 2617152: The years were missing from the start and end collection times from one or more pages of the COCs.
- 2616997 and 2616998: The *relinquished* by times were missing for the third sample transfer on pages one and three of the COC and the second sample transfer on page two of the COC.

Laboratory report 2617067 was revised on April 12, 2019 to correct the units and analyte list for the metals data.

Laboratory report 2617069 was revised on April 13, 2019 to correct the units and analyte list for the metals data.

Laboratory reports 2617146 and 2617150 were revised on April 15, 2019 to correct the units for the metals data.

Laboratory reports 2617148, 2617205 and 2617207 were revised on April 16, 2019 to correct the units for the metals data.

## 1.0 METALS

The samples were analyzed by EPA methods 3005A/6020B (Mercury evaluated separately in Section 2.0, below).

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ⊗ Electronic Data Deliverables Review

### 1.1 Overall Assessment

The metals data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

### 1.2 Holding Time

The holding time for the metals analysis of a water sample is 180 days from sample collection to analysis. The holding times were met for the sample analyses.

### 1.3 Method Blank

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Seven method blanks were reported (batches 25905, 25906, 25997, 468126, 468622, 469500 and 468616). Metals were not detected in the method blanks above the method detection limits (MDLs).

#### **1.4 Matrix Spike/Matrix Spike Duplicate (MS/MSD)**

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four sample set specific MS/MSD pairs were reported using samples HGWC-7, MW-6, HGWC-15 and FB-01. The recovery and relative percent difference (RPD) results were within the laboratory and SOP specified acceptance criteria, with the following exceptions.

The recoveries of calcium were high and outside the laboratory and SOP specified acceptance criteria in the MS/MSD pair using sample HGWC-7. Since the calcium concentration in sample HGWC-7 was greater than four times the spiked concentration, no qualifications were applied to the data, based on professional and technical judgment.

The recoveries of calcium were low and outside the laboratory and SOP specified acceptance criteria in the MS/MSD pair using sample MW-6. Since the calcium concentration in sample MW-6 was greater than four times the spiked concentration, no qualifications were applied to the data, based on professional and technical judgment.

The recoveries of boron and calcium were high and outside the laboratory and SOP specified acceptance criteria in the MS/MSD pair using sample HGWC-15. Since the boron and calcium concentrations in sample HGWC-15 were greater than four times the spiked concentrations, no qualifications were applied to the data, based on professional and technical judgment.

Batch MS/MSD pairs were also reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

#### **1.5 Laboratory Control Sample (LCS)**

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Seven LCSs were reported. The recovery results were within the laboratory and SOP specified acceptance criteria.

#### **1.6 Equipment Blank**

One equipment blank was collected with the sample set, EB-01. Metals were not detected in the equipment blank above the MDLs.

#### **1.7 Field Blank**

Two field blanks were collected with the sample set, FB-01 and FB-02. Metals were not detected in the field blanks above the MDLs, with the following exceptions.



Aluminum, barium, calcium, copper, manganese and potassium were detected at estimated concentrations greater than the MDLs and less than the reporting limits (RLs) and zinc (0.017 mg/L) was detected at a concentration greater than the RL in FB-01. Since aluminum, copper, manganese, potassium and zinc were not reported for the associated samples and barium and calcium were detected in the associated samples at concentrations greater than five times the field blank concentrations, no qualifications were applied to the data.

### **1.8 Field Duplicate**

One field duplicate sample was collected with the sample sets, FD-01. Acceptable precision ( $RPD \leq 20\%$  or the difference between the concentrations  $< RL$ ) was demonstrated between the field duplicate and the original sample HGWC-103.

### **1.9 Sensitivity**

The samples were reported to the MDLs. Elevated non-detect results were not reported.

### **1.10 Electronic Data Deliverables (EDDs) Review**

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flags D3, BC, C0 and M6 used in the level II reports were not included in the EDDs. In addition, there were several laboratory report specific EDDs that included project data for samples from a different laboratory report or analytes were included in the EDDs that were not requested or reported in the laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

## **2.0 MERCURY**

The samples were analyzed for mercury by EPA method 7470A.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Time
- ✓ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample

- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ⊗ Electronic Data Deliverables Review

## **2.1 Overall Assessment**

The mercury data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

## **2.2 Holding Time**

The holding time for mercury analysis of a water sample is 28 days from sample collection to analysis. The holding times were met for the sample analyses.

## **2.3 Method Blank**

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One method blank was reported (batch 468895). Mercury was not detected in the method blank above the MDL.

## **2.4 Matrix Spike/Matrix Spike Duplicate**

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One batch MS/MSD pair was reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

## **2.5 Laboratory Control Sample**

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). One LCS was reported. The recovery results were within the laboratory and SOP specified acceptance criteria.

## **2.6 Equipment Blank**

One equipment blank was collected with the sample sets, EB-01. Mercury was not detected in the equipment blank above the MDL.

## **2.7 Field Blank**

Two field blanks were collected with the sample sets, FB-01 and FB-02. Mercury was not detected in the field blanks above the MDL.

## **2.8 Field Duplicate**

One field duplicate was collected with the sample set but was not analyzed for mercury.

## **2.9 Sensitivity**

The samples were reported to the MDL. No elevated non-detect results were reported.

## **2.10 Electronic Data Deliverables Review**

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. There were several laboratory report specific EDDs that included project data for samples from a different laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

## **3.0 WET CHEMISTRY**

The samples were analyzed for anions (fluoride, chloride and sulfate) by EPA method 300.0 and TDS by Standard Method 2540C.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.

- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ⊗ Matrix Spike/Matrix Spike Duplicate
- ✓ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ⊗ Equipment Blank
- ⊗ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

### **3.1 Overall Assessment**

The wet chemistry data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for these analyses, for this dataset is 100%.

### **3.2 Holding Times**

The holding time for the anions (fluoride, chloride and sulfate) analysis of a water sample is 28 days from sample collection to analysis. The holding time for the TDS analysis of a water sample is 7 days from sample collection to analysis. The holding times were met for the sample analyses.

### **3.3 Method Blank**

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Seven method blanks were reported for the anions (batches 25881, 25882, 25883, 25956, 26061, 26064 and 26135). The anions were not detected in the method blanks above the MDLs, with the following exceptions.

2616885 and 2616925: Chloride and sulfate were detected at estimated concentrations greater than the MDLs and less than the RLs in the method blank in batch 25881. Since chloride and sulfate were detected in the associated samples at concentrations greater than five times the method blank concentrations, no qualifications were applied to the data.

2616927 and 2616933: Chloride was detected at an estimated concentration greater than the MDL and less than the RL in the method blank in batch 25882. Since chloride was detected in the associated samples at concentration greater than five times the method blank concentrations, no qualifications were applied to the data.

2616997: Chloride and sulfate were detected at estimated concentrations greater than the MDLs and less than the RLs in the method blank in batch 25883. Since chloride and sulfate were detected in the associated samples at concentrations greater than five times the method blank concentrations, no qualifications were applied to the data.

2617067: Chloride and sulfate were detected at estimated concentrations greater than the MDLs and less than the RLs in the method blank in batch 25956. Since chloride and sulfate were detected in the associated sample at concentrations greater than five times the method blank concentrations, no qualifications were applied to the data.

2617069 and 2617072: Chloride was detected at a concentration greater than the RL in the method blank in batch 26061. Since chloride was detected in the associated samples at concentrations greater than five times the method blank concentration, no qualifications were applied to the data.

2617148, 2617150, 2617205 and 2617207: Chloride was detected at a concentration greater than the RL in the method blank in batch 26135. Therefore, the chloride concentrations in the associated samples less than five times the method blank concentration were U\* qualified as not detected at the reported concentrations.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier*	Reason Code**
FB-01	Chloride	0.11	J	0.11	U*	BL
FB-02	Chloride	0.25	J	0.25	U*	BL
EB-01	Chloride	0.22	J	0.22	U*	BL

mg/L- milligram per liter

J- estimated concentration greater than the MDL and less than the RL

\* Validation qualifiers are defined in Attachment 1 at the end of this report

\*\*Reason codes are defined in Attachment 2 at the end of this report

### 3.4 Matrix Spike/Matrix Spike Duplicate

MS/MSDs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Four sample set specific MS/MSD pairs were reported, using samples HGWA-3, HGWA-4, HGWC-9 and HGWC-103 and four sample set specific MSs were reported using samples HGWA-5, MW-26D, FD-01 and MW-22. The recovery and RPD results were within the laboratory and SOP specified acceptance criteria, with the following exceptions.

The recoveries of chloride and sulfate were low and outside the laboratory and SOP specified acceptance criteria in the MS using sample HGWA-3. Since the sulfate concentration in sample HGWA-3 was greater than four times the spiked concentration, no qualifications were applied to the sulfate data, based on professional and technical judgment. However, the chloride concentration in the associated sample was J qualified as estimated.

The recovery of sulfate was low and outside the laboratory and SOP specified acceptance criteria in the MS using sample HGWA-5. Therefore, the sulfate concentrations in the associated samples were J qualified as estimated.

The recoveries of chloride and sulfate were low and outside the laboratory and SOP specified acceptance criteria in the MS/MSD pair using sample HGWC-9. Since the chloride and sulfate

concentrations in sample HGWC-9 were greater than four times the spiked concentrations, no qualifications were applied to the data, based on professional and technical judgment.

The recoveries of chloride and sulfate were low and outside the laboratory and SOP specified acceptance criteria in the MS using sample MW-26D. Since the chloride and sulfate concentrations in sample MW-26D were greater than four times the spiked concentrations, no qualifications were applied to the data, based on professional and technical judgment.

The recoveries of sulfate were low and outside the laboratory and SOP specified acceptance criteria in the MS/MSD pair using sample HGWC-103. Since the sulfate concentration in sample HGWC-103 was greater than four times the spiked concentrations, no qualifications were applied to the data, based on professional and technical judgment.

The recovery of sulfate was low and outside the laboratory and SOP specified acceptance criteria in the MS using sample FD-01. Since the sulfate concentration in sample FD-01 was greater than four times the spiked concentrations, no qualifications were applied to the data, based on professional and technical judgment.

The recoveries of chloride and sulfate were low and outside the laboratory and SOP specified acceptance criteria in the MS using sample MW-22. Since the chloride and sulfate concentrations in sample MW-22 were greater than four times the spiked concentrations, no qualifications were applied to the data, based on professional and technical judgment.

Batch MSs and MS/MSD pairs were also reported. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier	Reason Code
HGWA-3	Chloride	6.5	NA	6.5	J	M-
HGWA-4	Sulfate	4.9	NA	4.9	J	M-
HGWA-5	Sulfate	23.8	NA	23.8	J	M-
HGWA-6	Sulfate	35.5	NA	35.5	J	M-

mg/L- milligram per liter

NA-not applicable

### 3.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). LCSs were reported for each batch and analysis. The recovery results were within the laboratory and SOP specified acceptance criteria.

### 3.6 Laboratory Duplicate

Two sample set specific laboratory duplicates were reported for TDS, using samples HGWC-105 and HGWC-14. The RPD results were within the laboratory and SOP specified acceptance criteria.

Batch laboratory duplicates were also reported for TDS. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

### 3.7 Equipment Blank

One equipment blank was collected with the sample set, EB-01. The wet chemistry parameters were not detected in the equipment blank above the MDLs, with the following exceptions.

Chloride, sulfate and TDS were detected at estimated concentrations greater than the MDLs and less than the RLs in EB-01. Since the chloride concentration in EB-01 was U\* qualified as not detected due to method blank contamination and sulfate was detected in the associated samples at concentrations greater than five times the equipment blank concentration, no additional qualifications were applied to the chloride and sulfate data, based on professional and technical judgment. However, the TDS concentration in the associated sample less than five times the equipment blank concentration was U\* qualified as not detected at the reported concentration.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier	Reason Code
MW-25D	TDS	15	J	15	U*	BE

mg/L- milligram per liter

J- estimated concentration greater than the MDL and less than the RL

### 3.8 Field Blank

Two field blanks were collected with the sample sets, FB-01 and FB-02. The wet chemistry parameters were not detected in the field blanks above the MDLs, with the following exceptions.

Chloride and sulfate were detected at estimated concentrations greater than the MDLs and less than the RLs in FB-01. Since the chloride concentration in FB-01 was U\* qualified as not detected due to method blank contamination and sulfate was detected in the associated samples at concentrations greater than five times the field blank concentration, no additional qualifications were applied to the data, based on professional and technical judgment.

Chloride, sulfate and TDS were detected at estimated concentrations greater than the MDLs and less than the RLs in FB-02. Since the chloride concentration in FB-02 was U\* qualified as not detected due to method blank contamination and sulfate was detected in the associated samples

at concentrations greater than five times the field blank concentration, no additional qualifications were applied to the chloride and sulfate data, based on professional and technical judgment. However, the TDS concentration in the associated sample less than five times the equipment blank concentration was U\* qualified as not detected at the reported concentration.

Sample	Analyte	Laboratory Result (mg/L)	Laboratory Flag	Validation Result (mg/L)	Validation Qualifier	Reason Code
MW-25D	TDS	15	J	15	U*	BF

mg/L- milligram per liter

J- estimated concentration greater than the MDL and less than the RL

### 3.9 Field Duplicate

One field duplicate sample was collected with the sample sets, FD-01. Acceptable precision ( $RPD \leq 20\%$  or the difference between the concentrations  $< RL$ ) was demonstrated between the field duplicate and the original sample HGWC-103.

### 3.10 Sensitivity

The samples were reported to the MDLs. No elevated non-detect results were reported.

### 3.11 Electronic Data Deliverables Review

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. The laboratory flags M1 and B used in the level II reports were not included in the EDDs. In addition, there were several laboratory report specific EDDs that included project data for samples from a different laboratory report or analytes were included in the EDDs that were not requested or reported in the laboratory report when the sample was used for laboratory batch QC (i.e. if the sample was used for the MS/MSD analyses). No other discrepancies were identified between the level II reports and the EDDs.

## 4.0 RADIOCHEMISTRY

The samples were analyzed for radium-226 by EPA method 9315, radium-228 by EPA method 9320 and total radium by calculation.

The areas of data review are listed below. A leading check mark (✓) indicates an area of review in which the data were acceptable. A preceding crossed circle (⊗) signifies areas where issues were raised during the course of the validation review and should be considered to determine any impact on data quality and usability.



- ✓ Overall Assessment
- ✓ Holding Times
- ⊗ Method Blank
- ✓ Matrix Spike/Matrix Spike Duplicate
- ⊗ Laboratory Control Sample
- ✓ Laboratory Duplicate
- ✓ Tracers and Carriers
- ✓ Equipment Blank
- ✓ Field Blank
- ✓ Field Duplicate
- ✓ Sensitivity
- ✓ Electronic Data Deliverables Review

#### **4.1 Overall Assessment**

The radium-226 and radium-228 data reported in these packages are considered usable for meeting project objectives. The results are considered valid; the analytical completeness defined as the ratio of the number of valid analytical results (valid analytical results include values qualified as estimated) to the total number of analytical results requested on samples submitted for this analysis, for this dataset is 100%.

#### **4.2 Holding Times**

The holding times for the radium-226 and radium-228 analyses of a water sample are 180 days from sample collection to analysis. The holding times were met for the sample analyses.

#### **4.3 Method Blank**

Method blanks were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Five method blanks were reported for the radium-228 data (batches 337341, 337342, 338745, 337911 and 337915). Six method blanks were reported for the radium-226 data (batches 337391, 337392, 337393, 337917, 337923 and 338631). Radium-226 and radium-228 were not detected in the method blanks above the minimum detectable concentrations (MDCs), with the following exceptions.

2617147 and 2617149: Radium-228 was detected at a concentration greater than the MDC in the method blank in batch 337915. Since radium-228 was not detected above the MDC in the associated samples, no qualifications were applied to the data.

2617206 and 2617208: Radium-226 was detected at a concentration greater than the MDC in the method blank in batch 338631. Therefore, the radium-226 concentration in the associated sample

that was greater than the method blank concentration and with a normalized absolute difference (NAD) less than 2.58 was U\* qualified as not detected at the reported concentration.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
FB-02	Radium-226	0.170	NA	0.170	U*	BL

pCi/L- picocuries per liter

NA-not applicable

#### 4.4 Matrix Spike/Matrix Spike Duplicate

MS/MSD pairs were not reported with the data.

#### 4.5 Laboratory Control Sample

LCSs were analyzed at the proper frequency for the number and types of samples analyzed (one per batch of 20 samples). Two LCSs and four LCS/LCS duplicate (LCSD) pairs were reported for radium-226. Five LCS/LCSD pairs were reported for radium-228. The recovery and replicate error ratio (RER) [2 sigma ( $2\sigma$ )] results were within the laboratory and SOP specified acceptance criteria, with the following exception.

2616998: The recovery of radium-226 was high and outside the laboratory and SOP specified acceptance criteria in the LCS in batch 337393. Therefore, the radium-226 concentrations greater than the MDC in the associated samples were J qualified as estimated.

Sample	Analyte	Laboratory Result (pCi/L)	Laboratory Flag	Validation Result (pCi/L)	Validation Qualifier	Reason Code
MW-5	Radium-226	0.607	NA	0.607	J	L+
HGWC-10	Radium-226	1.80	NA	1.8	J	L+
MW-6	Radium-226	0.789	NA	0.789	J	L+

pCi/L- picocuries per liter

U-not detected at or above the MDC

NA-not applicable

#### 4.6 Laboratory Duplicate

Three sample set specific laboratory duplicates were reported for radium-226 using samples HGWC-7, MW-5 and HGWC-11. The RER ( $2\sigma$ ) results were within the laboratory and SOP specified acceptance criteria.

Three batch laboratory duplicates were also reported for radium-226. Since these were batch QC, the results do not affect the samples in this data set and qualifications were not applied to the data.

#### **4.7 Tracers and Carriers**

Carriers were reported for the radium-226 and radium-228 analyses and a tracer was reported for the radium-228 analyses. The recovery results were within the laboratory and SOP specified acceptance criteria.

#### **4.8 Equipment Blank**

One equipment blank was collected with the sample sets, EB-01. Radium-226 and Radium-228 were not detected in the equipment blank above the MDCs.

#### **4.9 Field Blank**

Two field blanks were collected with the sample sets, FB-01 and FB-02. Radium-226 and Radium-228 were not detected in the field blanks above the MDCs, with the following exception.

Radium-226 was detected at a concentration greater than the MDC in FB-02. Since the radium-226 concentration in FB-02 was U\* qualified due to method blank contamination, no additional qualifications were applied to the data, based on professional and technical judgment.

#### **4.10 Field Duplicate**

One field duplicate was collected but was not reported for the radiochemistry parameters.

#### **4.11 Sensitivity**

The samples were reported to the MDCs. No elevated non-detect results were reported.

#### **4.12 Electronic Data Deliverables Review**

The results and sample IDs in the EDDs were reviewed against the information provided by the associated level II reports at a minimum of 20% as part of the data validation process. No discrepancies were identified between the level II reports and the EDDs.

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**ATTACHMENT 1**  
**DATA VALIDATION QUALIFIER DEFINITIONS**  
**AND INTERPRETATION KEY**  
**Assigned by Geosyntec's Data Validation Team per the SOP**

**DATA QUALIFIER DEFINITIONS**

- U\* This analyte should be considered “not-detected” because it was detected in an associated blank at a similar level.
  
- UJ The analyte was analyzed for, but was not detected above the level of the reported sample reporting/method detection limit. The reported method detection limit is approximate and may be inaccurate or imprecise.
  
- J The analyte was positively identified but the result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

**ATTACHMENT 2**  
**DATA VALIDATION REASON CODES**  
**Assigned by Geosyntec's Data Validation Team per the SOP**

<b>Reason Code</b>	<b>Explanation</b>
BE	Equipment blank contamination. The result should be considered "not-detected."
BF	Field blank contamination. The result should be considered "not-detected."
BL	Laboratory blank contamination. The result should be considered "not-detected."
L	LCS and LCSD recoveries outside acceptance limits, indeterminate bias
L-	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased low.
L+	LCS and/or LCSD recoveries outside of acceptance limits. The result may be biased high.
M-	MS and/or MSD recoveries outside of acceptance limits. The result may be biased low.

**APPENDIX B2**  
**Field Data Sheets**

Product Name: Low-Flow System

Date: 2019-03-12 14:41:33

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 440279  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWA-1  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 6.86 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:44:55	599.95	16.93	6.98	968.33	3.90	7.35	1.65	74.36
Last 5	13:49:55	899.94	16.69	7.00	969.59	3.41	7.35	1.41	72.66
Last 5	13:54:55	1199.93	16.83	7.02	952.90	2.32	7.35	1.24	71.66
Last 5	13:59:55	1499.92	16.88	7.03	939.07	2.25	7.35	1.10	71.20
Last 5	14:04:55	1799.92	16.83	7.03	922.59	2.04	7.35	0.99	70.88
Variance 0			0.14	0.01	-16.69			-0.17	-1.01
Variance 1			0.05	0.01	-13.83			-0.15	-0.45
Variance 2			-0.05	0.01	-16.49			-0.11	-0.33

Notes

Four bottles: Two 1-L plastic bottles with HNO<sub>3</sub> for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO<sub>3</sub> for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 32.33 ft.

Grab Samples

HGWA-1  
Grab



Product Name: Low-Flow System

Date: 2019-03-12 10:27:42

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWA-2  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 3.46 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 22.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:02:18	2099.97	16.46	5.41	212.00	8.78	4.71	0.18	81.80
Last 5	10:07:18	2399.96	16.47	5.41	210.94	7.56	4.71	0.22	83.70
Last 5	10:12:18	2699.95	16.51	5.45	213.69	6.86	4.71	0.21	86.19
Last 5	10:17:18	2999.95	16.60	5.40	209.59	5.43	4.71	0.15	89.30
Last 5	10:22:18	3299.94	16.59	5.42	210.33	4.87	4.71	0.14	92.50
Variance 0			0.04	0.03	2.75			-0.01	2.49
Variance 1			0.08	-0.05	-4.11			-0.06	3.11
Variance 2			-0.01	0.02	0.75			-0.01	3.20

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 28.42 ft.

Grab Samples

HGWA-2  
Grab

Product Name: Low-Flow System

Date: 2019-03-12 10:27:50

Project Information:

Operator Name Benjamin Mejia-Tickner  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613179  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWA-3  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 4.15 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 28.1 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:32:56	309.11	16.38	7.24	465.78	1.08	4.16	0.15	26.29
Last 5	09:37:56	609.01	16.38	7.25	464.67	1.24	4.16	0.14	28.17
Last 5	09:42:56	909.01	16.47	7.27	463.57	1.09	4.16	0.15	15.14
Last 5	09:47:56	1209.00	16.55	7.28	462.80	0.68	4.16	0.14	11.62
Last 5	09:52:56	1509.00	16.47	7.29	463.79	0.78	4.16	0.15	7.59
Variance 0			0.09	0.02	-1.10			0.00	-13.03
Variance 1			0.08	0.01	-0.77			-0.01	-3.53
Variance 2			-0.07	0.01	0.99			0.00	-4.03

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 45.25 ft.

Grab Samples

HGWA-3  
Grab

Product Name: Low-Flow System

Date: 2019-03-13 16:00:50

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 440279  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-7  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 3.38 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 17 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:17:10	2999.95	18.58	7.26	825.64	7.00	3.47	0.07	66.43
Last 5	15:22:10	3299.94	18.69	7.27	821.46	6.27	3.47	0.07	66.49
Last 5	15:27:10	3599.93	18.52	7.26	826.64	5.21	3.47	0.11	66.57
Last 5	15:32:09	3899.93	18.44	7.27	826.65	5.13	3.47	0.18	66.41
Last 5	15:37:09	4199.92	18.45	7.27	826.48	4.79	3.47	0.12	66.31
Variance 0			-0.17	-0.00	5.18			0.03	0.08
Variance 1			-0.09	0.01	0.01			0.08	-0.16
Variance 2			0.01	0.00	-0.16			-0.06	-0.10

Notes

Four bottles: Two 1-L plastic bottles with HNO<sub>3</sub> for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO<sub>3</sub> for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 30.48 ft.

Grab Samples

HGWC-7  
Grab

Product Name: Low-Flow System

Date: 2019-03-12 15:53:16

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-8  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 1.66 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 16.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:32:38	2099.97	18.62	6.92	921.61	8.67	1.67	1.12	120.06
Last 5	15:37:38	2399.96	18.54	6.92	917.54	5.93	1.67	0.83	119.91
Last 5	15:42:38	2699.96	18.48	6.91	920.89	5.32	1.67	1.04	115.86
Last 5	15:47:38	2999.94	18.53	6.91	926.43	3.84	1.67	0.98	114.24
Last 5	15:52:37	3299.92	18.52	6.91	853.94	--	--	0.85	113.23
Variance 0			-0.06	-0.00	3.35			0.21	-4.05
Variance 1			0.05	-0.00	5.54			-0.06	-1.62
Variance 2			-0.01	0.00	-72.49			-0.13	-1.00

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 25.04 ft.

Grab Samples

HGWC-8  
Grab

Product Name: Low-Flow System

Date: 2019-03-13 12:12:22

Project Information:

Operator Name Benjamin Mejia-Tickner  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613179  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-9  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 6.80 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 31 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:53:59	3599.98	17.51	7.08	1165.91	6.64	6.85	0.24	113.68
Last 5	10:58:59	3899.98	17.41	7.07	1167.08	6.07	6.85	0.23	114.31
Last 5	11:03:59	4199.97	17.30	7.08	1171.26	5.85	6.85	0.32	114.68
Last 5	11:08:58	4499.96	17.50	7.07	1169.87	5.08	6.85	0.25	115.34
Last 5	11:13:58	4799.96	17.42	7.06	1169.26	4.46	6.85	0.20	116.19
Variance 0			-0.12	0.00	4.18			0.09	0.38
Variance 1			0.20	-0.00	-1.39			-0.08	0.66
Variance 2			-0.08	-0.01	-0.61			-0.04	0.85

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 47.68 ft.

Grab Samples

HGWC-9  
Grab

Product Name: Low-Flow System

Date: 2019-03-13 11:57:23

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length 18 ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-10  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 5.73 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.1703416 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 7.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:43:48	300.04	16.23	6.75	453.31	3.64	5.78	3.29	71.30
Last 5	11:48:48	600.01	16.68	6.76	450.50	3.19	5.78	3.13	72.67
Last 5	11:53:48	900.00	16.78	6.77	450.26	2.57	5.78	3.05	74.59
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.45	0.01	-2.80			-0.16	1.37
Variance 2			0.10	0.01	-0.24			-0.07	1.92

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA A 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth =22.71 ft.

Grab Samples

HGWC-10  
Grab

Product Name: Low-Flow System

Date: 2019-03-13 17:46:13

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 440279  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-11  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 7.70 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 5.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:48:08	300.06	17.09	5.87	808.38	4.45	7.82	3.77	57.84
Last 5	16:53:08	600.01	17.05	5.83	798.47	3.92	7.82	3.60	59.34
Last 5	16:58:08	900.00	17.09	5.86	763.26	2.49	7.82	3.49	60.49
Last 5	17:03:08	1199.99	17.20	5.91	754.29	2.17	7.82	3.30	62.16
Last 5	17:08:08	1499.98	17.24	5.92	735.18	1.74	7.82	3.22	63.38
Variance 0			0.04	0.02	-35.21			-0.10	1.15
Variance 1			0.11	0.05	-8.97			-0.20	1.67
Variance 2			0.04	0.01	-19.11			-0.08	1.23

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 25.98 ft.

Grab Samples

HGWC-11  
Grab

Product Name: Low-Flow System

Date: 2019-03-14 09:58:38

Project Information:

Operator Name Benjamin Mejia-Tickner  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613179  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-12  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 8.01 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:22:29	300.10	17.73	7.08	814.18	5.66	8.02	0.14	124.40
Last 5	09:27:29	600.02	17.81	7.09	813.85	4.45	8.02	0.13	125.39
Last 5	09:32:29	900.00	17.86	7.09	813.34	3.64	8.02	0.14	127.52
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.08	0.01	-0.33			-0.01	0.99
Variance 2			0.05	0.00	-0.51			0.01	2.13

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 35.01 ft.

Grab Samples

HGWC-12  
Grab



Product Name: Low-Flow System

Date: 2019-03-13 15:29:19

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-13  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 16.12 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:16:14	300.04	19.86	7.24	605.33	10.06	16.24	0.64	-13.08
Last 5	15:21:14	600.02	19.91	7.24	600.86	5.95	16.24	0.50	-16.50
Last 5	15:26:14	900.01	19.88	7.24	603.58	4.80	16.24	0.29	-19.16
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.04	0.00	-4.48			-0.14	-3.43
Variance 2			-0.02	-0.00	2.73			-0.21	-2.66

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 45.54 ft.

Grab Samples

HGWC-13  
Grab  
FD-1  
HGWC-13 Dup Grab

Product Name: Low-Flow System

Date: 2019-03-13 12:39:45

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 440279  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-5  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 8.83 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 3.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:57:34	300.05	17.54	6.21	690.85	1.03	9.00	1.50	49.10
Last 5	12:02:34	600.01	17.58	6.17	691.37	1.23	9.00	1.45	51.07
Last 5	12:07:34	900.00	17.59	6.16	691.06	1.02	8.99	1.42	53.01
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.04	-0.04	0.53			-0.05	1.97
Variance 2			0.01	-0.01	-0.32			-0.03	1.94

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 31.5 ft.

Grab Samples

MW-5  
Grab

Product Name: Low-Flow System

Date: 2019-03-13 10:42:46

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length 28 ft

Pump placement from TOC ft

Well Information:

Well ID MW-6  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 9.14 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2149758 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:24:24	300.04	18.50	6.85	991.16	7.98	9.18	1.22	25.80
Last 5	10:29:24	600.01	18.57	6.86	1062.01	6.28	9.18	1.23	25.71
Last 5	10:34:24	900.00	18.58	6.86	1064.96	5.07	9.18	1.11	24.74
Last 5	10:39:24	1199.99	18.79	6.86	1064.03	4.93	9.18	1.17	26.23
Last 5									
Variance 0			0.07	0.01	70.85			0.01	-0.09
Variance 1			0.01	0.00	2.95			-0.13	-0.97
Variance 2			0.21	0.00	-0.93			0.07	1.49

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 32.93 ft.

Grab Samples

MW-6  
Grab

Product Name: Low-Flow System

Date: 2019-03-13 17:48:33

Project Information:

Operator Name Benjamin Mejia-Tickner  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613179  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-7  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 5.63 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 31 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	17:02:13	8101.92	17.87	6.33	332.26	0.83	5.63	4.74	120.05
Last 5	17:07:13	8401.91	17.90	6.39	351.21	1.05	5.63	3.16	120.28
Last 5	17:12:13	8701.91	17.84	6.37	346.02	0.69	5.63	2.37	120.76
Last 5	17:17:13	9001.90	17.85	6.36	343.89	0.65	5.63	2.50	121.32
Last 5	17:22:13	9301.90	17.75	6.37	351.52	1.06	5.63	2.57	121.14
Variance 0			-0.06	-0.01	-5.19			-0.79	0.47
Variance 1			0.01	-0.01	-2.12			0.13	0.56
Variance 2			-0.10	0.01	7.63			0.07	-0.18

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 16.73 ft.

Grab Samples

MW-7  
Grab

Product Name: Low-Flow System

Date: 2019-03-14 14:30:23

Project Information:

Operator Name Benjamin Mejia-Tickner  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613179  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-19  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 5.99 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 16.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:38:51	3600.99	18.33	6.47	506.67	8.09	6.61	0.32	53.74
Last 5	13:43:51	3900.99	18.61	6.48	504.62	7.03	6.61	0.30	55.62
Last 5	13:48:51	4200.98	18.66	6.48	504.06	5.46	6.61	0.26	56.93
Last 5	13:53:51	4500.98	18.61	6.47	505.36	4.96	6.61	0.24	58.39
Last 5	13:58:51	4800.98	18.61	6.48	499.80	4.67	6.61	0.21	59.92
Variance 0			0.04	0.00	-0.56			-0.04	1.31
Variance 1			-0.05	-0.02	1.30			-0.02	1.46
Variance 2			0.00	0.02	-5.56			-0.03	1.54

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 29.47 ft.

Grab Samples

MW-19  
Grab

Product Name: Low-Flow System

Date: 2019-03-13 11:01:11

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 440279  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-20  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 6.87 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 7.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:07:03	900.00	16.38	6.80	520.62	7.45	7.11	1.08	85.01
Last 5	10:12:03	1199.99	16.49	6.71	641.78	5.12	7.13	0.50	61.11
Last 5	10:17:03	1499.99	16.63	6.67	772.69	4.28	7.14	0.40	42.43
Last 5	10:22:03	1799.98	16.78	6.73	790.37	3.42	7.16	0.27	28.44
Last 5	10:27:03	2099.97	16.83	6.75	793.09	2.70	7.17	0.22	20.95
Variance 0			0.15	-0.04	130.90			-0.11	-18.68
Variance 1			0.15	0.05	17.68			-0.13	-14.00
Variance 2			0.05	0.02	2.72			-0.05	-7.49

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 34.37 ft.

Grab Samples

MW-20  
Grab

Product Name: Low-Flow System

Date: 2019-03-13 14:22:40

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length 65 ft

Pump placement from TOC ft

Well Information:

Well ID MW-24D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 19.65 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.3801225 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 11.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:09:25	300.02	20.30	7.58	537.75	4.68	19.74	0.32	49.06
Last 5	14:14:25	600.01	20.44	7.58	537.10	4.45	19.74	0.47	51.32
Last 5	14:19:25	900.01	20.38	7.58	537.93	3.80	19.74	0.55	45.70
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.14	-0.01	-0.65			0.15	2.27
Variance 2			-0.06	-0.00	0.84			0.08	-5.62

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 72.81 ft.

Grab Samples

MW-24D  
Grab

Product Name: Low-Flow System

Date: 2019-03-14 11:50:32

Project Information:

Operator Name Benjamin Mejia-Tickner  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613179  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-25D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 7.57 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 8 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:57:07	1500.01	18.03	7.67	802.13	5.46	12.70	0.21	26.12
Last 5	11:02:07	1800.01	18.13	7.67	800.42	5.05	12.85	0.22	17.33
Last 5	11:07:07	2100.00	18.08	7.68	799.53	5.01	12.90	0.23	9.17
Last 5	11:12:07	2400.00	18.10	7.66	799.15	4.87	12.93	0.19	1.22
Last 5	11:17:07	2700.00	18.17	7.67	799.77	4.64	12.96	0.16	-6.79
Variance 0			-0.05	0.00	-0.88			0.01	-8.15
Variance 1			0.02	-0.01	-0.38			-0.03	-7.95
Variance 2			0.06	0.01	0.62			-0.03	-8.01

Notes

Four bottles: Two 1-L plastic bottles with HNO<sub>3</sub> for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO<sub>3</sub> for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 63.15 ft.

Grab Samples

MW-25D  
Grab



Product Name: Low-Flow System

Date: 2019-03-13 13:37:29

Project Information:

Operator Name Benjamin Mejia-Tickner  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613179  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-26D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 6.85 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:02:06	300.06	18.51	7.49	746.39	5.64	6.99	0.46	77.49
Last 5	13:07:06	600.02	18.63	7.43	745.27	4.70	6.99	0.61	77.32
Last 5	13:12:06	900.01	18.44	7.40	749.46	3.89	6.99	0.48	76.35
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.12	-0.07	-1.12			0.15	-0.17
Variance 2			-0.19	-0.02	4.19			-0.13	-0.97

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 77.97 ft.

Grab Samples

MW-26D  
Grab

Product Name: Low-Flow System

Date: 2019-03-13 09:23:15

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length 55 ft

Pump placement from TOC ft

Well Information:

Well ID MW-27D  
Well diameter 2 in  
Well Total Depth 63.04 ft  
Screen Length 10 ft  
Depth to Water 6.37 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.3354883 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 27 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:20:20	300.06	17.23	7.78	407.17	2.44	16.66	1.60	39.90
Last 5									
Last 5									
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.00	0.00	0.00			0.00	0.00
Variance 2			0.00	0.00	0.00			0.00	0.00

Notes

Prepurged 24h prior to sample. Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 63.04 ft.

Grab Samples

MW-27D  
Grab

Product Name: Low-Flow System

Date: 2019-03-12 17:49:27

Project Information:

Operator Name Benjamin Mejia-Tickner  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 613179  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-28D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 3.75 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 7 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	17:07:33	300.02	18.61	7.46	539.64	2.30	3.60	0.22	3.91
Last 5	17:12:33	600.02	18.66	7.45	539.33	2.29	3.60	0.21	-6.24
Last 5	17:17:33	900.01	18.68	7.46	541.80	2.05	3.60	0.21	-17.88
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.05	-0.00	-0.31			-0.01	-10.15
Variance 2			0.02	0.01	2.47			-0.00	-11.64

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO3 for App. IV metals (EPA 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 58.2 ft.

Grab Samples

MW-28D  
Grab

Product Name: Low-Flow System

Date: 2019-03-12 18:34:33

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 440279  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-29  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 3.44 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 5.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	17:44:38	321.06	16.38	7.22	1021.16	2.71	3.51	0.12	76.57
Last 5	17:49:38	621.01	16.52	7.21	1020.91	3.52	3.49	0.10	75.01
Last 5	17:54:38	921.00	16.56	7.20	1023.02	3.04	3.49	0.08	73.39
Last 5	17:59:38	1220.99	16.54	7.20	1021.29	3.05	3.49	0.08	72.02
Last 5									
Variance 0			0.13	-0.01	-0.25			-0.02	-1.56
Variance 1			0.04	-0.01	2.11			-0.01	-1.62
Variance 2			-0.02	0.00	-1.73			-0.01	-1.37

Notes

Four bottles: Two 1-L plastic bottles with HNO<sub>3</sub> for radium (EPA 9315/9320); one 250-mL plastic bottle with HNO<sub>3</sub> for App. IV metals (EPA 6020B/7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 28.23 ft.

Grab Samples

MW-29  
Grab

Product Name: Low-Flow System

Date: 2019-04-02 09:46:15

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 501336  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC 27.5 ft

Well Information:

Well ID HGWA-1  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 10.44 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 10.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:23:38	300.01	16.00	6.82	913.48	1.01	11.25	1.07	39.65
Last 5	09:28:38	599.95	16.03	6.83	890.15	1.23	11.22	0.79	33.74
Last 5	09:33:38	899.95	16.11	6.85	860.38	1.13	11.22	0.58	29.09
Last 5	09:38:38	1199.95	16.17	6.84	835.73	0.79	11.25	0.49	27.02
Last 5	09:43:38	1499.94	16.22	6.86	815.04	0.84	11.26	0.41	24.50
Variance 0			0.08	0.01	-29.77			-0.21	-4.65
Variance 1			0.06	-0.00	-24.65			-0.08	-2.07
Variance 2			0.05	0.01	-20.69			-0.08	-2.52

Notes

Four bottles: Two 1-L plastic bottles with HNO<sub>3</sub> for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO<sub>4</sub> (EPA 3 00.0); and one 250-mL plastic bottle with HNO<sub>3</sub> for App. III and IV metals (EPA 6020B/7470A). Total depth = 32.30 ft.

Grab Samples

HGWA-1

Grab

Product Name: Low-Flow System

Date: 2019-04-02 13:40:26

Project Information:

Operator Name Dalton Anderson  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 497259  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWA-2  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 5.93 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 11.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:41:30	1499.98	16.86	5.43	212.89	7.76	6.00	0.37	100.65
Last 5	12:46:30	1799.97	16.91	5.42	211.84	6.57	6.01	0.33	103.01
Last 5	12:51:30	2099.96	17.00	5.39	208.90	5.90	6.02	0.30	105.38
Last 5	12:56:30	2399.95	16.99	5.40	209.20	5.42	6.02	0.28	107.67
Last 5	13:01:30	2699.94	17.09	5.41	209.45	4.74	6.00	0.26	110.11
Variance 0			0.09	-0.02	-2.95			-0.03	2.37
Variance 1			-0.00	0.00	0.30			-0.02	2.29
Variance 2			0.09	0.01	0.25			-0.02	2.45

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth =28.45

Grab Samples

HGWA-2  
Grab

Product Name: Low-Flow System

Date: 2019-04-01 17:24:36

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWA-3  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 5.30 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 8.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:41:28	300.10	16.60	7.16	457.46	0.71	5.32	0.18	-89.12
Last 5	16:46:28	600.02	16.59	7.15	456.97	0.48	5.32	0.16	-90.85
Last 5	16:51:29	900.64	16.61	7.16	456.67	0.39	5.32	0.16	-92.91
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.01	-0.01	-0.49			-0.03	-1.73
Variance 2			0.02	0.01	-0.30			0.01	-2.06

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 45.25 ft.

Grab Samples

HGWA-3  
Grab

Product Name: Low-Flow System

Date: 2019-04-02 17:16:00

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-7  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 4.13 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 71.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:32:07	300.07	18.70	7.28	716.67	4.17	4.35	0.19	-18.20
Last 5	16:37:07	600.02	18.48	7.27	718.98	3.28	4.35	0.18	-20.55
Last 5	16:42:07	900.02	18.51	7.27	720.85	3.09	4.35	0.18	-21.92
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.22	-0.01	2.31			-0.01	-2.35
Variance 2			0.03	-0.00	1.86			-0.00	-1.37

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 33.5 ft.

Grab Samples

HGWC-7  
Grab



Product Name: Low-Flow System

Date: 2019-04-03 11:27:57

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-8  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 3.38 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 10 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:31:20	1500.02	17.63	6.87	943.74	19.50	3.42	0.12	-0.41
Last 5	10:36:20	1800.02	17.72	6.87	944.50	12.40	3.42	0.11	-1.66
Last 5	10:41:20	2100.02	17.77	6.87	943.78	9.45	3.42	0.12	-2.47
Last 5	10:46:20	2400.02	17.83	6.87	943.97	7.03	3.42	0.13	-3.52
Last 5	10:51:21	2700.44	17.84	6.85	942.35	4.80	3.42	0.11	-1.82
Variance 0			0.04	-0.00	-0.71			0.00	-0.81
Variance 1			0.07	-0.00	0.19			0.01	-1.05
Variance 2			0.01	-0.02	-1.62			-0.01	1.70

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 24.9 ft.

Grab Samples

HGWC-8  
Grab

Product Name: Low-Flow System

Date: 2019-04-03 09:38:33

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 501336  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC 41.98 ft

Well Information:

Well ID HGWC-9  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 12.55 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 20.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:16:25	1500.01	17.98	6.88	1133.28	10.44	12.63	0.11	80.10
Last 5	09:21:25	1800.01	18.03	6.88	1133.92	7.11	12.64	0.11	79.78
Last 5	09:26:25	2100.01	18.07	6.88	1133.39	6.65	12.63	0.06	79.81
Last 5	09:31:25	2400.00	18.11	6.88	1131.77	5.92	12.64	0.09	79.47
Last 5	09:36:25	2700.00	18.15	6.88	1129.16	4.91	12.65	0.07	79.47
Variance 0			0.04	-0.00	-0.53			-0.05	0.03
Variance 1			0.03	-0.00	-1.63			0.03	-0.34
Variance 2			0.04	0.00	-2.61			-0.03	-0.01

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 47.64

Grab Samples

HGWC-9  
Grab

Product Name: Low-Flow System

Date: 2019-04-03 13:48:29

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-10  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 12.5 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 4 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:59:09	300.08	18.19	6.57	867.75	1.10	12.53	0.22	-0.10
Last 5	13:04:09	600.02	18.52	6.56	870.88	0.11	12.54	0.18	-0.34
Last 5	13:09:09	900.02	18.50	6.56	873.62	0.47	12.54	0.14	-0.96
Last 5	13:14:09	1200.02	18.52	6.55	875.54	0.49	12.54	0.13	-1.69
Last 5									
Variance 0			0.33	-0.01	3.12			-0.04	-0.23
Variance 1			-0.02	-0.01	2.75			-0.03	-0.62
Variance 2			0.02	-0.01	1.92			-0.02	-0.73

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 22.55 ft.

Grab Samples

HGWC-10  
Grab

Product Name: Low-Flow System

Date: 2019-04-03 12:41:24

Project Information:

Operator Name Dalton Anderson  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 497259  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-11  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 14.06 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 9.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:56:13	1199.99	17.53	5.45	799.73	8.20	14.19	3.76	107.43
Last 5	12:01:13	1499.98	17.48	5.51	788.45	5.57	14.20	3.72	106.40
Last 5	12:06:17	1803.97	17.51	5.60	756.53	4.46	14.20	3.65	104.86
Last 5	12:11:17	2103.96	17.54	5.66	741.70	3.65	14.20	3.56	104.29
Last 5	12:16:17	2403.95	17.54	5.69	727.31	3.23	14.20	3.84	103.46
Variance 0			0.03	0.09	-31.91			-0.07	-1.53
Variance 1			0.02	0.06	-14.84			-0.10	-0.58
Variance 2			0.01	0.03	-14.38			0.28	-0.82

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth =26.00

Grab Samples

HGWC-11  
Grab

Product Name: Low-Flow System

Date: 2019-04-03 14:24:13

Project Information:

Operator Name Dalton Anderson  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 497259  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-12  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 14.32 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 6 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:43:15	300.06	18.75	6.93	793.87	4.94	14.35	0.20	111.17
Last 5	13:48:15	600.01	18.82	6.94	795.52	3.67	14.35	0.16	109.97
Last 5	13:53:15	900.00	18.87	6.96	796.06	3.13	14.35	0.13	108.88
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.07	0.01	1.65			-0.04	-1.21
Variance 2			0.05	0.01	0.54			-0.02	-1.08

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth =35.02

Grab Samples

HGWC-12

Grab

Product Name: Low-Flow System

Date: 2019-04-05 16:30:57

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWC-13  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 18.43 ft

Pumping Information:

Final Pumping Rate 150 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 5.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:29:45	900.02	19.97	7.27	575.15	2.95	18.52	1.18	-61.92
Last 5	15:34:45	1200.02	20.22	7.25	578.57	2.04	18.52	0.97	-62.77
Last 5	15:39:45	1500.02	20.26	7.25	578.40	2.16	18.52	0.69	-64.59
Last 5	15:44:45	1800.02	20.65	7.24	575.91	1.48	18.52	0.50	-65.62
Last 5	15:49:45	2100.02	20.13	7.24	578.02	1.29	18.52	0.43	-66.23
Variance 0			0.04	-0.01	-0.17			-0.28	-1.82
Variance 1			0.39	-0.01	-2.49			-0.18	-1.02
Variance 2			-0.52	0.00	2.11			-0.07	-0.61

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 45.44 ft.

Grab Samples

HGWC-13  
Grab

Product Name: Low-Flow System

Date: 2019-04-03 12:52:58

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 501336  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length 25 ft

Pump placement from TOC ft

Well Information:

Well ID MW-5  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 15.67 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.2015856 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 8.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:36:16	300.04	19.11	6.00	566.45	1.22	15.88	2.16	53.37
Last 5	12:41:16	600.02	19.04	5.97	609.53	1.28	15.59	2.39	54.26
Last 5	12:46:16	900.02	19.20	5.95	609.35	0.57	15.89	2.49	55.53
Last 5	12:51:16	1200.02	19.09	5.96	611.09	0.33	15.89	2.39	55.95
Last 5									
Variance 0			-0.08	-0.03	43.08			0.23	0.89
Variance 1			0.16	-0.02	-0.19			0.10	1.28
Variance 2			-0.11	0.01	1.75			-0.10	0.42

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 31.50

Grab Samples

MW-5  
Grab

Product Name: Low-Flow System

Date: 2019-04-03 15:21:45

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-6  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 16.09 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:31:34	300.07	20.26	6.79	1034.40	3.55	16.15	0.18	-20.45
Last 5	14:36:34	600.02	20.35	6.78	1029.77	3.82	16.15	0.15	-21.82
Last 5	14:41:34	900.51	20.31	6.77	1027.02	3.69	16.15	0.14	-21.42
Last 5	14:46:34	1200.51	20.26	6.77	1028.69	3.88	16.15	0.14	-22.81
Last 5									
Variance 0			0.09	-0.01	-4.63			-0.02	-1.37
Variance 1			-0.04	-0.00	-2.75			-0.01	0.40
Variance 2			-0.04	-0.00	1.67			-0.00	-1.39

Notes

Four bottles: Two 1-L plastic bottles with HNO<sub>3</sub> for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO<sub>4</sub> (EPA 300.0); and one 250-mL plastic bottle with HNO<sub>3</sub> for App. III and IV metals (EPA 6020B/7470A). Total depth = 32.81 ft.

Grab Samples

MW-6  
Grab



Product Name: Low-Flow System

Date: 2019-04-03 10:19:15

Project Information:

Operator Name Dalton Anderson  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 497259  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-7  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 12.68 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 13 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:51:49	1499.98	16.75	6.11	301.77	2.38	12.75	2.42	93.86
Last 5	09:56:49	1799.97	16.91	6.14	318.17	2.00	12.76	2.45	94.02
Last 5	10:01:54	2104.96	17.09	6.17	322.23	1.27	12.76	2.39	93.82
Last 5	10:07:11	2421.95	17.14	6.19	329.88	0.89	12.76	2.18	94.59
Last 5	10:12:14	2724.94	17.22	6.19	327.20	1.14	12.76	2.18	95.49
Variance 0			0.18	0.03	4.06			-0.06	-0.20
Variance 1			0.06	0.02	7.66			-0.21	0.77
Variance 2			0.07	-0.01	-2.68			-0.00	0.91

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth =26.70

Grab Samples

MW-7  
Grab

Product Name: Low-Flow System

Date: 2019-04-03 14:24:35

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 501336  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length 21 ft

Pump placement from TOC ft

Well Information:

Well ID MW-19  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 10.80 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.1837319 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 7.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:12:41	300.04	19.26	6.10	550.19	0.89	10.88	0.52	72.49
Last 5	14:17:40	600.02	19.18	6.11	551.56	1.16	10.89	0.56	73.38
Last 5	14:22:40	900.02	19.11	6.14	537.94	1.37	10.89	0.66	76.07
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.07	0.01	1.37			0.04	0.89
Variance 2			-0.08	0.03	-13.62			0.10	2.69

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 29.45

Grab Samples

MW-19  
Grab

Product Name: Low-Flow System

Date: 2019-04-02 15:32:47

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 501336  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length 26 ft

Pump placement from TOC ft

Well Information:

Well ID MW-20  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 12.23 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.206049 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 11.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:11:27	1200.02	18.23	6.64	685.30	1.41	12.54	0.43	39.75
Last 5	15:16:27	1500.02	18.34	6.69	659.24	1.26	12.55	0.37	24.67
Last 5	15:21:27	1800.02	18.20	6.70	702.37	0.90	12.58	0.34	15.21
Last 5	15:26:27	2100.01	18.54	6.70	718.40	1.11	12.59	0.37	9.31
Last 5	15:31:27	2400.01	19.01	6.70	697.59	0.85	12.59	0.32	3.66
Variance 0			-0.13	0.02	43.14			-0.03	-9.46
Variance 1			0.34	-0.00	16.03			0.03	-5.89
Variance 2			0.47	0.00	-20.81			-0.05	-5.65

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 34.35

Grab Samples

MW-20  
Grab

Product Name: Low-Flow System

Date: 2019-04-08 11:13:25

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-24D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 24.16 ft

Pumping Information:

Final Pumping Rate 100 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 4.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:51:31	1500.07	19.09	7.49	552.93	7.39	24.18	0.57	5.29
Last 5	09:56:31	1800.03	19.15	7.49	553.65	6.21	24.18	0.61	3.98
Last 5	10:01:32	2100.62	19.20	7.49	553.86	5.34	24.18	0.54	2.95
Last 5	10:06:32	2400.62	19.41	7.47	554.01	4.34	24.18	0.56	2.62
Last 5	10:11:32	2700.62	19.47	7.47	553.72	3.42	24.18	0.56	2.98
Variance 0			0.05	0.00	0.21			-0.07	-1.04
Variance 1			0.22	-0.03	0.15			0.02	-0.33
Variance 2			0.06	0.01	-0.29			-0.00	0.35

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 72.83 ft.

Grab Samples

MW-24D  
Grab

Product Name: Low-Flow System

Date: 2019-04-05 17:09:57

Project Information:

Operator Name Aaron Reeder  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 513028  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length 68.0 ft

Pump placement from TOC 67.0 ft

Well Information:

Well ID MW-24D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 24.38 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.3935128 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 19 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:40:26	4499.95	20.03	7.55	544.82	17.70	24.41	2.48	52.40
Last 5	16:45:26	4799.94	19.81	7.56	544.71	18.44	24.40	2.66	50.83
Last 5	16:50:26	5099.93	19.90	7.55	546.65	14.38	24.41	2.43	49.75
Last 5	16:55:26	5399.93	20.17	7.56	540.95	15.25	24.41	2.53	48.26
Last 5	17:00:26	5699.92	20.00	7.56	545.17	13.72	24.41	2.50	47.12
Variance 0			0.09	-0.01	1.95			-0.24	-1.08
Variance 1			0.26	0.01	-5.71			0.10	-1.49
Variance 2			-0.17	0.00	4.23			-0.02	-1.14

Notes

or AP wells:

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 72.95. Stopped pumping due to Turbidity purged 1.5 HRS.

Grab Samples

MW-24D

Grab

Product Name: Low-Flow System

Date: 2019-04-03 16:14:59

Project Information:

Operator Name Dalton Anderson  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 497259  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-25D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 14.25 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:26:08	300.06	18.85	7.49	670.61	6.31	16.90	0.16	61.90
Last 5	15:31:08	600.01	18.87	7.53	646.72	5.39	17.77	0.16	56.77
Last 5	15:36:08	900.00	18.90	7.55	635.97	4.91	18.49	0.16	53.27
Last 5	15:41:09	1200.99	19.04	7.56	631.80	4.08	18.80	0.18	49.22
Last 5									
Variance 0			0.01	0.04	-23.89			0.01	-5.14
Variance 1			0.03	0.02	-10.75			-0.00	-3.50
Variance 2			0.15	0.02	-4.17			0.02	-4.05

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 63.15

Grab Samples

MW-25D  
Grab

Product Name: Low-Flow System

Date: 2019-04-03 11:12:40

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 501336  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length 70 ft

Pump placement from TOC ft

Well Information:

Well ID MW-26D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 12.72 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.4024396 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 11.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:48:09	900.02	18.14	8.00	744.08	2.89	12.94	0.51	51.50
Last 5	10:53:09	1200.01	18.15	7.64	758.79	2.77	12.94	0.34	50.12
Last 5	10:58:09	1500.01	18.18	7.44	810.85	2.79	12.94	0.87	48.98
Last 5	11:03:09	1800.01	18.30	7.30	831.74	1.73	12.93	0.70	47.96
Last 5	11:08:09	2100.01	18.30	7.25	848.08	1.70	12.94	0.46	46.16
Variance 0			0.03	-0.20	52.07			0.54	-1.14
Variance 1			0.12	-0.14	20.89			-0.17	-1.02
Variance 2			-0.00	-0.06	16.33			-0.25	-1.80

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 77.80

Grab Samples

MW-26D  
Grab

Product Name: Low-Flow System

Date: 2019-04-03 09:36:52

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-27D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 3.26 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:12:19	900.02	16.19	7.59	394.43	0.73	7.11	0.48	37.65
Last 5	09:17:19	1200.02	15.57	7.62	393.54	0.50	7.69	0.54	21.78
Last 5	09:22:19	1500.47	15.52	7.63	392.58	0.48	8.20	0.59	13.55
Last 5	09:27:19	1800.47	15.61	7.65	392.68	0.41	8.77	0.66	9.27
Last 5	09:32:19	2100.47	15.89	7.65	393.41	0.82	9.33	0.82	7.60
Variance 0			-0.05	0.01	-0.96			0.05	-8.22
Variance 1			0.09	0.01	0.10			0.07	-4.28
Variance 2			0.27	0.00	0.74			0.16	-1.67

Notes

Water level dropping too fast. Proceed to purge well dry and sample will be collected after 24h.



Product Name: Low-Flow System

Date: 2019-04-04 11:04:16

Project Information:

Operator Name Noelia Muskus  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 364452  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-27D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 5.32 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 1.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:24:26	300.14	17.54	7.63	419.94	0.22	6.48	1.53	80.73
Last 5									
Last 5									
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.00	0.00	0.00			0.00	0.00
Variance 2			0.00	0.00	0.00			0.00	0.00

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 63.11 ft.

Grab Samples

MW-27D  
Grab

Product Name: Low-Flow System

Date: 2019-04-02 15:40:23

Project Information:

Operator Name Dalton Anderson  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 497259  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-28D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 4.07 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.09 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 5.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	15:24:28	300.05	18.78	7.36	562.93	2.39	4.38	0.15	40.84
Last 5	15:29:28	600.01	19.18	7.39	560.78	2.40	4.42	0.13	38.57
Last 5	15:34:28	900.00	18.47	7.40	569.16	2.36	4.43	0.13	31.27
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.40	0.03	-2.15			-0.02	-2.27
Variance 2			-0.71	0.01	8.38			0.01	-7.29

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth =58.20

Grab Samples

MW-28D  
Grab

Product Name: Low-Flow System

Date: 2019-04-02 13:48:32

Project Information:

Operator Name Grant Walter  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 501336  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length 20 ft

Pump placement from TOC ft

Well Information:

Well ID MW-29  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 5.26 ft

Pumping Information:

Final Pumping Rate 200 mL/min  
Total System Volume 0.1792685 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 7.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:36:30	300.04	17.28	6.87	898.83	2.81	5.37	0.51	53.90
Last 5	13:41:30	600.02	16.85	6.89	897.60	3.35	5.38	0.54	52.03
Last 5	13:46:30	900.02	16.79	6.91	899.57	3.27	5.38	0.19	51.14
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.42	0.03	-1.23			0.03	-1.87
Variance 2			-0.06	0.01	1.97			-0.35	-0.89

Notes

Four bottles: Two 1-L plastic bottles with HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 300.0); and one 250-mL plastic bottle with HNO3 for App. III and IV metals (EPA 6020B/7470A). Total depth = 28.21

Grab Samples

MW-29  
Grab

Product Name: Low-Flow System

Date: 2019-07-08 20:27:07

Project Information:

Operator Name Dalton Anderson  
Company Name Geosyntec Consultants  
Project Name GP-Plant Hammond  
Site Name Plant Hammond  
Latitude 0° 0' 0"  
Longitude 0° 0' 0"  
Sonde SN 597519  
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type QED MP50  
Tubing Type polyethylene  
Tubing Diameter 0.17 in  
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID MW-30D  
Well diameter 2 in  
Well Total Depth ft  
Screen Length 10 ft  
Depth to Water 80.32 ft

Pumping Information:

Final Pumping Rate 100 mL/min  
Total System Volume 0.485 L  
Calculated Sample Rate 300 sec  
Stabilization Drawdown 3.6 in  
Total Volume Pumped 19 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond $\mu$ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	19:19:04	4212.92	29.74	8.06	3139.53	7.22	80.40	1.20	169.78
Last 5	19:24:04	4512.91	29.20	8.07	3137.84	7.13	80.40	1.15	163.95
Last 5	19:29:20	4828.90	28.69	8.07	3136.99	7.09	80.41	1.13	156.69
Last 5	19:34:22	5130.90	28.12	8.07	3155.78	7.03	80.41	1.08	151.04
Last 5	19:39:22	5430.88	27.46	8.07	3126.10	7.14	80.42	1.03	145.99
Variance 0			-0.51	0.00	-0.85			-0.02	-7.26
Variance 1			-0.57	0.00	18.80			-0.05	-5.65
Variance 2			-0.67	-0.00	-29.68			-0.05	-5.05

Notes

Parameters to be analyzed: Molybdenum. Total depth = 107.2 ft

Grab Samples

MW-30D

APPENDIX C  
Statistical Analyses

Detection Monitoring Program Statistical  
Analysis Package  
Plant Hammond Ash Pond 1 (AP-1)  
April 2019 event (AM 01)

**Table C-1**  
Detection Monitoring Prediction Limit Comparison  
Plant Hammond AP-1, Floyd County, Georgia

Parameter	Well ID	Upper PL	Lower PL	Apr 1-8, 2019
Boron (mg/L)	HGWC-7	0.061	-	0.99
Boron (mg/L)	HGWC-8	0.061	-	2.8
Boron (mg/L)	HGWC-9	0.061	-	2.3
Boron (mg/L)	HGWC-10	0.061	-	0.66
Boron (mg/L)	HGWC-11	0.061	-	0.23
Boron (mg/L)	HGWC-12	0.061	-	1.8
Boron (mg/L)	HGWC-13	0.061	-	0.86 J <sup>(3)</sup>
Calcium (mg/L)	HGWC-7	138	-	101
Calcium (mg/L)	HGWC-8	138	-	125
Calcium (mg/L)	HGWC-9	138	-	164
Calcium (mg/L)	HGWC-10	138	-	137
Calcium (mg/L)	HGWC-11	138	-	112
Calcium (mg/L)	HGWC-12	138	-	114
Calcium (mg/L)	HGWC-13	138	-	77.1
Chloride (mg/L)	HGWC-7	20.3	-	55.5
Chloride (mg/L)	HGWC-8	20.3	-	91.6
Chloride (mg/L)	HGWC-9	20.3	-	130
Chloride (mg/L)	HGWC-10	20.3	-	49.3
Chloride (mg/L)	HGWC-11	20.3	-	4.6
Chloride (mg/L)	HGWC-12	20.3	-	62.8
Chloride (mg/L)	HGWC-13	20.3	-	36.4
Fluoride (mg/L)	HGWC-7	0.360	-	0.097 J
Fluoride (mg/L)	HGWC-8	0.360	-	0.63
Fluoride (mg/L)	HGWC-9	0.360	-	0.14 J
Fluoride (mg/L)	HGWC-10	0.360	-	0.082 J
Fluoride (mg/L)	HGWC-11	0.360	-	0.43
Fluoride (mg/L)	HGWC-12	0.360	-	0.3 J
Fluoride (mg/L)	HGWC-13	0.360	-	0.83
pH (s.u.)	HGWC-7	7.5	4.9	7.3
pH (s.u.)	HGWC-8	7.5	4.9	6.9
pH (s.u.)	HGWC-9	7.5	4.9	6.9
pH (s.u.)	HGWC-10	7.5	4.9	6.6
pH (s.u.)	HGWC-11	7.5	4.9	5.7
pH (s.u.)	HGWC-12	7.5	4.9	7.0
pH (s.u.)	HGWC-13	7.5	4.9	7.2
Sulfate (mg/L)	HGWC-7	84.3	-	127
Sulfate (mg/L)	HGWC-8	84.3	-	194
Sulfate (mg/L)	HGWC-9	84.3	-	214
Sulfate (mg/L)	HGWC-10	84.3	-	159
Sulfate (mg/L)	HGWC-11	84.3	-	298
Sulfate (mg/L)	HGWC-12	84.3	-	176
Sulfate (mg/L)	HGWC-13	84.3	-	105

**Table C-1**  
**Detection Monitoring Prediction Limit Comparison**  
**Plant Hammond AP-1, Floyd County, Georgia**

<b>Parameter</b>	<b>Well ID</b>	<b>Upper PL</b>	<b>Lower PL</b>	<b>Apr 1-8, 2019</b>
TDS (mg/L)	HGWC-7	469	-	428
TDS (mg/L)	HGWC-8	469	-	543
TDS (mg/L)	HGWC-9	469	-	673
TDS (mg/L)	HGWC-10	469	-	525
TDS (mg/L)	HGWC-11	469	-	483
TDS (mg/L)	HGWC-12	469	-	462
TDS (mg/L)	HGWC-13	469	-	331

Notes:

- = Not applicable

J = Indicates that analyte was estimated and detected between the laboratory Method Detection Limit (MDL) and Reporting Limit (RL).

mg/L = milligrams per liter

ND = Indicates the parameter was not detected above the laboratory MDL.

PL = Prediction Limit

s.u. = standard unit

TDS = Total Dissolved Solids

(1) Shaded values indicate an exceedance of the statistically derived PL.

(2) The pH value presented was recorded at the time of sample collection in the field. This is the only parameter in which the field result is compared to both the upper and lower PL.

(3) Value J-flagged by the laboratory as estimated with an elevated RL due to an elevated Dilution Factor. The concentration reported for the April 2019 event is consistent with historical data and therefore deemed an exceedance in spite of the assigned J-flag.



# Interwell Prediction Limit - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/21/2019, 11:37 PM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	HGWC-10	0.06061	n/a	4/3/2019	0.66	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-11	0.06061	n/a	4/3/2019	0.23	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-12	0.06061	n/a	4/3/2019	1.8	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-7	0.06061	n/a	4/2/2019	0.99	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-8	0.06061	n/a	4/3/2019	2.8	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Boron (mg/L)	HGWC-9	0.06061	n/a	4/3/2019	2.3	Yes	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
Calcium (mg/L)	HGWC-9	138	n/a	4/3/2019	164	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-10	20.3	n/a	4/3/2019	49.3	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-12	20.3	n/a	4/3/2019	62.8	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-13	20.3	n/a	4/5/2019	36.4	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-7	20.3	n/a	4/2/2019	55.5	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-8	20.3	n/a	4/3/2019	91.6	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-9	20.3	n/a	4/3/2019	130	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-11	0.36	n/a	4/3/2019	0.43	Yes	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-13	0.36	n/a	4/5/2019	0.83	Yes	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-8	0.36	n/a	4/3/2019	0.63	Yes	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-10	84.3	n/a	4/3/2019	159	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-11	84.3	n/a	4/3/2019	298	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-12	84.3	n/a	4/3/2019	176	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-13	84.3	n/a	4/5/2019	105	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-7	84.3	n/a	4/2/2019	127	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-8	84.3	n/a	4/3/2019	194	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-9	84.3	n/a	4/3/2019	214	Yes	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-10	469.2	n/a	4/3/2019	525	Yes	36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-11	469.2	n/a	4/3/2019	483	Yes	36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-8	469.2	n/a	4/3/2019	543	Yes	36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-9	469.2	n/a	4/3/2019	673	Yes	36	0	No	0.001075	Param Inter 1 of 2

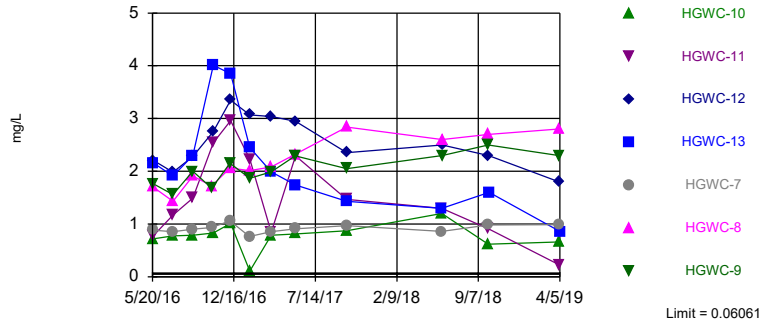
# Interwell Prediction Limit - All Results

Plant Hammond    Client: Georgia Power Company    Data: Hammond AP-1    Printed 7/21/2019, 11:37 PM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bq N	%NDs	Transform	Alpha	Method
<b>Boron (mg/L)</b>	<b>HGWC-10</b>	<b>0.06061</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>0.66</b>	<b>Yes</b>	<b>36</b>	<b>5.556</b>	<b>sqrt(x)</b>	<b>0.001075</b>	<b>Param Inter 1 of 2</b>
<b>Boron (mg/L)</b>	<b>HGWC-11</b>	<b>0.06061</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>0.23</b>	<b>Yes</b>	<b>36</b>	<b>5.556</b>	<b>sqrt(x)</b>	<b>0.001075</b>	<b>Param Inter 1 of 2</b>
<b>Boron (mg/L)</b>	<b>HGWC-12</b>	<b>0.06061</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>1.8</b>	<b>Yes</b>	<b>36</b>	<b>5.556</b>	<b>sqrt(x)</b>	<b>0.001075</b>	<b>Param Inter 1 of 2</b>
Boron (mg/L)	HGWC-13	0.06061	n/a	4/5/2019	0.86	No	36	5.556	sqrt(x)	0.001075	Param Inter 1 of 2
<b>Boron (mg/L)</b>	<b>HGWC-7</b>	<b>0.06061</b>	<b>n/a</b>	<b>4/2/2019</b>	<b>0.99</b>	<b>Yes</b>	<b>36</b>	<b>5.556</b>	<b>sqrt(x)</b>	<b>0.001075</b>	<b>Param Inter 1 of 2</b>
<b>Boron (mg/L)</b>	<b>HGWC-8</b>	<b>0.06061</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>2.8</b>	<b>Yes</b>	<b>36</b>	<b>5.556</b>	<b>sqrt(x)</b>	<b>0.001075</b>	<b>Param Inter 1 of 2</b>
<b>Boron (mg/L)</b>	<b>HGWC-9</b>	<b>0.06061</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>2.3</b>	<b>Yes</b>	<b>36</b>	<b>5.556</b>	<b>sqrt(x)</b>	<b>0.001075</b>	<b>Param Inter 1 of 2</b>
Calcium (mg/L)	HGWC-10	138	n/a	4/3/2019	137	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-11	138	n/a	4/3/2019	112	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-12	138	n/a	4/3/2019	114	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-13	138	n/a	4/5/2019	77.1	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-7	138	n/a	4/2/2019	101	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
Calcium (mg/L)	HGWC-8	138	n/a	4/3/2019	125	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
<b>Calcium (mg/L)</b>	<b>HGWC-9</b>	<b>138</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>164</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Chloride (mg/L)</b>	<b>HGWC-10</b>	<b>20.3</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>49.3</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
Chloride (mg/L)	HGWC-11	20.3	n/a	4/3/2019	4.6	No	36	0	n/a	0.001377	NP Inter (normality) 1 of 2
<b>Chloride (mg/L)</b>	<b>HGWC-12</b>	<b>20.3</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>62.8</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Chloride (mg/L)</b>	<b>HGWC-13</b>	<b>20.3</b>	<b>n/a</b>	<b>4/5/2019</b>	<b>36.4</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Chloride (mg/L)</b>	<b>HGWC-7</b>	<b>20.3</b>	<b>n/a</b>	<b>4/2/2019</b>	<b>55.5</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Chloride (mg/L)</b>	<b>HGWC-8</b>	<b>20.3</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>91.6</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Chloride (mg/L)</b>	<b>HGWC-9</b>	<b>20.3</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>130</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
Fluoride (mg/L)	HGWC-10	0.36	n/a	4/3/2019	0.082	No	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
<b>Fluoride (mg/L)</b>	<b>HGWC-11</b>	<b>0.36</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>0.43</b>	<b>Yes</b>	<b>42</b>	<b>28.57</b>	<b>n/a</b>	<b>0.001046</b>	<b>NP Inter (normality) 1 of 2</b>
Fluoride (mg/L)	HGWC-12	0.36	n/a	4/3/2019	0.3	No	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
<b>Fluoride (mg/L)</b>	<b>HGWC-13</b>	<b>0.36</b>	<b>n/a</b>	<b>4/5/2019</b>	<b>0.83</b>	<b>Yes</b>	<b>42</b>	<b>28.57</b>	<b>n/a</b>	<b>0.001046</b>	<b>NP Inter (normality) 1 of 2</b>
Fluoride (mg/L)	HGWC-7	0.36	n/a	4/2/2019	0.097	No	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
<b>Fluoride (mg/L)</b>	<b>HGWC-8</b>	<b>0.36</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>0.63</b>	<b>Yes</b>	<b>42</b>	<b>28.57</b>	<b>n/a</b>	<b>0.001046</b>	<b>NP Inter (normality) 1 of 2</b>
Fluoride (mg/L)	HGWC-9	0.36	n/a	4/3/2019	0.14	No	42	28.57	n/a	0.001046	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-10	7.47	4.9	4/3/2019	6.55	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-11	7.47	4.9	4/3/2019	5.69	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-12	7.47	4.9	4/3/2019	6.96	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-13	7.47	4.9	4/5/2019	7.24	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-7	7.47	4.9	4/2/2019	7.27	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-8	7.47	4.9	4/3/2019	6.85	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-9	7.47	4.9	4/3/2019	6.88	No	42	0	n/a	0.002093	NP Inter (normality) 1 of 2
<b>Sulfate (mg/L)</b>	<b>HGWC-10</b>	<b>84.3</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>159</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>HGWC-11</b>	<b>84.3</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>298</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>HGWC-12</b>	<b>84.3</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>176</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>HGWC-13</b>	<b>84.3</b>	<b>n/a</b>	<b>4/5/2019</b>	<b>105</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>HGWC-7</b>	<b>84.3</b>	<b>n/a</b>	<b>4/2/2019</b>	<b>127</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>HGWC-8</b>	<b>84.3</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>194</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Sulfate (mg/L)</b>	<b>HGWC-9</b>	<b>84.3</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>214</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>n/a</b>	<b>0.001377</b>	<b>NP Inter (normality) 1 of 2</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>HGWC-10</b>	<b>469.2</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>525</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Inter 1 of 2</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>HGWC-11</b>	<b>469.2</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>483</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Inter 1 of 2</b>
Total Dissolved Solids (mg/L)	HGWC-12	469.2	n/a	4/3/2019	462	No	36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-13	469.2	n/a	4/5/2019	331	No	36	0	No	0.001075	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-7	469.2	n/a	4/2/2019	428	No	36	0	No	0.001075	Param Inter 1 of 2
<b>Total Dissolved Solids (mg/L)</b>	<b>HGWC-8</b>	<b>469.2</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>543</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Inter 1 of 2</b>
<b>Total Dissolved Solids (mg/L)</b>	<b>HGWC-9</b>	<b>469.2</b>	<b>n/a</b>	<b>4/3/2019</b>	<b>673</b>	<b>Yes</b>	<b>36</b>	<b>0</b>	<b>No</b>	<b>0.001075</b>	<b>Param Inter 1 of 2</b>

Exceeds Limit: HGWC-10, HGWC-11, HGWC-12, HGWC-7, HGWC-8, HGWC-9

Prediction Limit  
Interwell Parametric

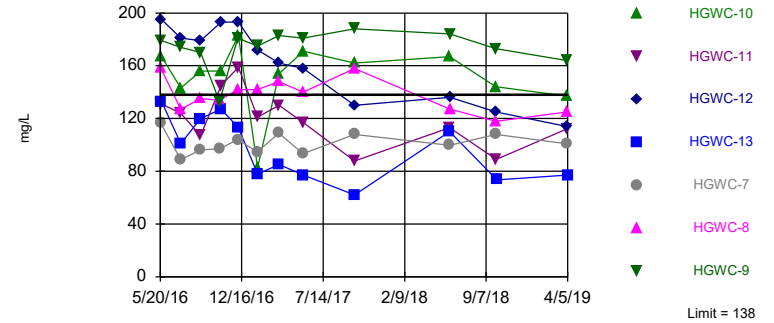


Background Data Summary (based on square root transformation): Mean=0.1482, Std. Dev.=0.04924, n=36, 5.556% NDs. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9421, critical = 0.912. Kappa = 1.99 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001075. Comparing 7 points to limit.

Constituent: Boron Analysis Run 7/21/2019 11:36 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Exceeds Limit: HGWC-9

Prediction Limit  
Interwell Non-parametric

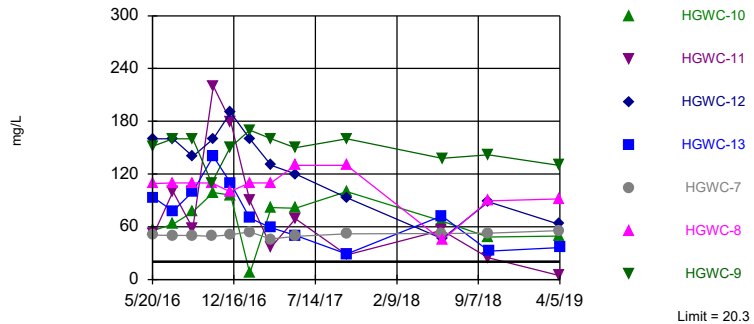


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 36 background values. Annual per-constituent alpha = 0.01911. Individual comparison alpha = 0.001377 (1 of 2). Comparing 7 points to limit.

Constituent: Calcium Analysis Run 7/21/2019 11:36 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Exceeds Limit: HGWC-10, HGWC-12, HGWC-13, HGWC-7, HGWC-8, HGWC-9

Prediction Limit  
Interwell Non-parametric

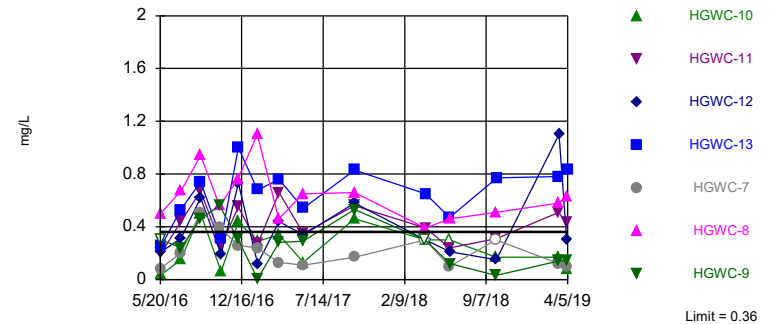


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 36 background values. Annual per-constituent alpha = 0.01911. Individual comparison alpha = 0.001377 (1 of 2). Comparing 7 points to limit.

Constituent: Chloride Analysis Run 7/21/2019 11:36 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Exceeds Limit: HGWC-11, HGWC-13, HGWC-8

Prediction Limit  
Interwell Non-parametric

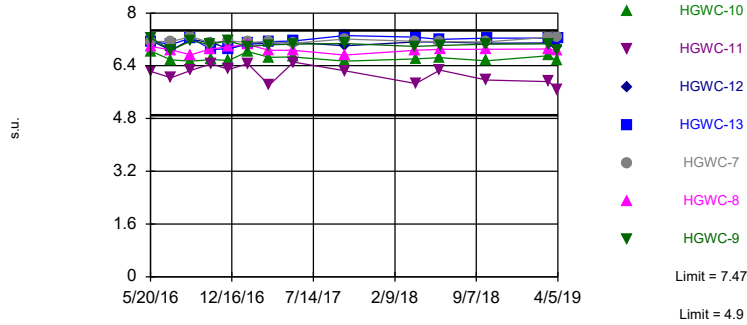


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 42 background values. 28.57% NDs. Annual per-constituent alpha = 0.01455. Individual comparison alpha = 0.001046 (1 of 2). Comparing 7 points to limit.

Constituent: Fluoride Analysis Run 7/21/2019 11:36 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Within Limits

Prediction Limit  
Interwell Non-parametric

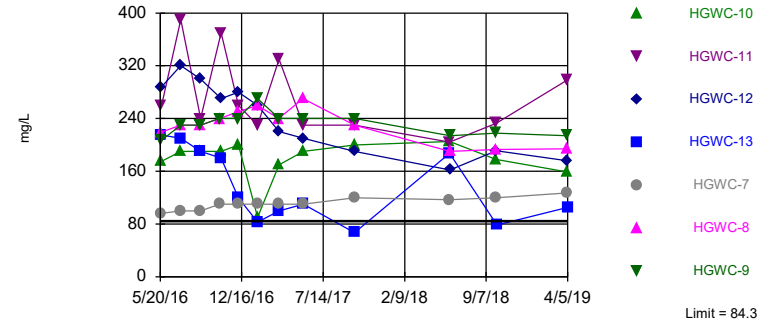


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limits are highest and lowest of 42 background values. Annual per-constituent alpha = 0.0291. Individual comparison alpha = 0.002093 (1 of 2). Comparing 7 points to limit.

Constituent: pH Analysis Run 7/21/2019 11:36 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Exceeds Limit: HGWC-10, HGWC-11, HGWC-12, HGWC-13, HGWC-7, HGWC-8...

Prediction Limit  
Interwell Non-parametric

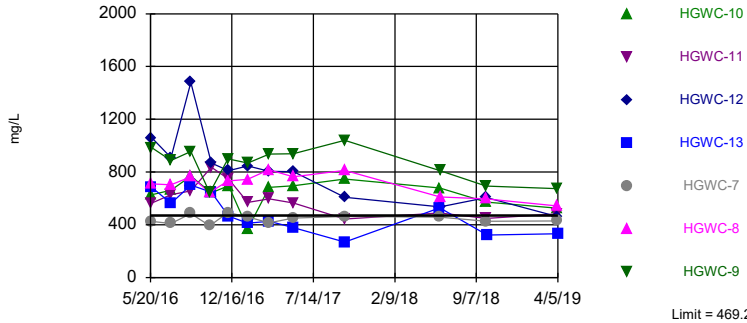


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Wilk normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 36 background values. Annual per-constituent alpha = 0.01911. Individual comparison alpha = 0.001377 (1 of 2). Comparing 7 points to limit.

Constituent: Sulfate Analysis Run 7/21/2019 11:36 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Exceeds Limit: HGWC-10, HGWC-11, HGWC-8, HGWC-9

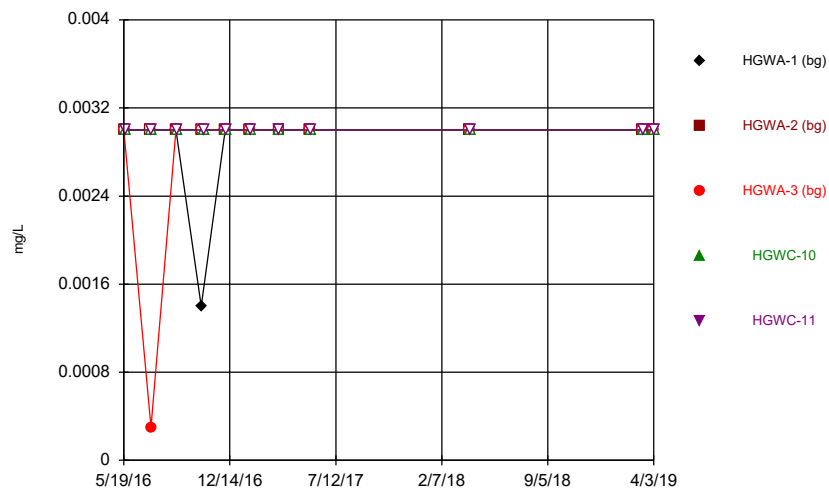
Prediction Limit  
Interwell Parametric



Background Data Summary: Mean=263.2, Std. Dev.=103.6, n=36. Normality test: Shapiro Wilk @alpha = 0.01, calculated = 0.9235, critical = 0.912. Kappa = 1.99 (c=7, w=7, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001075. Comparing 7 points to limit.

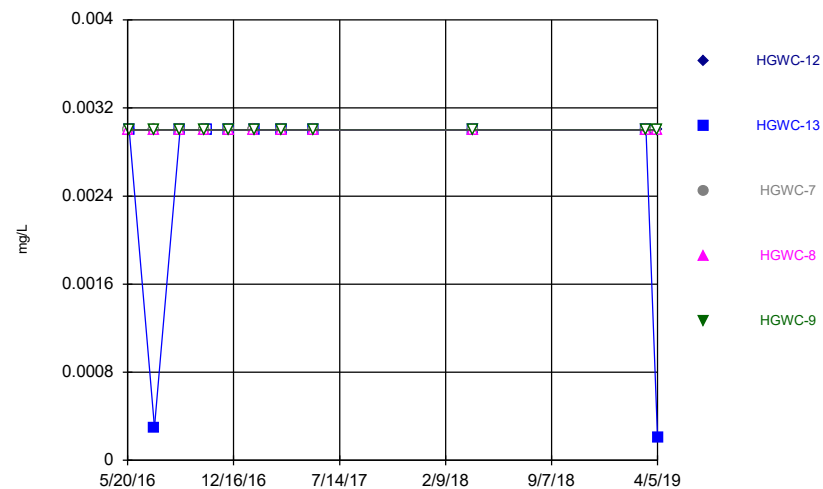
Constituent: Total Dissolved Solids Analysis Run 7/21/2019 11:36 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



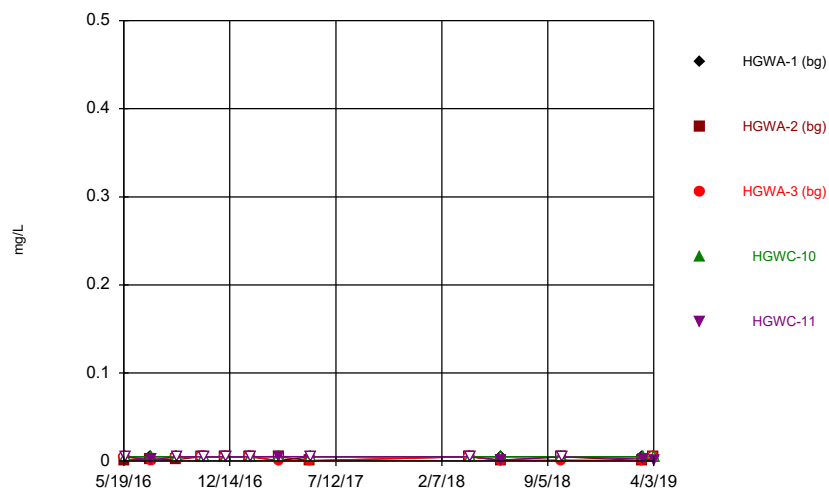
Constituent: Antimony Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



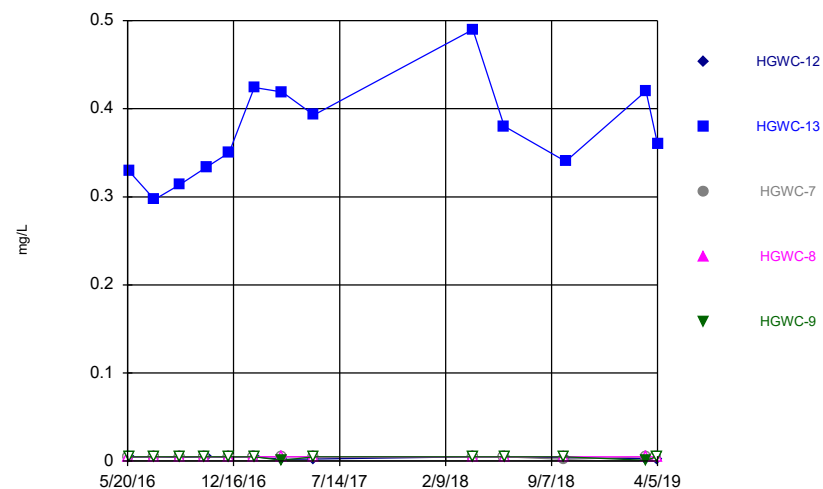
Constituent: Antimony Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



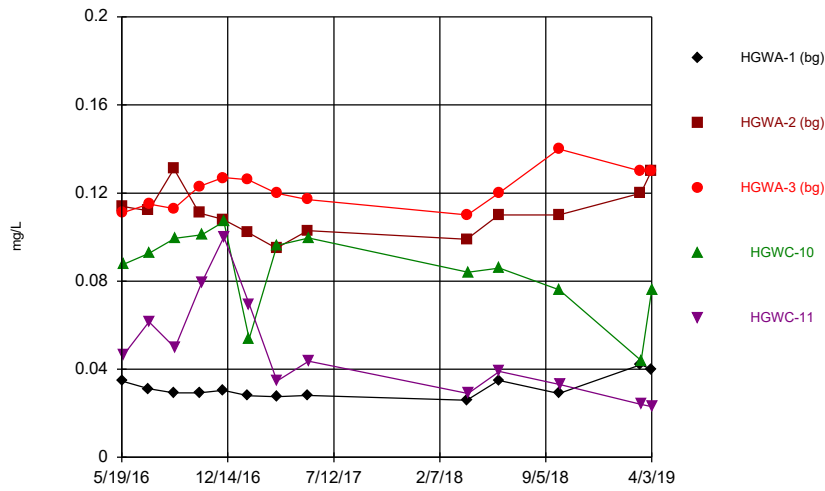
Constituent: Arsenic Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



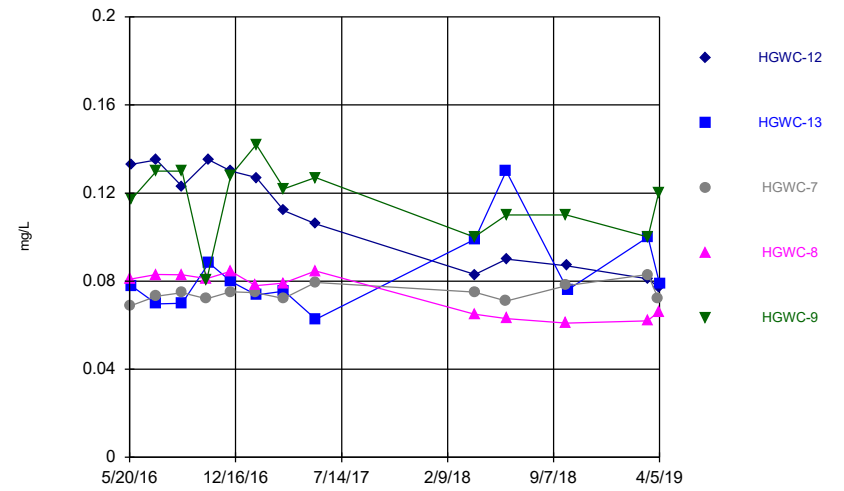
Constituent: Arsenic Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



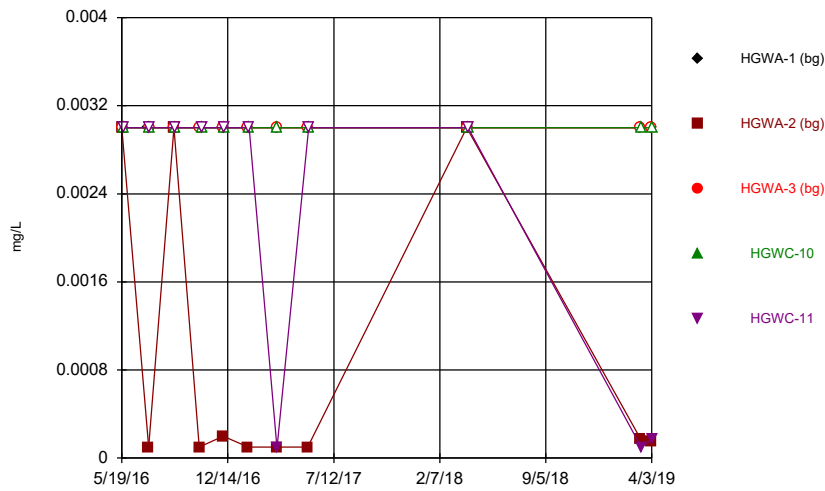
Constituent: Barium Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



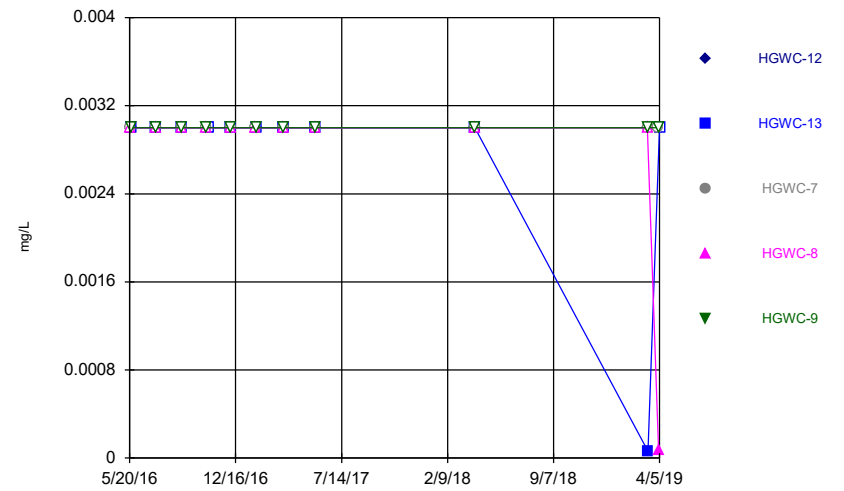
Constituent: Barium Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



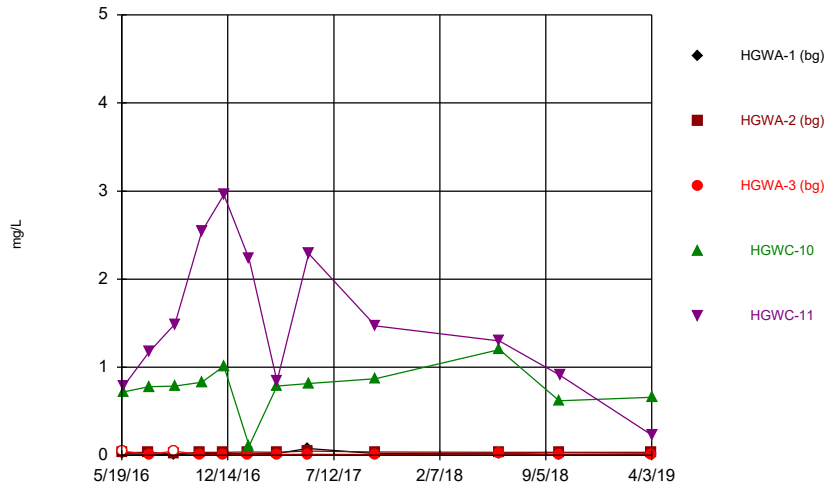
Constituent: Beryllium Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



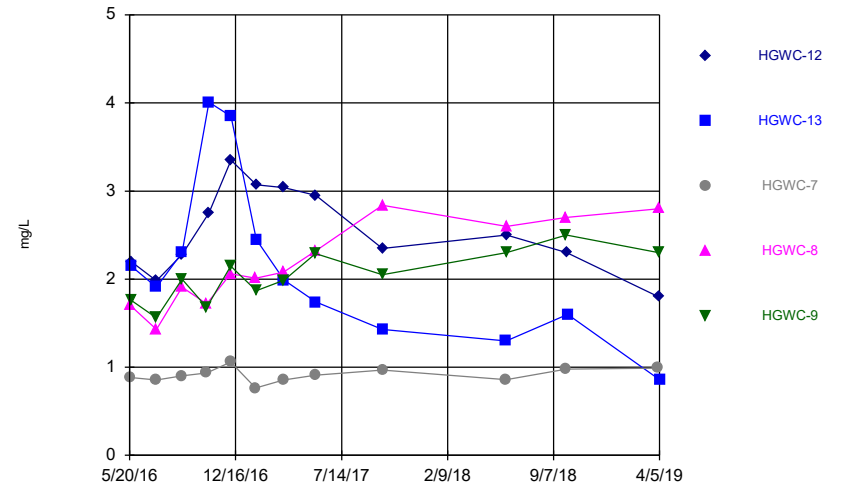
Constituent: Beryllium Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



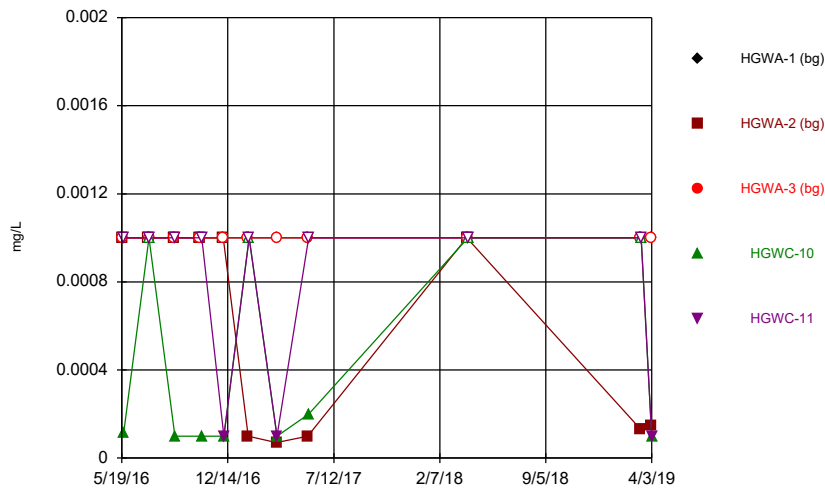
Constituent: Boron Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



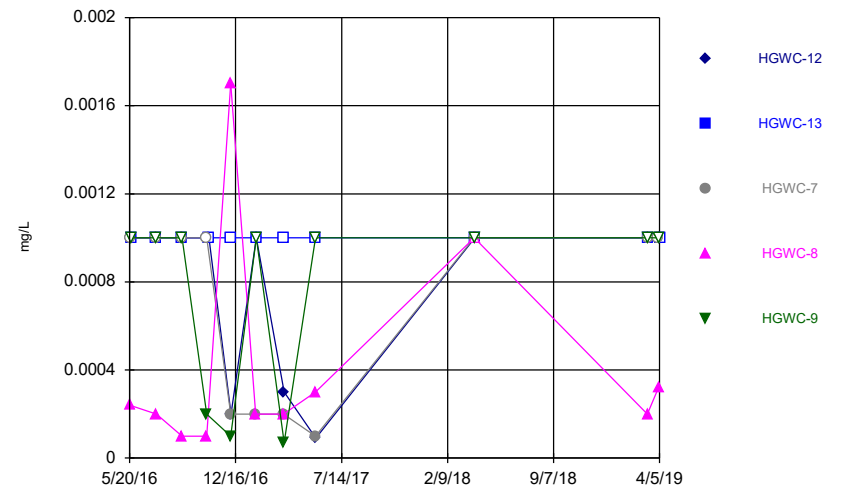
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 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



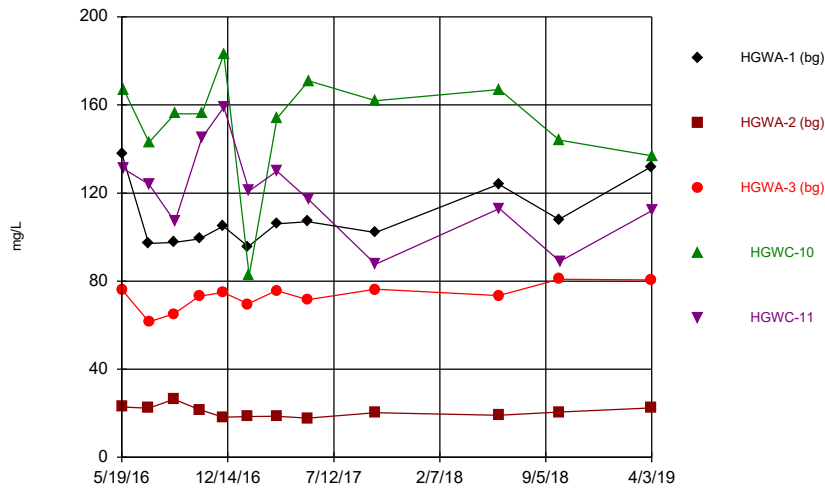
Constituent: Cadmium Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



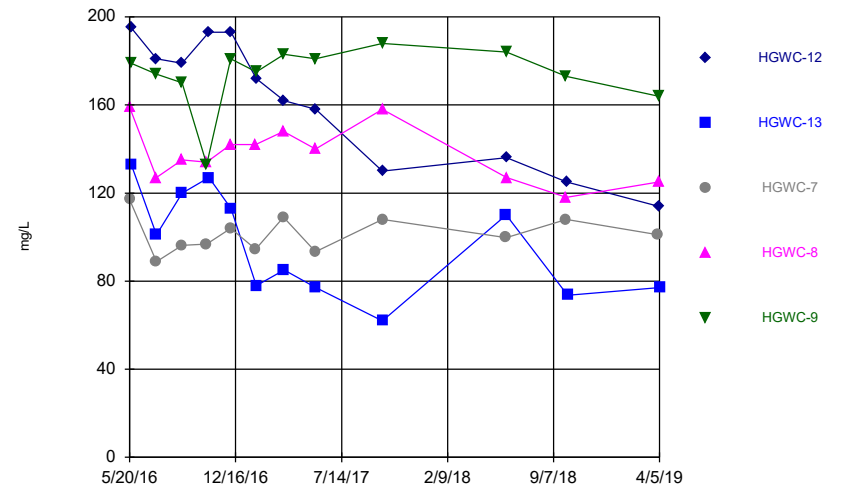
Constituent: Cadmium Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



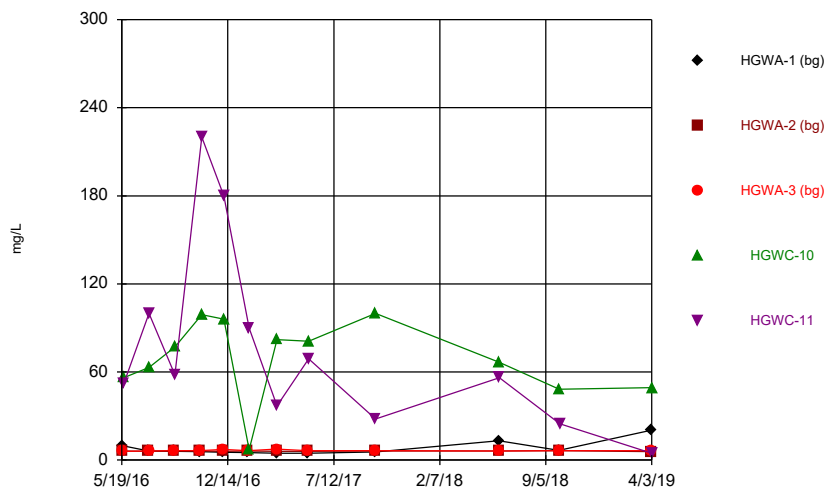
Constituent: Calcium Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



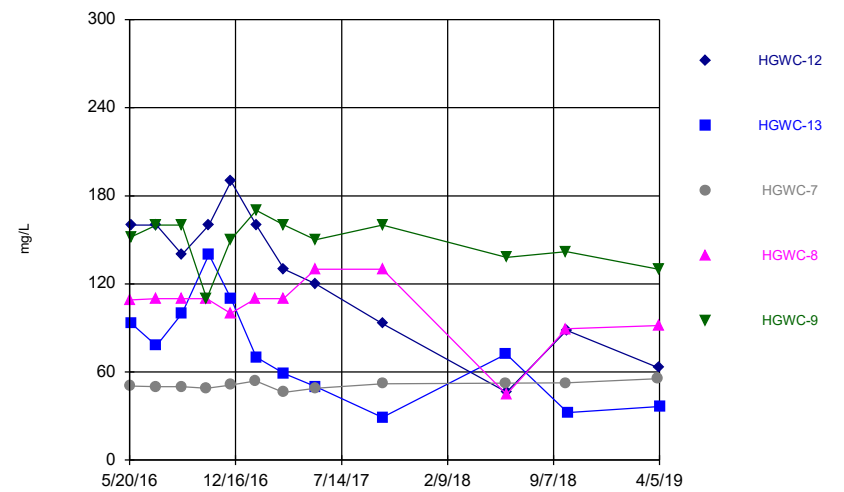
Constituent: Calcium Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



Constituent: Chloride Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

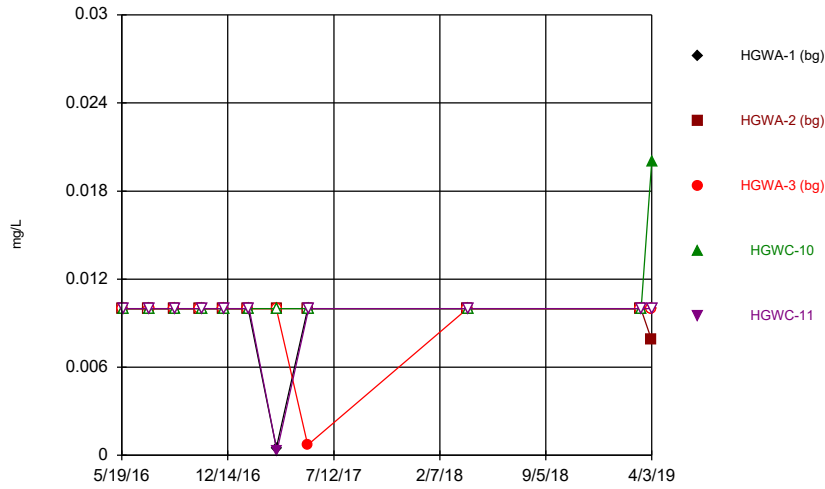
Time Series



Constituent: Chloride Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

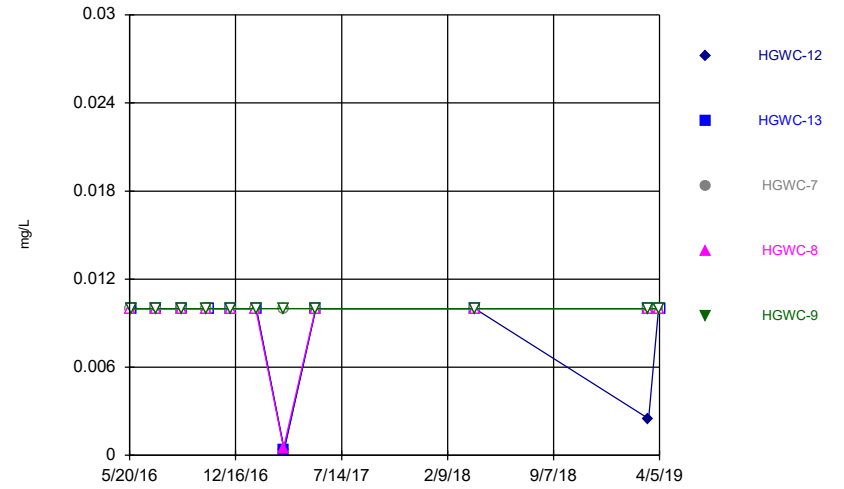


Time Series



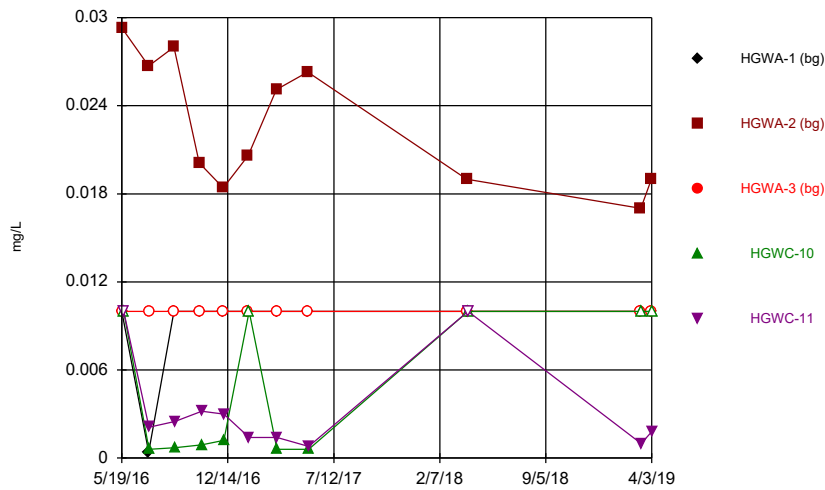
Constituent: Chromium Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



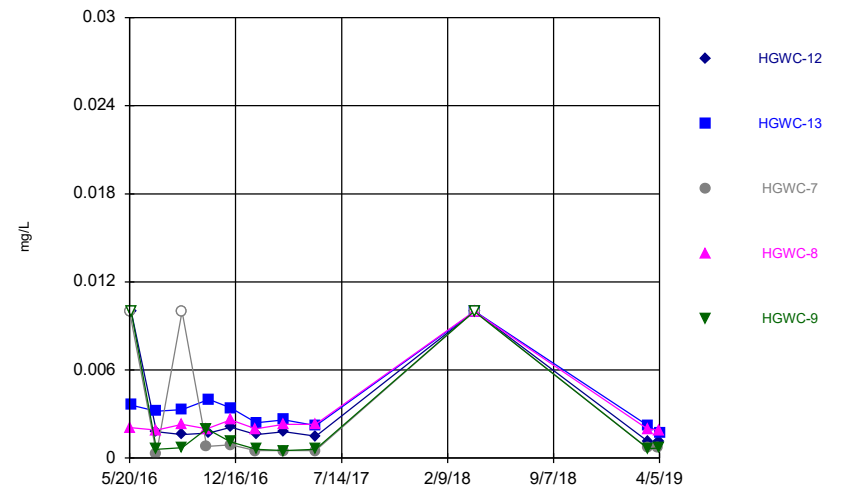
Constituent: Chromium Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



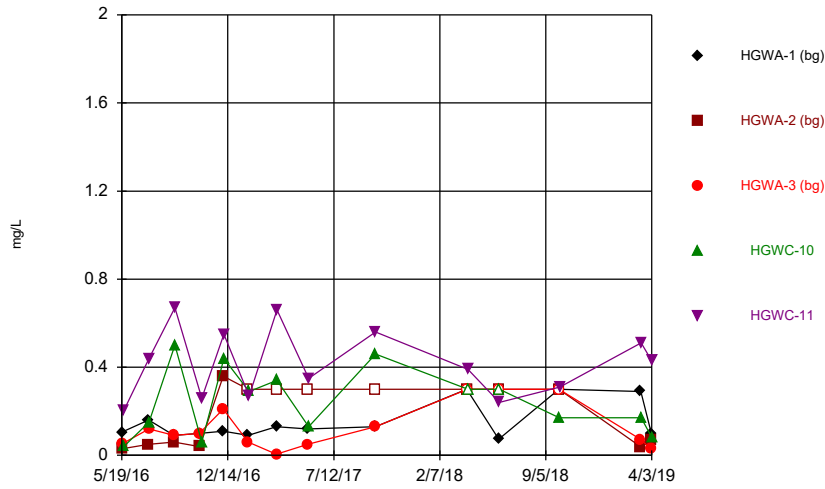
Constituent: Cobalt Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



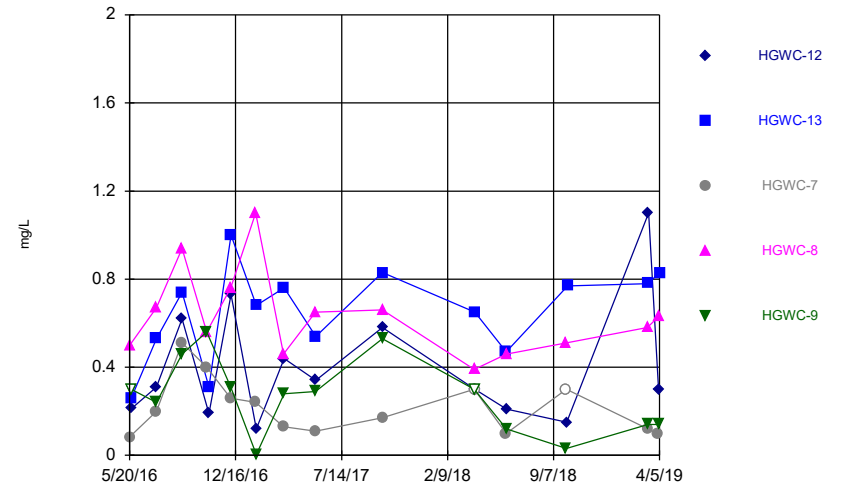
Constituent: Cobalt Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



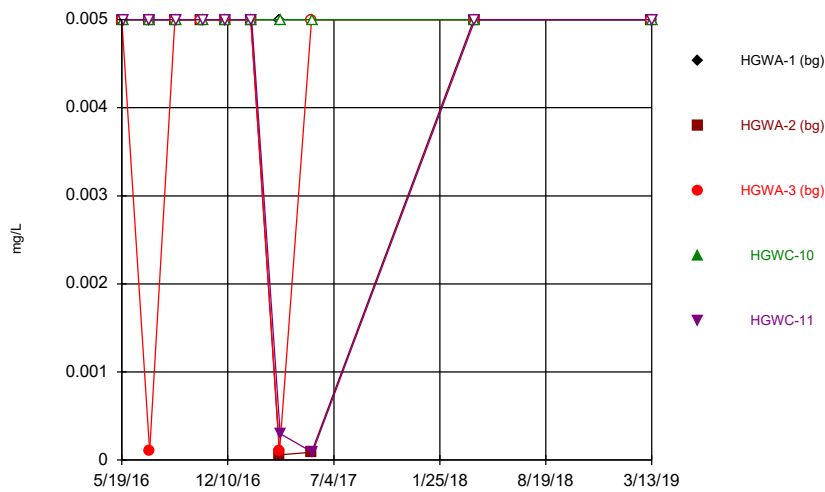
Constituent: Fluoride Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



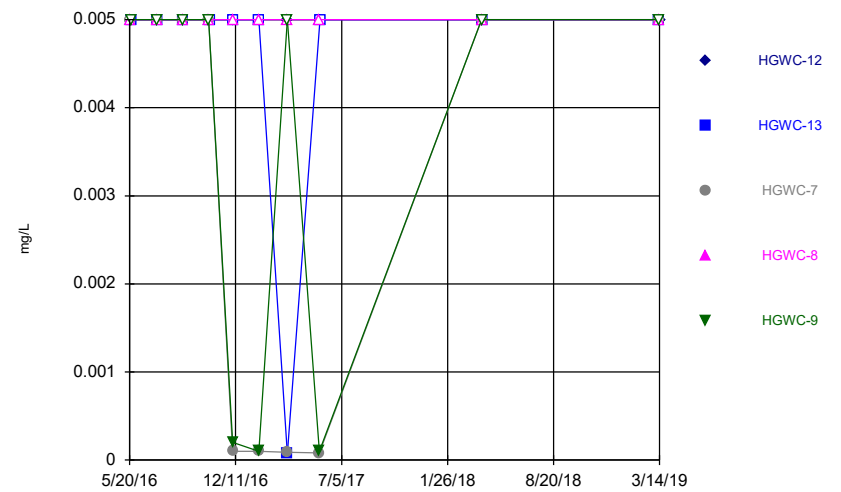
Constituent: Fluoride Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



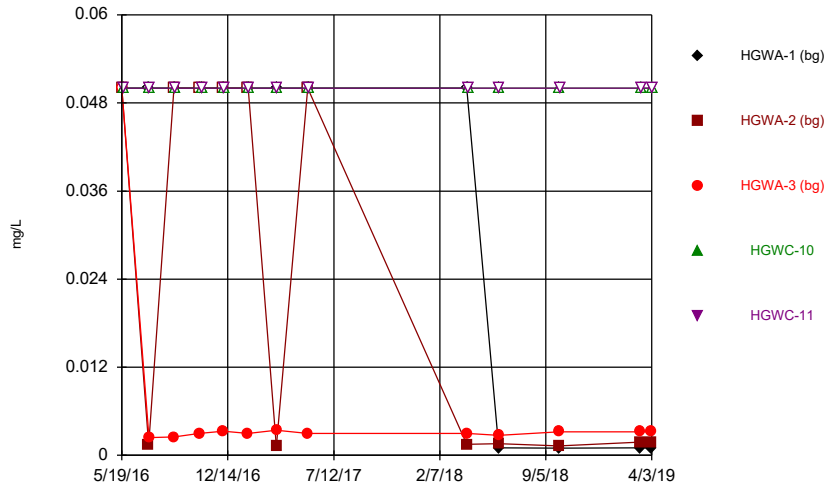
Constituent: Lead Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



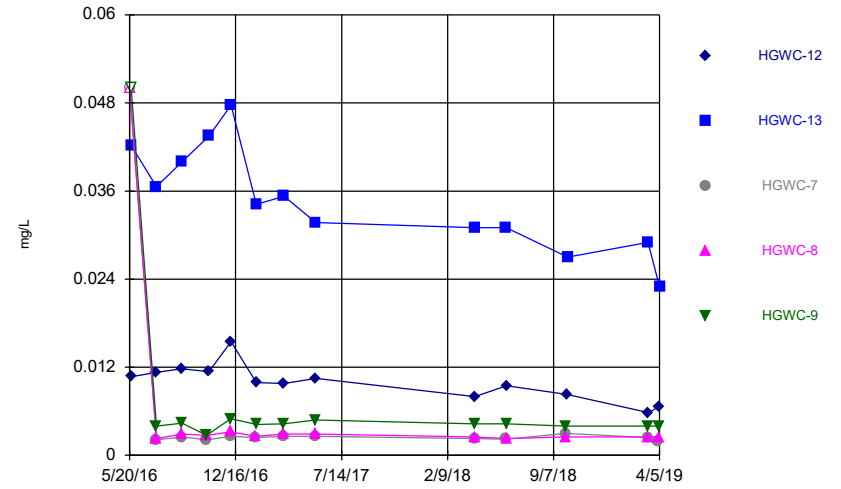
Constituent: Lead Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



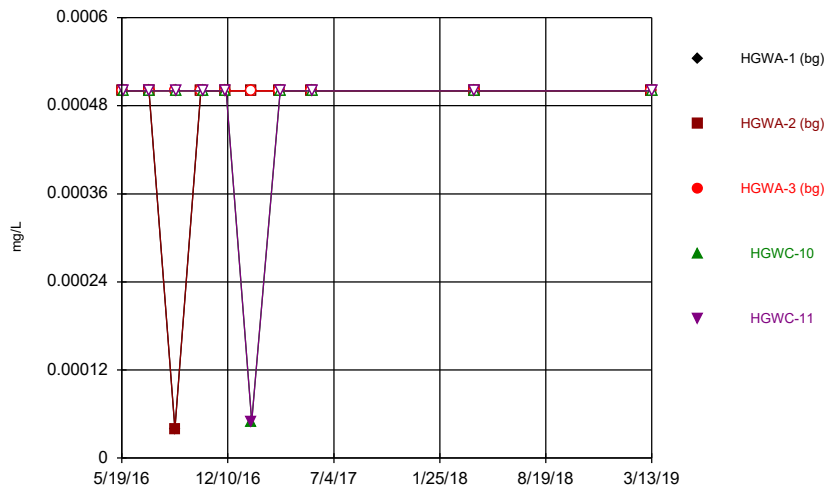
Constituent: Lithium Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



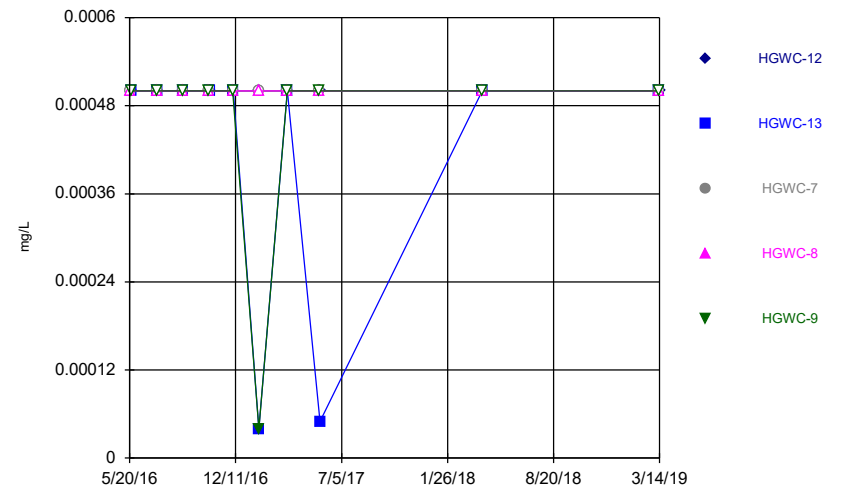
Constituent: Lithium Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



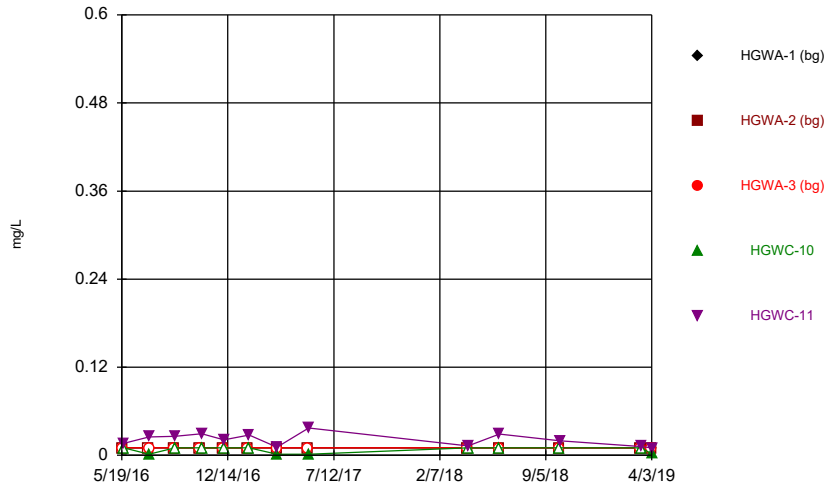
Constituent: Mercury Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



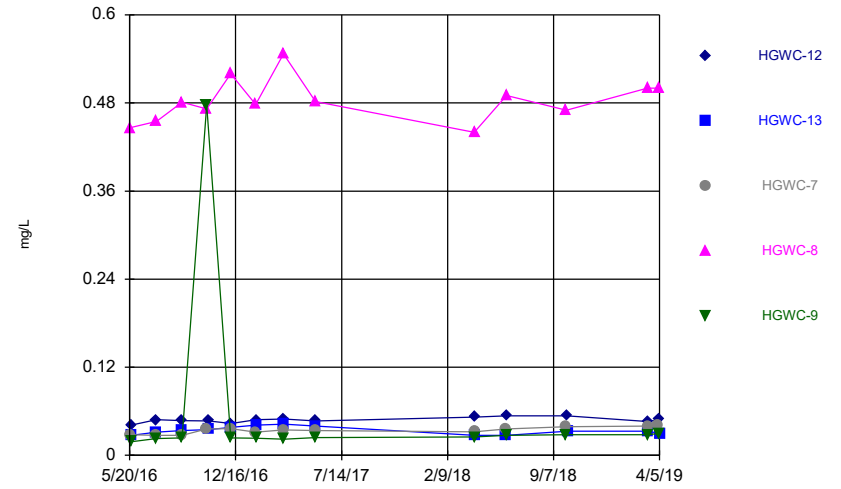
Constituent: Mercury Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



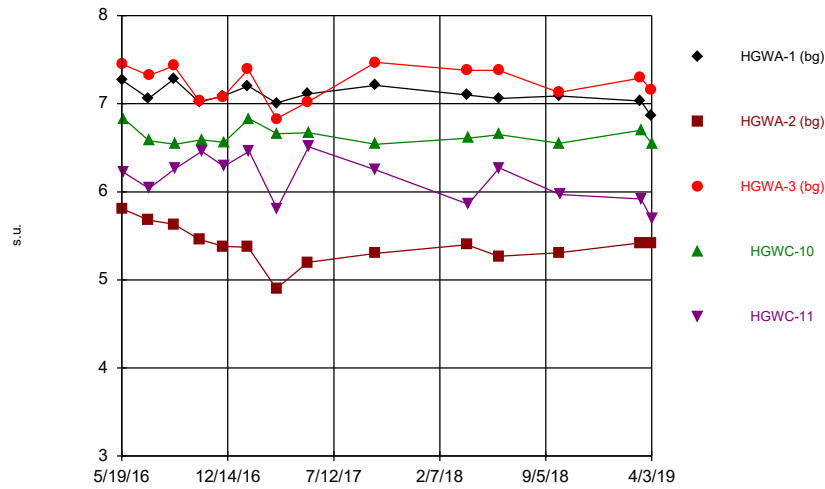
Constituent: Molybdenum Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



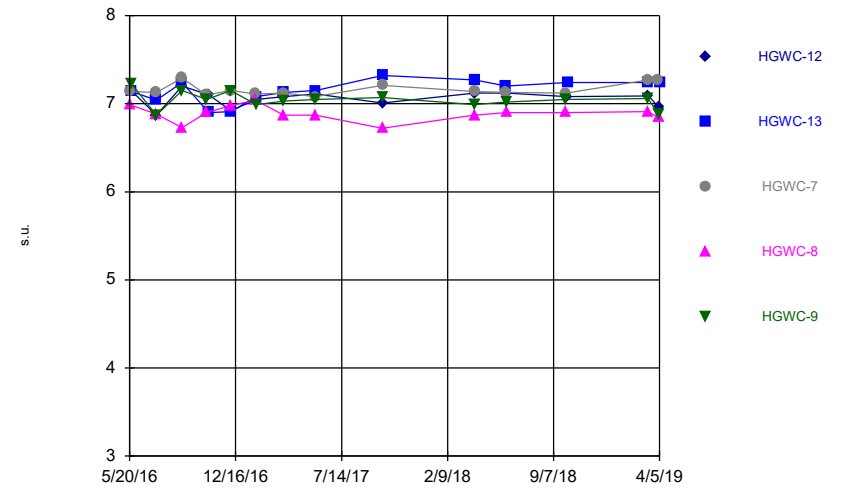
Constituent: Molybdenum Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



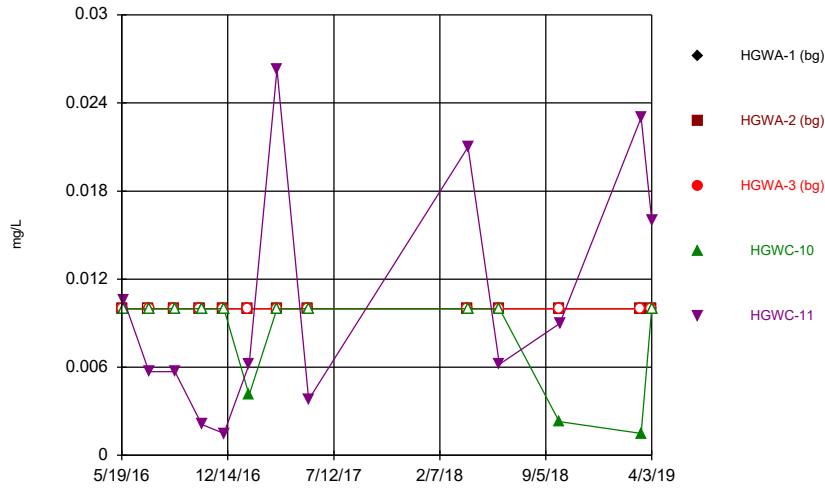
Constituent: pH Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



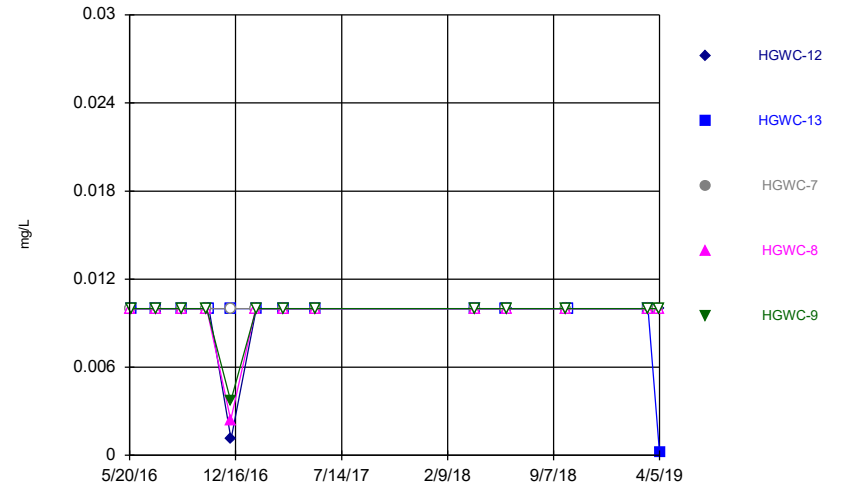
Constituent: pH Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



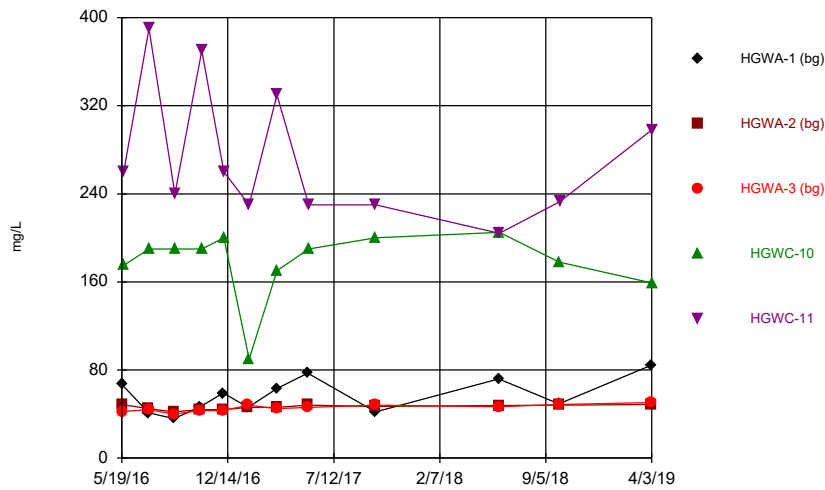
Constituent: Selenium Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



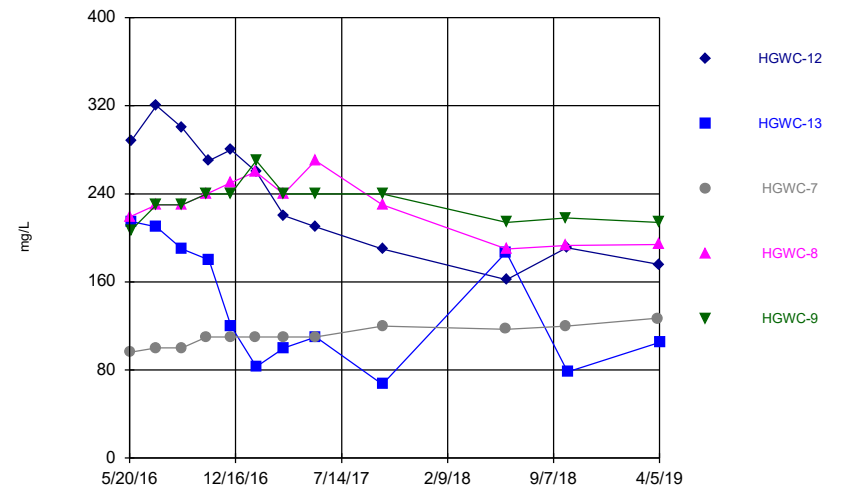
Constituent: Selenium Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



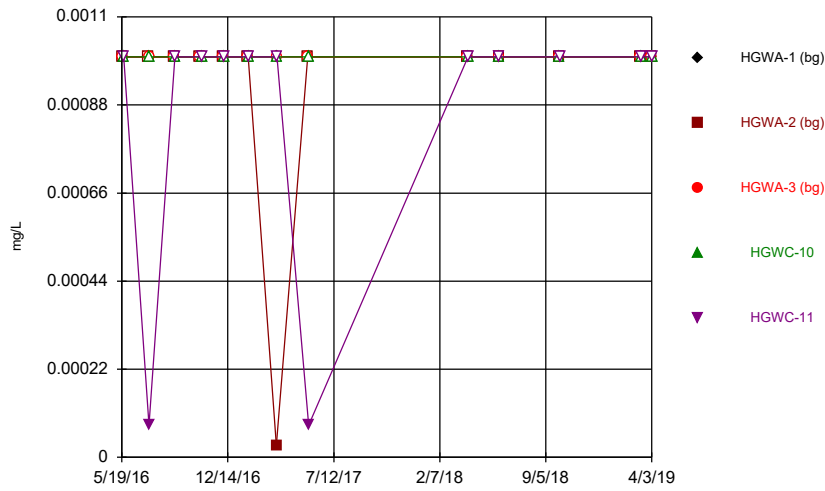
Constituent: Sulfate Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



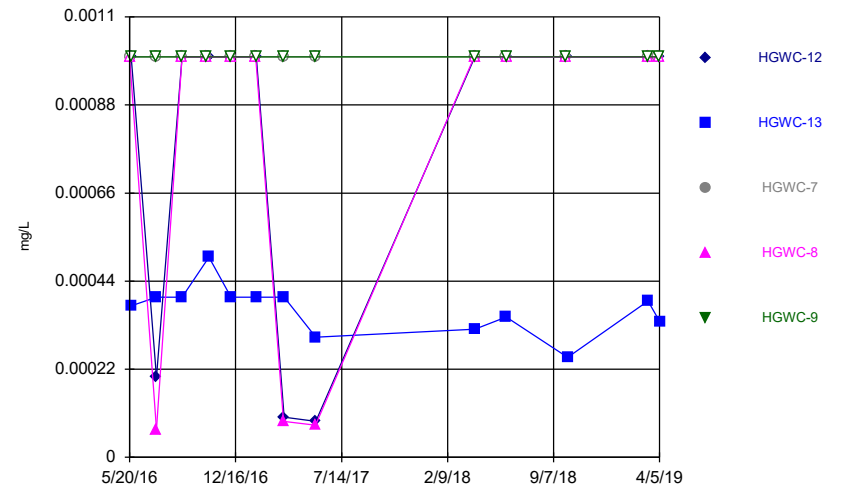
Constituent: Sulfate Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



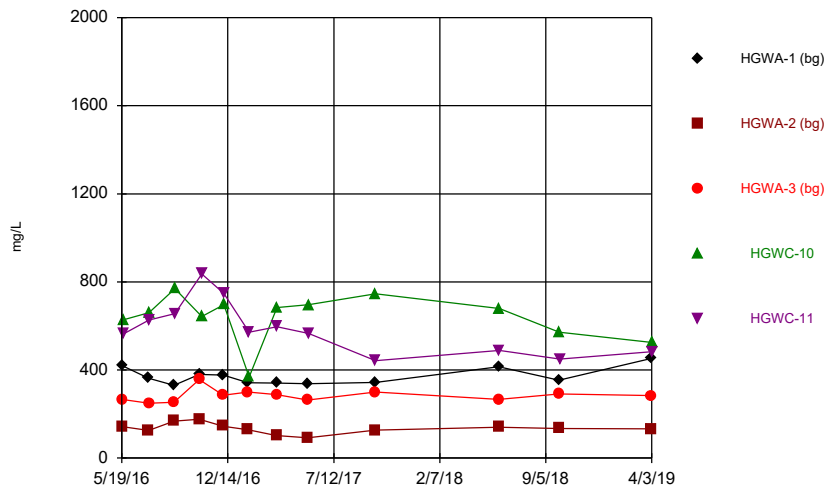
Constituent: Thallium Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



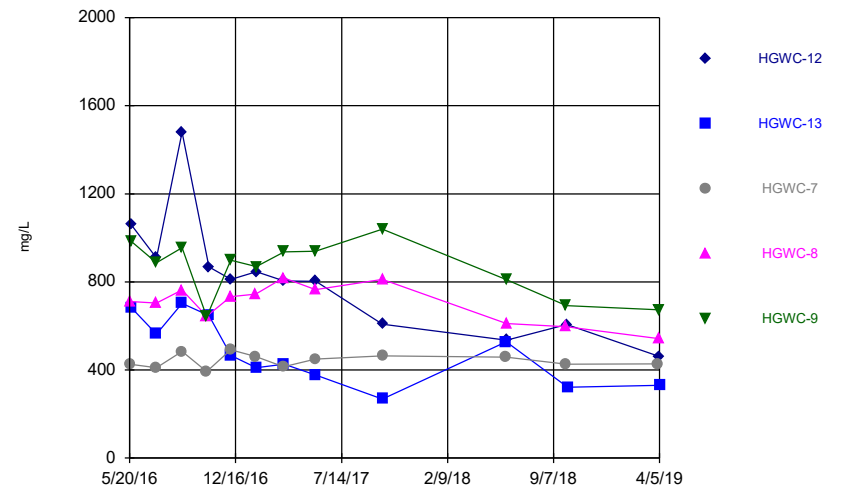
Constituent: Thallium Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



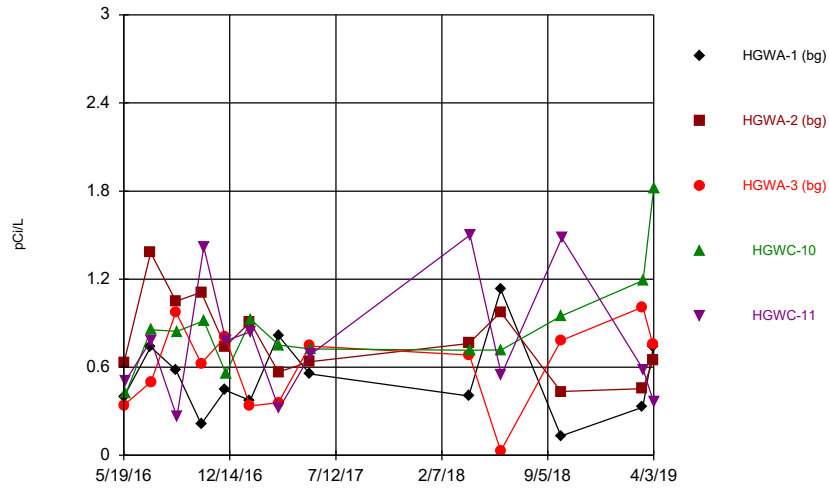
Constituent: Total Dissolved Solids Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



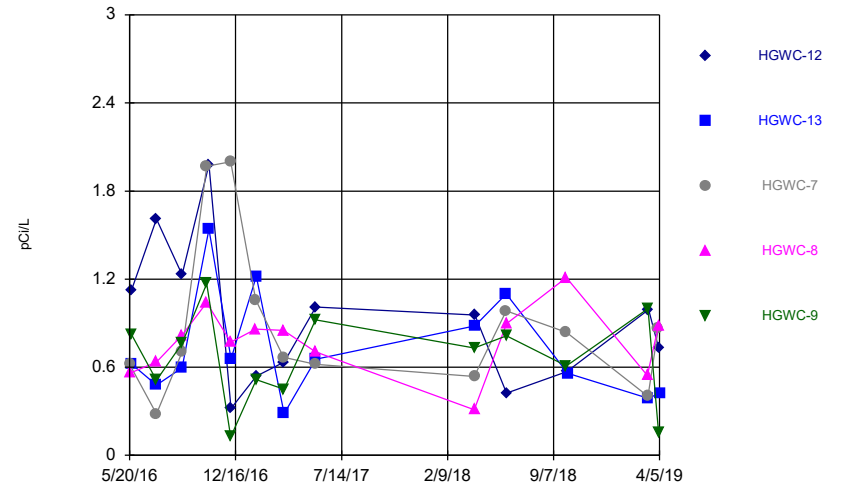
Constituent: Total Dissolved Solids Analysis Run 7/22/2019 12:44 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



Constituent: Total Radium Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Time Series



Constituent: Total Radium Analysis Run 7/22/2019 12:44 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Trend Test - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/24/2019, 10:18 AM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	HGWC-13	-0.528	-38	-30	Yes	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-8	0.4416	54	30	Yes	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-9	0.2743	45	30	Yes	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-3 (bg)	3.671	32	30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-12	-42.85	-44	-30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-13	-31.99	-36	-30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-2 (bg)	1.418	34	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-3 (bg)	2.946	48	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-12	-57.93	-54	-30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-13	-58.33	-38	-30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-7	9.629	52	30	Yes	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-11	-77.23	-32	-30	Yes	12	0	n/a	n/a	0.05	NP



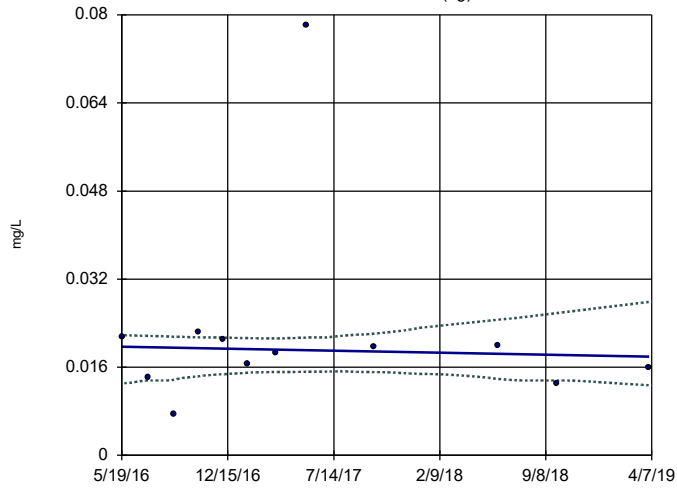
# Trend Test - All Results

Plant Hammond    Client: Georgia Power Company    Data: Hammond AP-1    Printed 7/24/2019, 10:18 AM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	HGWA-1 (bg)	-0.0006149	-6	-30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-2 (bg)	0.001596	26	30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-3 (bg)	-0.001203	-16	-30	No	12	16.67	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-10	0.04985	10	30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-11	-0.2889	-12	-30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-12	-0.1029	-4	-30	No	12	0	n/a	n/a	0.05	NP
<b>Boron (mg/L)</b>	<b>HGWC-13</b>	<b>-0.528</b>	<b>-38</b>	<b>-30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Boron (mg/L)	HGWC-7	0.03487	23	30	No	12	0	n/a	n/a	0.05	NP
<b>Boron (mg/L)</b>	<b>HGWC-8</b>	<b>0.4416</b>	<b>54</b>	<b>30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
<b>Boron (mg/L)</b>	<b>HGWC-9</b>	<b>0.2743</b>	<b>45</b>	<b>30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Calcium (mg/L)	HGWA-1 (bg)	6.667	28	30	No	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-2 (bg)	-1.26	-10	-30	No	12	0	n/a	n/a	0.05	NP
<b>Calcium (mg/L)</b>	<b>HGWA-3 (bg)</b>	<b>3.671</b>	<b>32</b>	<b>30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Calcium (mg/L)	HGWC-9	2.001	9	30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-1 (bg)	-0.1046	-1	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-2 (bg)	0	-4	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-3 (bg)	0.09075	17	30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-10	-4.164	-4	-30	No	12	0	n/a	n/a	0.05	NP
<b>Chloride (mg/L)</b>	<b>HGWC-12</b>	<b>-42.85</b>	<b>-44</b>	<b>-30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
<b>Chloride (mg/L)</b>	<b>HGWC-13</b>	<b>-31.99</b>	<b>-36</b>	<b>-30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Chloride (mg/L)	HGWC-7	1.212	26	30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-8	0	-7	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-9	-7.276	-19	-30	No	12	0	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-1 (bg)	0.02724	19	37	No	14	14.29	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-2 (bg)	0	14	37	No	14	50	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-3 (bg)	0.01182	10	37	No	14	21.43	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWC-11	0.01818	3	37	No	14	0	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWC-13	0.1038	34	37	No	14	0	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWC-8	-0.03376	-16	-37	No	14	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-1 (bg)	8.918	25	30	No	12	0	n/a	n/a	0.05	NP
<b>Sulfate (mg/L)</b>	<b>HGWA-2 (bg)</b>	<b>1.418</b>	<b>34</b>	<b>30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
<b>Sulfate (mg/L)</b>	<b>HGWA-3 (bg)</b>	<b>2.946</b>	<b>48</b>	<b>30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Sulfate (mg/L)	HGWC-10	0	3	30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-11	-23.41	-22	-30	No	12	0	n/a	n/a	0.05	NP
<b>Sulfate (mg/L)</b>	<b>HGWC-12</b>	<b>-57.93</b>	<b>-54</b>	<b>-30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
<b>Sulfate (mg/L)</b>	<b>HGWC-13</b>	<b>-58.33</b>	<b>-38</b>	<b>-30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
<b>Sulfate (mg/L)</b>	<b>HGWC-7</b>	<b>9.629</b>	<b>52</b>	<b>30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Sulfate (mg/L)	HGWC-8	-9.598	-6	-30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-9	0	-2	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-1 (bg)	6.354	4	30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-2 (bg)	-5.334	-14	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-3 (bg)	7.889	11	30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-10	-18.8	-8	-30	No	12	0	n/a	n/a	0.05	NP
<b>Total Dissolved Solids (mg/L)</b>	<b>HGWC-11</b>	<b>-77.23</b>	<b>-32</b>	<b>-30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Total Dissolved Solids (mg/L)	HGWC-8	-45.4	-10	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-9	-68.95	-18	-30	No	12	0	n/a	n/a	0.05	NP

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

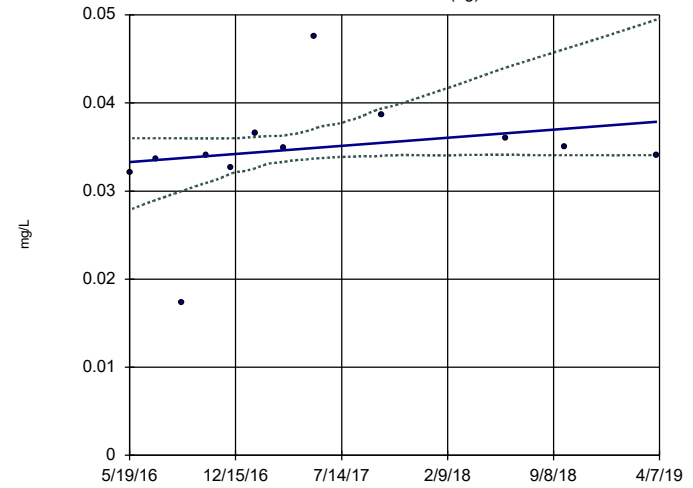


n = 12  
 Slope = -0.0006149  
 units per year.  
 Mann-Kendall  
 statistic = -6  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

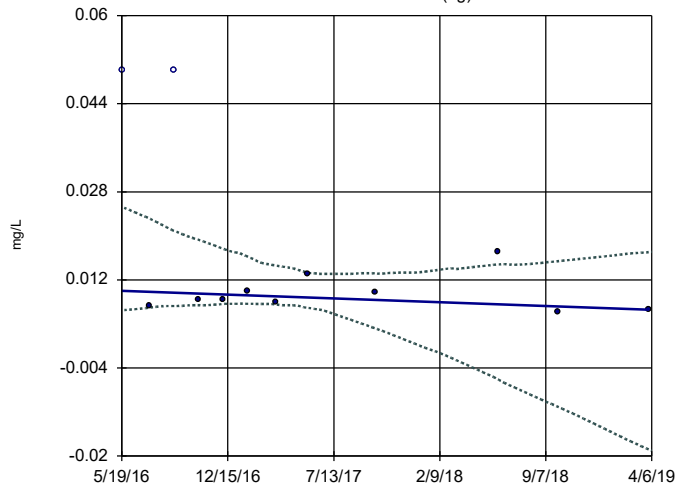


n = 12  
 Slope = 0.001596  
 units per year.  
 Mann-Kendall  
 statistic = 26  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

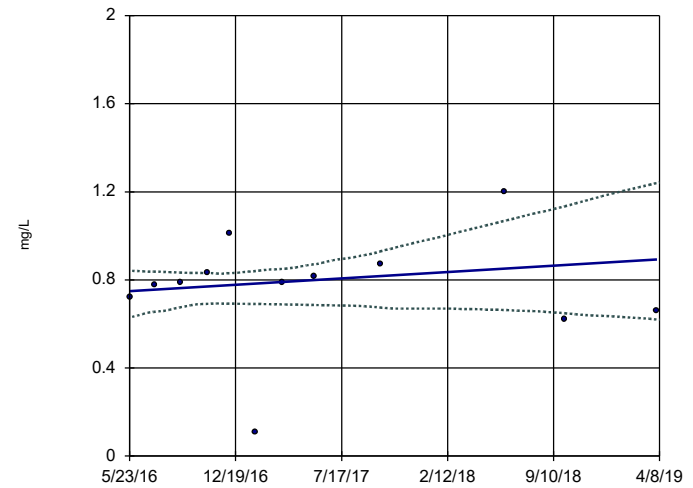


n = 12  
 Slope = -0.001203  
 units per year.  
 Mann-Kendall  
 statistic = -16  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWC-10

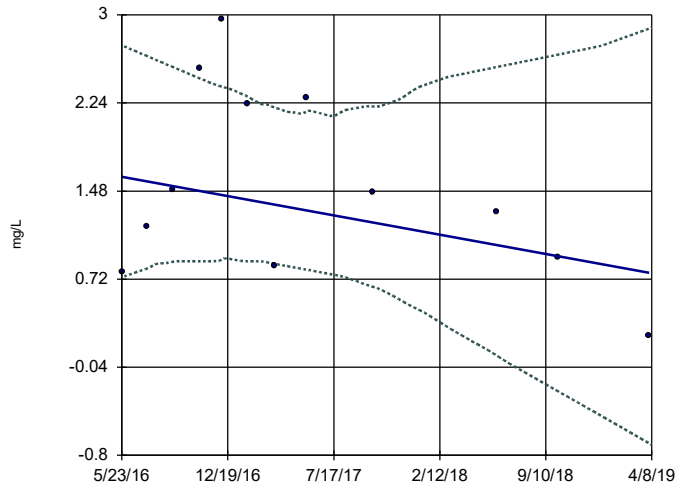


n = 12  
 Slope = 0.04985  
 units per year.  
 Mann-Kendall  
 statistic = 10  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-11

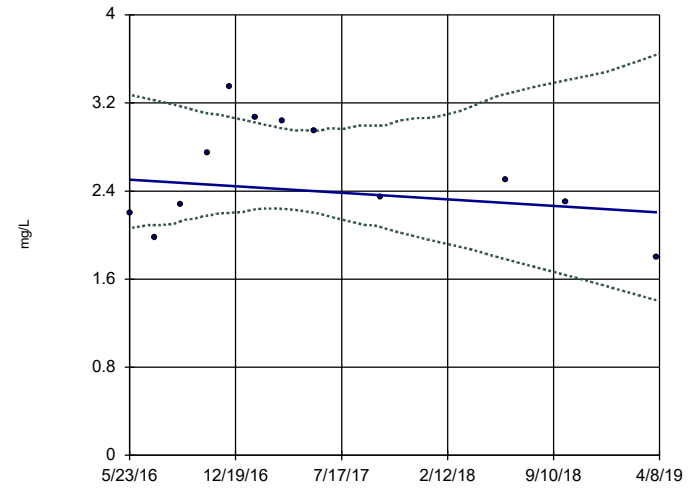


n = 12  
 Slope = -0.2889  
 units per year.  
 Mann-Kendall  
 statistic = -12  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-12

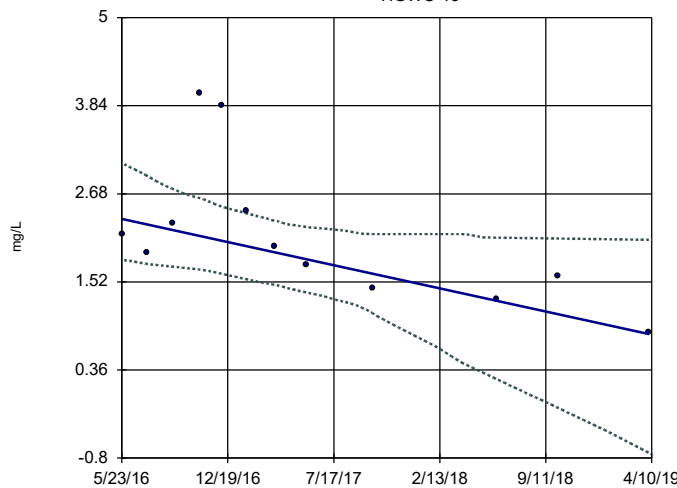


n = 12  
 Slope = -0.1029  
 units per year.  
 Mann-Kendall  
 statistic = -4  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-13

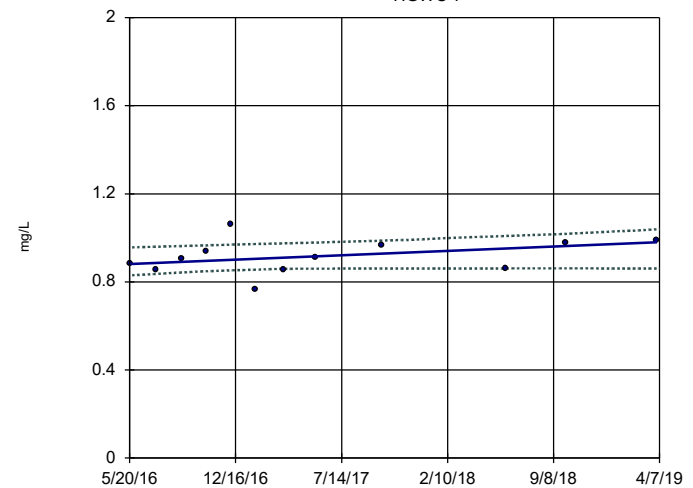


n = 12  
 Slope = -0.528  
 units per year.  
 Mann-Kendall  
 statistic = -38  
 critical = -30  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

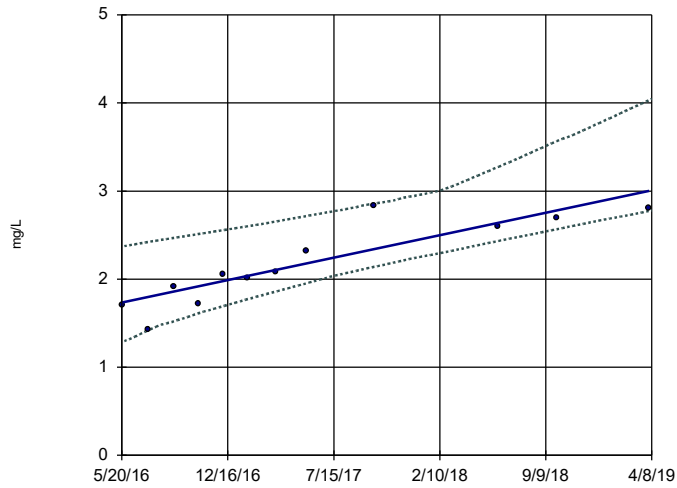
HGWC-7



n = 12  
 Slope = 0.03487  
 units per year.  
 Mann-Kendall  
 statistic = 23  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

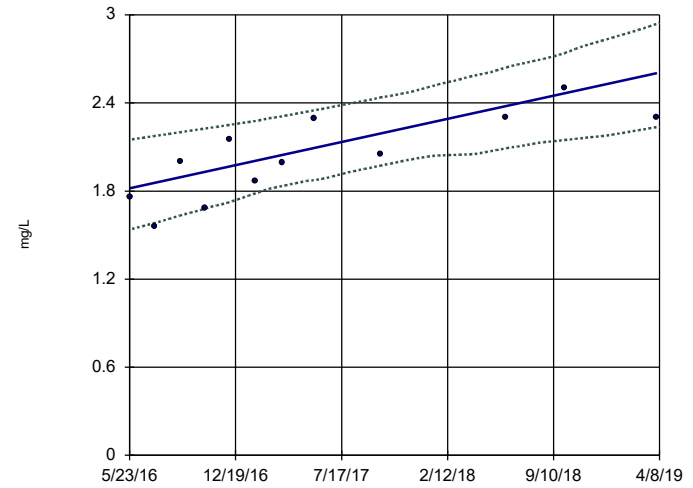
Sen's Slope and 95% Confidence Band  
HGWC-8



n = 12  
Slope = 0.4416 units per year.  
Mann-Kendall statistic = 54  
critical = 30  
Increasing trend significant at 95% confidence level ( $\alpha = 0.025$  per tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

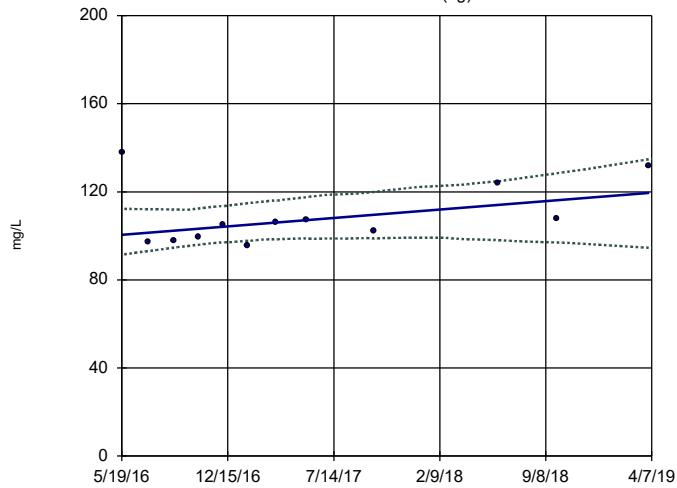
Sen's Slope and 95% Confidence Band  
HGWC-9



n = 12  
Slope = 0.2743 units per year.  
Mann-Kendall statistic = 45  
critical = 30  
Increasing trend significant at 95% confidence level ( $\alpha = 0.025$  per tail).

Constituent: Boron Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

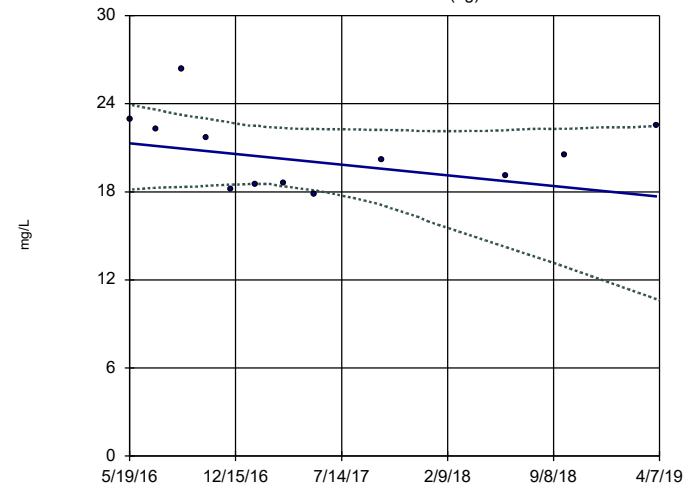
Sen's Slope and 95% Confidence Band  
HGWA-1 (bg)



n = 12  
Slope = 6.667 units per year.  
Mann-Kendall statistic = 28  
critical = 30  
Trend not significant at 95% confidence level ( $\alpha = 0.025$  per tail).

Constituent: Calcium Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

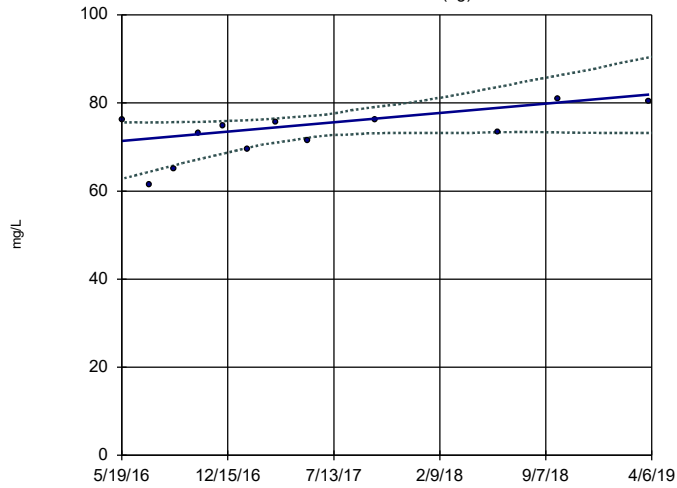
Sen's Slope and 95% Confidence Band  
HGWA-2 (bg)



n = 12  
Slope = -1.26 units per year.  
Mann-Kendall statistic = -10  
critical = -30  
Trend not significant at 95% confidence level ( $\alpha = 0.025$  per tail).

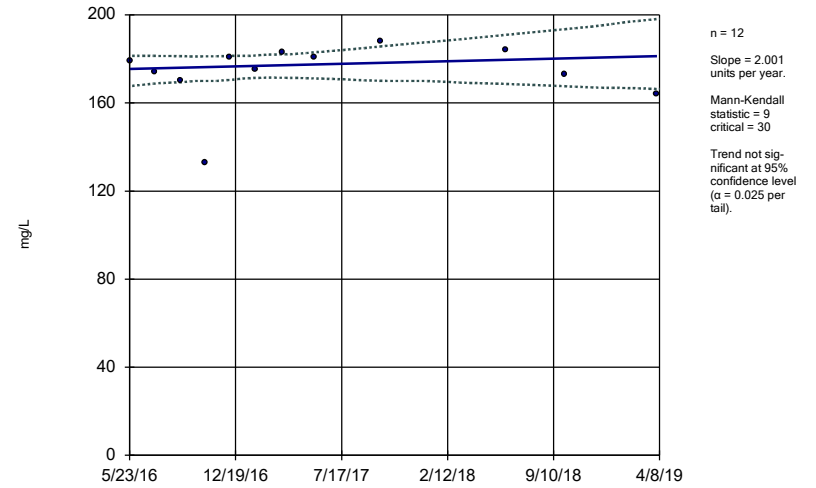
Constituent: Calcium Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-3 (bg)



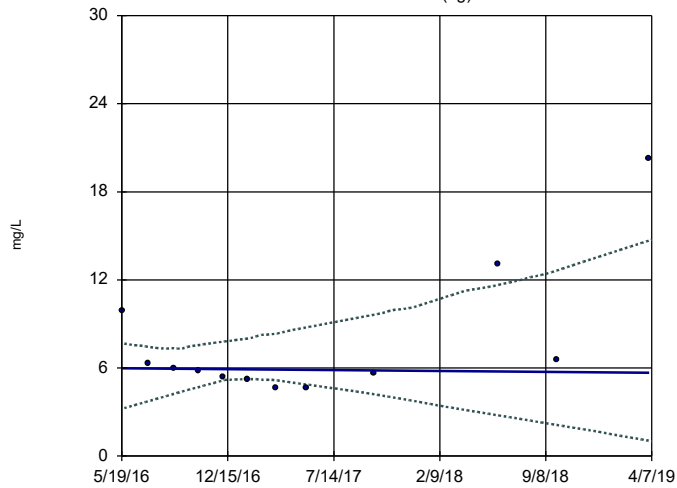
Constituent: Calcium Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWC-9



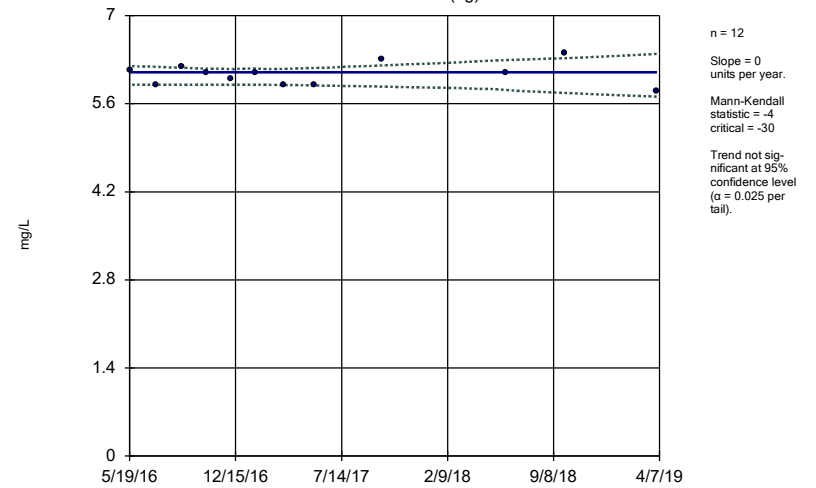
Constituent: Calcium Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-1 (bg)



Constituent: Chloride Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

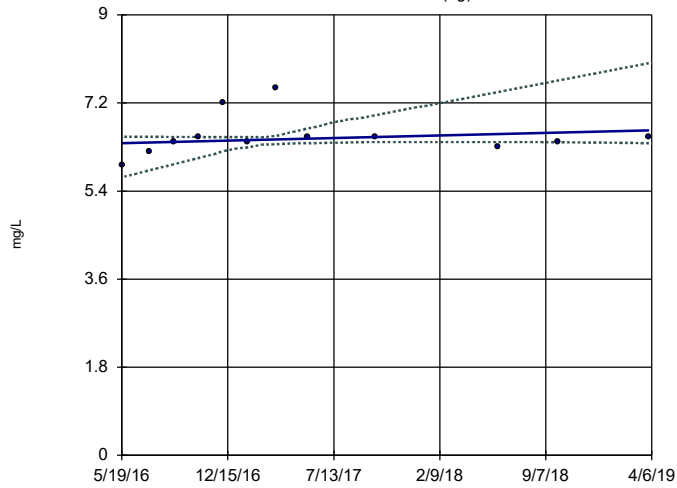
Sen's Slope and 95% Confidence Band  
HGWA-2 (bg)



Constituent: Chloride Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

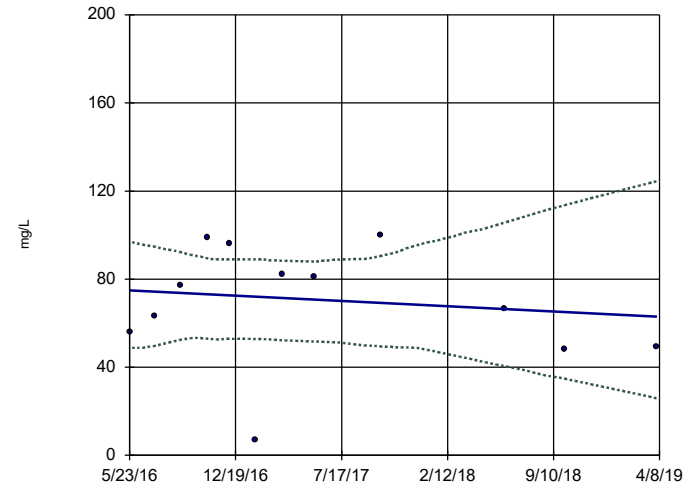


n = 12  
 Slope = 0.09075  
 units per year.  
 Mann-Kendall  
 statistic = 17  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-10

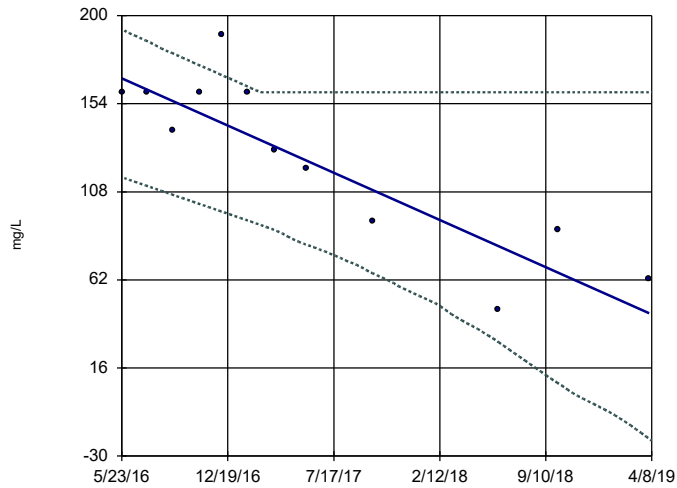


n = 12  
 Slope = -4.164  
 units per year.  
 Mann-Kendall  
 statistic = -4  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-12

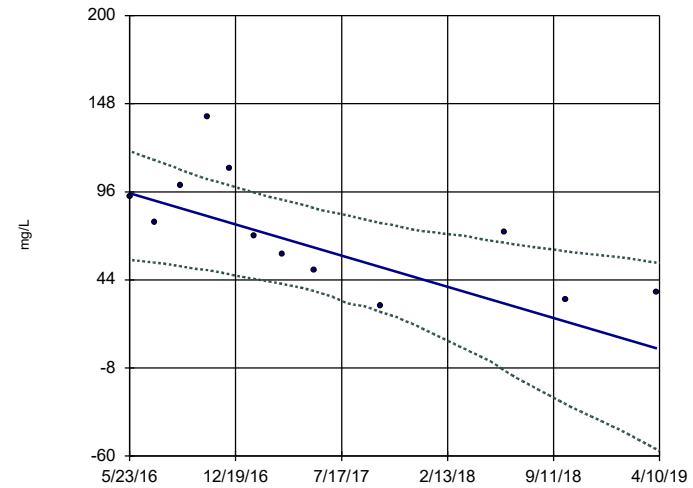


n = 12  
 Slope = -42.85  
 units per year.  
 Mann-Kendall  
 statistic = -44  
 critical = -30  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-13

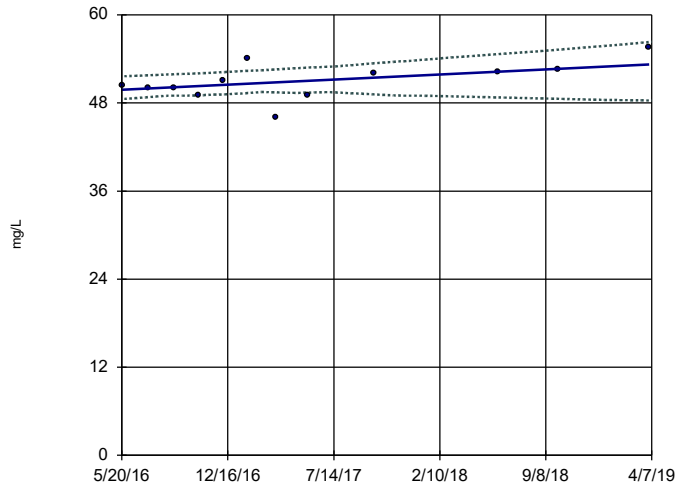


n = 12  
 Slope = -31.99  
 units per year.  
 Mann-Kendall  
 statistic = -36  
 critical = -30  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWC-7

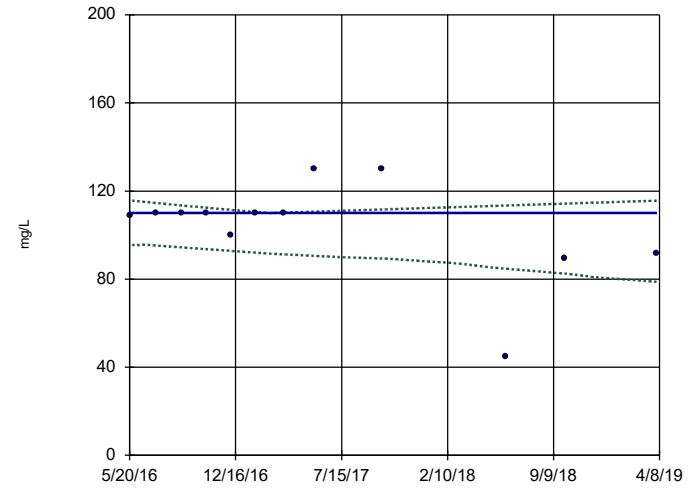


n = 12  
 Slope = 1.212  
 units per year.  
 Mann-Kendall  
 statistic = 26  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWC-8

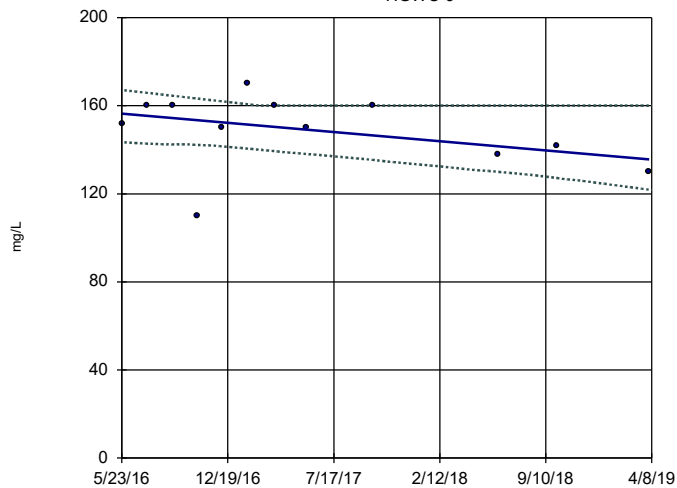


n = 12  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = -7  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWC-9



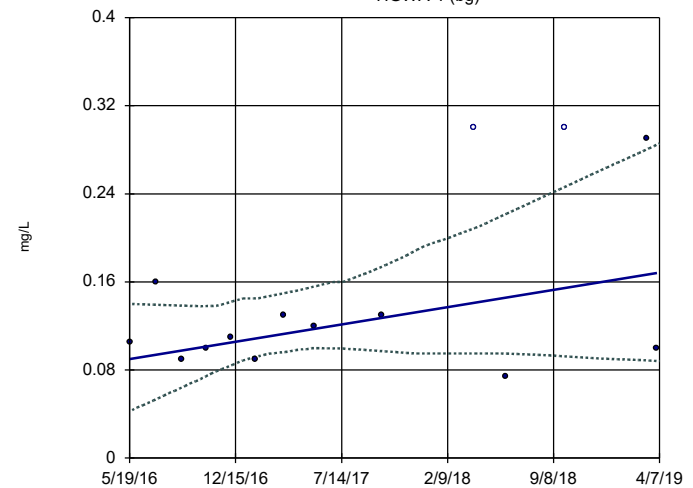
n = 12  
 Slope = -7.276  
 units per year.  
 Mann-Kendall  
 statistic = -19  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

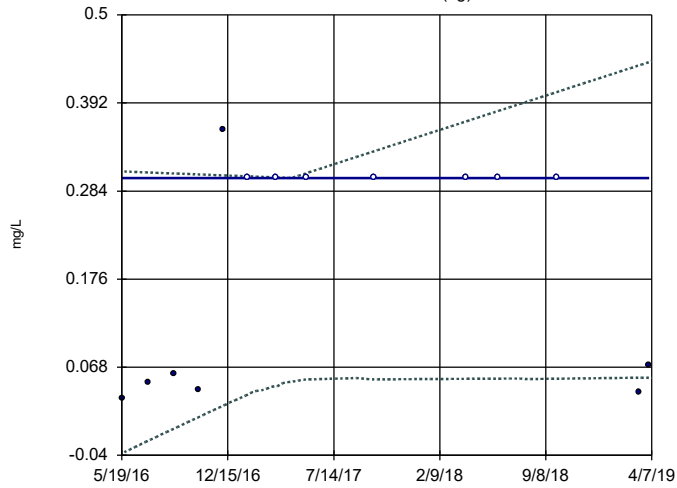


n = 14  
 Slope = 0.02724  
 units per year.  
 Mann-Kendall  
 statistic = 19  
 critical = 37  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:14 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

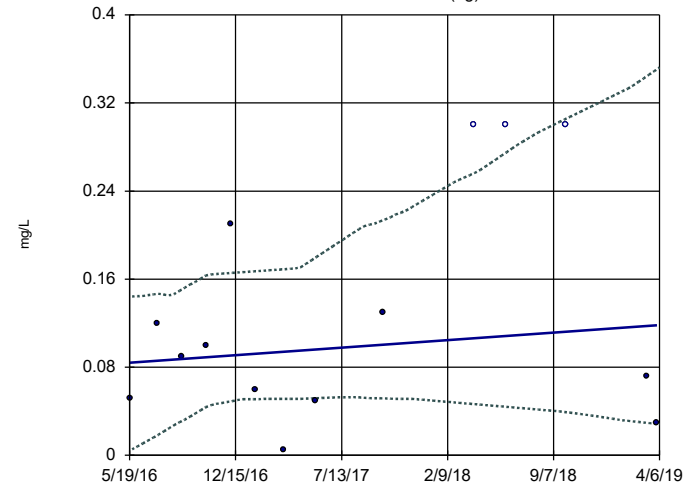


n = 14  
Slope = 0  
units per year.  
Mann-Kendall  
statistic = 14  
critical = 37  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

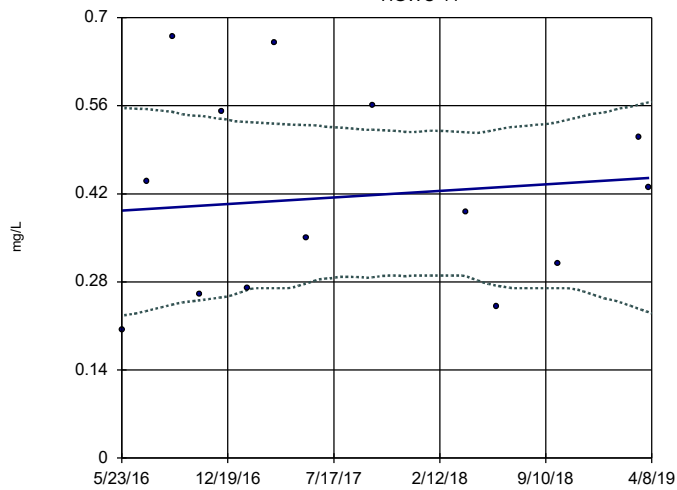


n = 14  
Slope = 0.01182  
units per year.  
Mann-Kendall  
statistic = 10  
critical = 37  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-11

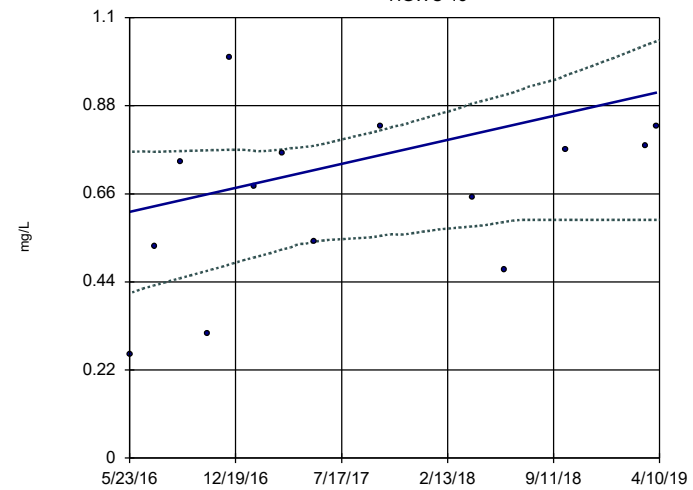


n = 14  
Slope = 0.01818  
units per year.  
Mann-Kendall  
statistic = 3  
critical = 37  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-13



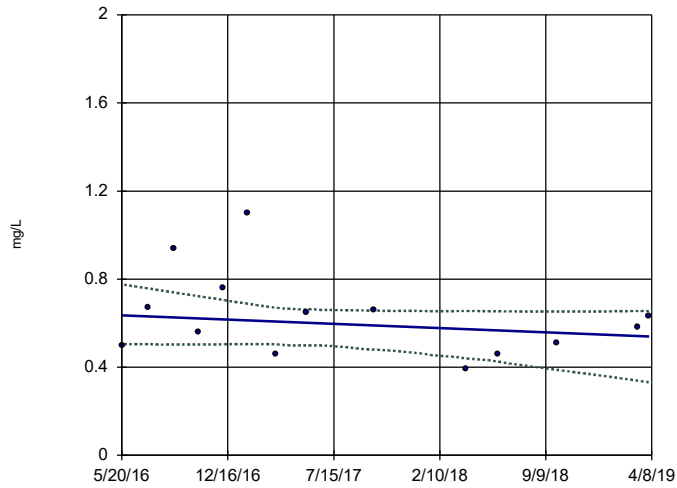
n = 14  
Slope = 0.1038  
units per year.  
Mann-Kendall  
statistic = 34  
critical = 37  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:14 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



### Sen's Slope and 95% Confidence Band

HGWC-8

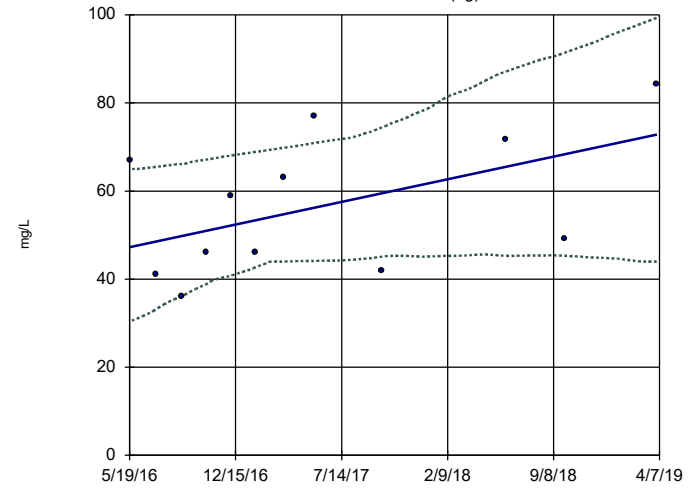


n = 14  
 Slope = -0.03376  
 units per year.  
 Mann-Kendall  
 statistic = -16  
 critical = -37  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

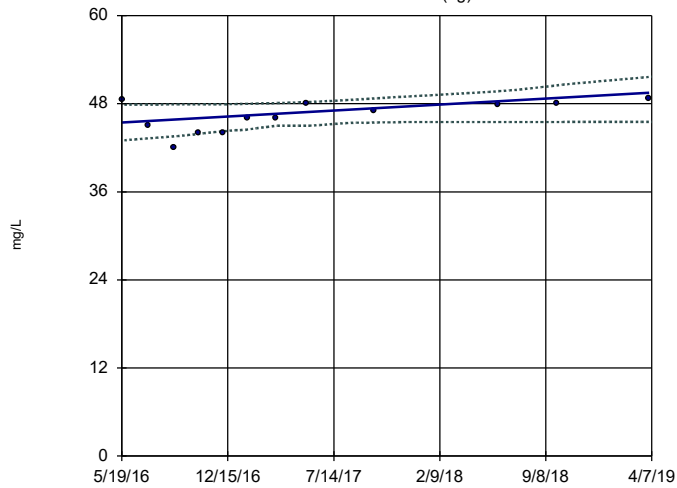


n = 12  
 Slope = 8.918  
 units per year.  
 Mann-Kendall  
 statistic = 25  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

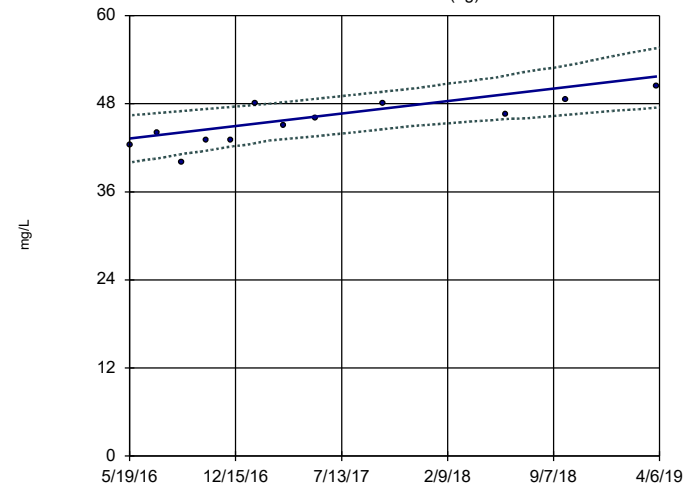


n = 12  
 Slope = 1.418  
 units per year.  
 Mann-Kendall  
 statistic = 34  
 critical = 30  
 Increasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

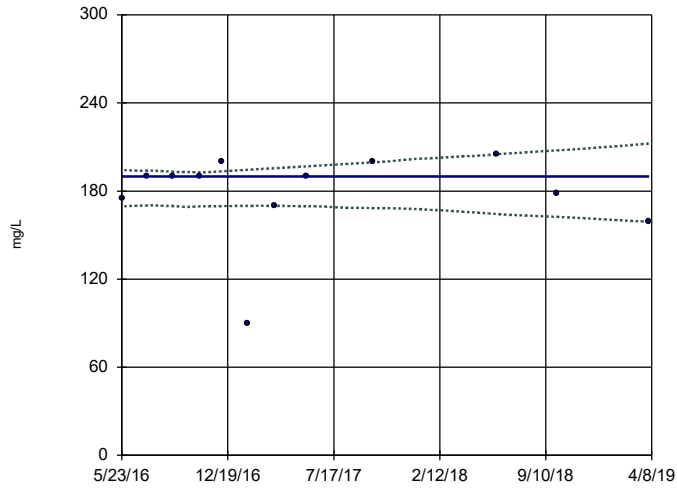


n = 12  
 Slope = 2.946  
 units per year.  
 Mann-Kendall  
 statistic = 48  
 critical = 30  
 Increasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-10

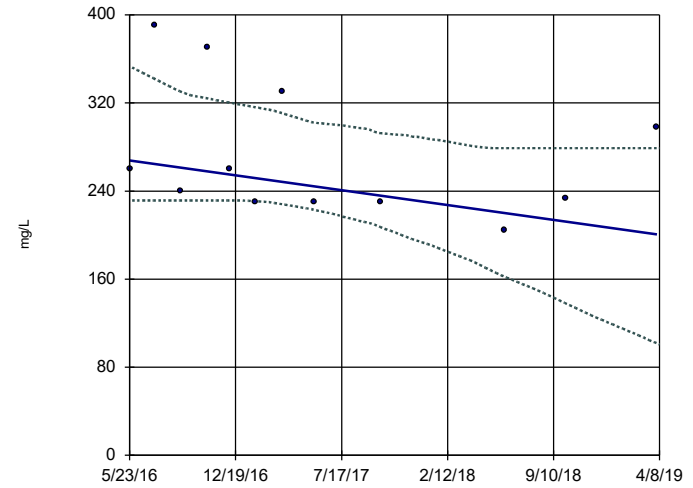


n = 12  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = 3  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-11

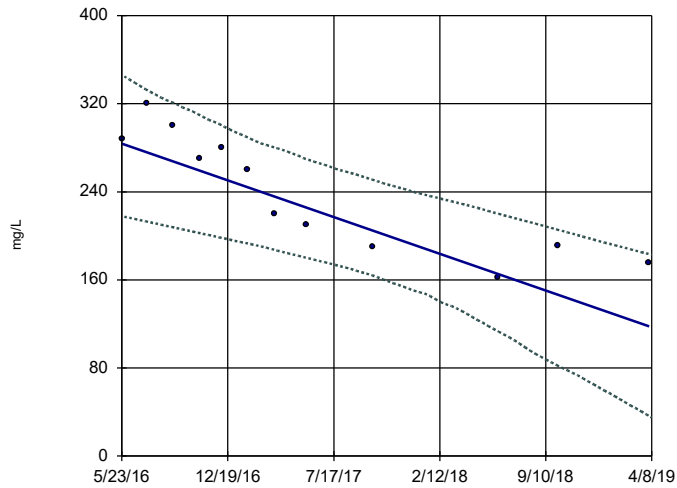


n = 12  
 Slope = -23.41  
 units per year.  
 Mann-Kendall  
 statistic = -22  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-12

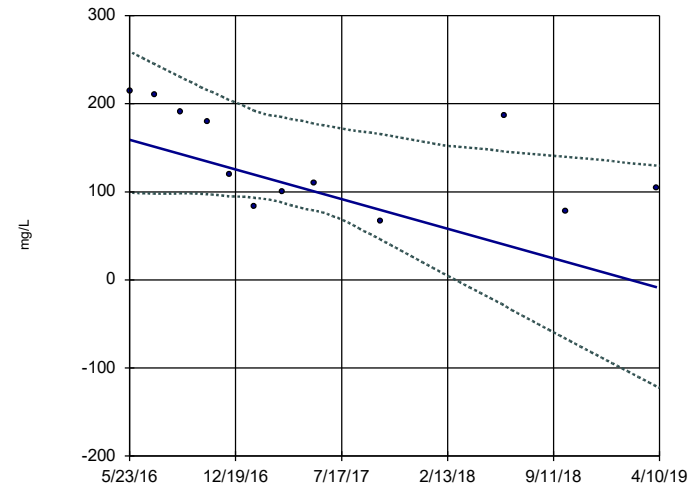


n = 12  
 Slope = -57.93  
 units per year.  
 Mann-Kendall  
 statistic = -54  
 critical = -30  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-13

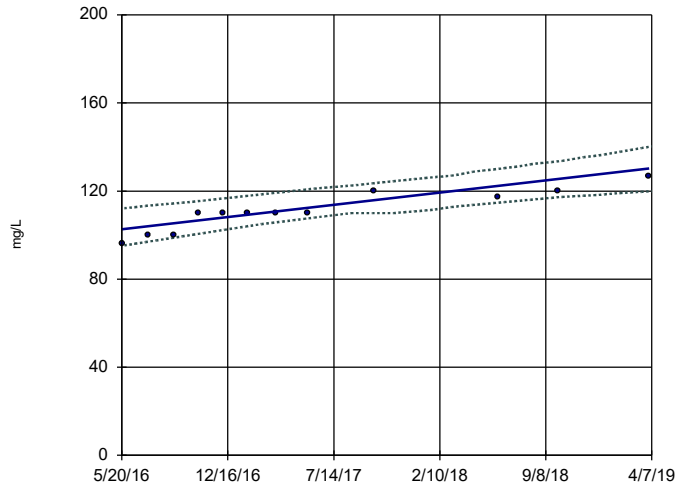


n = 12  
 Slope = -58.33  
 units per year.  
 Mann-Kendall  
 statistic = -38  
 critical = -30  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-7

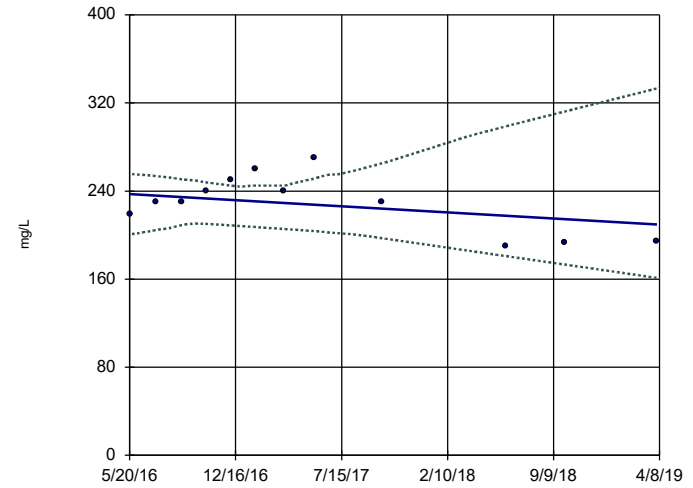


n = 12  
 Slope = 9.629  
 units per year.  
 Mann-Kendall  
 statistic = 52  
 critical = 30  
 Increasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-8

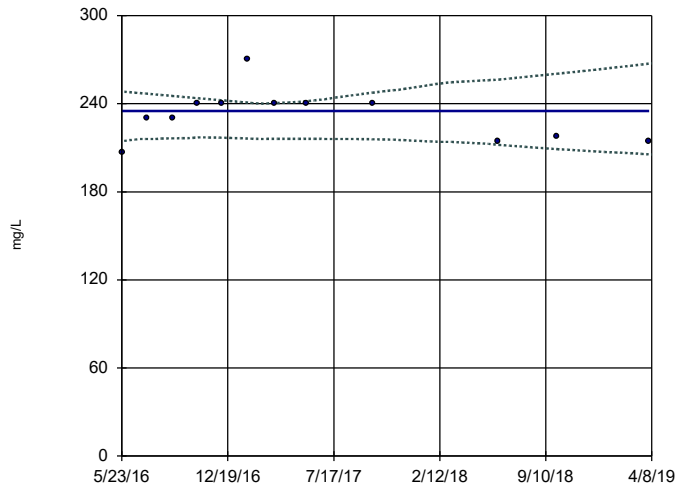


n = 12  
 Slope = -9.598  
 units per year.  
 Mann-Kendall  
 statistic = -6  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-9

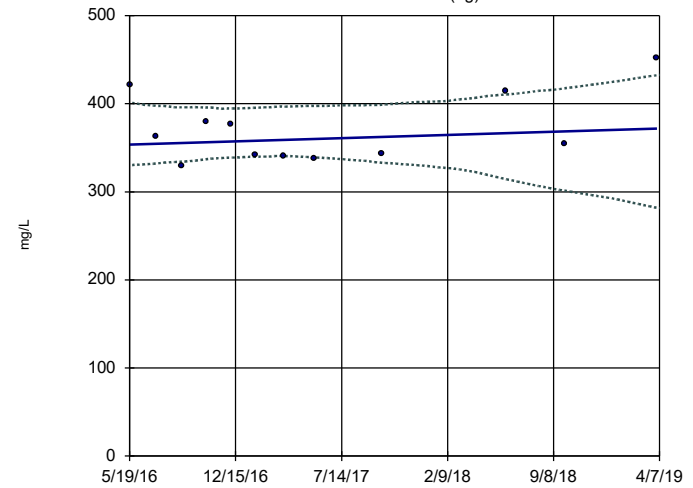


n = 12  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = -2  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

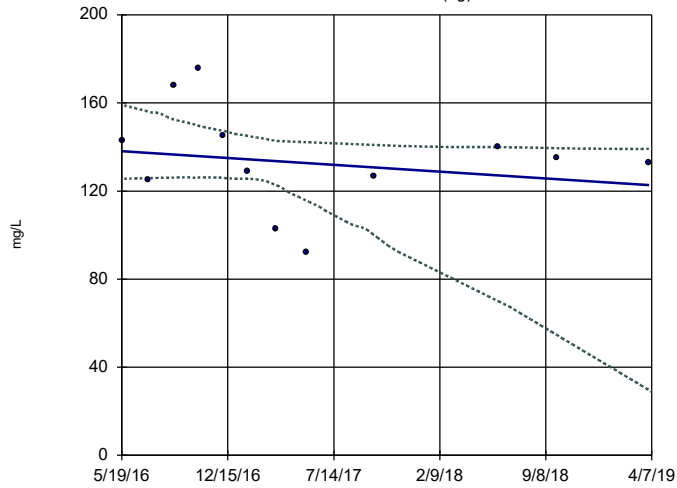


n = 12  
 Slope = 6.354  
 units per year.  
 Mann-Kendall  
 statistic = 4  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

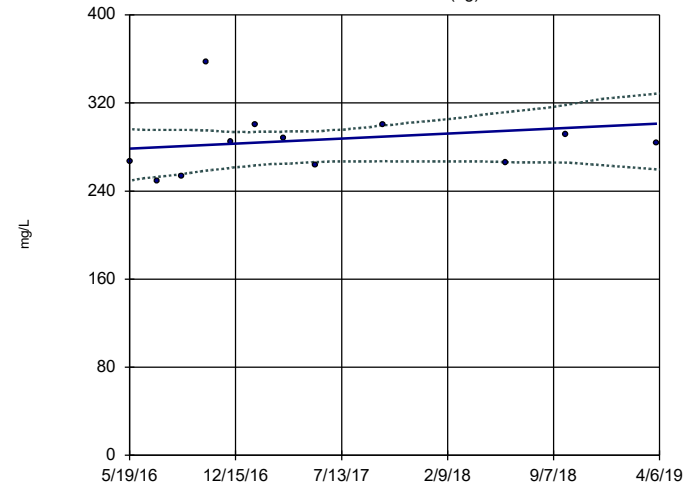


n = 12  
 Slope = -5.334  
 units per year.  
 Mann-Kendall  
 statistic = -14  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

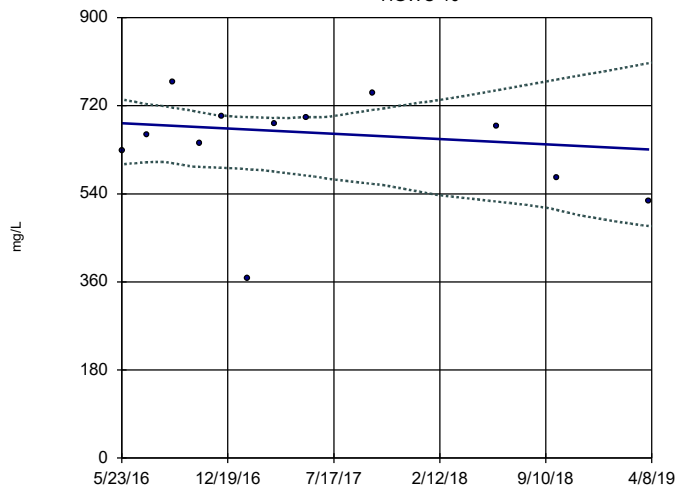


n = 12  
 Slope = 7.889  
 units per year.  
 Mann-Kendall  
 statistic = 11  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-10

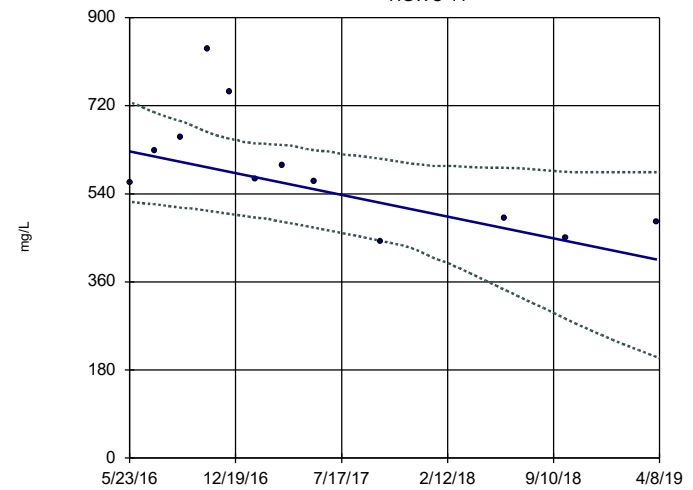


n = 12  
 Slope = -18.8  
 units per year.  
 Mann-Kendall  
 statistic = -8  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-11

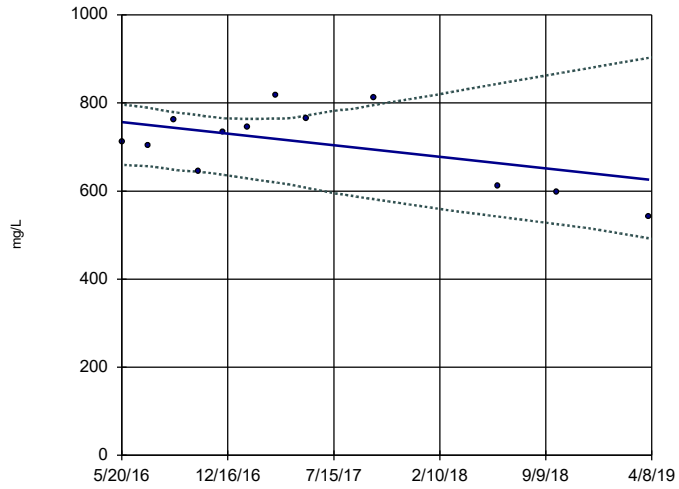


n = 12  
 Slope = -77.23  
 units per year.  
 Mann-Kendall  
 statistic = -32  
 critical = -30  
 Decreasing trend  
 significant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-8

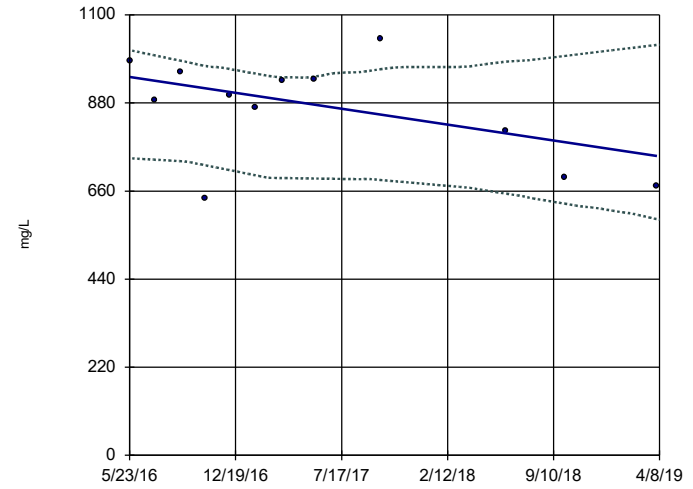


n = 12  
Slope = -45.4 units per year.  
Mann-Kendall statistic = -10  
critical = -30  
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWC-9



n = 12  
Slope = -68.95 units per year.  
Mann-Kendall statistic = -18  
critical = -30  
Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:15 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Assessment Monitoring Program  
Statistical Analysis Package  
Plant Hammond Ash Pond 1 (AP-1)  
April 2019 event (AM 01)

GA EPD Based Groundwater  
Protection Standards Statistical  
Analysis Package

AM 01

# Tolerance Limit

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/22/2019, 12:24 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	33	93.94	n/a	0.184	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	39	66.67	n/a	0.1353	NP Inter(NDs)
Barium (mg/L)	n/a	0.14	n/a	n/a	n/a	39	0	n/a	0.1353	NP Inter(normal...
Beryllium (mg/L)	n/a	0.003	n/a	n/a	n/a	33	75.76	n/a	0.184	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.001	n/a	n/a	n/a	33	84.85	n/a	0.184	NP Inter(NDs)
Chromium (mg/L)	n/a	0.01	n/a	n/a	n/a	33	90.91	n/a	0.184	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.0293	n/a	n/a	n/a	33	63.64	n/a	0.184	NP Inter(NDs)
Fluoride (mg/L)	n/a	0.36	n/a	n/a	n/a	42	28.57	n/a	0.116	NP Inter(normal...
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	30	86.67	n/a	0.2146	NP Inter(NDs)
Lithium (mg/L)	n/a	0.05	n/a	n/a	n/a	39	41.03	n/a	0.1353	NP Inter(normal...
Mercury (mg/L)	n/a	0.0005	n/a	n/a	n/a	30	93.33	n/a	0.2146	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	39	100	n/a	0.1353	NP Inter(NDs)
Selenium (mg/L)	n/a	0.01	n/a	n/a	n/a	39	100	n/a	0.1353	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	39	97.44	n/a	0.1353	NP Inter(NDs)
Total Radium (pCi/L)	n/a	1.341	n/a	n/a	n/a	39	0	No	0.01	Inter



**Table C-2**  
**EPD Based Groundwater Protection Standards**  
**Plant Hammond - Ash Pond 1**  
**Floyd County, Georgia**

Constituent	CAS	Units	EPA MCL	Statistically Derived Upper Tolerance Limits for Background	GWPS <sup>1</sup>
Antimony	7440-36-0	mg/L	0.006	0.003	0.006
Arsenic	7440-38-2	mg/L	0.01	0.005	0.01
Barium	7440-39-3	mg/L	2	0.14	2
Beryllium	7440-41-7	mg/L	0.004	0.003	0.004
Cadmium	7440-43-9	mg/L	0.005	0.001	0.005
Chromium	7440-47-3	mg/L	0.1	0.01	0.1
Cobalt <sup>2</sup>	7440-48-4	mg/L	N/A	0.0293	0.0293
Fluoride	16984-48-8	mg/L	4	0.36	4
Lead <sup>2</sup>	7439-92-1	mg/L	N/A	0.005	0.005
Lithium <sup>2</sup>	7439-93-2	mg/L	N/A	0.05	0.05
Mercury	7439-97-6	mg/L	0.002	0.0005	0.002
Molybdenum <sup>2</sup>	7439-98-7	mg/L	N/A	0.01	0.01
Selenium	7782-49-2	mg/L	0.05	0.01	0.05
Thallium	7440-28-0	mg/L	0.002	0.001	0.002
Total Radium	7440-14-4	pCi/L	5	1.341	5

**Notes:**

EPA MCL - U.S. Environmental Protection Agency, Maximum Contaminant Level

GWPS - Groundwater Protection Standards

mg/L - milligram per liter

N/A - Not Available

pCi/L - Picocuries per liter

<sup>1</sup>GWPS selected as the greater value between the EPA MCL and the background Upper Tolerance Limit.

<sup>2</sup>Constituent without established EPA MCL.

# Confidence Interval - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/22/2019, 12:35 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Arsenic (mg/L)	HGWC-13	0.4136	0.3326	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-11	0.02769	0.01502	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-12	0.05099	0.04548	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-13	0.0378	0.02978	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-7	0.03754	0.03063	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-8	0.5051	0.4612	0.01	Yes	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-9	0.03	0.0219	0.01	Yes	13	0	No	0.01	NP (normality)

# Confidence Interval - All Results

Plant Hammond    Client: Georgia Power Company    Data: Hammond AP-1    Printed 7/22/2019, 12:35 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	HGWC-10	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-11	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-12	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-13	0.0015	0.00021	0.006	No	11	81.82	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-7	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-8	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-9	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-10	0.0025	0.0025	0.01	No	13	100	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-11	0.0053	0.0012	0.01	No	13	61.54	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-12	0.004408	0.002577	0.01	No	13	15.38	No	0.01	Param.
<b>Arsenic (mg/L)</b>	<b>HGWC-13</b>	<b>0.4136</b>	<b>0.3326</b>	<b>0.01</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Arsenic (mg/L)	HGWC-7	0.0025	0.0019	0.01	No	13	92.31	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-8	0.0025	0.0025	0.01	No	13	100	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-9	0.0025	0.0008	0.01	No	13	84.62	No	0.01	NP (NDs)
Barium (mg/L)	HGWC-10	0.09873	0.07101	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-11	0.06589	0.03153	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-12	0.1261	0.0922	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-13	0.0964	0.07	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-7	0.07738	0.0717	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-8	0.08184	0.06803	2	No	13	0	x^2	0.01	Param.
Barium (mg/L)	HGWC-9	0.1288	0.1045	2	No	13	0	No	0.01	Param.
Beryllium (mg/L)	HGWC-10	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-11	0.0015	0.00009	0.004	No	11	72.73	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-12	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-13	0.0015	0.000062	0.004	No	11	90.91	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-7	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-8	0.0015	0.000074	0.004	No	11	90.91	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-9	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-10	0.0005	0.0001	0.005	No	11	36.36	No	0.006	NP (normality)
Cadmium (mg/L)	HGWC-11	0.0005	0.000096	0.005	No	11	72.73	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-12	0.0005	0.00009	0.005	No	11	72.73	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-13	0.0005	0.0005	0.005	No	11	100	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-7	0.0005	0.0001	0.005	No	11	63.64	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-8	0.0004919	0.0001335	0.005	No	11	9.091	ln(x)	0.01	Param.
Cadmium (mg/L)	HGWC-9	0.0005	0.00007	0.005	No	11	72.73	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-10	0.005	0.005	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-11	0.005	0.0003	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-12	0.005	0.0004	0.1	No	11	81.82	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-13	0.005	0.0004	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-7	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-8	0.005	0.0005	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-9	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Cobalt (mg/L)	HGWC-10	0.005	0.0006	0.0293	No	11	45.45	No	0.006	NP (normality)
Cobalt (mg/L)	HGWC-11	0.002567	0.001137	0.0293	No	11	18.18	No	0.01	Param.
Cobalt (mg/L)	HGWC-12	0.001767	0.001211	0.0293	No	11	18.18	ln(x)	0.01	Param.
Cobalt (mg/L)	HGWC-13	0.003851	0.00226	0.0293	No	11	9.091	No	0.01	Param.
Cobalt (mg/L)	HGWC-7	0.0007331	0.0003532	0.0293	No	11	27.27	ln(x)	0.01	Param.
Cobalt (mg/L)	HGWC-8	0.0026	0.0019	0.0293	No	11	9.091	No	0.006	NP (normality)
Cobalt (mg/L)	HGWC-9	0.005	0.0005	0.0293	No	11	18.18	No	0.006	NP (normality)
Fluoride (mg/L)	HGWC-10	0.3328	0.1145	4	No	14	14.29	No	0.01	Param.

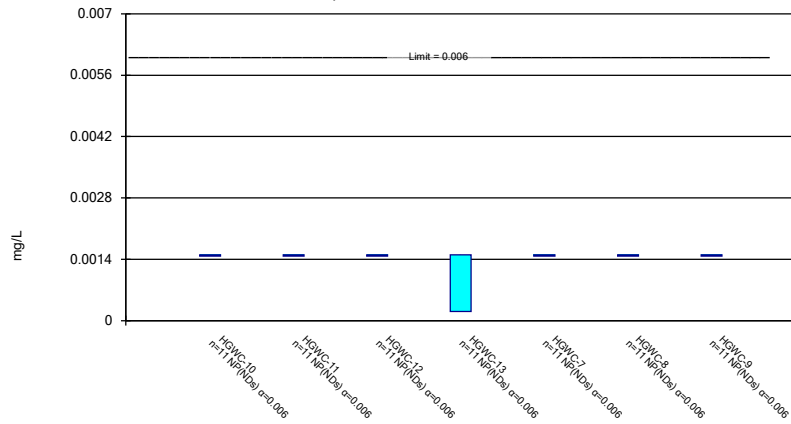
## Confidence Interval - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/22/2019, 12:35 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Fluoride (mg/L)	HGWC-11	0.5268	0.3079	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-12	0.5879	0.191	4	No	14	7.143	No	0.01	Param.
Fluoride (mg/L)	HGWC-13	0.8014	0.5055	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-7	0.2628	0.1122	4	No	14	14.29	sqrt(x)	0.01	Param.
Fluoride (mg/L)	HGWC-8	0.7712	0.4958	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-9	0.3665	0.1199	4	No	14	14.29	No	0.01	Param.
Lithium (mg/L)	HGWC-10	0.025	0.025	0.05	No	13	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-11	0.025	0.025	0.05	No	13	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-12	0.01178	0.008082	0.05	No	13	0	No	0.01	Param.
Lithium (mg/L)	HGWC-13	0.04004	0.02953	0.05	No	13	0	No	0.01	Param.
Lithium (mg/L)	HGWC-7	0.003	0.0021	0.05	No	13	7.692	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-8	0.0032	0.0023	0.05	No	13	7.692	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-9	0.005	0.004	0.05	No	13	7.692	No	0.01	NP (normality)
Molybdenum (mg/L)	HGWC-10	0.005	0.0014	0.01	No	13	69.23	No	0.01	NP (NDs)
<b>Molybdenum (mg/L)</b>	<b>HGWC-11</b>	<b>0.02769</b>	<b>0.01502</b>	<b>0.01</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Molybdenum (mg/L)</b>	<b>HGWC-12</b>	<b>0.05099</b>	<b>0.04548</b>	<b>0.01</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Molybdenum (mg/L)</b>	<b>HGWC-13</b>	<b>0.0378</b>	<b>0.02978</b>	<b>0.01</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Molybdenum (mg/L)</b>	<b>HGWC-7</b>	<b>0.03754</b>	<b>0.03063</b>	<b>0.01</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Molybdenum (mg/L)</b>	<b>HGWC-8</b>	<b>0.5051</b>	<b>0.4612</b>	<b>0.01</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Molybdenum (mg/L)</b>	<b>HGWC-9</b>	<b>0.03</b>	<b>0.0219</b>	<b>0.01</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>NP (normality)</b>
Selenium (mg/L)	HGWC-10	0.005	0.0023	0.05	No	13	76.92	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-11	0.01672	0.004369	0.05	No	13	0	No	0.01	Param.
Selenium (mg/L)	HGWC-12	0.005	0.0011	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-13	0.005	0.00018	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-7	0.005	0.005	0.05	No	13	100	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-8	0.005	0.0024	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-9	0.005	0.0037	0.05	No	13	92.31	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-10	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-11	0.0005	0.00008	0.002	No	13	84.62	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-12	0.0005	0.0001	0.002	No	13	76.92	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-13	0.0004169	0.0003259	0.002	No	13	0	No	0.01	Param.
Thallium (mg/L)	HGWC-7	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-8	0.0005	0.00008	0.002	No	13	76.92	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-9	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Total Radium (pCi/L)	HGWC-10	1.129	0.6216	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-11	1.097	0.4527	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-12	1.288	0.5771	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-13	0.9949	0.4523	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-7	1.284	0.493	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-8	0.9476	0.6041	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-9	0.8905	0.432	5	No	13	0	No	0.01	Param.

### Non-Parametric Confidence Interval

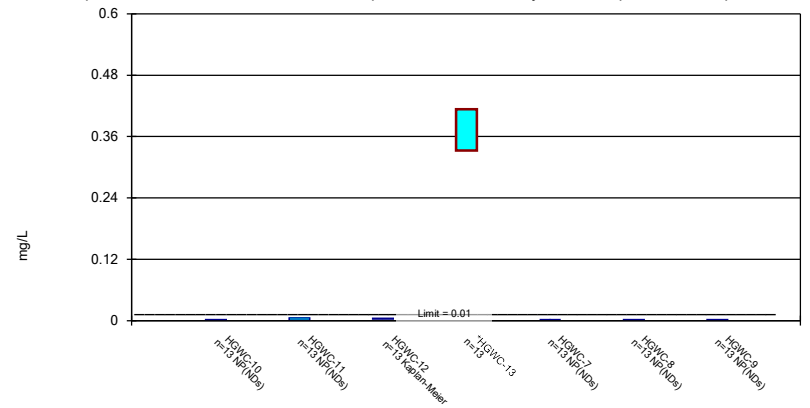
Compliance Limit is not exceeded.



Constituent: Antimony Analysis Run 7/22/2019 12:33 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric and Non-Parametric (NP) Confidence Interval

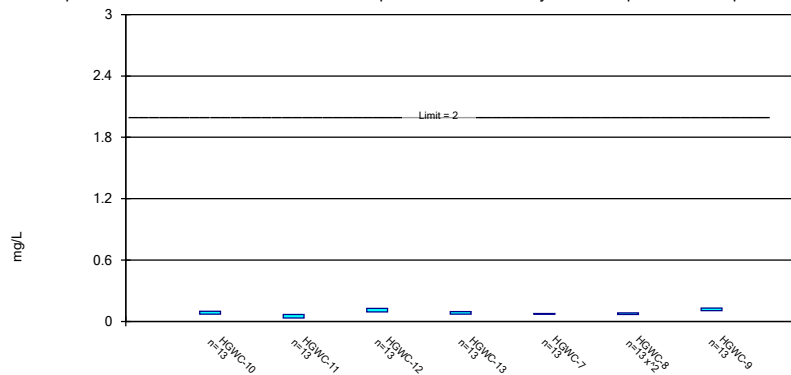
Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Arsenic Analysis Run 7/22/2019 12:33 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric Confidence Interval

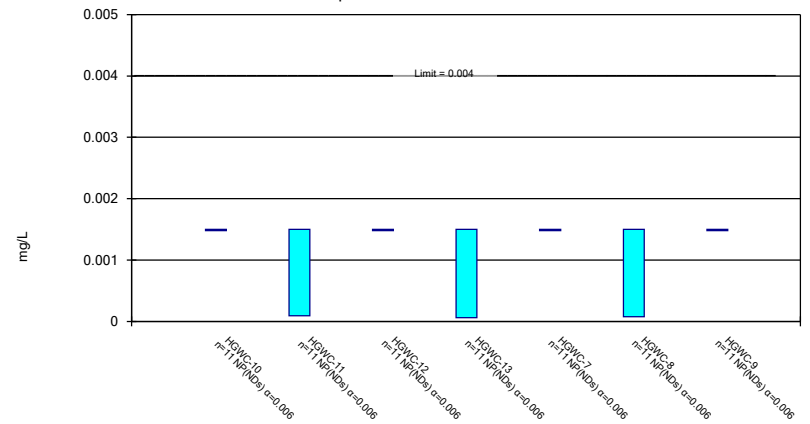
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Barium Analysis Run 7/22/2019 12:33 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Beryllium Analysis Run 7/22/2019 12:33 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Confidence Interval

Constituent: Antimony (mg/L) Analysis Run 7/22/2019 12:35 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.003	<0.003	
5/23/2016	<0.003	<0.003	<0.003	<0.003			<0.003
7/12/2016	<0.003	<0.003	<0.003	0.0003 (J)	<0.003	<0.003	<0.003
9/1/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
10/20/2016					<0.003	<0.003	<0.003
10/24/2016	<0.003	<0.003	<0.003	<0.003			
12/6/2016					<0.003	<0.003	<0.003
12/7/2016	<0.003	<0.003	<0.003	<0.003			
1/25/2017					<0.003	<0.003	
1/26/2017	<0.003	<0.003	<0.003	<0.003			<0.003
3/21/2017					<0.003	<0.003	
3/22/2017	<0.003	<0.003	<0.003	<0.003			<0.003
5/23/2017					<0.003	<0.003	<0.003
5/24/2017	<0.003	<0.003	<0.003	<0.003			
4/3/2018					<0.003	<0.003	<0.003
4/4/2018	<0.003	<0.003	<0.003	<0.003			
3/12/2019						<0.003	
3/13/2019	<0.003	<0.003		<0.003	<0.003		<0.003
3/14/2019			<0.003				
4/2/2019					<0.003		
4/3/2019	<0.003	<0.003	<0.003			<0.003	<0.003
4/5/2019				0.00021 (J)			
Mean	0.0015	0.0015	0.0015	0.001274	0.0015	0.0015	0.0015
Std. Dev.	0	0	0	0.000504	0	0	0
Upper Lim.	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Lower Lim.	0.0015	0.0015	0.0015	0.00021	0.0015	0.0015	0.0015

# Confidence Interval

Constituent: Arsenic (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.005	<0.005	
5/23/2016	<0.005	<0.005	0.0046 (J)	0.329			<0.005
7/12/2016	<0.005	0.0015 (J)	0.005	0.297	<0.005	<0.005	<0.005
9/1/2016	<0.005	<0.005	0.0043 (J)	0.314	<0.005	<0.005	<0.005
10/20/2016					<0.005	<0.005	<0.005
10/24/2016	<0.005	<0.005	0.0049 (J)	0.334			
12/6/2016					<0.005	<0.005	<0.005
12/7/2016	<0.005	<0.005	0.0046 (J)	0.35			
1/25/2017					<0.005	<0.005	
1/26/2017	<0.005	<0.005	<0.005	0.424			<0.005
3/21/2017					<0.005	<0.005	
3/22/2017	<0.005	0.0053	0.0019 (J)	0.419			0.0008 (J)
5/23/2017					<0.005	<0.005	<0.005
5/24/2017	<0.005	<0.005	0.0022 (J)	0.393			
4/3/2018					<0.005	<0.005	<0.005
4/4/2018	<0.005	<0.005	<0.005	0.49			
6/5/2018	<0.005	0.0012 (J)		0.38	<0.005		
6/6/2018			0.0048 (J)			<0.005	<0.005
10/2/2018	<0.005				0.0019 (J)	<0.005	<0.005
10/3/2018		<0.005	0.0037 (J)				
10/5/2018				0.34			
3/12/2019						<0.005	
3/13/2019	<0.005	0.0024 (J)		0.42	<0.005		0.00075 (J)
3/14/2019			0.0026 (J)				
4/2/2019					<0.005		
4/3/2019	<0.005	0.00094 (J)	0.0022 (J)			<0.005	<0.005
4/5/2019				0.36			
Mean	0.0025	0.002411	0.003523	0.3731	0.002454	0.0025	0.002235
Std. Dev.	0	0.001036	0.001216	0.05444	0.0001664	0	0.0006479
Upper Lim.	0.0025	0.0053	0.004408	0.4136	0.0025	0.0025	0.0025
Lower Lim.	0.0025	0.0012	0.002577	0.3326	0.0019	0.0025	0.0008

# Confidence Interval

Constituent: Barium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.0687	0.0808	
5/23/2016	0.0877	0.0466	0.133	0.0779			0.117
7/12/2016	0.0926	0.0616	0.135	0.0697	0.0731	0.083	0.13
9/1/2016	0.0994	0.0497	0.123	0.07	0.0747	0.0829	0.13
10/20/2016					0.072	0.0811	0.0806
10/24/2016	0.101	0.0794	0.135	0.0882			
12/6/2016					0.0752	0.0845	0.128
12/7/2016	0.107	0.1	0.13	0.0798			
1/25/2017					0.0747	0.078	
1/26/2017	0.0538	0.0696	0.127	0.0738			0.142
3/21/2017					0.0722	0.0791	
3/22/2017	0.0962	0.0346	0.112	0.0755			0.122
5/23/2017					0.0794	0.0846	0.127
5/24/2017	0.0996	0.0437	0.106	0.0627			
4/3/2018					0.075	0.065	0.1
4/4/2018	0.084	0.029	0.083	0.099			
6/5/2018	0.086	0.039		0.13	0.071		
6/6/2018			0.09			0.063	0.11
10/2/2018	0.076				0.078	0.061	0.11
10/3/2018		0.033	0.087				
10/5/2018				0.076			
3/12/2019						0.062	
3/13/2019	0.044	0.024		0.1	0.083		0.1
3/14/2019			0.081				
4/2/2019					0.072		
4/3/2019	0.076	0.023	0.077			0.066	0.12
4/5/2019				0.079			
Mean	0.08487	0.04871	0.1092	0.0832	0.07454	0.07469	0.1167
Std. Dev.	0.01864	0.0231	0.0228	0.01775	0.003818	0.009549	0.01637
Upper Lim.	0.09873	0.06589	0.1261	0.0964	0.07738	0.08184	0.1288
Lower Lim.	0.07101	0.03153	0.0922	0.07	0.0717	0.06803	0.1045



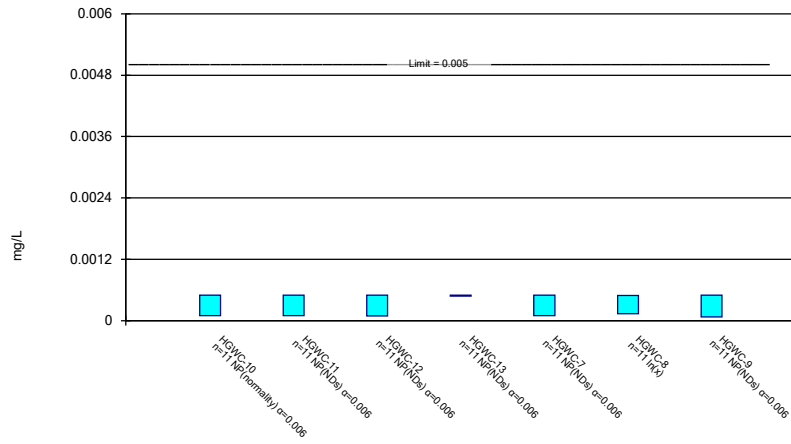
# Confidence Interval

Constituent: Beryllium (mg/L) Analysis Run 7/22/2019 12:35 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.003	<0.003	
5/23/2016	<0.003	<0.003	<0.003	<0.003			<0.003
7/12/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
9/1/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
10/20/2016					<0.003	<0.003	<0.003
10/24/2016	<0.003	<0.003	<0.003	<0.003			
12/6/2016					<0.003	<0.003	<0.003
12/7/2016	<0.003	<0.003	<0.003	<0.003			
1/25/2017					<0.003	<0.003	
1/26/2017	<0.003	<0.003	<0.003	<0.003			<0.003
3/21/2017					<0.003	<0.003	
3/22/2017	<0.003	9E-05 (J)	<0.003	<0.003			<0.003
5/23/2017					<0.003	<0.003	<0.003
5/24/2017	<0.003	<0.003	<0.003	<0.003			
4/3/2018					<0.003	<0.003	<0.003
4/4/2018	<0.003	<0.003	<0.003	<0.003			
3/12/2019						<0.003	
3/13/2019	<0.003	0.0001 (J)		6.2E-05 (J)	<0.003		<0.003
3/14/2019			<0.003				
4/2/2019					<0.003		
4/3/2019	<0.003	0.00017 (J)	<0.003			7.4E-05 (J)	<0.003
4/5/2019				<0.003			
Mean	0.0015	0.001124	0.0015	0.001369	0.0015	0.00137	0.0015
Std. Dev.	0	0.0006449	0	0.0004336	0	0.00043	0
Upper Lim.	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Lower Lim.	0.0015	9E-05	0.0015	6.2E-05	0.0015	7.4E-05	0.0015

Parametric and Non-Parametric (NP) Confidence Interval

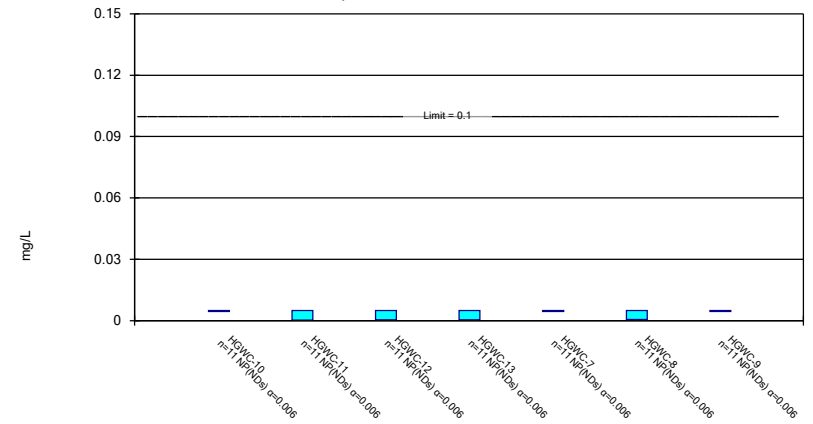
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cadmium Analysis Run 7/22/2019 12:33 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Non-Parametric Confidence Interval

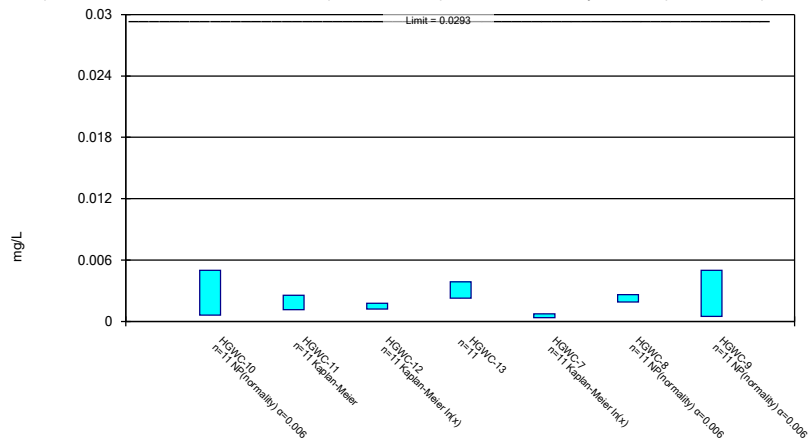
Compliance Limit is not exceeded.



Constituent: Chromium Analysis Run 7/22/2019 12:34 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Parametric and Non-Parametric (NP) Confidence Interval

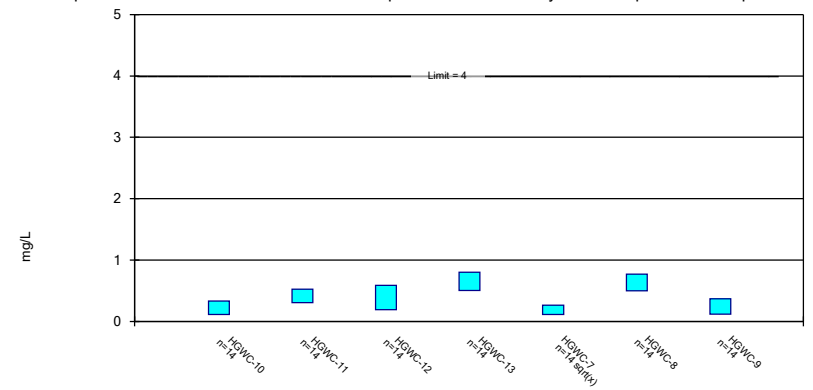
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cobalt Analysis Run 7/22/2019 12:34 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Fluoride Analysis Run 7/22/2019 12:34 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Confidence Interval

Constituent: Cadmium (mg/L) Analysis Run 7/22/2019 12:35 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.001	0.00024 (J)	
5/23/2016	0.000115 (J)	<0.001	<0.001	<0.001			<0.001
7/12/2016	<0.001	<0.001	<0.001	<0.001	<0.001	0.0002 (J)	<0.001
9/1/2016	0.0001 (J)	<0.001	<0.001	<0.001	<0.001	0.0001 (J)	<0.001
10/20/2016					<0.001	0.0001 (J)	0.0002 (J)
10/24/2016	0.0001 (J)	<0.001	<0.001	<0.001			
12/6/2016					0.0002 (J)	0.0017	0.0001 (J)
12/7/2016	0.0001 (J)	0.0001 (J)	0.0002 (J)	<0.001			
1/25/2017					0.0002 (J)	0.0002 (J)	
1/26/2017	<0.001	<0.001	<0.001	<0.001			<0.001
3/21/2017					0.0002 (J)	0.0002 (J)	
3/22/2017	0.0001 (J)	0.0001 (J)	0.0003 (J)	<0.001			7E-05 (J)
5/23/2017					0.0001 (J)	0.0003 (J)	<0.001
5/24/2017	0.0002 (J)	<0.001	9E-05 (J)	<0.001			
4/3/2018					<0.001	<0.001	<0.001
4/4/2018	<0.001	<0.001	<0.001	<0.001			
3/12/2019						0.0002 (J)	
3/13/2019	<0.001	<0.001		<0.001	<0.001		<0.001
3/14/2019			<0.001				
4/2/2019					<0.001		
4/3/2019	0.0001 (J)	9.6E-05 (J)	<0.001			0.00032 (J)	<0.001
4/5/2019				<0.001			
Mean	0.0002559	0.0003905	0.0004173	0.0005	0.0003818	0.0003691	0.0003973
Std. Dev.	0.0001957	0.0001875	0.0001493	0	0.0001662	0.0004551	0.0001786
Upper Lim.	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004919	0.0005
Lower Lim.	0.0001	9.6E-05	9E-05	0.0005	0.0001	0.0001335	7E-05

# Confidence Interval

Constituent: Chromium (mg/L) Analysis Run 7/22/2019 12:35 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	<0.01	
5/23/2016	<0.01	<0.01	<0.01	<0.01			<0.01
7/12/2016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
9/1/2016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10/20/2016					<0.01	<0.01	<0.01
10/24/2016	<0.01	<0.01	<0.01	<0.01			
12/6/2016					<0.01	<0.01	<0.01
12/7/2016	<0.01	<0.01	<0.01	<0.01			
1/25/2017					<0.01	<0.01	
1/26/2017	<0.01	<0.01	<0.01	<0.01			<0.01
3/21/2017					<0.01	0.0005 (J)	
3/22/2017	<0.01	0.0003 (J)	0.0004 (J)	0.0004 (J)			<0.01
5/23/2017					<0.01	<0.01	<0.01
5/24/2017	<0.01	<0.01	<0.01	<0.01			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	<0.01	<0.01	<0.01			
3/12/2019						<0.01	
3/13/2019	<0.01	<0.01		<0.01	<0.01		<0.01
3/14/2019			0.0025 (J)				
4/2/2019					<0.01		
4/3/2019	0.02	<0.01	<0.01			<0.01	<0.01
4/5/2019				<0.01			
Mean	0.006364	0.004573	0.004355	0.004582	0.005	0.004591	0.005
Std. Dev.	0.004523	0.001417	0.001511	0.001387	0	0.001357	0
Upper Lim.	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.005	0.0003	0.0004	0.0004	0.005	0.0005	0.005

# Confidence Interval

Constituent: Cobalt (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	0.00207 (J)	
5/23/2016	<0.01	<0.01	<0.01	0.00361 (J)			<0.01
7/12/2016	0.0006 (J)	0.0021 (J)	0.0018 (J)	0.0032 (J)	0.0003 (J)	0.0019 (J)	0.0006 (J)
9/1/2016	0.0007 (J)	0.0025 (J)	0.0016 (J)	0.0033 (J)	<0.01	0.0023 (J)	0.0007 (J)
10/20/2016					0.0008 (J)	0.002 (J)	0.002 (J)
10/24/2016	0.0009 (J)	0.0032 (J)	0.0017 (J)	0.004 (J)			
12/6/2016					0.0009 (J)	0.0026 (J)	0.0011 (J)
12/7/2016	0.0012 (J)	0.003 (J)	0.0021 (J)	0.0034 (J)			
1/25/2017					0.0005 (J)	0.002 (J)	
1/26/2017	<0.01	0.0014 (J)	0.0016 (J)	0.0024 (J)			0.0006 (J)
3/21/2017					0.0005 (J)	0.0023 (J)	
3/22/2017	0.0006 (J)	0.0014 (J)	0.0018 (J)	0.0026 (J)			0.0005 (J)
5/23/2017					0.0005 (J)	0.0023 (J)	0.0006 (J)
5/24/2017	0.0006 (J)	0.0008 (J)	0.0015 (J)	0.0022 (J)			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	<0.01	<0.01	<0.01			
3/12/2019						0.002 (J)	
3/13/2019	<0.01	0.00098 (J)		0.0022 (J)	0.00067 (J)		0.00065 (J)
3/14/2019			0.0011 (J)				
4/2/2019					0.00069 (J)		
4/3/2019	<0.01	0.0018 (J)	0.0011 (J)			0.0019 (J)	0.00069 (J)
4/5/2019				0.0017 (J)			
Mean	0.002691	0.002471	0.002209	0.003055	0.001805	0.002397	0.001585
Std. Dev.	0.002217	0.001466	0.00141	0.0009549	0.002058	0.0008899	0.00174
Upper Lim.	0.005	0.002567	0.001767	0.003851	0.0007331	0.0026	0.005
Lower Lim.	0.0006	0.001137	0.001211	0.00226	0.0003532	0.0019	0.0005

# Confidence Interval

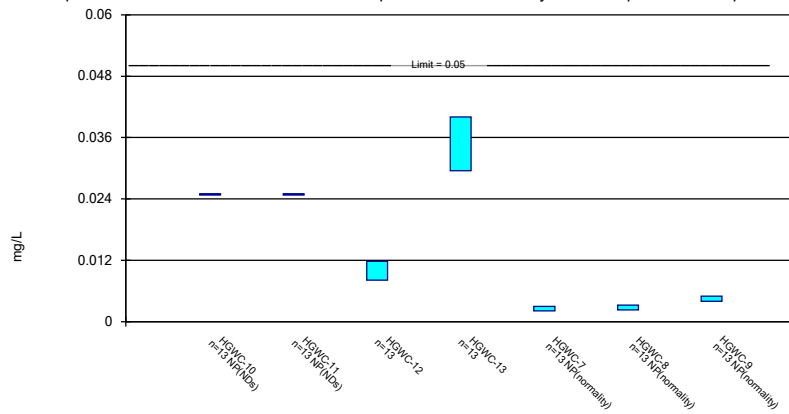
Constituent: Fluoride (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.0828 (J)	0.499	
5/23/2016	0.0394 (J)	0.203 (J)	0.212 (J)	0.2587 (J)			<0.3
7/12/2016	0.15 (J)	0.44	0.31	0.53	0.2 (J)	0.67	0.24 (J)
9/1/2016	0.5	0.67	0.62	0.74	0.51	0.94	0.46
10/20/2016					0.4	0.56	0.56
10/24/2016	0.06 (J)	0.26 (J)	0.19 (J)	0.31			
12/6/2016					0.26 (J)	0.76	0.31
12/7/2016	0.44	0.55	0.73	1			
1/25/2017					0.24 (J)	1.1	
1/26/2017	0.29 (J)	0.27 (J)	0.12 (J)	0.68			0.004 (J)
3/21/2017					0.13 (J)	0.46	
3/22/2017	0.34	0.66	0.44	0.76			0.28 (J)
5/23/2017					0.11 (J)	0.65	0.29 (J)
5/24/2017	0.13 (J)	0.35	0.34	0.54			
10/3/2017	0.46	0.56	0.58	0.83	0.17 (J)	0.66	0.53
4/3/2018					<0.3	0.39	<0.3
4/4/2018	<0.3	0.39	<0.3	0.65			
6/5/2018	<0.3	0.24 (J)		0.47	0.099 (J)		
6/6/2018			0.21 (J)			0.46	0.12 (J)
10/2/2018	0.17 (J)				<0.3	0.51	0.031 (J)
10/3/2018		0.31	0.15 (J)				
10/5/2018				0.77			
3/12/2019						0.58	
3/13/2019	0.17 (J)	0.51		0.78	0.12 (J)		0.14 (J)
3/14/2019			1.1				
4/2/2019					0.097 (J)		
4/3/2019	0.082 (J)	0.43	0.3 (J)			0.63	0.14 (J)
4/5/2019				0.83			
Mean	0.2237	0.4174	0.3894	0.6535	0.1942	0.6335	0.2432
Std. Dev.	0.1541	0.1546	0.2802	0.2089	0.1242	0.1943	0.174
Upper Lim.	0.3328	0.5268	0.5879	0.8014	0.2628	0.7712	0.3665
Lower Lim.	0.1145	0.3079	0.191	0.5055	0.1122	0.4958	0.1199

### Parametric and Non-Parametric (NP) Confidence Interval

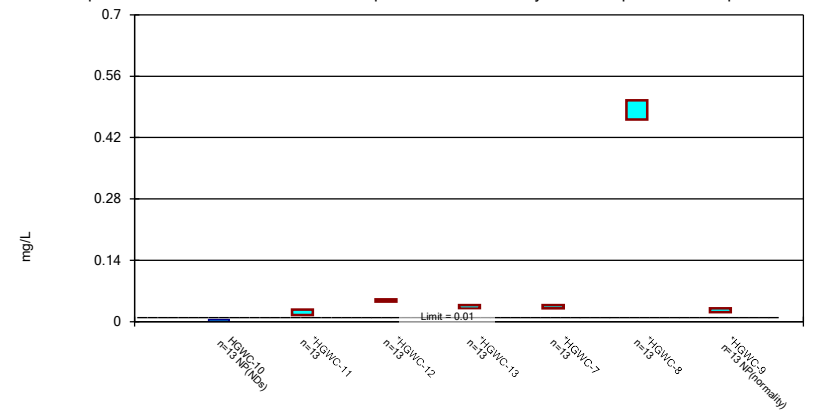
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Lithium Analysis Run 7/22/2019 12:34 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric and Non-Parametric (NP) Confidence Interval

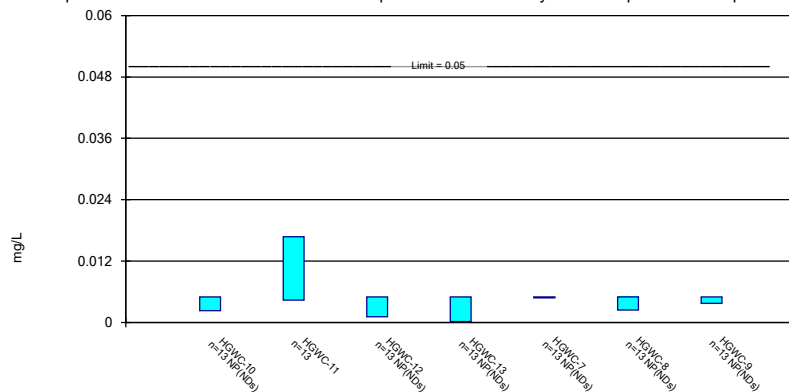
Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Molybdenum Analysis Run 7/22/2019 12:34 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric and Non-Parametric (NP) Confidence Interval

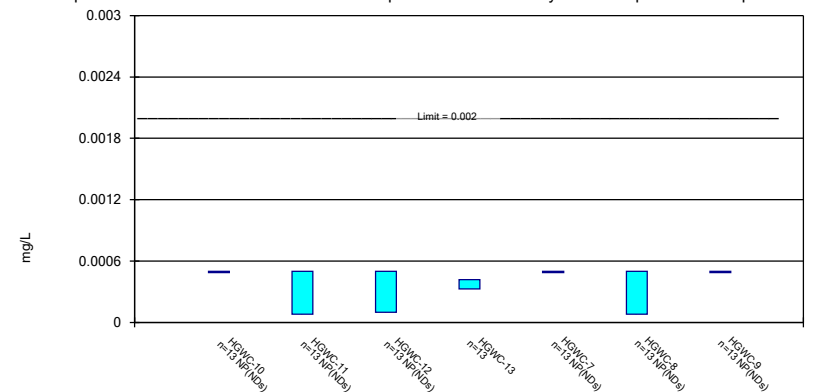
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Selenium Analysis Run 7/22/2019 12:34 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Thallium Analysis Run 7/22/2019 12:34 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Confidence Interval

Constituent: Lithium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.05	<0.05	
5/23/2016	<0.05	<0.05	0.0107 (J)	0.0422 (J)			<0.05
7/12/2016	<0.05	<0.05	0.0113 (J)	0.0366 (J)	0.0021 (J)	0.0023 (J)	0.004 (J)
9/1/2016	<0.05	<0.05	0.0118 (J)	0.04 (J)	0.0025 (J)	0.0029 (J)	0.0044 (J)
10/20/2016					0.0021 (J)	0.0027 (J)	0.0027 (J)
10/24/2016	<0.05	<0.05	0.0114 (J)	0.0435 (J)			
12/6/2016					0.0026 (J)	0.0032 (J)	0.005 (J)
12/7/2016	<0.05	<0.05	0.0155 (J)	0.0477 (J)			
1/25/2017					0.0024 (J)	0.0026 (J)	
1/26/2017	<0.05	<0.05	0.0099 (J)	0.0342 (J)			0.0042 (J)
3/21/2017					0.0026 (J)	0.0029 (J)	
3/22/2017	<0.05	<0.05	0.0098 (J)	0.0353 (J)			0.0043 (J)
5/23/2017					0.0026 (J)	0.0029 (J)	0.0048 (J)
5/24/2017	<0.05	<0.05	0.0105 (J)	0.0317 (J)			
4/3/2018					0.0023 (J)	0.0025 (J)	0.0043 (J)
4/4/2018	<0.05	<0.05	0.008 (J)	0.031 (J)			
6/5/2018	<0.05	<0.05		0.031 (J)	0.0022 (J)		
6/6/2018			0.0095 (J)			0.0023 (J)	0.0043 (J)
10/2/2018	<0.05				0.003 (J)	0.0025 (J)	0.004 (J)
10/3/2018		<0.05	0.0083 (J)				
10/5/2018				0.027 (J)			
3/12/2019						0.0025 (J)	
3/13/2019	<0.05	<0.05		0.029 (J)	0.0024 (J)		0.004 (J)
3/14/2019			0.0058 (J)				
4/2/2019					0.002 (J)		
4/3/2019	<0.05	<0.05	0.0066 (J)			0.0025 (J)	0.004 (J)
4/5/2019				0.023 (J)			
Mean	0.025	0.025	0.009931	0.03478	0.004138	0.004369	0.005769
Std. Dev.	0	0	0.002487	0.007071	0.006274	0.006204	0.005803
Upper Lim.	0.025	0.025	0.01178	0.04004	0.003	0.0032	0.005
Lower Lim.	0.025	0.025	0.008082	0.02953	0.0021	0.0023	0.004



# Confidence Interval

Constituent: Molybdenum (mg/L) Analysis Run 7/22/2019 12:35 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.028	0.446	
5/23/2016	<0.01	0.0164	0.0413 (J)	0.027			0.0187
7/12/2016	0.0013 (J)	0.0251	0.0484	0.0316	0.0273	0.455	0.0229
9/1/2016	<0.01	0.0259	0.0474	0.0336	0.0274	0.481	0.0239
10/20/2016					0.036	0.472	0.477
10/24/2016	<0.01	0.0293	0.047	0.0352			
12/6/2016					0.0365	0.52	0.0236
12/7/2016	<0.01	0.0209	0.0432	0.0383			
1/25/2017					0.0317	0.478	
1/26/2017	<0.01	0.0277	0.0484	0.041			0.0234
3/21/2017					0.0346	0.547	
3/22/2017	0.0013 (J)	0.011	0.0494	0.0426			0.0219
5/23/2017					0.0336	0.482	0.0242
5/24/2017	0.0014 (J)	0.0373	0.047	0.04			
4/3/2018					0.032	0.44	0.025
4/4/2018	<0.01	0.013	0.052	0.027			
6/5/2018	<0.01	0.029		0.027	0.036		
6/6/2018			0.054			0.49	0.027
10/2/2018	<0.01				0.039	0.47	0.028
10/3/2018		0.02	0.054				
10/5/2018				0.033			
3/12/2019						0.5	
3/13/2019	<0.01	0.012		0.033	0.04		0.028
3/14/2019			0.046				
4/2/2019					0.041		
4/3/2019	0.0021 (J)	0.01	0.049			0.5	0.03
4/5/2019				0.03			
Mean	0.003931	0.02135	0.04824	0.03379	0.03408	0.4832	0.05951
Std. Dev.	0.00168	0.008519	0.003706	0.005395	0.004641	0.02946	0.1255
Upper Lim.	0.005	0.02769	0.05099	0.0378	0.03754	0.5051	0.03
Lower Lim.	0.0014	0.01502	0.04548	0.02978	0.03063	0.4612	0.0219

# Confidence Interval

Constituent: Selenium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	<0.01	
5/23/2016	<0.01	0.0106	<0.01	<0.01			<0.01
7/12/2016	<0.01	0.0057 (J)	<0.01	<0.01	<0.01	<0.01	<0.01
9/1/2016	<0.01	0.0057 (J)	<0.01	<0.01	<0.01	<0.01	<0.01
10/20/2016					<0.01	<0.01	<0.01
10/24/2016	<0.01	0.0021 (J)	<0.01	<0.01			
12/6/2016					<0.01	0.0024 (J)	0.0037 (J)
12/7/2016	<0.01	0.0015 (J)	0.0011 (J)	<0.01			
1/25/2017					<0.01	<0.01	
1/26/2017	0.0041 (J)	0.0062 (J)	<0.01	<0.01			<0.01
3/21/2017					<0.01	<0.01	
3/22/2017	<0.01	0.0263	<0.01	<0.01			<0.01
5/23/2017					<0.01	<0.01	<0.01
5/24/2017	<0.01	0.0038 (J)	<0.01	<0.01			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	0.021	<0.01	<0.01			
6/5/2018	<0.01	0.0062 (J)		<0.01	<0.01		
6/6/2018			<0.01			<0.01	<0.01
10/2/2018	0.0023 (J)				<0.01	<0.01	<0.01
10/3/2018		0.009 (J)	<0.01				
10/5/2018				<0.01			
3/12/2019						<0.01	
3/13/2019	0.0015 (J)	0.023		<0.01	<0.01		<0.01
3/14/2019			<0.01				
4/2/2019					<0.01		
4/3/2019	<0.01	0.016	<0.01			<0.01	<0.01
4/5/2019				0.00018 (J)			
Mean	0.004454	0.01055	0.0047	0.004629	0.005	0.0048	0.0049
Std. Dev.	0.001172	0.008307	0.001082	0.001337	0	0.0007211	0.0003606
Upper Lim.	0.005	0.01672	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.0023	0.004369	0.0011	0.00018	0.005	0.0024	0.0037

# Confidence Interval

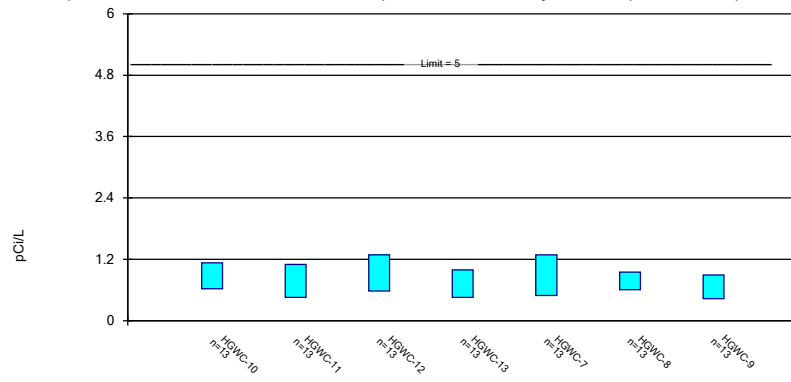
Constituent: Thallium (mg/L) Analysis Run 7/22/2019 12:35 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.001	<0.001	
5/23/2016	<0.001	<0.001	<0.001	0.000378 (J)			<0.001
7/12/2016	<0.001	8E-05 (J)	0.0002 (J)	0.0004 (J)	<0.001	7E-05 (J)	<0.001
9/1/2016	<0.001	<0.001	<0.001	0.0004 (J)	<0.001	<0.001	<0.001
10/20/2016					<0.001	<0.001	<0.001
10/24/2016	<0.001	<0.001	<0.001	0.0005 (J)			
12/6/2016					<0.001	<0.001	<0.001
12/7/2016	<0.001	<0.001	<0.001	0.0004 (J)			
1/25/2017					<0.001	<0.001	
1/26/2017	<0.001	<0.001	<0.001	0.0004 (J)			<0.001
3/21/2017					<0.001	9E-05 (J)	
3/22/2017	<0.001	<0.001	0.0001 (J)	0.0004 (J)			<0.001
5/23/2017					<0.001	8E-05 (J)	<0.001
5/24/2017	<0.001	8E-05 (J)	9E-05 (J)	0.0003 (J)			
4/3/2018					<0.001	<0.001	<0.001
4/4/2018	<0.001	<0.001	<0.001	0.00032 (J)			
6/5/2018	<0.001	<0.001		0.00035 (J)	<0.001		
6/6/2018			<0.001			<0.001	<0.001
10/2/2018	<0.001				<0.001	<0.001	<0.001
10/3/2018		<0.001	<0.001				
10/5/2018				0.00025 (J)			
3/12/2019						<0.001	
3/13/2019	<0.001	<0.001		0.00039 (J)	<0.001		<0.001
3/14/2019			<0.001				
4/2/2019					<0.001		
4/3/2019	<0.001	<0.001	<0.001			<0.001	<0.001
4/5/2019				0.00034 (J)			
Mean	0.0005	0.0004354	0.0004146	0.0003714	0.0005	0.0004031	0.0005
Std. Dev.	0	0.0001577	0.0001641	6.12E-05	0	0.0001842	0
Upper Lim.	0.0005	0.0005	0.0005	0.0004169	0.0005	0.0005	0.0005
Lower Lim.	0.0005	8E-05	0.0001	0.0003259	0.0005	8E-05	0.0005

### Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Total Radium Analysis Run 7/22/2019 12:35 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Confidence Interval

Constituent: Total Radium (pCi/L) Analysis Run 7/22/2019 12:36 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.62 (U)	0.56 (U)	
5/23/2016	0.419 (U)	0.509 (U)	1.12	0.625 (U)			0.826 (U)
7/12/2016	0.855	0.784 (U)	1.61	0.478 (U)	0.283 (U)	0.636 (U)	0.511 (U)
9/1/2016	0.844 (U)	0.261 (U)	1.23	0.595 (U)	0.703 (U)	0.818 (U)	0.762 (U)
10/20/2016					1.97	1.04 (U)	1.17
10/24/2016	0.917 (U)	1.42	1.98	1.54			
12/6/2016					2	0.771 (U)	0.126 (U)
12/7/2016	0.558 (U)	0.781 (U)	0.319 (U)	0.657 (U)			
1/25/2017					1.06 (U)	0.859 (U)	
1/26/2017	0.922 (U)	0.842 (U)	0.54 (U)	1.22			0.515 (U)
3/21/2017					0.668 (U)	0.851 (U)	
3/22/2017	0.751 (U)	0.318 (U)	0.635 (U)	0.285 (U)			0.451 (U)
5/23/2017					0.621 (U)	0.705 (U)	0.924 (U)
5/24/2017	0.725 (U)	0.687 (U)	1.01	0.655 (U)			
4/3/2018					0.538 (U)	0.311 (U)	0.732 (U)
4/4/2018	0.715 (U)	1.5	0.956	0.882 (U)			
6/5/2018	0.718 (U)	0.549 (U)		1.1 (U)	0.985 (U)		
6/6/2018			0.424 (U)			0.896 (U)	0.813 (U)
10/2/2018	0.948				0.837 (U)	1.21	0.61 (U)
10/3/2018		1.48	0.57 (U)				
10/5/2018				0.558 (U)			
3/12/2019						0.544 (U)	
3/13/2019	1.19 (U)	0.584 (U)		0.39 (U)	0.403 (U)		1 (U)
3/14/2019			0.992 (U)				
4/2/2019					0.865 (U)		
4/3/2019	1.82 (U)	0.36 (U)	0.734 (U)			0.885 (U)	0.156 (U)
4/5/2019				0.422 (U)			
Mean	0.8755	0.775	0.9323	0.7236	0.8887	0.7758	0.6612
Std. Dev.	0.3415	0.4335	0.4777	0.3649	0.5322	0.2309	0.3083
Upper Lim.	1.129	1.097	1.288	0.9949	1.284	0.9476	0.8905
Lower Lim.	0.6216	0.4527	0.5771	0.4523	0.493	0.6041	0.432

# USEPA Based Groundwater Protection Standards Statistical Analysis Package

AM 01

# Tolerance Limit

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/22/2019, 1:01 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bg N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	n/a	0.003	n/a	n/a	n/a	33	93.94	n/a	0.184	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	39	66.67	n/a	0.1353	NP Inter(NDs)
Barium (mg/L)	n/a	0.14	n/a	n/a	n/a	39	0	n/a	0.1353	NP Inter(normal...
Beryllium (mg/L)	n/a	0.003	n/a	n/a	n/a	33	75.76	n/a	0.184	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.001	n/a	n/a	n/a	33	84.85	n/a	0.184	NP Inter(NDs)
Chromium (mg/L)	n/a	0.01	n/a	n/a	n/a	33	90.91	n/a	0.184	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.0293	n/a	n/a	n/a	33	63.64	n/a	0.184	NP Inter(NDs)
Fluoride (mg/L)	n/a	0.36	n/a	n/a	n/a	42	28.57	n/a	0.116	NP Inter(normal...
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	30	86.67	n/a	0.2146	NP Inter(NDs)
Lithium (mg/L)	n/a	0.025	n/a	n/a	n/a	39	41.03	n/a	0.1353	NP Inter(normal...
Mercury (mg/L)	n/a	0.0005	n/a	n/a	n/a	30	93.33	n/a	0.2146	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	39	100	n/a	0.1353	NP Inter(NDs)
Selenium (mg/L)	n/a	0.01	n/a	n/a	n/a	39	100	n/a	0.1353	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	39	97.44	n/a	0.1353	NP Inter(NDs)
Total Radium (pCi/L)	n/a	1.341	n/a	n/a	n/a	39	0	No	0.01	Inter

**Table C-2**  
**USEPA Based Groundwater Protection Standards**  
**Plant Hammond - Ash Pond 1**  
**Floyd County, Georgia**

Constituent	CAS	Units	EPA MCL	Statistically Derived Upper Tolerance Limits for Background	GWPS <sup>1</sup>
Antimony	7440-36-0	mg/L	0.006	0.003	0.006
Arsenic	7440-38-2	mg/L	0.01	0.005	0.01
Barium	7440-39-3	mg/L	2	0.14	2
Beryllium	7440-41-7	mg/L	0.004	0.003	0.004
Cadmium	7440-43-9	mg/L	0.005	0.001	0.005
Chromium	7440-47-3	mg/L	0.1	0.01	0.1
Cobalt <sup>2</sup>	7440-48-4	mg/L	0.006	0.0293	0.0293
Fluoride	16984-48-8	mg/L	4	0.36	4
Lead <sup>3</sup>	7439-92-1	mg/L	0.015	0.005	0.015
Lithium <sup>2</sup>	7439-93-2	mg/L	0.04	0.025	0.04
Mercury	7439-97-6	mg/L	0.002	0.0005	0.002
Molybdenum <sup>2</sup>	7439-98-7	mg/L	0.1	0.01	0.1
Selenium	7782-49-2	mg/L	0.05	0.01	0.05
Thallium	7440-28-0	mg/L	0.002	0.001	0.002
Total Radium	7440-14-4	pCi/L	5	1.341	5

**Notes:**

EPA MCL - U.S. Environmental Protection Agency, Maximum Contaminant Level

GWPS - Groundwater Protection Standards

mg/L - milligram per liter

N/A - Not Available

pCi/L - Picocuries per liter

<sup>1</sup>GWPS selected as the greater value between the EPA MCL and the background Upper Tolerance Limit.

<sup>2</sup>Regional Screening Level applied for constituent per CCR Rule Amendment, July 30, 2018.

<sup>3</sup>Currently, there is no EPA MCL established for lead. The value listed is the established EPA Action Level for drinking water.



# Confidence Interval - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/22/2019, 1:16 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
<b>Arsenic (mg/L)</b>	<b>HGWC-13</b>	<b>0.4136</b>	<b>0.3326</b>	<b>0.01</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
<b>Molybdenum (mg/L)</b>	<b>HGWC-8</b>	<b>0.5051</b>	<b>0.4612</b>	<b>0.1</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>

# Confidence Interval - All Results

Plant Hammond    Client: Georgia Power Company    Data: Hammond AP-1    Printed 7/22/2019, 1:16 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	HGWC-10	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-11	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-12	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-13	0.0015	0.00021	0.006	No	11	81.82	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-7	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-8	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Antimony (mg/L)	HGWC-9	0.0015	0.0015	0.006	No	11	100	No	0.006	NP (NDs)
Arsenic (mg/L)	HGWC-10	0.0025	0.0025	0.01	No	13	100	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-11	0.0053	0.0012	0.01	No	13	61.54	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-12	0.004408	0.002577	0.01	No	13	15.38	No	0.01	Param.
<b>Arsenic (mg/L)</b>	<b>HGWC-13</b>	<b>0.4136</b>	<b>0.3326</b>	<b>0.01</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Arsenic (mg/L)	HGWC-7	0.0025	0.0019	0.01	No	13	92.31	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-8	0.0025	0.0025	0.01	No	13	100	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-9	0.0025	0.0008	0.01	No	13	84.62	No	0.01	NP (NDs)
Barium (mg/L)	HGWC-10	0.09873	0.07101	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-11	0.06589	0.03153	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-12	0.1261	0.0922	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-13	0.0964	0.07	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-7	0.07738	0.0717	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-8	0.08184	0.06803	2	No	13	0	x^2	0.01	Param.
Barium (mg/L)	HGWC-9	0.1288	0.1045	2	No	13	0	No	0.01	Param.
Beryllium (mg/L)	HGWC-10	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-11	0.0015	0.00009	0.004	No	11	72.73	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-12	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-13	0.0015	0.000062	0.004	No	11	90.91	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-7	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-8	0.0015	0.000074	0.004	No	11	90.91	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-9	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-10	0.0005	0.0001	0.005	No	11	36.36	No	0.006	NP (normality)
Cadmium (mg/L)	HGWC-11	0.0005	0.000096	0.005	No	11	72.73	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-12	0.0005	0.00009	0.005	No	11	72.73	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-13	0.0005	0.0005	0.005	No	11	100	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-7	0.0005	0.0001	0.005	No	11	63.64	No	0.006	NP (NDs)
Cadmium (mg/L)	HGWC-8	0.0004919	0.0001335	0.005	No	11	9.091	ln(x)	0.01	Param.
Cadmium (mg/L)	HGWC-9	0.0005	0.00007	0.005	No	11	72.73	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-10	0.005	0.005	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-11	0.005	0.0003	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-12	0.005	0.0004	0.1	No	11	81.82	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-13	0.005	0.0004	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-7	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-8	0.005	0.0005	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-9	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Cobalt (mg/L)	HGWC-10	0.005	0.0006	0.0293	No	11	45.45	No	0.006	NP (normality)
Cobalt (mg/L)	HGWC-11	0.002567	0.001137	0.0293	No	11	18.18	No	0.01	Param.
Cobalt (mg/L)	HGWC-12	0.001767	0.001211	0.0293	No	11	18.18	ln(x)	0.01	Param.
Cobalt (mg/L)	HGWC-13	0.003851	0.00226	0.0293	No	11	9.091	No	0.01	Param.
Cobalt (mg/L)	HGWC-7	0.0007331	0.0003532	0.0293	No	11	27.27	ln(x)	0.01	Param.
Cobalt (mg/L)	HGWC-8	0.0026	0.0019	0.0293	No	11	9.091	No	0.006	NP (normality)
Cobalt (mg/L)	HGWC-9	0.005	0.0005	0.0293	No	11	18.18	No	0.006	NP (normality)
Fluoride (mg/L)	HGWC-10	0.3328	0.1145	4	No	14	14.29	No	0.01	Param.

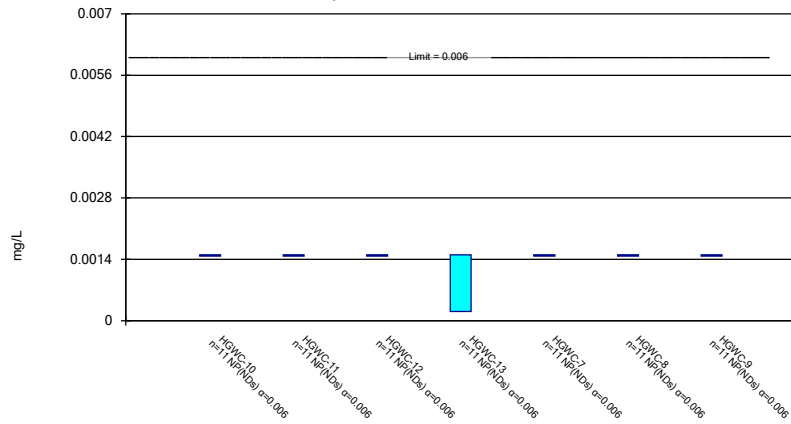
## Confidence Interval - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/22/2019, 1:16 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Fluoride (mg/L)	HGWC-11	0.5268	0.3079	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-12	0.5879	0.191	4	No	14	7.143	No	0.01	Param.
Fluoride (mg/L)	HGWC-13	0.8014	0.5055	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-7	0.2628	0.1122	4	No	14	14.29	sqrt(x)	0.01	Param.
Fluoride (mg/L)	HGWC-8	0.7712	0.4958	4	No	14	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-9	0.3665	0.1199	4	No	14	14.29	No	0.01	Param.
Lithium (mg/L)	HGWC-10	0.0125	0.0125	0.04	No	13	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-11	0.0125	0.0125	0.04	No	13	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-12	0.01178	0.008082	0.04	No	13	0	No	0.01	Param.
Lithium (mg/L)	HGWC-13	0.04004	0.02953	0.04	No	13	0	No	0.01	Param.
Lithium (mg/L)	HGWC-7	0.003	0.0021	0.04	No	13	7.692	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-8	0.0032	0.0023	0.04	No	13	7.692	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-9	0.005	0.004	0.04	No	13	7.692	No	0.01	NP (normality)
Molybdenum (mg/L)	HGWC-10	0.005	0.0014	0.1	No	13	69.23	No	0.01	NP (NDs)
Molybdenum (mg/L)	HGWC-11	0.02769	0.01502	0.1	No	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-12	0.05099	0.04548	0.1	No	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-13	0.0378	0.02978	0.1	No	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-7	0.03754	0.03063	0.1	No	13	0	No	0.01	Param.
<b>Molybdenum (mg/L)</b>	<b>HGWC-8</b>	<b>0.5051</b>	<b>0.4612</b>	<b>0.1</b>	<b>Yes</b>	<b>13</b>	<b>0</b>	<b>No</b>	<b>0.01</b>	<b>Param.</b>
Molybdenum (mg/L)	HGWC-9	0.03	0.0219	0.1	No	13	0	No	0.01	NP (normality)
Selenium (mg/L)	HGWC-10	0.005	0.0023	0.05	No	13	76.92	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-11	0.01672	0.004369	0.05	No	13	0	No	0.01	Param.
Selenium (mg/L)	HGWC-12	0.005	0.0011	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-13	0.005	0.00018	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-7	0.005	0.005	0.05	No	13	100	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-8	0.005	0.0024	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-9	0.005	0.0037	0.05	No	13	92.31	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-10	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-11	0.0005	0.00008	0.002	No	13	84.62	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-12	0.0005	0.0001	0.002	No	13	76.92	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-13	0.0004169	0.0003259	0.002	No	13	0	No	0.01	Param.
Thallium (mg/L)	HGWC-7	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-8	0.0005	0.00008	0.002	No	13	76.92	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-9	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Total Radium (pCi/L)	HGWC-10	1.129	0.6216	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-11	1.097	0.4527	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-12	1.288	0.5771	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-13	0.9949	0.4523	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-7	1.284	0.493	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-8	0.9476	0.6041	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-9	0.8905	0.432	5	No	13	0	No	0.01	Param.

### Non-Parametric Confidence Interval

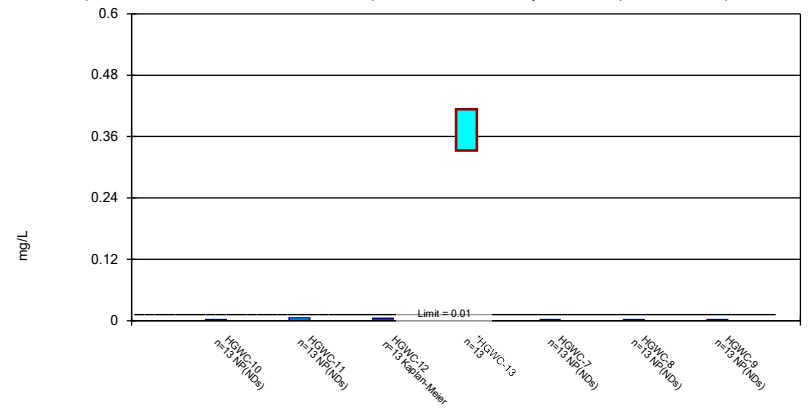
Compliance Limit is not exceeded.



Constituent: Antimony Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric and Non-Parametric (NP) Confidence Interval

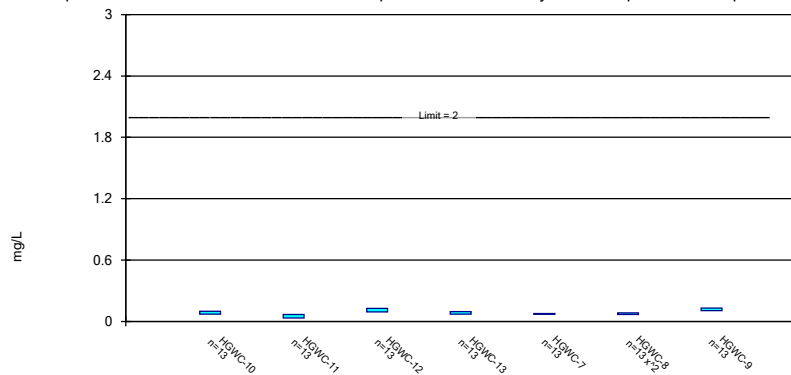
Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Arsenic Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric Confidence Interval

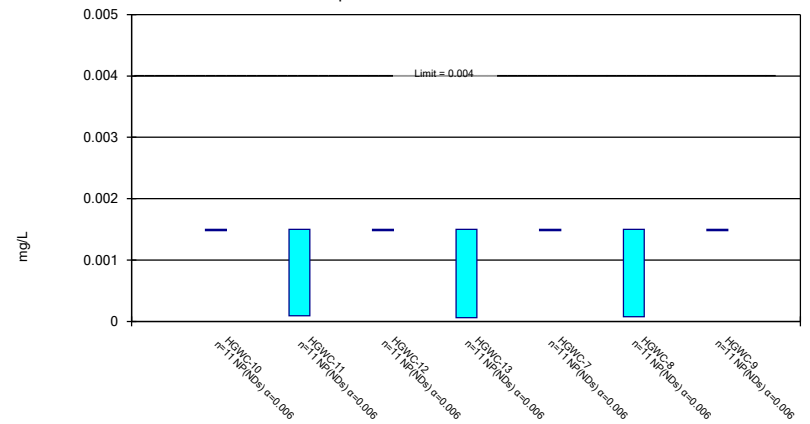
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Barium Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Non-Parametric Confidence Interval

Compliance Limit is not exceeded.



Constituent: Beryllium Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Confidence Interval

Constituent: Antimony (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.003	<0.003	
5/23/2016	<0.003	<0.003	<0.003	<0.003			<0.003
7/12/2016	<0.003	<0.003	<0.003	0.0003 (J)	<0.003	<0.003	<0.003
9/1/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
10/20/2016					<0.003	<0.003	<0.003
10/24/2016	<0.003	<0.003	<0.003	<0.003			
12/6/2016					<0.003	<0.003	<0.003
12/7/2016	<0.003	<0.003	<0.003	<0.003			
1/25/2017					<0.003	<0.003	
1/26/2017	<0.003	<0.003	<0.003	<0.003			<0.003
3/21/2017					<0.003	<0.003	
3/22/2017	<0.003	<0.003	<0.003	<0.003			<0.003
5/23/2017					<0.003	<0.003	<0.003
5/24/2017	<0.003	<0.003	<0.003	<0.003			
4/3/2018					<0.003	<0.003	<0.003
4/4/2018	<0.003	<0.003	<0.003	<0.003			
3/12/2019						<0.003	
3/13/2019	<0.003	<0.003		<0.003	<0.003		<0.003
3/14/2019			<0.003				
4/2/2019					<0.003		
4/3/2019	<0.003	<0.003	<0.003			<0.003	<0.003
4/5/2019				0.00021 (J)			
Mean	0.0015	0.0015	0.0015	0.001274	0.0015	0.0015	0.0015
Std. Dev.	0	0	0	0.000504	0	0	0
Upper Lim.	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Lower Lim.	0.0015	0.0015	0.0015	0.00021	0.0015	0.0015	0.0015

# Confidence Interval

Constituent: Arsenic (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.005	<0.005	
5/23/2016	<0.005	<0.005	0.0046 (J)	0.329			<0.005
7/12/2016	<0.005	0.0015 (J)	0.005	0.297	<0.005	<0.005	<0.005
9/1/2016	<0.005	<0.005	0.0043 (J)	0.314	<0.005	<0.005	<0.005
10/20/2016					<0.005	<0.005	<0.005
10/24/2016	<0.005	<0.005	0.0049 (J)	0.334			
12/6/2016					<0.005	<0.005	<0.005
12/7/2016	<0.005	<0.005	0.0046 (J)	0.35			
1/25/2017					<0.005	<0.005	
1/26/2017	<0.005	<0.005	<0.005	0.424			<0.005
3/21/2017					<0.005	<0.005	
3/22/2017	<0.005	0.0053	0.0019 (J)	0.419			0.0008 (J)
5/23/2017					<0.005	<0.005	<0.005
5/24/2017	<0.005	<0.005	0.0022 (J)	0.393			
4/3/2018					<0.005	<0.005	<0.005
4/4/2018	<0.005	<0.005	<0.005	0.49			
6/5/2018	<0.005	0.0012 (J)		0.38	<0.005		
6/6/2018			0.0048 (J)			<0.005	<0.005
10/2/2018	<0.005				0.0019 (J)	<0.005	<0.005
10/3/2018		<0.005	0.0037 (J)				
10/5/2018				0.34			
3/12/2019						<0.005	
3/13/2019	<0.005	0.0024 (J)		0.42	<0.005		0.00075 (J)
3/14/2019			0.0026 (J)				
4/2/2019					<0.005		
4/3/2019	<0.005	0.00094 (J)	0.0022 (J)			<0.005	<0.005
4/5/2019				0.36			
Mean	0.0025	0.002411	0.003523	0.3731	0.002454	0.0025	0.002235
Std. Dev.	0	0.001036	0.001216	0.05444	0.0001664	0	0.0006479
Upper Lim.	0.0025	0.0053	0.004408	0.4136	0.0025	0.0025	0.0025
Lower Lim.	0.0025	0.0012	0.002577	0.3326	0.0019	0.0025	0.0008

# Confidence Interval

Constituent: Barium (mg/L) Analysis Run 7/22/2019 1:16 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.0687	0.0808	
5/23/2016	0.0877	0.0466	0.133	0.0779			0.117
7/12/2016	0.0926	0.0616	0.135	0.0697	0.0731	0.083	0.13
9/1/2016	0.0994	0.0497	0.123	0.07	0.0747	0.0829	0.13
10/20/2016					0.072	0.0811	0.0806
10/24/2016	0.101	0.0794	0.135	0.0882			
12/6/2016					0.0752	0.0845	0.128
12/7/2016	0.107	0.1	0.13	0.0798			
1/25/2017					0.0747	0.078	
1/26/2017	0.0538	0.0696	0.127	0.0738			0.142
3/21/2017					0.0722	0.0791	
3/22/2017	0.0962	0.0346	0.112	0.0755			0.122
5/23/2017					0.0794	0.0846	0.127
5/24/2017	0.0996	0.0437	0.106	0.0627			
4/3/2018					0.075	0.065	0.1
4/4/2018	0.084	0.029	0.083	0.099			
6/5/2018	0.086	0.039		0.13	0.071		
6/6/2018			0.09			0.063	0.11
10/2/2018	0.076				0.078	0.061	0.11
10/3/2018		0.033	0.087				
10/5/2018				0.076			
3/12/2019						0.062	
3/13/2019	0.044	0.024		0.1	0.083		0.1
3/14/2019			0.081				
4/2/2019					0.072		
4/3/2019	0.076	0.023	0.077			0.066	0.12
4/5/2019				0.079			
Mean	0.08487	0.04871	0.1092	0.0832	0.07454	0.07469	0.1167
Std. Dev.	0.01864	0.0231	0.0228	0.01775	0.003818	0.009549	0.01637
Upper Lim.	0.09873	0.06589	0.1261	0.0964	0.07738	0.08184	0.1288
Lower Lim.	0.07101	0.03153	0.0922	0.07	0.0717	0.06803	0.1045

# Confidence Interval

Constituent: Beryllium (mg/L) Analysis Run 7/22/2019 1:16 AM

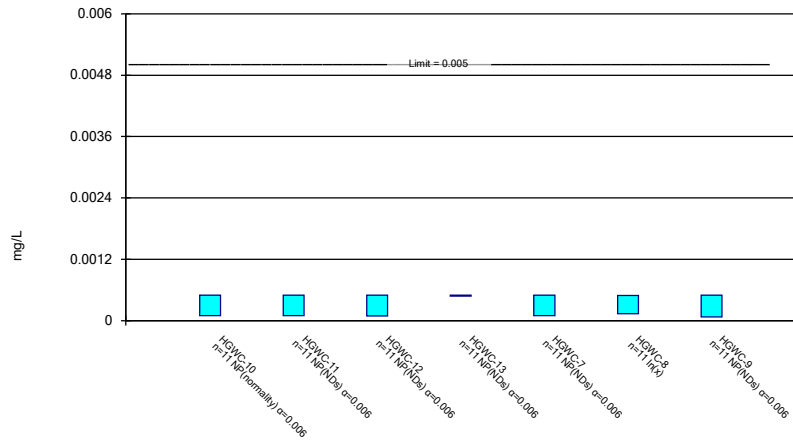
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.003	<0.003	
5/23/2016	<0.003	<0.003	<0.003	<0.003			<0.003
7/12/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
9/1/2016	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003
10/20/2016					<0.003	<0.003	<0.003
10/24/2016	<0.003	<0.003	<0.003	<0.003			
12/6/2016					<0.003	<0.003	<0.003
12/7/2016	<0.003	<0.003	<0.003	<0.003			
1/25/2017					<0.003	<0.003	
1/26/2017	<0.003	<0.003	<0.003	<0.003			<0.003
3/21/2017					<0.003	<0.003	
3/22/2017	<0.003	9E-05 (J)	<0.003	<0.003			<0.003
5/23/2017					<0.003	<0.003	<0.003
5/24/2017	<0.003	<0.003	<0.003	<0.003			
4/3/2018					<0.003	<0.003	<0.003
4/4/2018	<0.003	<0.003	<0.003	<0.003			
3/12/2019						<0.003	
3/13/2019	<0.003	0.0001 (J)		6.2E-05 (J)	<0.003		<0.003
3/14/2019			<0.003				
4/2/2019					<0.003		
4/3/2019	<0.003	0.00017 (J)	<0.003			7.4E-05 (J)	<0.003
4/5/2019				<0.003			
Mean	0.0015	0.001124	0.0015	0.001369	0.0015	0.00137	0.0015
Std. Dev.	0	0.0006449	0	0.0004336	0	0.00043	0
Upper Lim.	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015	0.0015
Lower Lim.	0.0015	9E-05	0.0015	6.2E-05	0.0015	7.4E-05	0.0015



### Parametric and Non-Parametric (NP) Confidence Interval

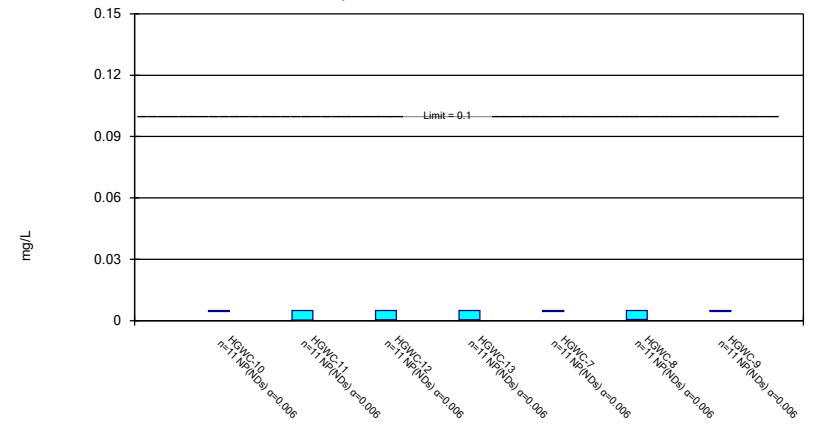
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cadmium Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Non-Parametric Confidence Interval

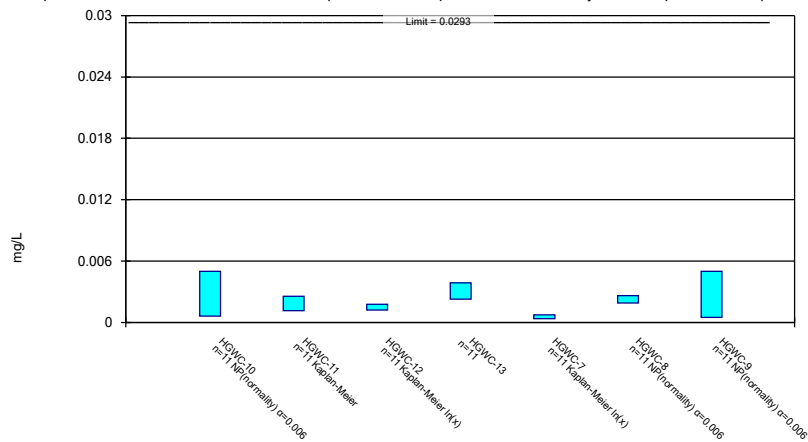
Compliance Limit is not exceeded.



Constituent: Chromium Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric and Non-Parametric (NP) Confidence Interval

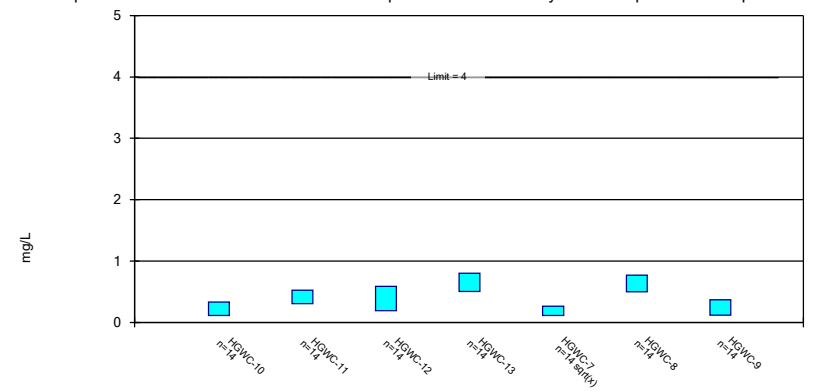
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cobalt Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Fluoride Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Confidence Interval

Constituent: Cadmium (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.001	0.00024 (J)	
5/23/2016	0.000115 (J)	<0.001	<0.001	<0.001			<0.001
7/12/2016	<0.001	<0.001	<0.001	<0.001	<0.001	0.0002 (J)	<0.001
9/1/2016	0.0001 (J)	<0.001	<0.001	<0.001	<0.001	0.0001 (J)	<0.001
10/20/2016					<0.001	0.0001 (J)	0.0002 (J)
10/24/2016	0.0001 (J)	<0.001	<0.001	<0.001			
12/6/2016					0.0002 (J)	0.0017	0.0001 (J)
12/7/2016	0.0001 (J)	0.0001 (J)	0.0002 (J)	<0.001			
1/25/2017					0.0002 (J)	0.0002 (J)	
1/26/2017	<0.001	<0.001	<0.001	<0.001			<0.001
3/21/2017					0.0002 (J)	0.0002 (J)	
3/22/2017	0.0001 (J)	0.0001 (J)	0.0003 (J)	<0.001			7E-05 (J)
5/23/2017					0.0001 (J)	0.0003 (J)	<0.001
5/24/2017	0.0002 (J)	<0.001	9E-05 (J)	<0.001			
4/3/2018					<0.001	<0.001	<0.001
4/4/2018	<0.001	<0.001	<0.001	<0.001			
3/12/2019						0.0002 (J)	
3/13/2019	<0.001	<0.001		<0.001	<0.001		<0.001
3/14/2019			<0.001				
4/2/2019					<0.001		
4/3/2019	0.0001 (J)	9.6E-05 (J)	<0.001			0.00032 (J)	<0.001
4/5/2019				<0.001			
Mean	0.0002559	0.0003905	0.0004173	0.0005	0.0003818	0.0003691	0.0003973
Std. Dev.	0.0001957	0.0001875	0.0001493	0	0.0001662	0.0004551	0.0001786
Upper Lim.	0.0005	0.0005	0.0005	0.0005	0.0005	0.0004919	0.0005
Lower Lim.	0.0001	9.6E-05	9E-05	0.0005	0.0001	0.0001335	7E-05

# Confidence Interval

Constituent: Chromium (mg/L) Analysis Run 7/22/2019 1:16 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	<0.01	
5/23/2016	<0.01	<0.01	<0.01	<0.01			<0.01
7/12/2016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
9/1/2016	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10/20/2016					<0.01	<0.01	<0.01
10/24/2016	<0.01	<0.01	<0.01	<0.01			
12/6/2016					<0.01	<0.01	<0.01
12/7/2016	<0.01	<0.01	<0.01	<0.01			
1/25/2017					<0.01	<0.01	
1/26/2017	<0.01	<0.01	<0.01	<0.01			<0.01
3/21/2017					<0.01	0.0005 (J)	
3/22/2017	<0.01	0.0003 (J)	0.0004 (J)	0.0004 (J)			<0.01
5/23/2017					<0.01	<0.01	<0.01
5/24/2017	<0.01	<0.01	<0.01	<0.01			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	<0.01	<0.01	<0.01			
3/12/2019						<0.01	
3/13/2019	<0.01	<0.01		<0.01	<0.01		<0.01
3/14/2019			0.0025 (J)				
4/2/2019					<0.01		
4/3/2019	0.02	<0.01	<0.01			<0.01	<0.01
4/5/2019				<0.01			
Mean	0.006364	0.004573	0.004355	0.004582	0.005	0.004591	0.005
Std. Dev.	0.004523	0.001417	0.001511	0.001387	0	0.001357	0
Upper Lim.	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.005	0.0003	0.0004	0.0004	0.005	0.0005	0.005

# Confidence Interval

Constituent: Cobalt (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	0.00207 (J)	
5/23/2016	<0.01	<0.01	<0.01	0.00361 (J)			<0.01
7/12/2016	0.0006 (J)	0.0021 (J)	0.0018 (J)	0.0032 (J)	0.0003 (J)	0.0019 (J)	0.0006 (J)
9/1/2016	0.0007 (J)	0.0025 (J)	0.0016 (J)	0.0033 (J)	<0.01	0.0023 (J)	0.0007 (J)
10/20/2016					0.0008 (J)	0.002 (J)	0.002 (J)
10/24/2016	0.0009 (J)	0.0032 (J)	0.0017 (J)	0.004 (J)			
12/6/2016					0.0009 (J)	0.0026 (J)	0.0011 (J)
12/7/2016	0.0012 (J)	0.003 (J)	0.0021 (J)	0.0034 (J)			
1/25/2017					0.0005 (J)	0.002 (J)	
1/26/2017	<0.01	0.0014 (J)	0.0016 (J)	0.0024 (J)			0.0006 (J)
3/21/2017					0.0005 (J)	0.0023 (J)	
3/22/2017	0.0006 (J)	0.0014 (J)	0.0018 (J)	0.0026 (J)			0.0005 (J)
5/23/2017					0.0005 (J)	0.0023 (J)	0.0006 (J)
5/24/2017	0.0006 (J)	0.0008 (J)	0.0015 (J)	0.0022 (J)			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	<0.01	<0.01	<0.01			
3/12/2019						0.002 (J)	
3/13/2019	<0.01	0.00098 (J)		0.0022 (J)	0.00067 (J)		0.00065 (J)
3/14/2019			0.0011 (J)				
4/2/2019					0.00069 (J)		
4/3/2019	<0.01	0.0018 (J)	0.0011 (J)			0.0019 (J)	0.00069 (J)
4/5/2019				0.0017 (J)			
Mean	0.002691	0.002471	0.002209	0.003055	0.001805	0.002397	0.001585
Std. Dev.	0.002217	0.001466	0.00141	0.0009549	0.002058	0.0008899	0.00174
Upper Lim.	0.005	0.002567	0.001767	0.003851	0.0007331	0.0026	0.005
Lower Lim.	0.0006	0.001137	0.001211	0.00226	0.0003532	0.0019	0.0005

# Confidence Interval

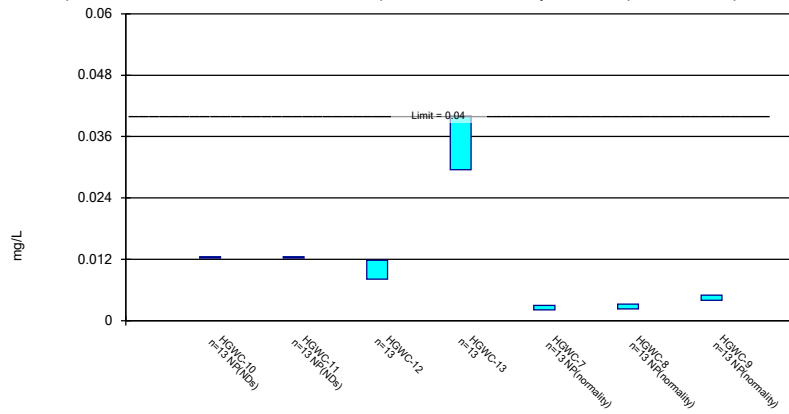
Constituent: Fluoride (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.0828 (J)	0.499	
5/23/2016	0.0394 (J)	0.203 (J)	0.212 (J)	0.2587 (J)			<0.3
7/12/2016	0.15 (J)	0.44	0.31	0.53	0.2 (J)	0.67	0.24 (J)
9/1/2016	0.5	0.67	0.62	0.74	0.51	0.94	0.46
10/20/2016					0.4	0.56	0.56
10/24/2016	0.06 (J)	0.26 (J)	0.19 (J)	0.31			
12/6/2016					0.26 (J)	0.76	0.31
12/7/2016	0.44	0.55	0.73	1			
1/25/2017					0.24 (J)	1.1	
1/26/2017	0.29 (J)	0.27 (J)	0.12 (J)	0.68			0.004 (J)
3/21/2017					0.13 (J)	0.46	
3/22/2017	0.34	0.66	0.44	0.76			0.28 (J)
5/23/2017					0.11 (J)	0.65	0.29 (J)
5/24/2017	0.13 (J)	0.35	0.34	0.54			
10/3/2017	0.46	0.56	0.58	0.83	0.17 (J)	0.66	0.53
4/3/2018					<0.3	0.39	<0.3
4/4/2018	<0.3	0.39	<0.3	0.65			
6/5/2018	<0.3	0.24 (J)		0.47	0.099 (J)		
6/6/2018			0.21 (J)			0.46	0.12 (J)
10/2/2018	0.17 (J)				<0.3	0.51	0.031 (J)
10/3/2018		0.31	0.15 (J)				
10/5/2018				0.77			
3/12/2019						0.58	
3/13/2019	0.17 (J)	0.51		0.78	0.12 (J)		0.14 (J)
3/14/2019			1.1				
4/2/2019					0.097 (J)		
4/3/2019	0.082 (J)	0.43	0.3 (J)			0.63	0.14 (J)
4/5/2019				0.83			
Mean	0.2237	0.4174	0.3894	0.6535	0.1942	0.6335	0.2432
Std. Dev.	0.1541	0.1546	0.2802	0.2089	0.1242	0.1943	0.174
Upper Lim.	0.3328	0.5268	0.5879	0.8014	0.2628	0.7712	0.3665
Lower Lim.	0.1145	0.3079	0.191	0.5055	0.1122	0.4958	0.1199

### Parametric and Non-Parametric (NP) Confidence Interval

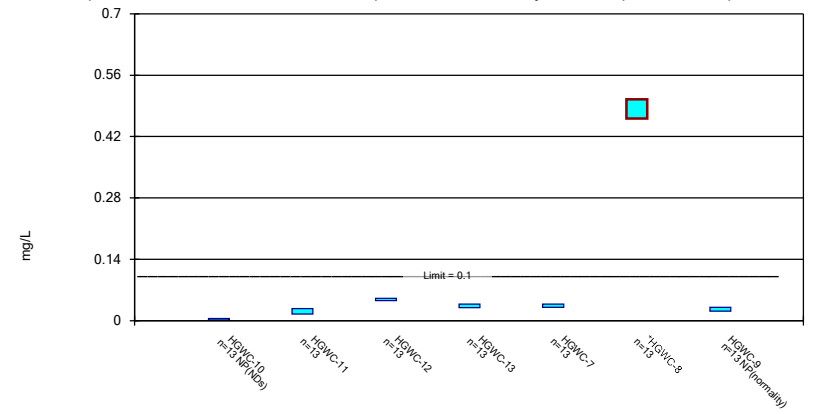
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Lithium Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric and Non-Parametric (NP) Confidence Interval

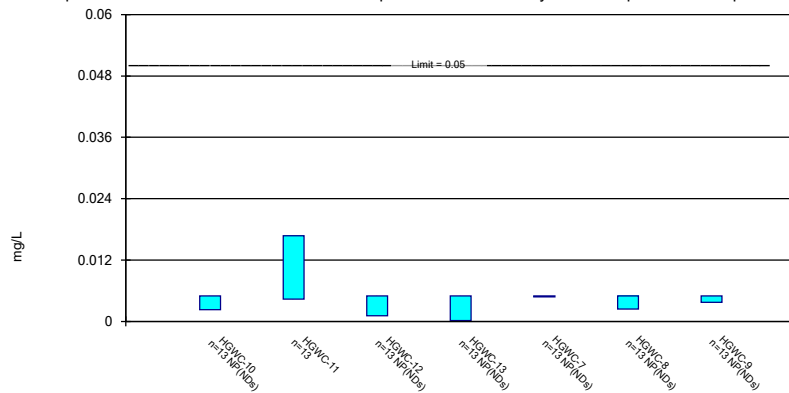
Compliance limit is exceeded.\* Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Molybdenum Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric and Non-Parametric (NP) Confidence Interval

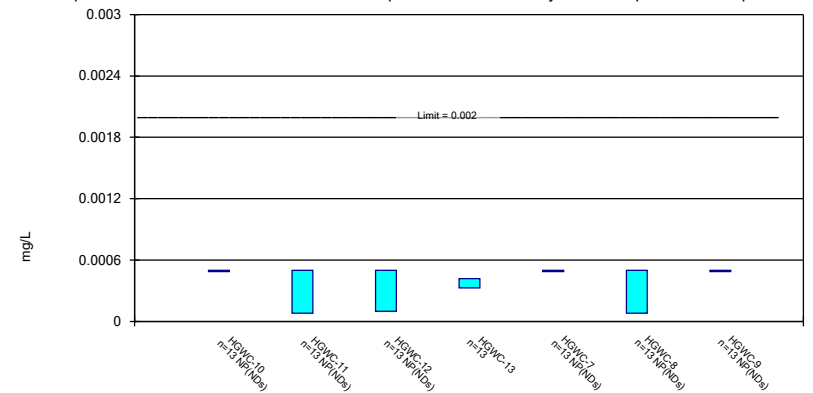
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Selenium Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Parametric and Non-Parametric (NP) Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Thallium Analysis Run 7/22/2019 1:15 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Confidence Interval

Constituent: Lithium (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.025	<0.025	
5/23/2016	<0.025	<0.025	0.0107 (J)	0.0422 (J)			<0.025
7/12/2016	<0.025	<0.025	0.0113 (J)	0.0366 (J)	0.0021 (J)	0.0023 (J)	0.004 (J)
9/1/2016	<0.025	<0.025	0.0118 (J)	0.04 (J)	0.0025 (J)	0.0029 (J)	0.0044 (J)
10/20/2016					0.0021 (J)	0.0027 (J)	0.0027 (J)
10/24/2016	<0.025	<0.025	0.0114 (J)	0.0435 (J)			
12/6/2016					0.0026 (J)	0.0032 (J)	0.005 (J)
12/7/2016	<0.025	<0.025	0.0155 (J)	0.0477 (J)			
1/25/2017					0.0024 (J)	0.0026 (J)	
1/26/2017	<0.025	<0.025	0.0099 (J)	0.0342 (J)			0.0042 (J)
3/21/2017					0.0026 (J)	0.0029 (J)	
3/22/2017	<0.025	<0.025	0.0098 (J)	0.0353 (J)			0.0043 (J)
5/23/2017					0.0026 (J)	0.0029 (J)	0.0048 (J)
5/24/2017	<0.025	<0.025	0.0105 (J)	0.0317 (J)			
4/3/2018					0.0023 (J)	0.0025 (J)	0.0043 (J)
4/4/2018	<0.025	<0.025	0.008 (J)	0.031 (J)			
6/5/2018	<0.025	<0.025		0.031 (J)	0.0022 (J)		
6/6/2018			0.0095 (J)			0.0023 (J)	0.0043 (J)
10/2/2018	<0.025				0.003 (J)	0.0025 (J)	0.004 (J)
10/3/2018		<0.025	0.0083 (J)				
10/5/2018				0.027 (J)			
3/12/2019						0.0025 (J)	
3/13/2019	<0.025	<0.025		0.029 (J)	0.0024 (J)		0.004 (J)
3/14/2019			0.0058 (J)				
4/2/2019					0.002 (J)		
4/3/2019	<0.025	<0.025	0.0066 (J)			0.0025 (J)	0.004 (J)
4/5/2019				0.023 (J)			
Mean	0.0125	0.0125	0.009931	0.03478	0.003177	0.003408	0.004808
Std. Dev.	0	0	0.002487	0.007071	0.002814	0.002745	0.002373
Upper Lim.	0.0125	0.0125	0.01178	0.04004	0.003	0.0032	0.005
Lower Lim.	0.0125	0.0125	0.008082	0.02953	0.0021	0.0023	0.004

# Confidence Interval

Constituent: Molybdenum (mg/L) Analysis Run 7/22/2019 1:16 AM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.028	0.446	
5/23/2016	<0.01	0.0164	0.0413 (J)	0.027			0.0187
7/12/2016	0.0013 (J)	0.0251	0.0484	0.0316	0.0273	0.455	0.0229
9/1/2016	<0.01	0.0259	0.0474	0.0336	0.0274	0.481	0.0239
10/20/2016					0.036	0.472	0.477
10/24/2016	<0.01	0.0293	0.047	0.0352			
12/6/2016					0.0365	0.52	0.0236
12/7/2016	<0.01	0.0209	0.0432	0.0383			
1/25/2017					0.0317	0.478	
1/26/2017	<0.01	0.0277	0.0484	0.041			0.0234
3/21/2017					0.0346	0.547	
3/22/2017	0.0013 (J)	0.011	0.0494	0.0426			0.0219
5/23/2017					0.0336	0.482	0.0242
5/24/2017	0.0014 (J)	0.0373	0.047	0.04			
4/3/2018					0.032	0.44	0.025
4/4/2018	<0.01	0.013	0.052	0.027			
6/5/2018	<0.01	0.029		0.027	0.036		
6/6/2018			0.054			0.49	0.027
10/2/2018	<0.01				0.039	0.47	0.028
10/3/2018		0.02	0.054				
10/5/2018				0.033			
3/12/2019						0.5	
3/13/2019	<0.01	0.012		0.033	0.04		0.028
3/14/2019			0.046				
4/2/2019					0.041		
4/3/2019	0.0021 (J)	0.01	0.049			0.5	0.03
4/5/2019				0.03			
Mean	0.003931	0.02135	0.04824	0.03379	0.03408	0.4832	0.05951
Std. Dev.	0.00168	0.008519	0.003706	0.005395	0.004641	0.02946	0.1255
Upper Lim.	0.005	0.02769	0.05099	0.0378	0.03754	0.5051	0.03
Lower Lim.	0.0014	0.01502	0.04548	0.02978	0.03063	0.4612	0.0219



# Confidence Interval

Constituent: Selenium (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.01	<0.01	
5/23/2016	<0.01	0.0106	<0.01	<0.01			<0.01
7/12/2016	<0.01	0.0057 (J)	<0.01	<0.01	<0.01	<0.01	<0.01
9/1/2016	<0.01	0.0057 (J)	<0.01	<0.01	<0.01	<0.01	<0.01
10/20/2016					<0.01	<0.01	<0.01
10/24/2016	<0.01	0.0021 (J)	<0.01	<0.01			
12/6/2016					<0.01	0.0024 (J)	0.0037 (J)
12/7/2016	<0.01	0.0015 (J)	0.0011 (J)	<0.01			
1/25/2017					<0.01	<0.01	
1/26/2017	0.0041 (J)	0.0062 (J)	<0.01	<0.01			<0.01
3/21/2017					<0.01	<0.01	
3/22/2017	<0.01	0.0263	<0.01	<0.01			<0.01
5/23/2017					<0.01	<0.01	<0.01
5/24/2017	<0.01	0.0038 (J)	<0.01	<0.01			
4/3/2018					<0.01	<0.01	<0.01
4/4/2018	<0.01	0.021	<0.01	<0.01			
6/5/2018	<0.01	0.0062 (J)		<0.01	<0.01		
6/6/2018			<0.01			<0.01	<0.01
10/2/2018	0.0023 (J)				<0.01	<0.01	<0.01
10/3/2018		0.009 (J)	<0.01				
10/5/2018				<0.01			
3/12/2019						<0.01	
3/13/2019	0.0015 (J)	0.023		<0.01	<0.01		<0.01
3/14/2019			<0.01				
4/2/2019					<0.01		
4/3/2019	<0.01	0.016	<0.01			<0.01	<0.01
4/5/2019				0.00018 (J)			
Mean	0.004454	0.01055	0.0047	0.004629	0.005	0.0048	0.0049
Std. Dev.	0.001172	0.008307	0.001082	0.001337	0	0.0007211	0.0003606
Upper Lim.	0.005	0.01672	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.0023	0.004369	0.0011	0.00018	0.005	0.0024	0.0037

# Confidence Interval

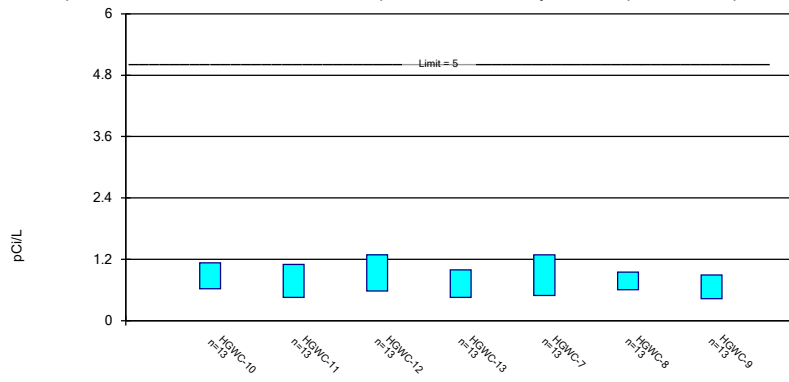
Constituent: Thallium (mg/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					<0.001	<0.001	
5/23/2016	<0.001	<0.001	<0.001	0.000378 (J)			<0.001
7/12/2016	<0.001	8E-05 (J)	0.0002 (J)	0.0004 (J)	<0.001	7E-05 (J)	<0.001
9/1/2016	<0.001	<0.001	<0.001	0.0004 (J)	<0.001	<0.001	<0.001
10/20/2016					<0.001	<0.001	<0.001
10/24/2016	<0.001	<0.001	<0.001	0.0005 (J)			
12/6/2016					<0.001	<0.001	<0.001
12/7/2016	<0.001	<0.001	<0.001	0.0004 (J)			
1/25/2017					<0.001	<0.001	
1/26/2017	<0.001	<0.001	<0.001	0.0004 (J)			<0.001
3/21/2017					<0.001	9E-05 (J)	
3/22/2017	<0.001	<0.001	0.0001 (J)	0.0004 (J)			<0.001
5/23/2017					<0.001	8E-05 (J)	<0.001
5/24/2017	<0.001	8E-05 (J)	9E-05 (J)	0.0003 (J)			
4/3/2018					<0.001	<0.001	<0.001
4/4/2018	<0.001	<0.001	<0.001	0.00032 (J)			
6/5/2018	<0.001	<0.001		0.00035 (J)	<0.001		
6/6/2018			<0.001			<0.001	<0.001
10/2/2018	<0.001				<0.001	<0.001	<0.001
10/3/2018		<0.001	<0.001				
10/5/2018				0.00025 (J)			
3/12/2019						<0.001	
3/13/2019	<0.001	<0.001		0.00039 (J)	<0.001		<0.001
3/14/2019			<0.001				
4/2/2019					<0.001		
4/3/2019	<0.001	<0.001	<0.001			<0.001	<0.001
4/5/2019				0.00034 (J)			
Mean	0.0005	0.0004354	0.0004146	0.0003714	0.0005	0.0004031	0.0005
Std. Dev.	0	0.0001577	0.0001641	6.12E-05	0	0.0001842	0
Upper Lim.	0.0005	0.0005	0.0005	0.0004169	0.0005	0.0005	0.0005
Lower Lim.	0.0005	8E-05	0.0001	0.0003259	0.0005	8E-05	0.0005

### Parametric Confidence Interval

Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Total Radium Analysis Run 7/22/2019 1:15 AM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Confidence Interval

Constituent: Total Radium (pCi/L) Analysis Run 7/22/2019 1:16 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

	HGWC-10	HGWC-11	HGWC-12	HGWC-13	HGWC-7	HGWC-8	HGWC-9
5/20/2016					0.62 (U)	0.56 (U)	
5/23/2016	0.419 (U)	0.509 (U)	1.12	0.625 (U)			0.826 (U)
7/12/2016	0.855	0.784 (U)	1.61	0.478 (U)	0.283 (U)	0.636 (U)	0.511 (U)
9/1/2016	0.844 (U)	0.261 (U)	1.23	0.595 (U)	0.703 (U)	0.818 (U)	0.762 (U)
10/20/2016					1.97	1.04 (U)	1.17
10/24/2016	0.917 (U)	1.42	1.98	1.54			
12/6/2016					2	0.771 (U)	0.126 (U)
12/7/2016	0.558 (U)	0.781 (U)	0.319 (U)	0.657 (U)			
1/25/2017					1.06 (U)	0.859 (U)	
1/26/2017	0.922 (U)	0.842 (U)	0.54 (U)	1.22			0.515 (U)
3/21/2017					0.668 (U)	0.851 (U)	
3/22/2017	0.751 (U)	0.318 (U)	0.635 (U)	0.285 (U)			0.451 (U)
5/23/2017					0.621 (U)	0.705 (U)	0.924 (U)
5/24/2017	0.725 (U)	0.687 (U)	1.01	0.655 (U)			
4/3/2018					0.538 (U)	0.311 (U)	0.732 (U)
4/4/2018	0.715 (U)	1.5	0.956	0.882 (U)			
6/5/2018	0.718 (U)	0.549 (U)		1.1 (U)	0.985 (U)		
6/6/2018			0.424 (U)			0.896 (U)	0.813 (U)
10/2/2018	0.948				0.837 (U)	1.21	0.61 (U)
10/3/2018		1.48	0.57 (U)				
10/5/2018				0.558 (U)			
3/12/2019						0.544 (U)	
3/13/2019	1.19 (U)	0.584 (U)		0.39 (U)	0.403 (U)		1 (U)
3/14/2019			0.992 (U)				
4/2/2019					0.865 (U)		
4/3/2019	1.82 (U)	0.36 (U)	0.734 (U)			0.885 (U)	0.156 (U)
4/5/2019				0.422 (U)			
Mean	0.8755	0.775	0.9323	0.7236	0.8887	0.7758	0.6612
Std. Dev.	0.3415	0.4335	0.4777	0.3649	0.5322	0.2309	0.3083
Upper Lim.	1.129	1.097	1.288	0.9949	1.284	0.9476	0.8905
Lower Lim.	0.6216	0.4527	0.5771	0.4523	0.493	0.6041	0.432

# Outlier Analysis - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/21/2019, 10:31 PM

<u>Constituent Name</u>	<u>Well</u>	<u>Outlier Found</u>	<u>Outlier Value(s)</u>	<u>Date(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Distribution</u>	<u>Normality Test</u>
Boron (mg/L)	HGWA-1 (bg)	Yes	0.0782	5/22/2017	NP	NaN	12	0.02239	0.01809	ln(x)	ShapiroWilk
Boron (mg/L)	HGWA-2 (bg)	Yes	0.0173,0.0475	8/30/2016,5/22/2017	NP	NaN	12	0.03436	0.006732	x^2	ShapiroWilk
Chloride (mg/L)	HGWA-3 (bg)	Yes	7.2,7.5	12/6/2016,3/21/2017	NP (nrm)	NaN	12	6.528	0.4227	unknown	ShapiroWilk
Lithium (mg/L)	HGWA-3 (bg)	Yes	0.05	5/19/2016	NP	NaN	13	0.006608	0.01304	ln(x)	ShapiroWilk

# Outlier Analysis - All Results

Plant Hammond    Client: Georgia Power Company    Data: Hammond AP-1    Printed 7/21/2019, 10:31 PM

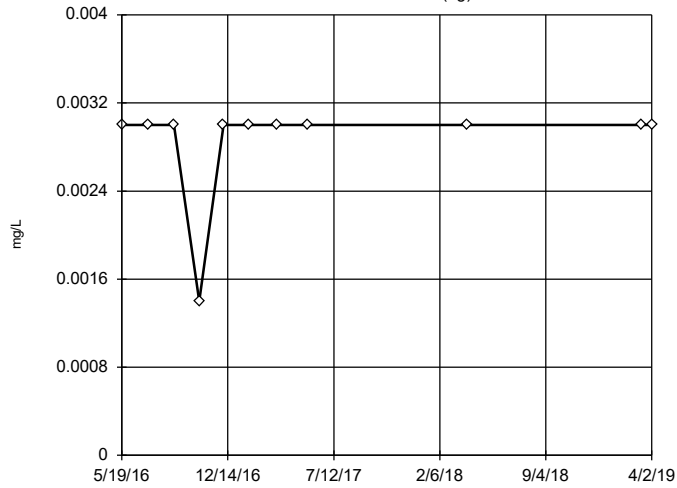
Constituent Name	Well	Outlier Found	Outlier Value(s)	Date(s)	Method	Alpha N	Mean	Standard Deviation	Distribution	Normality Test
Antimony (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.002855	0.0004824	unknown	ShapiroWilk
Antimony (mg/L)	HGWA-2 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.003	0	unknown	ShapiroWilk
Antimony (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.002755	0.0008141	unknown	ShapiroWilk
Arsenic (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.004654	0.001248	unknown	ShapiroWilk
Arsenic (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP (nrm)	NaN 13	0.003242	0.002011	unknown	ShapiroWilk
Arsenic (mg/L)	HGWA-3 (bg)	No	n/a	n/a	NP (nrm)	NaN 13	0.003048	0.002197	unknown	ShapiroWilk
Barium (mg/L)	HGWA-1 (bg)	No	n/a	n/a	NP	NaN 13	0.03156	0.00493	ln(x)	ShapiroWilk
Barium (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP	NaN 13	0.1112	0.01083	ln(x)	ShapiroWilk
Barium (mg/L)	HGWA-3 (bg)	No	n/a	n/a	NP	NaN 13	0.1217	0.00876	ln(x)	ShapiroWilk
Beryllium (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.003	0	unknown	ShapiroWilk
Beryllium (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP (nrm)	NaN 11	0.0009109	0.001342	unknown	ShapiroWilk
Beryllium (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.003	0	unknown	ShapiroWilk
<b>Boron (mg/L)</b>	<b>HGWA-1 (bg)</b>	<b>Yes</b>	<b>0.0782</b>	<b>5/22/2017</b>	<b>NP</b>	<b>NaN 12</b>	<b>0.02239</b>	<b>0.01809</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
<b>Boron (mg/L)</b>	<b>HGWA-2 (bg)</b>	<b>Yes</b>	<b>0.0173,0.0475</b>	<b>8/30/2016,5/22/2017</b>	<b>NP</b>	<b>NaN 12</b>	<b>0.03436</b>	<b>0.006732</b>	<b>x^2</b>	<b>ShapiroWilk</b>
Boron (mg/L)	HGWA-3 (bg)	No	n/a	n/a	NP (nrm)	NaN 12	0.01623	0.01605	unknown	ShapiroWilk
Cadmium (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.001	0	unknown	ShapiroWilk
Cadmium (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP (nrm)	NaN 11	0.0005955	0.0004652	unknown	ShapiroWilk
Cadmium (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.001	0	unknown	ShapiroWilk
Calcium (mg/L)	HGWA-1 (bg)	No	n/a	n/a	NP (nrm)	NaN 12	109.3	14.2	unknown	ShapiroWilk
Calcium (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP	NaN 12	20.73	2.538	ln(x)	ShapiroWilk
Calcium (mg/L)	HGWA-3 (bg)	No	n/a	n/a	NP	NaN 12	73.23	5.71	x^5	ShapiroWilk
Chloride (mg/L)	HGWA-1 (bg)	No	n/a	n/a	NP	NaN 12	7.787	4.648	ln(x)	ShapiroWilk
Chloride (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP	NaN 12	6.07	0.1786	ln(x)	ShapiroWilk
<b>Chloride (mg/L)</b>	<b>HGWA-3 (bg)</b>	<b>Yes</b>	<b>7.2,7.5</b>	<b>12/6/2016,3/21/2017</b>	<b>NP (nrm)</b>	<b>NaN 12</b>	<b>6.528</b>	<b>0.4227</b>	<b>unknown</b>	<b>ShapiroWilk</b>
Chromium (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.009136	0.002864	unknown	ShapiroWilk
Chromium (mg/L)	HGWA-2 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.009809	0.0006332	unknown	ShapiroWilk
Chromium (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.009155	0.002804	unknown	ShapiroWilk
Cobalt (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.009127	0.002895	unknown	ShapiroWilk
Cobalt (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP	NaN 11	0.02268	0.004426	ln(x)	ShapiroWilk
Cobalt (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.01	0	unknown	ShapiroWilk
Fluoride (mg/L)	HGWA-1 (bg)	No	n/a	n/a	NP (nrm)	NaN 14	0.1499	0.08228	unknown	ShapiroWilk
Fluoride (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP (nrm)	NaN 14	0.1964	0.1344	unknown	ShapiroWilk
Fluoride (mg/L)	HGWA-3 (bg)	No	n/a	n/a	NP	NaN 14	0.1298	0.1047	x^(1/3)	ShapiroWilk
Lead (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 10	0.005	0	unknown	ShapiroWilk
Lead (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP (nrm)	NaN 10	0.004015	0.002077	unknown	ShapiroWilk
Lead (mg/L)	HGWA-3 (bg)	No	n/a	n/a	NP (nrm)	NaN 10	0.00402	0.002066	unknown	ShapiroWilk
Lithium (mg/L)	HGWA-1 (bg)	No	n/a	n/a	NP (nrm)	NaN 13	0.03492	0.02354	unknown	ShapiroWilk
Lithium (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP (nrm)	NaN 13	0.02389	0.02516	unknown	ShapiroWilk
<b>Lithium (mg/L)</b>	<b>HGWA-3 (bg)</b>	<b>Yes</b>	<b>0.05</b>	<b>5/19/2016</b>	<b>NP</b>	<b>NaN 13</b>	<b>0.006608</b>	<b>0.01304</b>	<b>ln(x)</b>	<b>ShapiroWilk</b>
Mercury (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 10	0.000454	0.0001455	unknown	ShapiroWilk
Mercury (mg/L)	HGWA-2 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 10	0.000454	0.0001455	unknown	ShapiroWilk
Mercury (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 10	0.0005	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-2 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.01	0	unknown	ShapiroWilk
pH (s.u.)	HGWA-1 (bg)	No	n/a	n/a	NP	NaN 14	7.099	0.1123	x^3	ShapiroWilk
pH (s.u.)	HGWA-2 (bg)	No	n/a	n/a	NP	NaN 14	5.396	0.2201	x^3	ShapiroWilk
pH (s.u.)	HGWA-3 (bg)	No	n/a	n/a	NP	NaN 14	7.24	0.1978	x^6	ShapiroWilk
Selenium (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.01	0	unknown	ShapiroWilk
Selenium (mg/L)	HGWA-2 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.01	0	unknown	ShapiroWilk

# Outlier Analysis - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/21/2019, 10:31 PM

<u>Constituent Name</u>	<u>Well</u>	<u>Outlier Found</u>	<u>Outlier Value(s)</u>	<u>Date(s)</u>	<u>Method</u>	<u>Alpha</u>	<u>N</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Distribution</u>	<u>Normality Test</u>
Selenium (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13	0.01	0	unknown	ShapiroWilk
Sulfate (mg/L)	HGWA-1 (bg)	No	n/a	n/a	NP	NaN	12	56.84	15.75	ln(x)	ShapiroWilk
Sulfate (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP	NaN	12	46.27	2.15	x^6	ShapiroWilk
Sulfate (mg/L)	HGWA-3 (bg)	No	n/a	n/a	NP	NaN	12	45.41	3.06	x^2	ShapiroWilk
Thallium (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13	0.001	0	unknown	ShapiroWilk
Thallium (mg/L)	HGWA-2 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13	0.0009254	0.000269	unknown	ShapiroWilk
Thallium (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13	0.001	0	unknown	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWA-1 (bg)	No	n/a	n/a	NP	NaN	12	371.3	39.11	ln(x)	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP	NaN	12	134.7	23.42	normal	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWA-3 (bg)	No	n/a	n/a	NP	NaN	12	283.7	28.74	ln(x)	ShapiroWilk
Total Radium (pCi/L)	HGWA-1 (bg)	No	n/a	n/a	NP	NaN	13	0.5268	0.2734	sqrt(x)	ShapiroWilk
Total Radium (pCi/L)	HGWA-2 (bg)	No	n/a	n/a	NP	NaN	13	0.792	0.2781	ln(x)	ShapiroWilk
Total Radium (pCi/L)	HGWA-3 (bg)	No	n/a	n/a	NP	NaN	13	0.6115	0.284	normal	ShapiroWilk

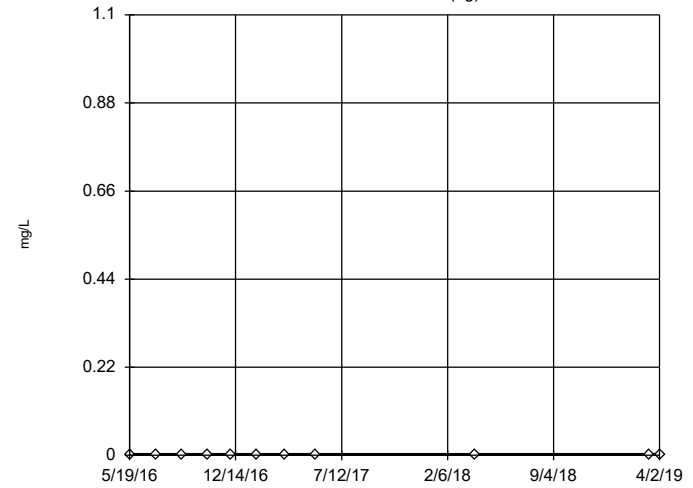
### Tukey's Outlier Screening HGWA-1 (bg)



n = 11  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Ladder of Powers transformations did not improve normality; analysis run on raw data.  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Antimony Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

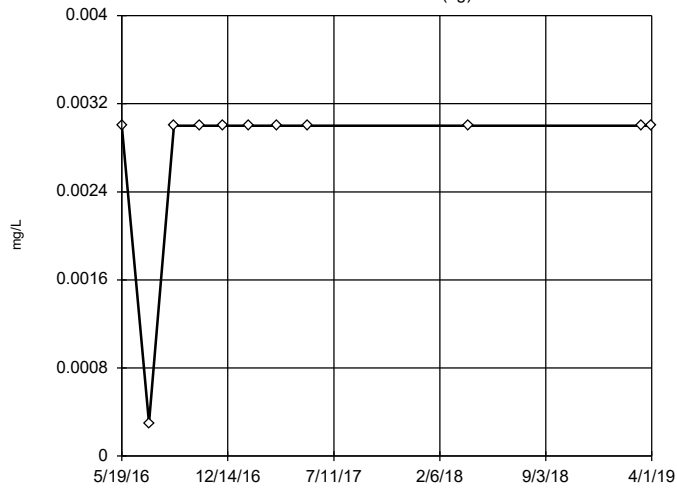
### Tukey's Outlier Screening HGWA-2 (bg)



n = 11  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Antimony Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

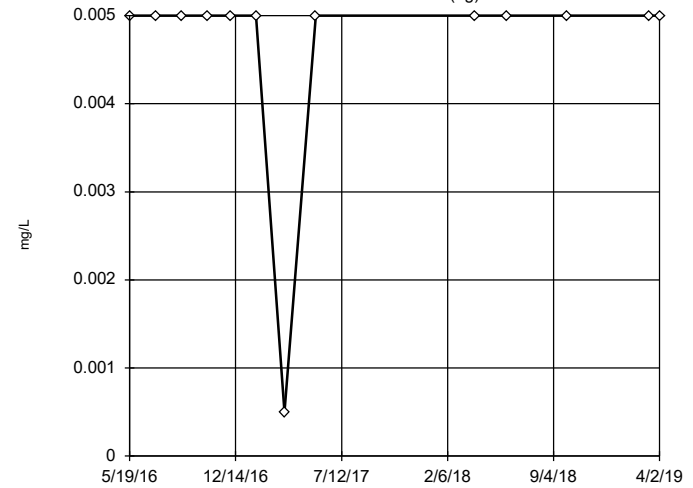
### Tukey's Outlier Screening HGWA-3 (bg)



n = 11  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Antimony Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening HGWA-1 (bg)



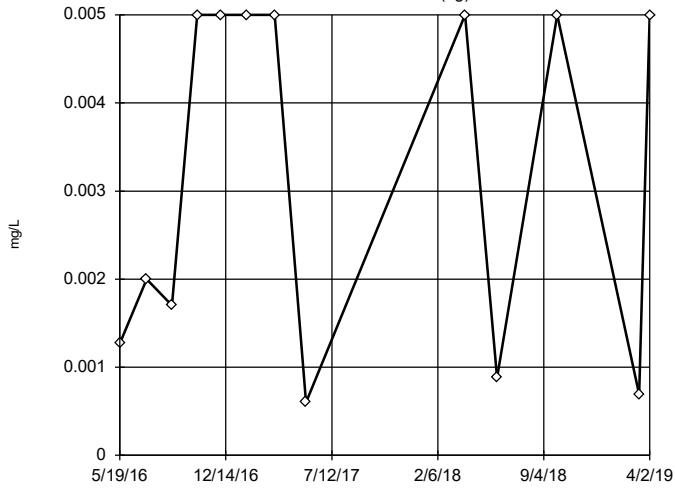
n = 13  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Ladder of Powers transformations did not improve normality; analysis run on raw data.  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Arsenic Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



### Tukey's Outlier Screening

HGWA-2 (bg)



n = 13

No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

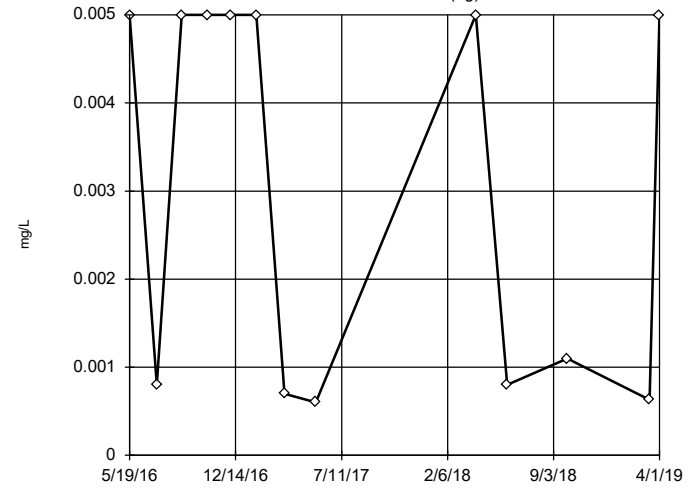
High cutoff = 0.529, low cutoff = 0.000009992, based on IQR multiplier of 3.

Constituent: Arsenic Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening

HGWA-3 (bg)



n = 13

No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

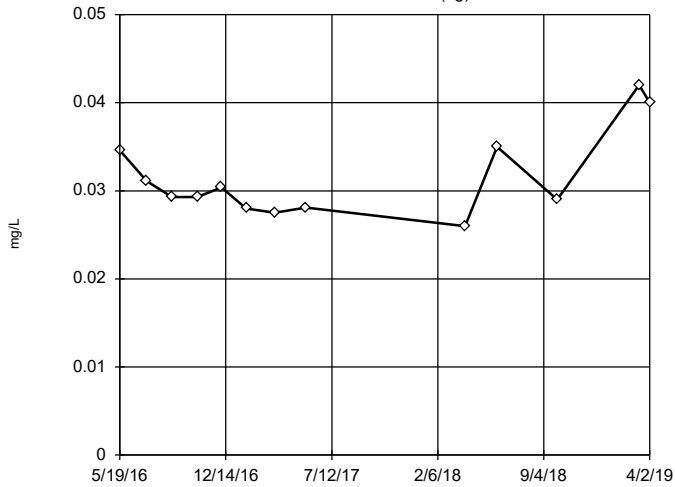
High cutoff = 1.491, low cutoff = 0.000002509, based on IQR multiplier of 3.

Constituent: Arsenic Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening

HGWA-1 (bg)



n = 13

No outliers found. Tukey's method selected by user.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

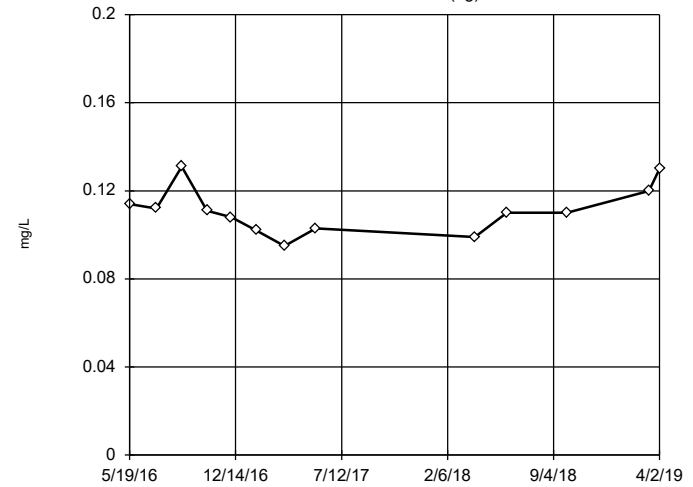
High cutoff = 0.06645, low cutoff = 0.01469, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening

HGWA-2 (bg)



n = 13

No outliers found. Tukey's method selected by user.

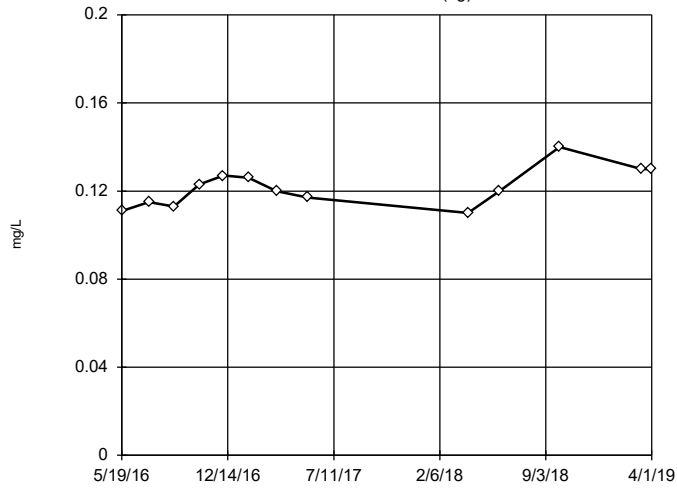
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.1738, low cutoff = 0.06898, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

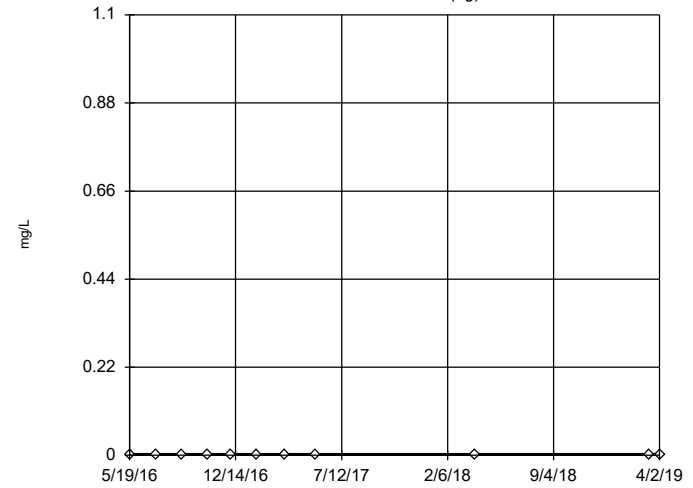
Tukey's Outlier Screening  
HGWA-3 (bg)



n = 13  
No outliers found. Tukey's method selected by user.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 0.184, low cutoff = 0.0796, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

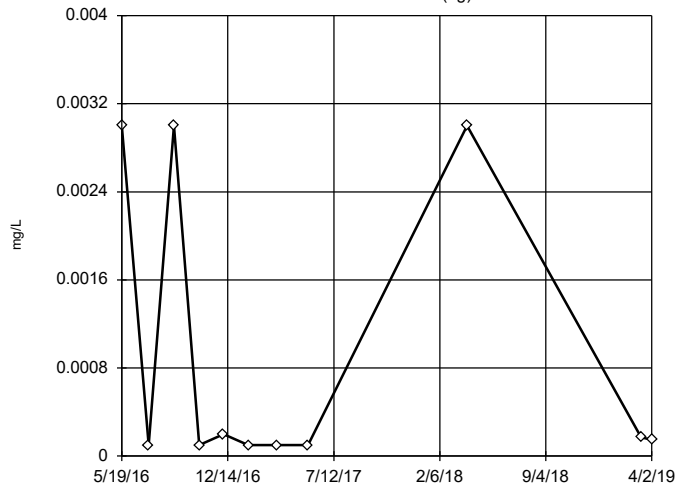
Tukey's Outlier Screening  
HGWA-1 (bg)



n = 11  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were square root transformed to achieve best W statistic (graph shown in original units).  
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Beryllium Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

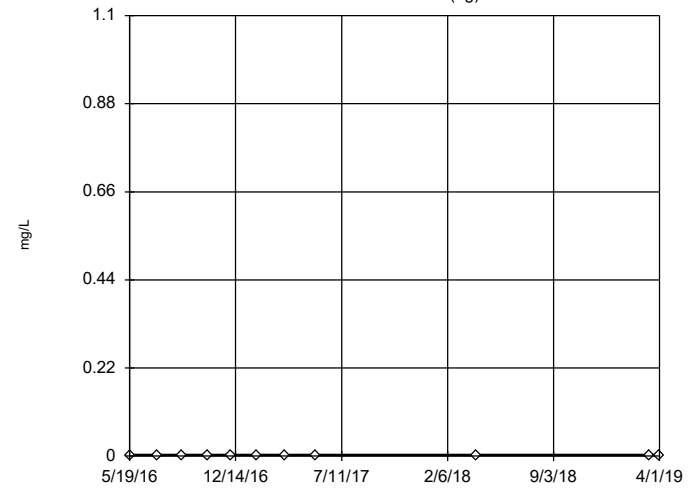
Tukey's Outlier Screening  
HGWA-2 (bg)



n = 11  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 81, low cutoff = 3.7e-9, based on IQR multiplier of 3.

Constituent: Beryllium Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

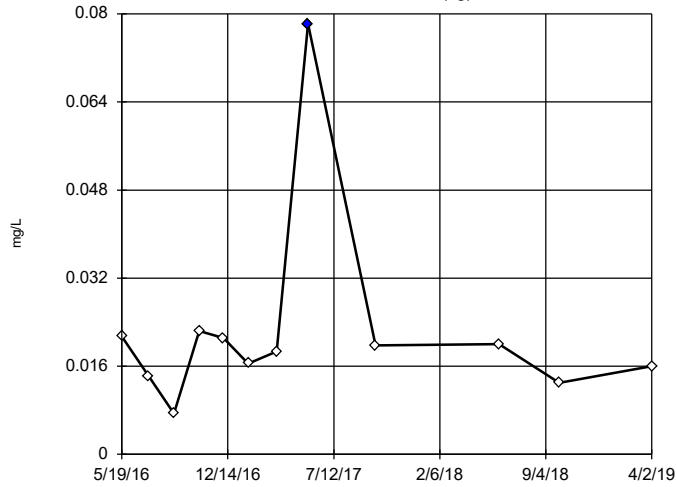
Tukey's Outlier Screening  
HGWA-3 (bg)



n = 11  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were square root transformed to achieve best W statistic (graph shown in original units).  
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Beryllium Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

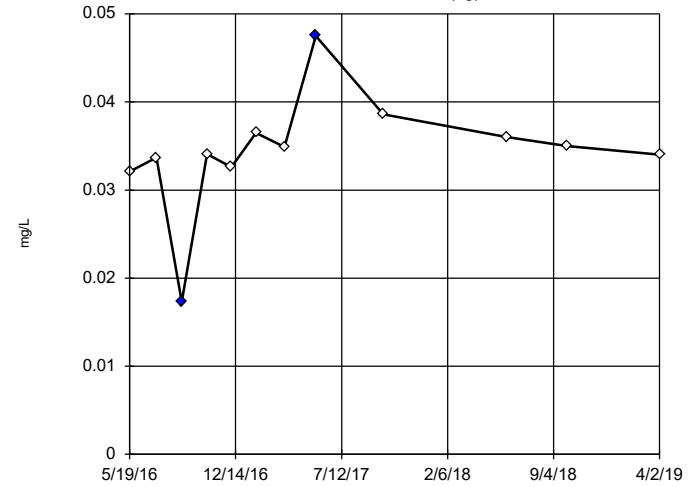
### Tukey's Outlier Screening HGWA-1 (bg)



n = 12  
 Outlier is drawn as solid.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.05954, low cutoff = 0.00538, based on IQR multiplier of 3.

Constituent: Boron Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

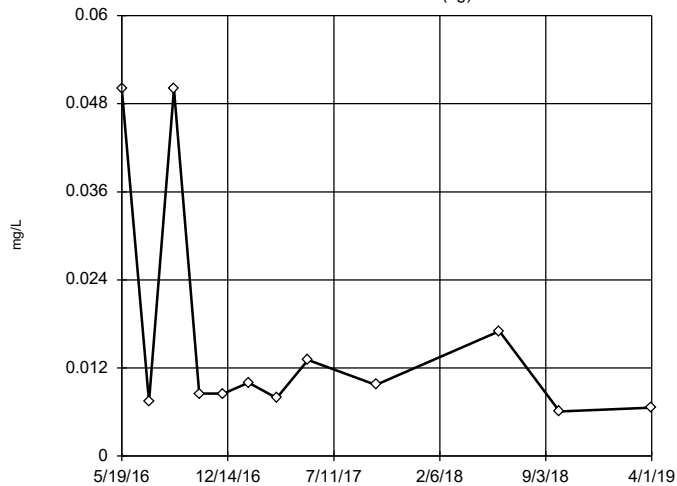
### Tukey's Outlier Screening HGWA-2 (bg)



n = 12  
 Outliers are drawn as solid.  
 Tukey's method selected by user.  
 Data were square transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.04426, low cutoff = 0.02132, based on IQR multiplier of 3.

Constituent: Boron Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

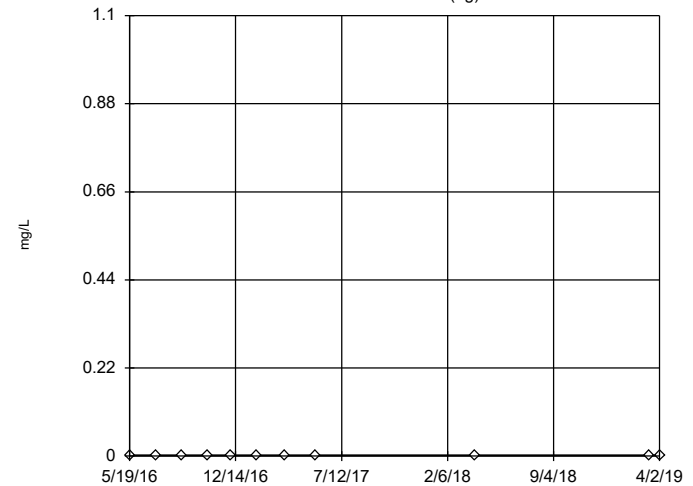
### Tukey's Outlier Screening HGWA-3 (bg)



n = 12  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.111, low cutoff = 0.001028, based on IQR multiplier of 3.

Constituent: Boron Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

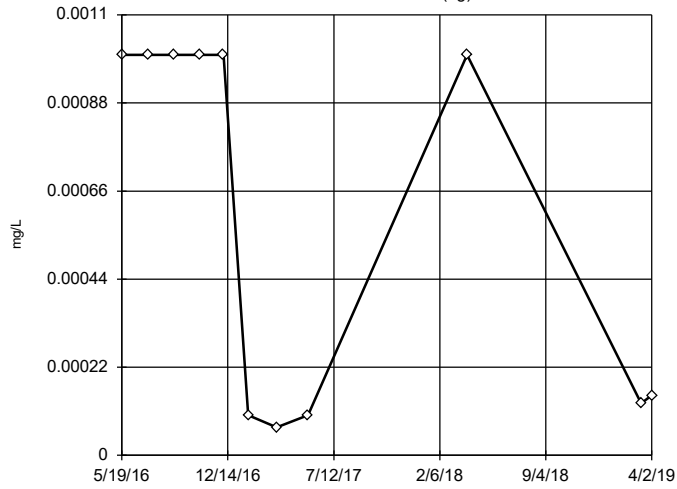
### Tukey's Outlier Screening HGWA-1 (bg)



n = 11  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were cube root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Cadmium Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

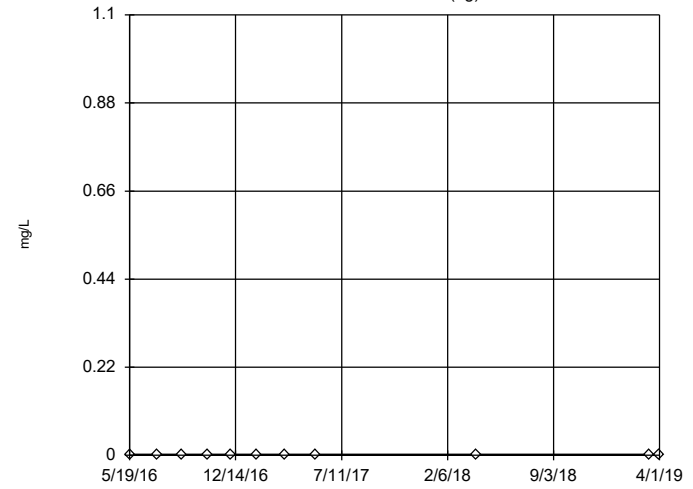
Tukey's Outlier Screening  
HGWA-2 (bg)



n = 11  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 1, low cutoff = 1.0e-7, based on IQR multiplier of 3.

Constituent: Cadmium Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

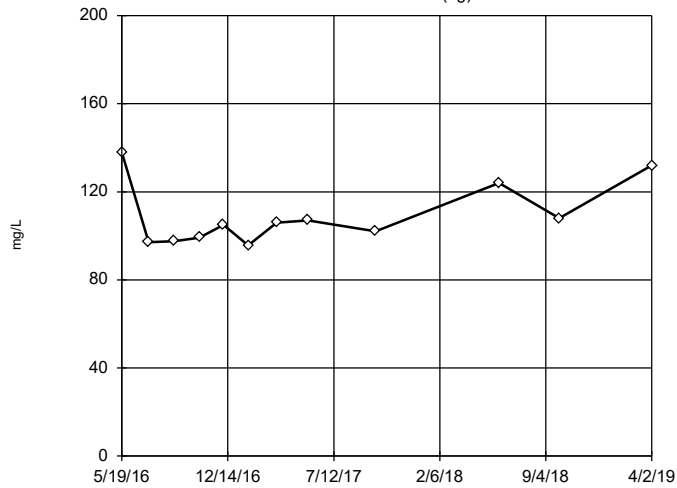
Tukey's Outlier Screening  
HGWA-3 (bg)



n = 11  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were cube root transformed to achieve best W statistic (graph shown in original units).  
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Cadmium Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

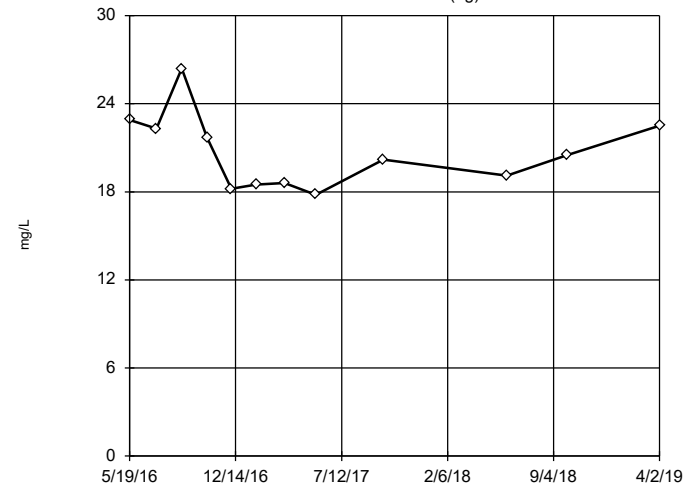
Tukey's Outlier Screening  
HGWA-1 (bg)



n = 12  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 188.5, low cutoff = 60.36, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

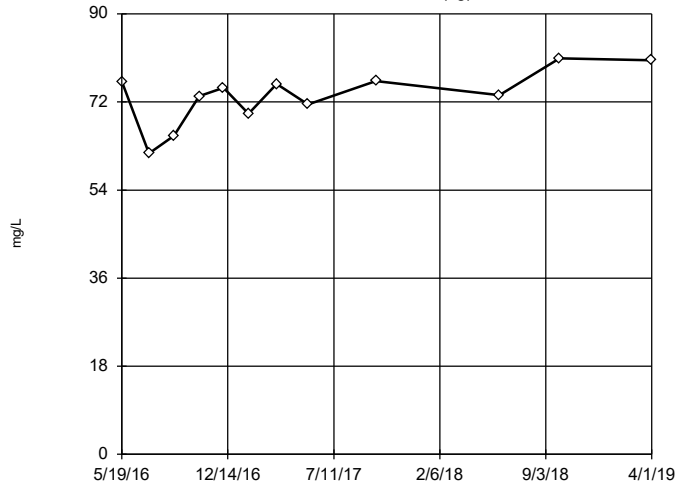
Tukey's Outlier Screening  
HGWA-2 (bg)



n = 12  
No outliers found. Tukey's method selected by user.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 39.44, low cutoff = 10.54, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

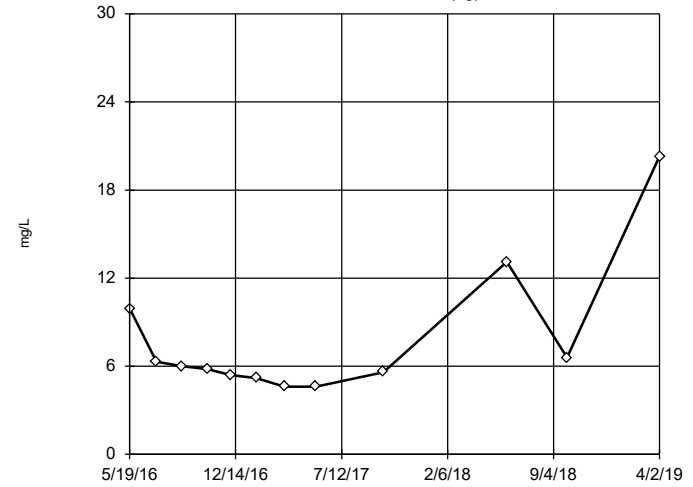
### Tukey's Outlier Screening HGWA-3 (bg)



n = 12  
No outliers found. Tukey's method selected by user.  
Data were  $x^5$  transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 87.25, low cutoff = -59.23, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

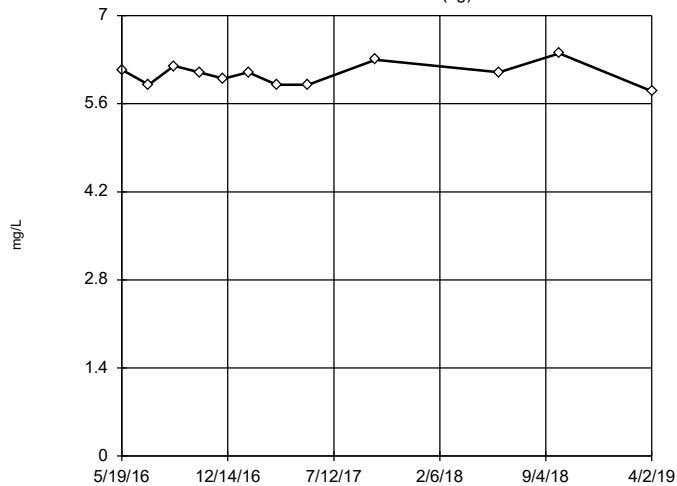
### Tukey's Outlier Screening HGWA-1 (bg)



n = 12  
No outliers found. Tukey's method selected by user.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 28.92, low cutoff = 1.484, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

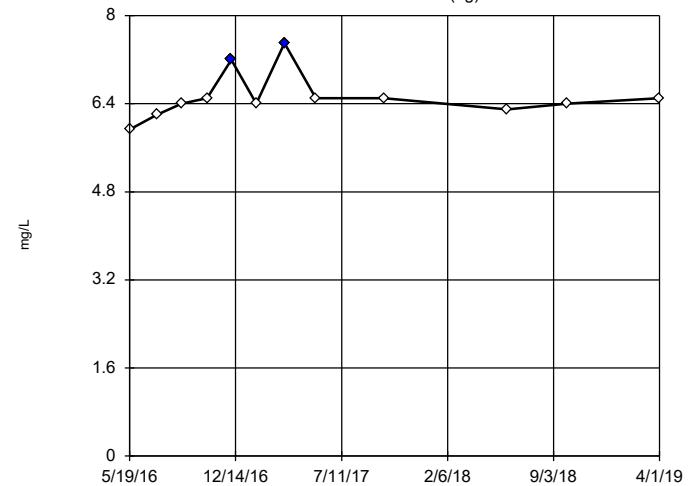
### Tukey's Outlier Screening HGWA-2 (bg)



n = 12  
No outliers found. Tukey's method selected by user.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 7.056, low cutoff = 5.159, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening HGWA-3 (bg)

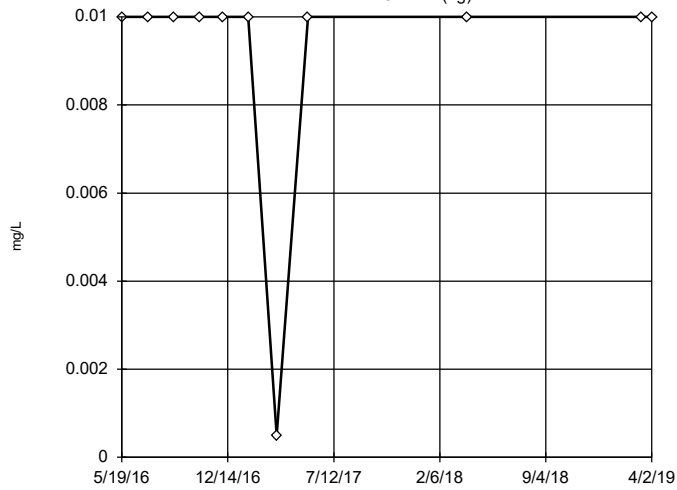


n = 12  
Outliers are drawn as solid. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 6.972, low cutoff = 5.92, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening

HGWA-1 (bg)



n = 11

No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

Data were x<sup>6</sup> transformed to achieve best W statistic (graph shown in original units).

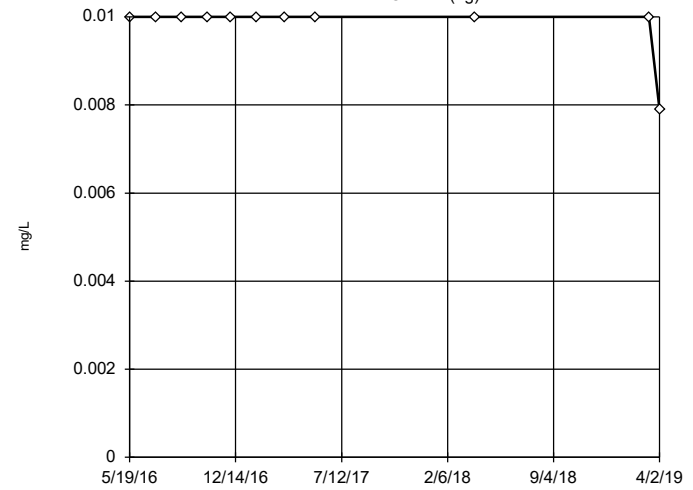
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Chromium Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening

HGWA-2 (bg)



n = 11

No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

Data were square root transformed to achieve best W statistic (graph shown in original units).

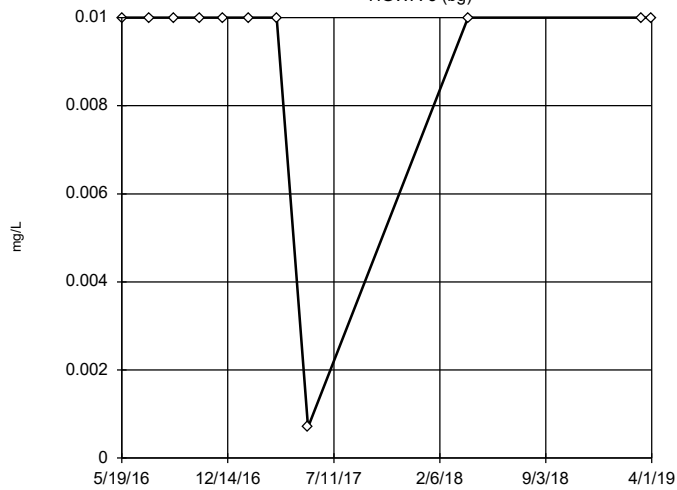
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Chromium Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening

HGWA-3 (bg)



n = 11

No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

Data were cube transformed to achieve best W statistic (graph shown in original units).

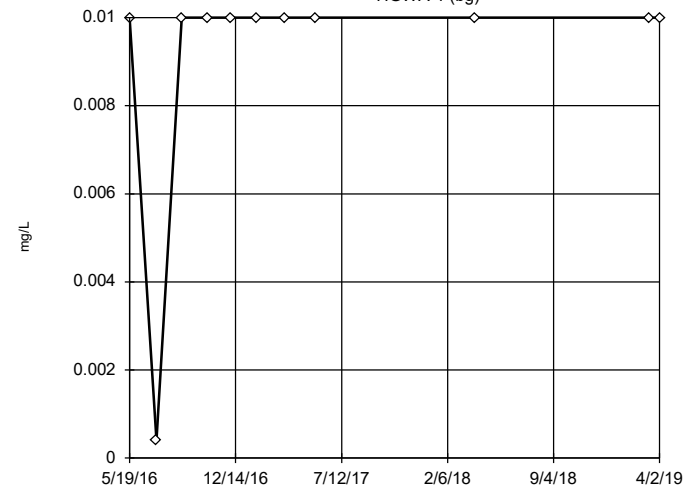
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Chromium Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening

HGWA-1 (bg)



n = 11

No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

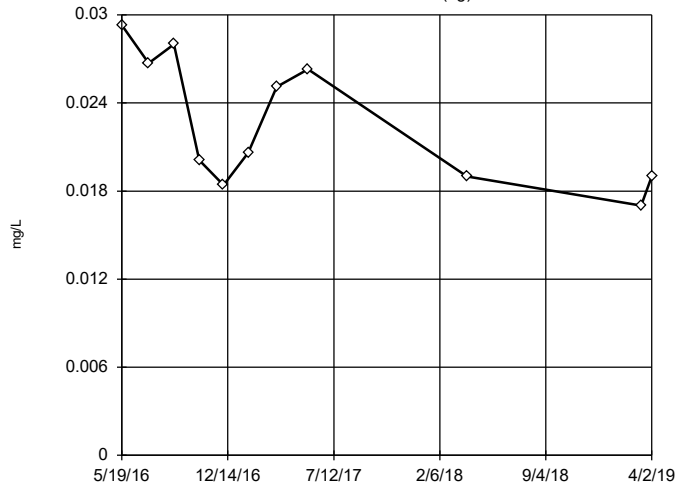
Data were natural log transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Cobalt Analysis Run 7/21/2019 10:17 PM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

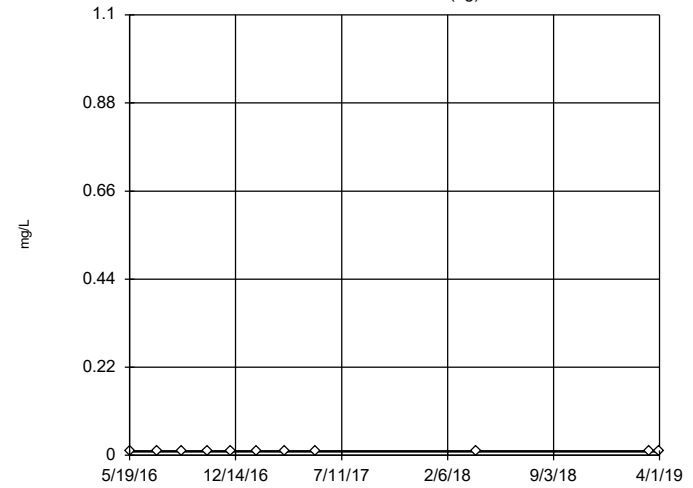
Tukey's Outlier Screening  
HGWA-2 (bg)



n = 11  
No outliers found. Tukey's method selected by user.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 0.07409, low cutoff = 0.006847, based on IQR multiplier of 3.

Constituent: Cobalt Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

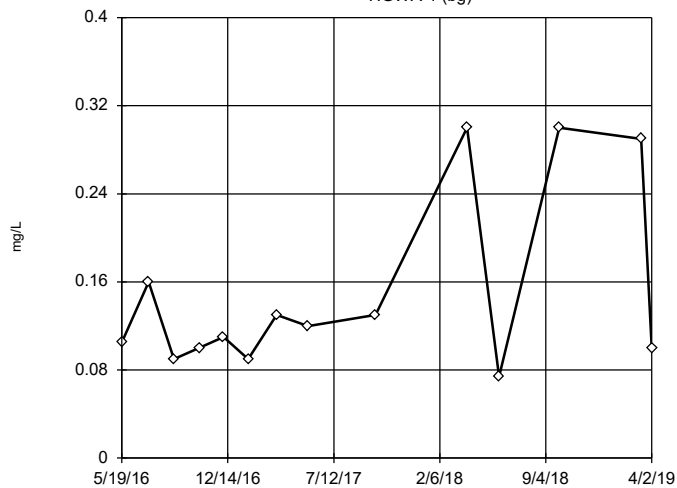
Tukey's Outlier Screening  
HGWA-3 (bg)



n = 11  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were square root transformed to achieve best W statistic (graph shown in original units).  
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Cobalt Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

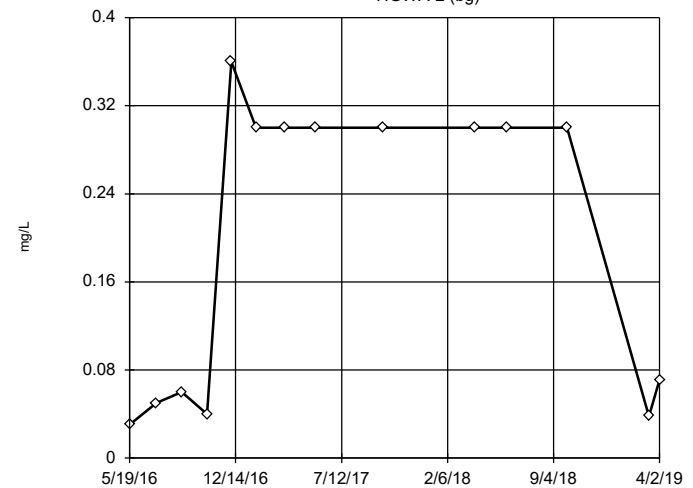
Tukey's Outlier Screening  
HGWA-1 (bg)



n = 14  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were natural log transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 2.522, low cutoff = 0.008104, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

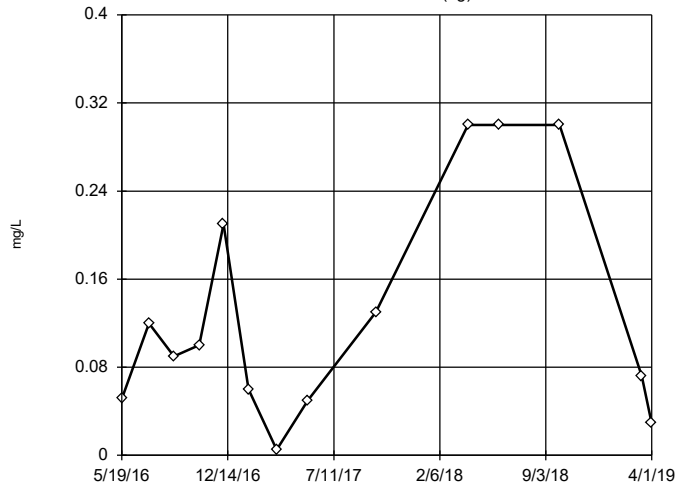
Tukey's Outlier Screening  
HGWA-2 (bg)



n = 14  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were x<sup>4</sup> transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 0.4242, low cutoff = -0.3948, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 7/21/2019 10:17 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

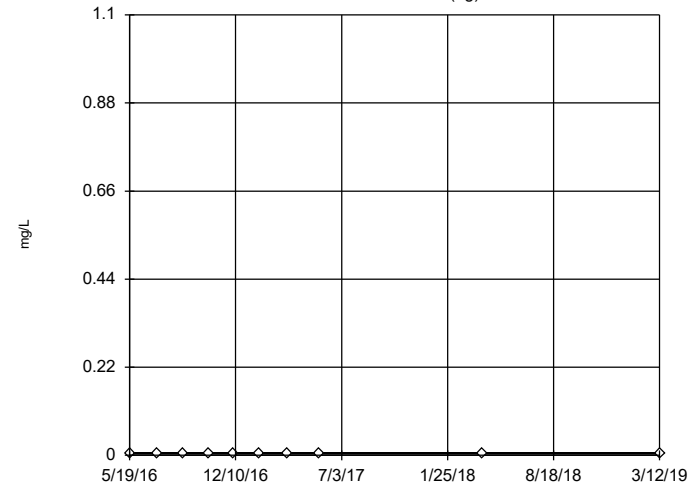
### Tukey's Outlier Screening HGWA-3 (bg)



n = 14  
 No outliers found. Tukey's method selected by user.  
 Data were cube root transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 2.849, low cutoff = -0.07188, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

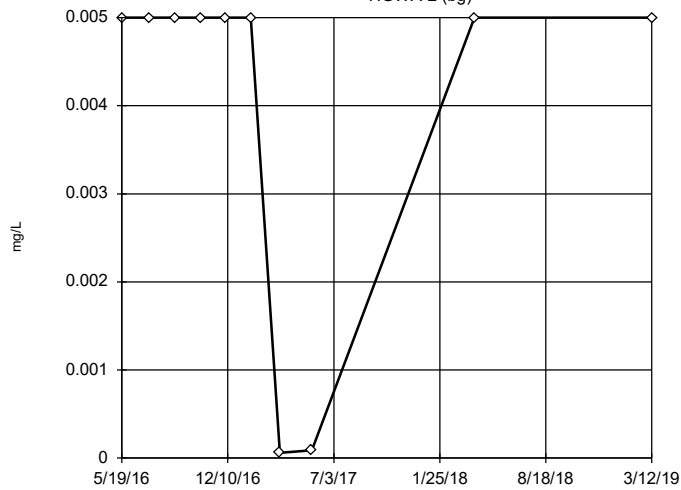
### Tukey's Outlier Screening HGWA-1 (bg)



n = 10  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lead Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

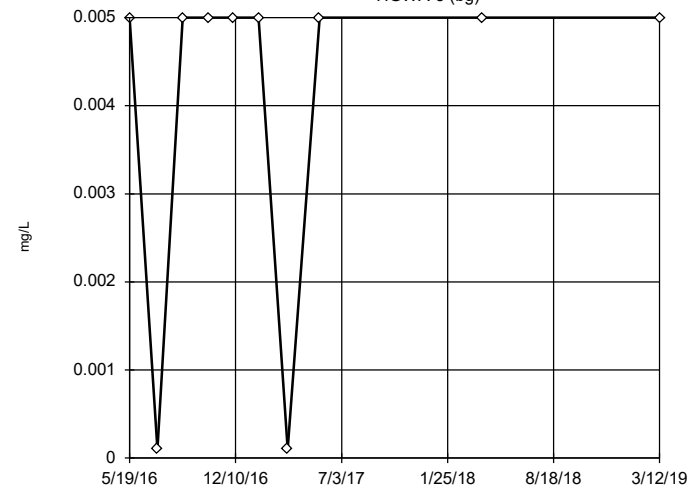
### Tukey's Outlier Screening HGWA-2 (bg)



n = 10  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 2.07, low cutoff = 0.00000162, based on IQR multiplier of 3.

Constituent: Lead Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening HGWA-3 (bg)

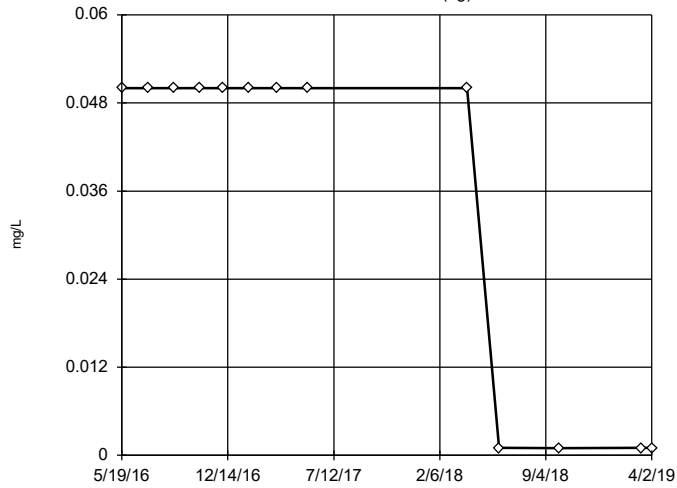


n = 10  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.02617, low cutoff = -0.002572, based on IQR multiplier of 3.

Constituent: Lead Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



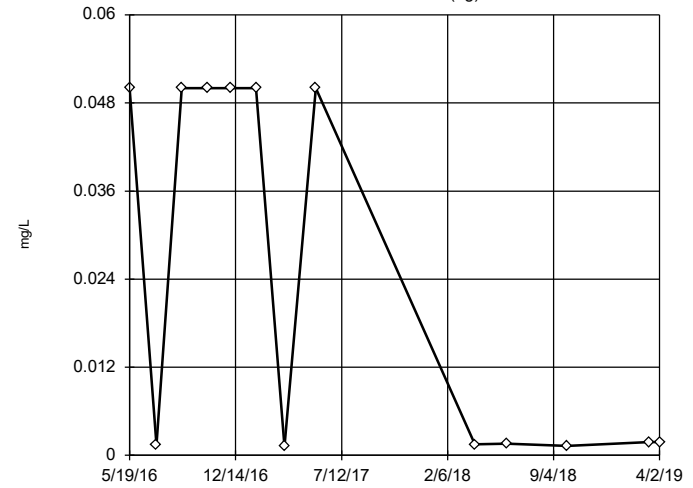
### Tukey's Outlier Screening HGWA-1 (bg)



n = 13  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 6250, low cutoff = 8.0e-9, based on IQR multiplier of 3.

Constituent: Lithium Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

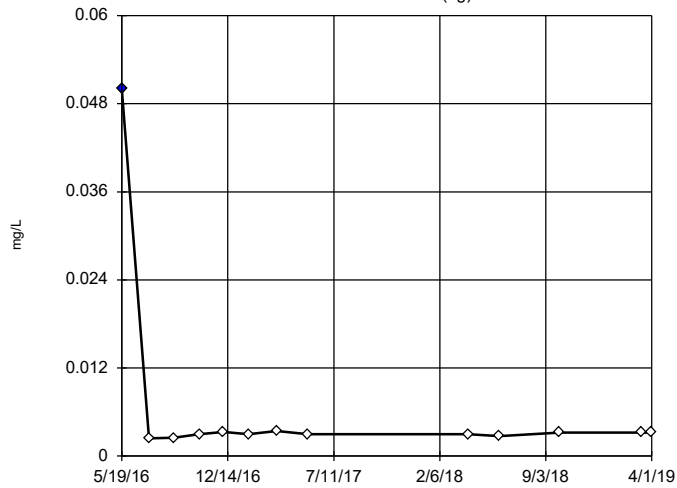
### Tukey's Outlier Screening HGWA-2 (bg)



n = 13  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 2054, low cutoff = 3.5e-8, based on IQR multiplier of 3.

Constituent: Lithium Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

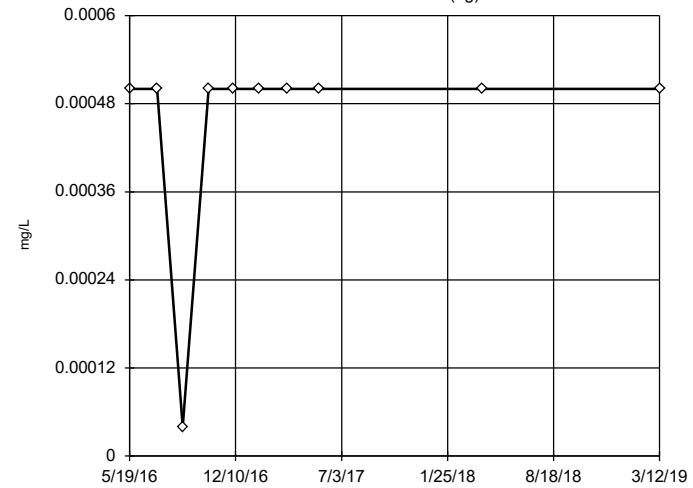
### Tukey's Outlier Screening HGWA-3 (bg)



n = 13  
 Outlier is drawn as solid. Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 0.004837, low cutoff = 0.001912, based on IQR multiplier of 3.

Constituent: Lithium Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

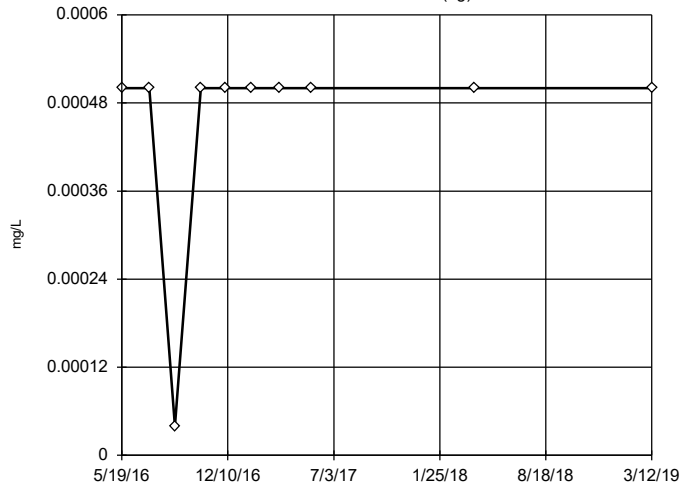
### Tukey's Outlier Screening HGWA-1 (bg)



n = 10  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Ladder of Powers transformations did not improve normality; analysis run on raw data.  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Mercury Analysis Run 7/21/2019 10:17 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

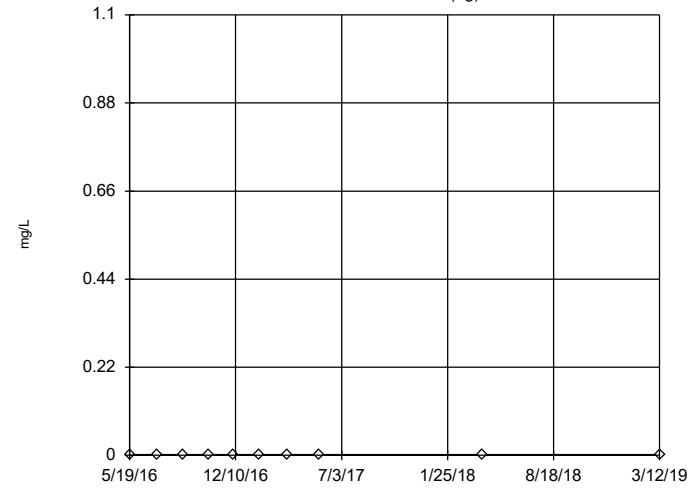
### Tukey's Outlier Screening HGWA-2 (bg)



n = 10  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Ladder of Powers transformations did not improve normality; analysis run on raw data.  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Mercury Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

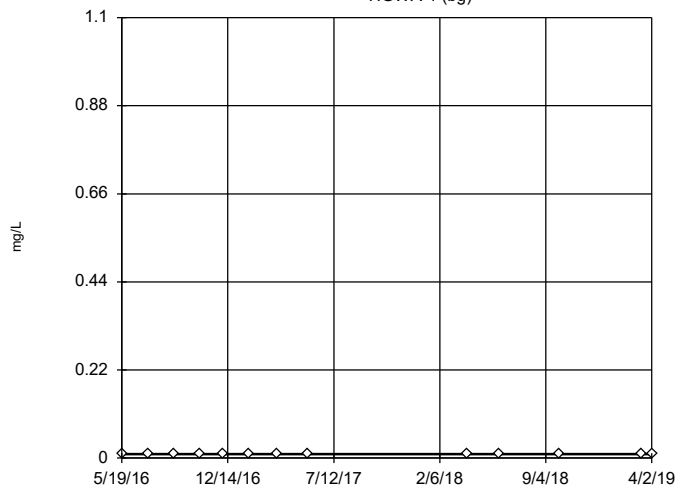
### Tukey's Outlier Screening HGWA-3 (bg)



n = 10  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Mercury Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

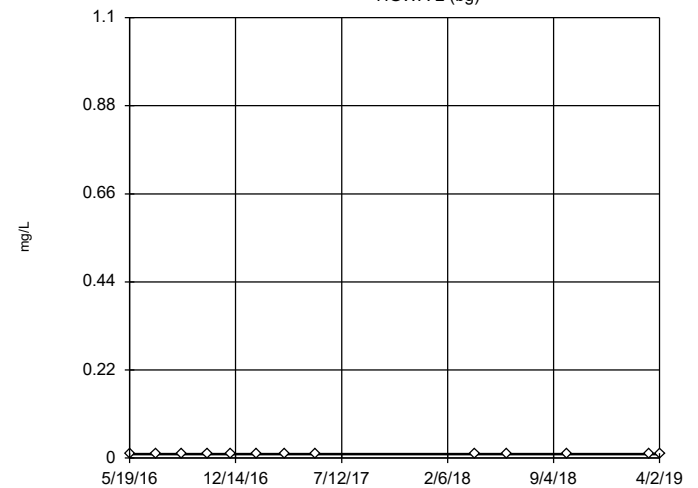
### Tukey's Outlier Screening HGWA-1 (bg)



n = 13  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Molybdenum Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

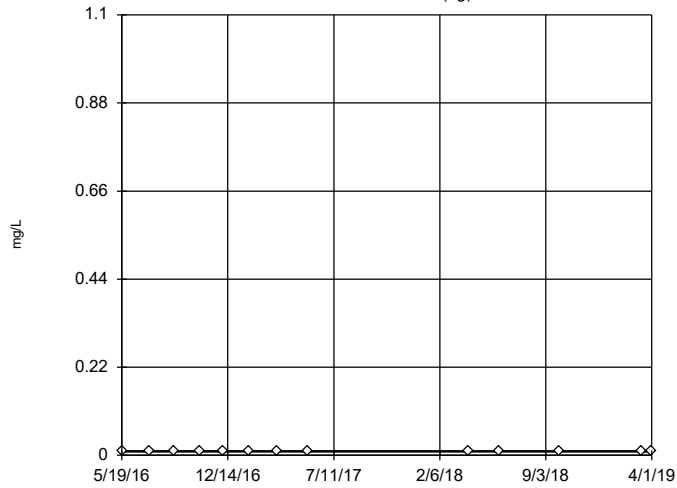
### Tukey's Outlier Screening HGWA-2 (bg)



n = 13  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Molybdenum Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

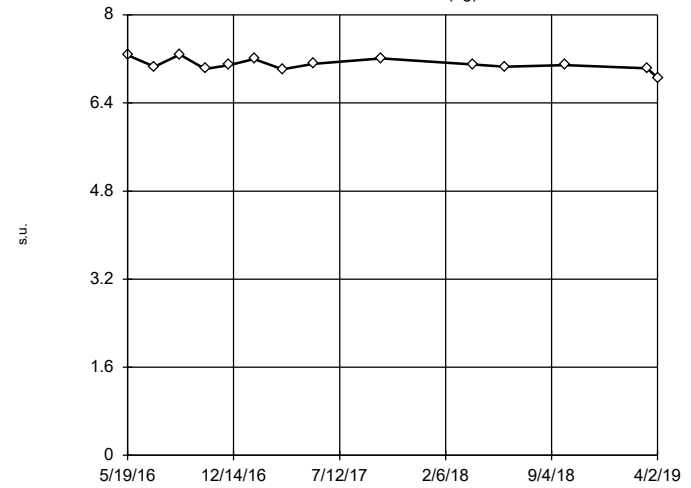
### Tukey's Outlier Screening HGWA-3 (bg)



n = 13  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Molybdenum Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

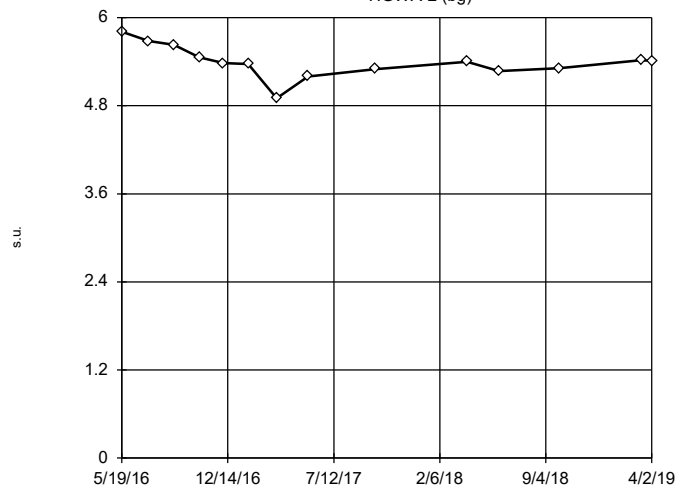
### Tukey's Outlier Screening HGWA-1 (bg)



n = 14  
 No outliers found.  
 Tukey's method selected by user.  
 Data were cube transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 7.697, low cutoff = 6.421, based on IQR multiplier of 3.

Constituent: pH Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

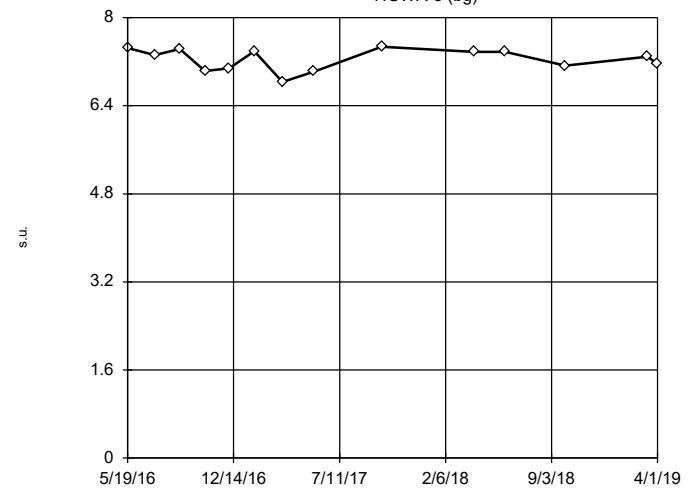
### Tukey's Outlier Screening HGWA-2 (bg)



n = 14  
 No outliers found.  
 Tukey's method selected by user.  
 Data were cube transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 6.211, low cutoff = 4.284, based on IQR multiplier of 3.

Constituent: pH Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

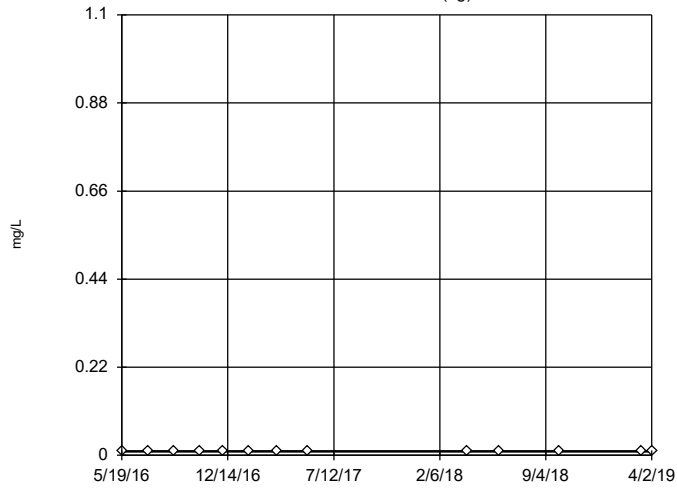
### Tukey's Outlier Screening HGWA-3 (bg)



n = 14  
 No outliers found.  
 Tukey's method selected by user.  
 Data were x^6 transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 8.146, low cutoff = -3.871, based on IQR multiplier of 3.

Constituent: pH Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

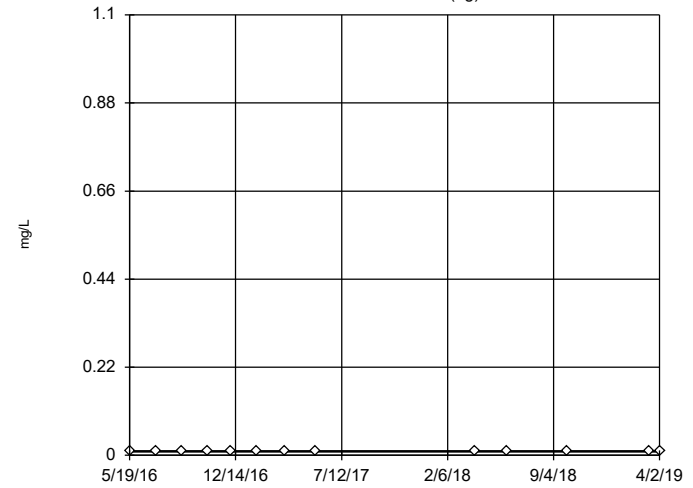
### Tukey's Outlier Screening HGWA-1 (bg)



n = 13  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Selenium Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

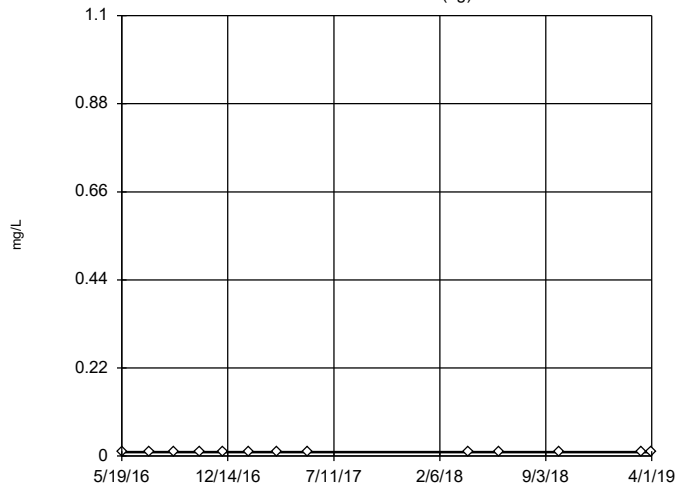
### Tukey's Outlier Screening HGWA-2 (bg)



n = 13  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Selenium Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

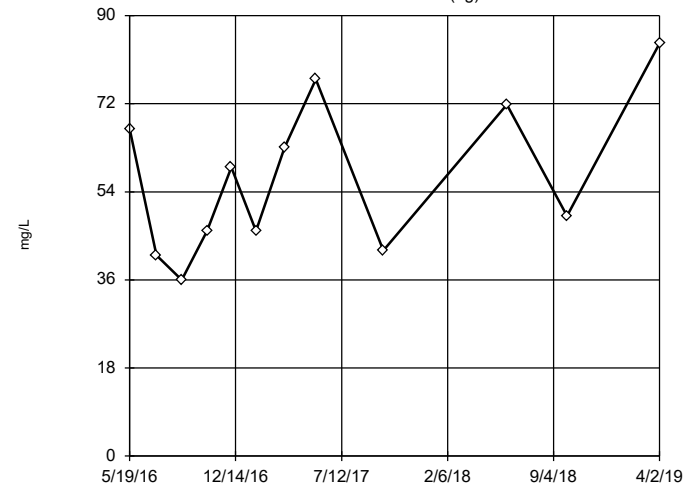
### Tukey's Outlier Screening HGWA-3 (bg)



n = 13  
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Selenium Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

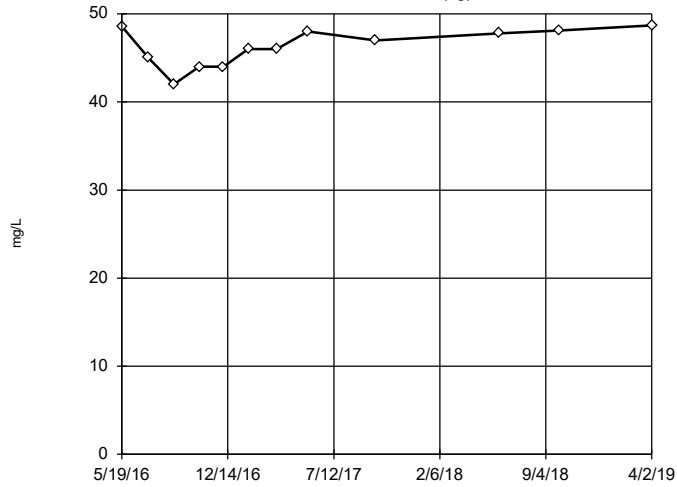
### Tukey's Outlier Screening HGWA-1 (bg)



n = 12  
 No outliers found. Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 271.7, low cutoff = 11.21, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

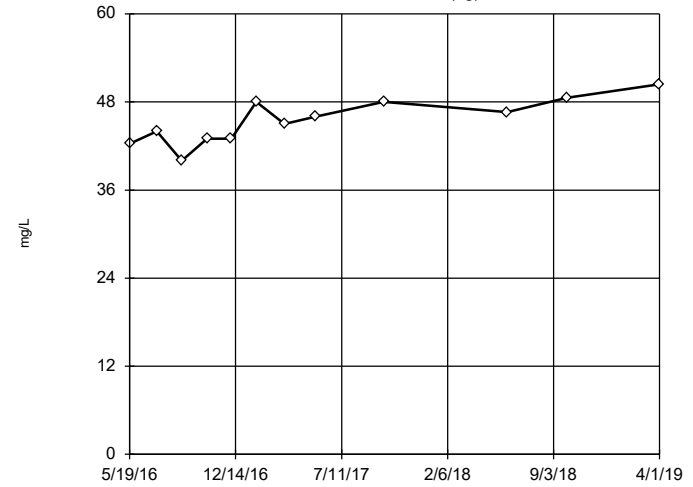
Tukey's Outlier Screening  
HGWA-2 (bg)



n = 12  
No outliers found. Tukey's method selected by user.  
Data were x<sup>6</sup> transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 54.39, low cutoff = -42.39, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 7/21/2019 10:18 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

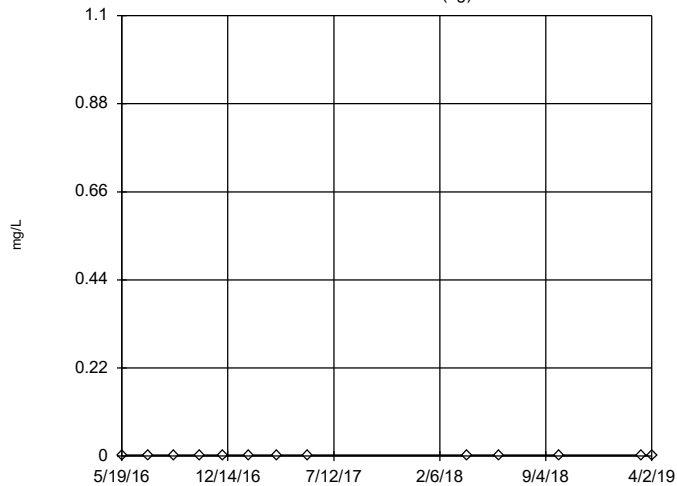
Tukey's Outlier Screening  
HGWA-3 (bg)



n = 12  
No outliers found. Tukey's method selected by user.  
Data were square transformed to achieve best W statistic (graph shown in original units).  
High cutoff = 60.57, low cutoff = 22, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 7/21/2019 10:18 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

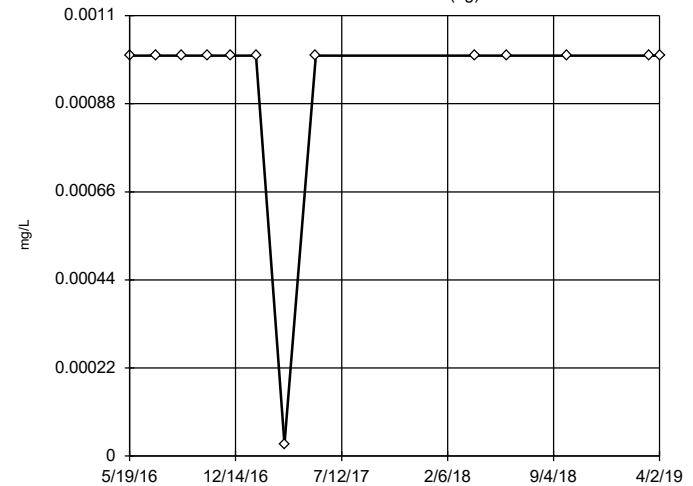
Tukey's Outlier Screening  
HGWA-1 (bg)



n = 13  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were cube root transformed to achieve best W statistic (graph shown in original units).  
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Thallium Analysis Run 7/21/2019 10:18 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

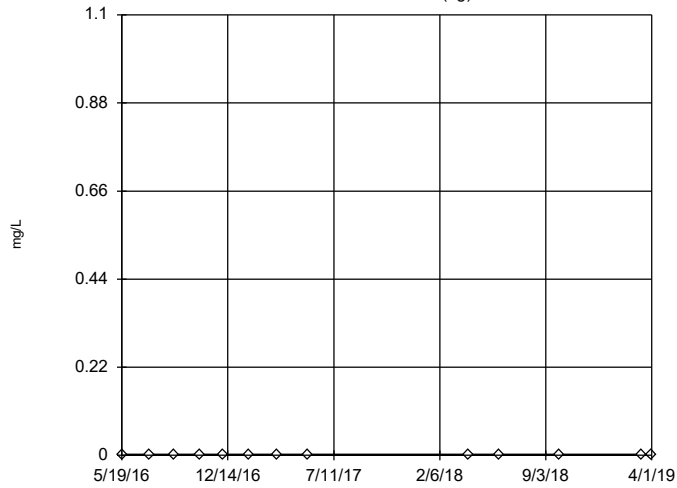
Tukey's Outlier Screening  
HGWA-2 (bg)



n = 13  
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
Data were square root transformed to achieve best W statistic (graph shown in original units).  
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Thallium Analysis Run 7/21/2019 10:18 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

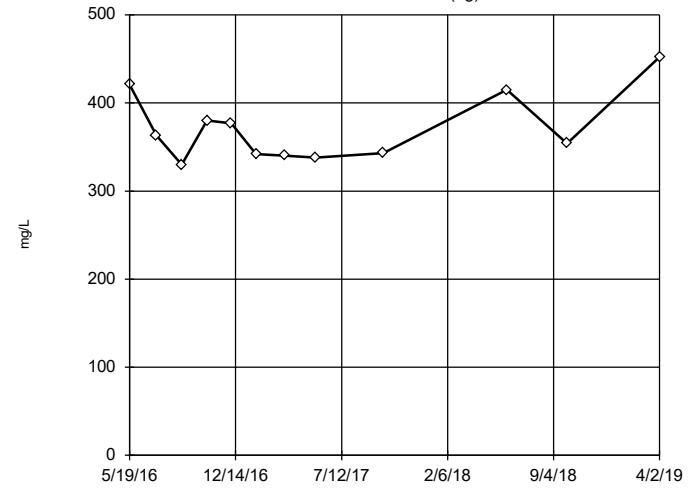
### Tukey's Outlier Screening HGWA-3 (bg)



n = 13  
 No outliers found.  
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.  
 Data were cube root transformed to achieve best W statistic (graph shown in original units).  
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Thallium Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

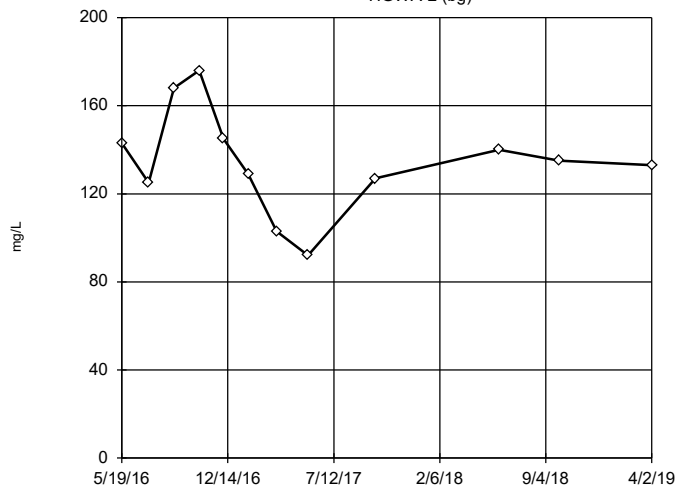
### Tukey's Outlier Screening HGWA-1 (bg)



n = 12  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 627.2, low cutoff = 215.9, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

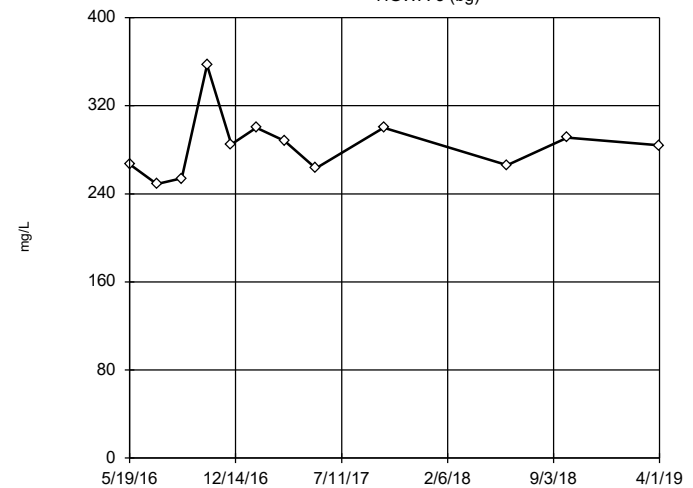
### Tukey's Outlier Screening HGWA-2 (bg)



n = 12  
 No outliers found.  
 Tukey's method selected by user.  
 Ladder of Powers transformations did not improve normality; analysis run on raw data.  
 High cutoff = 198, low cutoff = 72, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

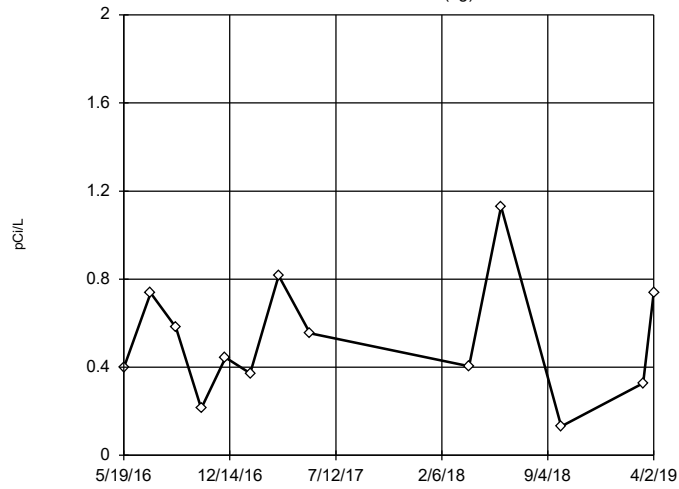
### Tukey's Outlier Screening HGWA-3 (bg)



n = 12  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 411.9, low cutoff = 189.7, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

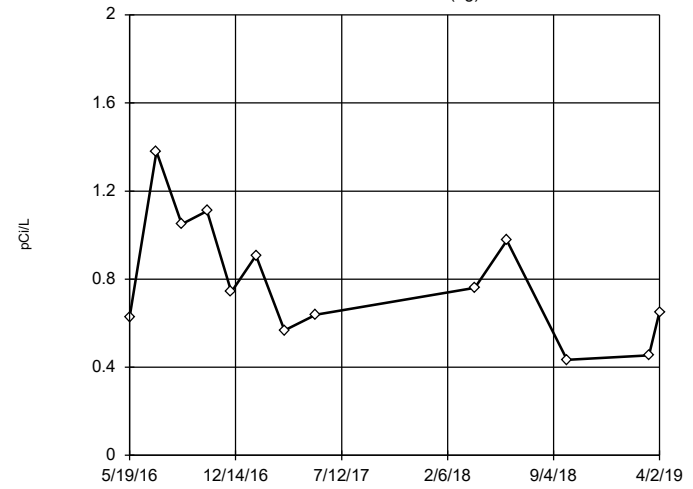
### Tukey's Outlier Screening HGWA-1 (bg)



n = 13  
 No outliers found.  
 Tukey's method selected by user.  
 Data were square root transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 2.767, low cutoff = -0.04534, based on IQR multiplier of 3.

Constituent: Total Radium Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

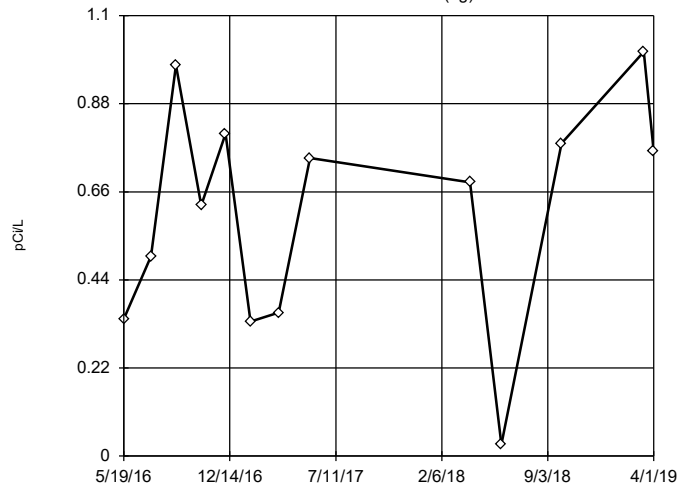
### Tukey's Outlier Screening HGWA-2 (bg)



n = 13  
 No outliers found.  
 Tukey's method selected by user.  
 Data were natural log transformed to achieve best W statistic (graph shown in original units).  
 High cutoff = 4.944, low cutoff = 0.122, based on IQR multiplier of 3.

Constituent: Total Radium Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Tukey's Outlier Screening HGWA-3 (bg)



n = 13  
 No outliers found.  
 Tukey's method selected by user.  
 Ladder of Powers transformations did not improve normality, analysis run on raw data.  
 High cutoff = 2.122, low cutoff = -0.979, based on IQR multiplier of 3.

Constituent: Total Radium Analysis Run 7/21/2019 10:18 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

# Trend Test - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-1 Printed 7/21/2019, 10:52 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Calcium (mg/L)	HGWA-3 (bg)	3.671	32	30	Yes	12	0	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-2 (bg)	-0.003001	-28	-27	Yes	11	0	n/a	n/a	0.05	NP
Lithium (mg/L)	HGWA-1 (bg)	0	-35	-34	Yes	13	69.23	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-2 (bg)	1.418	34	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-3 (bg)	2.946	48	30	Yes	12	0	n/a	n/a	0.05	NP



# Trend Test - All Results

Plant Hammond    Client: Georgia Power Company    Data: Hammond AP-1    Printed 7/21/2019, 10:52 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Antimony (mg/L)	HGWA-1 (bg)	0	4	27	No	11	90.91	n/a	n/a	0.05	NP
Antimony (mg/L)	HGWA-2 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Antimony (mg/L)	HGWA-3 (bg)	0	8	27	No	11	90.91	n/a	n/a	0.05	NP
Arsenic (mg/L)	HGWA-1 (bg)	0	0	34	No	13	92.31	n/a	n/a	0.05	NP
Arsenic (mg/L)	HGWA-2 (bg)	0	5	34	No	13	53.85	n/a	n/a	0.05	NP
Arsenic (mg/L)	HGWA-3 (bg)	0	-16	-34	No	13	53.85	n/a	n/a	0.05	NP
Barium (mg/L)	HGWA-1 (bg)	0.00009786	1	34	No	13	0	n/a	n/a	0.05	NP
Barium (mg/L)	HGWA-2 (bg)	-0.0005641	-5	-34	No	13	0	n/a	n/a	0.05	NP
Barium (mg/L)	HGWA-3 (bg)	0.00557	32	34	No	13	0	n/a	n/a	0.05	NP
Beryllium (mg/L)	HGWA-1 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Beryllium (mg/L)	HGWA-2 (bg)	0	-4	-27	No	11	27.27	n/a	n/a	0.05	NP
Beryllium (mg/L)	HGWA-3 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-1 (bg)	-0.0006149	-6	-30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-2 (bg)	0.001596	26	30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-3 (bg)	-0.001203	-16	-30	No	12	16.67	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-1 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-2 (bg)	-0.0001955	-17	-27	No	11	54.55	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-3 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-1 (bg)	6.667	28	30	No	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-2 (bg)	-1.26	-10	-30	No	12	0	n/a	n/a	0.05	NP
<b>Calcium (mg/L)</b>	<b>HGWA-3 (bg)</b>	<b>3.671</b>	<b>32</b>	<b>30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Chloride (mg/L)	HGWA-1 (bg)	-0.1046	-1	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-2 (bg)	0	-4	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-3 (bg)	0.09075	17	30	No	12	0	n/a	n/a	0.05	NP
Chromium (mg/L)	HGWA-1 (bg)	0	-2	-27	No	11	90.91	n/a	n/a	0.05	NP
Chromium (mg/L)	HGWA-2 (bg)	0	-10	-27	No	11	90.91	n/a	n/a	0.05	NP
Chromium (mg/L)	HGWA-3 (bg)	0	-4	-27	No	11	90.91	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-1 (bg)	0	8	27	No	11	90.91	n/a	n/a	0.05	NP
<b>Cobalt (mg/L)</b>	<b>HGWA-2 (bg)</b>	<b>-0.003001</b>	<b>-28</b>	<b>-27</b>	<b>Yes</b>	<b>11</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Cobalt (mg/L)	HGWA-3 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-1 (bg)	0.02724	19	37	No	14	14.29	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-2 (bg)	0	14	37	No	14	50	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-3 (bg)	0.01182	10	37	No	14	21.43	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-1 (bg)	0	0	23	No	10	100	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-2 (bg)	0	-7	-23	No	10	80	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-3 (bg)	0	4	23	No	10	80	n/a	n/a	0.05	NP
<b>Lithium (mg/L)</b>	<b>HGWA-1 (bg)</b>	<b>0</b>	<b>-35</b>	<b>-34</b>	<b>Yes</b>	<b>13</b>	<b>69.23</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Lithium (mg/L)	HGWA-2 (bg)	-0.0001667	-18	-34	No	13	46.15	n/a	n/a	0.05	NP
Lithium (mg/L)	HGWA-3 (bg)	0.00008259	11	34	No	13	7.692	n/a	n/a	0.05	NP
Mercury (mg/L)	HGWA-1 (bg)	0	5	23	No	10	90	n/a	n/a	0.05	NP
Mercury (mg/L)	HGWA-2 (bg)	0	5	23	No	10	90	n/a	n/a	0.05	NP
Mercury (mg/L)	HGWA-3 (bg)	0	0	23	No	10	100	n/a	n/a	0.05	NP
Molybdenum (mg/L)	HGWA-1 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Molybdenum (mg/L)	HGWA-2 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Molybdenum (mg/L)	HGWA-3 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-1 (bg)	-0.07213	-31	-37	No	14	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-2 (bg)	-0.1014	-31	-37	No	14	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-3 (bg)	-0.03425	-14	-37	No	14	0	n/a	n/a	0.05	NP
Selenium (mg/L)	HGWA-1 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Selenium (mg/L)	HGWA-2 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP

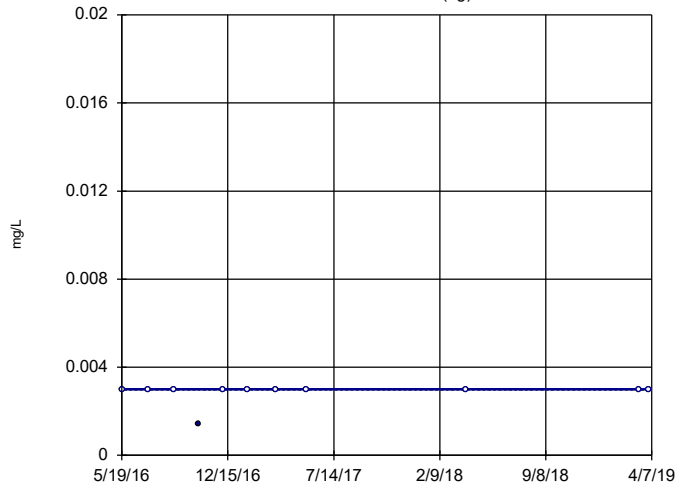
# Trend Test - All Results

Plant Hammond    Client: Georgia Power Company    Data: Hammond AP-1    Printed 7/21/2019, 10:52 PM

<u>Constituent</u>	<u>Well</u>	<u>Slope</u>	<u>Calc.</u>	<u>Critical</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Normality</u>	<u>Xform</u>	<u>Alpha</u>	<u>Method</u>
Selenium (mg/L)	HGWA-3 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-1 (bg)	8.918	25	30	No	12	0	n/a	n/a	0.05	NP
<b>Sulfate (mg/L)</b>	<b>HGWA-2 (bg)</b>	<b>1.418</b>	<b>34</b>	<b>30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
<b>Sulfate (mg/L)</b>	<b>HGWA-3 (bg)</b>	<b>2.946</b>	<b>48</b>	<b>30</b>	<b>Yes</b>	<b>12</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0.05</b>	<b>NP</b>
Thallium (mg/L)	HGWA-1 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Thallium (mg/L)	HGWA-2 (bg)	0	0	34	No	13	92.31	n/a	n/a	0.05	NP
Thallium (mg/L)	HGWA-3 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-1 (bg)	6.354	4	30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-2 (bg)	-5.334	-14	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-3 (bg)	7.889	11	30	No	12	0	n/a	n/a	0.05	NP
Total Radium (pCi/L)	HGWA-1 (bg)	-0.01062	0	34	No	13	0	n/a	n/a	0.05	NP
Total Radium (pCi/L)	HGWA-2 (bg)	-0.152	-28	-34	No	13	0	n/a	n/a	0.05	NP
Total Radium (pCi/L)	HGWA-3 (bg)	0.08502	16	34	No	13	0	n/a	n/a	0.05	NP

### Sen's Slope and 95% Confidence Band

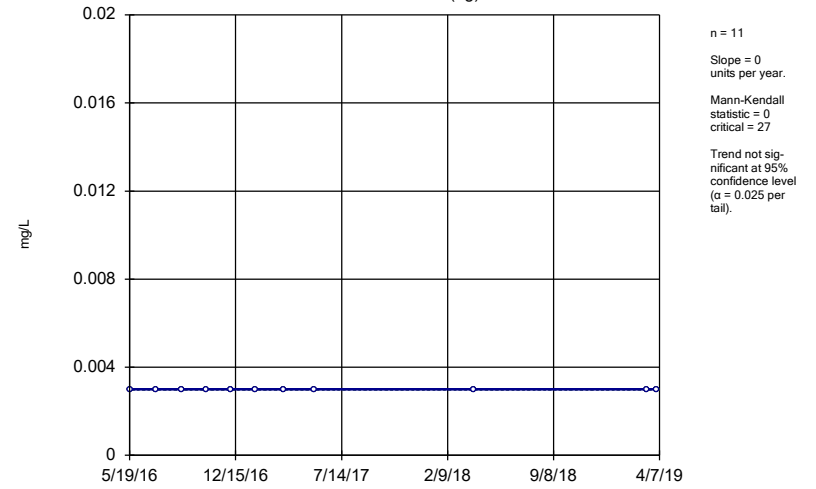
HGWA-1 (bg)



Constituent: Antimony Analysis Run 7/21/2019 10:50 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

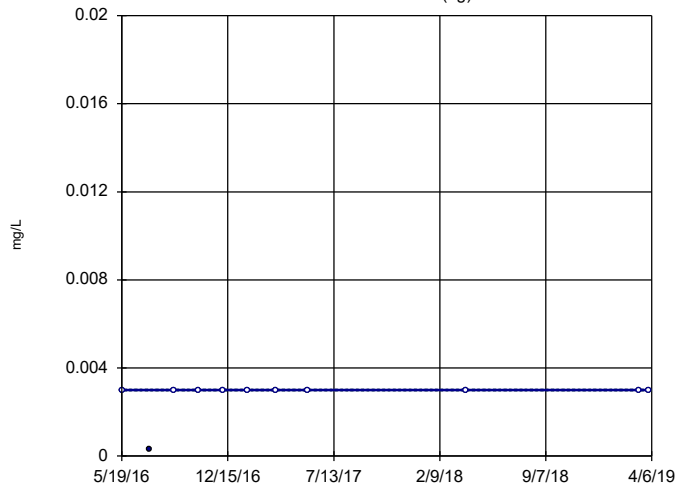
HGWA-2 (bg)



Constituent: Antimony Analysis Run 7/21/2019 10:50 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

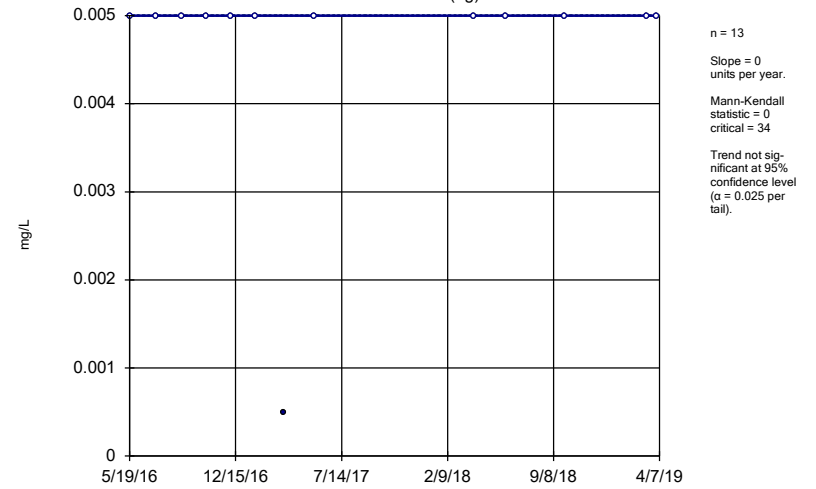
HGWA-3 (bg)



Constituent: Antimony Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

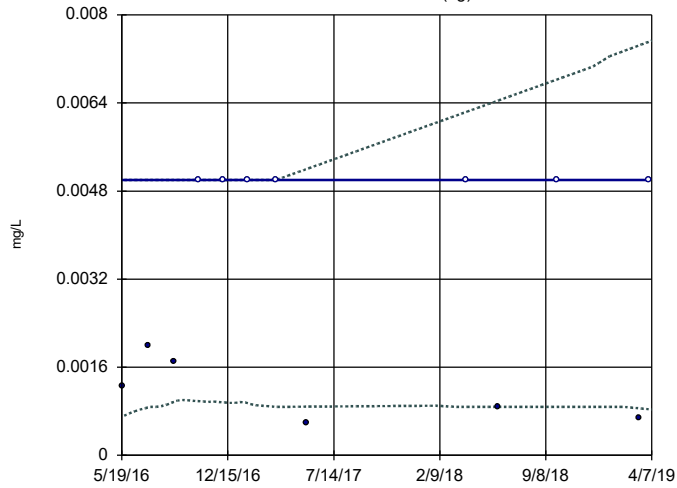
HGWA-1 (bg)



Constituent: Arsenic Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

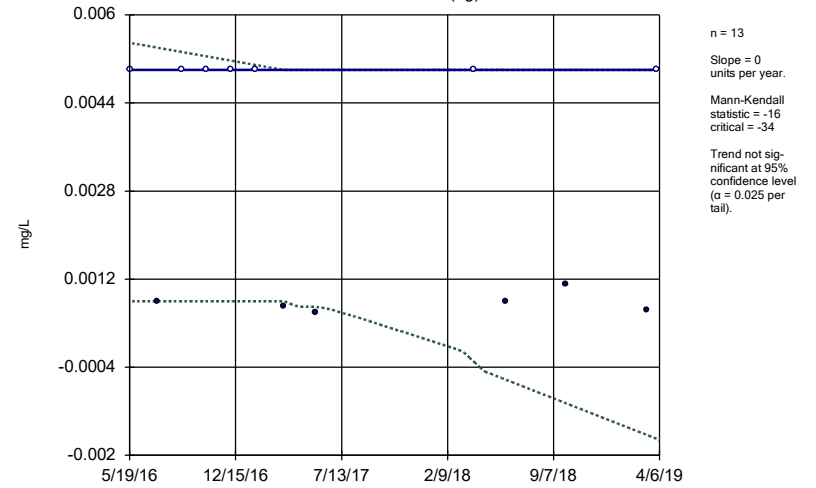
HGWA-2 (bg)



Constituent: Arsenic Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

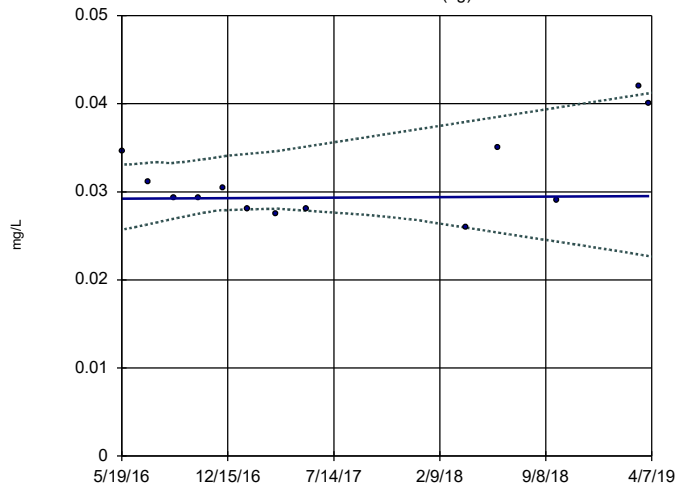
HGWA-3 (bg)



Constituent: Arsenic Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

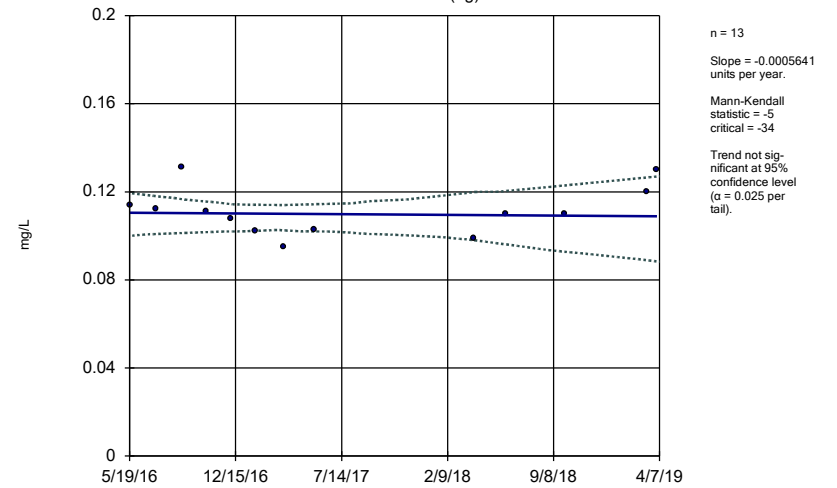
HGWA-1 (bg)



Constituent: Barium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

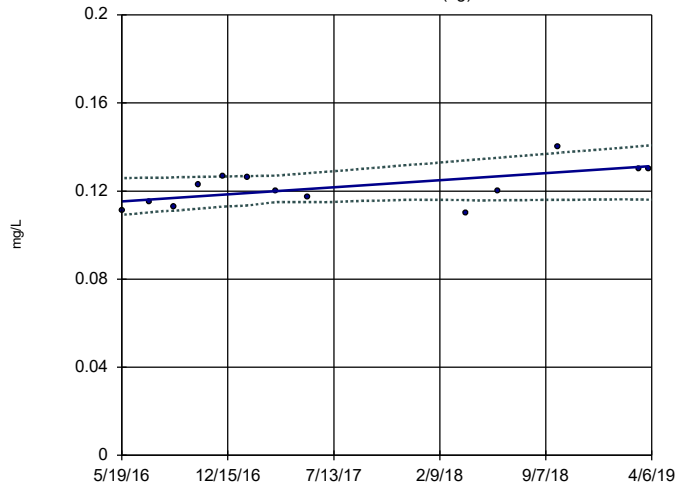
HGWA-2 (bg)



Constituent: Barium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-3 (bg)



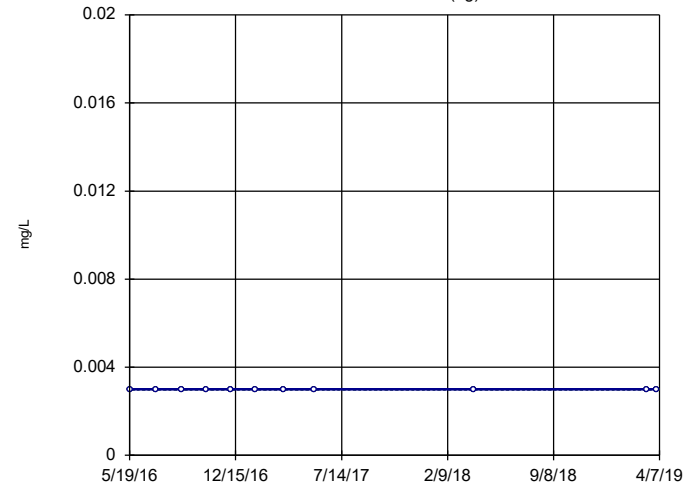
n = 13  
 Slope = 0.00557  
 units per year.  
 Mann-Kendall  
 statistic = 32  
 critical = 34  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Barium Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

### Sen's Slope and 95% Confidence Band

HGWA-1 (bg)



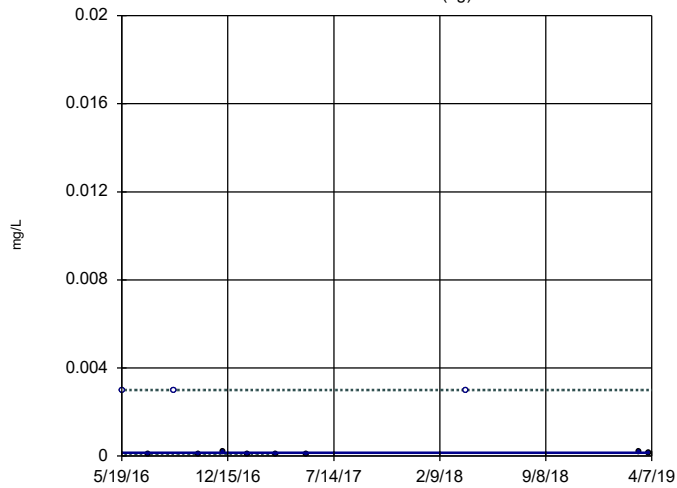
n = 11  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = 0  
 critical = 27  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Beryllium Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

### Sen's Slope and 95% Confidence Band

HGWA-2 (bg)



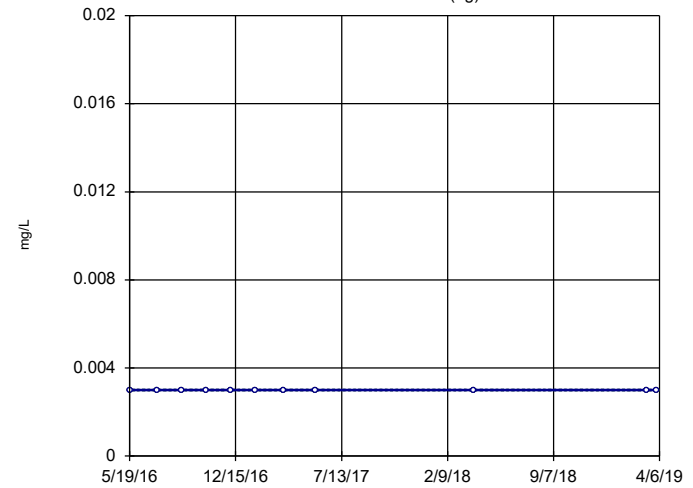
n = 11  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = -4  
 critical = -27  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Beryllium Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

### Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

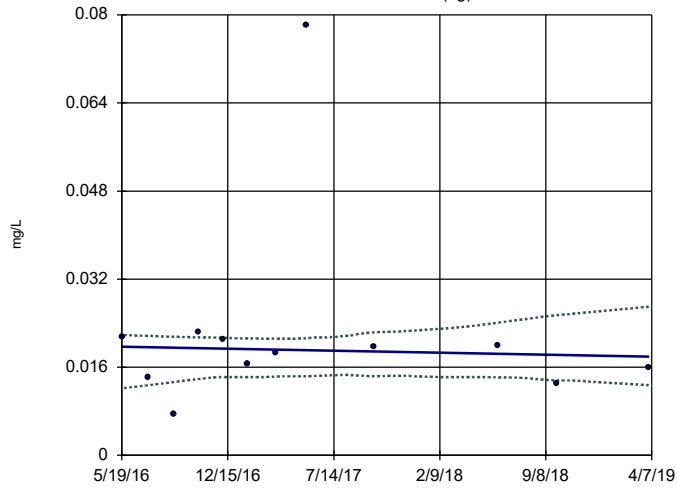


n = 11  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = 0  
 critical = 27  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Beryllium Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

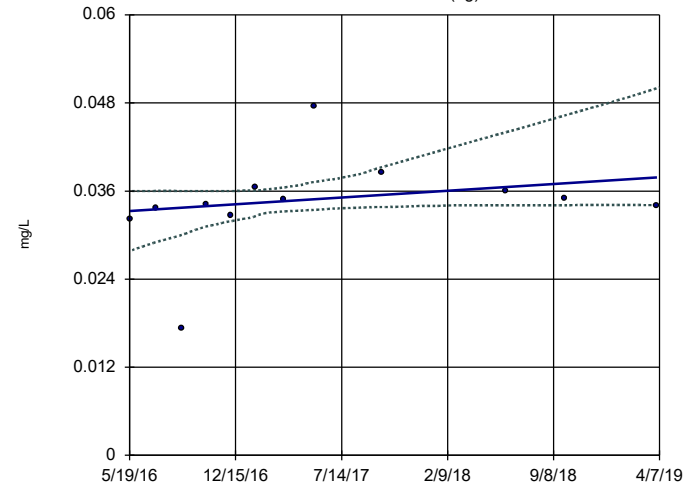


n = 12  
 Slope = -0.0006149  
 units per year.  
 Mann-Kendall  
 statistic = -6  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 (α = 0.025 per  
 tail).

Constituent: Boron Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

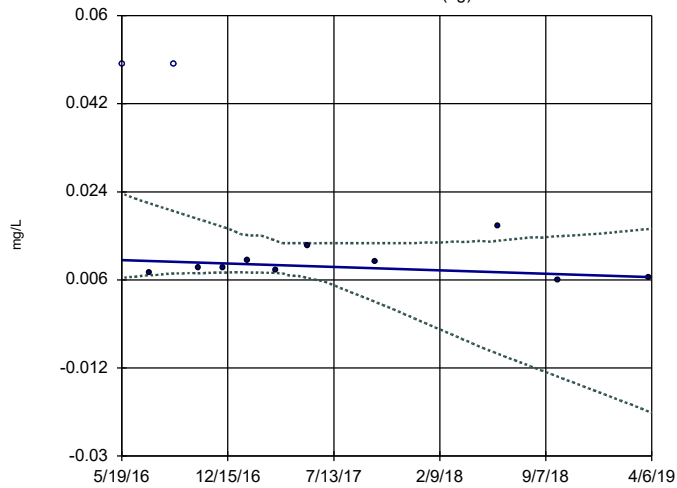


n = 12  
 Slope = 0.001596  
 units per year.  
 Mann-Kendall  
 statistic = 26  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 (α = 0.025 per  
 tail).

Constituent: Boron Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

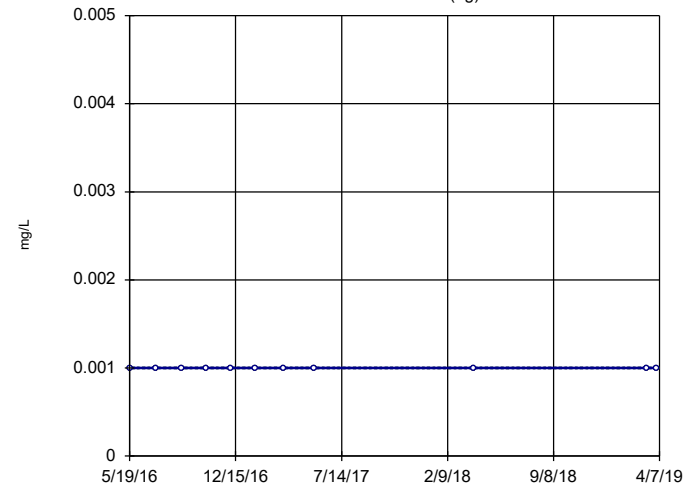


n = 12  
 Slope = -0.001203  
 units per year.  
 Mann-Kendall  
 statistic = -16  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 (α = 0.025 per  
 tail).

Constituent: Boron Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

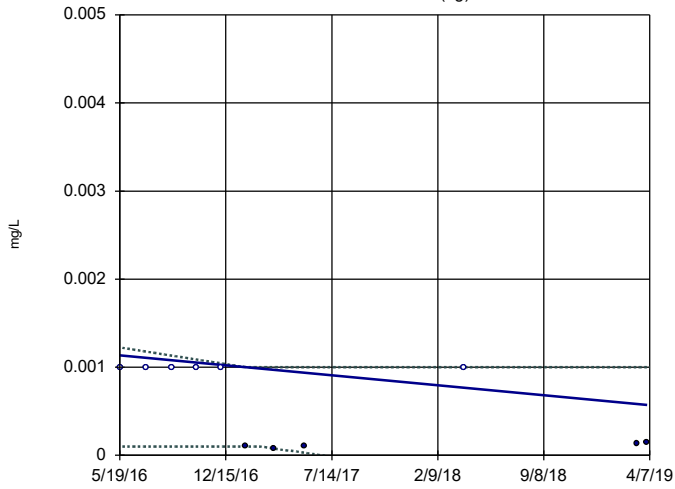


n = 11  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = 0  
 critical = 27  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 (α = 0.025 per  
 tail).

Constituent: Cadmium Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

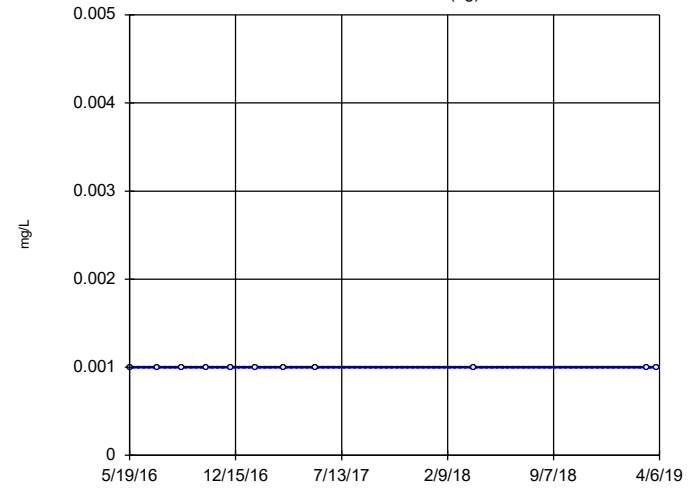


n = 11  
Slope = -0.0001955  
units per year.  
Mann-Kendall  
statistic = -17  
critical = -27  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Cadmium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

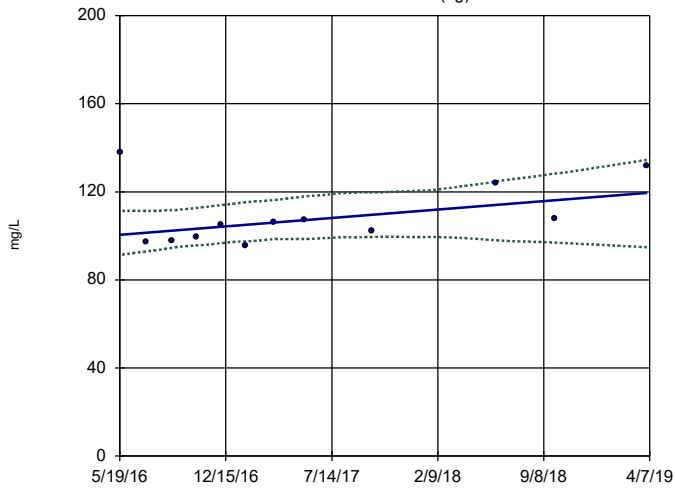


n = 11  
Slope = 0  
units per year.  
Mann-Kendall  
statistic = 0  
critical = 27  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Cadmium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

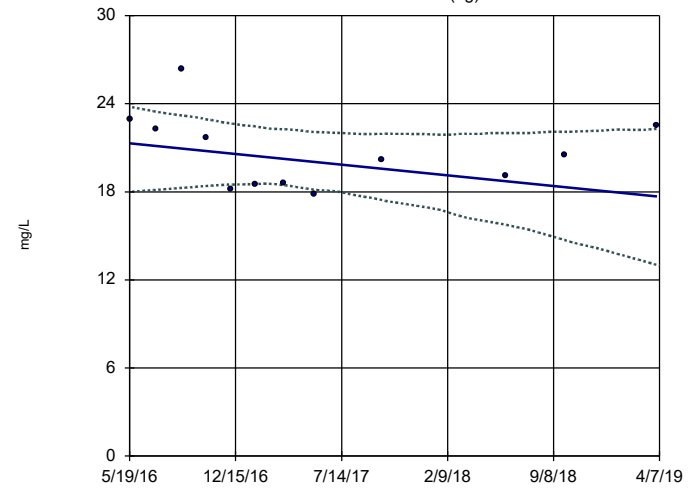


n = 12  
Slope = 6.667  
units per year.  
Mann-Kendall  
statistic = 28  
critical = 30  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Calcium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

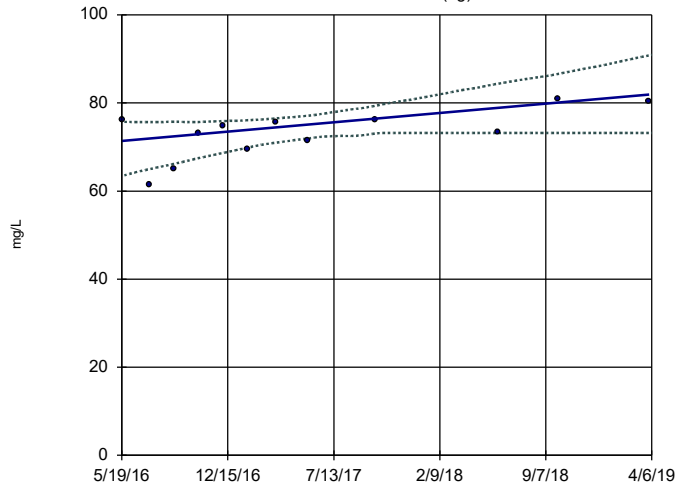
HGWA-2 (bg)



n = 12  
Slope = -1.26  
units per year.  
Mann-Kendall  
statistic = -10  
critical = -30  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

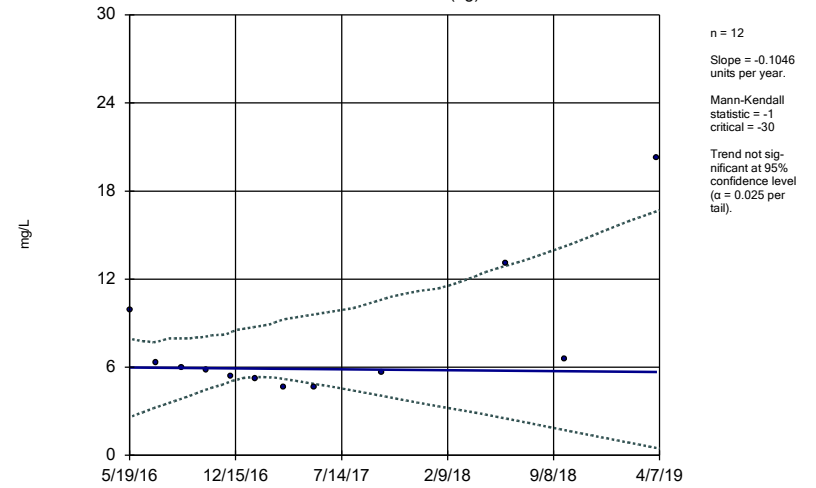
Constituent: Calcium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-3 (bg)



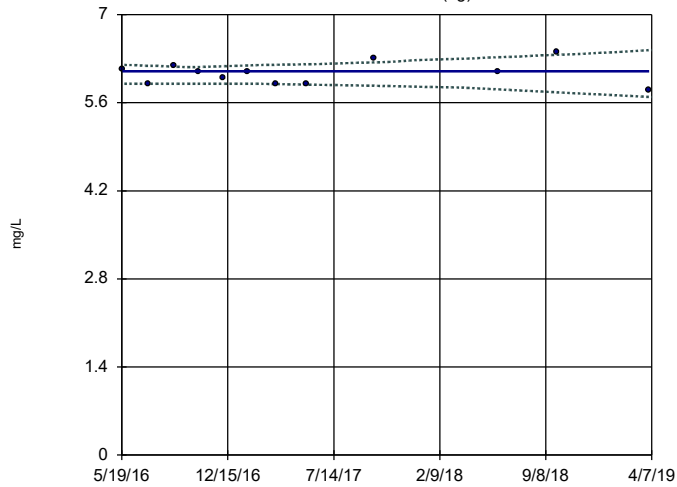
Constituent: Calcium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-1 (bg)



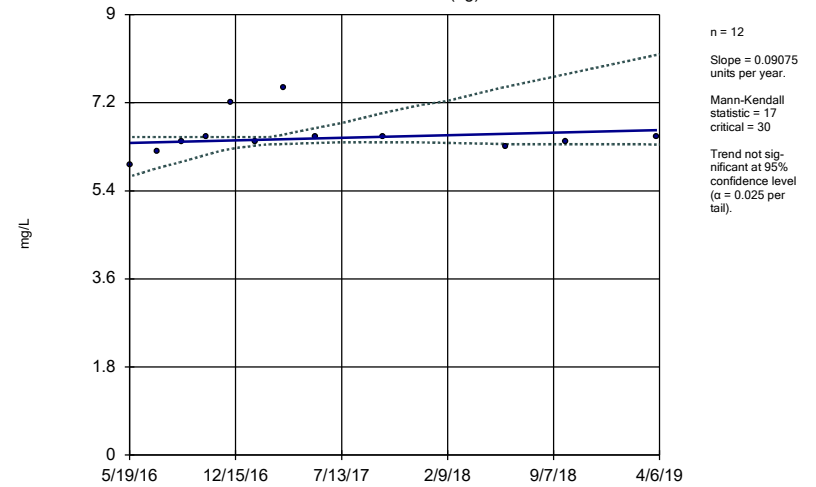
Constituent: Chloride Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-2 (bg)



Constituent: Chloride Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

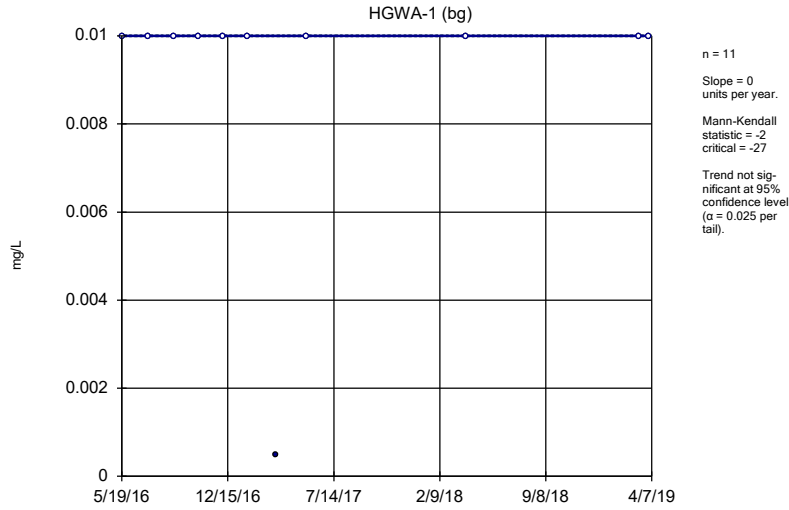
Sen's Slope and 95% Confidence Band  
HGWA-3 (bg)



Constituent: Chloride Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

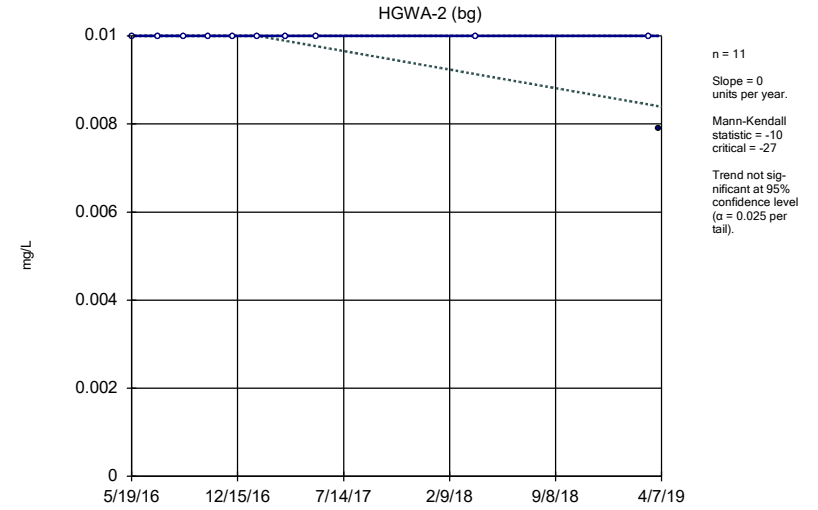


### Sen's Slope and 95% Confidence Band



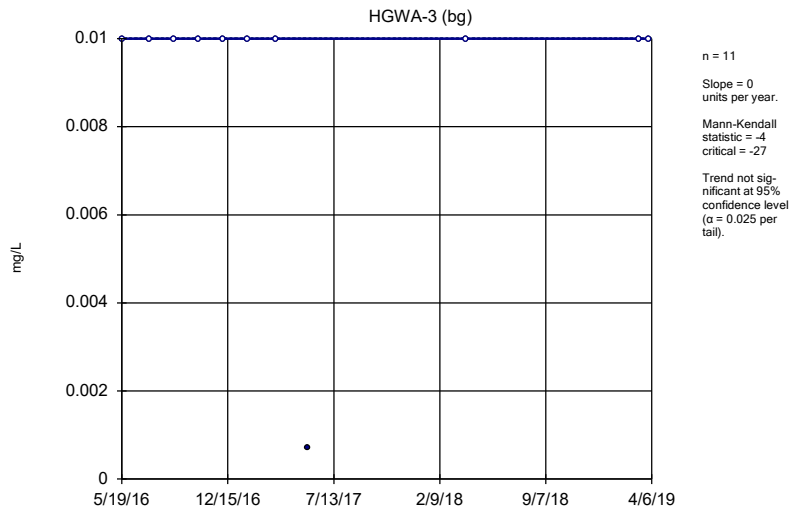
Constituent: Chromium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band



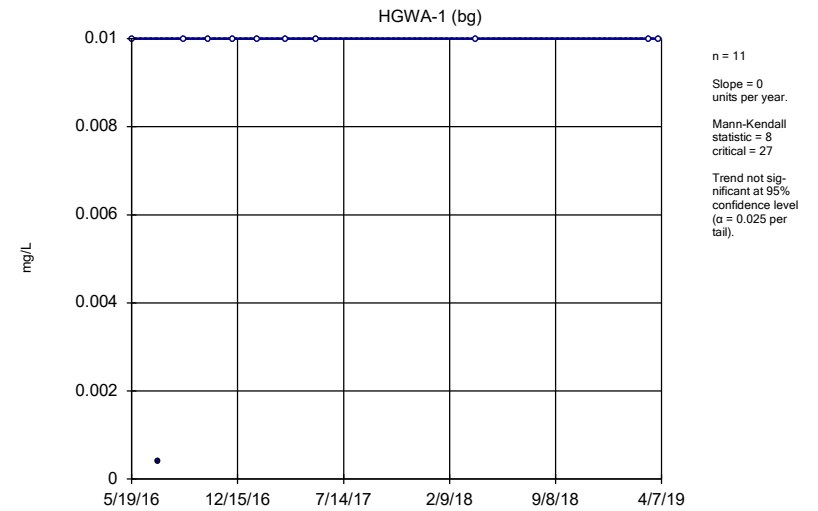
Constituent: Chromium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band



Constituent: Chromium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

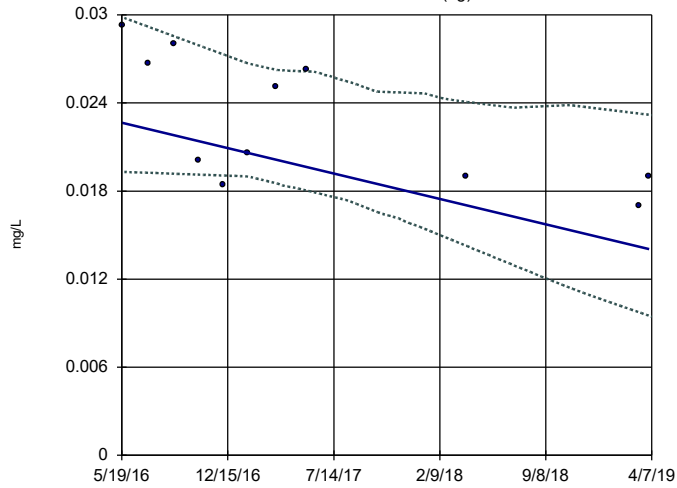
### Sen's Slope and 95% Confidence Band



Constituent: Cobalt Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)



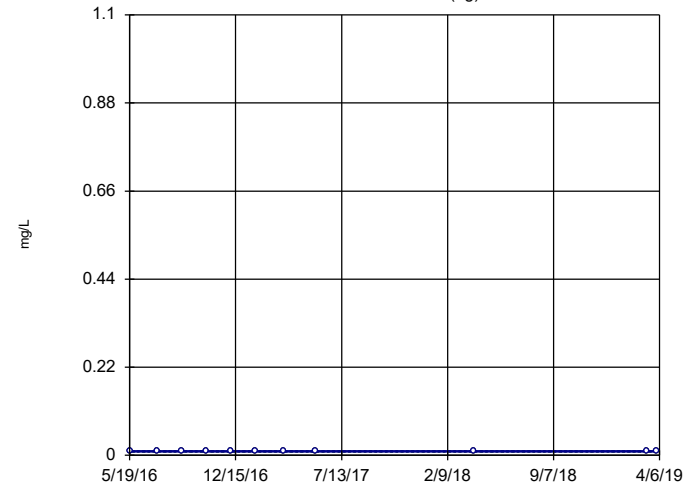
n = 11  
 Slope = -0.003001 units per year.  
 Mann-Kendall statistic = -28  
 critical = -27  
 Decreasing trend significant at 95% confidence level (α = 0.025 per tail).

Constituent: Cobalt Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)



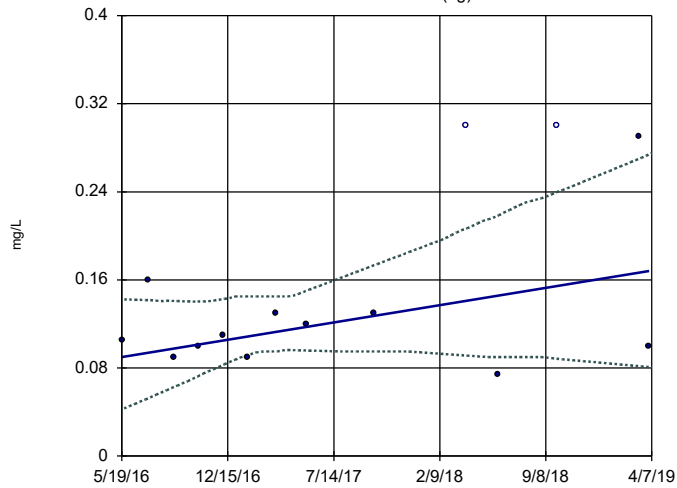
n = 11  
 Slope = 0 units per year.  
 Mann-Kendall statistic = 0  
 critical = 27  
 Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Cobalt Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)



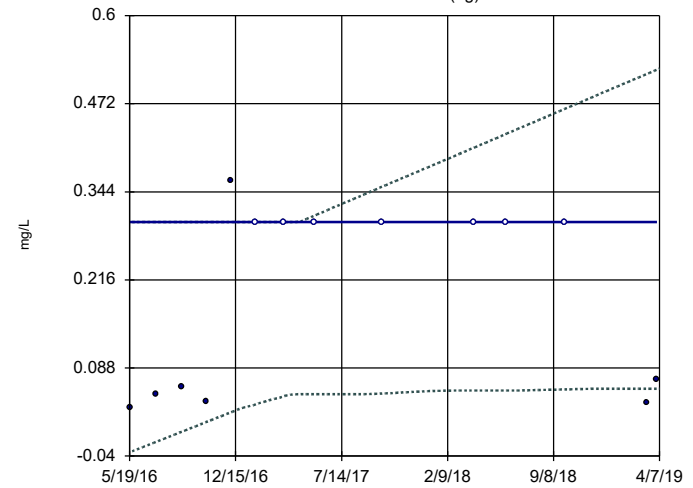
n = 14  
 Slope = 0.02724 units per year.  
 Mann-Kendall statistic = 19  
 critical = 37  
 Trend not significant at 95% confidence level (α = 0.025 per tail).

Constituent: Fluoride Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

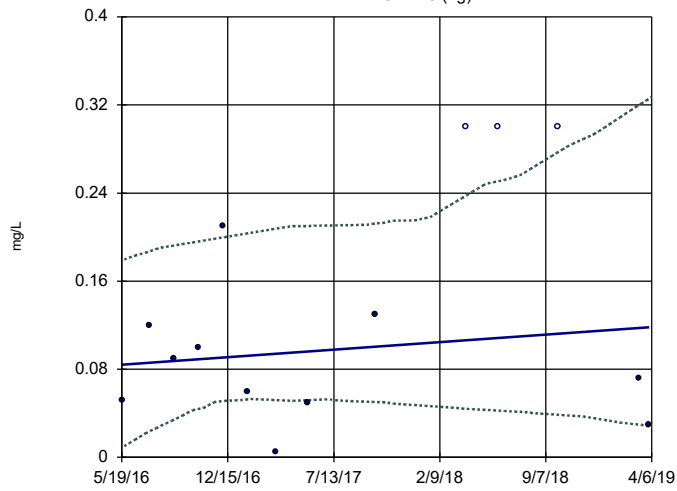
HGWA-2 (bg)



n = 14  
 Slope = 0 units per year.  
 Mann-Kendall statistic = 14  
 critical = 37  
 Trend not significant at 95% confidence level (α = 0.025 per tail).

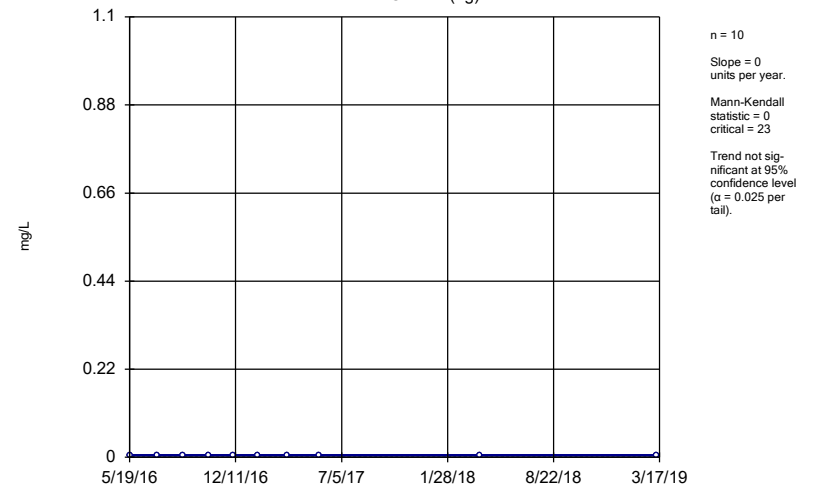
Constituent: Fluoride Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-3 (bg)



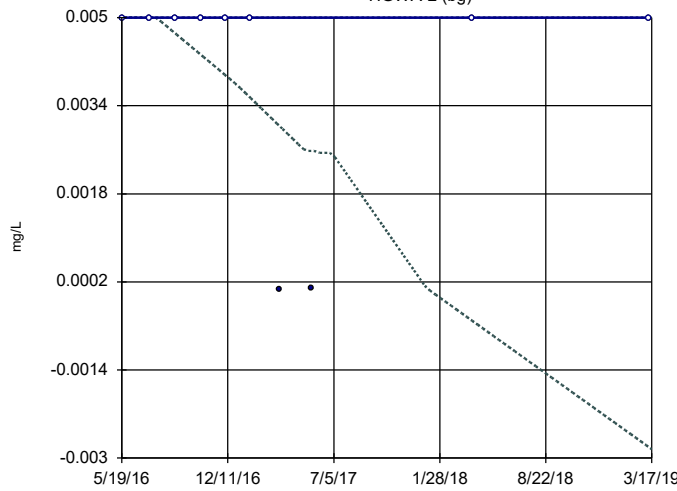
Constituent: Fluoride Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-1 (bg)



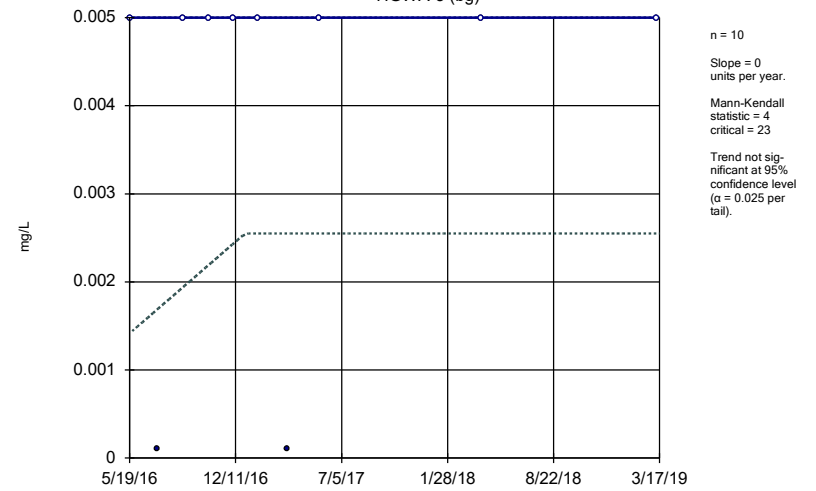
Constituent: Lead Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-2 (bg)



Constituent: Lead Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

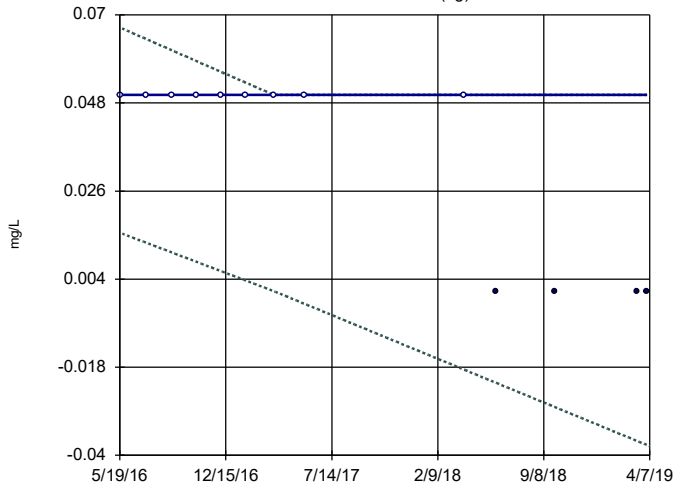
Sen's Slope and 95% Confidence Band  
HGWA-3 (bg)



Constituent: Lead Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

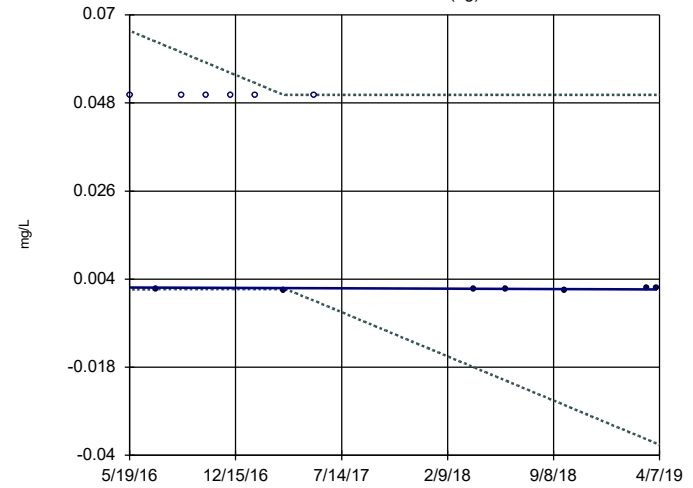


n = 13  
Slope = 0  
units per year.  
Mann-Kendall  
statistic = -35  
critical = -34  
Decreasing trend  
significant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Lithium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

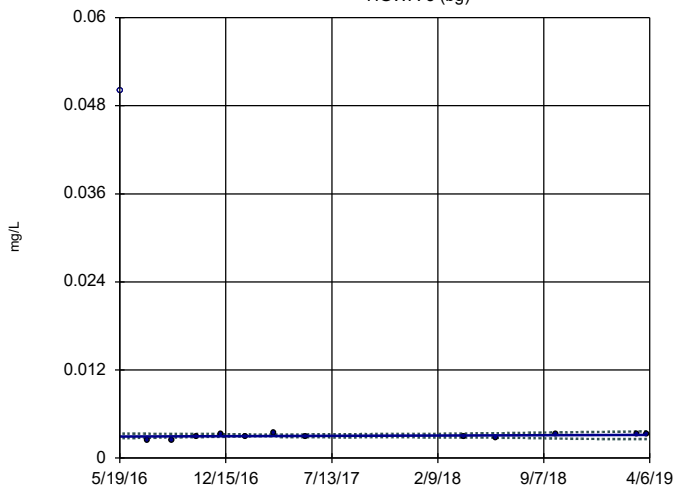


n = 13  
Slope = -0.0001667  
units per year.  
Mann-Kendall  
statistic = -18  
critical = -34  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Lithium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

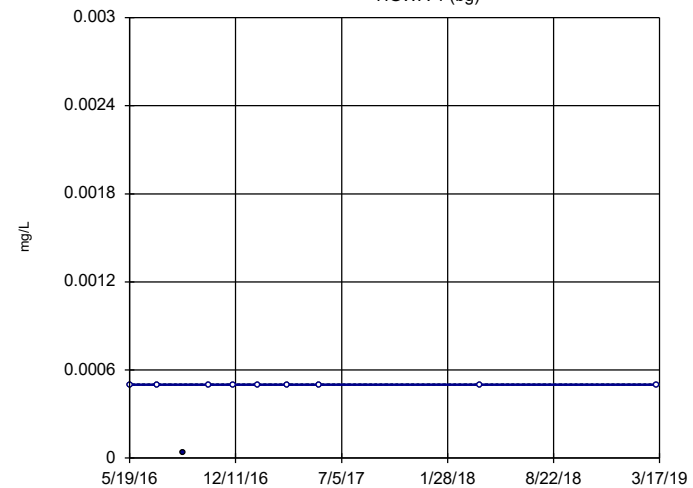


n = 13  
Slope = 0.00008259  
units per year.  
Mann-Kendall  
statistic = 11  
critical = 34  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Lithium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

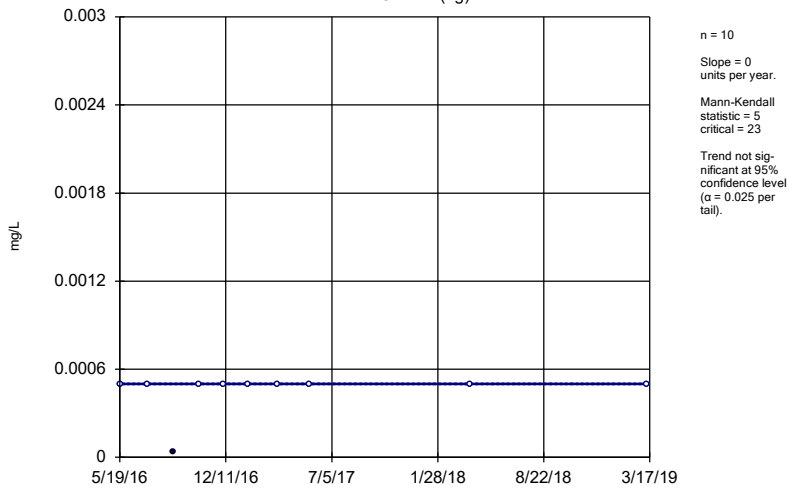
HGWA-1 (bg)



n = 10  
Slope = 0  
units per year.  
Mann-Kendall  
statistic = 5  
critical = 23  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

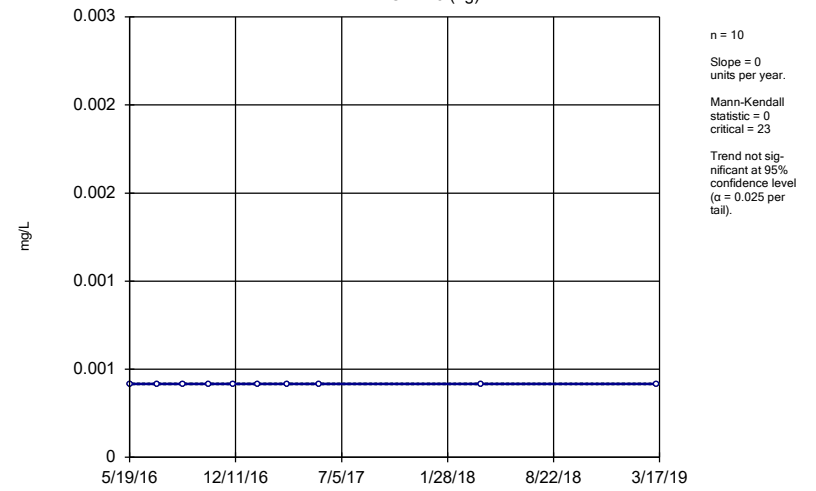
Constituent: Mercury Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-2 (bg)



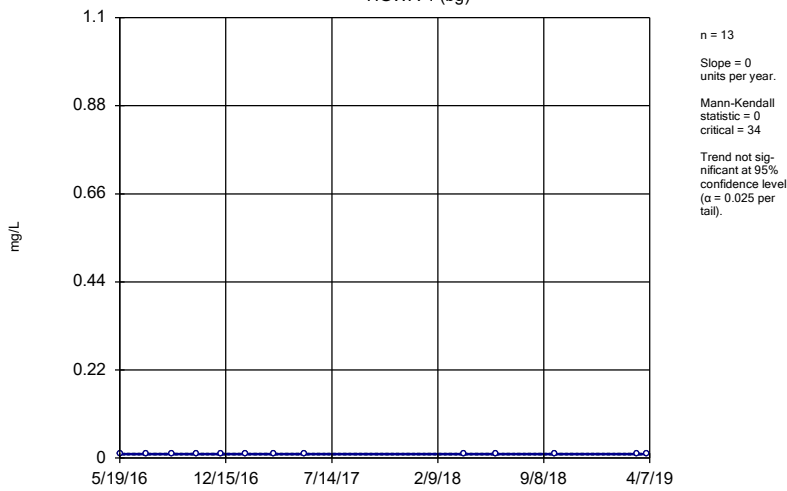
Constituent: Mercury Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-3 (bg)



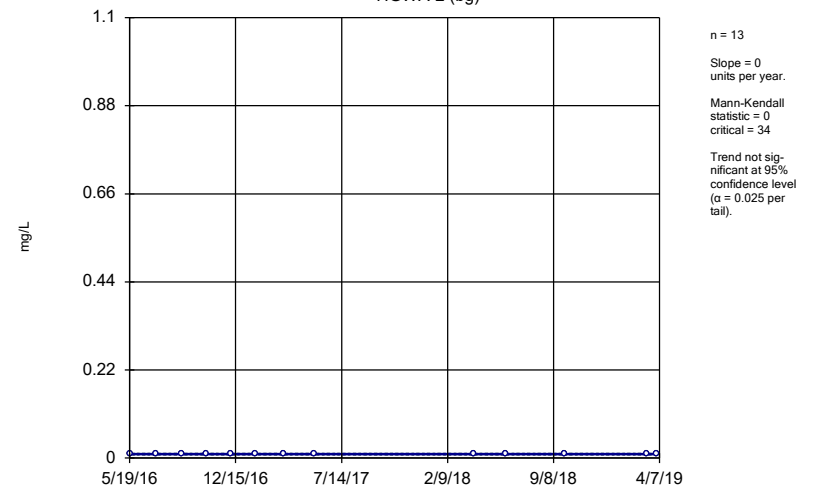
Constituent: Mercury Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-1 (bg)



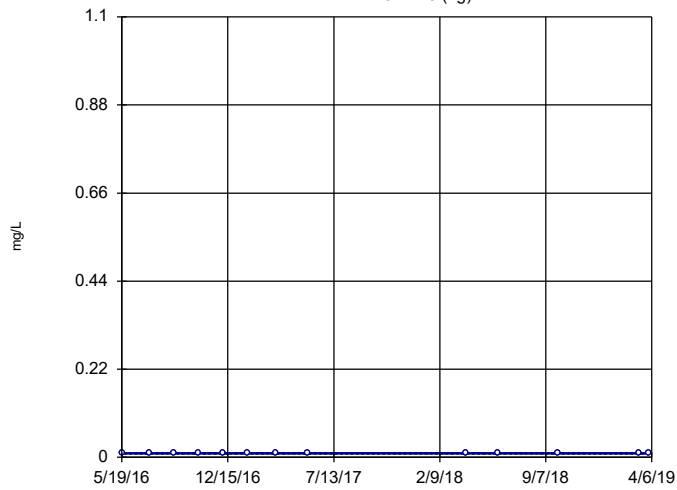
Constituent: Molybdenum Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-2 (bg)



Constituent: Molybdenum Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

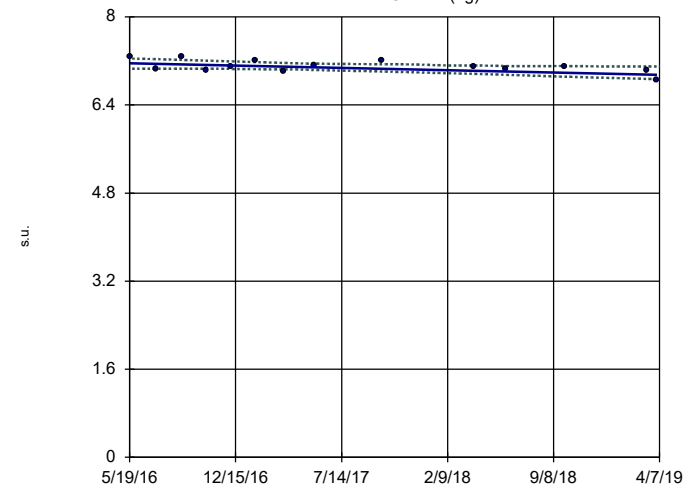
Sen's Slope and 95% Confidence Band  
 HGWA-3 (bg)



n = 13  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = 0  
 critical = 34  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Molybdenum Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

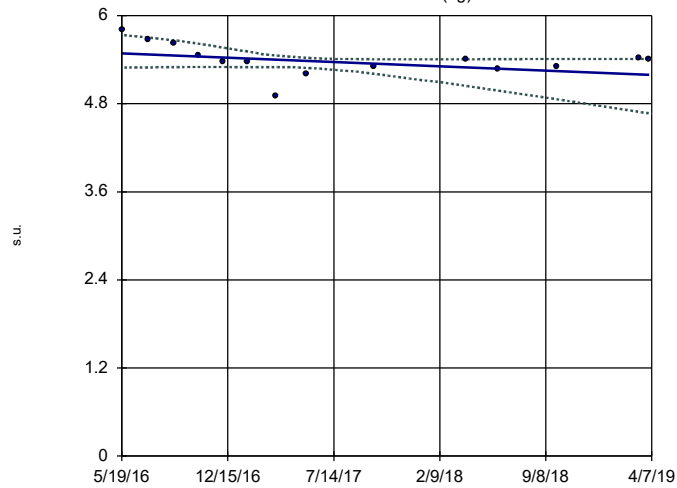
Sen's Slope and 95% Confidence Band  
 HGWA-1 (bg)



n = 14  
 Slope = -0.07213  
 units per year.  
 Mann-Kendall  
 statistic = -31  
 critical = -37  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: pH Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

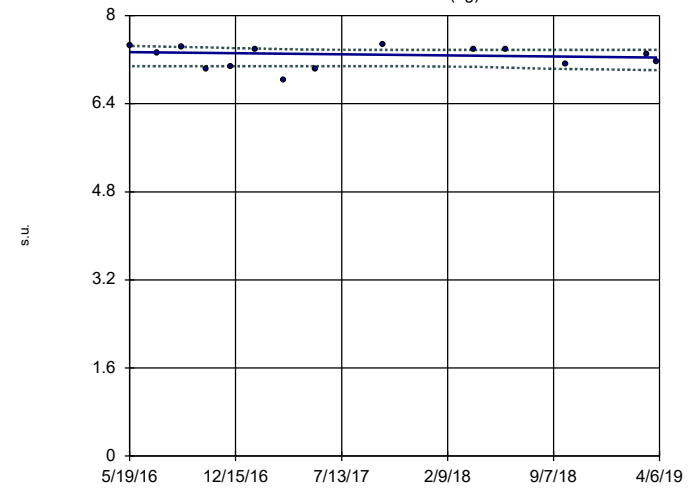
Sen's Slope and 95% Confidence Band  
 HGWA-2 (bg)



n = 14  
 Slope = -0.1014  
 units per year.  
 Mann-Kendall  
 statistic = -31  
 critical = -37  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: pH Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
 HGWA-3 (bg)

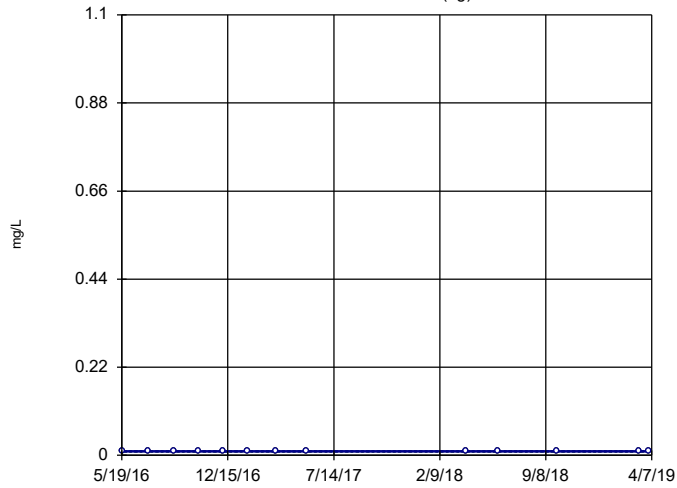


n = 14  
 Slope = -0.03425  
 units per year.  
 Mann-Kendall  
 statistic = -14  
 critical = -37  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: pH Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

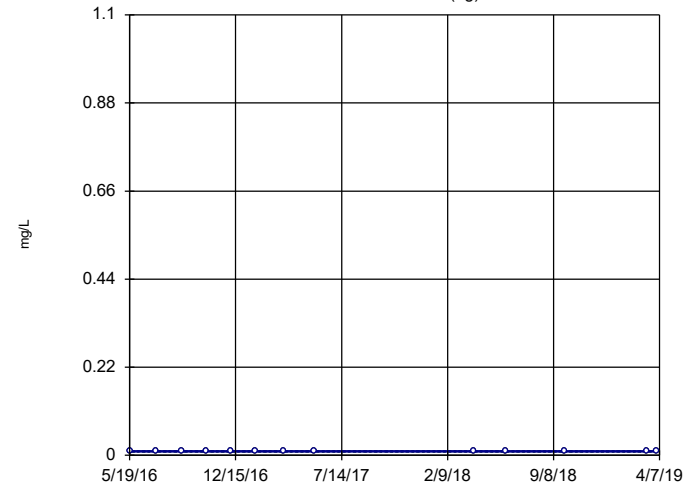


n = 13  
Slope = 0  
units per year.  
Mann-Kendall  
statistic = 0  
critical = 34  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Selenium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

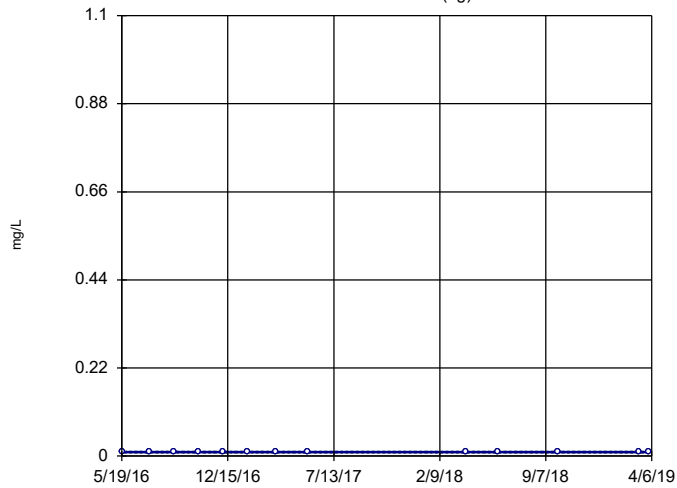


n = 13  
Slope = 0  
units per year.  
Mann-Kendall  
statistic = 0  
critical = 34  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Selenium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

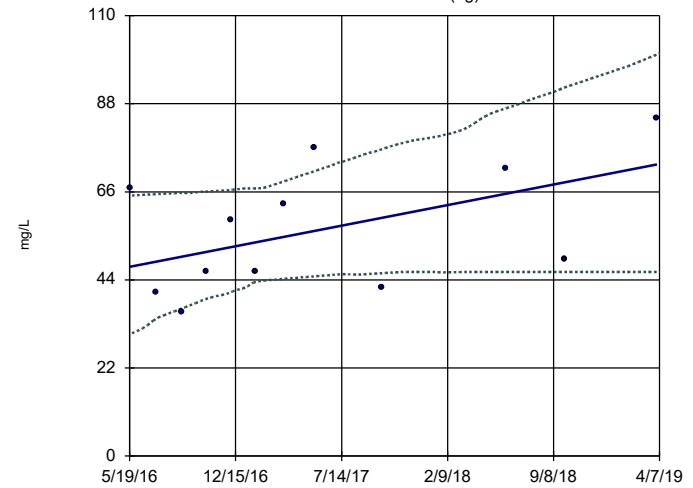


n = 13  
Slope = 0  
units per year.  
Mann-Kendall  
statistic = 0  
critical = 34  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Selenium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

### Sen's Slope and 95% Confidence Band

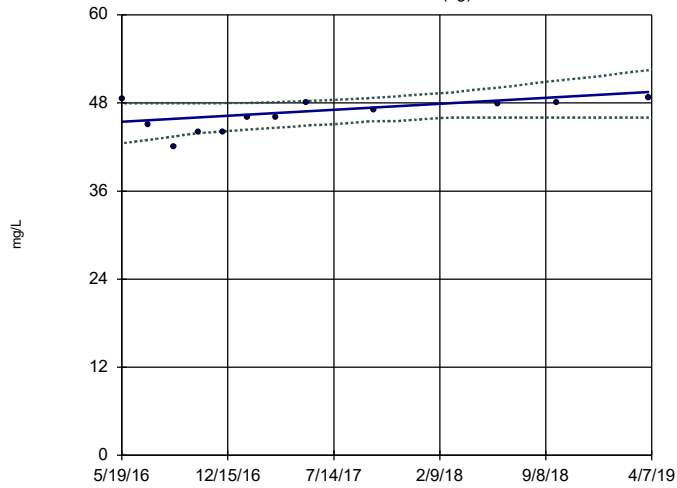
HGWA-1 (bg)



n = 12  
Slope = 8.918  
units per year.  
Mann-Kendall  
statistic = 25  
critical = 30  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

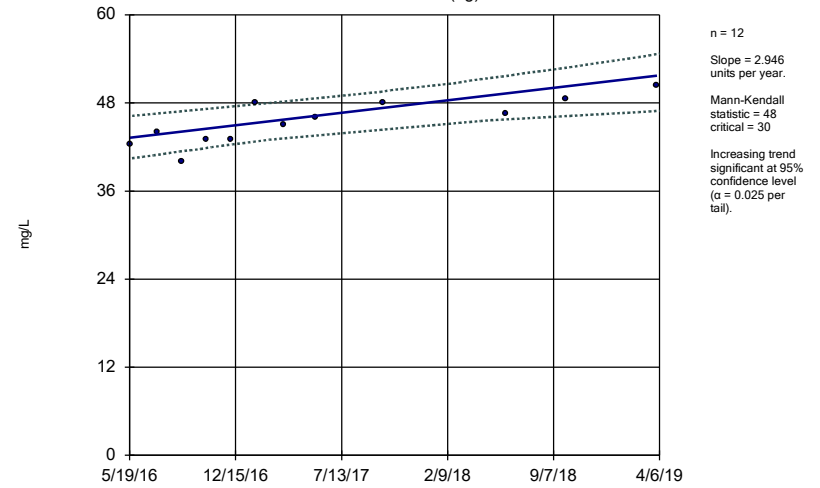
Constituent: Sulfate Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-2 (bg)



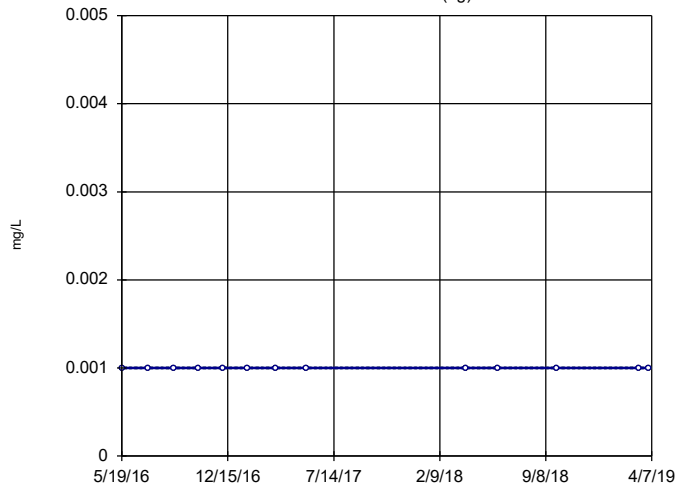
Constituent: Sulfate Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-3 (bg)



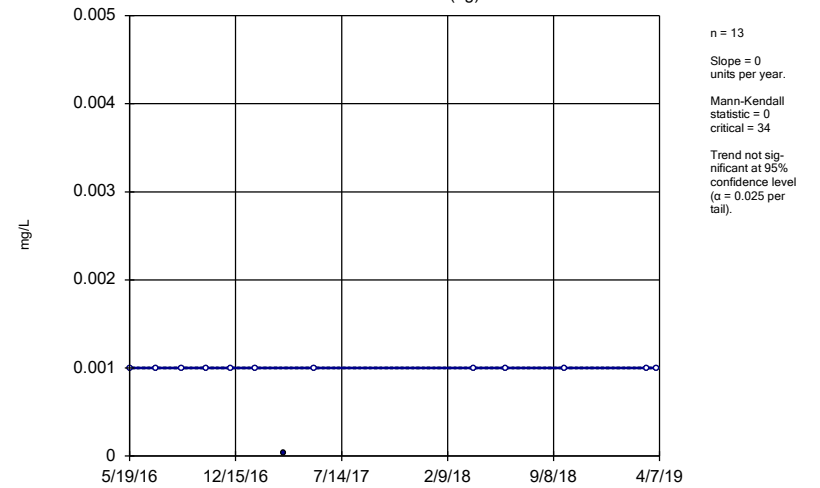
Constituent: Sulfate Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-1 (bg)



Constituent: Thallium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

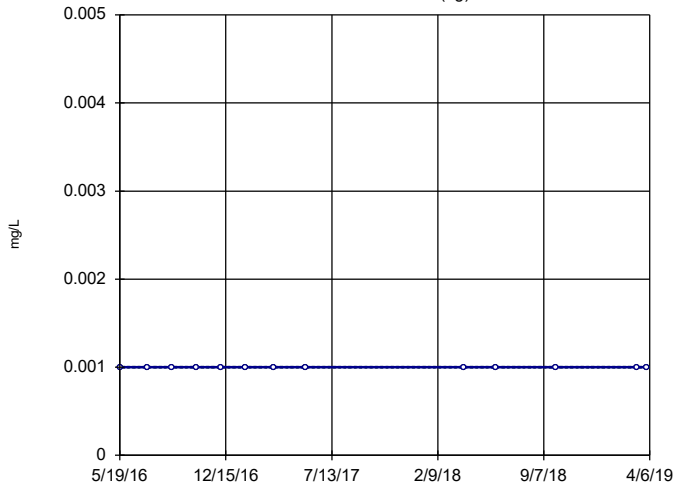
Sen's Slope and 95% Confidence Band  
HGWA-2 (bg)



Constituent: Thallium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1



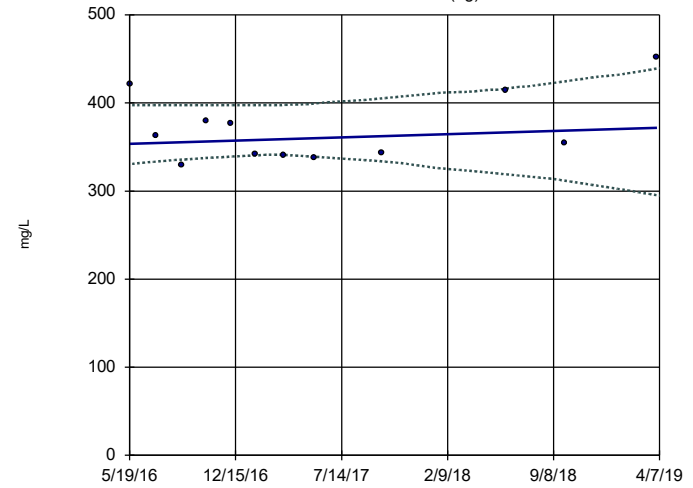
Sen's Slope and 95% Confidence Band  
 HGWA-3 (bg)



n = 13  
 Slope = 0  
 units per year.  
 Mann-Kendall  
 statistic = 0  
 critical = 34  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Thallium Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

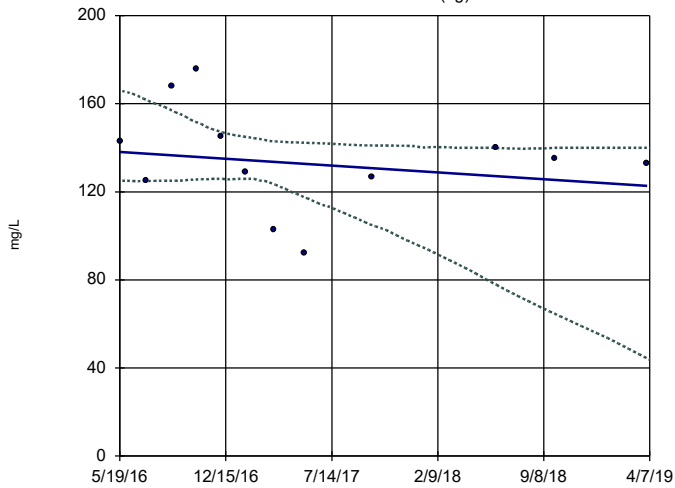
Sen's Slope and 95% Confidence Band  
 HGWA-1 (bg)



n = 12  
 Slope = 6.354  
 units per year.  
 Mann-Kendall  
 statistic = 4  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

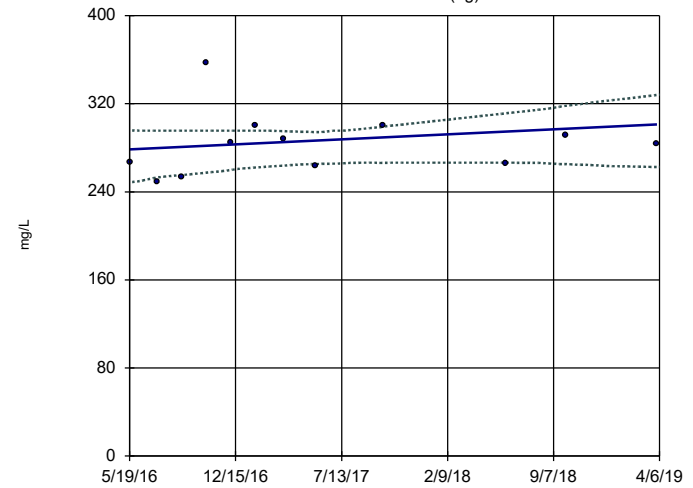
Sen's Slope and 95% Confidence Band  
 HGWA-2 (bg)



n = 12  
 Slope = -5.334  
 units per year.  
 Mann-Kendall  
 statistic = -14  
 critical = -30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

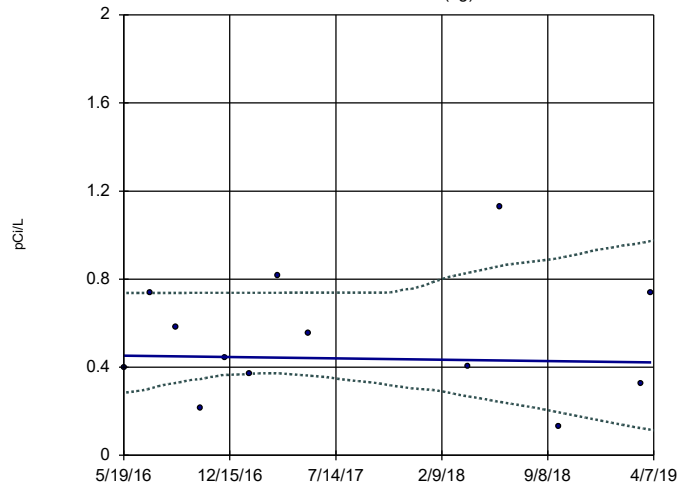
Sen's Slope and 95% Confidence Band  
 HGWA-3 (bg)



n = 12  
 Slope = 7.889  
 units per year.  
 Mann-Kendall  
 statistic = 11  
 critical = 30  
 Trend not sig-  
 nificant at 95%  
 confidence level  
 ( $\alpha = 0.025$  per  
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/21/2019 10:51 PM  
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

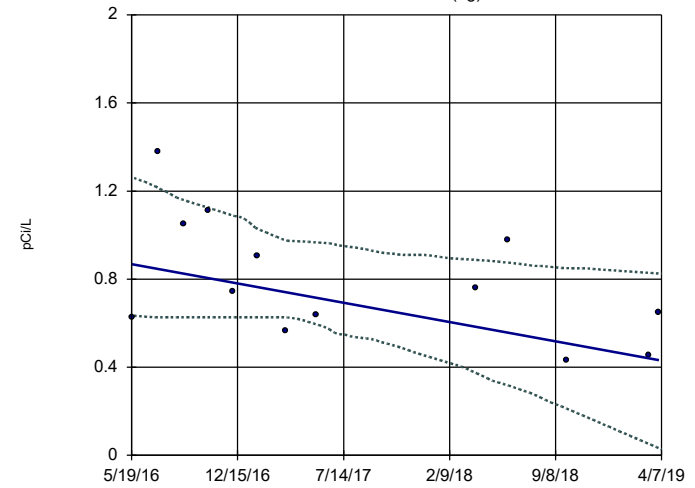
Sen's Slope and 95% Confidence Band  
HGWA-1 (bg)



n = 13  
Slope = -0.01062  
units per year.  
Mann-Kendall  
statistic = 0  
critical = 34  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Total Radium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

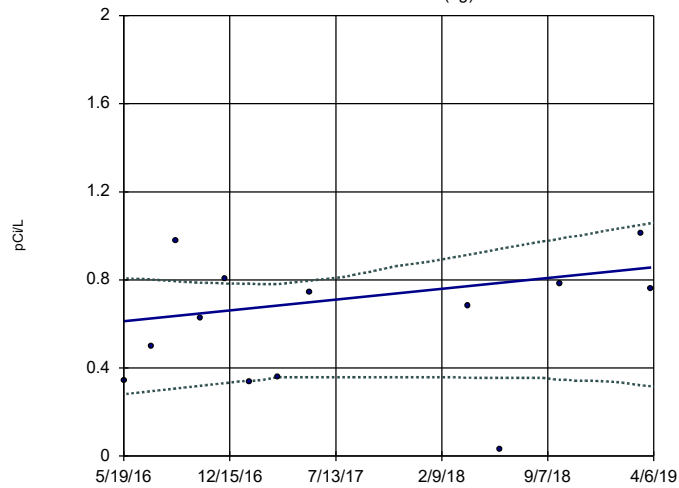
Sen's Slope and 95% Confidence Band  
HGWA-2 (bg)



n = 13  
Slope = -0.152  
units per year.  
Mann-Kendall  
statistic = -28  
critical = -34  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Total Radium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1

Sen's Slope and 95% Confidence Band  
HGWA-3 (bg)



n = 13  
Slope = 0.08502  
units per year.  
Mann-Kendall  
statistic = 16  
critical = 34  
Trend not sig-  
nificant at 95%  
confidence level  
( $\alpha = 0.025$  per  
tail).

Constituent: Total Radium Analysis Run 7/21/2019 10:51 PM  
Plant Hammond Client: Georgia Power Company Data: Hammond AP-1