



Prepared for

Georgia Power Company
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**2019 FIRST SEMIANNUAL
GROUNDWATER MONITORING &
CORRECTIVE ACTION REPORT
GEORGIA POWER COMPANY
PLANT HAMMOND ASH POND 2 (AP-2)**

Prepared by

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Project Number GW6581B

July 2019

CERTIFICATION STATEMENT

This 2019 First Semiannual Groundwater Monitoring & Corrective Action Report, Georgia Power Company - Plant Hammond – Ash Pond 2 (AP-2) 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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The seal is circular with a double border. The outer border contains the text "GEORGIA REGISTERED PROFESSIONAL ENGINEER" and "WHITNEY B. LAW". The inner border contains "No. PE036641". Two stars are positioned on either side of the number.

July 30, 2019
Date

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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
K_h	horizontal hydraulic conductivity
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 2 (AP-2). 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-2 from January through July 2019.

Due to statistically significant levels (SSLs) of cobalt identified in the *2018 Annual Groundwater Monitoring and Corrective Action Report* (Geosyntec, 2019a), GPC initiated an assessment of corrective measures (ACM) program for AP-2 on February 12, 2019. Pursuant to 40 CFR 257.96(b), GPC continues to monitor groundwater associated with AP-2 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 cobalt concentrations are horizontally and vertically 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-2 is a 21-acre surface impoundment. Dewatered ash from AP-2 is excavated and transported to the nearby Huffaker Road facility, a permitted solid waste disposal location owned and operated by GPC.

1.2 Regional Geology & Hydrogeologic Setting

The following section summarizes the geologic and hydrogeologic conditions at AP-2 as described in the *Hydrogeologic Assessment Report – AP-2* (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-2 is underlain by the lower units of the Cambrian age Conasauga Formation, consisting of mostly calcareous shale. Based on review of subsurface investigations at AP-2, the bedrock was identified as predominantly calcareous shale and fissile black shale. AP-2 is underlain primarily by five lithologic units; (i) terrace alluvium, (ii) colluvium, (iii) residuum, (iv) partially weathered shale bedrock, and (v) unweathered shale bedrock.

Based on subsurface investigations, the alluvial deposits generally grade from a silt and silty clay to a clayey sand and silty sand to a sand and gravelly sand at depth. The colluvium consists of silty sand, silty clay with angular and sub-rounded chert fragments, and dolomite, sandstone, and shale fragments. Residual or native soils have been derived from the in-place weathering of the shale bedrock. The residuum is generally described as brown to yellow brown firm clayey silt with weathered shale fragments. The partially weathered shale zone occurs as an intermediate weathering stage between the residuum and the unweathered shale bedrock. The weathered material is described as black to dark gray to dark red hard, fissile shale and claystone. The unweathered shale bedrock was not encountered or directly observed in the historical borings advanced at the Site. However, based on geologic conditions in the region, weathering, fracturing and jointing decreases with depth and the weathered rock material grades into competent bedrock.

1.2.2 Hydrogeologic Setting

The uppermost aquifer at AP-2 is a regional groundwater aquifer that occurs primarily in the residuum and within the weathered and fractured bedrock. Based on observations of residuum soil types and horizontal conductivity values, the movement of groundwater in the soil can be characterized as low-to moderate permeability, porous media flow. The groundwater flow in the shallow underlying bedrock is characterized as fracture flow,

and due to the preponderance of shale beneath AP-2, is expected to be very low permeability. The regional groundwater flow direction is expected to be from north to south; however, the local flow direction beneath AP-2 is predominantly east to west with an additional southwesterly component.

1.3 Groundwater Monitoring Well Network

In accordance with 40 CFR 257.91, a groundwater monitoring system was installed at AP-2 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-2 consists of 11 monitoring wells. The well network was certified by a professional engineer (PE) on October 17, 2017; the certification is maintained in the AP-2 Operating Record.

Three additional groundwater monitoring wells were installed in 2018 to provide additional data to characterize flow conditions downgradient of AP-2 and to horizontally and vertically delineate groundwater quality conditions at AP-2. Well MW-22 was installed for horizontal delineation and wells MW-21D and MW-23D were installed for vertical delineation. These three 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 six piezometers used to gauge groundwater levels in vicinity of AP-2 (MW-8, MW-9, MW-12, MW-16, MW-17, MW-18).

The locations of the compliance monitoring wells, delineation wells, and secondary 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

The monitoring well network at AP-2 has remained unchanged for this 2019 semiannual reporting period.

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-2 wells and piezometers located south and southwest of AP-2 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-2 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 cobalt were identified in AP-2 compliance wells HGWC-15 and HGWC-18. A notification identifying the SSLs was prepared for AP-2 and placed in the AP-2 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-2 on February 12, 2019. An *Assessment of Corrective Measures (ACM) Report* was subsequently prepared for AP-2 (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-2 under the assessment monitoring program as the ACM phase is implemented.

Assessment monitoring events at AP-2 were conducted in March and April 2019. The number of groundwater samples collected for analysis and the dates the samples were collected at AP-2 during this 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.

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-2 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-2 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 568.93 ft AMSL in well MW-22. For the April 2019 event, the groundwater elevations ranged from 585.20 ft AMSL in well HGWA-1 to 566.09 ft AMSL in well MW-22.

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-2 area flows under the influence of topography from higher elevations on the northern and eastern side of the Site in a westerly direction with a southwesterly flow component.

3.2 Groundwater Gradient and Flow Velocity

The groundwater hydraulic gradient within the uppermost aquifer beneath AP-2 was 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**.

The average hydraulic gradient along the westerly flow path lines is 0.013 feet per foot (ft/ft). The approximate horizontal flow velocities associated with AP-2 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 horizontal hydraulic conductivity (K_h) measurements were calculated by ERM (2018) from slug test data collected in a subset of AP-2 wells and piezometers. Results were broadly grouped based on the lithology in which the wells or piezometers were screened. At AP-2, hydraulic conductivities for wells and piezometers screened in the alluvium, colluvium, and residuum averaged 1.65×10^{-4} centimeters per second (cm/sec) [0.47 feet per day (ft/day)]. An effective porosity value of 0.15 was used to represent average lithologic conditions at AP-2, derived based on review of literature, observed site lithology, and professional judgement. Applying these values and the average hydraulic gradient, the average groundwater flow velocity underneath AP-2 was calculated as 0.041 ft/day. 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). Eleven of the 14 wells were purged and sampled using the installed bladder pump with dedicated tubing; the remaining three delineation 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 milligrams per liter (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).

Following purging, 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 in March and April 2019 are provided in **Appendix A**.

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 A**.

The groundwater analytical results from the March and April 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 A**. The current 2019 data indicate that cobalt concentrations in groundwater are horizontally and vertically delineated to below its groundwater protection standard (GWPS) and contained within the property boundary.

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 A** 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[™] groundwater statistical software was used to perform the statistical analyses. Sanitas[™] is a decision-support software package, that incorporates the statistical tests required of Subtitle C and D facilities by USEPA regulations 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[™] 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 B-1, Appendix B**.

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 B**.

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 B**.

Based on review of the Appendix III statistical analysis presented in **Table B-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[™] outputs for the April 2019 assessment event is provided in **Appendix B**. Based on the statistical analysis, cobalt was determined to exceed both federal and state-based GWPS in wells HGWC-15 and HGWC-18, which is 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-2 in accordance with the assessment monitoring program regulations of 40 CFR 257.95 while ACM efforts are evaluated to address cobalt SSLs at AP-2.

6.0 CONCLUSIONS & FUTURE ACTIONS

This *2019 First Semiannual Groundwater Monitoring & Corrective Action Report* for Plant Hammond AP-2 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-2 confirmed the continued presence of SSLs of cobalt in AP-2 compliance monitoring wells HGWC-15 and HGWC-18. The current groundwater data indicate that cobalt concentrations above GWPS are horizontally and vertically delineated and contained within the property boundary. Groundwater in the vicinity of AP-2 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

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TABLES

Table 1
Monitoring Well Network Summary
Plant Hammond AP-2, Floyd County, Georgia

Well ID	Hydraulic Location	Installation Date	Northing ⁽¹⁾	Easting ⁽¹⁾	Top of Casing Elevation (ft AMSL)	Top of Screen Elevation (ft AMSL)	Bottom of Screen Elevation (ft AMSL)	Well Depth (ft BTOC) ⁽²⁾	Screen Interval Length
<i>Compliance Monitoring Well</i>									
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
HGWA-4	Upgradient	12/3/2014	1549932.76	1939386.17	588.30	572.90	562.90	25.80	10
HGWA-5	Upgradient	12/10/2015	1548632.65	1937183.80	583.52	565.57	555.57	27.95	10
HGWA-6	Upgradient	12/11/2015	1548635.66	1937177.39	583.72	543.20	533.20	50.52	10
HGWC-14	Downgradient	10/16/2014	1548005.66	1938402.95	598.10	565.50	555.50	43.00	10
HGWC-15	Downgradient	10/20/2014	1547882.88	1937851.74	582.50	554.90	544.90	38.00	10
HGWC-16	Downgradient	10/21/2014	1548217.01	1937539.49	581.10	558.40	548.40	33.10	10
HGWC-17	Downgradient	10/22/2014	1548457.24	1937538.67	585.40	568.00	558.00	27.80	10
HGWC-18	Downgradient	10/22/2014	1548827.89	1937559.01	585.30	568.00	558.00	27.80	10
<i>Groundwater Level Monitoring Piezometer</i>									
MW-8	Downgradient	10/29/2014	1548174.39	1940014.36	587.37	565.50	555.50	32.27	10
MW-9	Downgradient	10/29/2014	1548136.52	1938918.59	591.67	569.90	559.90	32.17	10
MW-12	Downgradient	10/21/2014	1547862.70	1937521.75	584.33	556.90	546.90	37.83	10
MW-16	Downgradient	10/27/2014	1549110.61	1937941.31	575.22	563.20	553.20	22.42	10
MW-17	Downgradient	10/28/2014	1549168.15	1938344.56	587.67	569.90	559.90	28.17	10
MW-18	Downgradient	10/29/2014	1548988.42	1938713.61	593.07	571.90	561.90	31.57	10
<i>Delineation Monitoring Well</i>									
MW-21D	Downgradient	11/19/2018	1548814.63	1937556.86	581.49	539.89	529.89	51.80	10
MW-22	Downgradient	11/15/2018	1547856.03	1937832.07	578.67	551.09	541.09	37.58	10
MW-23D	Downgradient	11/15/2018	1547877.73	1937844.17	584.00	531.21	521.21	62.79	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-2, Floyd County, Georgia

Well ID	Hydraulic Location	Mar 11-15, 2019	Apr 1-8, 2019	Status of Monitoring Well
Purpose of Sampling Event:		App. IV Scan	Assessment	
<i>Compliance Monitoring Well</i>				
HGWA-1	Upgradient	S01	A01	Assessment
HGWA-2	Upgradient	S01	A01	Assessment
HGWA-3	Upgradient	S01	A01	Assessment
HGWA-4	Upgradient	S01	A01	Assessment
HGWA-5	Upgradient	S01	A01	Assessment
HGWA-6	Upgradient	S01	A01	Assessment
HGWC-14	Downgradient	S01	A01	Assessment
HGWC-15	Downgradient	S01	A01	Assessment
HGWC-16	Downgradient	S01	A01	Assessment
HGWC-17	Downgradient	S01	A01	Assessment
HGWC-18	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-2, 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)
<i>Compliance Monitoring Well Network</i>					
HGWA-1	595.50	6.74	588.76	10.3	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
HGWA-4	588.30	3.97	584.33	5.61	582.69
HGWA-5	583.52	3.23	580.29	4.64	578.88
HGWA-6	583.72	2.43	581.29	3.95	579.77
HGWC-14	598.10	23.23	574.87	24.35	573.75
HGWC-15	582.50	12.65	569.85	15.24	567.26
HGWC-16	581.10	7.7	573.40	10.46	570.64
HGWC-17	585.40	14.15	571.25	16.93	568.47
HGWC-18	585.30	14.65	570.65	16.66	568.64
<i>Groundwater Level Monitoring Piezometer</i>					
MW-8	587.37	15.92	571.45	17.84	569.53
MW-9	591.67	11.27	580.40	11.97	579.70
MW-12	584.33	13.93	570.40	17.13	567.20
MW-16	575.22	4.5	570.72	6.4	568.82
MW-17	587.67	7.4	580.27	9.28	578.39
MW-18	593.07	8.93	584.14	9.71	583.36
<i>Groundwater Level Monitoring Piezometer</i>					
MW-21D	581.49	13.77	567.72	15.68	565.81
MW-22	578.67	9.74	568.93	12.58	566.09
MW-23D	584.00	12	572.00	15.33	568.67
<i>Surface Water Gauge (ft AMSL)</i>					
Coosa River	--	--	571.00	--	565.00

Notes:

-- = not measured or 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-2, Floyd County, Georgia

Flow Path Direction ⁽¹⁾	Mar 11, 2019				Apr 1, 2019				Average $\Delta h/\Delta l$ (ft/ft)
	h_1 (ft)	h_2 (ft)	Δl (ft)	$\Delta h/\Delta l$ (ft/ft)	h_1 (ft)	h_2 (ft)	Δl (ft)	$\Delta h/\Delta l$ (ft/ft)	
Westerly Flow Path	582	572	775	0.013	580	570	865	0.012	0.013

Flow Path Direction ⁽¹⁾	K (ft/d)	n	Averaged for 2019	
			$\Delta h/\Delta l$ (ft/ft)	V (ft/d) ⁽²⁾
Westerly Flow Path	0.47	0.15	0.013	0.041

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

Δl = distance between location 1 and 2

n = effective porosity

V = groundwater flow velocity

(1) Flow path direction relative to the orientation of AP-2 and illustrated on Figures 3 and 4 of associated report.

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

Table 5
Summary of Groundwater Analytical Data
Plant Hammond AP-2, Floyd County, Georgia

Well ID:		HGWA-1	HGWA-1	HGWA-2	HGWA-2	HGWA-3	HGWA-3	HGWA-4	HGWA-4	HGWA-5	HGWA-5	HGWA-6	HGWA-6	HGWC-14	HGWC-14	HGWC-15	HGWC-15
Sample Date:		3/12/2019	4/2/2019	3/12/2019	4/2/2019	3/12/2019	4/1/2019	3/11/2019	4/2/2019	3/12/2019	4/2/2019	3/12/2019	4/2/2019	3/14/2019	4/3/2019	3/14/2019	4/4/2019
Parameter ^(1,2,3)																	
APPENDIX III	Boron*	--	ND (0.016 J)	--	ND (0.034 J)	--	ND (0.0066 J)	--	ND (0.010 J)	--	ND (0.0052 J)	--	ND (0.013 J)	--	12.5	--	2.3
	Calcium*	--	132	--	ND (22.5 J)	--	80.5	--	76.0	--	26.3	--	49.7	--	606	--	214
	Chloride*	--	20.3	--	5.8	--	6.5	--	4.4	--	1.7	--	1.6	--	227	--	138
	Fluoride*	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 (0.035 J)	ND	ND (0.079 J)	ND (0.12 J)	ND (0.061 J)	ND	ND (0.24 J)	0.66	ND	ND (0.066 J)
	pH*	7.03	6.86	5.42	5.41	7.29	7.16	6.27	6.66	6.42	6.38	7.50	7.46	4.66	4.67	5.71	5.66
	Sulfate*	--	84.3	--	48.7	--	50.4	--	4.9	--	23.8	--	35.5	--	1520	--	528
	TDS*	--	452	--	133	--	284	--	230	--	144	--	238	--	2310	--	926
APPENDIX IV	Antimony	ND	ND	ND	ND	ND	ND	ND	--	ND	--	ND	--	ND	--	ND	--
	Arsenic	ND	ND	ND (0.00069 J)	ND	ND (0.00063 J)	ND	ND	ND	ND	ND	ND	ND	ND (0.0029 J)	ND	ND	ND (0.00017 J)
	Barium	0.042	0.040	0.12	0.13	0.13	0.13	0.029	0.030	0.050	0.044	0.20	0.19	0.019	0.016	0.021	0.018
	Beryllium	ND	ND	ND (0.00017 J)	ND (0.00015 J)	ND	ND	ND (0.000050 J)	ND	ND	ND	ND	ND	ND (0.00043 J)	ND (0.00027 J)	ND	ND
	Cadmium	ND	ND	ND (0.00013 J)	ND (0.00015 J)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.000079 J)	0.0024	0.0018
	Chromium	ND	ND	ND	ND (0.0079 J)	ND	ND	ND	0.019	ND	ND	ND	ND	ND	ND	ND	ND
	Cobalt ⁺	ND	ND	0.017	0.019	ND	ND	ND	ND	ND (0.00099 J)	ND (0.0012 J)	ND	ND	0.025	0.021	0.038	0.035
	Fluoride	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 (0.035 J)	ND	ND (0.079 J)	ND (0.12 J)	ND (0.061 J)	ND	ND (0.24 J)	0.66	ND	ND (0.066 J)
	Lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.0014 J)	ND (0.0012 J)	ND	ND (0.00072 J)
	Lithium	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	ND (0.00098 J)	ND (0.0032 J)	ND (0.0028 J)	ND (0.011 J)	ND (0.0095 J)	ND	ND	ND	ND (0.0009 J)
	Mercury	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
	Molybdenum	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Comb. Radium 226/228	0.327 U	0.739 U	0.454 U	0.651 U	1.01 U	0.760 U	0.781 U	0.494 U	0.833 U	1.07 U	0.982 U	0.621 U	1.50	1.43 U	0.462 U	0.512 U
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.0048 J)	ND (0.00091 J)	ND	ND (0.00021 J)	
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND (0.00028 J)	ND (0.00028 J)	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, the Appendix IV parameter 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.

Table 5
Summary of Groundwater Analytical Data
Plant Hammond AP-2, Floyd County, Georgia

Well ID:		HGWC-16	HGWC-16	HGWC-17	HGWC-17	HGWC-18	HGWC-18	MW-21D ⁽⁴⁾	MW-21D	MW-22 ⁽⁴⁾	MW-22	MW-23D ⁽⁴⁾	MW-23D
Sample Date:		3/15/2019	4/4/2019	3/15/2019	4/5/2019	3/14/2019	4/5/2019	3/15/2019	4/4/2019	3/15/2019	4/5/2019	3/14/2019	4/5/2019
Parameter ^(1,2,3)													
APPENDIX III	Boron*	--	2.1	--	5.9	--	6.4	--	5.2	--	2.1	--	3.0
	Calcium*	--	196	--	340	--	400	--	427	--	178	--	352
	Chloride*	--	76.8	--	195	--	217	--	299	--	131	--	195
	Fluoride*	ND	ND	ND	ND (0.16 J)	0.88	0.37	ND	ND (0.10 J)	ND	ND (0.13 J)	ND	ND (0.14 J)
	pH*	7.09	6.95	6.32	6.26	4.39	4.50	6.81	6.70	5.95	5.96	6.68	6.66
	Sulfate*	--	251	--	642	--	1030	--	915	--	392	--	585
	TDS*	--	704	--	1260	--	1610	--	1800	--	890	--	1400
APPENDIX IV	Antimony	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
	Arsenic	ND	ND (0.00010 J)	ND	ND	ND (0.0036 J)	ND (0.0015 J)	ND	ND (0.00019 J)	ND	ND	ND	ND
	Barium	0.13	0.11	0.029	0.022	0.029	0.021	0.090	0.075	0.044	0.036	0.082	0.061
	Beryllium	ND	ND	ND	ND	ND (0.0026 J)	ND (0.0022 J)	ND	ND	ND	ND	ND	ND
	Cadmium	ND	ND	ND	ND	0.0019	0.0017	ND	ND	ND (0.00082 J)	ND (0.00064 J)	ND	ND
	Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Cobalt ⁺	ND	ND (0.00028 J)	0.017	0.016	0.16	0.14	ND	ND (0.00034 J)	0.028	0.022	ND (0.0013 J)	ND (0.0012 J)
	Fluoride	ND	ND	ND	ND (0.16 J)	0.88	0.37	ND	ND (0.10 J)	ND	ND (0.13 J)	ND	ND (0.14 J)
	Lead	ND	ND (0.00016 J)	ND	ND (0.000076 J)	ND (0.0015 J)	ND (0.0015 J)	ND	ND	ND	ND	ND	ND
	Lithium	ND (0.0041 J)	ND (0.0032 J)	ND (0.0011 J)	ND (0.00074 J)	ND (0.011 J)	ND (0.0084 J)	ND (0.025 J)	ND (0.019 J)	ND (0.0020 J)	ND (0.0013 J)	ND (0.0028 J)	ND (0.0021 J)
	Mercury	ND	--	ND	--	ND	--	ND	--	ND	--	ND	--
	Molybdenum	ND	ND	ND	ND	ND	ND	0.045	0.033	ND	ND (0.00013 J)	ND	ND (0.0014 J)
	Comb. Radium 226/228	0.591 U	0.960 U	0.917 U	1.07 U	1.37 U	2.22	0.972 U	0.791 U	0.977	1.06 U	0.872 U	0.932 U
	Selenium	ND	ND (0.000089 J)	ND	ND (0.000093 J)	0.016	ND (0.0018 J)	ND	ND	ND	ND	ND	ND
Thallium	ND	ND	ND	ND (0.00013 J)	ND	ND (0.00014 J)	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, the Appendix IV parameter 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.

Table 6
Summary of Background Concentrations and Groundwater Protection Standards
Plant Hammond AP-2, Floyd County, Georgia

Analyte	Units	Background ⁽¹⁾	Federal GWPS ⁽²⁾	State GWPS ⁽³⁾
Antimony	mg/L	0.003	0.006	0.006
Arsenic	mg/L	0.005	0.01	0.01
Barium	mg/L	0.21	2	2
Beryllium	mg/L	0.003	0.004	0.004
Cadmium	mg/L	0.001	0.005	0.005
Chromium	mg/L	0.019	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 ⁽⁴⁾	0.005
Lithium	mg/L	Federal 0.025 ⁽⁵⁾ 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	2.42	5	5

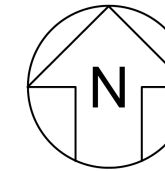
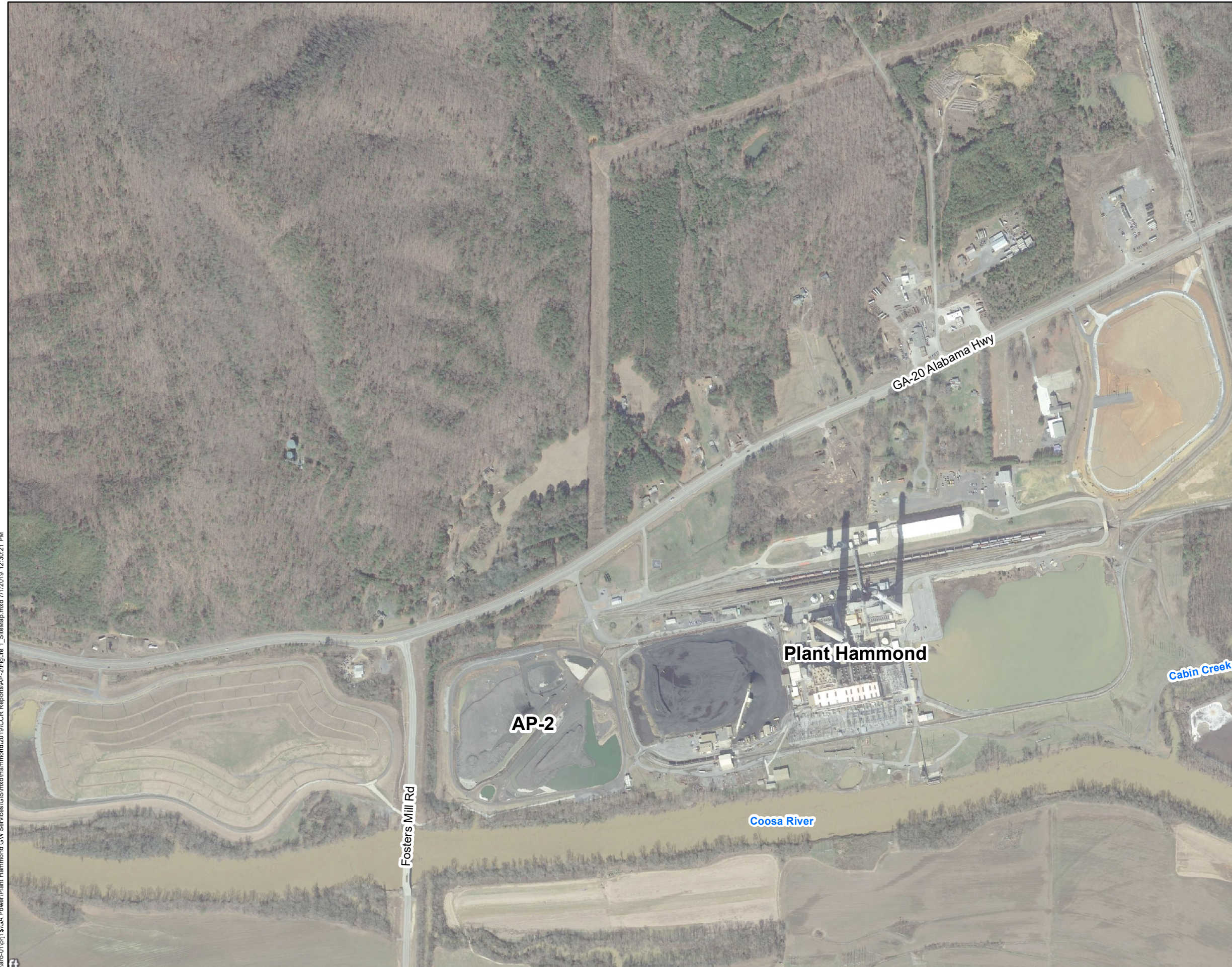
Notes:

"mg/L" = milligrams per liter

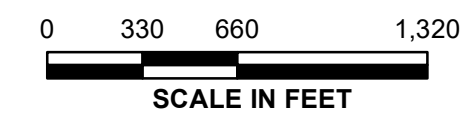
"pCi/L" = picocuries per liter

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



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



SITE LOCATION MAP

GEORGIA POWER COMPANY
PLANT HAMMOND AP-2
FLOYD COUNTY, GEORGIA

Prepared For:  Georgia Power

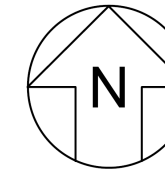
Prepared By:  Geosyntec
consultants

KENNESAW, GA




JULY 2019

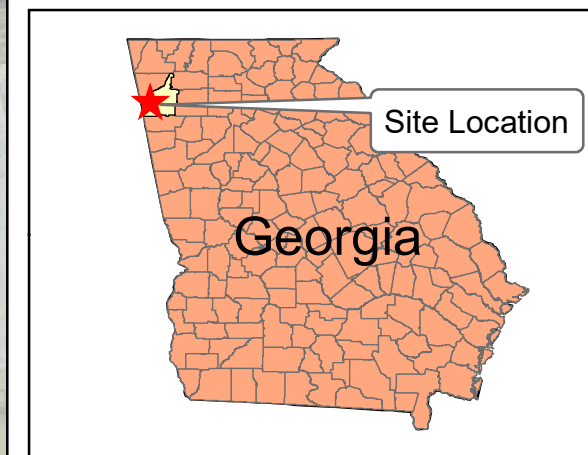
**FIGURE
1**

\\arc-01\proj1\GA Power\Plant Hammond\GIS\mxd\Hammond\2019\CCR Reports\AP-2\Figure_1_SiteMap.mxd 7/1/2019 12:30:21 PM

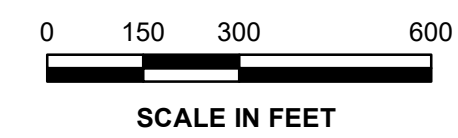


LEGEND

-  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-2
ROME, FLOYD COUNTY, GEORGIA

Prepared For:  Georgia Power

Prepared By:  Geosyntec
consultants

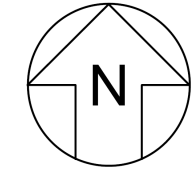
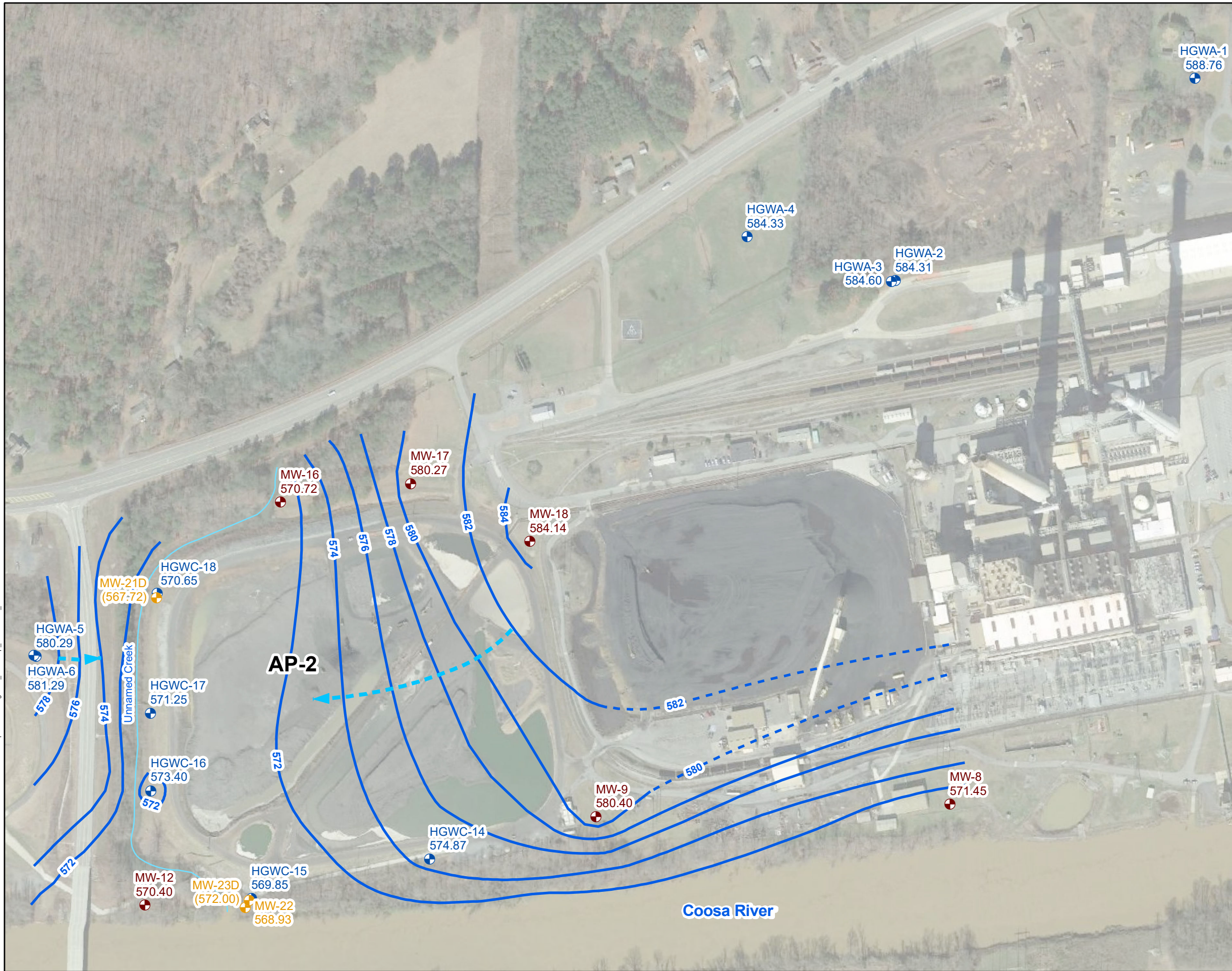
KENNESAW, GA

JULY 2019

**FIGURE
2**

\\ars-01\proj1\GA Power\Plant Hammond\GIS\mxd\Hammond\2019\CCR Reports\AP-2\Figure 2 WellMap.mxd 7/1/2019 12:32:40 PM

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LEGEND

- Compliance Monitoring Well
- Delineation Monitoring Well
- Groundwater Level Monitoring Piezometer
- Groundwater Elevation Iso-Contour (inferred where dashed)
- Approximate Groundwater Flow Direction



Notes:

1. Water level elevation recorded on March 11, 2019. Elevation provided in feet above mean sea level (ft AMSL) in North American Vertical Datum (NAVD) 88.
2. Water elevations in parentheses were not used in development of groundwater contours due to wells being screened at a different elevation in the formation/aquifer.
3. Aerial photograph source: Google Earth Pro, February 2018.



SCALE IN FEET

POTENTIOMETRIC SURFACE CONTOUR MAP - MARCH 2019

GEORGIA POWER COMPANY
PLANT HAMMOND AP-2
ROME, FLOYD COUNTY, GEORGIA

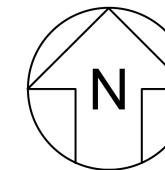
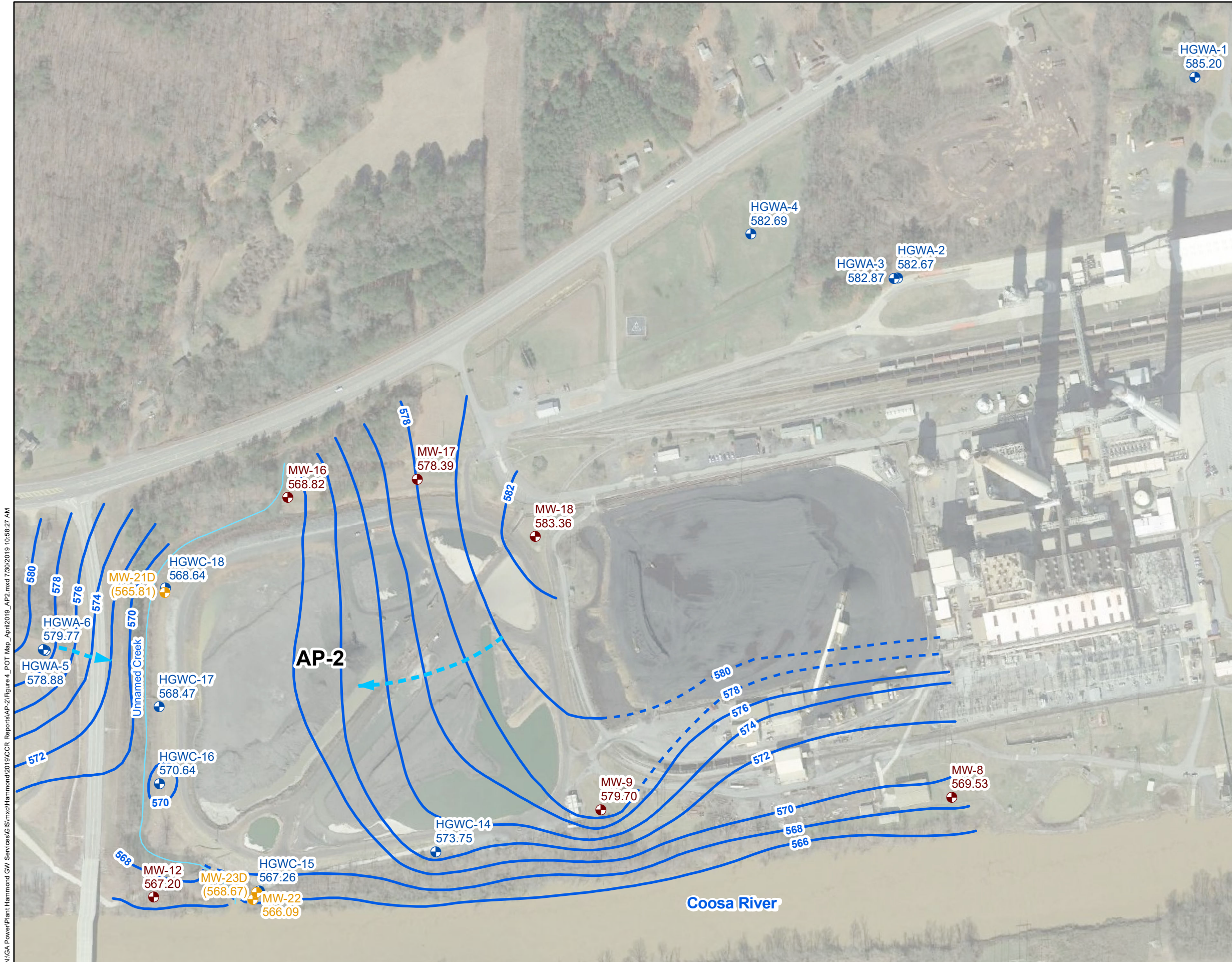
Prepared For: Georgia Power

Prepared By: Geosyntec consultants

KENNESAW, GA

JULY 2019

FIGURE 3



LEGEND

- Compliance Monitoring Well
- Delineation Monitoring Well
- Groundwater Level Monitoring Piezometer
- 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 elevations in parentheses were not used in development of groundwater contours due to wells being screened at a different elevation in the formation/aquifer.
3. Aerial photograph source: Google Earth Pro, February 2018.



SCALE IN FEET

**POTENTIOMETRIC SURFACE CONTOUR
MAP - APRIL 2019**

GEORGIA POWER COMPANY
PLANT HAMMOND AP-2
ROME, FLOYD COUNTY, GEORGIA

Prepared For: Georgia Power

Prepared By: Geosyntec
consultants

**FIGURE
4**

KENNESAW, GA

JULY 2019

APPENDIX A

Laboratory Analytical and Field Sampling Reports

Appendix A1: Laboratory Analytical Data Packages and
Data Validation Reports

Appendix A2: Field Sampling Reports

APPENDIX A1

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

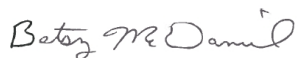
RE: Project: Plant Hammond
Pace Project No.: 2616036

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

REPORT OF LABORATORY ANALYSIS

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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
6020B MET ICPMS		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	0.042	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	0.0010J	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	
7470 Mercury		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	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.29J	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			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	03/15/19 12:41	03/18/19 17:46	7440-36-0		
Arsenic	0.00069J	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 17:46	7440-38-2	B	
Barium	0.12	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 17:46	7440-39-3		
Beryllium	0.00017J	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 17:46	7440-41-7		
Cadmium	0.00013J	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	0.017	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	0.0018J	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		
7470 Mercury		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		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	0.038J	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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		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	0.00063J	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 17:51	7440-38-2	B
Barium	0.13	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	0.0032J	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	
7470 Mercury		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	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.072J	mg/L	0.30	0.029	1		03/16/19 07:36	16984-48-8	

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616036

Sample: FB-01		Lab ID: 2616036004		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
6020B MET ICPMS		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	
7470 Mercury		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	
300.0 IC Anions 28 Days		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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		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	
7470 Mercury		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	
300.0 IC Anions 28 Days		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	Max RPD	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 Result						
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.	MS Result							
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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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 Spike Conc.	MSD Result						
Antimony	mg/L	ND	0.1	0.11	0.1	0.11	106	107	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.11	0.1	0.10	106	103	75-125	3	20	
Barium	mg/L	0.20	0.1	0.29	0.1	0.30	95	103	75-125	2	20	
Beryllium	mg/L	ND	0.1	0.097	0.1	0.094	97	94	75-125	3	20	
Cadmium	mg/L	ND	0.1	0.10	0.1	0.10	104	101	75-125	3	20	

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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	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.

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	

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.: 2616036

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

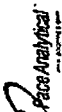
Project: Plant Hammond

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: Jolu 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	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				H2SO4	HNO3	HCl	NaOH								Na2S2O3
1	Drinking Water	DW	3/12/19 14:10	3/12/19 14:31	DM	DM	4						Y	Y	Y	Y	Y		
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

Requested Client Information:

Company: Georgia Power - Coal Combustion Residuals

Address: 2480 Marner Road

Atlanta, GA 30339

Email: jabraham@southermco.com

Phone: (404)506-7239 Fax: []

Requested Due Date: Standard TAT

Section B

Report To: John Abraham / Lauren Petty

Copy To: Geosyntec

Purchase Order #: SCS 0348608

Project Name: Plant Hammond

Project #: []

Section C

Invoice Information:

Attention: scsinvoices@southermco.com

Company Name: []

Address: []

Pace Order: []

Pace Project Manager: betsey.mcdaniel@pacelabs.com

Pace Profile #: 327.4 (AP) or 328.5 (Hurl)

State/Location: GA

Regulatory Agency: []

ITEM #	MATRIX CODE (see valid codes to left)			SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED			# OF CONTAINERS	Preservatives Unpreserved H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol Other	Requested Analysis/Filteract (Y/N)			Residual Chlorine (Y/N)		
	MATRIX	DATE	TIME		START	END	DATE			TIME	Sample Temp at Collection	App. IV Metals		Fluoride by 300.0	Radium 226/228
1	DW	03/12/19	10:29					41			Y	Y	N	N	
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

H6WA-2

GW 03/12/19

NO# 2616036

PN: BM Due Date: 03/20/19

CLIENT: GAPower-CCR

REQUISITIONER BY AFFILIATION		DATE	TIME	ACCEPTED BY AFFILIATION		DATE	TIME	SAMPLE CONDITIONS						
Grant Walker / Geosyntec		03/12/19	1950	Media M / molan		3/12/19	1950	Sealed	Custody	Ice	Received on	(Y/N)	Samples	(Y/N)
Media M / molan		3/12/17	2205	Grant Walker		3/12/19	2205	Cooler						
Grant Walker / Geosyntec		3/13/19	943	Pace		3/15/19	0943							
				DA LMAN		3/13/19	1400							

SAMPLER NAME AND SIGNATURE: *Grant Walker*

PRINT Name of SAMPLER: Grant Walker

SIGNATURE of SAMPLER: *Grant Walker*

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
 Requested Client Information:
 Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Marner Road, Atlanta, GA 30339
 Email: labraham@southemco.com
 Phone: (404)506-7239
 Requested Due Date: STANDARD

Section B
 Required Project Information:
 Report To: Jitu Abraham / Lauren Peby
 Copy To: Geosyntec
 Purchase Order #: SCS103-48606
 Project Name: Plant Hammond
 Project #: TAI

Section C
 Invoice Information:
 Attention: SCSinvoices@southemco.com
 Company Name: SCS
 Address: State
 Pace Quote: GA
 Pace Project Manager: beisy.mcdaniel@paceciabs.com
 Pace Profile #: 327.4 (API) or 328.5 (Huf)

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	Preservatives	Analyzes Test	Requested Analysis Filtered (Y/N)				Residual Chlorine (Y/N)
			START DATE	END DATE						Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo) Substrate by 300.0	App. IV Metals	
1	Drinking Water	DW	3/12/19 10:00	3/12/19 10:00	G	W1G	4	H2SO4	Y	Y	Y	Y	Y	Y
2	Waste Water	WW	3/12/19 19:15	3/12/19 19:15	G	W1G	4	Unpreserved	Y	Y	Y	Y	Y	Y
3	Waste Water	WW	3/12/19 19:50	3/12/19 19:50	G	W1G	4	H2SO4	Y	Y	Y	Y	Y	Y
4	Product	P						HCl						
5	Soil/Sediment	SL						HNO3						
6	Oil	OL						NaOH						
7	Wipe	WI						Na2S2O3						
8	Air	AR						Methanol						
9	Other	OT						Other						
10	Tissue	TS												
11														
12														

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

RELINQUISHED 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 Intact (Y/N)
<u>Medha Mahajan</u>	3/12/19	19:50	<u>Medha Mahajan</u>	3/12/19	19:50						
<u>Geosyntec</u>	3/12/19	20:05	<u>Geosyntec</u>	3/12/19	20:05						
<u>Geosyntec</u>	3/13/19	9:43	<u>Medha Mahajan</u>	3/13/19	14:00	2.5 P					

SAMPLER NAME AND SIGNATURE: Medha Mahajan
 PRINT Name of SAMPLER: Medha Mahajan
 SIGNATURE of SAMPLER: Medha Mahajan
 DATE Signed: 03/12/19



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

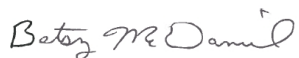
RE: Project: Plant Hammond
Pace Project No.: 2616037

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

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.: 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	0.263 ± 0.240 (0.452) C:82% T:NA	pCi/L	03/25/19 08:34	13982-63-3	
Radium-228	EPA 9320	0.0637 ± 0.372 (0.848) C:72% T:83%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	0.327 ± 0.612 (1.30)	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	0.228 ± 0.190 (0.332) C:94% T:NA	pCi/L	03/25/19 08:34	13982-63-3	
Radium-228	EPA 9320	0.226 ± 0.318 (0.681) C:74% T:89%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	0.454 ± 0.508 (1.01)	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	0.387 ± 0.232 (0.327) C:90% T:NA	pCi/L	03/25/19 08:33	13982-63-3	
Radium-228	EPA 9320	0.626 ± 0.376 (0.699) C:78% T:84%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	1.01 ± 0.608 (1.03)	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	0.248 ± 0.204 (0.334) C:79% T:NA	pCi/L	03/25/19 08:34	13982-63-3	
Radium-228	EPA 9320	0.111 ± 0.352 (0.792) C:76% T:82%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	0.359 ± 0.556 (1.13)	pCi/L	03/27/19 11:32	7440-14-4	

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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	0.160 ± 0.197 (0.405) C:82% T:NA	pCi/L	03/25/19 08:31	13982-63-3	
Radium-228	EPA 9320	0.386 ± 0.383 (0.790) C:76% T:78%	pCi/L	03/26/19 12:54	15262-20-1	
Total Radium	Total Radium Calculation	0.546 ± 0.580 (1.20)	pCi/L	03/27/19 11:32	7440-14-4	

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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.

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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.

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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		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Joju Abraham / Lauren Petty	Attention: SCSinvoices@southernco.com	Company Name:	SCS Invoices	
Address: 2480 Maner Road	Copy To: Geosyntec	Purchase Order #: SCS10948606	Address:	Paco Project Manager: betsy.mcdonnet@pacoelabs.com	
Atlanta, GA 30339	Project Name: Plant Hammond	Project #:	Paco Profile #: 327.4 (AP) or 328.5 (Hudf)	States / Location: GA	
Email: jabraham@southernco.com	Requested Due Date: Standard	Regulatory Agency:			

ITEM #	MATRIX	CODE	COLLECTED		DATE	TIME	SAMPLER NAME AND SIGNATURE	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Custody (Y/N)	Sealed Cooler (Y/N)	Samples Intact (Y/N)
			START	END													
1	Drinking Water	DW	3/12/19	1410	3/12/19	1431	DM	3/12/19	2205	3/12/19	2205						
2	Waste Water	WW															
3	Process Water	P															
4	Sludge	SL															
5	Wipe	WP															
6	Air	AR															
7	Other	OT															
8	Tissue	TS															
9																	
10																	
11																	
12																	

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

Sample IDs must be unique

ANALYSES TEST
App. IV Metals
Fluoride by 300.0
Radium 226/228
Metals (As, B, Co, Mo)
Sulfate by 300.0

PRESERVATIVES
H2SO4
HNO3
HCl
NaOH
Na2S2O3
Methanol
Other

Requested Analysis Filtered (Y/N)

OF CONTAINERS
Unpreserved

SAMPLE TEMP AT COLLECTION

MATRIX CODE (see valid codes to left)
SAMPLE TYPE (G-GRAB C-COMP)

NO# : 2616037



ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Custody (Y/N)	Sealed Cooler (Y/N)	Samples Intact (Y/N)
	Noelia Mustkus	3/12/19	2205	DM	3/12/19	2205					
	ETS Low/Coast, etc	3/13/19	943	DM	3/13/19	944					
				DM	3/13/19	1400					

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

DATE Signed: **3/12/19**



CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 2 of 3
we
13/019

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

Section B
Required Project Information:
 Report To: Joy 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: deisy.mcdaniel@pacelabs.com
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)
 Regulatory Agency: GA
 State / Location:

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Requested/Analysis Filtered (Y/N)	Metals (As, B, Co, Mo)	Sulfate by 300.0	Residual Chlorine (Y/N)
			START	END									
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

ANALYSES TEST
 Y N
 App. IV Metals
 Fluoride by 300.0
 Radium 226/228
 Metals (As, B, Co, Mo)
 Sulfate by 300.0

ACCEPTED BY / AFFILIATION
 DATE TIME
 3/12/19 1950
 3/12/19 2205
 3/13/19 943
 3/13/19 1400

TEMP IN C
 25.7
 25.7
 25.7
 25.7

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

ADDITIONAL COMMENTS
 Grant Walker / Geosyntec
 Maella Myrberg
 Grant Walker / Geosyntec

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Grant Walker
 SIGNATURE of SAMPLER: Grant Walker

DATE SIGNED: 03/12/19

NO#: 2616037

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

Handwritten: GN 03/12/19

Handwritten: HWA-2

Handwritten: Standard TAT

Handwritten: Grant Walker / Geosyntec

Handwritten: Maella Myrberg

Handwritten: Grant Walker / Geosyntec



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
 Client Information:
 Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Manner Road
 Atlanta, GA 30339
 Phone: (404)506-7239
 Fax: (404)506-7239
 Email: labraham@southernco.com
 Requested Due Date: 5/14/19

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

Section C
 Invoice Information:
 Attention: SCSinvoicing@southernco.com
 Company Name: Southern Company
 Address: 190 Peachtree Street, N.E.
 Atlanta, GA 30333
 Pace Quote: 327.4 (AP) or 328.5 (Huff)
 Pace Project Manager: debby.moderate@poco-labs.com
 Regulatory Agency: GA

ITEM #	MATRIX	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES						Analytical 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	Drinking Water	DW	5/12/19	5/14/19	25	4										
2	Waste Water	WW	5/14/19	5/14/19	25	4										
3	Product	P	5/12/19	5/14/19	25	4										
4	Soil/Sed	SL	5/12/19	5/14/19	25	4										
5	Oil	OL	5/12/19	5/14/19	25	4										
6	Wipe	WP	5/12/19	5/14/19	25	4										
7	Air	AR	5/12/19	5/14/19	25	4										
8	Other	OT	5/12/19	5/14/19	25	4										
9	Tissue	TS	5/12/19	5/14/19	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 Johnson	3/12/19	1930	Media Johnson	3/12/19	1950	Sealed, Cooled, Custody
Media Johnson	3/14/19	2205	Media Johnson	3/14/19	2205	Sealed, Cooled, Custody
Media Johnson	3/13/19	943	Media Johnson	3/13/19	944	Sealed, Cooled, Custody
Media Johnson	3/13/19	943	Media Johnson	3/13/19	944	Sealed, Cooled, Custody

TEMP in C: 25 F

Received on: 03/12/19

Ice (Y/N):
 Sealed (Y/N):
 Cooled (Y/N):
 Custody (Y/N):
 Samples Intact (Y/N):

SAMPLER NAME AND SIGNATURE: Media Johnson
 PRINT Name of SAMPLER: Media Johnson
 SIGNATURE of SAMPLER: [Signature]
 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

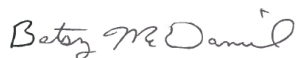
RE: Project: Plant Hammond
Pace Project No.: 2616039

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.: 2616039

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.: 2616039

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616039001	HGWA-4	Water	03/11/19 18:11	03/13/19 14:00
2616039002	HGWA-5	Water	03/12/19 13:16	03/13/19 14:00
2616039003	HGWA-6	Water	03/12/19 13:00	03/13/19 14:00

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616039

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616039001	HGWA-4	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616039002	HGWA-5	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616039003	HGWA-6	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.: 2616039

Sample: HGWA-4		Lab ID: 2616039001		Collected: 03/11/19 18:11		Received: 03/13/19 14:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		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 18:08	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 18:08	7440-38-2	
Barium	0.029	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 18:08	7440-39-3	
Beryllium	0.000050J	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 18:08	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 18:08	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 18:08	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 18:08	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 18:08	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 18:08	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 18:08	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 18:08	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 18:08	7440-28-0	
7470 Mercury		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 18:04	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.035J	mg/L	0.30	0.029	1		03/18/19 22:15	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616039

Sample: HGWA-5		Lab ID: 2616039002		Collected: 03/12/19 13:16		Received: 03/13/19 14:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		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 18:14	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 18:14	7440-38-2	
Barium	0.050	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 18:14	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 18:14	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 18:14	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 18:14	7440-47-3	
Cobalt	0.00099J	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 18:14	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 18:14	7439-92-1	
Lithium	0.0032J	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 18:14	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 18:14	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 18:14	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 18:14	7440-28-0	
7470 Mercury		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 18:06	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.079J	mg/L	0.30	0.029	1		03/18/19 23:23	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616039

Sample: HGWA-6		Lab ID: 2616039003		Collected: 03/12/19 13:00		Received: 03/13/19 14:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		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 18:20	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/15/19 12:41	03/18/19 18:20	7440-38-2	
Barium	0.20	mg/L	0.010	0.00078	1	03/15/19 12:41	03/18/19 18:20	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/15/19 12:41	03/18/19 18:20	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/15/19 12:41	03/18/19 18:20	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/15/19 12:41	03/18/19 18:20	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/15/19 12:41	03/18/19 18:20	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/15/19 12:41	03/18/19 18:20	7439-92-1	
Lithium	0.011J	mg/L	0.050	0.00097	1	03/15/19 12:41	03/18/19 18:20	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/15/19 12:41	03/18/19 18:20	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/15/19 12:41	03/18/19 18:20	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/15/19 12:41	03/18/19 18:20	7440-28-0	
7470 Mercury		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 18:09	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.061J	mg/L	0.30	0.029	1		03/18/19 23:46	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616039

QC Batch: 24380 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2616039001, 2616039002, 2616039003

METHOD BLANK: 109357 Matrix: Water
Associated Lab Samples: 2616039001, 2616039002, 2616039003

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		MSD		% Rec	% 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	0.0026	100	102	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.: 2616039

QC Batch: 24384 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2616039001, 2616039002, 2616039003

METHOD BLANK: 109374 Matrix: Water
Associated Lab Samples: 2616039001, 2616039002, 2616039003

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		109377		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		Result	MS Spike Conc.	MSD Spike Conc.	MS 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	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616039

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.: 2616039

QC Batch: 24522 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2616039001, 2616039002, 2616039003

METHOD BLANK: 110051 Matrix: Water

Associated Lab Samples: 2616039001, 2616039002, 2616039003

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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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616039

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.: 2616039

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616039001	HGWA-4	EPA 3005A	24384	EPA 6020B	24419
2616039002	HGWA-5	EPA 3005A	24384	EPA 6020B	24419
2616039003	HGWA-6	EPA 3005A	24384	EPA 6020B	24419
2616039001	HGWA-4	EPA 7470A	24380	EPA 7470A	24416
2616039002	HGWA-5	EPA 7470A	24380	EPA 7470A	24416
2616039003	HGWA-6	EPA 7470A	24380	EPA 7470A	24416
2616039001	HGWA-4	EPA 300.0	24522		
2616039002	HGWA-5	EPA 300.0	24522		
2616039003	HGWA-6	EPA 300.0	24522		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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1023

Section A
Required Client Information:
 Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Marner Road, Atlanta, GA 30339
 Email: jabraham@southernco.com
 Phone: (404)506-7239
 Requested Due Date: Standard - 1st

Section B
Required Project Information:
 Report To: Jofu Abraham / Lauren Petty
 Copy To: Geosyntec
 Purchase Order #: SCS10346506
 Project Name: Plant Hammond
 Project #:

Section C
Invoice Information:
 Attention: scsinvoices@southernco.com
 Company Name:
 Address:
 Pace Project Manager: betsy.mcdonnet@geosyntec.com
 Pace Profile #: 327.4 (AP) or 328.5 (Buf)

Regulatory Agency:
State/Education: GA

Page: 1 of 3

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)						
			START DATE	END DATE				TIME	DATE	TIME	DATE			TIME	DATE	TIME	DATE	TIME		
1	Drinking Water	DW					4	H2SO4	HNO3	HCl	Na2SO3	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)	
2	Waste Water	WW																		
3	Product	P																		
4	Soil/Solid	SL																		
5	Oil	OL																		
6	Wipes	WP																		
7	Air	AR																		
8	Other	OT																		
9	Tissue	TS																		

ADDITIONAL COMMENTS:

RELINQUISHED BY / AFFILIATION: Moelia Mustus

DATE: 3/11/19 **TIME:** 9:43

ACCEPTED BY / AFFILIATION: Moelia Mustus

DATE: 3/13/19 **TIME:** 9:43

RECEIVED ON: 3/13/19 **TEMP IN C:** 23.7

COOLING: Y

SEALING: Y

CUSTODY: Y

SAMPLES: Y

INTEGRITY: Y

NO#: 2616039

DATE SIGNED: 3/11/19

SIGNATURE OF SAMPLER: Moelia Mustus

PRINT NAME OF SAMPLER: Moelia Mustus

SAMPLER NAME AND SIGNATURE: Moelia Mustus



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		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Jiju Abraham / Lauren Petty	Attention: SCSInvoices@southernco.com	Company Name: SCSInvoices@southernco.com	Address: 2480 Marner Road, Atlanta, GA 30339	
Address: 2480 Marner Road	Copy To: Geosyntec	Purchase Order #: SCS103-48606	Project Name: Plant Hammond	Regulatory Agency: GA	
Email: jbrabham@southernco.com	Project #:	Project Name: Plant Hammond	Requested Due Date: <u>standard TAT</u>	State / Location: GA	
Phone: (404)506-7239	Fax:	Pace Profile #: 327.4 (AP) or 328.5 (Huf)			

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST	Requested Analytes Filtered (Y/N)	Received on	TEMP in C	Isoc	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
			START DATE	END DATE			UNPRESERVED	H2SO4									
1	Drinking Water	DW	03/12/19 13:16	03/12/19 13:16	G-GRAB	4	Unpreserved		Y	Y	Y	Y					
2	Water	WT															
3	Waste Water	WW															
4	Product	P															
5	Solid	SL															
6	Oil	OL															
7	Wipe	WP															
8	Air	AR															
9	Other	OT															
10	Teste	TS															

WQH: 2616039

PM: BM Due Date: 03/20/19

CLIENT: GAPower-CCR

REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Grant Walker / Geosyntec	03/12/19	1450	Maria M... / ...	3/12/19	1450	
Maria M... / ...	3/12/19	2205	Pace	3/12/19	2205	
CB Lewis / Geosyntec	3/13/19	943	M. D. ...	3/13/19	0944	
			M. D. ...	3/13/19	1400	F

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Grant Walker

SIGNATURE of SAMPLER: *Grant Walker*

DATE Signed: 03/17/19



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 Manor Road
 Atlanta, GA 30339
 Email: labraham@southernco.com
 Phone: (404)506-7299
 Requested Due Date: STANDARD

Section B
Required Project Information:
 Report To: Jolu Abraham / Lauren Petty
 Copy To: Geosyntec
 Purchase Order #: SCS10348606
 Project Name: Plant Hammond
 Project #: 1A

Section C
Invoice Information:
 Attention: scsinvoices@southernco.com
 Company Name:
 Address:
 Pace Quote: paceprojectmanager@pacelabs.com
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)
 State / Location: GA
 Regulatory Agency:

ITEM #	MATRIX CODE (see valid codes to left)	MATRIX	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST	REQUESTED ANALYSES FILTERED (Y/N)	TEMP IN C	RECEIVED ON	ICE	CUSTODY	SEALED	COOLER	SAMPLES	INTACT	
			START DATE	START TIME			END DATE	END TIME											UNPRESERVED
1	AGWA 6	Drinking Water	3/12/19	13:00	3/12/19	13:00													
2		Drinking Water																	
3		Drinking Water																	
4		Drinking Water																	
5		Drinking Water																	
6		Drinking Water																	
7		Drinking Water																	
8		Drinking Water																	
9		Drinking Water																	
10		Drinking Water																	
11		Drinking Water																	
12		Drinking Water																	

NO#: 2616039

2616039

ADDITIONAL COMMENTS	REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	<u>MVA</u>	<u>3/12/19</u>	<u>1950</u>	<u>Mollie Mjohan</u>	<u>3/12/19</u>	<u>1950</u>	
	<u>Mollie Mjohan</u>	<u>3/12/19</u>	<u>2205</u>	<u>ATB</u>	<u>3/12/19</u>	<u>2205</u>	
	<u>ATB</u>	<u>3/13/19</u>	<u>943</u>	<u>Pace</u>	<u>3/13/19</u>	<u>0944</u>	
				<u>M. Calman</u>	<u>3/13/19</u>	<u>1400258</u>	<u>Y</u>

SAMPLER NAME AND SIGNATURE: REHJAHUH UGHA TICHUR
 PRINT Name of SAMPLER: REHJAHUH UGHA TICHUR
 SIGNATURE OF SAMPLER: [Signature]
 DATE SIGNED: 3/17/19



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#: **2616039**

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)

April 05, 2019

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

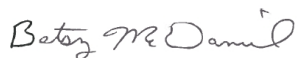
RE: Project: Plant Hammond
Pace Project No.: 2616040

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.: 2616040

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.: 2616040

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616040001	HGWA-4	Water	03/11/19 18:11	03/13/19 14:00
2616040002	HGWA-5	Water	03/12/19 13:16	03/13/19 14:00
2616040003	HGWA-6	Water	03/12/19 13:00	03/13/19 14:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616040

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616040001	HGWA-4	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616040002	HGWA-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616040003	HGWA-6	EPA 9315	LAL	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.: 2616040

Sample: HGWA-4 **Lab ID: 2616040001** Collected: 03/11/19 18:11 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	0.244 ± 0.108 (0.147) C:95% T:NA	pCi/L	03/26/19 20:59	13982-63-3	
Radium-228	EPA 9320	0.537 ± 0.392 (0.762) C:70% T:87%	pCi/L	03/29/19 11:27	15262-20-1	
Total Radium	Total Radium Calculation	0.781 ± 0.500 (0.909)	pCi/L	04/02/19 13:33	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616040

Sample: HGWA-5 **Lab ID: 2616040002** Collected: 03/12/19 13:16 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	0.221 ± 0.187 (0.283) C:92% T:NA	pCi/L	03/27/19 11:37	13982-63-3	
Radium-228	EPA 9320	0.612 ± 0.339 (0.590) C:73% T:85%	pCi/L	03/29/19 11:28	15262-20-1	
Total Radium	Total Radium Calculation	0.833 ± 0.526 (0.873)	pCi/L	04/02/19 13:33	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616040

Sample: HGWA-6 **Lab ID: 2616040003** Collected: 03/12/19 13:00 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	0.242 ± 0.237 (0.451) C:91% T:NA	pCi/L	03/27/19 07:58	13982-63-3	
Radium-228	EPA 9320	0.740 ± 0.412 (0.731) C:71% T:79%	pCi/L	03/29/19 11:27	15262-20-1	
Total Radium	Total Radium Calculation	0.982 ± 0.649 (1.18)	pCi/L	04/02/19 13:33	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616040

QC Batch: 334703

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616040001, 2616040002, 2616040003

METHOD BLANK: 1628726

Matrix: Water

Associated Lab Samples: 2616040001, 2616040002, 2616040003

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616040

QC Batch: 334701

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616040001, 2616040002, 2616040003

METHOD BLANK: 1628722

Matrix: Water

Associated Lab Samples: 2616040001, 2616040002, 2616040003

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	

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.: 2616040

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.: 2616040

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616040001	HGWA-4	EPA 9315	334701		
2616040002	HGWA-5	EPA 9315	334701		
2616040003	HGWA-6	EPA 9315	334701		
2616040001	HGWA-4	EPA 9320	334703		
2616040002	HGWA-5	EPA 9320	334703		
2616040003	HGWA-6	EPA 9320	334703		
2616040001	HGWA-4	Total Radium Calculation	336609		
2616040002	HGWA-5	Total Radium Calculation	336609		
2616040003	HGWA-6	Total Radium Calculation	336609		

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.

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)508-7239
 Requested Due Date: Standard 1st

Section B
 Required Project Information:
 Report To: Jolu Abraham / Lauren Petty
 Copy To: Geosyntec
 Purchase Order #: SCS 10548606
 Project Name: Plant Hammond
 Project #: 327.4 (AP) or 328.5 (Mud)

Section C
 Invoice Information:
 Attention: SCSinvoices@southemco.com
 Company Name:
 Address:
 Paces Quote:
 Pace Project Manager: betsy.mcdaniel@paceclabs.com
 Regulatory Agency:
 State/Location:
 GA

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		DATE	TIME	DATE	TIME	# OF CONTAINERS	Preservatives	Analyses 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	END													
1	HGWA-4	G-GRAB C-COMP	3/11/19	11:15	3/11/19	11:15	11:15	1	None	Y	Y	Y	Y	Y	N	N	N
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

NO# : 2616040



2616040

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	Maria M... Geosyntec	3/13/19	9:43	B... Lab	3/13/19	22:05	Sealed Custody (Y/N) Cooler (Y/N) Samples Intact (Y/N)
	B... Geosyntec	3/13/19	9:43	M... Lab	3/13/19	14:00	TEMP in C

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Noelia Mustos
 SIGNATURE of SAMPLER: Noelia Mustos
 DATE Signed: 3/11/19



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 Mener Road, Atlanta, GA 30339
 Email: jabraham@southernco.com
 Phone: (404)506-7239
 Requested Due Date: **Standard TAT**

Section B
 Required Project Information:
 Report To: Jofu Abraham / Lauren Peith
 Copy To: Geosyntec
 Purchase Order #: SCS10348608
 Project Name: Plant Hammond
 Project #:

Section C
 Invoice Information:
 Attention: scsinvoices@southernco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.medaria@paceciabs.com
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)
 State: GA
 Regulatory Agency:

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES				ANALYSES TEST	Requested Analysis Filtered (Y/N)	TEMP in C	Received on	Custody	Beated	Cooler	Samples	
			START DATE	END TIME				H2SO4	HNO3	HCl	Na2S2O3									Methanol
1	HGWA-S	DW	03/12/19	13:16	WT G-RAB	WT	3					YYY	YYY	1950						
2		WW																		
3		P																		
4		SL																		
5		CL																		
6		WP																		
7		AR																		
8		OT																		
9		TS																		
10																				
11																				
12																				

NO# : 2616040

PM: BM Due Date: 04/10/19
CLIENT: GARover-CCR

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Grant Walter / Geosyntec	03/12/19	1950	Media / Mankin	3/12/19	1950	
Media / Mankin	3/12/19	2205	Media / Mankin	3/12/19	2205	
CB Lewis / Geosyntec	3/13/19	943	Media / Mankin	3/13/19	1400	

SAMPLER NAME AND SIGNATURE: Grant Walter
 PRINT Name of SAMPLER: Grant Walter
 SIGNATURE of SAMPLER: *Grant Walter*
 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: j.abraham@southernco.com
 Phone: (404)506-7239
 Requested Due Date: 5/14/19

Section B
Required Project Information:
 Report To: Jolu Abraham / Lauren Petty
 Copy To: Geosynetic
 Purchase Order #: SCS10348606
 Project Name: Plant Hammond
 Project #: 5744000-1A

Section C
Invoice Information:
 Attention: scsinvoices@southernco.com
 Company Name:
 Address:
 Price Quote:
 Price Project Manager: betsy.mcDaniel@pacelabs.com
 Price Profile #: 327.4 (AP) or 328.5 (Huff)
 Regulatory Agency: GA
 Submit Location:

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see vord codes to left)	# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	Requested/Analysis Filtered (Y/N)	TEMP in C	Received on	Custody	Sealed	Cooler	(Y/N)	Initial	Samples	
			START DATE TIME	END DATE TIME															
1	Drinking Water	DW	5/12/19 13:20	5/12/19 13:20	G		Unpreserved	App. IV Metals	Y		744								
2	Water	WT						Fluoride by 300.0											
3	Waste Water	WW						Radium 226/228											
4	Product	P																	
5	Solid	SL																	
6	Oil	OL																	
7	Wipe	WP																	
8	Air	AR																	
9	Other	OT																	
10	Tissue	TS																	

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

WO#: 2616040

PM: BM Due Date: 04/10/19
 CLIENT: GAPower-CCR

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION		ACCEPTED BY / AFFILIATION		DATE	TIME	SAMPLE CONDITIONS												
	DATE	TIME	DATE	TIME			TEMP in C	Received on	Ice	(Y/N)	Custody	Sealed	Cooler	(Y/N)	Initial	Samples			
	3/12/19	19:50	3/12/19	19:50	3/12/19	19:50													
Mal's info pack	3/12/19	22:05	3/12/19	22:05	3/12/19	22:05													
ETS Le w/ certs	3/13/19	09:43	3/13/19	09:44	3/13/19	09:44													
					3/13/19	14:00													

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: REYJALIH UGUA TICKLE
 SIGNATURE OF SAMPLER: [Signature]
 DATE SIGNED: 3/17/19



Sample Condition Upon Receipt

Client Name: GIA POWER

Project # _____

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

WO#: 2616040

PM: **BM**

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

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 2.5 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 25, 2019

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

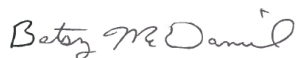
RE: Project: Plant Hammond
Pace Project No.: 2616162

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.: 2616162

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.: 2616162

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616162001	HGWC-15	Water	03/14/19 09:58	03/15/19 13:00
2616162002	FD-2	Water	03/14/19 00:00	03/15/19 13:00
2616162003	HGWC-18	Water	03/14/19 14:53	03/15/19 13:00
2616162004	MW-23D	Water	03/14/19 16:42	03/15/19 13:00
2616162005	HGWC-14	Water	03/14/19 16:41	03/15/19 13:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616162

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616162001	HGWC-15	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616162002	FD-2	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616162003	HGWC-18	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616162004	MW-23D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	MWB	1
2616162005	HGWC-14	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.: 2616162

Sample: HGWC-15		Lab ID: 2616162001		Collected: 03/14/19 09:58		Received: 03/15/19 13:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:14	03/21/19 13:35	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/19/19 12:14	03/21/19 13:35	7440-38-2	
Barium	0.021	mg/L	0.010	0.00078	1	03/19/19 12:14	03/21/19 13:35	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/19/19 12:14	03/21/19 13:35	7440-41-7	
Cadmium	0.0024	mg/L	0.0010	0.000093	1	03/19/19 12:14	03/21/19 13:35	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:14	03/21/19 13:35	7440-47-3	
Cobalt	0.038	mg/L	0.010	0.00052	1	03/19/19 12:14	03/21/19 13:35	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:14	03/21/19 13:35	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/19/19 12:14	03/21/19 13:35	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/19/19 12:14	03/21/19 13:35	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:14	03/21/19 13:35	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:14	03/21/19 13:35	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 16:39	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/22/19 02:16	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616162

Sample: FD-2		Lab ID: 2616162002		Collected: 03/14/19 00:00		Received: 03/15/19 13:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:14	03/21/19 13:41	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/19/19 12:14	03/21/19 13:41	7440-38-2	
Barium	0.021	mg/L	0.010	0.00078	1	03/19/19 12:14	03/21/19 13:41	7440-39-3	
Beryllium	0.000063J	mg/L	0.0030	0.000050	1	03/19/19 12:14	03/21/19 13:41	7440-41-7	
Cadmium	0.0023	mg/L	0.0010	0.000093	1	03/19/19 12:14	03/21/19 13:41	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:14	03/21/19 13:41	7440-47-3	
Cobalt	0.040	mg/L	0.010	0.00052	1	03/19/19 12:14	03/21/19 13:41	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:14	03/21/19 13:41	7439-92-1	
Lithium	0.00099J	mg/L	0.050	0.00097	1	03/19/19 12:14	03/21/19 13:41	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/19/19 12:14	03/21/19 13:41	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:14	03/21/19 13:41	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:14	03/21/19 13:41	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 16:41	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/22/19 04:18	16984-48-8	

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616162

Sample: HGWC-18		Lab ID: 2616162003		Collected: 03/14/19 14:53		Received: 03/15/19 13:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:14	03/21/19 13:46	7440-36-0	
Arsenic	0.0036J	mg/L	0.0050	0.00057	1	03/19/19 12:14	03/21/19 13:46	7440-38-2	
Barium	0.029	mg/L	0.010	0.00078	1	03/19/19 12:14	03/21/19 13:46	7440-39-3	
Beryllium	0.0026J	mg/L	0.0030	0.000050	1	03/19/19 12:14	03/21/19 13:46	7440-41-7	
Cadmium	0.0019	mg/L	0.0010	0.000093	1	03/19/19 12:14	03/21/19 13:46	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:14	03/21/19 13:46	7440-47-3	
Cobalt	0.16	mg/L	0.010	0.00052	1	03/19/19 12:14	03/21/19 13:46	7440-48-4	
Lead	0.0015J	mg/L	0.0050	0.00027	1	03/19/19 12:14	03/21/19 13:46	7439-92-1	
Lithium	0.011J	mg/L	0.050	0.00097	1	03/19/19 12:14	03/21/19 13:46	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/19/19 12:14	03/21/19 13:46	7439-98-7	
Selenium	0.016	mg/L	0.010	0.0014	1	03/19/19 12:14	03/21/19 13:46	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:14	03/21/19 13:46	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 16:44	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.88	mg/L	0.30	0.029	1		03/22/19 04:43	16984-48-8	

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616162

Sample: MW-23D		Lab ID: 2616162004		Collected: 03/14/19 16:42		Received: 03/15/19 13:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:14	03/21/19 13:52	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/19/19 12:14	03/21/19 13:52	7440-38-2	
Barium	0.082	mg/L	0.010	0.00078	1	03/19/19 12:14	03/21/19 13:52	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/19/19 12:14	03/21/19 13:52	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/19/19 12:14	03/21/19 13:52	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:14	03/21/19 13:52	7440-47-3	
Cobalt	0.0013J	mg/L	0.010	0.00052	1	03/19/19 12:14	03/21/19 13:52	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/19/19 12:14	03/21/19 13:52	7439-92-1	
Lithium	0.0028J	mg/L	0.050	0.00097	1	03/19/19 12:14	03/21/19 13:52	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/19/19 12:14	03/21/19 13:52	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/19/19 12:14	03/21/19 13:52	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/19/19 12:14	03/21/19 13:52	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 16:46	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/22/19 05:32	16984-48-8	

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616162

Sample: HGWC-14		Lab ID: 2616162005		Collected: 03/14/19 16:41		Received: 03/15/19 13:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3005A							
Antimony	ND	mg/L	0.0030	0.00078	1	03/19/19 12:14	03/21/19 13:58	7440-36-0	
Arsenic	0.0029J	mg/L	0.0050	0.00057	1	03/19/19 12:14	03/21/19 13:58	7440-38-2	
Barium	0.019	mg/L	0.010	0.00078	1	03/19/19 12:14	03/21/19 13:58	7440-39-3	
Beryllium	0.00043J	mg/L	0.0030	0.000050	1	03/19/19 12:14	03/21/19 13:58	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/19/19 12:14	03/21/19 13:58	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/19/19 12:14	03/21/19 13:58	7440-47-3	
Cobalt	0.025	mg/L	0.010	0.00052	1	03/19/19 12:14	03/21/19 13:58	7440-48-4	
Lead	0.0014J	mg/L	0.0050	0.00027	1	03/19/19 12:14	03/21/19 13:58	7439-92-1	
Lithium	ND	mg/L	0.050	0.00097	1	03/19/19 12:14	03/21/19 13:58	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/19/19 12:14	03/21/19 13:58	7439-98-7	
Selenium	0.0048J	mg/L	0.010	0.0014	1	03/19/19 12:14	03/21/19 13:58	7782-49-2	
Thallium	0.00028J	mg/L	0.0010	0.00014	1	03/19/19 12:14	03/21/19 13:58	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 16:49	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	0.24J	mg/L	0.30	0.029	1		03/22/19 05:57	16984-48-8	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616162

QC Batch: 24464 Analysis Method: EPA 7470A
QC Batch Method: EPA 7470A Analysis Description: 7470 Mercury
Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

METHOD BLANK: 109864 Matrix: Water
Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

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		% Rec	% 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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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616162

QC Batch: 24597 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

METHOD BLANK: 110486 Matrix: Water
Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Antimony	mg/L	ND	0.0030	0.00078	03/21/19 13:23	
Arsenic	mg/L	ND	0.0050	0.00057	03/21/19 13:23	
Barium	mg/L	ND	0.010	0.00078	03/21/19 13:23	
Beryllium	mg/L	ND	0.0030	0.000050	03/21/19 13:23	
Cadmium	mg/L	ND	0.0010	0.000093	03/21/19 13:23	
Chromium	mg/L	ND	0.010	0.0016	03/21/19 13:23	
Cobalt	mg/L	ND	0.010	0.00052	03/21/19 13:23	
Lead	mg/L	ND	0.0050	0.00027	03/21/19 13:23	
Lithium	mg/L	ND	0.050	0.00097	03/21/19 13:23	
Molybdenum	mg/L	ND	0.010	0.0019	03/21/19 13:23	
Selenium	mg/L	ND	0.010	0.0014	03/21/19 13:23	
Thallium	mg/L	ND	0.0010	0.00014	03/21/19 13:23	

LABORATORY CONTROL SAMPLE: 110487

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	104	80-120	
Barium	mg/L	0.1	0.10	102	80-120	
Beryllium	mg/L	0.1	0.10	102	80-120	
Cadmium	mg/L	0.1	0.10	103	80-120	
Chromium	mg/L	0.1	0.11	106	80-120	
Cobalt	mg/L	0.1	0.10	102	80-120	
Lead	mg/L	0.1	0.10	101	80-120	
Lithium	mg/L	0.1	0.10	103	80-120	
Molybdenum	mg/L	0.1	0.11	106	80-120	
Selenium	mg/L	0.1	0.11	109	80-120	
Thallium	mg/L	0.1	0.10	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110488 110489

Parameter	Units	2616179004 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Spike Conc.	MSD Result						
Antimony	mg/L	ND	0.1	0.1	0.10	0.10	103	102	75-125	1	20	
Arsenic	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	3	20	
Barium	mg/L	0.010	0.1	0.1	0.11	0.11	98	98	75-125	0	20	
Beryllium	mg/L	ND	0.1	0.1	0.097	0.093	97	93	75-125	5	20	
Cadmium	mg/L	0.00015J	0.1	0.1	0.10	0.097	100	97	75-125	3	20	

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QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616162

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 110488		110489		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2616179004 Result	MS Spike Conc.	MSD Spike Conc.								
Chromium	mg/L	ND	0.1	0.1	0.099	0.10	98	100	75-125	2	20	
Cobalt	mg/L	ND	0.1	0.1	0.094	0.094	94	94	75-125	0	20	
Lead	mg/L	ND	0.1	0.1	0.097	0.093	97	93	75-125	4	20	
Lithium	mg/L	ND	0.1	0.1	0.099	0.095	98	94	75-125	4	20	
Molybdenum	mg/L	ND	0.1	0.1	0.10	0.10	103	103	75-125	0	20	
Selenium	mg/L	ND	0.1	0.1	0.098	0.098	98	98	75-125	0	20	
Thallium	mg/L	ND	0.1	0.1	0.097	0.094	97	94	75-125	3	20	

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QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616162

QC Batch: 24743 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

METHOD BLANK: 111327 Matrix: Water
Associated Lab Samples: 2616162001, 2616162002, 2616162003, 2616162004, 2616162005

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 Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
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.: 2616162

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.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2616162

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616162001	HGWC-15	EPA 3005A	24597	EPA 6020B	24647
2616162002	FD-2	EPA 3005A	24597	EPA 6020B	24647
2616162003	HGWC-18	EPA 3005A	24597	EPA 6020B	24647
2616162004	MW-23D	EPA 3005A	24597	EPA 6020B	24647
2616162005	HGWC-14	EPA 3005A	24597	EPA 6020B	24647
2616162001	HGWC-15	EPA 7470A	24464	EPA 7470A	24540
2616162002	FD-2	EPA 7470A	24464	EPA 7470A	24540
2616162003	HGWC-18	EPA 7470A	24464	EPA 7470A	24540
2616162004	MW-23D	EPA 7470A	24464	EPA 7470A	24540
2616162005	HGWC-14	EPA 7470A	24464	EPA 7470A	24540
2616162001	HGWC-15	EPA 300.0	24743		
2616162002	FD-2	EPA 300.0	24743		
2616162003	HGWC-18	EPA 300.0	24743		
2616162004	MW-23D	EPA 300.0	24743		
2616162005	HGWC-14	EPA 300.0	24743		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY

The Chain-of-Custody is a LEGAL

WO#: 2616162



Set of
Page: 1 of 2

Section A
 Required Client Information:
 Company: Georgia Power - Coal Combustion Residuals
 Report To: Joju Abraham / Lauren Petty
 Address: 2480 Marner 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 Petty
 Copy To: Geosyntec
 Purchase Order #: SCS10348606
 Project Name: Plant Hammond
 Project #:

Section C
 Invoice Information:
 Attention: SCS\IV\RESIDUALS\RESIDUALS\GRI11
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.mccarroll@pacetest.com
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)
 Regulatory Agency:
 State / Location: GA

ITEM #	MATRIX CODE DW Wt WW Wt P SL OL WP AR OT TS Drinking Water Waste Water Product Solid Oil Wine Air Other Tissue	SAMPLE ID One Character per box. (A-Z, 0-9 / . -) Sample IDs must be unique	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES 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)	Received on	Ice (Y/N)	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples (Y/N)		
			START DATE TIME	END DATE TIME													TEMP in C	
1		HGWC-15	08/14 08:19	08/14 08:58	18	4	3		Y Y Y	Y							1	
2		FD-2	08/14 08:14	08/14 14:11	1	4	3		Y Y Y	Y							2	
3		HGWC-18	08/14 14:31	08/14 14:53	16	4	3		Y Y Y	Y							3	
4		MW-23 D	08/14 16:58	08/14 16:42	18	4	3		Y Y Y	Y							4	
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

ADDITIONAL COMMENTS
 Grant Webster / Geosyntec 08/14/19 18:48
 Madisa M. Johnson / Geosyntec 08/14/19 20:26
 Grant Webster / Geosyntec 08/15/19 11:29
 M. RAHMAN
 Grant Webster / Pace 08/15/19 13:00
 4.5°

RELINQUISHED BY / AFFILIATION
 Grant Webster / Geosyntec
 Madisa M. Johnson / Geosyntec
 Grant Webster / Geosyntec
 M. RAHMAN
 Grant Webster / Pace

ACCEPTED BY / AFFILIATION
 Madisa M. Johnson
 Grant Webster / Geosyntec
 M. RAHMAN
 Grant Webster / Pace

DATE
 08/14/19
 08/14/19
 08/15/19
 08/15/19

TIME
 18:48
 20:26
 11:29
 13:00

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

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Grant Webster
 SIGNATURE of SAMPLER: Grant Webster

DATE SIGNED: 08/14/19

W0#: 2616162

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

PM: 8M Due Date: 03/22/19
CLIENT: GAPower-CCR

Set 01
2 of 2

Section A
Required Client Information:
Company: Georgia Power - Coal Combustion Residuals
Address: 2480 Manor Road
Atlanta, GA 30339
Phone: (404)506-7239 Fax:
Email: abraham@southhamco.com
Requested Due Date: **Standard 7M**

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

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

Regulatory Agency:
State / Location: GA

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analytes Test (Y/N)	Requested Analysis Filtered (Y/N)				Residual Chlorine (Y/N)	
			START DATE	END TIME					Fluoride by 300.0	App. IV Metals	Radium 226/228	Metals (As, B, Co, Mo)		Sulfate by 300.0
1	Drinking Water	DW	3/14/19 16:00	3/14/19 16:11	17	4	H2SO4 HNO3 HCl NaOH Na2S2O3 Methanol Other	Y	Y	Y	Y	Y	2	
2	Water	WT												
3	Waste Water	WW												
4	Product	P												
5	Soil/Solid	SL												
6	Oil	OL												
7	Wine	WP												
8	Air	AR												
9	Other	OT												
10	Tissue	TS												

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

HGWC-14

RECEIVED
03/14/19

ADDITIONAL COMMENTS	REQUIRED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	AAA / Geo	3/14/19	18:40	Marla Johnson / Geo	3/14/19	18:40	Received on (Y/N) Custody (Y/N) Sealed (Y/N) Cooler (Y/N) Samples Intact (Y/N)
	Marla Johnson / Geo	3/14/19	20:26	GeoSyntec / Geosyntec	3/14/19	20:26	
	GeoSyntec / Geosyntec	3/15/19	12:29	M. RAKHMAN	3/15/19	11:29	
	Denise Walker / PACE	3/15/19	13:00		3/15/19	13:00	TEMP in C 4.5 Received on (Y/N) Custody (Y/N) Sealed (Y/N) Cooler (Y/N) Samples Intact (Y/N)

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: **Denise Walker**
SIGNATURE of SAMPLER: *Denise Walker*
DATE Signed: 3/14/19



Sample Condition Upon Receipt

WO#: 2616162

Client Name: GA Power - CCR

PM: BM

Due Date: 03/22/19

CLIENT: GA Power-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 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

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: _____

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)

April 02, 2019

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

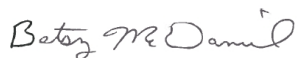
RE: Project: Plant Hammond
Pace Project No.: 2616170

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.: 2616170

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.: 2616170

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616170001	HGWC-15	Water	03/14/19 09:58	03/15/19 13:00
2616170002	FD-2	Water	03/14/19 00:00	03/15/19 13:00
2616170003	HGWC-18	Water	03/14/19 14:53	03/15/19 13:00
2616170004	MW-23D	Water	03/14/19 16:42	03/15/19 13:00
2616170005	HGWC-14	Water	03/14/19 16:41	03/15/19 13:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616170

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616170001	HGWC-15	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616170002	FD-2	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616170003	HGWC-18	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	JAL	1	PASI-PA
2616170004	MW-23D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616170005	HGWC-14	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.: 2616170

Sample: HGWC-15 **Lab ID: 2616170001** Collected: 03/14/19 09:58 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	0.228 ± 0.111 (0.167) C:97% T:NA	pCi/L	03/26/19 21:15	13982-63-3	
Radium-228	EPA 9320	0.234 ± 0.670 (1.49) C:75% T:84%	pCi/L	03/27/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	0.462 ± 0.781 (1.66)	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.: 2616170

Sample: FD-2 **Lab ID: 2616170002** Collected: 03/14/19 00:00 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	0.151 ± 0.107 (0.183) C:93% T:NA	pCi/L	03/26/19 21:15	13982-63-3	
Radium-228	EPA 9320	0.743 ± 0.749 (1.56) C:71% T:83%	pCi/L	03/27/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	0.894 ± 0.856 (1.74)	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.: 2616170

Sample: HGWC-18 **Lab ID: 2616170003** Collected: 03/14/19 14:53 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	1.35 ± 0.284 (0.199) C:92% T:NA	pCi/L	03/26/19 18:06	13982-63-3	
Radium-228	EPA 9320	0.0195 ± 0.711 (1.62) C:75% T:87%	pCi/L	03/27/19 19:43	15262-20-1	
Total Radium	Total Radium Calculation	1.37 ± 0.995 (1.82)	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.: 2616170

Sample: MW-23D **Lab ID: 2616170004** Collected: 03/14/19 16:42 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	0.328 ± 0.145 (0.217) C:92% T:NA	pCi/L	03/26/19 20:59	13982-63-3	
Radium-228	EPA 9320	0.544 ± 0.358 (0.673) C:72% T:85%	pCi/L	03/29/19 11:27	15262-20-1	
Total Radium	Total Radium Calculation	0.872 ± 0.503 (0.890)	pCi/L	04/02/19 13:32	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616170

Sample: HGWC-14 **Lab ID: 2616170005** Collected: 03/14/19 16:41 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	0.759 ± 0.189 (0.170) C:93% T:NA	pCi/L	03/26/19 20:58	13982-63-3	
Radium-228	EPA 9320	0.742 ± 0.410 (0.742) C:74% T:85%	pCi/L	03/29/19 11:27	15262-20-1	
Total Radium	Total Radium Calculation	1.50 ± 0.599 (0.912)	pCi/L	04/02/19 13:32	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616170

QC Batch:	334699	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2616170001, 2616170002, 2616170003		

METHOD BLANK:	1628719	Matrix:	Water
Associated Lab Samples:	2616170001, 2616170002, 2616170003		

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.: 2616170

QC Batch: 334703

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616170004, 2616170005

METHOD BLANK: 1628726

Matrix: Water

Associated Lab Samples: 2616170004, 2616170005

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.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616170

QC Batch:	334690	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2616170001, 2616170002, 2616170003		

METHOD BLANK:	1628696	Matrix:	Water
Associated Lab Samples:	2616170001, 2616170002, 2616170003		

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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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616170

QC Batch: 334701

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616170004, 2616170005

METHOD BLANK: 1628722

Matrix: Water

Associated Lab Samples: 2616170004, 2616170005

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	

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.: 2616170

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.: 2616170

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616170001	HGWC-15	EPA 9315	334699		
2616170002	FD-2	EPA 9315	334699		
2616170003	HGWC-18	EPA 9315	334699		
2616170004	MW-23D	EPA 9315	334701		
2616170005	HGWC-14	EPA 9315	334701		
2616170001	HGWC-15	EPA 9320	334690		
2616170002	FD-2	EPA 9320	334690		
2616170003	HGWC-18	EPA 9320	334690		
2616170004	MW-23D	EPA 9320	334703		
2616170005	HGWC-14	EPA 9320	334703		
2616170001	HGWC-15	Total Radium Calculation	335993		
2616170002	FD-2	Total Radium Calculation	335993		
2616170003	HGWC-18	Total Radium Calculation	335993		
2616170004	MW-23D	Total Radium Calculation	336606		
2616170005	HGWC-14	Total Radium Calculation	336606		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY

The Chain-of-Custody is a LEG/

WO#: 2616170



Set of

Page: 1 of 2

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

Section B
 Required Project Information:
 Report To: Jody Abraham / Lauren Petty
 Copy To: Geosyntec
 Purchase Order #: SC-S10348506
 Project Name: Plant Hammond
 Project #:

Section C
 Invoice Info:
 Attention: Sr
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.mcdaniel@pacelabs.com
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)

Regulatory Agency: GA
State / Location: GA

ITEM #	MATRIX	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	Preservatives						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					H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol							Other
1	Drinking Water	DW	02/14/14 9:58	02/14/14 10:17	G	18	4	1	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	1	
2	Water	WT	02/14/14	02/14/14	G	18	4	1	3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	2	
3	Waste Water	WW	02/14/14 14:31	02/14/14 14:53	G	16	4	1	3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	3	
4	Product	P	02/14/14 16:58	02/14/14 16:58	G	18	4	1	3	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	4	
5	Soil/Solid	SS																			
6	Oil	OL																			
7	Wipe	WP																			
8	Air	AR																			
9	Other	OT																			
10	Tissue	TS																			

ADDITIONAL COMMENTS:

Great Walker / Geosyntec 02/14/14 10:48
 Madlen M. Walker Geosyntec 02/14/14 10:26
 Betsy Mcdaniel Geosyntec 02/14/14 11:29

REQUESTED BY / AFFILIATION: M. RAHMAN
ACCEPTED BY / AFFILIATION: Jenifer Walker PACE

DATE: 02/14/14

DATE: 3/14/19 10:48
 3/14/19 10:26
 3/15/19 13:00

TEMP in C: 4.5

Received on: Y
Ice (Y/N): Y
Custody (Y/N): Y
Sealed Cooler (Y/N): N
Samples Intact (Y/N): Y

SAMPLER NAME AND SIGNATURE: Grant Walker
PRINT Name of SAMPLER: Grant Walker
SIGNATURE of SAMPLER: Grant Walker
DATE Signed: 03/14/19



WO#: 2616170

CHAIN-OF-CUSTODY

The Chain-of-Custody is a LE

PM: 8M Due Date: 04/12/19
CLIENT: GAPower-CCR

Set 01

Page: 2 of 2

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

Section B
 Required Project Information:
 Report To: Jolu Abraham / Lauren Petty
 Copy To: Geosyntec
 Purchase Order #: SCS 0348606
 Project Name: Plant Hammond
 Project #:

Section C
 Invoice Info:
 Attention: scsinvoices@southernco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.mcdaniel@paceelabs.com
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)

Section D
 State / Location: GA
 Regulatory Agency:

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		DATE	TIME	DATE	TIME	ANALYSES TEST	Requested/Analyse File used (Y/N)	Residual Chlorine (Y/N)
			START	END							
1	DW	G	3/14/19 1600	3/14/19 1641	3	1840	1848	Y	Metals (As, B, Co, Mo)	Y	2
2	WT	G						Y	Fluoride by 300.0	Y	
3	WW	G						Y	Reduct 226/228	Y	
4	P	G						Y	Sulfate by 300.0	Y	
5	SL	G						Y	App. IV Metals	Y	
6	OL	G						Y	Other	Y	
7	WP	G						Y	Methanol	Y	
8	AR	G						Y	Na2S2O3	Y	
9	OT	G						Y	NaOH	Y	
10	TS	G						Y	HCl	Y	
11		G						Y	HNO3	Y	
12		G						Y	H2SO4	Y	

ADDITIONAL COMMENTS:
 MAMA / Geo
 Maria Murphy / Geo
 Geo Con, Geosyntec
 3/15/19 1129
 M. RAHMAN
 Jessica Wether Pace
 3/15/19 1300
 45°

ACCEPTED BY / AFFILIATION:
 Maria Murphy / Geo
 Jessica Wether Pace / Pace
 DATE: 3/14/19 1848
 3/14/19 2026
 3/15/19 1129
 3/15/19 1300

SAMPLER NAME AND SIGNATURE:
 PRINT Name of SAMPLER: MAMA
 SIGNATURE of SAMPLER: [Signature]

DATE Signed: 3/14/19

TEMP in C: 45°

Received on (Y/N): Y

Ice (Y/N): Y

Sealed (Y/N): N

Cooler (Y/N): N

Custody (Y/N): N

Samples (Y/N): Y



Sample Condition Upon Receipt

WO#: 2616170

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 Temp should be above freezing to 6 C

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

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

Table with 16 rows and 3 columns. Columns: Question, Yes/No/N/A, and Number. Rows include Chain of Custody Present, Chain of Custody Filled Out, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Short Hold Time Analysis (<72hr), Rush Turn Around Time Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, All containers needing preservation have been checked, All containers needing preservation are found to be in compliance with EPA recommendation, exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Samples checked for dechlorination, Headspace in VOA Vials (>6mm), Trip Blank Present, Trip Blank Custody Seals Present, 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)

March 26, 2019

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

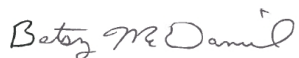
RE: Project: Plant Hammond
Pace Project No.: 2616228

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.: 2616228

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.: 2616228

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616228001	MW-22	Water	03/15/19 08:56	03/18/19 12:00
2616228002	HGWC-16	Water	03/15/19 13:52	03/18/19 12:00
2616228003	MW-21D	Water	03/15/19 11:56	03/18/19 12:00
2616228004	HGWC-17	Water	03/15/19 13:00	03/18/19 12:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616228

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616228001	MW-22	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616228002	HGWC-16	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616228003	MW-21D	EPA 6020B	CSW	12
		EPA 7470A	DRB	1
		EPA 300.0	RLC	1
2616228004	HGWC-17	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.: 2616228

Sample: MW-22		Lab ID: 2616228001		Collected: 03/15/19 08:56		Received: 03/18/19 12:00		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	03/20/19 14:34	03/21/19 22:52	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	03/20/19 14:34	03/21/19 22:52	7440-38-2		
Barium	0.044	mg/L	0.010	0.00078	1	03/20/19 14:34	03/21/19 22:52	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/20/19 14:34	03/21/19 22:52	7440-41-7		
Cadmium	0.00082J	mg/L	0.0010	0.000093	1	03/20/19 14:34	03/21/19 22:52	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/20/19 14:34	03/21/19 22:52	7440-47-3		
Cobalt	0.028	mg/L	0.010	0.00052	1	03/20/19 14:34	03/21/19 22:52	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/20/19 14:34	03/21/19 22:52	7439-92-1		
Lithium	0.0020J	mg/L	0.050	0.00097	1	03/20/19 14:34	03/21/19 22:52	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/20/19 14:34	03/21/19 22:52	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/20/19 14:34	03/21/19 22:52	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/20/19 14:34	03/21/19 22:52	7440-28-0		
7470 Mercury		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 12:56	7439-97-6		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/24/19 16:04	16984-48-8		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616228

Sample: HGWC-16		Lab ID: 2616228002		Collected: 03/15/19 13:52		Received: 03/18/19 12:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		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 22:58	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/20/19 14:34	03/21/19 22:58	7440-38-2	
Barium	0.13	mg/L	0.010	0.00078	1	03/20/19 14:34	03/21/19 22:58	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/20/19 14:34	03/21/19 22:58	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/20/19 14:34	03/21/19 22:58	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/20/19 14:34	03/21/19 22:58	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/20/19 14:34	03/21/19 22:58	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/20/19 14:34	03/21/19 22:58	7439-92-1	
Lithium	0.0041J	mg/L	0.050	0.00097	1	03/20/19 14:34	03/21/19 22:58	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.0019	1	03/20/19 14:34	03/21/19 22:58	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/20/19 14:34	03/21/19 22:58	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/20/19 14:34	03/21/19 22:58	7440-28-0	
7470 Mercury		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 13:51	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/24/19 16:27	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616228

Sample: MW-21D		Lab ID: 2616228003		Collected: 03/15/19 11:56		Received: 03/18/19 12:00		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		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 23:04	7440-36-0	
Arsenic	ND	mg/L	0.0050	0.00057	1	03/20/19 14:34	03/21/19 23:04	7440-38-2	
Barium	0.090	mg/L	0.010	0.00078	1	03/20/19 14:34	03/21/19 23:04	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	03/20/19 14:34	03/21/19 23:04	7440-41-7	
Cadmium	ND	mg/L	0.0010	0.000093	1	03/20/19 14:34	03/21/19 23:04	7440-43-9	
Chromium	ND	mg/L	0.010	0.0016	1	03/20/19 14:34	03/21/19 23:04	7440-47-3	
Cobalt	ND	mg/L	0.010	0.00052	1	03/20/19 14:34	03/21/19 23:04	7440-48-4	
Lead	ND	mg/L	0.0050	0.00027	1	03/20/19 14:34	03/21/19 23:04	7439-92-1	
Lithium	0.025J	mg/L	0.050	0.00097	1	03/20/19 14:34	03/21/19 23:04	7439-93-2	
Molybdenum	0.045	mg/L	0.010	0.0019	1	03/20/19 14:34	03/21/19 23:04	7439-98-7	
Selenium	ND	mg/L	0.010	0.0014	1	03/20/19 14:34	03/21/19 23:04	7782-49-2	
Thallium	ND	mg/L	0.0010	0.00014	1	03/20/19 14:34	03/21/19 23:04	7440-28-0	
7470 Mercury		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 13:53	7439-97-6	
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Fluoride	ND	mg/L	0.30	0.029	1		03/24/19 16:50	16984-48-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616228

Sample: HGWC-17		Lab ID: 2616228004		Collected: 03/15/19 13:00		Received: 03/18/19 12:00		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	03/20/19 14:34	03/21/19 23:09	7440-36-0		
Arsenic	ND	mg/L	0.0050	0.00057	1	03/20/19 14:34	03/21/19 23:09	7440-38-2		
Barium	0.029	mg/L	0.010	0.00078	1	03/20/19 14:34	03/21/19 23:09	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	03/20/19 14:34	03/21/19 23:09	7440-41-7		
Cadmium	ND	mg/L	0.0010	0.000093	1	03/20/19 14:34	03/21/19 23:09	7440-43-9		
Chromium	ND	mg/L	0.010	0.0016	1	03/20/19 14:34	03/21/19 23:09	7440-47-3		
Cobalt	0.017	mg/L	0.010	0.00052	1	03/20/19 14:34	03/21/19 23:09	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	03/20/19 14:34	03/21/19 23:09	7439-92-1		
Lithium	0.0011J	mg/L	0.050	0.00097	1	03/20/19 14:34	03/21/19 23:09	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	03/20/19 14:34	03/21/19 23:09	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	03/20/19 14:34	03/21/19 23:09	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	03/20/19 14:34	03/21/19 23:09	7440-28-0		
7470 Mercury		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 13:56	7439-97-6		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Fluoride	ND	mg/L	0.30	0.029	1		03/24/19 17:12	16984-48-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616228

QC Batch: 24983

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470 Mercury

Associated Lab Samples: 2616228001, 2616228002, 2616228003, 2616228004

METHOD BLANK: 112752

Matrix: Water

Associated Lab Samples: 2616228001, 2616228002, 2616228003, 2616228004

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		MS % Rec	MSD % 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.: 2616228

QC Batch: 24707 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2616228001, 2616228002, 2616228003, 2616228004

METHOD BLANK: 111121 Matrix: Water
Associated Lab Samples: 2616228001, 2616228002, 2616228003, 2616228004

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	
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	
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 Result	MSD Result	MSD 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	
Beryllium	mg/L	ND	0.1	0.1	0.10	0.098	100	98	75-125	2	20	
Cadmium	mg/L	ND	0.1	0.1	0.10	0.10	102	103	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.: 2616228

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 111123		111124		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		2616193001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
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	

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.: 2616228

QC Batch: 24985 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2616228001, 2616228002, 2616228003, 2616228004

METHOD BLANK: 112760 Matrix: Water
Associated Lab Samples: 2616228001, 2616228002, 2616228003, 2616228004

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Fluoride	mg/L	ND	0.30	0.029	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	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 112762 112763

Parameter	Units	2616191001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Fluoride	mg/L	ND	10	10	9.0	9.5	90	95	90-110	5	15	

MATRIX SPIKE SAMPLE: 112764

Parameter	Units	2616228001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Fluoride	mg/L	ND	10	10.3	103	90-110	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616228

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.: 2616228

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616228001	MW-22	EPA 3005A	24707	EPA 6020B	24750
2616228002	HGWC-16	EPA 3005A	24707	EPA 6020B	24750
2616228003	MW-21D	EPA 3005A	24707	EPA 6020B	24750
2616228004	HGWC-17	EPA 3005A	24707	EPA 6020B	24750
2616228001	MW-22	EPA 7470A	24983	EPA 7470A	25042
2616228002	HGWC-16	EPA 7470A	24983	EPA 7470A	25042
2616228003	MW-21D	EPA 7470A	24983	EPA 7470A	25042
2616228004	HGWC-17	EPA 7470A	24983	EPA 7470A	25042
2616228001	MW-22	EPA 300.0	24985		
2616228002	HGWC-16	EPA 300.0	24985		
2616228003	MW-21D	EPA 300.0	24985		
2616228004	HGWC-17	EPA 300.0	24985		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 1 Of 3

Section A
Required Client Information:
 Company: Georgia Power - Coal Combustion Residuals
 Report To: Joji Abraham / Lauren Peity
 Address: 2490 Marner Road
 Atlanta, GA 30339
 Email: jabraham@souththermo.com
 Phone: (404)506-7239
 Fax:
 Requested Due Date: **Standard TAT**

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

Section C
Invoice Information:
 Attention: SCSInvoices@souththermo.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: beisy.mcdaniel@pacelabs.com
 Pace Profile #: 327.4 (AP) or 328.5 (Huf)

Respiratory Agency:
State / Location: GA

ITEM #	MATRIX	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	# 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			H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol						Other
1	Drinking Water	DW	3/15/19 0835	3/18/19 0836	17	4	Unpreserved											
2	Waste Water	WW	3/17/19 1341	3/17/19 1352	10	4	Unpreserved											
3	Waste Water	WW																
4	Product	P																
5	Sulfuric Acid	SL																
6	Oil	OL																
7	Wipe	WP																
8	Air	AR																
9	Other	OT																
10	Tissue	TS																

ADDITIONAL COMMENTS:

RELINQUISHED BY / AFFILIATION: Grant Walter / Geosyntec 03/18/19 1455
 Melia McPherson / Geosyntec 3/18/19 1026
 Melia McPherson 3/18/19 4:24
 M. Dalman 3/18/19 4:24

ACCEPTED BY / AFFILIATION: Grant Walter 03/15/19 1200

DATE SIGNED: 03/15/19

TEMP in C: 4.2

Received on: 3/18/19

Custody (Y/N): Y

Sealed (Y/N): Y

Cooler (Y/N): Y

Samples (Y/N): Y

Inlet (Y/N): Y

NO#: 2616228

2616228



CHAIN-OF-CUSTODY / Analytical Request Document

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Page: 2 of 3

Section A
Required Client Information:
 Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Manner 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: Joji Abraham / Lauren Petty
 Copy To: Geosyntec
 Purchase Order #: SCS10348606
 Project Name: Plant Hammond
 Project #: _____

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

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	REQUESTED ANALYSES (Y/N)		TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Samples Intact (Y/N)
			START DATE TIME	END DATE TIME				Fluoride by 300.0	Metals (As, B, Co, Mo)					
1	MW	G	3/15/19 11:35	3/15/19 11:56	1	Unpreserved	Y	Y	Y	15				
2						HSO4								
3						HNO3								
4						HCl								
5						NaOH								
6						Na2S2O3								
7						Methanol								
8						Other								
9														
10														
11														
12														

NO# : 2616228

PN: BM Due Date: 03/25/19
 CLIENT: GAPower-CCR

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Ben Tucker	3/15/19	14:55	Abelia	3/15/19	14:55	
Abelia	3/18/19	10:26	Paula Johnson	3/18/19	10:26	
			McAlmon	3/18/19	12:00	4.2

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Ben Tucker
 SIGNATURE of SAMPLER: [Signature]

DATE Signed: 03/15/19



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 Marner Road
 Atlanta, GA 30339
 Email: jabraham@southemco.com
 Phone: (404)508-7239
 Requested Due Date: **Standard TAT**

Required Project Information:
 Report To: Jolu Abraham / Lauren Peaty
 Copy To: Geosyntec
 Purchase Order #: SCS10348606
 Project Name: Plant Hammond
 Project #:

Invoice Information:
 Attention: scsinvoices@southemco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: belvy.mcdaniel@pacecatlabs.com
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)

Regulatory Agency:
 State / Location: GA

ITEMS #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		DATE	TIME	DATE	TIME	SAMPLER NAME AND SIGNATURE	DATE SIGNED	RECEIVED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)	
			START	END																
1	WV	G	3/15/19	3/15/19	10:26	10:26	10:26	10:26	Malina Mufson	3/15/19	Malina Mufson	3/18/19	12:00	42.8	Y	Y	Y	Y	Y	
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				

Section B

Matrix Legend:
 DW: Drinking Water, WT: Wastewater, WW: Wastewater, P: Product, SL: Solid, OL: Oil, VP: Volatile, AR: Air, OT: Other, TS: Tissue

Preservatives: H2SO4, HNO3, HCl, NaOH, Na2SO3, Methanol, Other

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

Requested Analysis Filtered (Y/N):

Additional Comments:
 Malina Mufson
 Malina Mufson
 Malina Mufson
 Malina Mufson

Signatures:
 Malina Mufson
 Malina Mufson

DATE SIGNED: 3/15/19

DATE SIGNED: 3/18/19

DATE SIGNED: 3/15/19

WO#: 2616228

PM: 8M Due Date: 03/25/19
CLIENT: GAPower-CCR



Sample Condition Upon Receipt

Client Name: GIA Power

Project # _____

WO#: **2616228**

PM: **BM** Due Date: **03/25/19**
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 m

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 checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2.	<u>see comment</u>
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: The collection time for Hg_{total}-17 was not listed on the COC and was taken from the container labels as 13:00.

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.: 2616229

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.: 2616229

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.: 2616229

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616229001	MW-22	Water	03/15/19 08:56	03/18/19 12:00
2616229002	HGWC-16	Water	03/15/19 13:52	03/18/19 12:00
2616229003	MW-21D	Water	03/15/19 11:56	03/18/19 12:00
2616229004	HGWC-17	Water	03/15/19 13:00	03/18/19 12:00

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616229

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616229001	MW-22	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616229002	HGWC-16	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616229003	MW-21D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616229004	HGWC-17	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.: 2616229

Sample: MW-22 **Lab ID: 2616229001** Collected: 03/15/19 08:56 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	0.335 ± 0.129 (0.167) C:95% T:NA	pCi/L	03/26/19 18:07	13982-63-3	
Radium-228	EPA 9320	0.642 ± 0.404 (0.757) C:70% T:85%	pCi/L	03/29/19 14:36	15262-20-1	
Total Radium	Total Radium Calculation	0.977 ± 0.533 (0.924)	pCi/L	04/02/19 13:34	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616229

Sample: HGWC-16 **Lab ID: 2616229002** Collected: 03/15/19 13:52 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	0.401 ± 0.295 (0.524) C:97% T:NA	pCi/L	03/27/19 08:02	13982-63-3	
Radium-228	EPA 9320	0.190 ± 0.265 (0.565) C:73% T:84%	pCi/L	03/29/19 14:37	15262-20-1	
Total Radium	Total Radium Calculation	0.591 ± 0.560 (1.09)	pCi/L	04/02/19 13:34	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616229

Sample: MW-21D **Lab ID: 2616229003** Collected: 03/15/19 11:56 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	0.320 ± 0.278 (0.516) C:88% T:NA	pCi/L	03/27/19 08:02	13982-63-3	
Radium-228	EPA 9320	0.652 ± 0.349 (0.612) C:73% T:87%	pCi/L	03/29/19 14:37	15262-20-1	
Total Radium	Total Radium Calculation	0.972 ± 0.627 (1.13)	pCi/L	04/02/19 13:34	7440-14-4	

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616229

Sample: HGWC-17 **Lab ID: 2616229004** Collected: 03/15/19 13:00 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	0.358 ± 0.295 (0.549) C:91% T:NA	pCi/L	03/27/19 08:02	13982-63-3	
Radium-228	EPA 9320	0.559 ± 0.348 (0.631) C:71% T:79%	pCi/L	03/29/19 14:37	15262-20-1	
Total Radium	Total Radium Calculation	0.917 ± 0.643 (1.18)	pCi/L	04/02/19 13:34	7440-14-4	

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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2616229

QC Batch:	334703	Analysis Method:	EPA 9320
QC Batch Method:	EPA 9320	Analysis Description:	9320 Radium 228
Associated Lab Samples:	2616229001, 2616229002, 2616229003, 2616229004		

METHOD BLANK:	1628726	Matrix:	Water
Associated Lab Samples:	2616229001, 2616229002, 2616229003, 2616229004		

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.: 2616229

QC Batch: 334701

Analysis Method: EPA 9315

QC Batch Method: EPA 9315

Analysis Description: 9315 Total Radium

Associated Lab Samples: 2616229001, 2616229002, 2616229003, 2616229004

METHOD BLANK: 1628722

Matrix: Water

Associated Lab Samples: 2616229001, 2616229002, 2616229003, 2616229004

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	

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.: 2616229

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.: 2616229

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616229001	MW-22	EPA 9315	334701		
2616229002	HGWC-16	EPA 9315	334701		
2616229003	MW-21D	EPA 9315	334701		
2616229004	HGWC-17	EPA 9315	334701		
2616229001	MW-22	EPA 9320	334703		
2616229002	HGWC-16	EPA 9320	334703		
2616229003	MW-21D	EPA 9320	334703		
2616229004	HGWC-17	EPA 9320	334703		
2616229001	MW-22	Total Radium Calculation	336613		
2616229002	HGWC-16	Total Radium Calculation	336613		
2616229003	MW-21D	Total Radium Calculation	336613		
2616229004	HGWC-17	Total Radium Calculation	336613		

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: jabraham@southernco.com
 Phone: (404)506-7239 | Fax: []
 Requested Due Date: Standard RAT

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

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

Regulatory Agency:
 State / Location: GA

Section B

Requested Analysis: Filtered (Y/N) []
 Matrix Code (see valid codes to left)
 Sample Type (G-GRAB C-COMP)
 Matrix Code: WTG
 Sample Type: G-GRAB C-COMP

ITEM #	MATRIX	COOE	COLLECTED		DATE	TIME	DATE	TIME	# 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)
			START	END												
1	Drinking Water	DW	3/15/19	0835	3/15/19	0856	1341	4	1	3	Y	Y	Y	Y	Y	
2	Water	WT	3/15/19	1341	3/15/19	1352	1041	1	3	Y	Y	Y	Y	Y	Y	
3	Water	WW														
4	Water	WP														
5	Product	P														
6	Semi-solid	SL														
7	Oil	OL														
8	Wipe	WP														
9	Air	AR														
10	Other	OT														
11	Tissue	TS														

Requested Analysis: Filtered (Y/N)

Matrix Code (see valid codes to left)

Sample Type (G-GRAB C-COMP)

Matrix Code: WTG

Sample Type: G-GRAB C-COMP

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

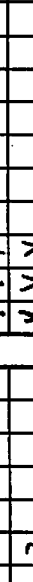
Sample IDs must be unique

MW-22

HGWC-16

DEF 15/19

NO#: 2616229

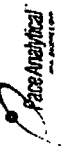


2616229

REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	RECEIVED ON	TEMP IN C	Ice	Sealed	Custody	Cooler	Samples Intact
Grant Walter / Georgia	3/18/19	1455	Melicia / Georgia	3/15/19	1455							
Melicia / Georgia	3/18/19	1026	Grant Walter / Georgia	3/18/19	1026							
			Melicia / Georgia	3/18/19	4:20							
			Grant Walter	3/18/19	4:20							

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Grant Walter
 SIGNATURE of SAMPLER: *Grant Walter*

DATE SIGNED: 03/15/19



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 Manser Road
 Atlanta, GA 30339
 Email: abraham@southernmco.com
 Phone: (404) 506-7239
 Requested Due Date: **Standard TAT**

Section B
Required Project Information:
 Report To: Jiju Abraham / Lauren Petty
 Copy To: Geosyntec
 Purchase Order #: SCS10346806
 Project Name: Plant Hammond
 Project #: **Standard TAT**

Section C
Invoice Information:
 Attention: scsinvoices@southernmco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: boisyy.morandiet@pacelabs.com
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)

Regulatory Agency: **GA**
 State Abbreviation: **GA**

Page: 2 of 3

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	Preservatives	Analytical Test	Requested Analysis Filled (Y/N)	TEMP in C	Received on	Custody	Sailed	Cooler	Samples
			START	END			DATE	TIME										
1	Drinking Water	DW	3/15/19	11:35	G	WT	15.6	11:56	3	H2SO4	Y	Y	15.6	11:55				
2	Water	WT								HCl								
3	Waste Water	WW								NaOH								
4	Product	P								Na2S2O3								
5	Solid/Slud	SL																
6	Oil	OL																
7	Wine	WP																
8	Air	AR																
9	Other	OT																
10	Tissue	TS																
11																		
12																		

MO# : 2616229
 PH: BM Due Date: 04/15/19
 CLIENT: GAPower-CCR

REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE COMMENTS
BEA Tuckner	03/15/19	14:55	Malina	3/15/19	15:55	
Malina	3/18/19	10:26	BEA Tuckner	3/18/19	10:26	
			Malina	3/18/19	12:00	

DATE Signed: 03/15/19

SAMPLER SIGNATURE: BEA Tuckner

DATE Signed: 03/15/19

SAMPLER SIGNATURE: Malina

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: Jolu Abraham / Lauren Petty	Report To: Jolu Abraham / Lauren Petty	Attention: SCSinvoices@southernco.com	Company Name: SCSinvoices@southernco.com	Attention: SCSinvoices@southernco.com
Address: 2480 Manter Road	Copy To: Geosyntec	Copy To: Geosyntec	Address:	Company Name:	Address:
Atlanta, GA 30339	Purchase Order #: SCS10346006	Purchase Order #: SCS10346006	Price Quote:	Address:	Price Quote:
Email: labraham@southernco.com	Project Name: Plant Hammond	Project Name: Plant Hammond	Price Project Manager: bely.mcdaniel@paccelabs.com	Address:	Price Project Manager: bely.mcdaniel@paccelabs.com
Phone: (404)506-7239	Project #: Standard TAT	Project #: Standard TAT	Price Profile #: 327.4 (AP) or 328.5 (RUF)	Address:	Price Profile #: 327.4 (AP) or 328.5 (RUF)
Requested Due Date:				Address:	

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analytes Test	Requested Analytes	Filtered (Y/N)	TEMP in C	Received on	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
			START DATE	END DATE													
1	Drinking Water	DW	3/15/19		WT G	1026	Unpreserved	App. IV Metals				42.7	3/18/19	Y	Y	Y	Y
2	Water	WT															
3	Waste Water	WW															
4	Product	P															
5	Soil/sed	SL															
6	Oil	OL															
7	Wipe	WP															
8	Air	AR															
9	Other	OT															
10	Tissue	TS															

NO# : 2616229

PM: BM Due Date: 04/15/19

CLIENT: GAPover-CCR

REQUISITIONED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Noelia Muskus	3/15/19	10:26	Noelia Muskus	3/18/19	10:26	
Noelia Muskus	3/18/19	12:00	Noelia Muskus	3/18/19	12:00	

SAMPLE 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 #: _____

WO#: **2616229**

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
Date and Initials of person examining contents: 3/18/19 ml

Cooler Temperature 4.2 Biological Tissue is Frozen: Yes No
Temp should be above freezing to 6°C

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 checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2.	<u>see comment</u>
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: The collection time box H610X-17 was not listed on the COC and was taken from the container labels as 13:00.

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2616230

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

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: FB-02		Lab ID: 2616230001		Collected: 03/15/19 14:50		Received: 03/18/19 12:00		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	03/20/19 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	0.011J	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		
7470 Mercury		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		
300.0 IC Anions 28 Days		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		

REPORT OF LABORATORY ANALYSIS

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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		MS % Rec	MSD % Rec	% Rec Limits	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

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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		

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: 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	MS	MSD	% Rec	Max RPD	Qual
			Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits		
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

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		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: scsinvoices@southernco.com	Company Name: SCS Invoices	Company Name: SCS Invoices	Company Name: SCS Invoices
Address: 2480 Marner Road Atlanta, GA 30339	Copy To: Geosyntec	Purchase Order #: SCS10348606	Address: Plant Hammond	Address: Plant Hammond	Address: Plant Hammond
Email: jabraham@southernco.com	Project Name: Plant Hammond	Project Name: Plant Hammond	Project Name: Plant Hammond	Project Name: Plant Hammond	Project Name: Plant Hammond
Phone: (404)506-7239 Fax: []	Project #: []	Project #: []	Project #: []	Project #: []	Project #: []
Requested Due Date: Send and TAT					

ITEM #	MATRIX CODE (see void codes to left)	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	# OF CONTAINERS	PRESERVATIVES						Analytes Test (Y/N)	Fluoride by 300.0	Radium 226/228	Metals (As, B, Co, Mo)	Sulfate by 300.0	Requested/Analyte Filled (Y/N)	Residual Chlorine (Y/N)
		START DATE	END DATE			UNPRESERVED	H2SO4	HNO3	HCl	NaOH	Na2S2O3							
1	FB-02	WT	1/14/14	20	4	1	3											
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		

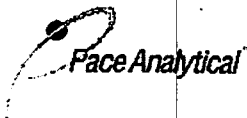
WO#: 2616230

2616230

ADDITIONAL COMMENTS	RELINQUISHED BY (AFFILIATION)		ACCEPTED BY (AFFILIATION)		DATE	TIME	DATE	TIME	RECEIVED ON	TEMP IN C	Received on	Custody	Sealed	Cooler	Samples	Intact (Y/N)	
	DATE	TIME	DATE	TIME													
APCIA Member Sample 10/17/12					10/17/12		10/17/12		Pace Analytical								
APCIA Member Sample 9/18/19					9/18/19	1200	9/18/19	1200	Maalman	4.2							

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 # _____

WO#: 2616230

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

PM: BM Due Date: 03/25/19
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 4.2 Biological Tissue is Frozen: Yes No

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

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: _____
 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)

April 10, 2019

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

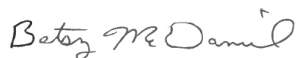
RE: Project: Plant Hammond
Pace Project No.: 2616231

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

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.: 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	0.285 ± 0.233 (0.397) C:91% T:NA	pCi/L	03/27/19 08:15	13982-63-3	
Radium-228	EPA 9320	0.313 ± 0.326 (0.671) C:70% T:84%	pCi/L	03/29/19 14:37	15262-20-1	
Total Radium	Total Radium Calculation	0.598 ± 0.559 (1.07)	pCi/L	04/02/19 13:34	7440-14-4	

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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	

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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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REPORT OF LABORATORY ANALYSIS

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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		

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 Manor Road
 Atlanta, GA 30339
 Email: labraham@southhamco.com
 Phone: (404) 506-7239 Fax
 Requested Due Date: Standard and 1st

Section B

Required Project Information:

Report To: Joji Abraham / Lauren Petty
 Copy To: Geosynetic
 Purchase Order #: SCS10348606
 Project Name: Plant Hammond
 Project #:

Section C

Invoice Information:

Attention: scsinvoices@southhamco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.mcdaniel@pacelabs.com
 Pace Profile #: 327.4 (AP) or 328.5 (Huff)

Regulatory Agency:
 State/Location: GA

ITEM #	MATRIX	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES	ANALYZE 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)	
		START DATE	END DATE			TIME	TIME										
1	Drinking Water	11/14/14	11/14/14	2041	WTG			3	Unpreserved	Y	Y	Y	Y	Y	Y	Y	
2	Water																
3	Waste Water																
4	Product																
5	Soil/Sed																
6	Oil																
7	Wipe																
8	Air																
9	Other																
10	TS																
11																	
12																	

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

FB-02

315119

AM

NO#: 2616231



ADDITIONAL COMMENTS	REMOVED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Noelia Mustkus Sample 11/11/14 1026		11/11/14	1026	Scott Peterson	3/8/19	1026	
				Madalman	3/8/19	1200	
					4.27		

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: **Noelia Mustkus**
 SIGNATURE of SAMPLER: *Noelia Mustkus*
 DATE Signed: 3/15/19



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

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.: 2616885

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616885001	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.: 2616885

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616885001	HGWA-3	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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		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	0.13	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	0.0066J	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	80.5	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	0.0032J	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	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	284	mg/L	25.0	10.0	1		04/04/19 17:45		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	6.5	mg/L	0.25	0.024	1		04/06/19 01:13	16887-00-6	M1
Fluoride	0.029J	mg/L	0.30	0.029	1		04/06/19 01:13	16984-48-8	
Sulfate	50.4	mg/L	10.0	0.17	10		04/08/19 20:01	14808-79-8	M1

REPORT OF LABORATORY ANALYSIS

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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

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

Parameter	Units	116815		116816		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	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		

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

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: 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

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
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/Duplicate:
 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	UNPRESERVED	PRESERVATIVES				ANALYSES TESTED	Requester/Analyst/Fielded (Y/N)	Residual Chlorine (Y/N)
			START	END						H2SO4	HNO3	HCl	NaOH			
1	HGWA-3	DW	4/11/19 1700	4/11/19 1725	W6		152	3								
2		WT														
3		WW														
4		P														
5		SL														
6		OL														
7		WP														
8		AR														
9		OT														
10		TS														
11																
12																

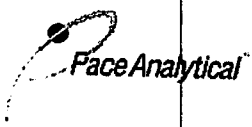
ADDITIONAL COMMENTS:
 Appendix IV (I): Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Thallium, Lead, Lithium, Molybdenum, Selenium, Thallium

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

TIME
 DATE: 4/12/19 1036
 DATE: 4/21/19 1036
 DATE: 4/21/19 1130

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

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: _____

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

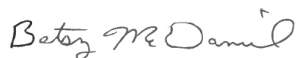
RE: Project: Plant Hammond
Pace Project No.: 2616886

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

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	0.388 ± 0.261 (0.385) C:94% T:NA	pCi/L	04/12/19 08:04	13982-63-3	
Radium-228	EPA 9320	0.372 ± 0.422 (0.887) C:75% T:83%	pCi/L	04/16/19 16:21	15262-20-1	
Total Radium	Total Radium Calculation	0.760 ± 0.683 (1.27)	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 Peety, Geosyntec
 Purchase Order #: SCS 10348605
 Project Name: Plant Hammond
 Project #:

Section C
Invoice Information:
 Attention: scsinvoic@southernco.com
 Company Name: Pacific Energy Agency
 Address: 2200 Peachtree Industrial Blvd., Atlanta, GA 30329
 State: GA
 Face Project Manager: betsy.mcdaniel@pacelabs.com
 Pace Profile #: 327 (AP) or 328 (Huff)

ITEM #	MATRIX CODE (see valid codes to left)	COLLECTED		SAMPLE TYPE (G-RAB C-COMP)	MATRIX CODE (see valid codes to left)	SAMPLER NAME AND SIGNATURE	DATE SIGNED	RECEIVED ON	SEALED	CUSTODY	COOLER	SAMPLES
		START DATE/TIME	END DATE/TIME									
1	HGWA-3	4/11/19 1700	4/11/19 1725	252	WGS	NOELIA MUSKUS	4/11/19					
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												

NO#: 2616886

MATRIX CODE	DATE	TIME	SAMPLER NAME AND SIGNATURE	DATE SIGNED	RECEIVED ON	SEALED	CUSTODY	COOLER	SAMPLES
Appendix IV (I): Antimony, Arsenic, Barium, Bismuth, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	4/2/19	10:36	NOELIA MUSKUS	4/2/19	4/2/19	10:36	NOELIA MUSKUS	4/2/19	10:36
	4/12/19	09:30	NOELIA MUSKUS	4/12/19	09:30		NOELIA MUSKUS	4/12/19	09:30



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**
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 83 Type of Ice: Wet Blue None

Cooler Temperature 2.0 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: 4/2/19 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

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.: 2616925

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				
6020B MET ICPMS		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	0.040	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	0.016J	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	132	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	0.0010J	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	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	452	mg/L	25.0	10.0	1		04/08/19 15:30		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	20.3	mg/L	0.25	0.024	1		04/06/19 10:16	16887-00-6	
Fluoride	0.10J	mg/L	0.30	0.029	1		04/06/19 10:16	16984-48-8	
Sulfate	84.3	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 Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6020B MET ICPMS		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	0.13	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 22:52	7440-39-3	
Beryllium	0.00015J	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 22:52	7440-41-7	
Boron	0.034J	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 22:52	7440-42-8	
Cadmium	0.00015J	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 22:52	7440-43-9	
Calcium	22.5J	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 22:58	7440-70-2	D3
Chromium	0.0079J	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 22:52	7440-47-3	
Cobalt	0.019	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	0.0018J	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	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	133	mg/L	25.0	10.0	1		04/08/19 15:31		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	5.8	mg/L	0.25	0.024	1		04/06/19 10:38	16887-00-6	
Fluoride	0.071J	mg/L	0.30	0.029	1		04/06/19 10:38	16984-48-8	
Sulfate	48.7	mg/L	1.0	0.017	1		04/06/19 10:38	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

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	RPD	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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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616925

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116815		116816		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	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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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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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 Result	MS Spike Conc.	MSD Spike Conc.	116729		116730		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % 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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QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616925

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.

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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.

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, Purchase Order #: 62510348606, Project Name: Plant Hammond, Project #:

Section C Invoice Information: Attention: scsinvoices@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 vmlr 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				Unpreserved				
2	Water	WT							H2SO4				
3	Waste Water	WW							HNO3				
4	Product	P							NaOH				
5	Soil/Sediment	SL							Na2S2O3				
6	Oil	OL							Metals (App. III & App. IV)				
7	Wipe	WP							Metals (App. III & D&O)				
8	Air	AR							Metals (App. III & App. IV, D&O)				
9	Other	OT							Metals (App. III & App. IV, D&O)				
10	Tissue	TS							Metals (App. III & App. IV, D&O)				
11									Metals (App. III & App. IV, D&O)				
12									Metals (App. III & App. IV, D&O)				
13									Metals (App. III & App. IV, D&O)				
14									Metals (App. III & App. IV, D&O)				
15									Metals (App. III & App. IV, D&O)				
16									Metals (App. III & App. IV, D&O)				
17									Metals (App. III & App. IV, D&O)				
18									Metals (App. III & App. IV, D&O)				
19									Metals (App. III & App. IV, D&O)				
20									Metals (App. III & App. IV, D&O)				
21									Metals (App. III & App. IV, D&O)				
22									Metals (App. III & App. IV, D&O)				
23									Metals (App. III & App. IV, D&O)				
24									Metals (App. III & App. IV, D&O)				
25									Metals (App. III & App. IV, D&O)				
26									Metals (App. III & App. IV, D&O)				
27									Metals (App. III & App. IV, D&O)				
28									Metals (App. III & App. IV, D&O)				
29									Metals (App. III & App. IV, D&O)				
30									Metals (App. III & App. IV, D&O)				
31									Metals (App. III & App. IV, D&O)				
32									Metals (App. III & App. IV, D&O)				

NO#: 2616925

ANALYTES REQUESTED	RECEIVED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on	Ice (Y/N)	Custody (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
APP IV (1): Antimony, Arsenic, Barium, Dalton Anderson (600) 4/21/19 17:45	Maria Mubun Geosyntec	4/21/19	17:45	17.45						
Beryllium, Cadmium, Chromium, Cobalt, Muehleisen/Geosyntec	4/21/19 19:30	4/21/19	19:30	19.30						
Fluoride, Lead, Lithium, Molybdenum, Kettle Lane/Geosyntec	4/21/19 09:54	4/21/19	09:54	9.54						
Selenium, Thallium	M. Dalman	4/21/19	11:00	11.00						

DATE Signed: 4/2/19

PRINT Name of SAMPLER: Dalton Anderson

SIGNATURE of SAMPLER: *[Signature]*



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: _____

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)

April 25, 2019

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

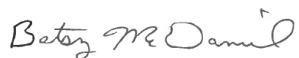
RE: Project: Plant Hammond
Pace Project No.: 2616926

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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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

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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

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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	0.426 ± 0.282 (0.418) C:85% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	0.313 ± 0.501 (1.09) C:74% T:89%	pCi/L	04/16/19 19:38	15262-20-1	
Total Radium	Total Radium Calculation	0.739 ± 0.783 (1.51)	pCi/L	04/17/19 13:15	7440-14-4	

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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	0.472 ± 0.275 (0.348) C:88% T:NA	pCi/L	04/12/19 09:46	13982-63-3	
Radium-228	EPA 9320	0.179 ± 0.465 (1.04) C:77% T:89%	pCi/L	04/16/19 18:32	15262-20-1	
Total Radium	Total Radium Calculation	0.651 ± 0.740 (1.39)	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.

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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.

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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

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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		

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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: [blank]
 Requested Due Date: Standard TBT

Section B
 Required Project Information:
 Report To: Joju Abraham
 Copy To: Lauren Petty, Geosyntec
 Atlanta, GA 30339
 Purchase Order #: SCS10348605
 Project Name: Plant Hammond
 Project #: [blank]

Section C
 Invoice Information:
 Attention: sctinvoices@southernco.com
 Company Name: [blank]
 Address: [blank]
 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)	SAMPLE TEMP AT COLLECTION		# 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	4/2/19	4/2/19	G-GRAB C-COMP	WT 6	16:02	5	2	3		Y	Y	Y			
2	Waste Water	WW															
3	Waste Water Product	WP															
4	Soil/Solid	SL															
5	Oil	OL															
6	Wipe	WP															
7	Air	AR															
8	Other	OT															
9	Tissue	TS															
10																	
11																	
12																	

WOW# : 2616926

2616926

DATE	TIME	BY	AFFILIATION	TEMP IN C	RECEIVED ON	ICE	CUSTODY	SEALED	COOLER	SAMPLES	INTER
4/2/19	1745	Grant Walter	Geosyntec	1745							
4/2/19	1930	Paulia McElman	Geosyntec	1930							
4/3/19	0954	Grant Walter	Geosyntec	0954							
4/3/19	1110	MDaliman	Pace	1110							

SAMPLE NAME AND SIGNATURE
 PRINT NAME OF SAMPLER: Grant Walter
 SIGNATURE OF SAMPLER: *Grant Walter*
 DATE SIGNED: 04/02/19



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: _____ 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 10, 2019

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

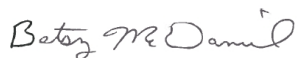
RE: Project: Plant Hammond
Pace Project No.: 2616927

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.: 2616927

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.: 2616927

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616927001	HGWA-4	Water	04/02/19 12:11	04/03/19 11:10
2616927002	HGWA-5	Water	04/02/19 10:40	04/03/19 11:10
2616927003	HGWA-6	Water	04/02/19 10:37	04/03/19 11:10

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616927

Lab ID	Sample ID	Method	Analysts	Analytes Reported
2616927001	HGWA-4	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616927002	HGWA-5	EPA 6020B	CSW	13
		SM 2540C	RLC	1
		EPA 300.0	RLC	3
2616927003	HGWA-6	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.: 2616927

Sample: HGWA-4		Lab ID: 2616927001		Collected: 04/02/19 12:11		Received: 04/03/19 11:10		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								
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 14:47	04/08/19 23:04	7440-38-2		
Barium	0.030	mg/L	0.010	0.00078	1	04/05/19 14:47	04/08/19 23:04	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 14:47	04/08/19 23:04	7440-41-7		
Boron	0.010J	mg/L	0.040	0.0039	1	04/05/19 14:47	04/08/19 23:04	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 14:47	04/08/19 23:04	7440-43-9		
Calcium	76.0	mg/L	25.0	0.69	50	04/05/19 14:47	04/08/19 23:09	7440-70-2		
Chromium	0.019	mg/L	0.010	0.0016	1	04/05/19 14:47	04/08/19 23:04	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 14:47	04/08/19 23:04	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 14:47	04/08/19 23:04	7439-92-1		
Lithium	0.00098J	mg/L	0.050	0.00097	1	04/05/19 14:47	04/08/19 23:04	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 14:47	04/08/19 23:04	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 14:47	04/08/19 23:04	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 14:47	04/08/19 23:04	7440-28-0		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	230	mg/L	25.0	10.0	1		04/08/19 15:31			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	4.4	mg/L	0.25	0.024	1		04/05/19 16:36	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		04/05/19 16:36	16984-48-8		
Sulfate	4.9	mg/L	1.0	0.017	1		04/05/19 16:36	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616927

Sample: HGWA-5		Lab ID: 2616927002		Collected: 04/02/19 10:40		Received: 04/03/19 11:10		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								
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 18:25	7440-38-2		
Barium	0.044	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 18:25	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 18:25	7440-41-7		
Boron	0.0052J	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 18:25	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 18:25	7440-43-9		
Calcium	26.3	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 18:31	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 18:25	7440-47-3		
Cobalt	0.0012J	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 18:25	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 15:23	04/09/19 18:25	7439-92-1		
Lithium	0.0028J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 18:25	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 18:25	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 18:25	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 18:25	7440-28-0		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	144	mg/L	25.0	10.0	1		04/08/19 15:31			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	1.7	mg/L	0.25	0.024	1		04/05/19 17:49	16887-00-6		
Fluoride	0.12J	mg/L	0.30	0.029	1		04/05/19 17:49	16984-48-8		
Sulfate	23.8	mg/L	1.0	0.017	1		04/05/19 17:49	14808-79-8	M1	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2616927

Sample: HGWA-6		Lab ID: 2616927003		Collected: 04/02/19 10:37		Received: 04/03/19 11:10		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								
Arsenic	ND	mg/L	0.0050	0.00057	1	04/05/19 15:23	04/09/19 18:37	7440-38-2		
Barium	0.19	mg/L	0.010	0.00078	1	04/05/19 15:23	04/09/19 18:37	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/05/19 15:23	04/09/19 18:37	7440-41-7		
Boron	0.013J	mg/L	0.040	0.0039	1	04/05/19 15:23	04/09/19 18:37	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000093	1	04/05/19 15:23	04/09/19 18:37	7440-43-9		
Calcium	49.7	mg/L	25.0	0.69	50	04/05/19 15:23	04/09/19 18:43	7440-70-2		
Chromium	ND	mg/L	0.010	0.0016	1	04/05/19 15:23	04/09/19 18:37	7440-47-3		
Cobalt	ND	mg/L	0.010	0.00052	1	04/05/19 15:23	04/09/19 18:37	7440-48-4		
Lead	ND	mg/L	0.0050	0.00027	1	04/05/19 15:23	04/09/19 18:37	7439-92-1		
Lithium	0.0095J	mg/L	0.050	0.00097	1	04/05/19 15:23	04/09/19 18:37	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.0019	1	04/05/19 15:23	04/09/19 18:37	7439-98-7		
Selenium	ND	mg/L	0.010	0.0014	1	04/05/19 15:23	04/09/19 18:37	7782-49-2		
Thallium	ND	mg/L	0.0010	0.00014	1	04/05/19 15:23	04/09/19 18:37	7440-28-0		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	238	mg/L	25.0	10.0	1		04/08/19 15:32			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	1.6	mg/L	0.25	0.024	1		04/05/19 18:13	16887-00-6		
Fluoride	ND	mg/L	0.30	0.029	1		04/05/19 18:13	16984-48-8		
Sulfate	35.5	mg/L	1.0	0.017	1		04/05/19 18:13	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616927

QC Batch: 25905 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2616927001

METHOD BLANK: 116813 Matrix: Water
Associated Lab Samples: 2616927001

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
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
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	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		2616901004 Result	Spike Conc.	Spike 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	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2616927

Parameter	Units	MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 116815		116816		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		2616901004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result								
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.: 2616927

QC Batch: 25906 Analysis Method: EPA 6020B
QC Batch Method: EPA 3005A Analysis Description: 6020B MET
Associated Lab Samples: 2616927002, 2616927003

METHOD BLANK: 116817 Matrix: Water
Associated Lab Samples: 2616927002, 2616927003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
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	
Lead	mg/L	ND	0.0050	0.00027	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
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	
Lead	mg/L	0.1	0.099	99	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
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	
Beryllium	mg/L	ND	0.1	0.1	0.092	0.092	92	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.: 2616927

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.									
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		
Lead	mg/L	ND	0.1	0.1	0.096	0.094	96	94	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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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2616927

QC Batch: 25999 Analysis Method: SM 2540C
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 2616927001, 2616927002, 2616927003

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.: 2616927

QC Batch: 25882 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2616927001, 2616927002, 2616927003

METHOD BLANK: 116732 Matrix: Water
Associated Lab Samples: 2616927001, 2616927002, 2616927003

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		% Rec Limits	Max RPD	Qual		
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.					
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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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2616927

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.

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.: 2616927

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616927001	HGWA-4	EPA 3005A	25905	EPA 6020B	25922
2616927002	HGWA-5	EPA 3005A	25906	EPA 6020B	25928
2616927003	HGWA-6	EPA 3005A	25906	EPA 6020B	25928
2616927001	HGWA-4	SM 2540C	25999		
2616927002	HGWA-5	SM 2540C	25999		
2616927003	HGWA-6	SM 2540C	25999		
2616927001	HGWA-4	EPA 300.0	25882		
2616927002	HGWA-5	EPA 300.0	25882		
2616927003	HGWA-6	EPA 300.0	25882		

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 Mener Road
 Atlanta, GA 30339
 Email: jbrabham@southemco.com
 Phone: (404)506-7239
 Requested Due Date: **Standard 181**

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: scsinvoices@southemco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.mcdaniel@paceelabs.com
 Pace Profile #: 327 (AP) or 328 (Hurf)

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION		# OF CONTAINERS	PRESERVATIVES		ANALYSIS TEST	RECEIVED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on loc (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
			START DATE	END DATE			START TIME	END TIME		NaOH	HCl									
1	Drinking Water	DW	04/02	04/02	G	WT G	11:52	12:11	3					4/2/19	1745	1930				
2	Waste Water	WW												4/2/19	1930	1930				
3	Waste Water	WW												4/3/19	0954	0954				
4	Product	P												4/3/19	1110	1110				
5	Soil/Sediment	SL																		
6	Oil	OL																		
7	Wipe	WP																		
8	Air	AR																		
9	Other	OT																		
10	Tissue	TS																		
11																				
12																				

NO#: 2616927

2616927

MATRIX	CODE	START DATE	END DATE	START TIME	END TIME	SAMPLE TYPE	MATRIX CODE	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSIS TEST	RECEIVED BY / AFFILIATION	DATE	TIME	TEMP in C	Received on loc (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
App IV (3): Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium		04/02/19	04/02/19	11:52	12:11	G	WT G	11:52	12:11	3			Grant Walter / Geosyntec	1745	1930				
												Melia Mendenhall / Geosyntec	1930	1930					
												J. P. Pace / Geosyntec	0954	0954					
												Melia Mendenhall	1110	1110					



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: Joji Abraham	Attention: scsinvoicess@southamco.com	Company Name:	Company Name:	
Address: 2480 Maner Road Atlanta, GA 30339	Copy To: Lauren Petty, Geosyntec	Purchase Order #: SCS10048606	Project Name: Plant Hammond	Pace Profile #: 327 (AP) or 328 (Huff)	GA
Email: jabraham@southamco.com	Project #: Standard PAT	Project Manager: betsy.mcdaniel@pacejabs.com			
Phone: (404)506-7239					
Requested Due Date: Standard PAT					

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G-RAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS		PRESERVATIVES	ANALYSIS	METS (App. III & App. IV)	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	END DATE			START TIME	END TIME								
1	Drinking Water	DW	4/12/19	4/12/19	5		2	3	Unpreserved							
2	Water	WT	4/12/19	4/12/19	5		2	3								
3	Waste Water	WW														
4	Product	P														
5	Solid/Solid	SL														
6	Oil	OL														
7	Wipe	WP														
8	Air	AR														
9	Other	OT														
10	Tissue	TS														

CONTROL COMMENTS	HELD/ISSUED BY / RELATION	DATE	TIME	ACCEPTED BY / VALIDATION	DATE	TIME	TEMP In C	Received on	Temp	Cooler	Custody	Samples	Intrac
APPEL (S) Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Dalton Anderson (SO)	4/2/19	17:45	Melica Raphael/Geosyntec	4/2/19	17:45							
	Melica Raphael/Geosyntec	4/2/19	19:30	GPS Run/Geosyntec	4/2/19	19:30							
	GPS Run/Geosyntec	4/13/19	09:54	GPS Run/Geosyntec	4/13/19	09:54							
	Melica Raphael/Geosyntec	4/13/19	09:54	GPS Run/Geosyntec	4/13/19	09:54							
	Melica Raphael/Geosyntec	4/13/19	11:10	GPS Run/Geosyntec	4/13/19	11:10							

WO# : 2616927
 PH: BM Due Date: 04/10/19
 CLIENT: GAPower-CCR

PRINT Name of SAMPLER: Dalton Anderson
 SIGNATURE OF SAMPLER: *[Signature]*
 DATE Signed: 4/2/19



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@southarmco.com
 Phone: (404)506-7239
 Requested Due Date: **STANDARD TAT**

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: scsinvoices@southarmco.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)	# OF CONTAINERS	PRESERVATIVES	ANALYSIS TESTS	Requested Analyte(s) (Y/N)	TEMP in C	Received on Isc (Y/N)	Custody Sealed (Y/N)	Samples (Y/N)
			START DATE TIME	END DATE TIME										
1	Drinking Water	DW	4/2/19 1012	4/2/19 1037	G	W6	5	Unpreserved	Metals (App. III & App. IV) 3	Metals (App. III, App. IV, D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)	
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												
<p>W0# : 2616927</p> <p>PM: BM Due Date: 04/10/19</p> <p>CLIENT: GAPower-CCR</p>														

APPROVALS	RECEIVED BY / DATE / TIME	RECEIVED BY / DATE / TIME	RECEIVED BY / DATE / TIME
Appendix IV (S): Arsenic, Barium	Moelia Nijmberk / Geosyntec	4/2/19 1430	4/2/19 1430
Beryllium, Cadmium, Chromium, Cobalt,	Moelia Nijmberk / Geosyntec	4/3/19 0954	4/3/19 0954
Fluoride, Lead, Lithium, Molybdenum, Selenium	Moelia Nijmberk / Geosyntec	4/3/19 1110	4/3/19 1110
Thallium	Moelia Nijmberk / Geosyntec	4/3/19 1110	4/3/19 1110

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Moelia Nijmberk
 SIGNATURE of SAMPLER: Moelia Nijmberk
 DATE Signed: 4/2/19



Sample Condition Upon Receipt

Client Name: GAPower

Project # _____

WO#: **2616927**

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 no

Packing Material: Bubble Wrap Bubble Bags None Other _____

Thermometer Used SB 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 25, 2019

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


RE: Project: Plant Hammond
Pace Project No.: 2616928

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

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

CERTIFICATIONS

Project: Plant Hammond
Pace Project No.: 2616928

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2616928

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2616928001	HGWA-4	Water	04/02/19 12:11	04/03/19 11:10
2616928002	HGWA-5	Water	04/02/19 10:40	04/03/19 11:10
2616928003	HGWA-6	Water	04/02/19 10:37	04/03/19 11:10

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2616928

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2616928001	HGWA-4	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616928002	HGWA-5	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2616928003	HGWA-6	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.: 2616928

Sample: HGWA-4 **Lab ID: 2616928001** Collected: 04/02/19 12:11 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	0.180 ± 0.184 (0.322) C:91% T:NA	pCi/L	04/12/19 07:52	13982-63-3	
Radium-228	EPA 9320	0.314 ± 0.440 (0.947) C:74% T:84%	pCi/L	04/16/19 16:22	15262-20-1	
Total Radium	Total Radium Calculation	0.494 ± 0.624 (1.27)	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.: 2616928

Sample: HGWA-5 **Lab ID: 2616928002** Collected: 04/02/19 10:40 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	0.411 ± 0.254 (0.294) C:93% T:NA	pCi/L	04/12/19 07:55	13982-63-3	
Radium-228	EPA 9320	0.657 ± 0.423 (0.802) C:74% T:87%	pCi/L	04/16/19 16:22	15262-20-1	
Total Radium	Total Radium Calculation	1.07 ± 0.677 (1.10)	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.: 2616928

Sample: HGWA-6 **Lab ID: 2616928003** Collected: 04/02/19 10:37 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	0.204 ± 0.226 (0.440) C:92% T:NA	pCi/L	04/12/19 07:55	13982-63-3	
Radium-228	EPA 9320	0.417 ± 0.365 (0.737) C:80% T:84%	pCi/L	04/16/19 16:22	15262-20-1	
Total Radium	Total Radium Calculation	0.621 ± 0.591 (1.18)	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.: 2616928

QC Batch:	337392	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2616928001, 2616928002, 2616928003		

METHOD BLANK:	1642069	Matrix:	Water
Associated Lab Samples:	2616928001, 2616928002, 2616928003		

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.: 2616928

QC Batch: 337342

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2616928001, 2616928002, 2616928003

METHOD BLANK: 1641953

Matrix: Water

Associated Lab Samples: 2616928001, 2616928002, 2616928003

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.: 2616928

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.: 2616928

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2616928001	HGWA-4	EPA 9315	337392		
2616928002	HGWA-5	EPA 9315	337392		
2616928003	HGWA-6	EPA 9315	337392		
2616928001	HGWA-4	EPA 9320	337342		
2616928002	HGWA-5	EPA 9320	337342		
2616928003	HGWA-6	EPA 9320	337342		
2616928001	HGWA-4	Total Radium Calculation	338683		
2616928002	HGWA-5	Total Radium Calculation	338683		
2616928003	HGWA-6	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 Mancor Road
 Atlanta, GA 30339
 Email: jbraham@southemco.com
 Phone: (404)506-7239
 Requested Due Date: Standard TBT

Section B
 Required Project Information:
 Report To: Joji Abraham
 Copy To: Lauren Petty, Geosynsic
 Attention: scs@services@southemco.com
 Company Name:
 Address:
 Pace Quote: SCS10348606
 Project Name: Plant Hammond
 Project #:
 Pace Project Manager: betty.mcdaniel@pacelabs.com
 Pace Profile #: 327 (AP) or 328 (Huff)

Section C
 Invoice Information:
 Attention: scs@services@southemco.com
 Company Name:
 Address:
 Pace Quote: SCS10348606
 Project Name: Plant Hammond
 Project #:
 Pace Project Manager: betty.mcdaniel@pacelabs.com
 Pace Profile #: 327 (AP) or 328 (Huff)

Page: 1 of 3

ITEM #	MATRIX CODE	MATRIX	COLLECTED		DATE	TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	METS (APP. III & APP. IV)	METS (APP. III, IV, D&O)	METS (APP. III & D&O)	TDS, CL, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
			START	END												
1	HGWA-4	Drinking Water	04/02 11:52	04/02 12:11	04/02/19	12:11	5	3	Unpreserved	None	None	None	None	None	None	None
2		Water														
3		Waste Water														
4		Waste Water Product														
5		Soil/Solid														
6		Odor														
7		Wipe														
8		Air														
9		Other														
10		Tissue														

GW
 04/02/19

WO#: 2616928

ADDITIONAL COMMENTS	RELINQUISHED BY/AFFILIATION	DATE	TIME	ACCEPTED BY/AFFILIATION	DATE	TIME	RECEIVED ON	TEMP in C	Ice (Y/N)	Custody (Y/N)	Soiled Cooler (Y/N)	Samples Intact (Y/N)
Grant Walter/Geosynsic	Grant Walter/Geosynsic	04/02/19	12:11	Melissa McPherson	4/2/19	12:45						
Melissa McPherson/Kempke	Melissa McPherson/Kempke	4/2/19	12:30	Jeff Law/Kempke	4/2/19	14:30						
Jeff Law/Kempke	Jeff Law/Kempke	4/3/19	09:54	MOA Luman	4/3/19	11:10						

SAMPLER 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.

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

Section B
Required Project Information:
 Report To: Jiju Abraham
 Copy To: Lauren Peaty, Geosyntec
 Purchase Order #: SCS10348606
 Project Name: Plant Hammond
 Project #: Standard TAT

Section C
Invoice Information:
 Attention: scsinvoic@southernco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.mcdama@pacelabs.com
 Pace Profile #: 327 (AP) or 328 (Huff)
 GA

ITEM #	MATRIX CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analyses Tested Y/N	Metals (App. III & App. IV)	Metals (App. III, IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME										
1	H2NA-5	G	4/2/19 10:00	4/2/19 10:40	5	2	3		Y	Y	Y	Y		
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														

NO# : 2616928

PM: BM Due Date: 05/01/19
 CLIENT: GAPover-CCR

DATE	TIME	RECEIVED BY / AFFILIATION	DATE	TIME	RECEIVED BY / AFFILIATION
4/2/19	17:05	Melina Anderson/Geosyntec	4/2/19	17:45	Melina Anderson/Geosyntec
4/2/19	19:30	Scott Lane/Geosyntec	4/2/19	19:30	Scott Lane/Geosyntec
4/3/19	09:54	MOA Luman	4/3/19	11:00	MOA Luman

TEMP in C: _____
 Received on: _____
 Ice: _____
 Sealed: _____
 Cooler: _____
 Samples: _____

DATE Signed: 4/2/19
 SIGNATURE of SAMPLER: Dalton Anderson
 PRINT Name of SAMPLER: Dalton Anderson



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: jbrabham@southhamco.com
 Phone: (404)506-7239
 Requested Due Date: Standard
 Fax: **TAT**

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

Section C
Invoice Information:
 Attention: scsinvoices@southhamco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.medaniel@pacelabs.com
 Pace Profile #: 327 (AP) or 328 (Huff)

ITEM #	MATRIX	CODE	COLLECTED		DATE	TIME	DATE	TIME	SAMPLE TYPE (G-RAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLER	TEMP in C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
			START	END													
1	Residual Chlorine (Y/N)																
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	

NO# : 2616928
 PM: BM Due Date: 05/01/19
 CLIENT: GAPower-CCR

ANALYSIS TEST
 Metals (App. III & App. IV) 3
 Metals (App. III, App. IV, D&O) 3
 Metals (App. III & D&O)
 TDS, Cl, F, SO4
 Radium 226/228

PRESERVATIVES
 Unpreserved 3
 H2SO4
 HNO3
 HCl
 NaOH
 Na2S2O3
 Methanol
 Other

DATE SIGNED: 4/12/19
SIGNATURE: Noelia Muskus
PRINT NAME OF SAMPLER: Noelia Muskus
SIGNATURE OF SAMPLER: Noelia Muskus

DATE SIGNED: 4/12/19
SIGNATURE: Noelia Muskus



Sample Condition Upon Receipt

Client Name: GIA Power

Project # _____

WO#: **2616928**

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 13, 2019

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

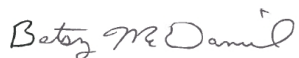
RE: Project: Plant Hammond
Pace Project No.: 2617072

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.: 2617072

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

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

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617072

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617072001	HGWC-15	Water	04/04/19 10:44	04/05/19 11:20
2617072002	HGWC-16	Water	04/04/19 12:52	04/05/19 11:20
2617072003	MW-21D	Water	04/04/19 15:38	04/05/19 11:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617072

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617072001	HGWC-15	EPA 6020B	JMW1, SER	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617072002	HGWC-16	EPA 6020B	JMW1, SER	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	MWB, RLC	3	PASI-GA
2617072003	MW-21D	EPA 6020B	JMW1, SER	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	MWB, RLC	3	PASI-GA

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2617072

Sample: HGWC-15		Lab ID: 2617072001		Collected: 04/04/19 10:44		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.00017J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 01:03	7440-38-2	
Barium	0.018	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 01:03	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 01:03	7440-41-7	
Boron	2.3	mg/L	2.0	0.051	20	04/09/19 10:55	04/11/19 19:01	7440-42-8	M6
Cadmium	0.0018	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 01:03	7440-43-9	
Calcium	214	mg/L	25.0	1.0	50	04/09/19 10:55	04/11/19 01:44	7440-70-2	M6
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 01:03	7440-47-3	
Cobalt	0.035	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 01:03	7440-48-4	
Lead	0.000072J	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 01:03	7439-92-1	
Lithium	0.00090J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 01:03	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 01:03	7439-98-7	
Selenium	0.00021J	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 01:03	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 01:03	7440-28-0	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	926	mg/L	25.0	10.0	1		04/11/19 19:35		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	138	mg/L	5.0	0.48	20		04/10/19 08:46	16887-00-6	
Fluoride	0.066J	mg/L	0.30	0.029	1		04/09/19 22:04	16984-48-8	
Sulfate	528	mg/L	20.0	0.34	20		04/10/19 08:46	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617072

Sample: HGWC-16		Lab ID: 2617072002		Collected: 04/04/19 12:52		Received: 04/05/19 11:20		Matrix: Water	
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A							
Arsenic	0.00010J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 01:21	7440-38-2	
Barium	0.11	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 01:21	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 01:21	7440-41-7	
Boron	2.1	mg/L	2.0	0.051	20	04/09/19 10:55	04/11/19 19:49	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 01:21	7440-43-9	
Calcium	196	mg/L	10.0	0.41	20	04/09/19 10:55	04/11/19 19:49	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 01:21	7440-47-3	
Cobalt	0.00028J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 01:21	7440-48-4	
Lead	0.00016J	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 01:21	7439-92-1	
Lithium	0.0032J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 01:21	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 01:21	7439-98-7	
Selenium	0.000089J	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 01:21	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 01:21	7440-28-0	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	704	mg/L	25.0	10.0	1		04/11/19 19:35		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	76.8	mg/L	1.2	0.12	5		04/10/19 09:09	16887-00-6	
Fluoride	ND	mg/L	0.30	0.029	1		04/09/19 22:27	16984-48-8	
Sulfate	251	mg/L	10.0	0.17	10		04/12/19 18:43	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617072

Sample: MW-21D		Lab ID: 2617072003		Collected: 04/04/19 15:38		Received: 04/05/19 11:20		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.00019J	mg/L	0.0050	0.000060	1	04/09/19 10:55	04/10/19 01:25	7440-38-2		
Barium	0.075	mg/L	0.010	0.000060	1	04/09/19 10:55	04/10/19 01:25	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/09/19 10:55	04/10/19 01:25	7440-41-7		
Boron	5.2	mg/L	5.0	0.13	50	04/09/19 10:55	04/11/19 19:52	7440-42-8		
Cadmium	ND	mg/L	0.0010	0.000070	1	04/09/19 10:55	04/10/19 01:25	7440-43-9		
Calcium	427	mg/L	25.0	1.0	50	04/09/19 10:55	04/11/19 19:52	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/09/19 10:55	04/10/19 01:25	7440-47-3		
Cobalt	0.00034J	mg/L	0.010	0.000050	1	04/09/19 10:55	04/10/19 01:25	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/09/19 10:55	04/10/19 01:25	7439-92-1		
Lithium	0.019J	mg/L	0.050	0.00042	1	04/09/19 10:55	04/10/19 01:25	7439-93-2		
Molybdenum	0.033	mg/L	0.010	0.00010	1	04/09/19 10:55	04/10/19 01:25	7439-98-7		
Selenium	ND	mg/L	0.010	0.000080	1	04/09/19 10:55	04/10/19 01:25	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/09/19 10:55	04/10/19 01:25	7440-28-0		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	1800	mg/L	25.0	10.0	1		04/11/19 19:35			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	299	mg/L	25.0	2.4	100		04/12/19 19:06	16887-00-6	B	
Fluoride	0.10J	mg/L	0.30	0.029	1		04/09/19 22:50	16984-48-8		
Sulfate	915	mg/L	100	1.7	100		04/12/19 19:06	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617072

QC Batch: 468126 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Associated Lab Samples: 2617072001, 2617072002, 2617072003

METHOD BLANK: 2543175 Matrix: Water
Associated Lab Samples: 2617072001, 2617072002, 2617072003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
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	
Lead	mg/L	ND	0.0050	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
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	
Lead	mg/L	0.05	0.050	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	2617072001 Result	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD Spike Conc.	MSD Result						
Arsenic	mg/L	0.00017J	0.01	0.010	0.010	0.010	102	99	75-125	3	20	
Barium	mg/L	0.018	0.05	0.069	0.068	0.068	101	99	75-125	1	20	
Beryllium	mg/L	ND	0.01	0.0088	0.0084	0.0084	87	84	75-125	4	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617072

Parameter	Units	2543177		2543178		MS % Rec	MSD % Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
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	
Lead	mg/L	0.000072J	0.05	0.05	0.052	0.051	103	102	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.: 2617072

QC Batch: 26061 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2617072001, 2617072002, 2617072003

METHOD BLANK: 117670 Matrix: Water
Associated Lab Samples: 2617072001, 2617072002, 2617072003

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Chloride	mg/L	0.31	0.25	0.024	04/09/19 19:01	
Fluoride	mg/L	ND	0.30	0.029	04/09/19 19:01	
Sulfate	mg/L	ND	1.0	0.017	04/09/19 19:01	

LABORATORY CONTROL SAMPLE: 117671

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	10	10.1	101	90-110	
Fluoride	mg/L	10	9.4	94	90-110	
Sulfate	mg/L	10	10.8	108	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 117672 117673

Parameter	Units	2617069001		2617069002		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
Chloride	mg/L	6.9	10	10	16.0	16.1	91	92	90-110	1	15		
Fluoride	mg/L	0.042J	10	10	9.0	9.1	89	91	90-110	2	15	M1	
Sulfate	mg/L	358	10	10	224	224	-1340	-1330	90-110	0	15	M1	

MATRIX SPIKE SAMPLE: 117674

Parameter	Units	2617069002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	mg/L	7.2	10	16.3	91	90-110	
Fluoride	mg/L	0.045J	10	9.3	92	90-110	
Sulfate	mg/L	369	10	226	-1430	90-110	M1

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617072

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.

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.: 2617072

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617072001	HGWC-15	EPA 3010A	468126	EPA 6020B	468248
2617072002	HGWC-16	EPA 3010A	468126	EPA 6020B	468248
2617072003	MW-21D	EPA 3010A	468126	EPA 6020B	468248
2617072001	HGWC-15	SM 2540C	26251		
2617072002	HGWC-16	SM 2540C	26251		
2617072003	MW-21D	SM 2540C	26251		
2617072001	HGWC-15	EPA 300.0	26061		
2617072002	HGWC-16	EPA 300.0	26061		
2617072003	MW-21D	EPA 300.0	26061		

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 Marner Road
 Atlanta, GA 30039
 Email: jabraham@southhamco.com
 Phone: (404) 506-7239
 Requested Due Date: Standard TAT

Section B
Required Project Information:
 Report To: Joji Abraham
 Copy To: Lauren Petty, Geosyntec
 Atlanta, GA 30039
 Purchase Order #: SCS10548606
 Project Name: Plant Hammond
 Project #:

Section C
Invoice Information:
 Attention: scsinvoices@southhamco.com
 Company Name:
 Address:
 Pace Quote:
 Pace Project Manager: betsy.mcdaniel@pacelabs.com
 Pace Profile #: 327 (AP) or 328 (Huff)

Page: 1 of Z

Regulatory Agency:
 State/Location: GA

ITEM #	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES	ANALYSES TESTED (Y/N)	Mets (App. III & App. IV)	Mets (App. III, App. IV, D&O)	TDS, Cl, F, SO4	Radium 226/228	Residual Chlorine (Y/N)
			START DATE	END DATE									
1	HGWC-15	WTG	04/04 10:23	04/04 10:44	1004	5	2	3	Y	Y	Y		
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													

APPROVALS:
 APPLICANT: Grant Walter DATE: 4-4-19 TIME: 18:04
 ANALYST: Grant Walter / Geosyntec DATE: 4/4/19 TIME: 20:30
 SAMPLER: Grant Walter DATE: 4/5/19 TIME: 09:33
 SIGNATURE: M. Dalman DATE: 4/5/19 TIME: 11:29

RECEIVED ON:
 Received on: 4/5/19 TIME: 09:33
 Received on: 4/5/19 TIME: 11:29

TEMP IN C:
 TEMP IN C: 12

DATE SIGNED:
 DATE SIGNED: 04/04/19

SIGNATURE OF SAMPLER:
 SIGNATURE OF SAMPLER: Grant Walter

SIGNATURE OF ANALYST:
 SIGNATURE OF ANALYST: Grant Walter

RECEIVED ON:
 Received on: 4/5/19 TIME: 11:29

TEMP IN C:
 TEMP IN C: 12

DATE SIGNED:
 DATE SIGNED: 04/04/19

SIGNATURE OF SAMPLER:
 SIGNATURE OF SAMPLER: Grant Walter

SIGNATURE OF ANALYST:
 SIGNATURE OF ANALYST: Grant Walter

WO# : 2617072



Sample Condition Upon Receipt

Client Name: GIA Power

Project # _____

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

WO#: 2617072

PM: **BM** Due Date: **04/12/19**
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 1.2 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 4/5/19 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)

April 29, 2019

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

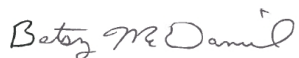
RE: Project: Plant Hammond
Pace Project No.: 2617073

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.: 2617073

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2617073

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617073001	HGWC-15	Water	04/04/19 10:44	04/05/19 11:20
2617073002	HGWC-16	Water	04/04/19 12:52	04/05/19 11:20
2617073003	MW-21D	Water	04/04/19 15:38	04/05/19 11:20

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617073

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617073001	HGWC-15	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617073002	HGWC-16	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617073003	MW-21D	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.: 2617073

Sample: HGWC-15 **Lab ID: 2617073001** Collected: 04/04/19 10:44 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	0.122 ± 0.231 (0.531) C:92% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228	EPA 9320	0.390 ± 0.335 (0.679) C:83% T:87%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	0.512 ± 0.566 (1.21)	pCi/L	04/22/19 11:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617073

Sample: HGWC-16 **Lab ID: 2617073002** Collected: 04/04/19 12:52 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	0.217 ± 0.246 (0.484) C:77% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228	EPA 9320	0.743 ± 0.401 (0.730) C:86% T:79%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	0.960 ± 0.647 (1.21)	pCi/L	04/22/19 11:17	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617073

Sample: MW-21D **Lab ID: 2617073003** Collected: 04/04/19 15:38 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	0.276 ± 0.222 (0.361) C:95% T:NA	pCi/L	04/17/19 08:36	13982-63-3	
Radium-228	EPA 9320	0.515 ± 0.378 (0.745) C:85% T:80%	pCi/L	04/18/19 12:30	15262-20-1	
Total Radium	Total Radium Calculation	0.791 ± 0.600 (1.11)	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.: 2617073

QC Batch:	337917	Analysis Method:	EPA 9315
QC Batch Method:	EPA 9315	Analysis Description:	9315 Total Radium
Associated Lab Samples:	2617073001, 2617073002, 2617073003		

METHOD BLANK:	1644525	Matrix:	Water
Associated Lab Samples:	2617073001, 2617073002, 2617073003		

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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QUALITY CONTROL - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617073

QC Batch: 337911

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617073001, 2617073002, 2617073003

METHOD BLANK: 1644521

Matrix: Water

Associated Lab Samples: 2617073001, 2617073002, 2617073003

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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QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617073

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

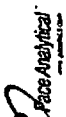
Project: Plant Hammond

Pace Project No.: 2617073

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617073001	HGWC-15	EPA 9315	337917		
2617073002	HGWC-16	EPA 9315	337917		
2617073003	MW-21D	EPA 9315	337917		
2617073001	HGWC-15	EPA 9320	337911		
2617073002	HGWC-16	EPA 9320	337911		
2617073003	MW-21D	EPA 9320	337911		
2617073001	HGWC-15	Total Radium Calculation	339290		
2617073002	HGWC-16	Total Radium Calculation	339290		
2617073003	MW-21D	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		Section B		Section C	
Required Client Information:		Required Project Information:		Invoice Information:	
Company: Georgia Power - Coal Combustion Residuals	Report To: Jotji Abraham	Copy To: Lauren Petty, Geosyntec	Attention: scsinvoices@southernco.com	Company Name:	
Address: 2480 Maner Road Atlanta, GA 30339			Address:		
Email: jbrantam@southernco.com	Purchase Order #: SC-S10348606	Project Name: Plant Hammond	Project #:	Trace Curator:	
Phone: (404)506-7239	Fax:			Trace Project Manager: betsy.mcdaniel@pacelabs.com	
Requested Due Date: Standard FAX				Trace Profile #: 327 (AP) or 328 (Huff)	

ITEM #	MATRIX CODE Drinking Water WV WVW WVWV P SL OL WP AR OT TS	MATRIX CODE (see void codes to left)	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		DATE	TIME	DATE	TIME	# OF CONTAINERS	PRESERVATIVES	ANALYSES TEST	Y/N	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)	
				START	END																DATE
1			WTG	04/23	04/23	10:23	04/23	10:44	18	5	3	Y									
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

NO#: 2617073

ADDITIONAL COMMENTS	RELEASED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	TEMP IN C	Received on	Ice (Y/N)	Custody	Sealed	Cooler	Sample	Intact (Y/N)
APR 13: Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium	Grant Walter / Geosyntec	04/19/19	1804	Grant Walter / Geosyntec	4-4-19	1804								
	Grant Walter / Geosyntec	4-4-19	2030	Grant Walter / Geosyntec	4/4/19	2030								
	Grant Walter / Geosyntec	4/5/19	0933	Grant Walter / Geosyntec	4.5.19	0933								
	Grant Walter / Geosyntec	4/5/19	1120	Grant Walter / Geosyntec	4/5/19	1120	1.2							



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

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)506-7239
 Requested Due Date:

Section B

Required Project Information:

Report To: Jopi Abraham
 Copy To: Lauren Petty, Geosyntec
 Address:
 Plant Hammond
 Project #:
 Purchase Order #: SCS10548606
 Pace Project Manager: betsy.medaniel@paceelabs.com
 Pace Profile #: 327 (AP) or 328 (Huff)

Section C

Invoice Information:

Attention: scsinvoicess@southernco.com
 Company Name:
 Address:
 State: GA

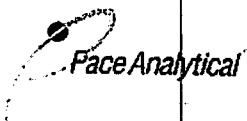
ITEM #	MATRIX CODE	SAMPLE ID	COLLECTED		DATE	TIME	DATE	TIME	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G-RAB C-COMP)	# OF CONTAINERS	PRESERVATIVES								ANALYSES TEST Y/N	Required Analysis Filtered (Y/N)	Residual Chlorine (Y/N)			
			START	END								H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Metals (App. III & App. IV)				Metals (App. III, App. IV, D&O)	Metals (App. III & D&O)	TDS, Cl, F, SO4
1	DW	H6WC-10	4/4/19 12:30	4/4/19 12:52	4/4/19	12:52	4/4/19	12:52	APP III + IV (3)	G-RAB	2														
2	W	MW-2/D	4/4/19 15:19	4/4/19 15:54	4/4/19	15:54	4/4/19	15:54	APP III + IV (3)	G-RAB	2														
3																									
4																									
5																									
6																									
7																									
8																									
9																									
10																									
11																									
12																									

NO# : 2617073
 PH: BM Due Date: 05/03/19
 CLIENT: GAPower-CCR

4/4/2019
 DCA

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
Dalton Anderson (Geo)	4/4/19	1804	[Signature]	4-4-19	1804	
[Signature]	4-4-19	2038	[Signature]	4/4/19	2038	
[Signature]	4/5/19	0833	[Signature]	4/5/19	0833	
[Signature]	4/5/19	1120	[Signature]	4/5/19	1120	

PRINT Name of SAMPLER: Dalton Anderson
 SIGNATURE OF SAMPLER: [Signature]
 DATE SIGNED: 4/4/2019



Sample Condition Upon Receipt

Client Name: GIA Power

Project # _____

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

WO#: 2617073

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

PM: **BM** Due Date: **05/03/19**
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
Date and Initials of person examining contents: 4/5/19 MK

Cooler Temperature 1.2 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)

May 01, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2617150

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.: 2617150

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

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617150

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617150001	MW-22	Water	04/05/19 09:59	04/08/19 15:30
2617150002	MW-23D	Water	04/05/19 11:33	04/08/19 15:30
2617150003	HGWC-14	Water	04/05/19 12:52	04/08/19 15:30
2617150004	HGWC-17	Water	04/05/19 12:25	04/08/19 15:30
2617150005	HGWC-18	Water	04/05/19 14:25	04/08/19 15:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617150

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617150001	MW-22	EPA 6020B	JMW1, SER	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617150002	MW-23D	EPA 6020B	JMW1, SER	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617150003	HGWC-14	EPA 6020B	JMW1, SER	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617150004	HGWC-17	EPA 6020B	JMW1, SER	13	PASI-A
		SM 2540C	RLC	1	PASI-GA
		EPA 300.0	RLC	3	PASI-GA
2617150005	HGWC-18	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.: 2617150

Sample: MW-22		Lab ID: 2617150001		Collected: 04/05/19 09:59		Received: 04/08/19 15:30		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	ND	mg/L	0.10	0.0012	20	04/10/19 19:59	04/11/19 21:28	7440-38-2	D3	
Barium	0.036	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 07:51	7440-39-3		
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 07:51	7440-41-7		
Boron	2.1	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 21:28	7440-42-8		
Cadmium	0.00064J	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 07:51	7440-43-9		
Calcium	178	mg/L	10.0	0.41	20	04/10/19 19:59	04/11/19 21:28	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 07:51	7440-47-3		
Cobalt	0.022	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 07:51	7440-48-4		
Lead	ND	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 07:51	7439-92-1	BC	
Lithium	0.0013J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 07:51	7439-93-2		
Molybdenum	0.00013J	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 07:51	7439-98-7		
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 07:51	7782-49-2		
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 07:51	7440-28-0		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	890	mg/L	25.0	10.0	1		04/11/19 20:53			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	131	mg/L	6.2	0.60	25		04/15/19 19:25	16887-00-6		
Fluoride	0.13J	mg/L	0.30	0.029	1		04/10/19 22:49	16984-48-8		
Sulfate	392	mg/L	25.0	0.42	25		04/15/19 19:25	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617150

Sample: MW-23D Lab ID: 2617150002 Collected: 04/05/19 11:33 Received: 04/08/19 15:30 Matrix: Water									
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Arsenic	ND	mg/L	0.10	0.0012	20	04/10/19 19:59	04/11/19 21:35	7440-38-2	D3
Barium	0.061	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 07:58	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 07:58	7440-41-7	
Boron	3.0	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 21:35	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 07:58	7440-43-9	
Calcium	352	mg/L	25.0	1.0	50	04/10/19 19:59	04/15/19 11:07	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 07:58	7440-47-3	
Cobalt	0.0012J	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 07:58	7440-48-4	
Lead	ND	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 07:58	7439-92-1	BC
Lithium	0.0021J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 07:58	7439-93-2	
Molybdenum	0.0014J	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 07:58	7439-98-7	
Selenium	ND	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 07:58	7782-49-2	
Thallium	ND	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 07:58	7440-28-0	
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	1400	mg/L	25.0	10.0	1		04/11/19 20:53		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	195	mg/L	6.2	0.60	25		04/15/19 19:48	16887-00-6	
Fluoride	0.14J	mg/L	0.30	0.029	1		04/10/19 23:10	16984-48-8	
Sulfate	585	mg/L	25.0	0.42	25		04/15/19 19:48	14808-79-8	

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617150

Sample: HGWC-14		Lab ID: 2617150003		Collected: 04/05/19 12:52		Received: 04/08/19 15:30		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	ND	mg/L	0.10	0.0012	20	04/10/19 19:59	04/11/19 21:42	7440-38-2	D3	
Barium	0.016	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 08:05	7440-39-3		
Beryllium	0.00027J	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 08:05	7440-41-7		
Boron	12.5	mg/L	5.0	0.13	50	04/10/19 19:59	04/15/19 11:11	7440-42-8		
Cadmium	0.000079J	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 08:05	7440-43-9		
Calcium	606	mg/L	50.0	2.1	100	04/10/19 19:59	04/15/19 11:39	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 08:05	7440-47-3		
Cobalt	0.021	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 08:05	7440-48-4		
Lead	0.0012J	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 08:05	7439-92-1	BC	
Lithium	ND	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 08:05	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 08:05	7439-98-7		
Selenium	0.00091J	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 08:05	7782-49-2		
Thallium	0.00028J	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 08:05	7440-28-0		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	2310	mg/L	25.0	10.0	1		04/11/19 20:53			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	227	mg/L	5.0	0.48	20		04/15/19 20:11	16887-00-6		
Fluoride	0.66	mg/L	0.30	0.029	1		04/10/19 23:31	16984-48-8		
Sulfate	1520	mg/L	50.0	0.85	50		04/15/19 20:34	14808-79-8		

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ANALYTICAL RESULTS

Project: Plant Hammond
Pace Project No.: 2617150

Sample: HGWC-17 Lab ID: 2617150004 Collected: 04/05/19 12:25 Received: 04/08/19 15:30 Matrix: Water									
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
6020 MET ICPMS Analytical Method: EPA 6020B Preparation Method: EPA 3010A									
Arsenic	ND	mg/L	0.10	0.0012	20	04/10/19 19:59	04/11/19 21:49	7440-38-2	D3
Barium	0.022	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 08:12	7440-39-3	
Beryllium	ND	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 08:12	7440-41-7	
Boron	5.9	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 21:49	7440-42-8	
Cadmium	ND	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 08:12	7440-43-9	
Calcium	340	mg/L	25.0	1.0	50	04/10/19 19:59	04/15/19 11:14	7440-70-2	
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 08:12	7440-47-3	
Cobalt	0.016	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 08:12	7440-48-4	
Lead	0.000076J	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 08:12	7439-92-1	BC
Lithium	0.00074J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 08:12	7439-93-2	
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 08:12	7439-98-7	
Selenium	0.000093J	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 08:12	7782-49-2	
Thallium	0.00013J	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 08:12	7440-28-0	
2540C Total Dissolved Solids Analytical Method: SM 2540C									
Total Dissolved Solids	1260	mg/L	25.0	10.0	1		04/11/19 20:53		
300.0 IC Anions 28 Days Analytical Method: EPA 300.0									
Chloride	195	mg/L	6.2	0.60	25		04/15/19 20:56	16887-00-6	
Fluoride	0.16J	mg/L	0.30	0.029	1		04/10/19 23:52	16984-48-8	
Sulfate	642	mg/L	25.0	0.42	25		04/15/19 20:56	14808-79-8	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Plant Hammond

Pace Project No.: 2617150

Sample: HGWC-18		Lab ID: 2617150005		Collected: 04/05/19 14:25		Received: 04/08/19 15:30		Matrix: Water		
Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual	
			Limit	MDL	DF					
6020 MET ICPMS		Analytical Method: EPA 6020B Preparation Method: EPA 3010A								
Arsenic	0.0015J	mg/L	0.10	0.0012	20	04/10/19 19:59	04/11/19 22:23	7440-38-2	D3	
Barium	0.021	mg/L	0.010	0.000060	1	04/10/19 19:59	04/12/19 08:20	7440-39-3		
Beryllium	0.0022J	mg/L	0.0030	0.000050	1	04/10/19 19:59	04/12/19 08:20	7440-41-7		
Boron	6.4	mg/L	2.0	0.051	20	04/10/19 19:59	04/11/19 22:23	7440-42-8		
Cadmium	0.0017	mg/L	0.0010	0.000070	1	04/10/19 19:59	04/12/19 08:20	7440-43-9		
Calcium	400	mg/L	25.0	1.0	50	04/10/19 19:59	04/15/19 11:18	7440-70-2		
Chromium	ND	mg/L	0.010	0.00042	1	04/10/19 19:59	04/12/19 08:20	7440-47-3		
Cobalt	0.14	mg/L	0.010	0.000050	1	04/10/19 19:59	04/12/19 08:20	7440-48-4		
Lead	0.0015J	mg/L	0.0050	0.000050	1	04/10/19 19:59	04/12/19 08:20	7439-92-1	BC	
Lithium	0.0084J	mg/L	0.050	0.00042	1	04/10/19 19:59	04/12/19 08:20	7439-93-2		
Molybdenum	ND	mg/L	0.010	0.00010	1	04/10/19 19:59	04/12/19 08:20	7439-98-7		
Selenium	0.0018J	mg/L	0.010	0.000080	1	04/10/19 19:59	04/12/19 08:20	7782-49-2		
Thallium	0.00014J	mg/L	0.0010	0.000060	1	04/10/19 19:59	04/12/19 08:20	7440-28-0		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	1610	mg/L	25.0	10.0	1		04/11/19 20:54			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	217	mg/L	12.5	1.2	50		04/15/19 21:19	16887-00-6		
Fluoride	0.37	mg/L	0.30	0.029	1		04/11/19 00:12	16984-48-8		
Sulfate	1030	mg/L	50.0	0.85	50		04/15/19 21:19	14808-79-8		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617150

QC Batch: 468616 Analysis Method: EPA 6020B
QC Batch Method: EPA 3010A Analysis Description: 6020 MET
Associated Lab Samples: 2617150001, 2617150002, 2617150003, 2617150004, 2617150005

METHOD BLANK: 2545217 Matrix: Water
Associated Lab Samples: 2617150001, 2617150002, 2617150003, 2617150004, 2617150005

Parameter	Units	Blank Result	Reporting Limit	MDL	Analyzed	Qualifiers
Arsenic	mg/L	ND	0.0050	0.000060	04/11/19 20:31	
Barium	mg/L	ND	0.010	0.000060	04/11/19 20:31	
Beryllium	mg/L	ND	0.0030	0.000050	04/11/19 20:31	
Boron	mg/L	ND	0.10	0.0026	04/11/19 20:31	
Cadmium	mg/L	ND	0.0010	0.000070	04/11/19 20:31	
Calcium	mg/L	ND	0.50	0.021	04/11/19 20:31	
Chromium	mg/L	ND	0.010	0.00042	04/11/19 20:31	
Cobalt	mg/L	ND	0.010	0.000050	04/11/19 20:31	
Lead	mg/L	ND	0.0050	0.000050	04/11/19 20:31	
Lithium	mg/L	ND	0.050	0.00042	04/11/19 20:31	
Molybdenum	mg/L	ND	0.010	0.00010	04/11/19 20:31	
Selenium	mg/L	ND	0.010	0.000080	04/11/19 20:31	
Thallium	mg/L	ND	0.0010	0.000060	04/11/19 20:31	

LABORATORY CONTROL SAMPLE: 2545218

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/L	0.01	0.0099	99	80-120	
Barium	mg/L	0.05	0.049	97	80-120	
Beryllium	mg/L	0.01	0.010	103	80-120	
Boron	mg/L	0.05	0.052J	104	80-120	
Cadmium	mg/L	0.01	0.010	100	80-120	
Calcium	mg/L	0.62	0.64	102	80-120	
Chromium	mg/L	0.05	0.050	101	80-120	
Cobalt	mg/L	0.01	0.010	101	80-120	
Lead	mg/L	0.05	0.050	100	80-120	
Lithium	mg/L	0.05	0.052	105	80-120	
Molybdenum	mg/L	0.05	0.050	100	80-120	
Selenium	mg/L	0.05	0.050	100	80-120	
Thallium	mg/L	0.01	0.010	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2545219 2545220

Parameter	Units	92424526001 Result	MS Spike Conc.	MSD Spike Conc.	2545219		2545220		% Rec Limits	RPD	Max RPD	Qual
					MS Result	MSD Result	MS % Rec	MSD % Rec				
Arsenic	mg/L	ND	0.01	0.01	0.0094	0.0092	94	92	75-125	2	20	
Barium	mg/L	6.0 ug/L	0.05	0.05	0.053	0.054	95	95	75-125	0	20	
Beryllium	mg/L	0.34 ug/L	0.01	0.01	0.0098	0.0098	95	94	75-125	0	20	

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QUALITY CONTROL DATA

Project: Plant Hammond

Pace Project No.: 2617150

Parameter	Units	2545219		2545220		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Boron	mg/L	4.0J ug/L	0.05	0.05	0.053J	0.055J	97	101	75-125	3	20	
Cadmium	mg/L	ND	0.01	0.01	0.010	0.0099	100	98	75-125	2	20	
Calcium	mg/L	5980 ug/L	0.62	0.62	6.5	6.5	87	81	75-125	1	20	
Chromium	mg/L	1.4 ug/L	0.05	0.05	0.050	0.050	98	98	75-125	0	20	
Cobalt	mg/L	0.91 ug/L	0.01	0.01	0.011	0.011	98	98	75-125	0	20	
Lead	mg/L	3.1 ug/L	0.05	0.05	0.050	0.049	93	92	75-125	1	20	
Lithium	mg/L	3.8 ug/L	0.05	0.05	0.048J	0.050	89	93	75-125	4	20	
Molybdenum	mg/L	0.14J ug/L	0.05	0.05	0.049	0.049	99	98	75-125	1	20	
Selenium	mg/L	ND	0.05	0.05	0.048	0.047	96	94	75-125	2	20	
Thallium	mg/L	ND	0.01	0.01	0.0099	0.0098	99	98	75-125	1	20	

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QUALITY CONTROL DATA

Project: Plant Hammond
Pace Project No.: 2617150

QC Batch: 26135 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 2617150001, 2617150002, 2617150003, 2617150004, 2617150005

METHOD BLANK: 117979 Matrix: Water
Associated Lab Samples: 2617150001, 2617150002, 2617150003, 2617150004, 2617150005

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	Spike Conc.	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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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617150

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

BC The same analyte was detected in an associated blank at a concentration above 1/2 the reporting limit but below the laboratory reporting limit.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Plant Hammond
Pace Project No.: 2617150

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617150001	MW-22	EPA 3010A	468616	EPA 6020B	468672
2617150002	MW-23D	EPA 3010A	468616	EPA 6020B	468672
2617150003	HGWC-14	EPA 3010A	468616	EPA 6020B	468672
2617150004	HGWC-17	EPA 3010A	468616	EPA 6020B	468672
2617150005	HGWC-18	EPA 3010A	468616	EPA 6020B	468672
2617150001	MW-22	SM 2540C	26252		
2617150002	MW-23D	SM 2540C	26252		
2617150003	HGWC-14	SM 2540C	26252		
2617150004	HGWC-17	SM 2540C	26252		
2617150005	HGWC-18	SM 2540C	26252		
2617150001	MW-22	EPA 300.0	26135		
2617150002	MW-23D	EPA 300.0	26135		
2617150003	HGWC-14	EPA 300.0	26135		
2617150004	HGWC-17	EPA 300.0	26135		
2617150005	HGWC-18	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.

Page: 1 of 2

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 Fax:
 Requested Due Date:

Section B
Required Project Information:
 Report To: Joji Abraham
 Copy To: Lauren Petty, Geosyntec
 Address:
 Purchase Order #: 6CS10348606
 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 (AP) or 328 (Huff)
 GA

ITEM #	MATRIX	CODE	SAMPLE TYPE (G-GRAB C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	PRESERVATIVES										ANALYSES TEST	METS (APP. III & APP. IV)	METS (APP. III & D&O)	TDS, CL, F, SO4	Radium 226/228	Residual Chlorine (Y/N)				
				START DATE	START TIME			END DATE	END TIME	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other											
1	MW	DW	G-GRAB	4/15/19	14:30	4/15/19	15																				
2	MW	WT	G-GRAB	4/15/19	11:00	4/15/19	5																				
3	H2O	WP	G-GRAB	4/15/19	12:35	4/15/19	2																				
4																											
5																											
6																											
7																											
8																											
9																											
10																											
11																											
12																											

NO#: 2617150
 2617150

APPROVAL COMMENTS	REQUISITION #	DATE	TIME	ACCEPTED BY	APPROVAL	DATE	TIME	RECEIVED ON	TEMP IN C	Is	Custody	Sealed	Cooler	Samples	Intact
APRIL 30, 4:56 PM, Eastern Standard Time	6745	4/15/19	14:30	Melia M. Johnson / Geosyntec	6745	4/15/19	14:30	4/15/19	19.45						
Cadmium, Chromium, Lead, Silver	6745	4/15/19	14:30	Melia M. Johnson / Geosyntec	6745	4/15/19	14:30	4/15/19	19.45						
Vanadium, Barium, Lithium	6745	4/15/19	14:30	Melia M. Johnson / Geosyntec	6745	4/15/19	14:30	4/15/19	19.45						
Mercury, Selenium, Tellurium	6745	4/15/19	14:30	Melia M. Johnson / Geosyntec	6745	4/15/19	14:30	4/15/19	19.45						



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@southemco.com
 Phone: (404) 506-7239
 Requested Due Date:

Section B
Required Project Information:
 Report To: Joji Abraham
 Copy To: Lauren Peaty, Geosyntec
 Atlanta, GA 30339
 Purchase Order #: SCS10348606
 Project Name: Plant Hammond
 Project #:

Section C
Invoice Information:
 Attention: scsinvoices@southemco.com
 Address:
 Pace Project Manager: betsy.mcdaniel@pacelabs.com
 Pace Profile #: 327 (AP) or 328 (Huff)
 GA

Page: 2 of 2

ITEM #	MATRIX	CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS	PRESERVATIVES		ANALYSES TEST	REMARKS/ANALYSIS FIELD (Y/N)
			START DATE	END DATE				H2SO4	HNO3		
1	Drinking Water	DW	4/15/19 12:00	4/15/19 10:00	B	W	3			Y	
2	Water	WT	4/15/19 14:00	4/15/19 14:00	S	W	3			Y	
3	Waste Water	WW									
4	Product	P									
5	Solid	SL									
6	Oil	OL									
7	Wipe	WP									
8	Air	AR									
9	Other	OT									
10	Tissue	TS									
11											
12											

ADDITIONAL COMMENTS:
 APPROX 4 IV (3) Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Fluoride, Lead, Lithium, Molybdenum, Selenium, Thallium

DATE RECEIVED BY / AFFILIATION:
 4/15/19 1743 Mollie Abraham/Geosyntec
 4/15/19 1945 Mollie Abraham/Geosyntec
 4/15/19 1116 Mollie Abraham/Geosyntec

DATE COLLECTED BY / AFFILIATION:
 4/15/19 1743 Mollie Abraham/Geosyntec
 4/15/19 1945 Mollie Abraham/Geosyntec
 4/15/19 1116 Mollie Abraham/Geosyntec

DATE:
 4/15/19 1743
 4/15/19 1945
 4/15/19 1116

TEMP IN C:
 1.1

Received on:
 Ice (Y/N)
 Custody Cooler (Y/N)
 Sealed (Y/N)
 Samples Intact (Y/N)

DATE SIGNED: 4/15/19
PRINT NAME OF SAMPLER: Dalton Anderson
SIGNATURE OF SAMPLER: [Signature]

WO#: 2617150
 PM: BH Due Date: 04/15/19
 CLIENT: GAPOWER-CCR



Sample Condition Upon Receipt

Client Name: GTA Power

Project # _____

WO#: **2617150**

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 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 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

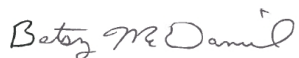
RE: Project: Plant Hammond
Pace Project No.: 2617152

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.: 2617152

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617152

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617152001	MW-22	Water	04/05/19 09:59	04/08/19 15:30
2617152002	MW-23D	Water	04/05/19 11:33	04/08/19 15:30
2617152003	HGWC-14	Water	04/05/19 12:52	04/08/19 15:30
2617152004	HGWC-17	Water	04/05/19 12:25	04/08/19 15:30
2617152005	HGWC-18	Water	04/05/19 14:25	04/08/19 15:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Plant Hammond

Pace Project No.: 2617152

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
2617152001	MW-22	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617152002	MW-23D	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617152003	HGWC-14	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617152004	HGWC-17	EPA 9315	LAL	1	PASI-PA
		EPA 9320	JLW	1	PASI-PA
		Total Radium Calculation	CMC	1	PASI-PA
2617152005	HGWC-18	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.: 2617152

Sample: MW-22 **Lab ID: 2617152001** Collected: 04/05/19 09:59 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	0.381 ± 0.272 (0.444) C:93% T:NA	pCi/L	04/18/19 08:05	13982-63-3	
Radium-228	EPA 9320	0.674 ± 0.557 (1.13) C:81% T:73%	pCi/L	04/18/19 15:33	15262-20-1	
Total Radium	Total Radium Calculation	1.06 ± 0.829 (1.57)	pCi/L	04/22/19 11:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617152

Sample: MW-23D **Lab ID: 2617152002** Collected: 04/05/19 11:33 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	0.524 ± 0.328 (0.520) C:92% T:NA	pCi/L	04/18/19 08:05	13982-63-3	
Radium-228	EPA 9320	0.408 ± 0.470 (0.992) C:83% T:71%	pCi/L	04/18/19 15:33	15262-20-1	
Total Radium	Total Radium Calculation	0.932 ± 0.798 (1.51)	pCi/L	04/22/19 11:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617152

Sample: HGWC-14 **Lab ID: 2617152003** Collected: 04/05/19 12:52 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	0.689 ± 0.372 (0.571) C:97% T:NA	pCi/L	04/18/19 08:06	13982-63-3	
Radium-228	EPA 9320	0.740 ± 0.491 (0.955) C:84% T:73%	pCi/L	04/18/19 15:33	15262-20-1	
Total Radium	Total Radium Calculation	1.43 ± 0.863 (1.53)	pCi/L	04/22/19 11:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617152

Sample: HGWC-17 **Lab ID: 2617152004** Collected: 04/05/19 12:25 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	0.275 ± 0.261 (0.500) C:96% T:NA	pCi/L	04/18/19 08:05	13982-63-3	
Radium-228	EPA 9320	0.793 ± 0.521 (1.02) C:81% T:75%	pCi/L	04/18/19 15:33	15262-20-1	
Total Radium	Total Radium Calculation	1.07 ± 0.782 (1.52)	pCi/L	04/22/19 11:27	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Plant Hammond

Pace Project No.: 2617152

Sample: HGWC-18 **Lab ID: 2617152005** Collected: 04/05/19 14:25 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	1.13 ± 0.443 (0.451) C:92% T:NA	pCi/L	04/18/19 08:06	13982-63-3	
Radium-228	EPA 9320	1.09 ± 0.540 (0.976) C:85% T:80%	pCi/L	04/18/19 15:33	15262-20-1	
Total Radium	Total Radium Calculation	2.22 ± 0.983 (1.43)	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.: 2617152

QC Batch: 337915

Analysis Method: EPA 9320

QC Batch Method: EPA 9320

Analysis Description: 9320 Radium 228

Associated Lab Samples: 2617152001, 2617152002, 2617152003, 2617152004, 2617152005

METHOD BLANK: 1644524

Matrix: Water

Associated Lab Samples: 2617152001, 2617152002, 2617152003, 2617152004, 2617152005

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.: 2617152

QC Batch: 337923 Analysis Method: EPA 9315

QC Batch Method: EPA 9315 Analysis Description: 9315 Total Radium

Associated Lab Samples: 2617152001, 2617152002, 2617152003, 2617152004, 2617152005

METHOD BLANK: 1644541 Matrix: Water

Associated Lab Samples: 2617152001, 2617152002, 2617152003, 2617152004, 2617152005

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.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617152

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.: 2617152

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
2617152001	MW-22	EPA 9315	337923		
2617152002	MW-23D	EPA 9315	337923		
2617152003	HGWC-14	EPA 9315	337923		
2617152004	HGWC-17	EPA 9315	337923		
2617152005	HGWC-18	EPA 9315	337923		
2617152001	MW-22	EPA 9320	337915		
2617152002	MW-23D	EPA 9320	337915		
2617152003	HGWC-14	EPA 9320	337915		
2617152004	HGWC-17	EPA 9320	337915		
2617152005	HGWC-18	EPA 9320	337915		
2617152001	MW-22	Total Radium Calculation	339294		
2617152002	MW-23D	Total Radium Calculation	339294		
2617152003	HGWC-14	Total Radium Calculation	339294		
2617152004	HGWC-17	Total Radium Calculation	339294		
2617152005	HGWC-18	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 2

Section A
Required Client Information:
 Company: Georgia Power - Coal Combustion Residuals
 Address: 2480 Warner Road
 Atlanta, GA 30339
 Email: jbraham@southemco.com
 Phone: (404)506-7239
 Requested Due Date:

Section B
Required Project Information:
 Report To: Joji Abraham
 Copy To: Lauren Petty, Geosyntec
 Purchase Order #: SCS10346606
 Project Name: Plant Hammond
 Project #:

Section C
Invoice Information:
 Attention: scsinvoices@southemco.com
 Company Name:
 Address:
 Pace-Quake:
 Pace Project Manager: beisy.mcdaniel@paceqlabs.com
 Pace Profile #: 327 (AP) or 328 (Huff)

Regulatory Agency:
State / Location: GA

ITEM #	MATRIX	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)	Residual Chlorine (Y/N)
			START DATE	END DATE				UNPRESERVED	OTHER				
1	Drinking Water	DW						H2SO4		Metals (App. III & App. IV)			
2	Water	WT						HNO3		Metals (App. III, App. IV, D&O)			
3	Waste Water	WW						NaOH		Metals (App. III & D&O)			
4	Product	P						Na2S2O3		TDS, Cl, F, SO4			
5	Semi-Solid	SL						HCl		Metals (App. III & D&O)			
6	Oil	OL											
7	Wipe	WP											
8	Air	AR											
9	Other	OT											
10	Tissue	TS											

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

NO#: 2617152
 2617152

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	RECEIVED ON	TEMP IN C	Ice (Y/N)	Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
	Moelia Mendenhall/Geosyntec	4/5/19	1743	Moelia Mendenhall/Geosyntec	4/5/19	1743						
	Moelia Mendenhall/Geosyntec	4/5/19	1945	Moelia Mendenhall/Geosyntec	4/5/19	1945						
	Moelia Mendenhall/Geosyntec	4/8/19	1115	Moelia Mendenhall/Geosyntec	4/8/19	1115						
	Moelia Mendenhall/Geosyntec	4/8/19	1540	Moelia Mendenhall/Geosyntec	4/8/19	1540						



Sample Condition Upon Receipt

Client Name: GTA Power

Project # _____

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

WO#: **2617152**

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 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
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):		Lot # of added preservative

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.: 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

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617148

Lab ID	Sample ID	Matrix	Date Collected	Date Received
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				
6020 MET ICPMS		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	0.000078J	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	0.024J	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	0.017	mg/L	0.010	0.0011	1	04/16/19 07:51	04/16/19 18:55	7440-66-6	C0
7470 Mercury		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	
2540C Total Dissolved Solids		Analytical Method: SM 2540C							
Total Dissolved Solids	ND	mg/L	25.0	10.0	1		04/11/19 20:53		
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0							
Chloride	0.11J	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	0.069J	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		% Rec	% 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							MSD 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

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	

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.: 2617148

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
 Phone: (404) 506-7239
 Email: jahraham@southemco.com
 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: sesinvoicess@southemco.com
 Company Name:
 Address:
 Pace Quibbe:
 Pace Project Manager: betsy.mcdaniel@paceilabs.com
 Pace Profile #: 327 (AP) or 328 (Huff)
 GA

Page: 1 of 1

ITEM #	MATRIX	MATRIX CODE	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	MATRIX CODE (see valid codes to left)	# OF CONTAINERS		Preservatives	Analytes Test	Requested Analysis Reference (Y/N)	Temp in C	Received on	Custody	Sealed	Cooler	Samples	Intact	
			START DATE	END DATE			START TIME	END TIME											UNPRESERVED
1	Drinking Water	DW	4/15/19	4/15/19	0930	17	5	2	3										
2	Waste Water	WW																	
3	Waste Water	WW																	
4	Process	P																	
5	Sludge	SL																	
6	Oil	OL																	
7	Other	OT																	
8	Other	OT																	
9	Other	OT																	
10	Other	OT																	
11	Other	OT																	
12	Other	OT																	

NO#: 2617148

AM
 4/15/19

ADDITIONAL COMMENTS	RELINQUISHED BY (AFFILIATION)	DATE	TIME	RECEIVED BY (AFFILIATION)	DATE	TIME	TEMP IN C	Received on	Temp in C	Received on	Custody	Sealed	Cooler	Samples	Intact	
	Nodia Muskus / Geosyntec	4/15/19	1945	Nodia Muskus / Geosyntec	4/15/19	1945										
	Geosyntec / Geosyntec	4/18/19	1116	Geosyntec / Pace	4/18/19	1116										
				Mcdaniel	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 # _____

WO#: **2617148**

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 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

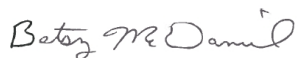
RE: Project: Plant Hammond
Pace Project No.: 2617149

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

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Hammond

Pace Project No.: 2617149

Lab ID	Sample ID	Matrix	Date Collected	Date Received
2617149001	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.: 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	0.114 ± 0.161 (0.330) C:92% T:NA	pCi/L	04/18/19 08:25	13982-63-3	
Radium-228	EPA 9320	0.160 ± 0.258 (0.561) C:88% T:76%	pCi/L	04/18/19 12:31	15262-20-1	
Total Radium	Total Radium Calculation	0.274 ± 0.419 (0.891)	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.

REPORT OF LABORATORY ANALYSIS

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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

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
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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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:** _____

May 03, 2019

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

RE: Project: Plant Hammond
Pace Project No.: 2617207

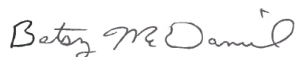
Dear Joju Abraham:

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

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2617207

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

REPORT OF LABORATORY ANALYSIS

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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: FB-02		Lab ID: 2617207001		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					
6020 MET ICPMS		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		
7470 Mercury		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		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	14.0J	mg/L	25.0	10.0	1		04/11/19 20:54			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	0.25J	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	0.13J	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					
6020 MET ICPMS		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		
7470 Mercury		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		
2540C Total Dissolved Solids		Analytical Method: SM 2540C								
Total Dissolved Solids	12.0J	mg/L	25.0	10.0	1		04/11/19 20:54			
300.0 IC Anions 28 Days		Analytical Method: EPA 300.0								
Chloride	0.22J	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	0.38J	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		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	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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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	2617144001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec					
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	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

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		MSD		% Rec Limits	RPD	Max RPD	Qual
			Spike Conc.	MS Result	MSD 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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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Plant Hammond

Pace Project No.: 2617207

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
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

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: 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)	PRESERVATIVES		# OF CONTAINERS	ANALYSES TEST	Residual Chlorine (Y/N)
			START DATE TIME	END DATE TIME			UNPRESERVED	H2SO4			
1	Drinking Water	DW	4/8/19 1740	4/8/19 1745	WT6				2		
2	Waste Water	WW	4/8/19 1755	4/8/19 1800	WT6				2		
3	Water Product	P									
4	Slurry/Solid	SL									
5	Oil	OL									
6	Wipe	WP									
7	Air	AR									
8	Other	OT									
9	Tissue	TS									
10											
11											
12											

NO# : 2617207

2617207

RECEIVED BY / AFFILIATION	DATE	TIME	TEMP IN C	Received on	Ice (Y/N)	Custody Sealed (Y/N)	Cooler (Y/N)	Samples Intact (Y/N)
Modia Myshus / Geosyntec	4/8/19	2010						
Geosyntec	4/9/19	1127						
Modia Myshus	4/19/2019							

PRINT Name of SAMPLER: Modia Myshus
 SIGNATURE OF SAMPLER: Modia Myshus
 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: _____ 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.: 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

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

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Plant Hammond
Pace Project No.: 2617208

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	0.170 ± 0.1000 (0.159) C:93% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	0.521 ± 0.334 (0.615) C:78% T:79%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	0.691 ± 0.434 (0.774)	pCi/L	04/26/19 09:32	7440-14-4	

REPORT OF LABORATORY ANALYSIS

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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	0.108 ± 0.128 (0.243) C:87% T:NA	pCi/L	04/22/19 21:19	13982-63-3	
Radium-228	EPA 9320	0.370 ± 0.318 (0.634) C:81% T:75%	pCi/L	04/25/19 14:16	15262-20-1	
Total Radium	Total Radium Calculation	0.478 ± 0.446 (0.877)	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

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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

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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 Manner Road Atlanta, GA 30339	Copy To:	Lauron Peltz, Geosyntec	Company Name:	
Email:	jabraham@scouthernco.com	Purchase Order #:	9C5T0348666	Address:	
Phone:	(404)506-7239	Project Name:	Plant Hammond	Pace Project Manager:	betsy.mcdaniels@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		WT 6	4/8/19 1355	4/8/19 1800	19	5	2	3			
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

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	2210					
	EBB Low / Geosyntec	4/9/19	1127	1 Pace	4/9/19	1127					
				M. Galiman	4/9/19	1330	0.7	9	9	7	7
SAMPLER NAME AND SIGNATURE:		PRINT NAME of SAMPLER:		SIGNATURE of SAMPLER:		DATE SIGNED:					
		Noelia Munson		Noelia Munson		4/8/19					

WO#: 2617208

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)

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 (2σ)] 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 (2σ) 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.

* * * * *

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

Reason Code	Explanation
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 (2σ)] 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 (2σ) 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.

* * * * *

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

Reason Code	Explanation
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 A2
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 μ 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 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 = 32.33 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 μ 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 μ 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: 2019-03-11 18:03:46

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-4
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 3.97 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 μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	17:23:08	1199.94	16.10	6.17	192.07	4.72	4.36	0.49	99.57
Last 5	17:28:08	1499.93	16.07	6.21	202.65	3.95	4.36	0.45	101.56
Last 5	17:33:08	1799.93	16.02	6.20	206.74	2.89	4.36	0.46	104.70
Last 5	17:38:08	2099.92	16.03	6.24	216.53	3.00	4.36	0.45	106.47
Last 5	17:43:08	2399.92	16.07	6.27	221.69	2.53	4.36	0.46	108.61
Variance 0			-0.05	-0.00	4.09			0.01	3.14
Variance 1			0.00	0.04	9.80			-0.00	1.77
Variance 2			0.04	0.03	5.15			0.01	2.15

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 = 24.81 ft.

Grab Samples

HGWA-4
Grab

Product Name: Low-Flow System

Date: 2019-03-12 12:50:45

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-5
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 3.15 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 12.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:27:16	600.02	17.41	6.31	202.13	9.18	4.00	0.38	46.57
Last 5	12:32:16	900.00	17.45	6.34	196.20	4.39	4.10	0.39	42.32
Last 5	12:37:16	1200.00	17.56	6.38	215.81	3.83	4.19	0.37	37.34
Last 5	12:42:16	1499.99	17.67	6.40	220.07	3.00	4.21	0.22	35.56
Last 5	12:47:16	1799.98	17.77	6.42	225.13	2.94	4.25	0.19	34.79
Variance 0			0.11	0.04	19.61			-0.02	-4.98
Variance 1			0.11	0.02	4.26			-0.16	-1.78
Variance 2			0.10	0.02	5.06			-0.02	-0.76

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 (EP A 6020B/ 7470A); and one 120-mL plastic bottle for fluoride (EPA 300.0). Total depth = 27.54 ft.

Grab Samples

HGWA-5
Grab

Product Name: Low-Flow System

Date: 2019-03-12 13:33:33

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 QED MP50
Tubing Type polyethylene
Tubing Diameter 0.17 in
Tubing Length ft

Pump placement from TOC ft

Well Information:

Well ID HGWA-6
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 2.43 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 31.28 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:33:52	300.04	17.47	7.50	381.13	1.57	4.53	1.94	41.24
Last 5	12:38:52	600.02	17.50	7.52	379.82	1.98	4.80	1.56	40.07
Last 5	12:43:52	900.01	17.55	7.51	380.16	1.92	4.90	0.68	38.69
Last 5	12:48:52	1200.01	17.63	7.51	380.02	1.61	4.90	1.74	38.34
Last 5	12:53:52	1500.00	17.63	7.50	380.18	1.97	4.90	0.47	36.25
Variance 0			0.05	-0.00	0.34			-0.88	-1.37
Variance 1			0.09	-0.00	-0.14			1.06	-0.36
Variance 2			0.00	-0.02	0.16			-1.27	-2.08

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 = 50.40 ft.

Grab Samples

HGWA-6

Grab

Product Name: Low-Flow System

Date: 2019-03-14 16:41:42

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-14
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 22.90 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 μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:04:57	300.02	20.03	4.66	2882.12	2.76	22.95	0.64	136.19
Last 5	16:09:57	600.02	20.06	4.66	2876.28	1.64	22.95	0.44	145.48
Last 5	16:14:57	900.02	20.10	4.66	2874.57	1.35	22.99	0.43	151.09
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.03	0.00	-5.84			-0.19	9.29
Variance 2			0.04	0.00	-1.71			-0.02	5.61

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 = 43.15 ft.

Grab Samples

HGWC-14
Grab

Product Name: Low-Flow System

Date: 2019-03-14 09:46:30

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-15
Well diameter 2 in
Well Total Depth 38 ft
Screen Length 10 ft
Depth to Water 10.21 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 19 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:22:51	300.06	18.44	5.73	1456.53	21.06	11.15	0.41	98.80
Last 5	09:27:50	600.01	18.48	5.73	1461.99	15.73	11.15	0.40	90.92
Last 5	09:32:50	900.00	18.52	5.72	1456.92	10.67	11.15	0.54	89.14
Last 5	09:37:50	1200.00	18.53	5.72	1452.12	6.95	11.15	0.43	87.92
Last 5	09:42:50	1499.98	18.53	5.71	1471.36	4.60	11.15	0.31	86.72
Variance 0			0.04	-0.01	-5.07			0.14	-1.78
Variance 1			0.01	-0.00	-4.79			-0.11	-1.22
Variance 2			0.00	-0.01	19.24			-0.12	-1.19

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 = 38.10 ft.

Grab Samples

HGWC-15
Grab
FD-2
HGWC-15 Duplicate Grab

Product Name: Low-Flow System

Date: 2019-03-15 13:41:51

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-16
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 6.23 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 124 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:20:18	9906.75	18.35	7.08	1090.53	7.22	7.12	0.02	-40.71
Last 5	13:25:18	10206.74	18.53	7.08	1090.11	6.91	7.10	0.02	-41.19
Last 5	13:30:18	10506.74	18.65	7.08	1090.21	6.74	7.09	0.03	-40.63
Last 5	13:35:18	10806.73	18.66	7.09	1086.44	6.68	7.12	0.03	-41.19
Last 5	13:40:18	11106.71	18.63	7.09	1087.19	6.83	7.12	0.03	-39.41
Variance 0			0.13	0.00	0.10			0.01	0.57
Variance 1			0.01	0.00	-3.77			0.00	-0.56
Variance 2			-0.03	0.00	0.74			-0.00	1.78

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 = 38.73 ft.

Grab Samples

HGWC-16
Grab

Product Name: Low-Flow System

Date: 2019-03-15 13:25:01

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-17
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 12.03 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 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:45:04	300.02	17.84	6.35	2081.50	5.67	12.35	0.14	42.65
Last 5	12:50:04	600.01	17.89	6.33	2073.84	5.08	12.33	0.13	44.42
Last 5	12:55:04	900.00	17.77	6.32	2079.36	4.51	12.36	0.12	46.43
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.05	-0.01	-7.65			-0.01	1.76
Variance 2			-0.11	-0.01	5.52			-0.02	2.01

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 = 27.85 ft.

Grab Samples

HGWC-17
Grab

Product Name: Low-Flow System

Date: 2019-03-14 14:28:55

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-18
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 12.63 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 9.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:11:44	300.02	16.29	4.38	2216.13	2.31	12.82	1.39	308.27
Last 5	14:16:44	600.01	16.09	4.39	2211.74	1.49	12.82	1.03	304.33
Last 5	14:21:44	900.01	16.07	4.39	2216.58	0.94	12.83	0.92	303.55
Last 5	14:26:44	1199.99	16.13	4.39	2220.74	0.92	12.83	0.85	287.12
Last 5									
Variance 0			-0.20	0.01	-4.39			-0.36	-3.94
Variance 1			-0.02	0.00	4.84			-0.10	-0.78
Variance 2			0.06	0.01	4.16			-0.07	-16.43

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 = 27.71 ft.

Grab Samples

HGWC-18
Grab

Product Name: Low-Flow System

Date: 2019-03-15 12:17:20

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-21D
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 12.05 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 μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:12:43	900.01	16.74	6.99	1927.86	5.94	12.28	0.91	116.74
Last 5	11:17:43	1200.01	17.01	6.69	2251.62	5.46	12.28	0.51	75.29
Last 5	11:22:43	1500.01	17.09	6.76	2400.71	4.08	12.28	0.42	55.73
Last 5	11:27:43	1800.00	17.05	6.77	2476.23	1.95	12.28	0.38	45.75
Last 5	11:32:43	2100.00	17.11	6.81	2485.82	1.82	12.29	0.43	37.20
Variance 0			0.09	0.07	149.09			-0.09	-19.56
Variance 1			-0.04	0.01	75.52			-0.05	-9.98
Variance 2			0.06	0.05	9.60			0.05	-8.54

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 = 51.70 ft.

Grab Samples

MW-21D
Grab

Product Name: Low-Flow System

Date: 2019-03-14 12:55:44

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 25 ft

Pump placement from TOC ft

Well Information:

Well ID MW-22
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 7.32 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 25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:47:31	300.03	17.72	6.04	1479.80	7.57	9.37	1.08	247.14
Last 5	12:52:31	600.01	17.59	6.04	1483.47	6.69	10.39	1.08	261.06
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.13	0.00	3.67			-0.00	13.93
Variance 2			0.00	0.00	0.00			0.00	0.00

Notes

Well was not recharging. Purged well to DTW = 30.62 ft and will sample 03/15/2019

Grab Samples

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Product Name: Low-Flow System

Date: 2019-03-14 16:37:18

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-23D
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 9.68 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 14 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.1	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	16:15:11	1499.99	18.70	6.68	1948.85	7.36	10.23	0.16	-14.00
Last 5	16:20:11	1799.98	18.93	6.68	1944.18	7.46	10.23	0.15	-12.57
Last 5	16:25:11	2099.97	18.88	6.68	1947.88	6.30	10.23	0.17	-9.47
Last 5	16:30:11	2399.96	18.95	6.68	1949.08	5.92	10.23	0.25	-5.92
Last 5	16:35:11	2699.95	18.90	6.68	1958.91	4.92	10.23	0.29	-2.31
Variance 0			-0.04	-0.00	3.70			0.02	3.10
Variance 1			0.07	0.00	1.20			0.08	3.55
Variance 2			-0.04	-0.00	9.83			0.04	3.62

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 = 62.84 ft.

Grab Samples

MW-23D

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 μ 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 HNO3 for radium (EPA 9315/9320); one 500-mL plastic bottle for TDS (EPA 2540C), Cl, F, SO4 (EPA 3 00.0); and one 250-mL plastic bottle with HNO3 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 μ 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 μ 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									
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 11:48:27

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 20.8 ft

Well Information:

Well ID HGWA-4
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 5.68 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 15.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:26:25	2100.00	16.10	6.69	447.30	5.99	5.91	0.31	19.75
Last 5	11:31:25	2400.00	16.33	6.68	441.45	5.87	5.93	0.34	18.85
Last 5	11:36:25	2700.00	16.46	6.67	435.38	5.53	5.92	0.31	18.16
Last 5	11:41:25	3000.00	16.51	6.66	429.90	5.20	5.91	0.32	17.90
Last 5	11:46:25	3300.00	16.60	6.66	427.07	4.57	5.94	0.46	17.79
Variance 0			0.13	-0.01	-6.07			-0.04	-0.69
Variance 1			0.04	-0.01	-5.48			0.02	-0.26
Variance 2			0.09	-0.00	-2.83			0.13	-0.11

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 = 24.80

Grab Samples

HGWA-4

Grab

Product Name: Low-Flow System

Date: 2019-04-02 10:56:57

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-5
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 4.72 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 4.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:50:18	300.09	17.34	6.35	231.03	6.63	5.48	0.13	52.81
Last 5	09:55:18	600.01	17.40	6.37	232.55	5.92	5.54	0.13	48.02
Last 5	10:00:18	900.00	17.58	6.38	232.02	6.63	5.48	0.13	44.55
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.06	0.02	1.53			0.01	-4.79
Variance 2			0.18	0.01	-0.53			-0.00	-3.47

Notes

For 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 =27.55

Grab Samples

HGWA-5
Grab

Product Name: Low-Flow System

Date: 2019-04-02 10:56:17

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-6
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 4.00 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 6.75 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:47:54	300.14	17.04	7.39	377.39	2.50	5.56	1.51	-55.00
Last 5	09:52:54	600.02	17.07	7.43	377.21	2.14	5.74	1.05	-65.48
Last 5	09:57:54	900.02	17.21	7.44	376.38	1.93	5.85	0.72	-71.36
Last 5	10:02:54	1200.02	17.19	7.44	376.70	1.39	5.85	0.54	-75.03
Last 5	10:07:54	1500.02	17.29	7.46	377.34	1.47	5.86	0.43	-79.02
Variance 0			0.13	0.01	-0.84			-0.33	-5.88
Variance 1			-0.02	0.01	0.32			-0.18	-3.67
Variance 2			0.10	0.02	0.64			-0.11	-3.99

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 = 50.25 ft.

Grab Samples

HGWA-6
Grab

Product Name: Low-Flow System

Date: 2019-04-05 12:33:29

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 588863
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 38 ft

Well Information:

Well ID HGWC-14
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 24.13 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 9 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:22:03	300.04	19.98	4.66	2775.27	1.80	24.27	0.25	239.66
Last 5	12:27:03	600.02	19.93	4.67	2775.23	0.76	24.30	0.24	236.16
Last 5	12:32:03	900.02	19.94	4.67	2775.45	0.68	24.29	0.23	234.87
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			-0.05	0.00	-0.04			-0.01	-3.51
Variance 2			0.00	0.01	0.22			-0.02	-1.28

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 = 43.10

Grab Samples

HGWC-14
Grab

Product Name: Low-Flow System

Date: 2019-04-04 10:27:26

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 33 ft

Well Information:

Well ID HGWC-15
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 15.38 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 28.5 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:16:06	300.03	18.43	5.68	1465.02	4.72	16.15	0.23	111.99
Last 5	10:21:06	600.02	18.44	5.66	1453.47	3.49	16.12	0.14	113.03
Last 5	10:26:06	900.02	18.47	5.66	1450.22	3.18	16.11	0.31	113.73
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.01	-0.03	-11.55			-0.09	1.05
Variance 2			0.03	0.00	-3.25			0.17	0.69

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 = 38.10

Grab Samples

HGWC-15
Grab

Product Name: Low-Flow System

Date: 2019-04-04 13:04:31

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-16
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 14.15 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 105 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	12:00:29	5745.91	18.76	6.94	1064.33	5.68	11.50	0.10	-32.02
Last 5	12:05:29	6045.93	18.78	6.94	1065.12	6.13	11.52	0.09	-32.39
Last 5	12:10:29	6345.93	18.76	6.94	1063.52	5.64	11.40	0.10	-32.84
Last 5	12:15:29	6645.89	18.70	6.94	1064.83	5.35	11.43	0.09	-33.22
Last 5	12:20:29	6945.89	18.69	6.95	1062.10	4.62	11.47	0.09	-33.54
Variance 0			-0.02	-0.00	-1.60			0.01	-0.46
Variance 1			-0.06	0.00	1.31			-0.01	-0.38
Variance 2			-0.01	0.00	-2.72			0.00	-0.32

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 =33.42

Grab Samples

HGWC-16
Grab

Product Name: Low-Flow System

Date: 2019-04-05 12:43:09

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-17
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 16.94 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 53 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	11:41:11	600.01	18.07	6.27	1869.90	10.41	17.35	0.16	102.31
Last 5	11:46:11	900.00	18.06	6.26	1874.76	7.43	17.33	0.16	101.30
Last 5	11:51:11	1199.99	18.29	6.26	1875.02	6.93	17.32	0.16	100.51
Last 5	11:56:11	1499.98	18.33	6.26	1870.41	5.84	17.29	0.16	100.13
Last 5	12:01:11	1799.97	18.51	6.26	1869.83	4.90	17.27	0.15	99.82
Variance 0			0.23	-0.00	0.26			0.01	-0.79
Variance 1			0.04	-0.00	-4.61			-0.00	-0.39
Variance 2			0.18	-0.00	-0.58			-0.01	-0.31

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 = 27.89

Grab Samples

HGWC-17
Grab

Product Name: Low-Flow System

Date: 2019-04-05 14:22:17

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-18
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 16.60 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 10.25 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	13:35:53	1499.98	15.89	4.50	2153.84	2.74	16.85	0.81	154.52
Last 5	13:40:53	1799.97	15.83	4.50	2166.96	2.88	16.89	0.76	154.78
Last 5	13:45:53	2099.96	15.83	4.50	2177.17	2.33	16.89	0.69	155.22
Last 5	13:50:57	2403.95	15.89	4.50	2179.56	2.76	16.94	0.68	155.28
Last 5	13:55:57	2703.94	15.83	4.50	2185.00	2.22	16.94	0.66	155.48
Variance 0			0.00	-0.00	10.20			-0.06	0.44
Variance 1			0.06	0.00	2.39			-0.02	0.06
Variance 2			-0.06	-0.00	5.44			-0.02	0.20

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 =21.70

Grab Samples

HGWC-18
Grab

Product Name: Low-Flow System

Date: 2019-04-04 15:49:40

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-21D
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 15.58 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 μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	14:52:21	600.01	17.84	6.63	2465.22	5.18	16.02	0.19	-9.87
Last 5	14:57:21	900.01	17.88	6.67	2448.98	4.73	16.02	0.17	-16.34
Last 5	15:02:21	1200.00	17.92	6.68	2441.30	4.76	16.03	0.15	-21.73
Last 5	15:07:21	1500.00	17.98	6.68	2437.09	3.88	16.03	0.14	-26.69
Last 5	15:12:21	1799.99	17.95	6.70	2460.44	2.76	16.04	0.14	-31.35
Variance 0			0.04	0.01	-7.68			-0.02	-5.39
Variance 1			0.06	-0.00	-4.21			-0.01	-4.96
Variance 2			-0.02	0.02	23.35			-0.01	-4.66

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 =51.78

Grab Samples

MW-21D
Grab

Product Name: Low-Flow System

Date: 2019-04-04 09:13:24

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 30 ft

Pump placement from TOC ft

Well Information:

Well ID MW-22
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 12.73 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2239027 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 14.24 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:06:34	300.06	16.69	6.03	1337.83	8.19	14.92	2.41	100.17
Last 5	09:11:34	600.02	16.77	6.02	1342.39	8.03	16.23	2.28	101.29
Last 5									
Last 5									
Variance 0			nan	nan	nan			nan	nan
Variance 1			0.09	-0.01	4.57			-0.14	1.11
Variance 2			0.00	0.00	0.00			0.00	0.00

Notes

Well has exceeded DTW criteria and will be purged. Purge rate 400ml/min.

Product Name: Low-Flow System

Date: 2019-04-05 09:33:09

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 588863
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis
Tubing Type polyethylene
Tubing Diameter 0.17 in
Tubing Length 30 ft

Pump placement from TOC ft

Well Information:

Well ID MW-22
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 12.71 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2239027 L
Calculated Sample Rate 300 sec
Stabilization Drawdown 3.6 in
Total Volume Pumped 14.24 L

Low-Flow Sampling Stabilization Summary

	Time	Elapsed	Temp C	pH	SpCond μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	09:31:50	300.09	16.93	5.96	1315.14	3.31	14.55	0.69	101.99
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 = 38.95

Grab Samples

MW-22
Grab

Product Name: Low-Flow System

Date: 2019-04-05 11:06:21

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 588863
Turbidity Make/Model LaMotte 2020we

Pump Information:

Pump Model/Type Alexis
Tubing Type polyethylene
Tubing Diameter 0.17 in
Tubing Length 44 ft

Pump placement from TOC ft

Well Information:

Well ID MW-23D
Well diameter 2 in
Well Total Depth ft
Screen Length 10 ft
Depth to Water 15.83 ft

Pumping Information:

Final Pumping Rate 200 mL/min
Total System Volume 0.2863906 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 μ S/cm	Turb NTU	DTW ft	RDO mg/L	ORP mV
Stabilization			+/- 0.5	+/- 0.2	+/- 5%	+/- 10		+/- 10%	+/- 10
Last 5	10:44:51	900.02	17.90	6.65	1774.57	0.59	15.95	1.81	59.60
Last 5	10:49:51	1200.01	17.96	6.65	1836.94	0.13	15.95	1.80	46.73
Last 5	10:54:51	1500.01	17.98	6.65	1841.47	0.23	15.96	0.71	39.24
Last 5	10:59:51	1800.01	17.93	6.66	1839.77	0.45	15.95	1.69	37.52
Last 5	11:04:51	2100.01	17.96	6.66	1846.10	--	--	0.43	35.91
Variance 0			0.02	0.00	4.53			-1.09	-7.49
Variance 1			-0.05	0.00	-1.70			0.97	-1.72
Variance 2			0.03	0.01	6.33			-1.26	-1.61

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 = 62.81

Grab Samples

MW-23D
Grab

APPENDIX B

Statistical Analyses

Detection Monitoring Program Statistical
Analysis Package
Plant Hammond Ash Pond 2 (AP-2)
April 2019 event (AM 01)

Table B-1
 Detection Monitoring Prediction Limit Comparison
 Plant Hammond AP-2, Floyd County, Georgia

Parameter	Well ID	Upper PL	Lower PL	Apr 1-5, 2019
Boron (mg/L)	HGWC-14	0.045	-	12.5
Boron (mg/L)	HGWC-15	0.045	-	2.3
Boron (mg/L)	HGWC-16	0.045	-	2.1
Boron (mg/L)	HGWC-17	0.045	-	5.9
Boron (mg/L)	HGWC-18	0.045	-	6.4
Calcium (mg/L)	HGWC-14	123	-	606
Calcium (mg/L)	HGWC-15	123	-	214
Calcium (mg/L)	HGWC-16	123	-	196
Calcium (mg/L)	HGWC-17	123	-	340
Calcium (mg/L)	HGWC-18	123	-	400
Chloride (mg/L)	HGWC-14	20.3	-	227
Chloride (mg/L)	HGWC-15	20.3	-	138
Chloride (mg/L)	HGWC-16	20.3	-	76.8
Chloride (mg/L)	HGWC-17	20.3	-	195
Chloride (mg/L)	HGWC-18	20.3	-	217
Fluoride (mg/L)	HGWC-14	0.360	-	0.66
Fluoride (mg/L)	HGWC-15	0.360	-	0.066 J
Fluoride (mg/L)	HGWC-16	0.360	-	ND
Fluoride (mg/L)	HGWC-17	0.360	-	0.16 J
Fluoride (mg/L)	HGWC-18	0.360	-	0.37
pH (s.u.)	HGWC-14	7.7	4.5	4.7
pH (s.u.)	HGWC-15	7.7	4.5	5.7
pH (s.u.)	HGWC-16	7.7	4.5	7.0
pH (s.u.)	HGWC-17	7.7	4.5	6.3
pH (s.u.)	HGWC-18	7.7	4.5	4.5
Sulfate (mg/L)	HGWC-14	84.3	-	1520
Sulfate (mg/L)	HGWC-15	84.3	-	528
Sulfate (mg/L)	HGWC-16	84.3	-	251
Sulfate (mg/L)	HGWC-17	84.3	-	642
Sulfate (mg/L)	HGWC-18	84.3	-	1030
TDS (mg/L)	HGWC-14	416	-	2310
TDS (mg/L)	HGWC-15	416	-	926
TDS (mg/L)	HGWC-16	416	-	704
TDS (mg/L)	HGWC-17	416	-	1260
TDS (mg/L)	HGWC-18	416	-	1610

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.

Interwell Prediction Limit - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:20 AM

Constituent	Well	Upper Lim.	Lower Lim.	Date	Observ.	Sig.	Bg N	%NDs	Transform	Alpha	Method
Boron (mg/L)	HGWC-14	0.0445	n/a	4/5/2019	12.5	Yes	72	8.333	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-15	0.0445	n/a	4/4/2019	2.3	Yes	72	8.333	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-16	0.0445	n/a	4/4/2019	2.1	Yes	72	8.333	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-17	0.0445	n/a	4/5/2019	5.9	Yes	72	8.333	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-18	0.0445	n/a	4/5/2019	6.4	Yes	72	8.333	ln(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-14	123.4	n/a	4/5/2019	606	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-15	123.4	n/a	4/4/2019	214	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-16	123.4	n/a	4/4/2019	196	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-17	123.4	n/a	4/5/2019	340	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-18	123.4	n/a	4/5/2019	400	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Chloride (mg/L)	HGWC-14	20.3	n/a	4/5/2019	227	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-15	20.3	n/a	4/4/2019	138	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-16	20.3	n/a	4/4/2019	76.8	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-17	20.3	n/a	4/5/2019	195	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-18	20.3	n/a	4/5/2019	217	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-14	0.36	n/a	4/5/2019	0.66	Yes	84	27.38	n/a	0.0002746	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-18	0.36	n/a	4/5/2019	0.37	Yes	84	27.38	n/a	0.0002746	NP Inter (normality) 1 of 2
pH (s.u.) (1)	HGWC-18	7.658	4.527	4/5/2019	4.5	Yes	84	0	x^6	0.000752	Param Inter 1 of 2
Sulfate (mg/L)	HGWC-14	84.3	n/a	4/5/2019	1520	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-15	84.3	n/a	4/4/2019	528	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-16	84.3	n/a	4/4/2019	251	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-17	84.3	n/a	4/5/2019	642	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-18	84.3	n/a	4/5/2019	1030	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-14	415.5	n/a	4/5/2019	2310	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-15	415.5	n/a	4/4/2019	926	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-16	415.5	n/a	4/4/2019	704	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-17	415.5	n/a	4/5/2019	1260	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-18	415.5	n/a	4/5/2019	1610	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2

Note:

(1) The measured pH for well HGWC-18 was within the standard margin of error for the instrument (+/- 0.1 s.u.) and therefore not considered an SSI.

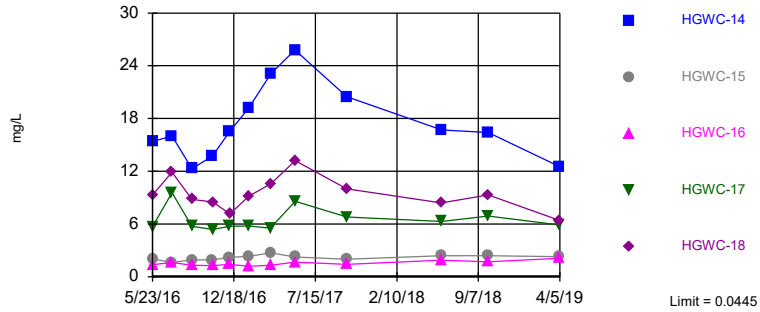
Interwell Prediction Limit - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:20 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Date</u>	<u>Observ.</u>	<u>Sig.</u>	<u>Bq N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Boron (mg/L)	HGWC-14	0.0445	n/a	4/5/2019	12.5	Yes	72	8.333	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-15	0.0445	n/a	4/4/2019	2.3	Yes	72	8.333	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-16	0.0445	n/a	4/4/2019	2.1	Yes	72	8.333	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-17	0.0445	n/a	4/5/2019	5.9	Yes	72	8.333	ln(x)	0.001504	Param Inter 1 of 2
Boron (mg/L)	HGWC-18	0.0445	n/a	4/5/2019	6.4	Yes	72	8.333	ln(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-14	123.4	n/a	4/5/2019	606	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-15	123.4	n/a	4/4/2019	214	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-16	123.4	n/a	4/4/2019	196	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-17	123.4	n/a	4/5/2019	340	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Calcium (mg/L)	HGWC-18	123.4	n/a	4/5/2019	400	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Chloride (mg/L)	HGWC-14	20.3	n/a	4/5/2019	227	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-15	20.3	n/a	4/4/2019	138	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-16	20.3	n/a	4/4/2019	76.8	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-17	20.3	n/a	4/5/2019	195	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Chloride (mg/L)	HGWC-18	20.3	n/a	4/5/2019	217	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-14	0.36	n/a	4/5/2019	0.66	Yes	84	27.38	n/a	0.0002746	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-15	0.36	n/a	4/4/2019	0.066	No	84	27.38	n/a	0.0002746	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-16	0.36	n/a	4/4/2019	0.3ND	No	84	27.38	n/a	0.0002746	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-17	0.36	n/a	4/5/2019	0.16	No	84	27.38	n/a	0.0002746	NP Inter (normality) 1 of 2
Fluoride (mg/L)	HGWC-18	0.36	n/a	4/5/2019	0.37	Yes	84	27.38	n/a	0.0002746	NP Inter (normality) 1 of 2
pH (s.u.)	HGWC-14	7.658	4.527	4/5/2019	4.67	No	84	0	x^6	0.000752	Param Inter 1 of 2
pH (s.u.)	HGWC-15	7.658	4.527	4/4/2019	5.66	No	84	0	x^6	0.000752	Param Inter 1 of 2
pH (s.u.)	HGWC-16	7.658	4.527	4/4/2019	6.95	No	84	0	x^6	0.000752	Param Inter 1 of 2
pH (s.u.)	HGWC-17	7.658	4.527	4/5/2019	6.26	No	84	0	x^6	0.000752	Param Inter 1 of 2
pH (s.u.)	HGWC-18	7.658	4.527	4/5/2019	4.5	Yes	84	0	x^6	0.000752	Param Inter 1 of 2
Sulfate (mg/L)	HGWC-14	84.3	n/a	4/5/2019	1520	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-15	84.3	n/a	4/4/2019	528	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-16	84.3	n/a	4/4/2019	251	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-17	84.3	n/a	4/5/2019	642	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Sulfate (mg/L)	HGWC-18	84.3	n/a	4/5/2019	1030	Yes	72	0	n/a	0.0003703	NP Inter (normality) 1 of 2
Total Dissolved Solids (mg/L)	HGWC-14	415.5	n/a	4/5/2019	2310	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-15	415.5	n/a	4/4/2019	926	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-16	415.5	n/a	4/4/2019	704	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-17	415.5	n/a	4/5/2019	1260	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2
Total Dissolved Solids (mg/L)	HGWC-18	415.5	n/a	4/5/2019	1610	Yes	72	0	sqrt(x)	0.001504	Param Inter 1 of 2

Exceeds Limit: HGWC-14, HGWC-15, HGWC-16, HGWC-17, HGWC-18

Prediction Limit
Interwell Parametric

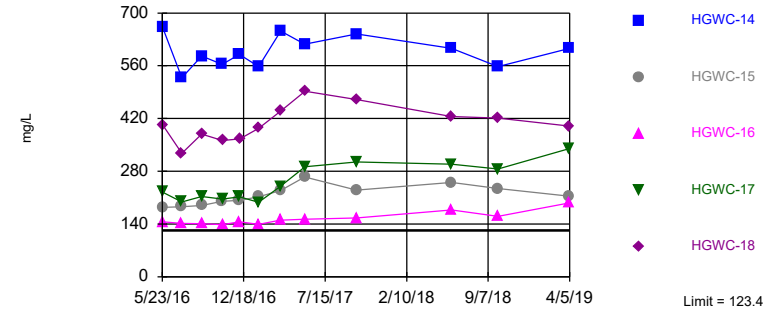


Background Data Summary (based on natural log transformation): Mean=-4.171, Std. Dev.=0.5798, n=72, 8.333% NDs. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.97, critical = 0.954. Kappa = 1.826 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001504. Comparing 5 points to limit.

Constituent: Boron Analysis Run 7/22/2019 2:19 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Exceeds Limit: HGWC-14, HGWC-15, HGWC-16, HGWC-17, HGWC-18

Prediction Limit
Interwell Parametric

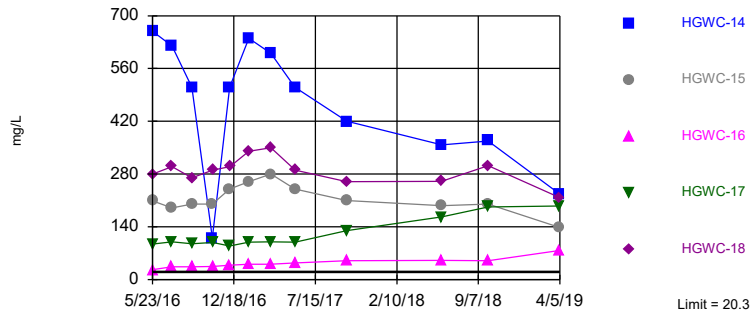


Background Data Summary (based on square root transformation): Mean=7.263, Std. Dev.=2.105, n=72. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9571, critical = 0.954. Kappa = 1.826 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001504. Comparing 5 points to limit.

Constituent: Calcium Analysis Run 7/22/2019 2:19 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Exceeds Limit: HGWC-14, HGWC-15, HGWC-16, HGWC-17, HGWC-18

Prediction Limit
Interwell Non-parametric

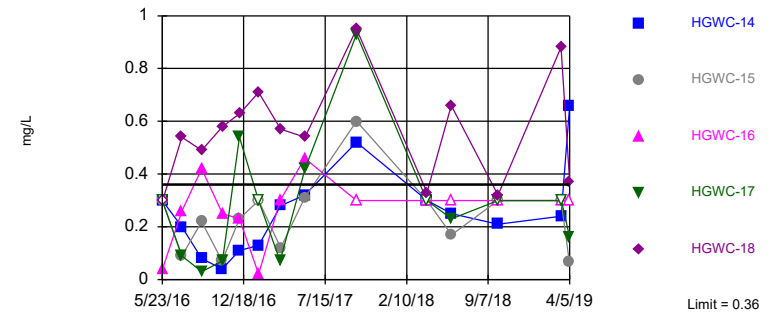


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 72 background values. Annual per-constituent alpha = 0.003697. Individual comparison alpha = 0.0003703 (1 of 2). Comparing 5 points to limit.

Constituent: Chloride Analysis Run 7/22/2019 2:19 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Exceeds Limit: HGWC-14, HGWC-18

Prediction Limit
Interwell Non-parametric

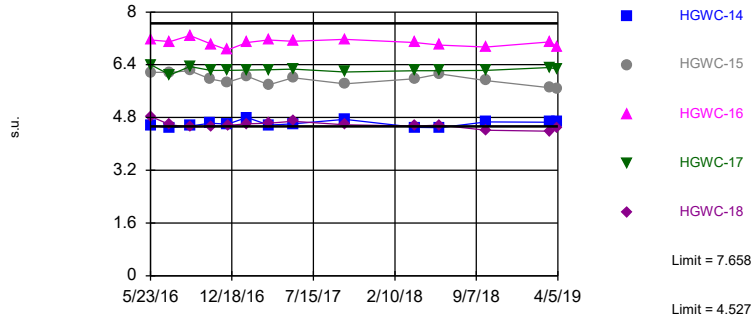


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 84 background values. 27.38% NDs. Annual per-constituent alpha = 0.002742. Individual comparison alpha = 0.0002746 (1 of 2). Comparing 5 points to limit.

Constituent: Fluoride Analysis Run 7/22/2019 2:19 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Exceeds Limits: HGWC-18

Prediction Limit
Interwell Parametric

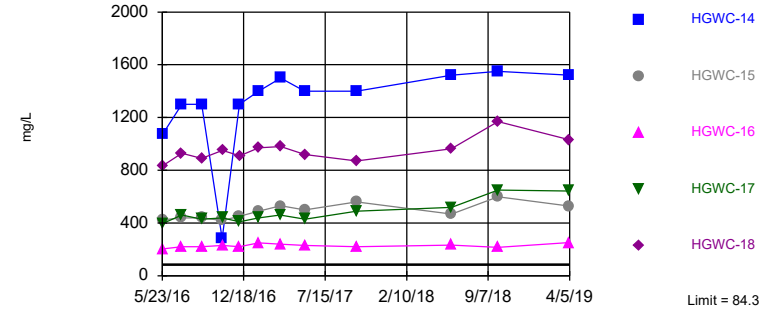


Background Data Summary (based on x^6 transformation): Mean=105137, Std. Dev.=53213, n=84. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9624, critical = 0.96. Kappa = 1.814 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.000752. Comparing 5 points to limit.

Constituent: pH Analysis Run 7/22/2019 2:19 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Exceeds Limit: HGWC-14, HGWC-15, HGWC-16, HGWC-17, HGWC-18

Prediction Limit
Interwell Non-parametric

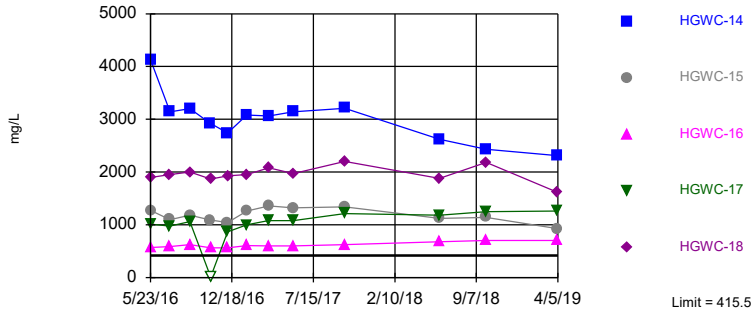


Non-parametric test used in lieu of parametric prediction limit because the Shapiro Francia normality test showed the data to be non-normal at the 0.01 alpha level. Limit is highest of 72 background values. Annual per-constituent alpha = 0.003697. Individual comparison alpha = 0.0003703 (1 of 2). Comparing 5 points to limit.

Constituent: Sulfate Analysis Run 7/22/2019 2:19 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Exceeds Limit: HGWC-14, HGWC-15, HGWC-16, HGWC-17, HGWC-18

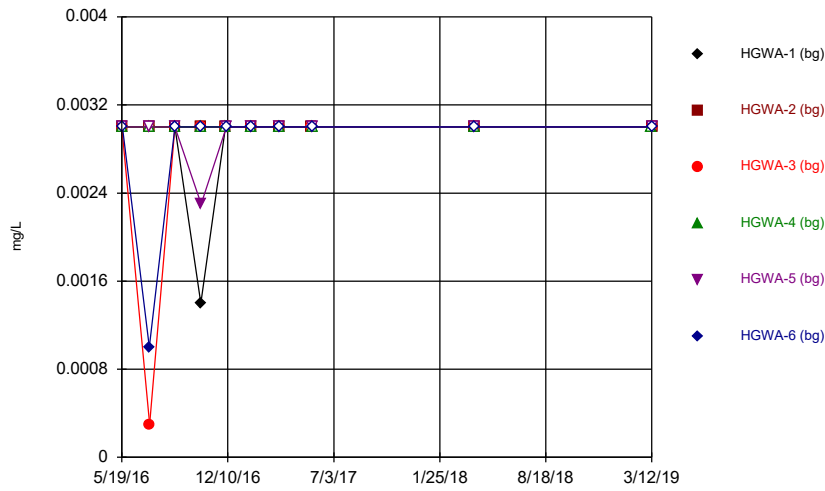
Prediction Limit
Interwell Parametric



Background Data Summary (based on square root transformation): Mean=14.88, Std. Dev.=3.014, n=72. Normality test: Shapiro Francia @alpha = 0.01, calculated = 0.9666, critical = 0.954. Kappa = 1.826 (c=7, w=5, 1 of 2, event alpha = 0.05132). Report alpha = 0.007498. Individual comparison alpha = 0.001504. Comparing 5 points to limit.

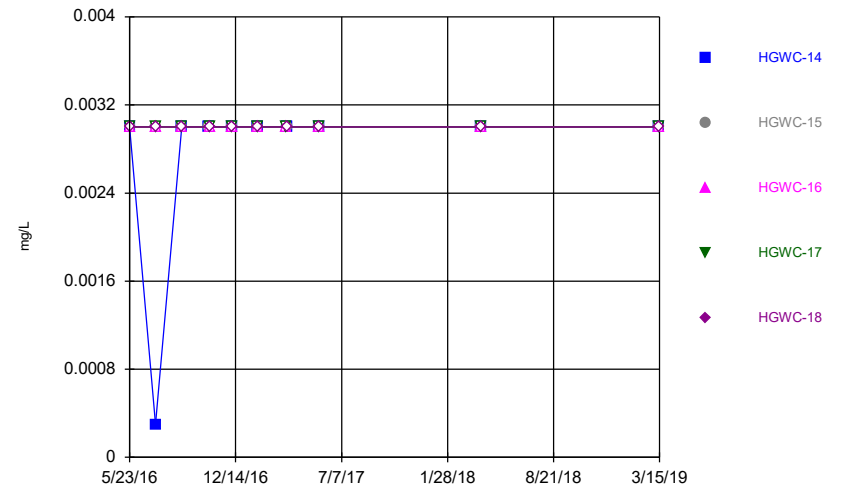
Constituent: Total Dissolved Solids Analysis Run 7/22/2019 2:19 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



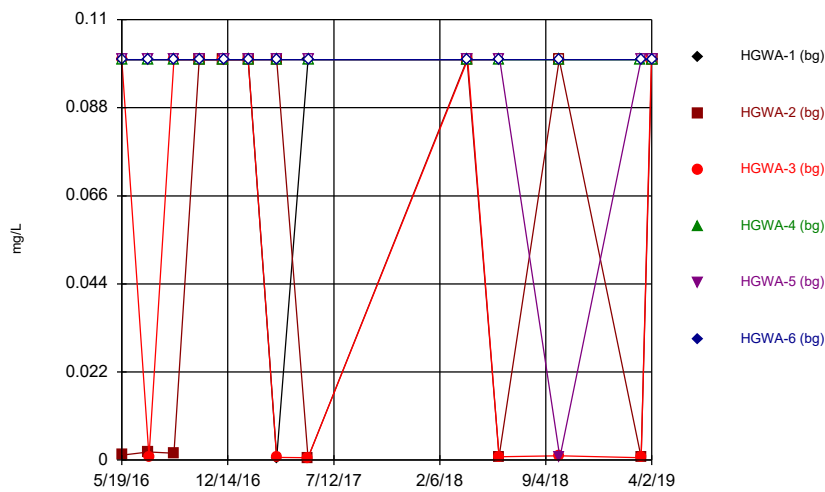
Constituent: Antimony Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



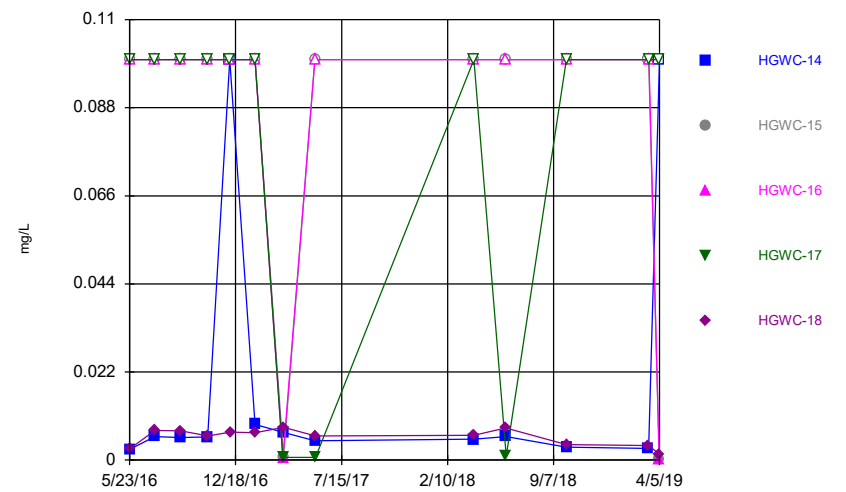
Constituent: Antimony Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



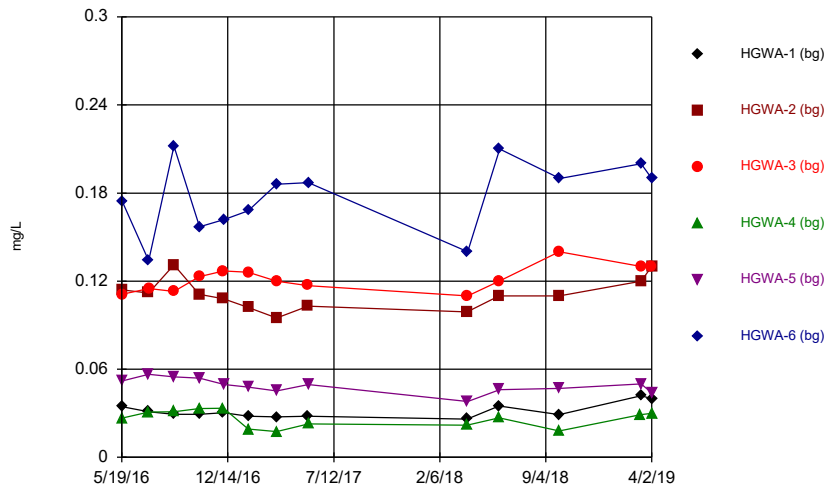
Constituent: Arsenic Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



Constituent: Arsenic Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

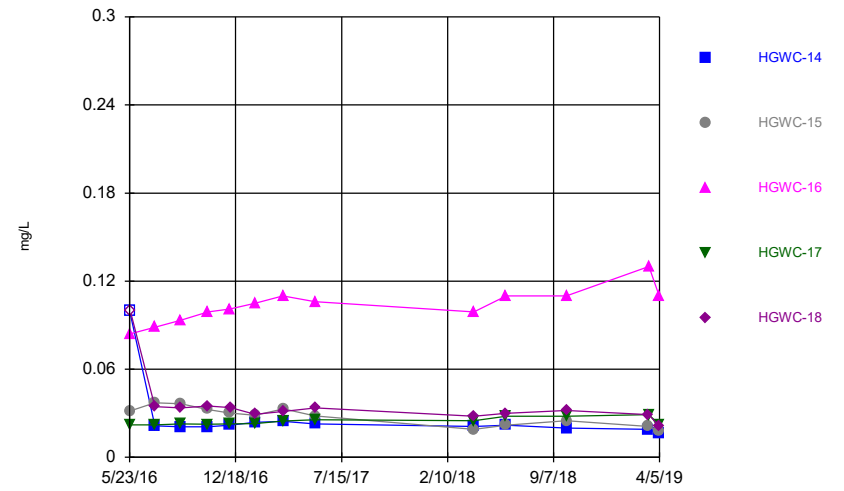
Time Series



Constituent: Barium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Hollow symbols indicate censored values.

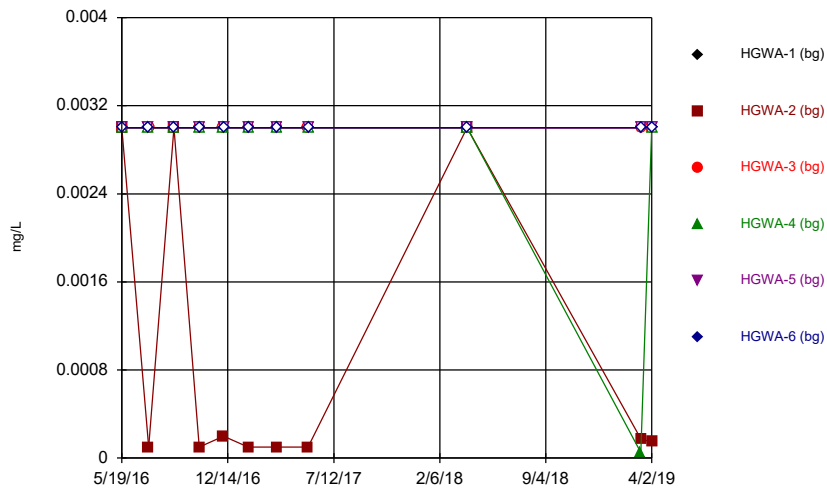
Time Series



Constituent: Barium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Hollow symbols indicate censored values.

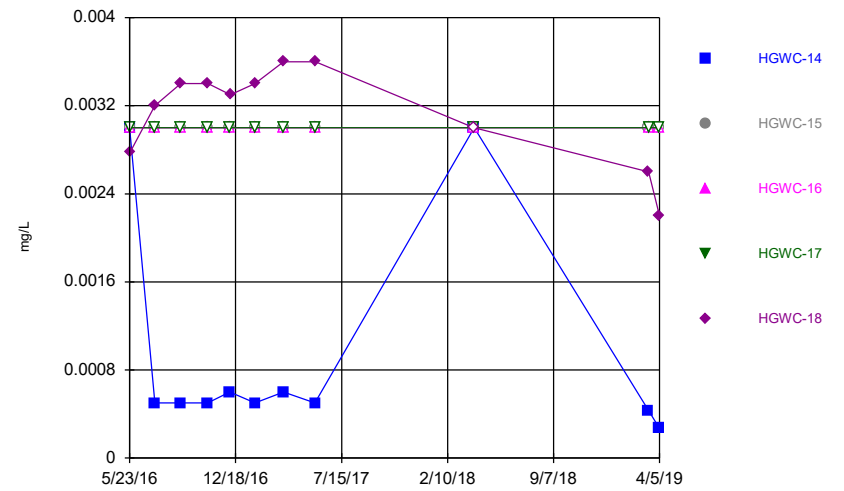
Time Series



Constituent: Beryllium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

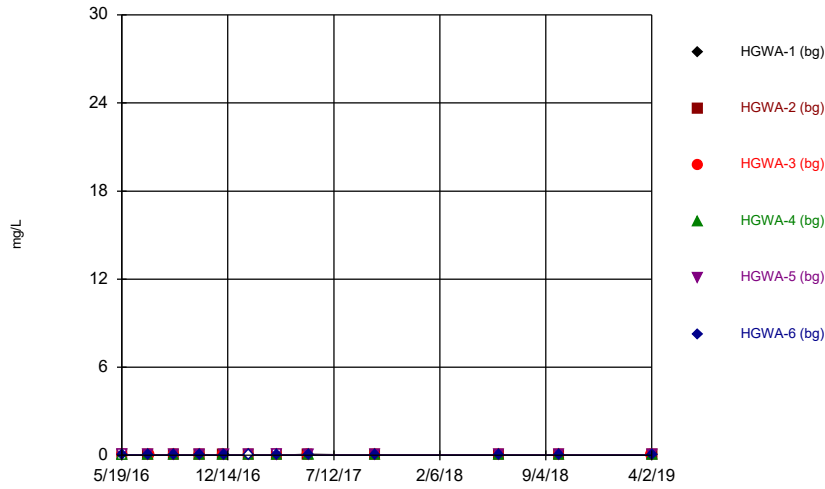
Hollow symbols indicate censored values.

Time Series



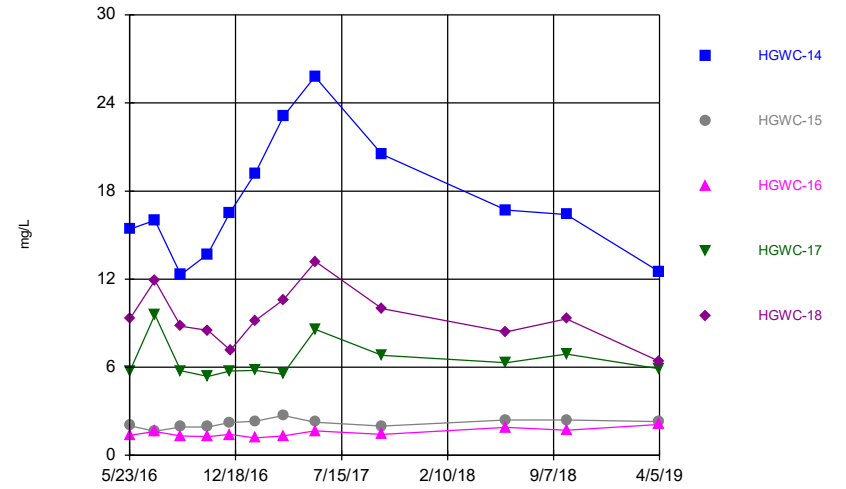
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 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



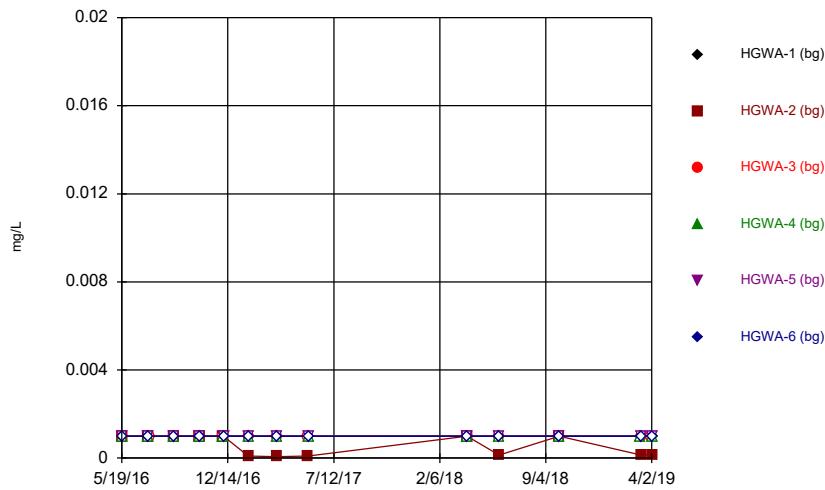
Constituent: Boron Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



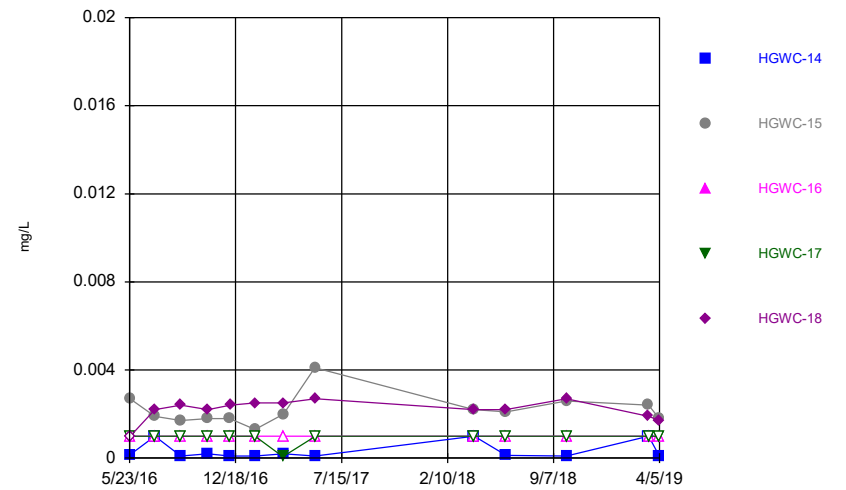
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 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



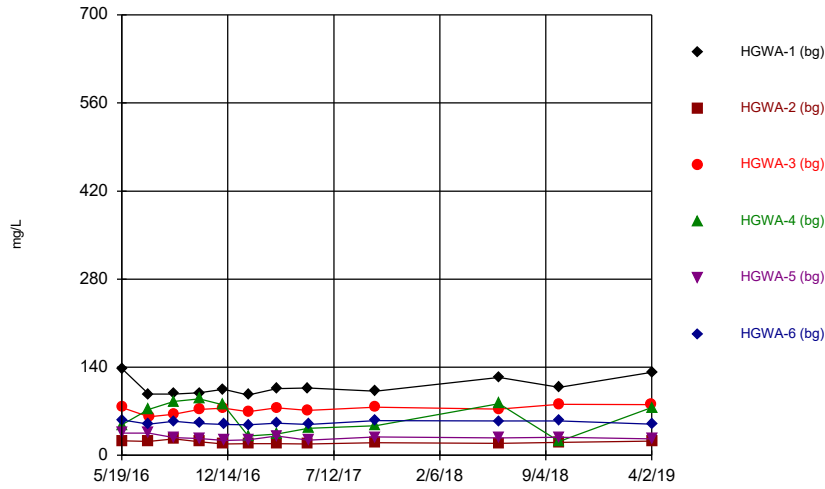
Constituent: Cadmium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



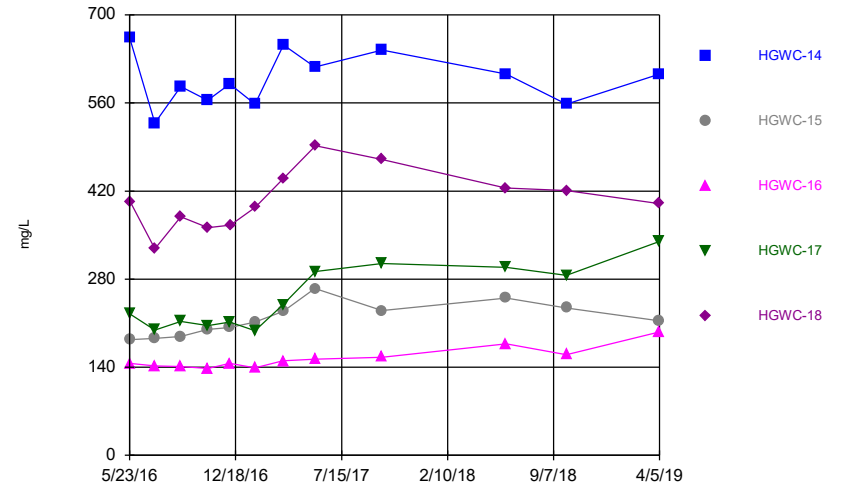
Constituent: Cadmium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



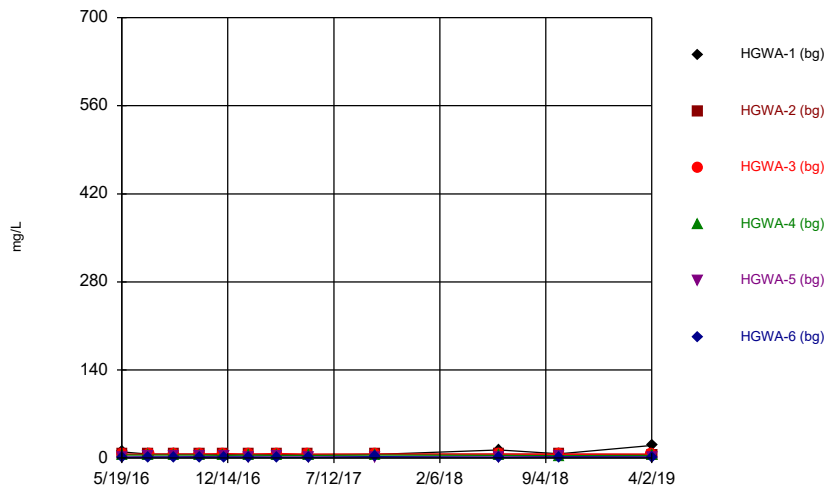
Constituent: Calcium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



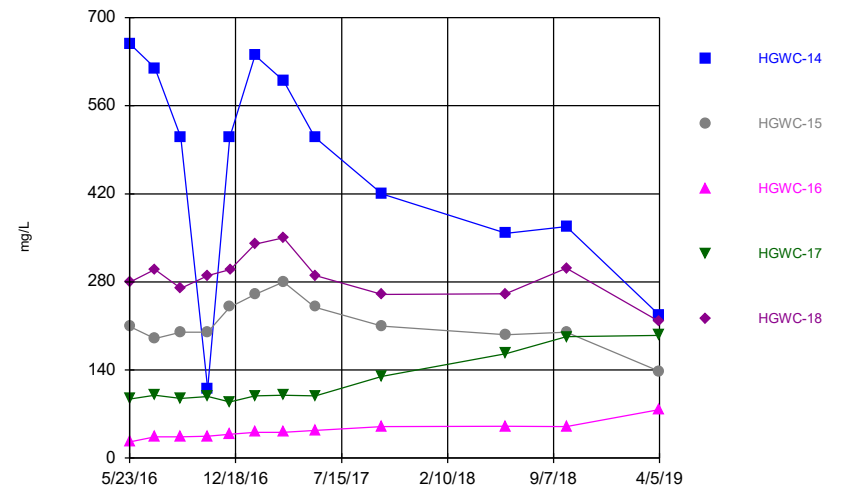
Constituent: Calcium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



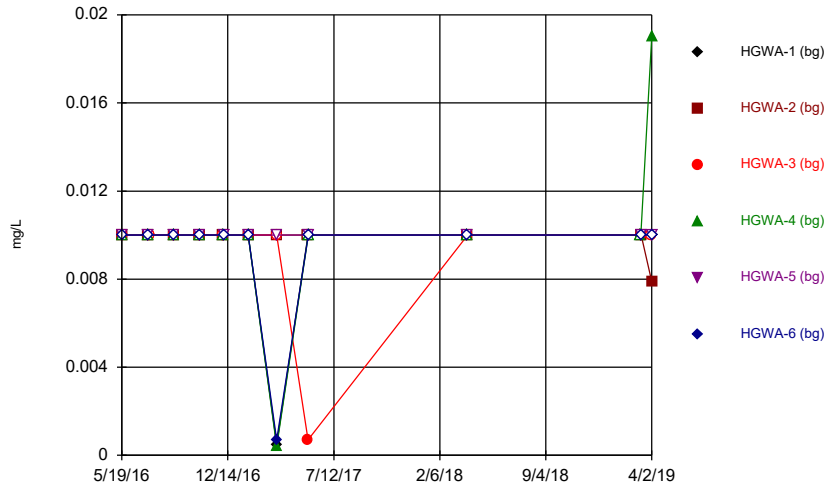
Constituent: Chloride Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



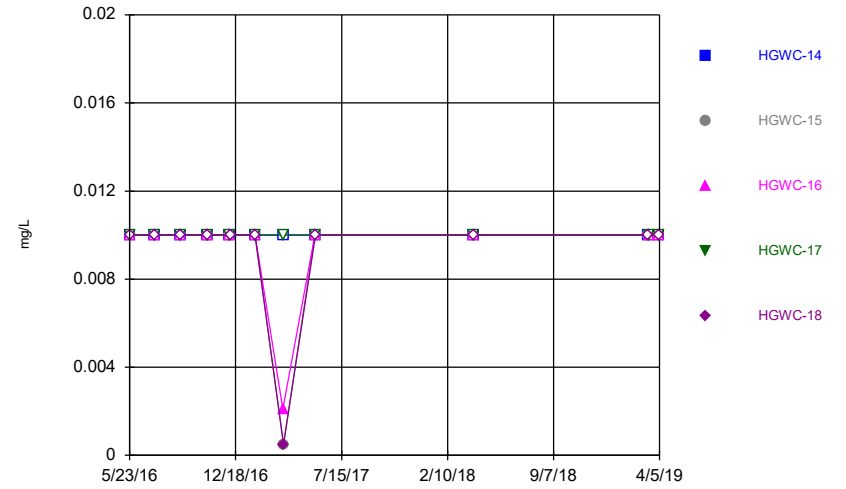
Constituent: Chloride Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



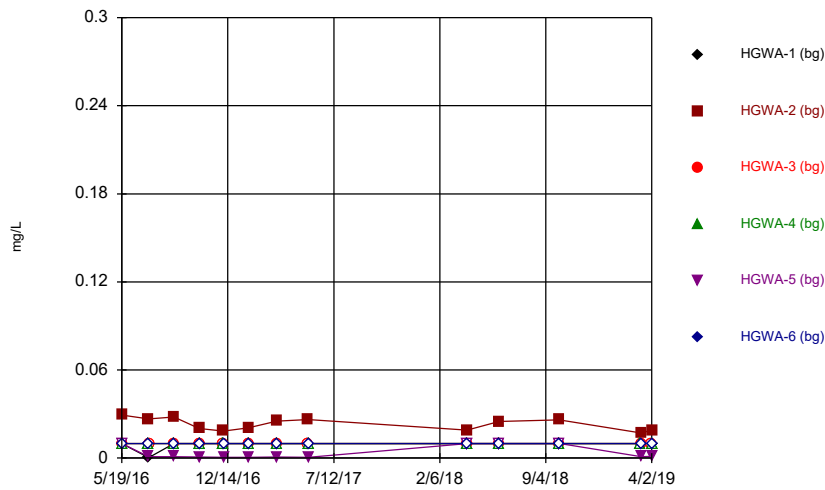
Constituent: Chromium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



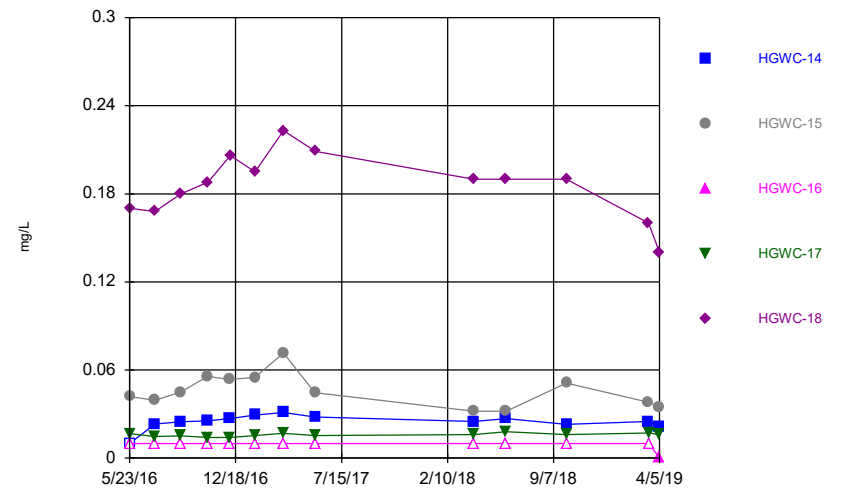
Constituent: Chromium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



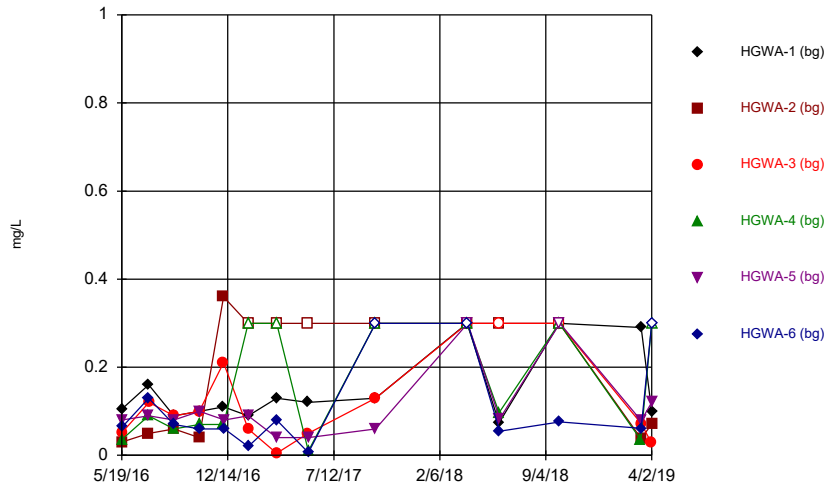
Constituent: Cobalt Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



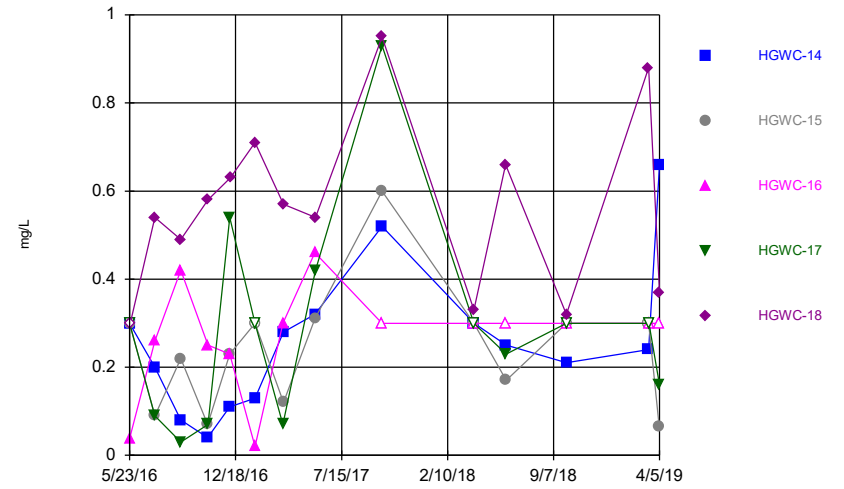
Constituent: Cobalt Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



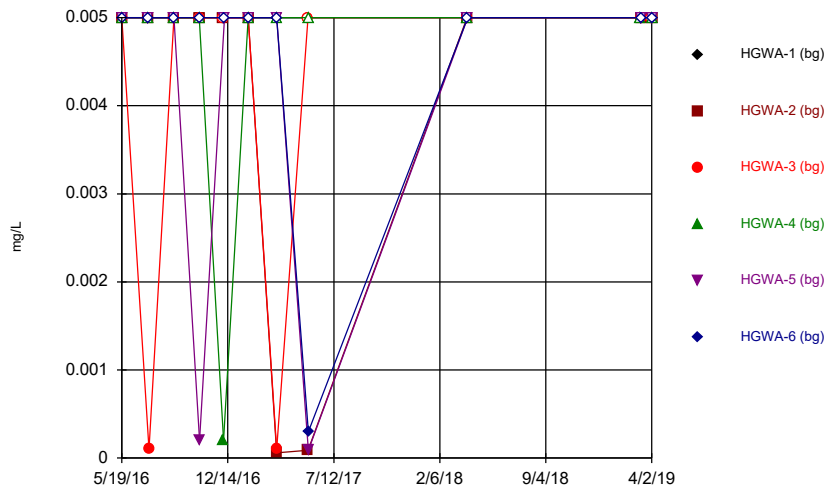
Constituent: Fluoride Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



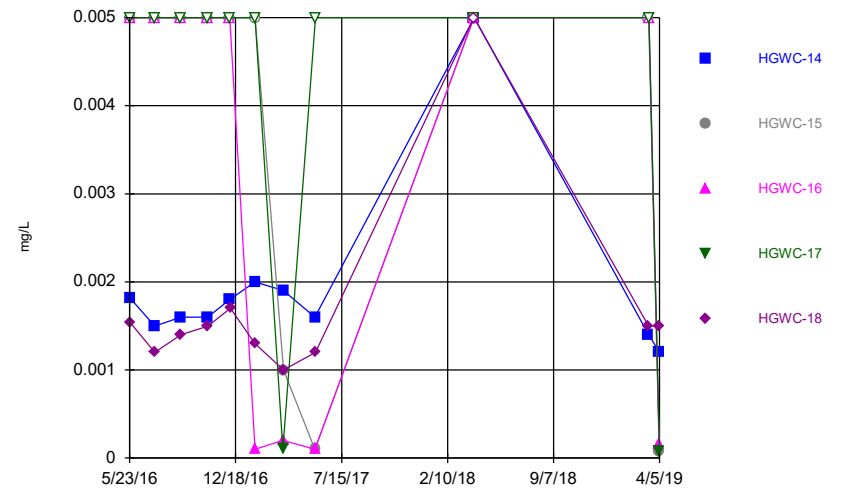
Constituent: Fluoride Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



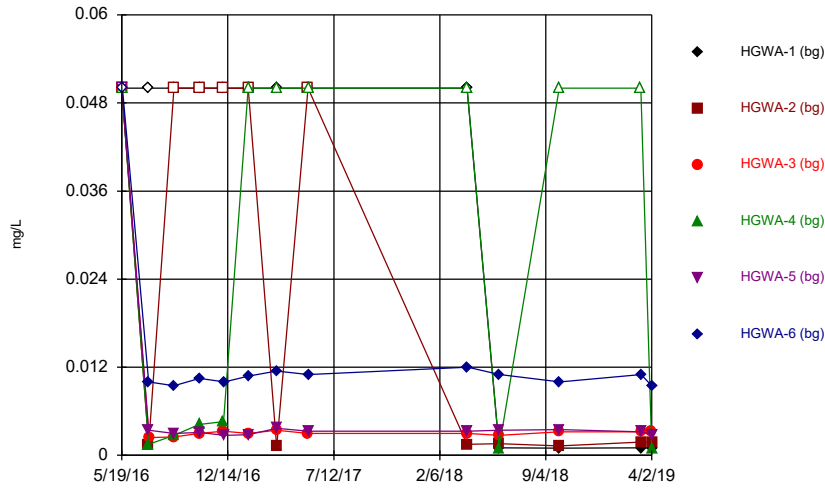
Constituent: Lead Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



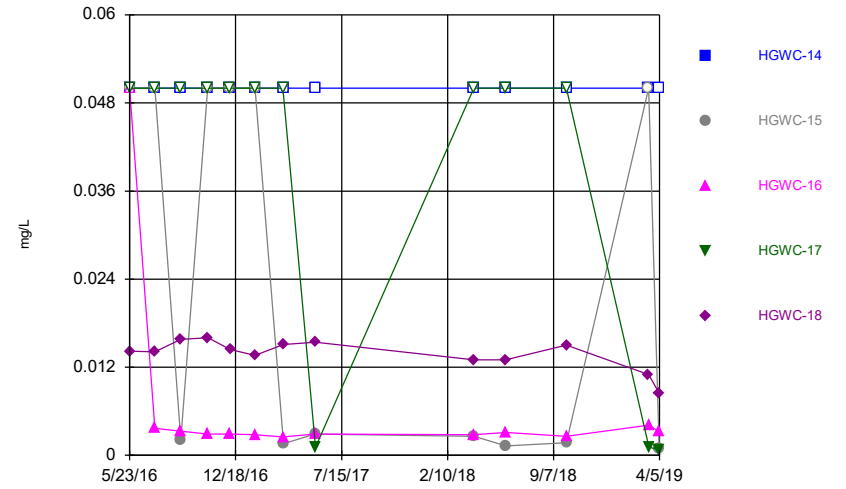
Constituent: Lead Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



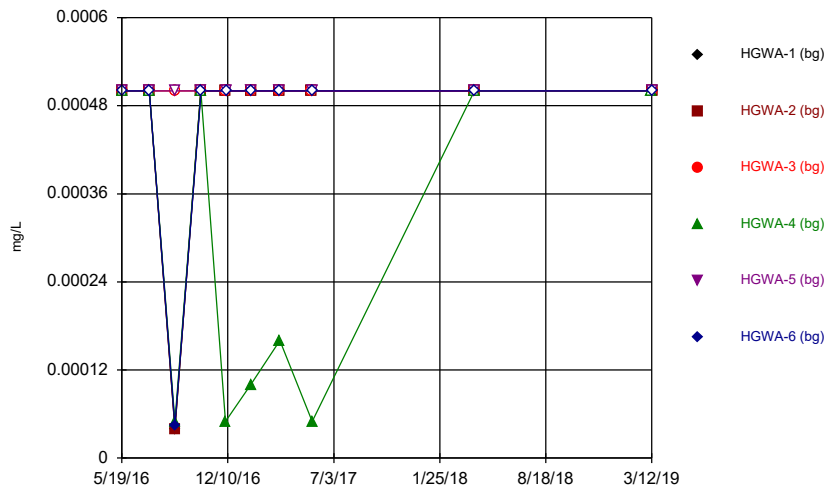
Constituent: Lithium Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



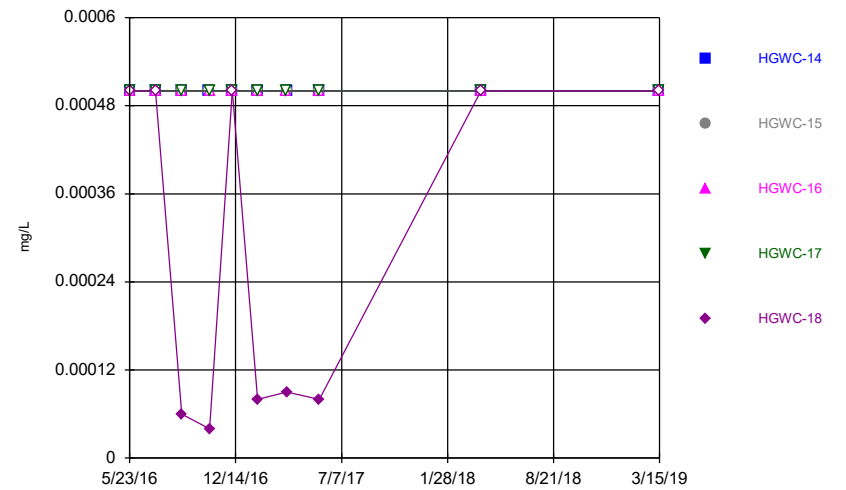
Constituent: Lithium Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



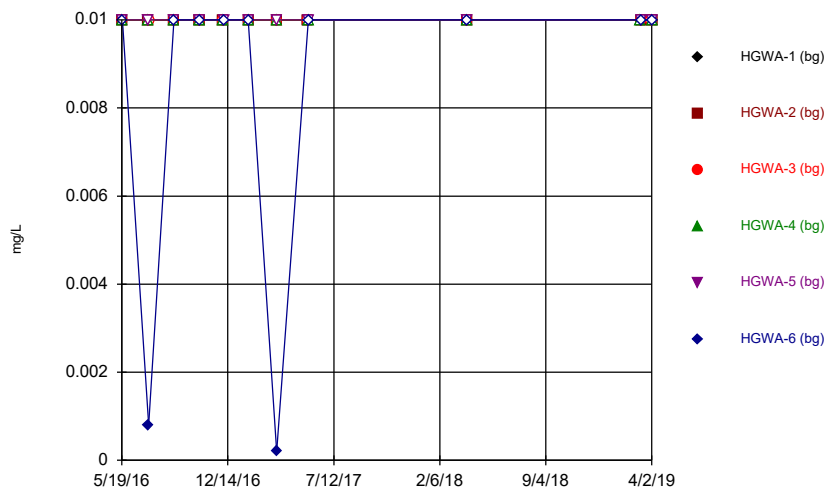
Constituent: Mercury Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



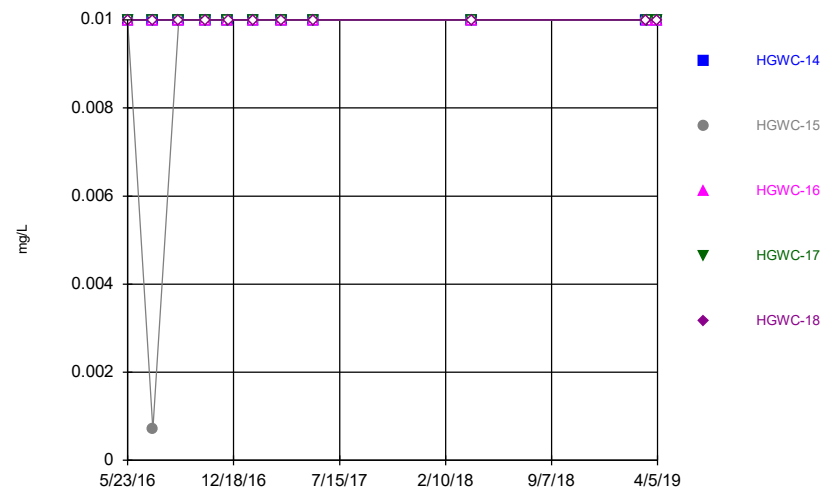
Constituent: Mercury Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



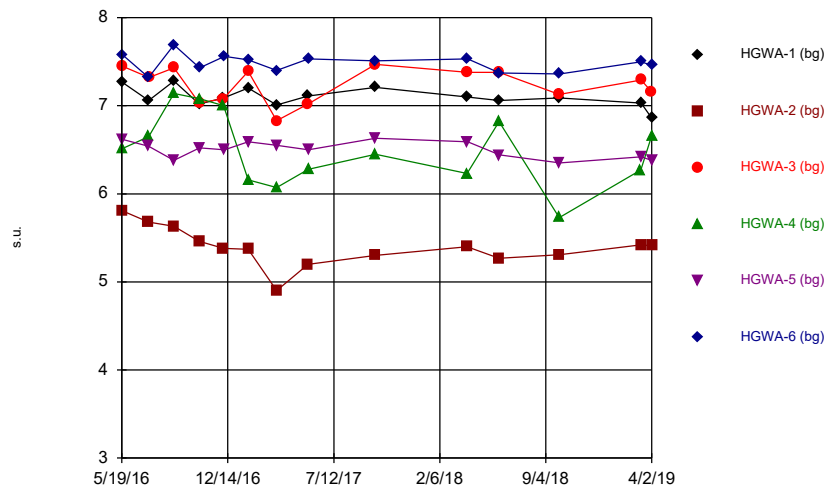
Constituent: Molybdenum Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



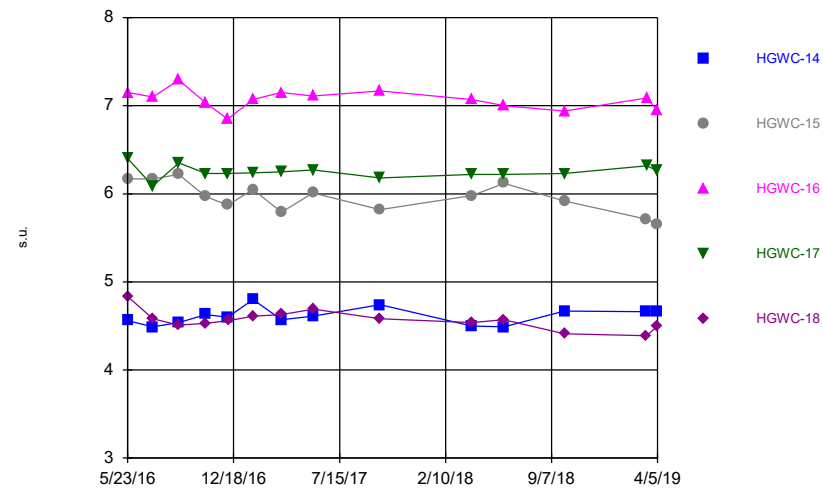
Constituent: Molybdenum Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



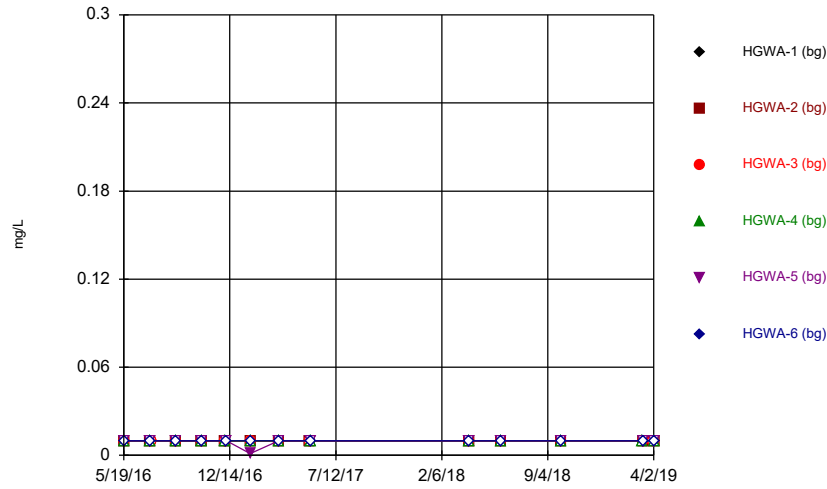
Constituent: pH Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



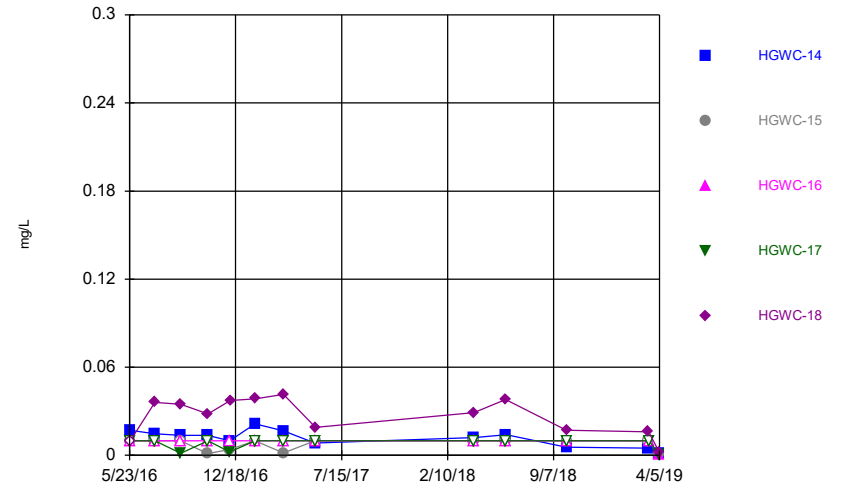
Constituent: pH Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



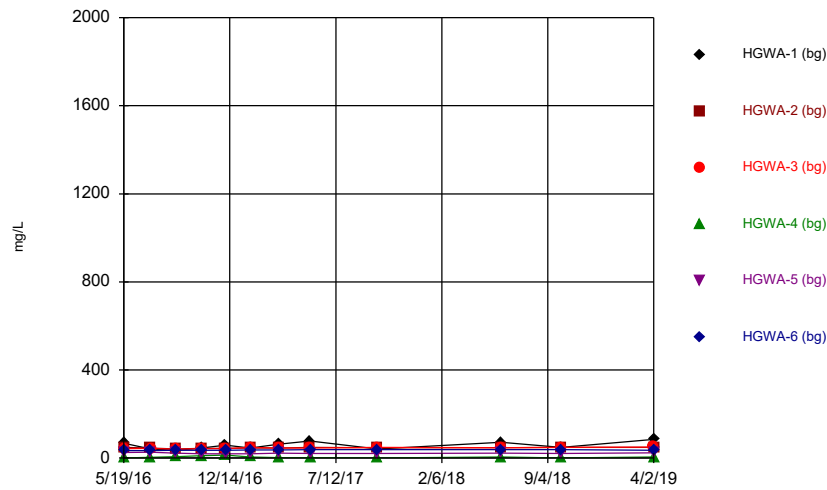
Constituent: Selenium Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



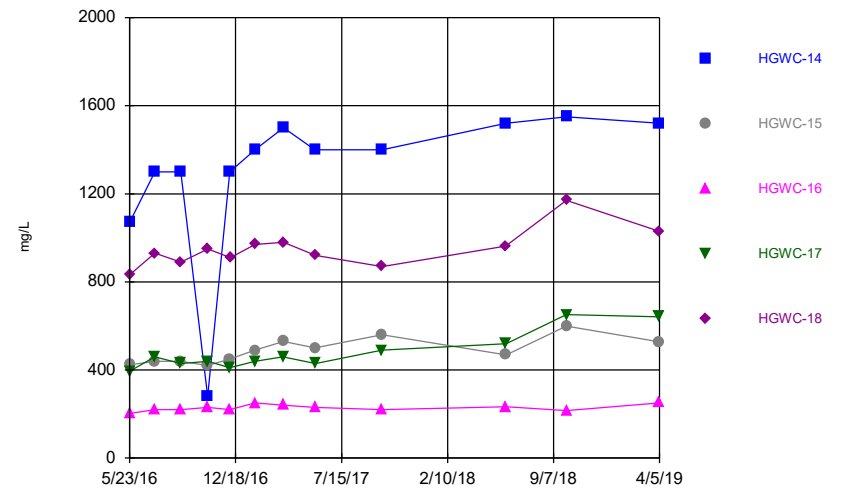
Constituent: Selenium Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



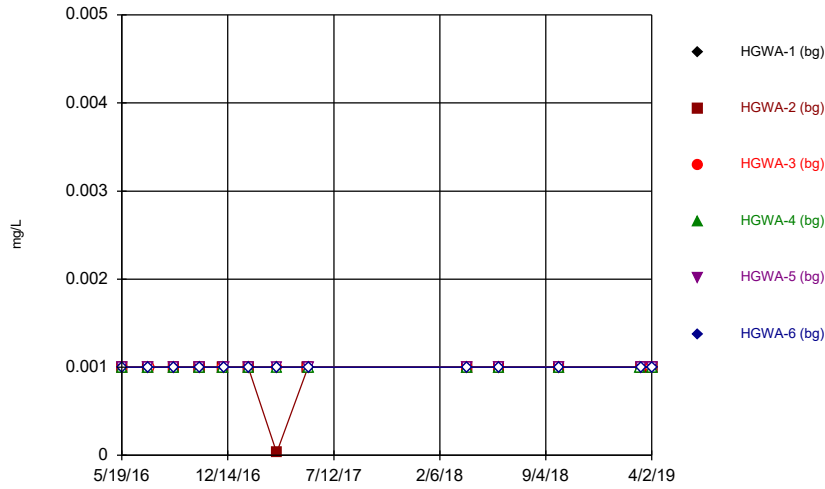
Constituent: Sulfate Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



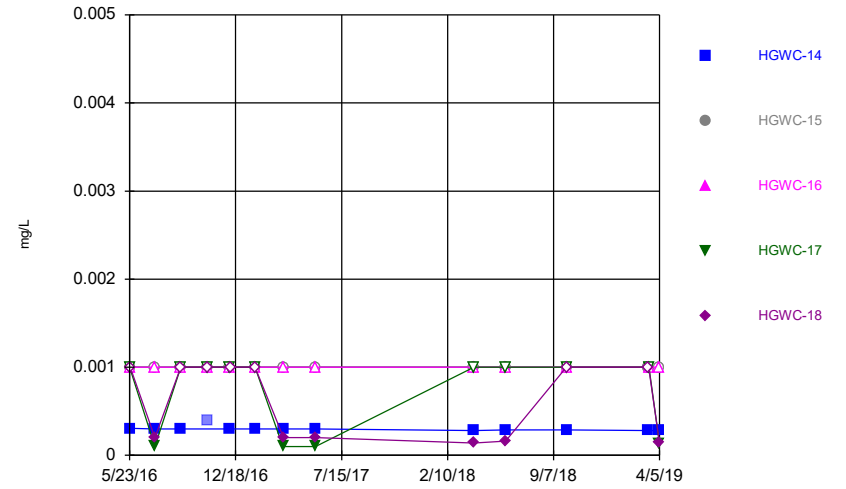
Constituent: Sulfate Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



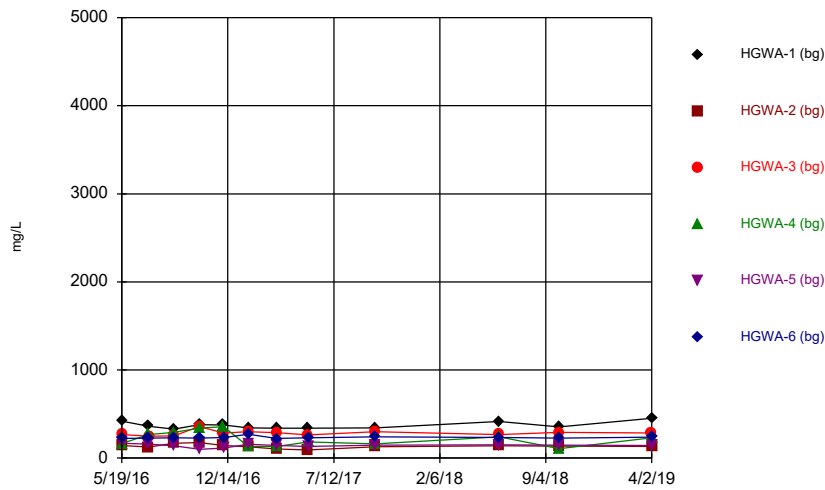
Constituent: Thallium Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



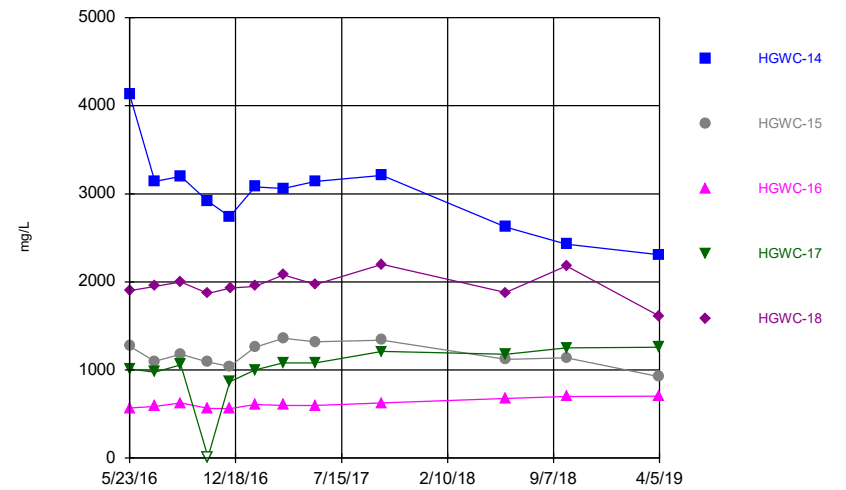
Constituent: Thallium Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



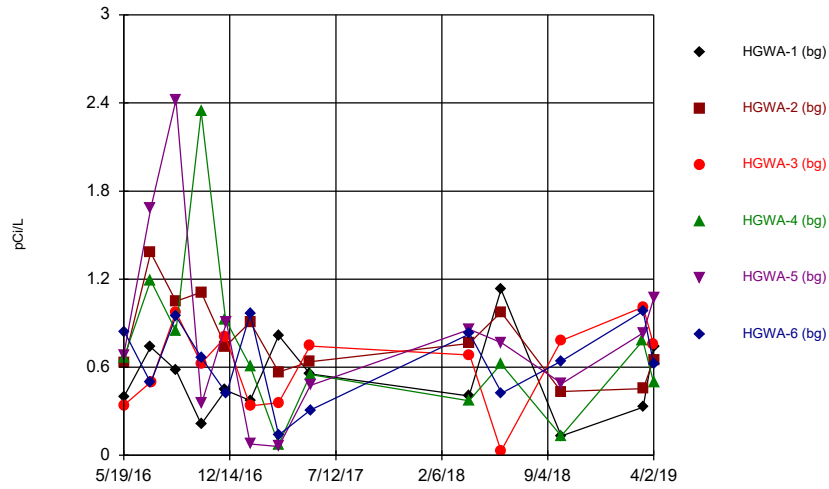
Constituent: Total Dissolved Solids Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



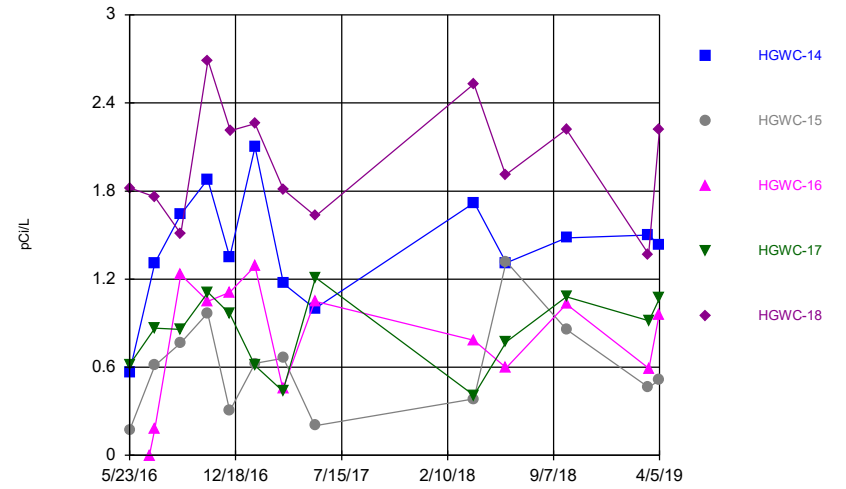
Constituent: Total Dissolved Solids Analysis Run 7/22/2019 2:58 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



Constituent: Total Radium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Time Series



Constituent: Total Radium Analysis Run 7/22/2019 2:58 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Trend Test - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/24/2019, 10:31 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-15	0.1736	32	30	Yes	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-16	0.2133	32	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
Calcium (mg/L)	HGWC-15	31.18	48	30	Yes	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-16	13.83	43	30	Yes	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-17	49.2	36	30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-4 (bg)	-0.1811	-31	-30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-14	-125.1	-35	-30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-16	13.43	60	30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-17	35.07	46	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)	HGWA-6 (bg)	1.632	39	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-14	120.5	47	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-15	67.29	43	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-17	67.11	41	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-18	64.07	32	30	Yes	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-14	-324	-33	-30	Yes	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-16	51.55	40	30	Yes	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-17	114.8	45	30	Yes	12	8.333	n/a	n/a	0.05	NP

Trend Test - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/24/2019, 10:31 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)	HGWA-4 (bg)	-0.003129	-28	-30	No	12	8.333	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-5 (bg)	-0.0009715	-16	-30	No	12	16.67	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-6 (bg)	-0.001836	-27	-30	No	12	8.333	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-14	1.312	14	30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-15	0.1736	32	30	Yes	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-16	0.2133	32	30	Yes	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-17	0.1521	16	30	No	12	0	n/a	n/a	0.05	NP
Boron (mg/L)	HGWC-18	-0.5126	-12	-30	No	12	0	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
Calcium (mg/L)	HGWA-3 (bg)	3.671	32	30	Yes	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-4 (bg)	-5.012	-10	-30	No	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-5 (bg)	-1.812	-18	-30	No	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-6 (bg)	-0.03657	0	30	No	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-14	7.298	4	30	No	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-15	31.18	48	30	Yes	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-16	13.83	43	30	Yes	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-17	49.2	36	30	Yes	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWC-18	30.33	24	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)	HGWA-4 (bg)	-0.1811	-31	-30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-5 (bg)	0	-2	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-6 (bg)	0	-2	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-14	-125.1	-35	-30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-15	-2.373	-6	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-16	13.43	60	30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-17	35.07	46	30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWC-18	-10.43	-8	-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)	HGWA-4 (bg)	0.021	25	37	No	14	42.86	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-5 (bg)	0.002013	11	37	No	14	14.29	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-6 (bg)	0.00287	9	37	No	14	21.43	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWC-14	0.08752	30	37	No	14	14.29	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWC-18	0.04311	12	37	No	14	7.143	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
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)	HGWA-4 (bg)	-0.7193	-13	-30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-5 (bg)	-0.06972	-5	-30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-6 (bg)	1.632	39	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-14	120.5	47	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-15	67.29	43	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-16	7.991	21	30	No	12	0	n/a	n/a	0.05	NP

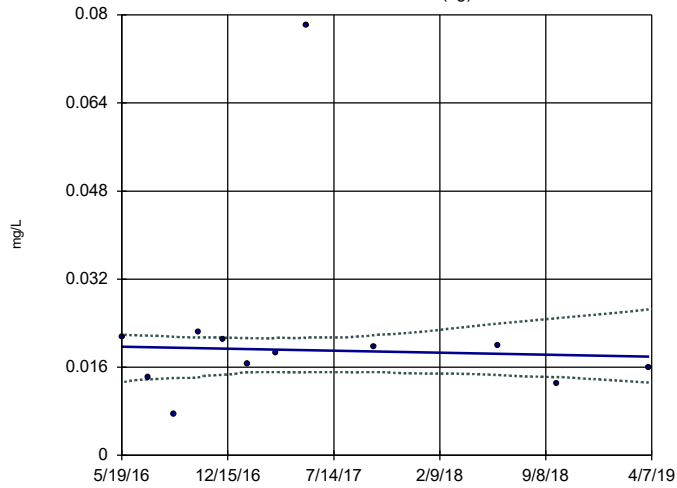
Trend Test - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/24/2019, 10:31 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>
Sulfate (mg/L)	HGWC-17	67.11	41	30	Yes	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWC-18	64.07	32	30	Yes	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)	HGWA-4 (bg)	-20.46	-12	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-5 (bg)	-3.047	-7	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-6 (bg)	4.34	22	30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-14	-324	-33	-30	Yes	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-15	-26.61	-4	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-16	51.55	40	30	Yes	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-17	114.8	45	30	Yes	12	8.333	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWC-18	63.32	9	30	No	12	0	n/a	n/a	0.05	NP

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

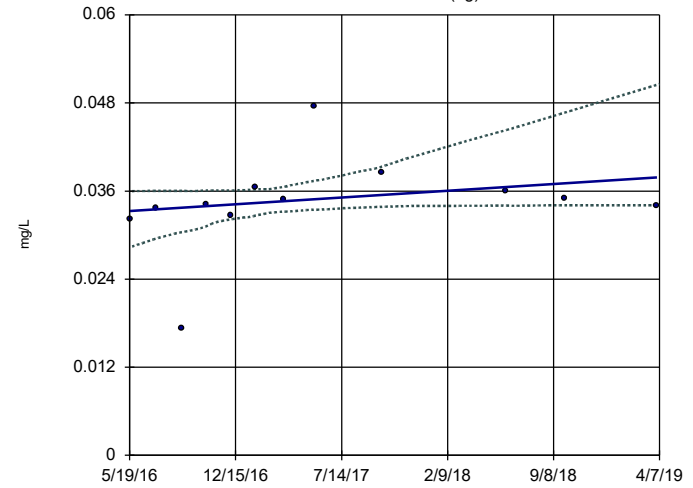


n = 12
 Slope = -0.0006149
 units per year.
 Mann-Kendall
 statistic = -6
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

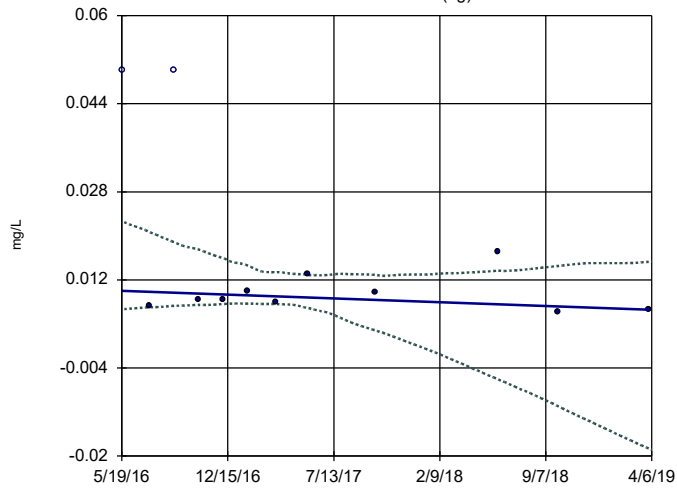


n = 12
 Slope = 0.001596
 units per year.
 Mann-Kendall
 statistic = 26
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

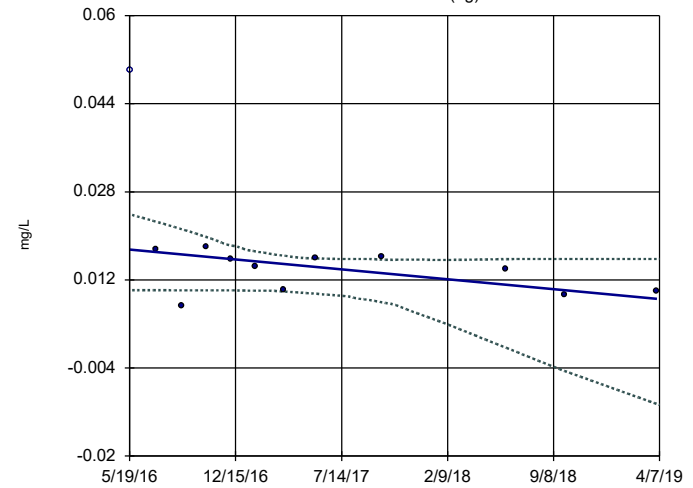


n = 12
 Slope = -0.001203
 units per year.
 Mann-Kendall
 statistic = -16
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

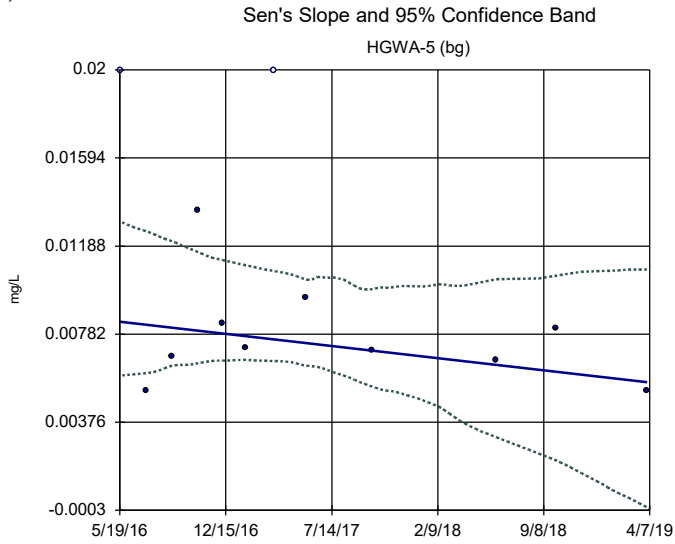
Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

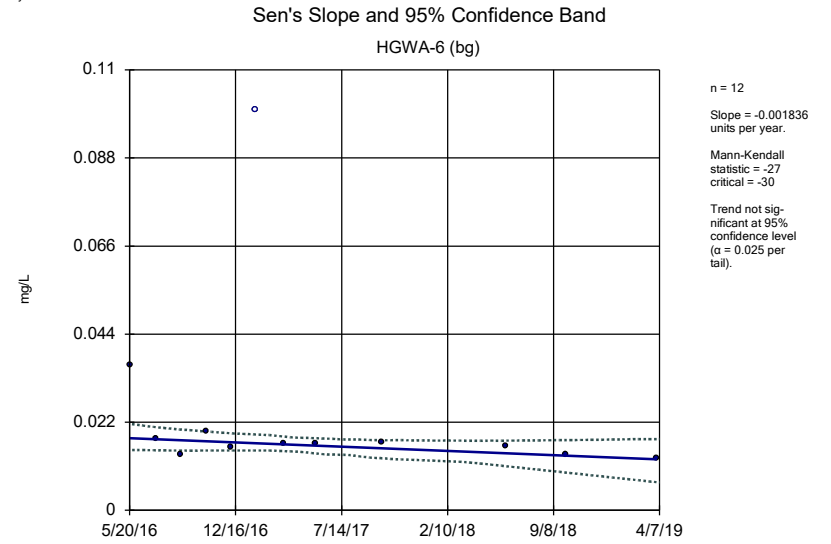


n = 12
 Slope = -0.003129
 units per year.
 Mann-Kendall
 statistic = -28
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

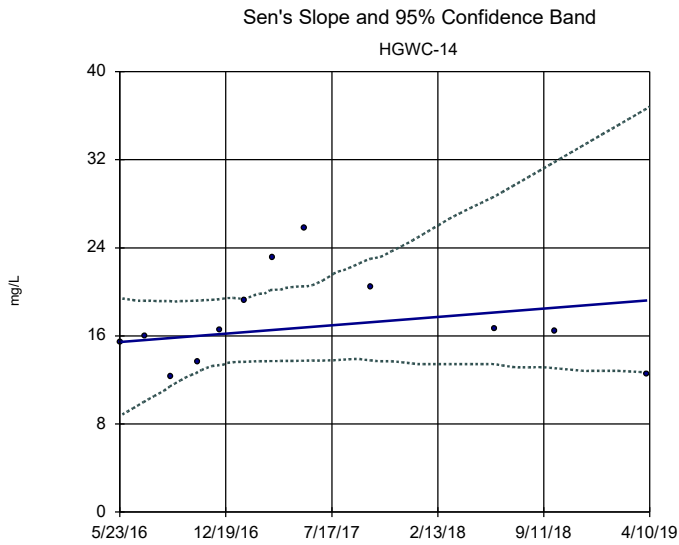
Constituent: Boron Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



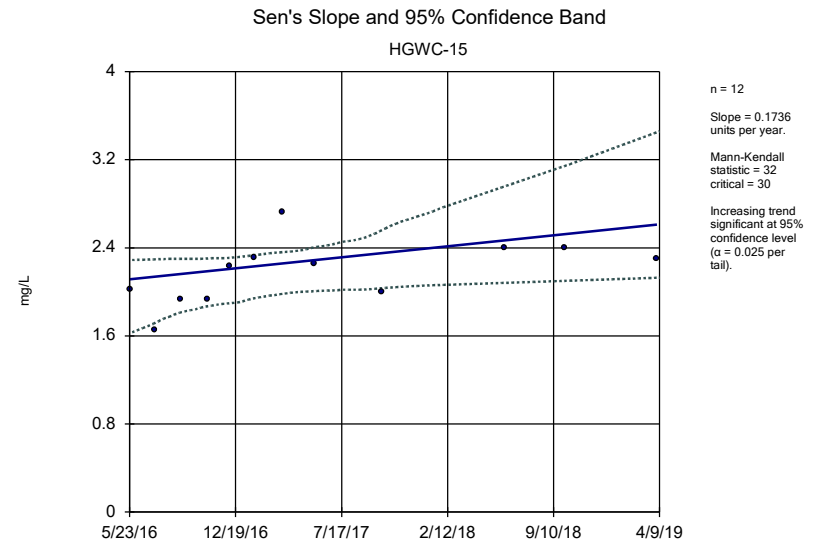
Constituent: Boron Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



Constituent: Boron Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



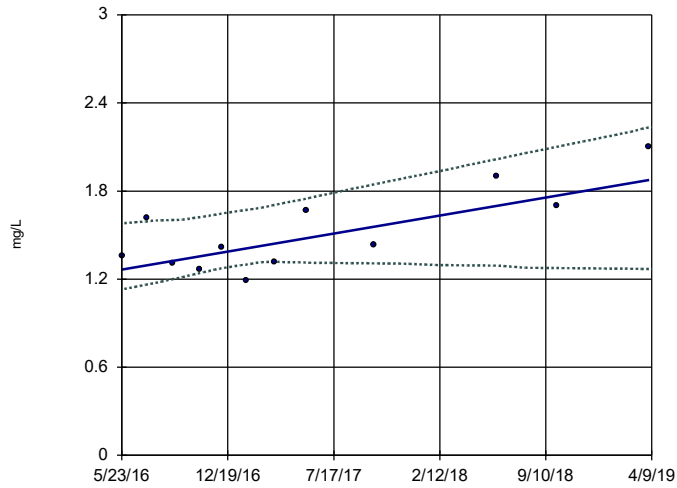
Constituent: Boron Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



Constituent: Boron Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-16

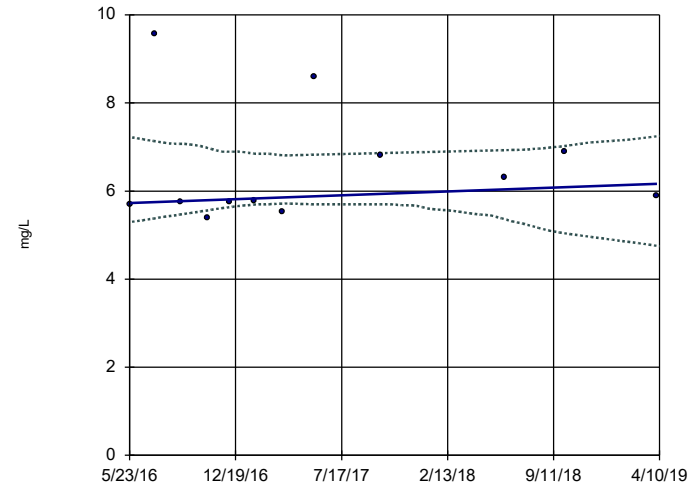


n = 12
 Slope = 0.2133
 units per year.
 Mann-Kendall
 statistic = 32
 critical = 30
 Increasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-17

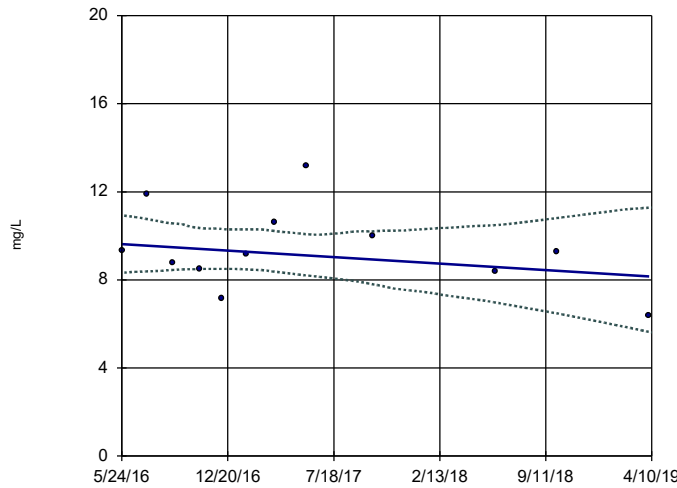


n = 12
 Slope = 0.1521
 units per year.
 Mann-Kendall
 statistic = 16
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-18

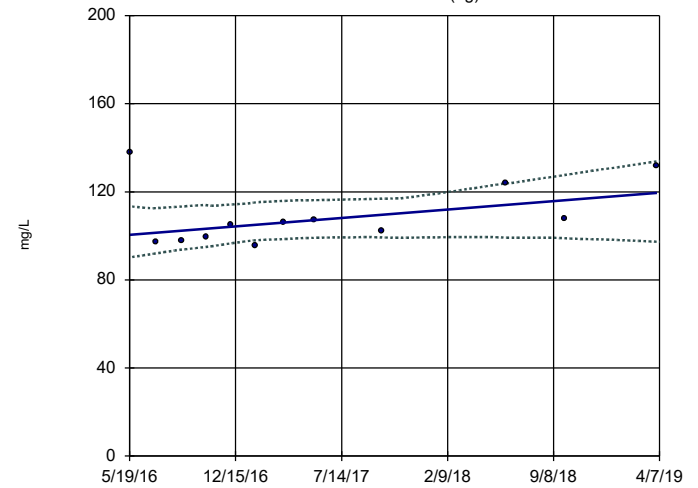


n = 12
 Slope = -0.5126
 units per year.
 Mann-Kendall
 statistic = -12
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Boron Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

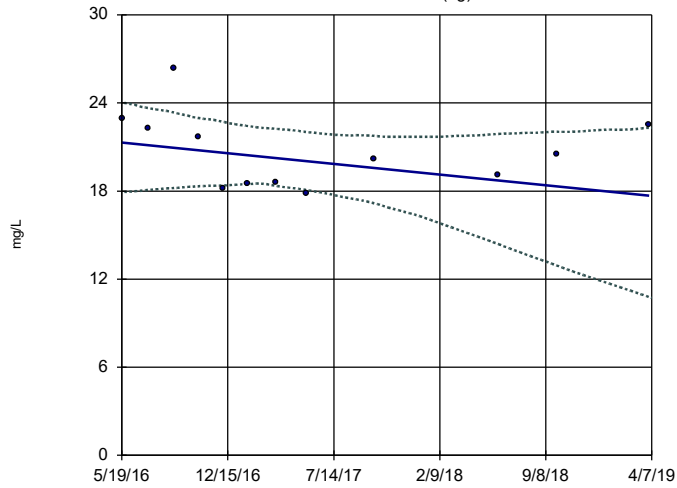


n = 12
 Slope = 6.667
 units per year.
 Mann-Kendall
 statistic = 28
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

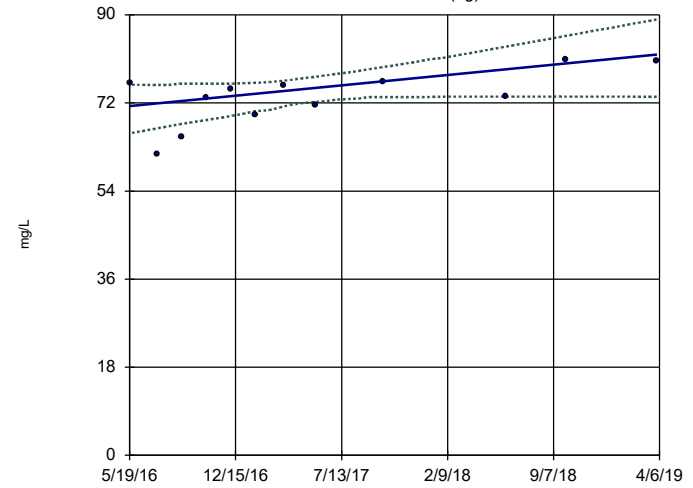


n = 12
 Slope = -1.26
 units per year.
 Mann-Kendall
 statistic = -10
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

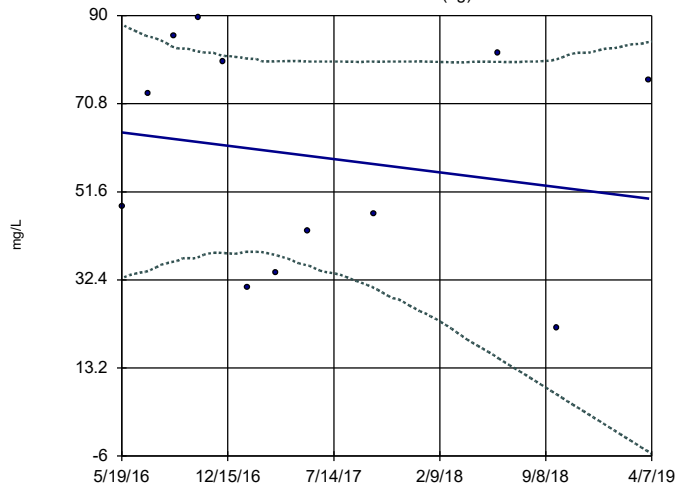


n = 12
 Slope = 3.671
 units per year.
 Mann-Kendall
 statistic = 32
 critical = 30
 Increasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

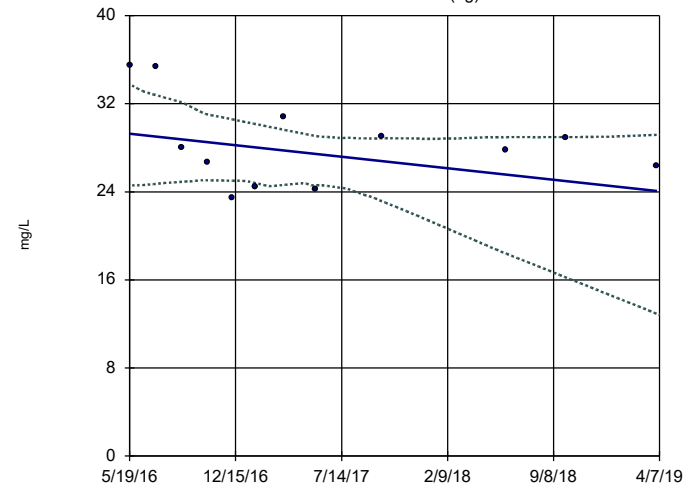


n = 12
 Slope = -5.012
 units per year.
 Mann-Kendall
 statistic = -10
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

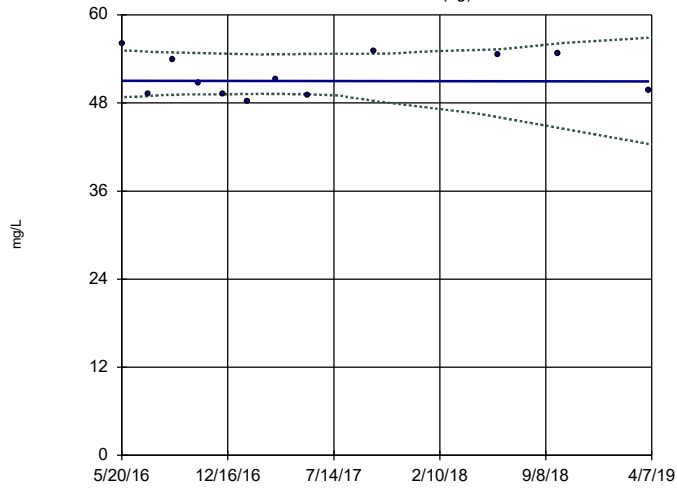


n = 12
 Slope = -1.812
 units per year.
 Mann-Kendall
 statistic = -18
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-6 (bg)

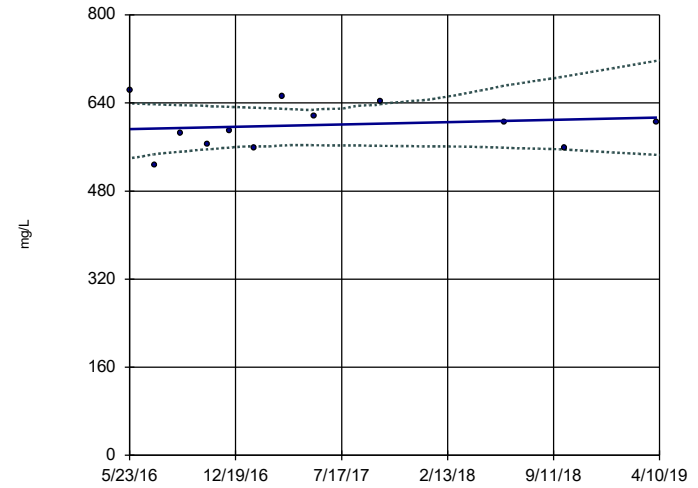


n = 12
 Slope = -0.03657
 units per year.
 Mann-Kendall
 statistic = 0
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-14

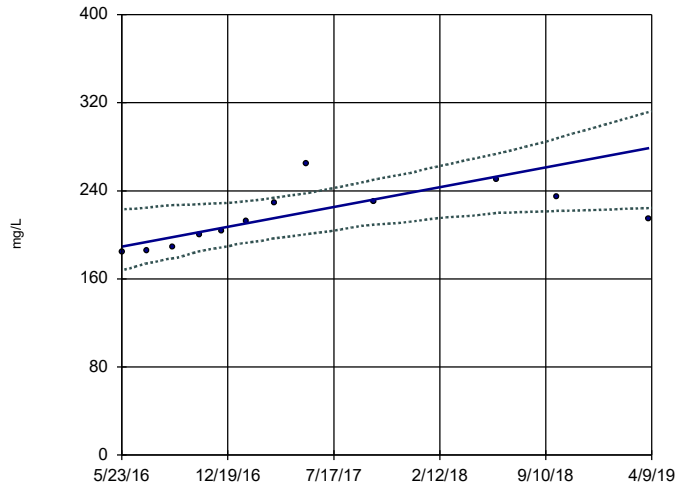


n = 12
 Slope = 7.298
 units per year.
 Mann-Kendall
 statistic = 4
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-15

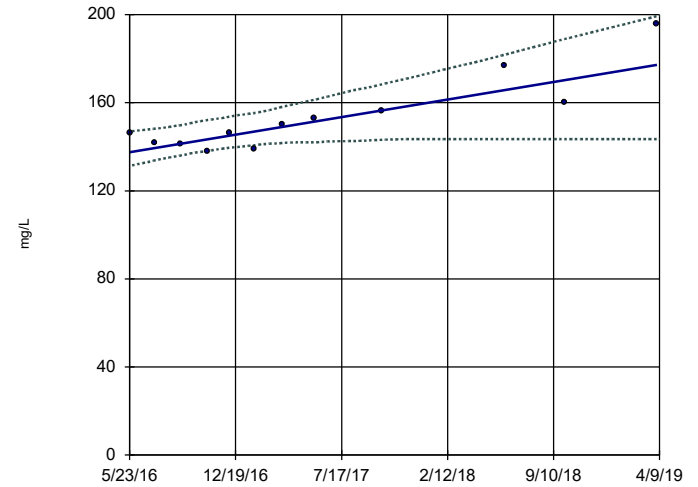


n = 12
 Slope = 31.18
 units per year.
 Mann-Kendall
 statistic = 48
 critical = 30
 Increasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-16

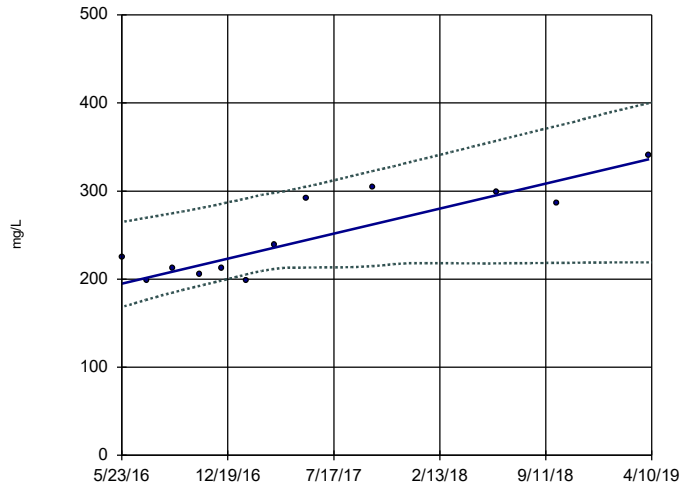


n = 12
 Slope = 13.83
 units per year.
 Mann-Kendall
 statistic = 43
 critical = 30
 Increasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-17

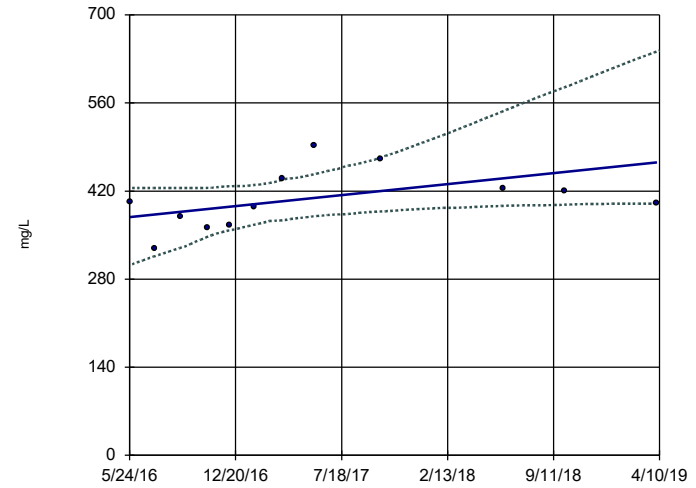


n = 12
 Slope = 49.2
 units per year.
 Mann-Kendall
 statistic = 36
 critical = 30
 Increasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-18

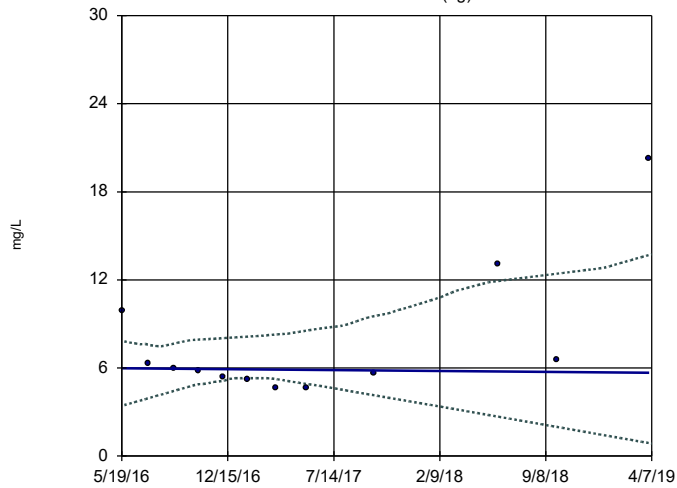


n = 12
 Slope = 30.33
 units per year.
 Mann-Kendall
 statistic = 24
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Calcium Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

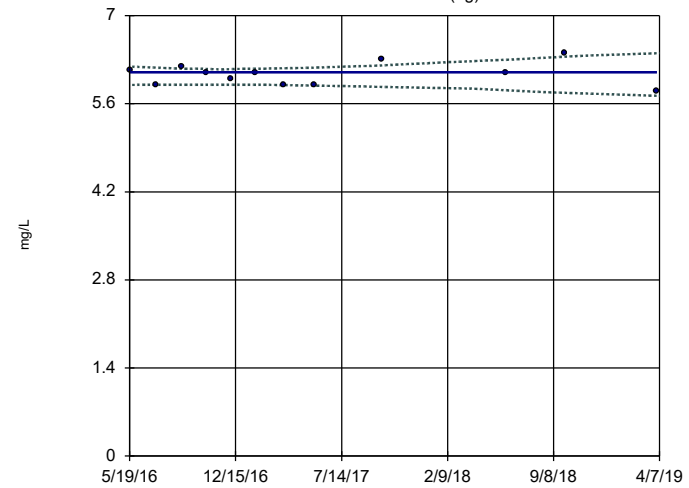


n = 12
 Slope = -0.1046
 units per year.
 Mann-Kendall
 statistic = -1
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

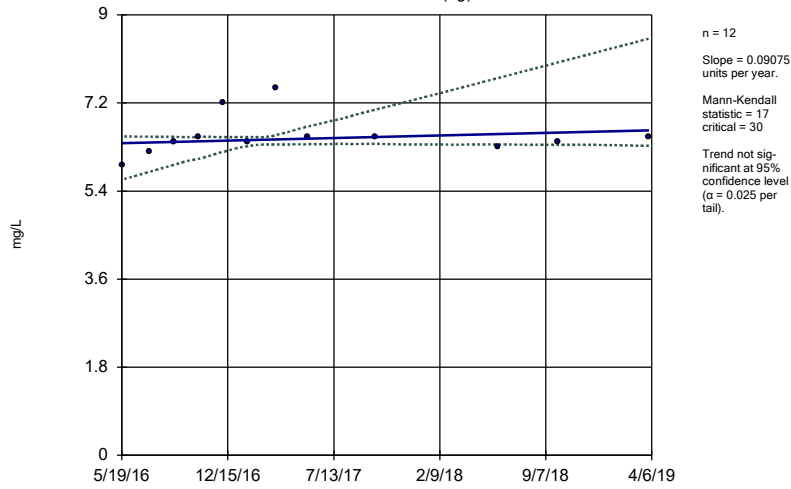
HGWA-2 (bg)



n = 12
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = -4
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

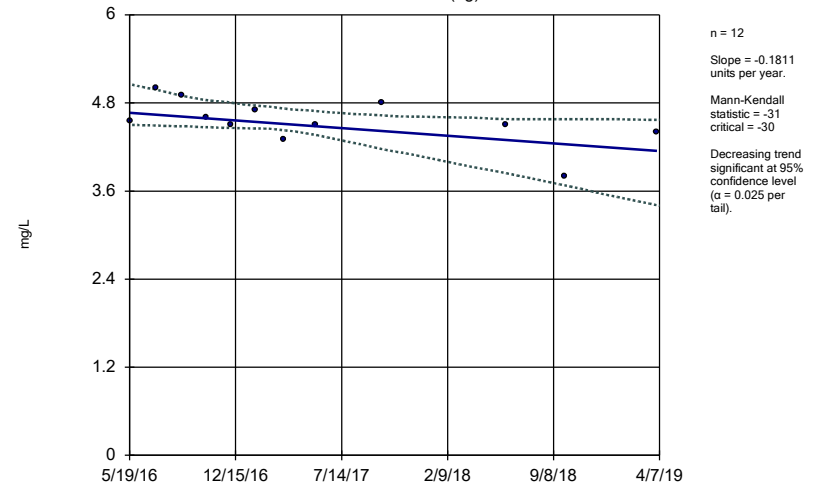
Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-3 (bg)



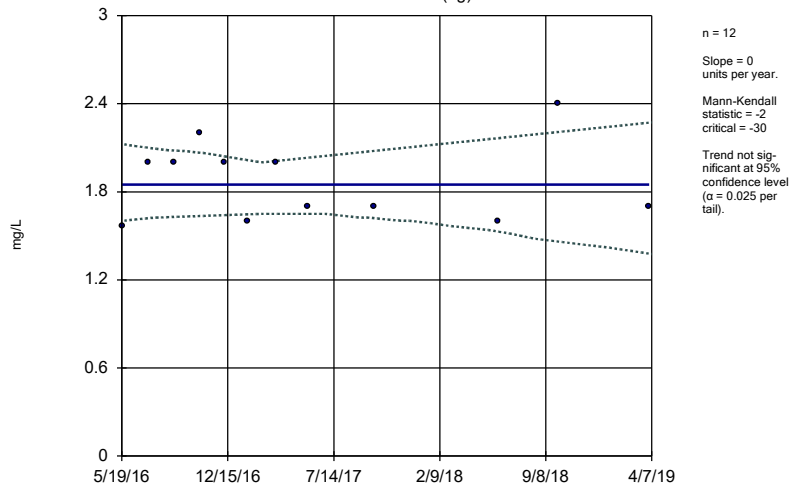
Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-4 (bg)



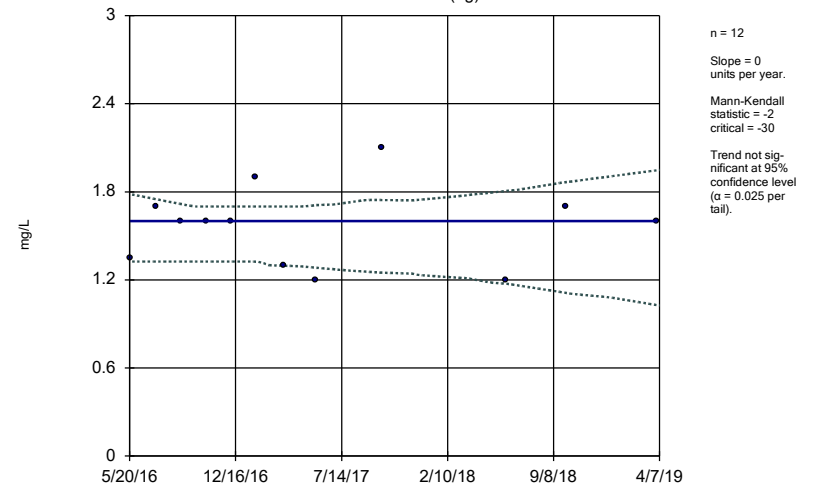
Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-5 (bg)



Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

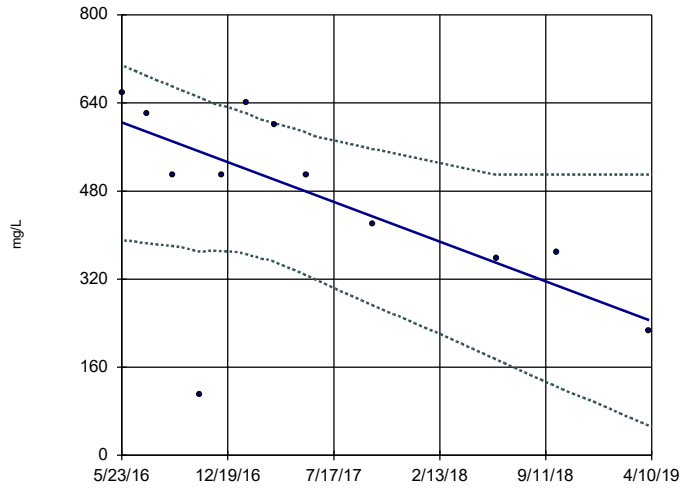
Sen's Slope and 95% Confidence Band
HGWA-6 (bg)



Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-14

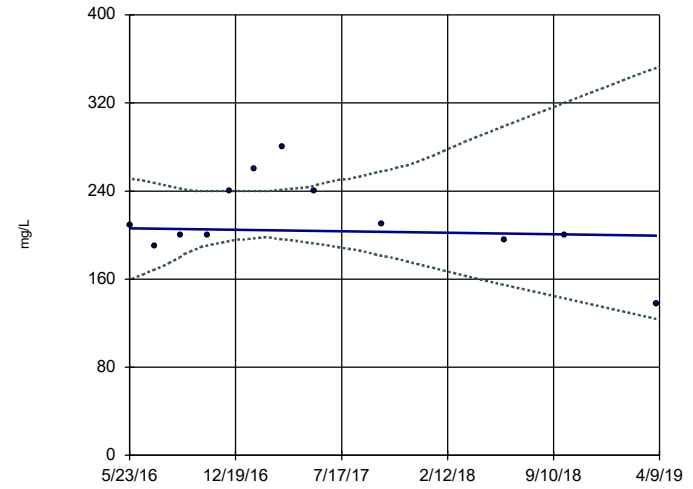


n = 12
 Slope = -125.1
 units per year.
 Mann-Kendall
 statistic = -35
 critical = -30
 Decreasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-15

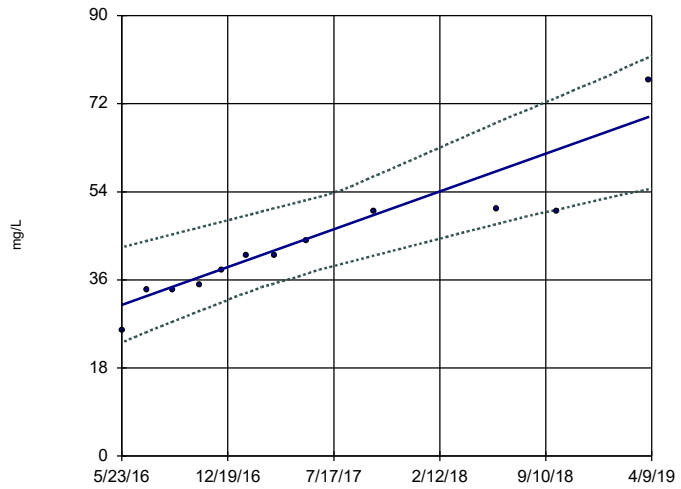


n = 12
 Slope = -2.373
 units per year.
 Mann-Kendall
 statistic = -6
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-16

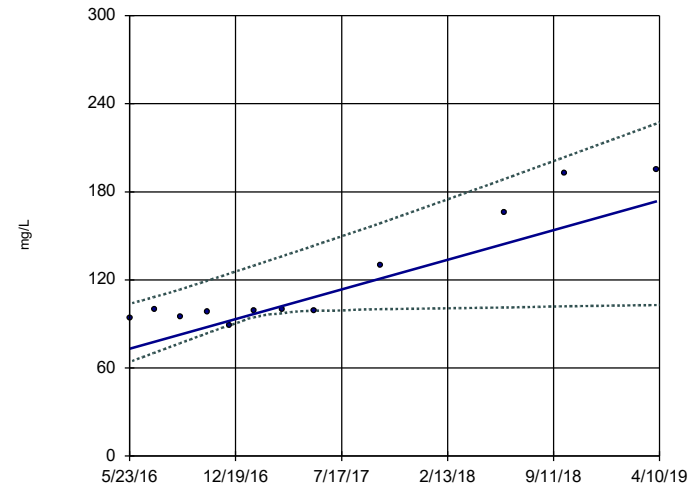


n = 12
 Slope = 13.43
 units per year.
 Mann-Kendall
 statistic = 60
 critical = 30
 Increasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-17

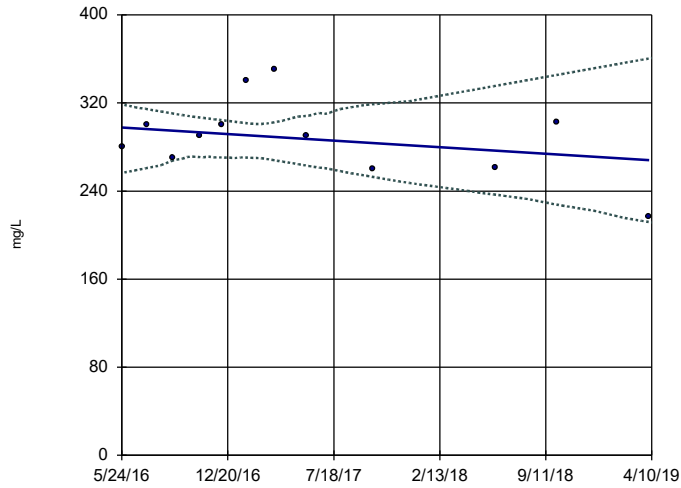


n = 12
 Slope = 35.07
 units per year.
 Mann-Kendall
 statistic = 46
 critical = 30
 Increasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-18



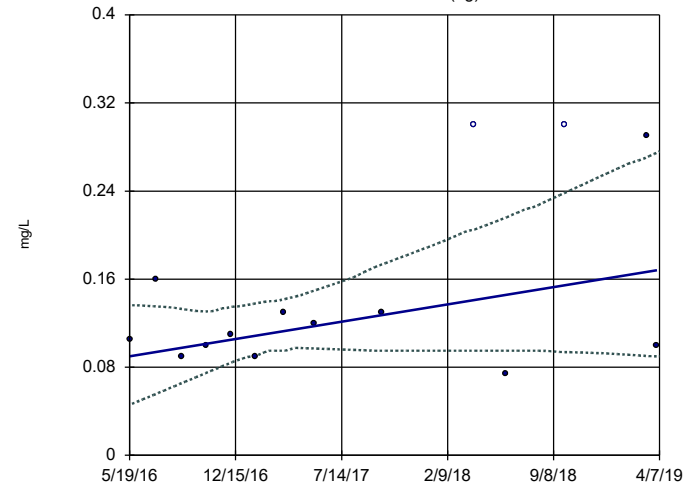
n = 12
 Slope = -10.43
 units per year.
 Mann-Kendall
 statistic = -8
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Chloride Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)



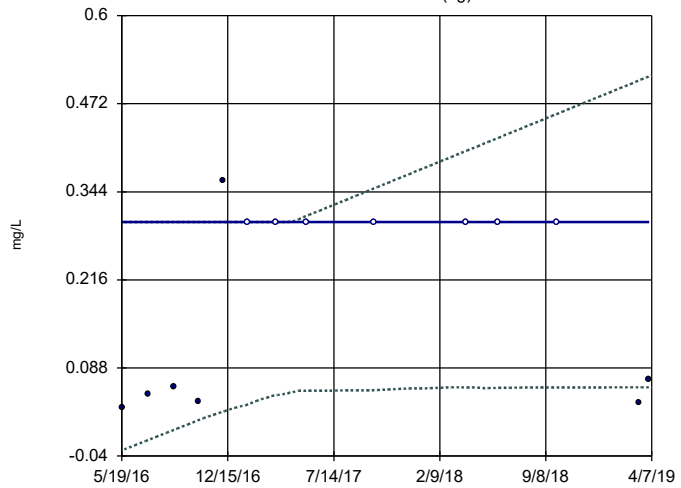
n = 14
 Slope = 0.02724
 units per year.
 Mann-Kendall
 statistic = 19
 critical = 37
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)



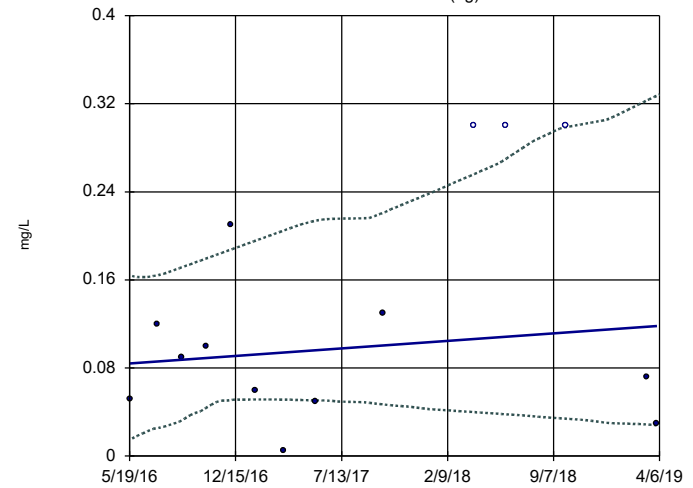
n = 14
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = 14
 critical = 37
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

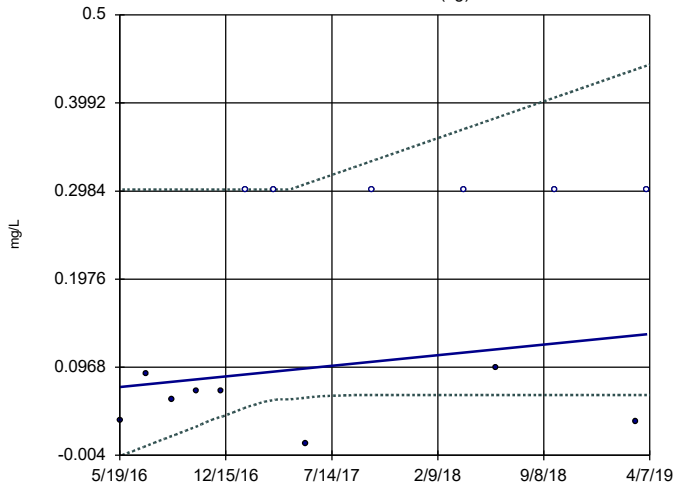


n = 14
 Slope = 0.01182
 units per year.
 Mann-Kendall
 statistic = 10
 critical = 37
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

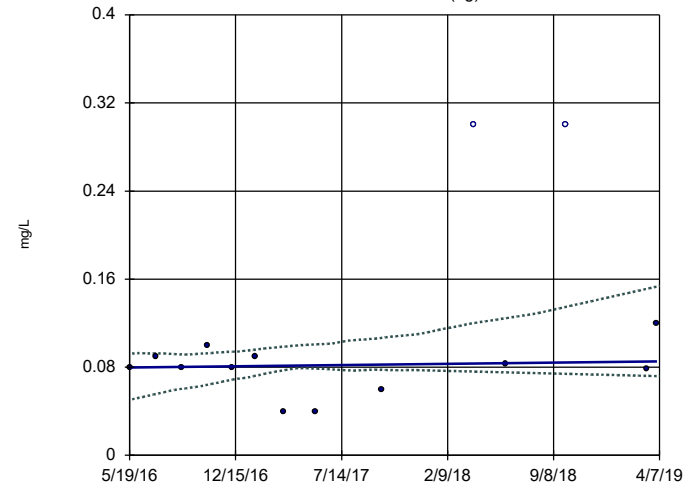


n = 14
Slope = 0.021
units per year.
Mann-Kendall
statistic = 25
critical = 37
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

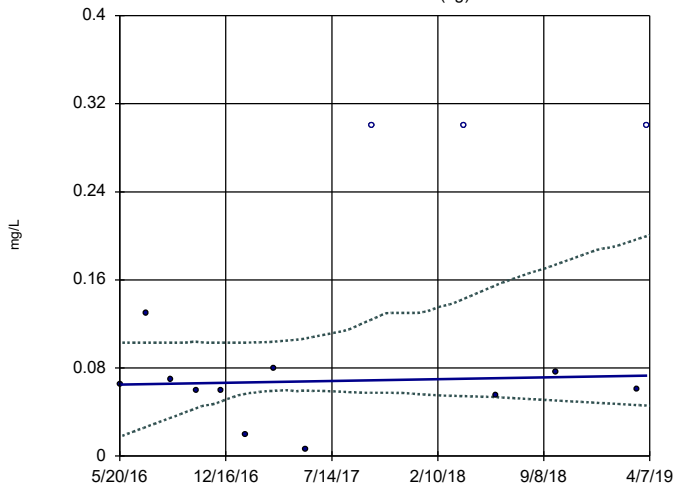


n = 14
Slope = 0.002013
units per year.
Mann-Kendall
statistic = 11
critical = 37
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-6 (bg)

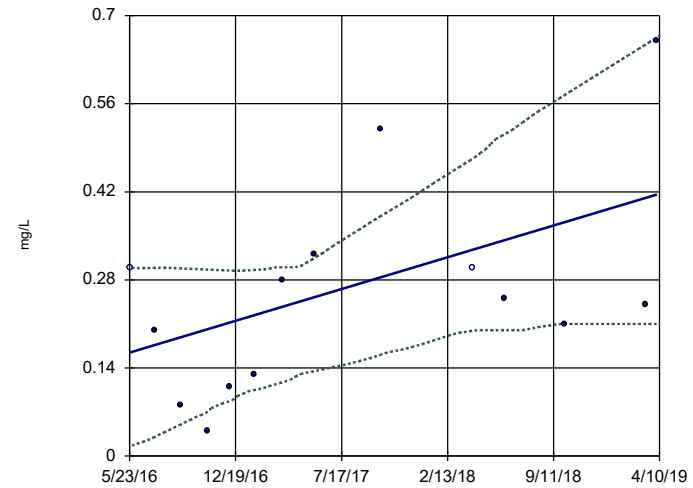


n = 14
Slope = 0.00287
units per year.
Mann-Kendall
statistic = 9
critical = 37
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-14

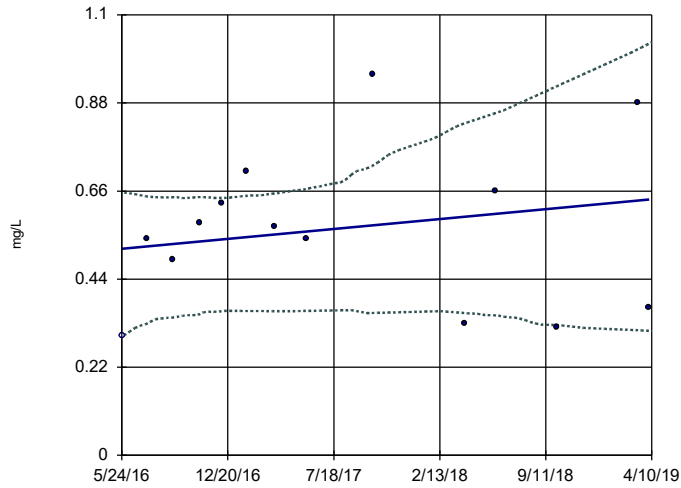


n = 14
Slope = 0.08752
units per year.
Mann-Kendall
statistic = 30
critical = 37
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

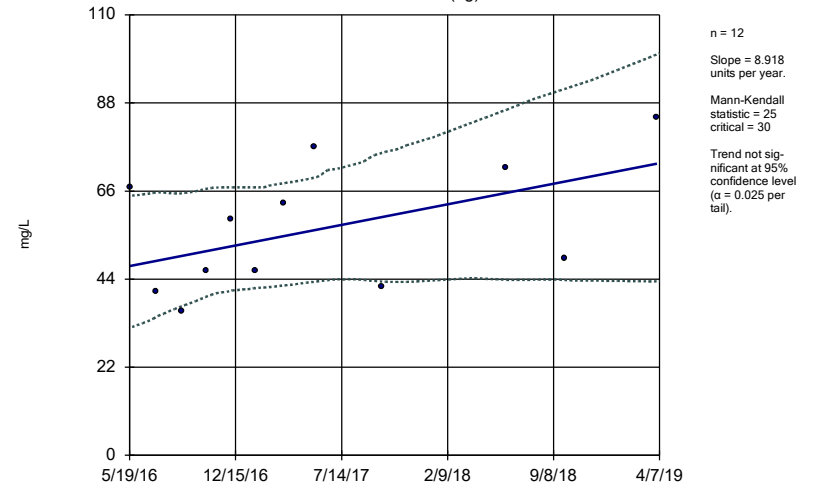
HGWC-18



Constituent: Fluoride Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

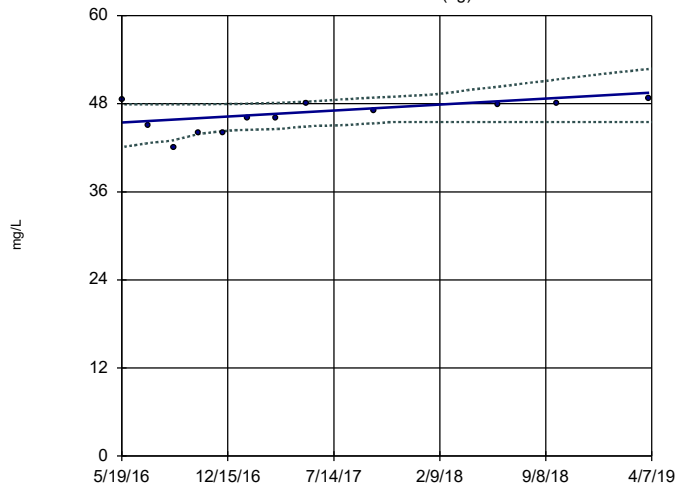
HGWA-1 (bg)



Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

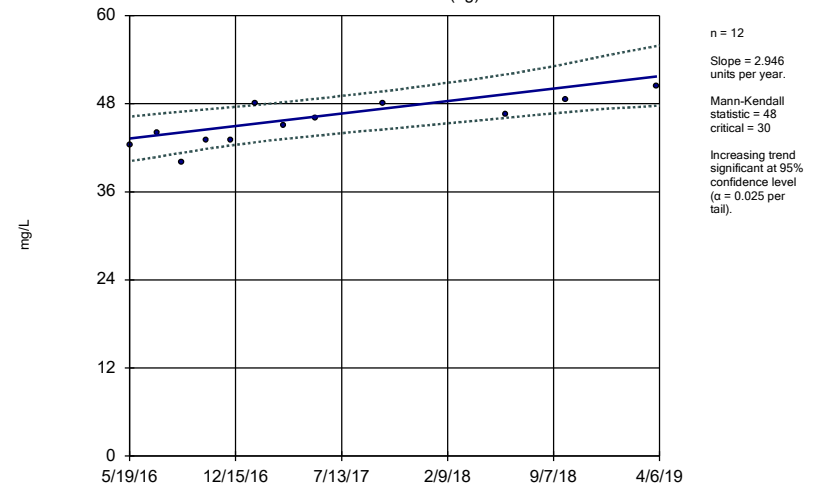
HGWA-2 (bg)



Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

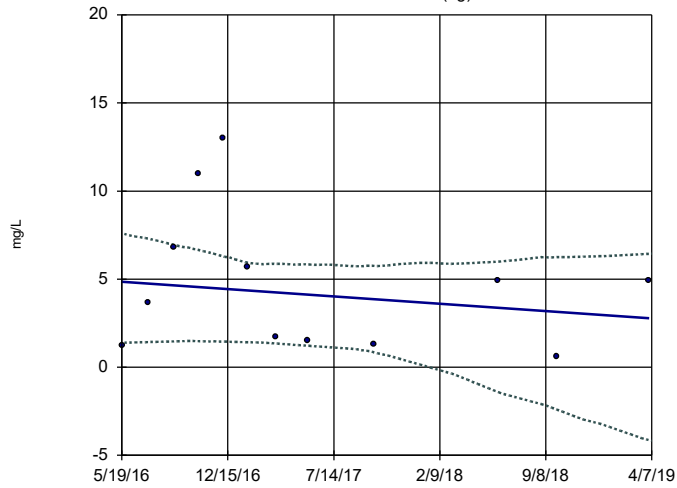
Sen's Slope and 95% Confidence Band

HGWA-3 (bg)



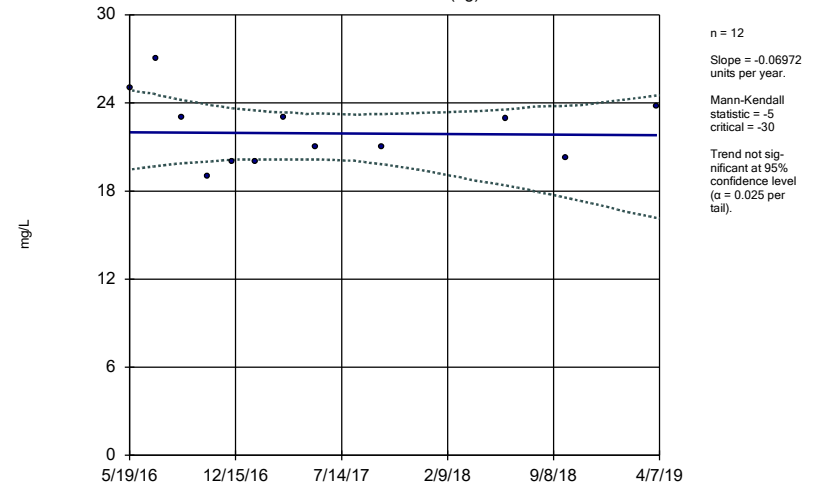
Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-4 (bg)



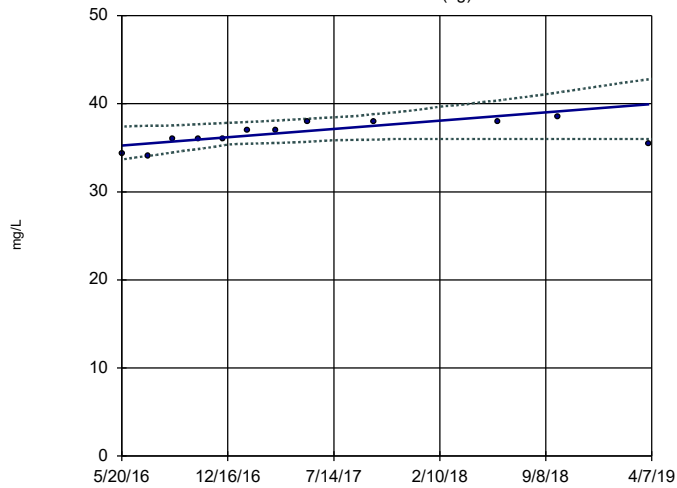
Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-5 (bg)



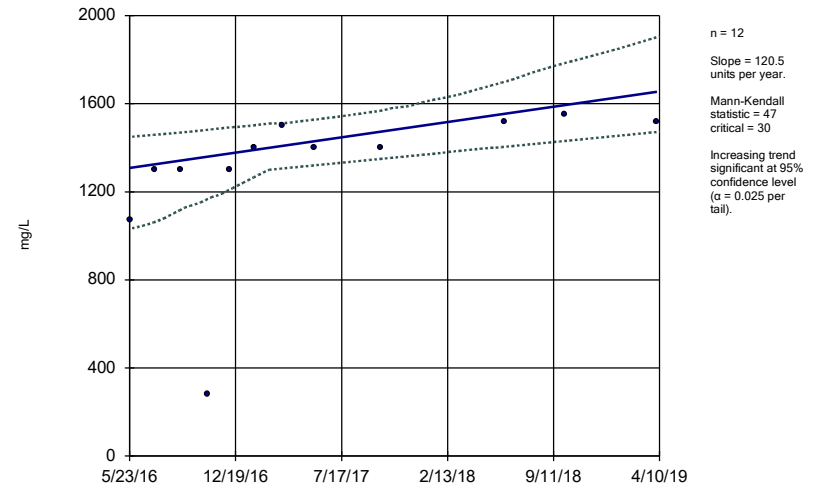
Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-6 (bg)



Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

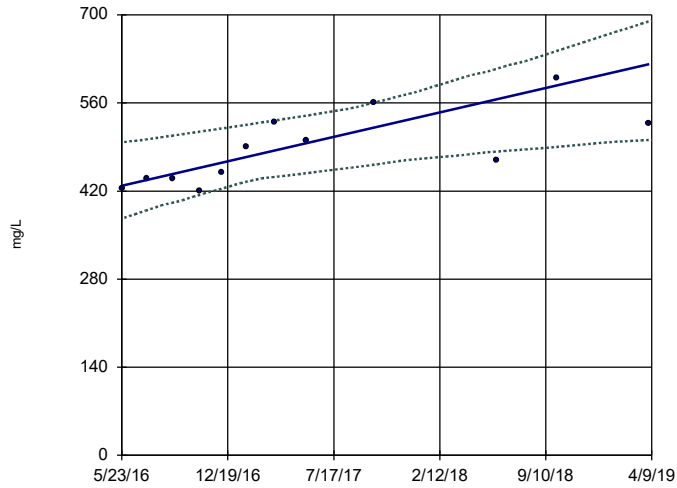
Sen's Slope and 95% Confidence Band
HGWC-14



Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-15

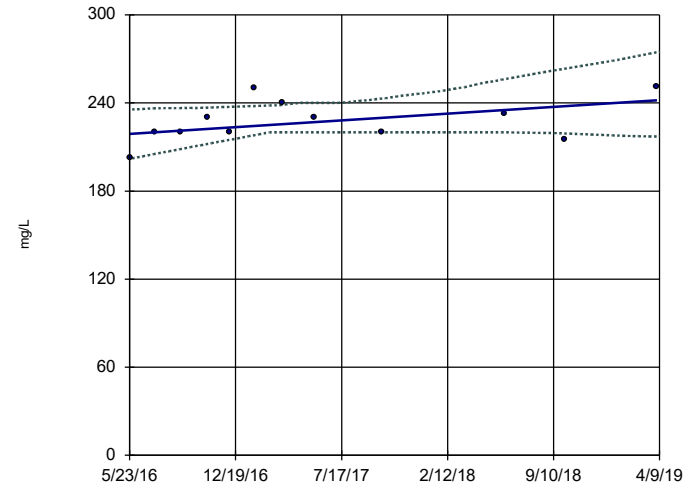


n = 12
 Slope = 67.29
 units per year.
 Mann-Kendall
 statistic = 43
 critical = 30
 Increasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-16

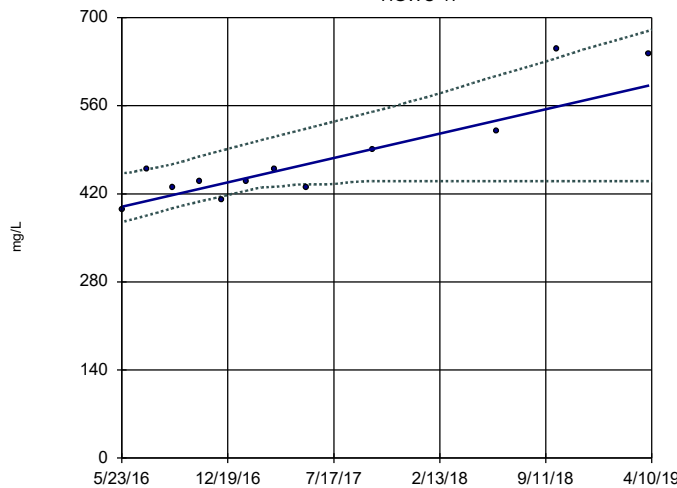


n = 12
 Slope = 7.991
 units per year.
 Mann-Kendall
 statistic = 21
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-17

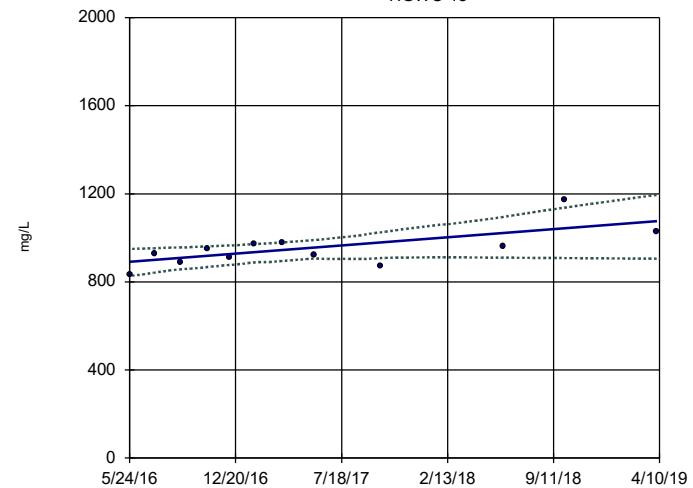


n = 12
 Slope = 67.11
 units per year.
 Mann-Kendall
 statistic = 41
 critical = 30
 Increasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-18

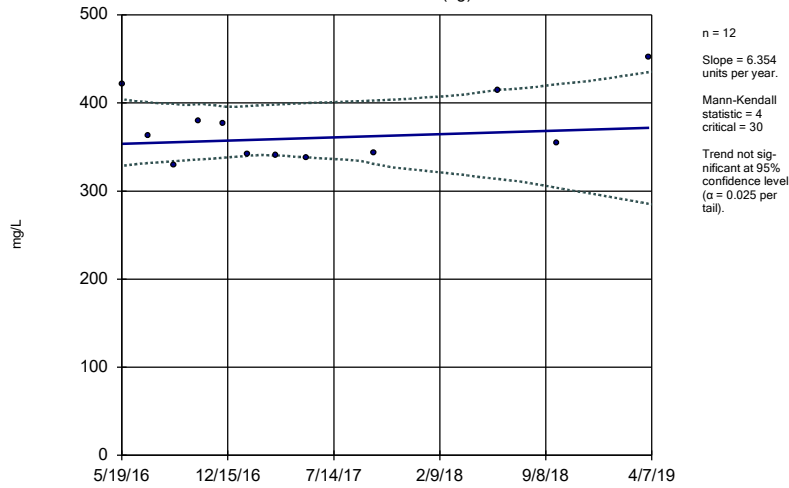


n = 12
 Slope = 64.07
 units per year.
 Mann-Kendall
 statistic = 32
 critical = 30
 Increasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Sulfate Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

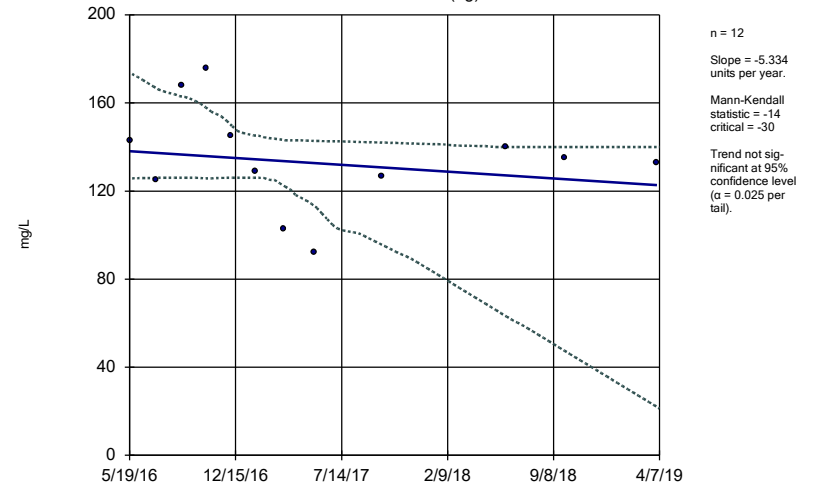
HGWA-1 (bg)



Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

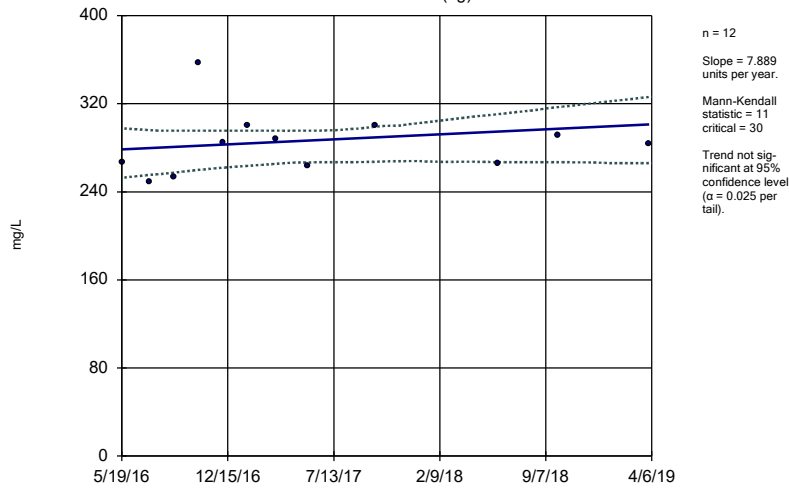
HGWA-2 (bg)



Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

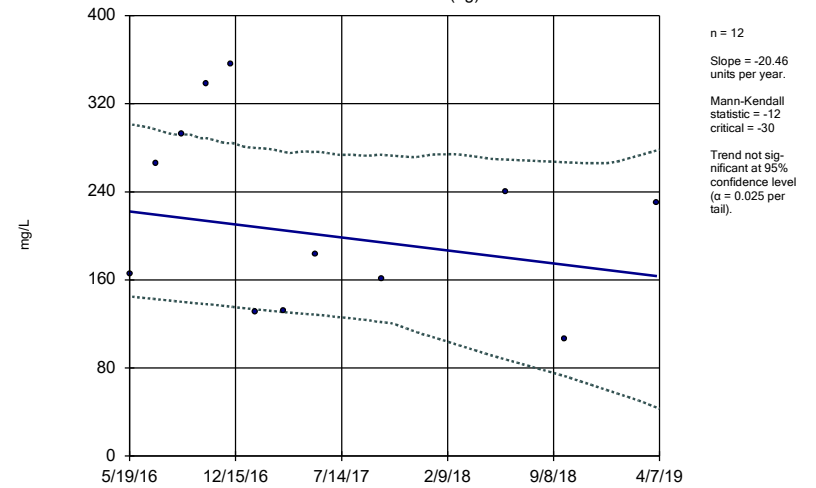
HGWA-3 (bg)



Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:29 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

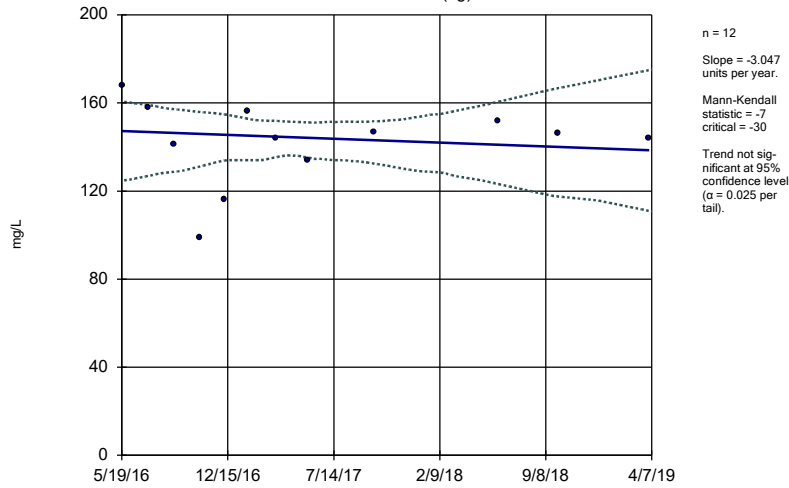
Sen's Slope and 95% Confidence Band

HGWA-4 (bg)



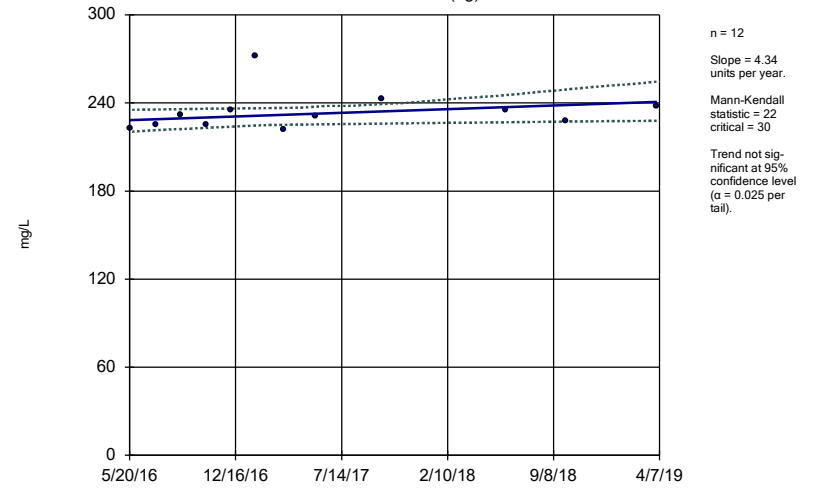
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 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-5 (bg)



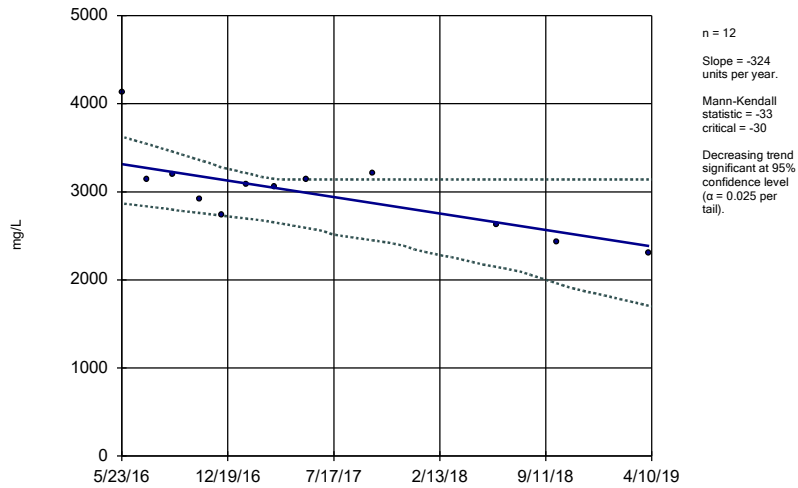
Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-6 (bg)



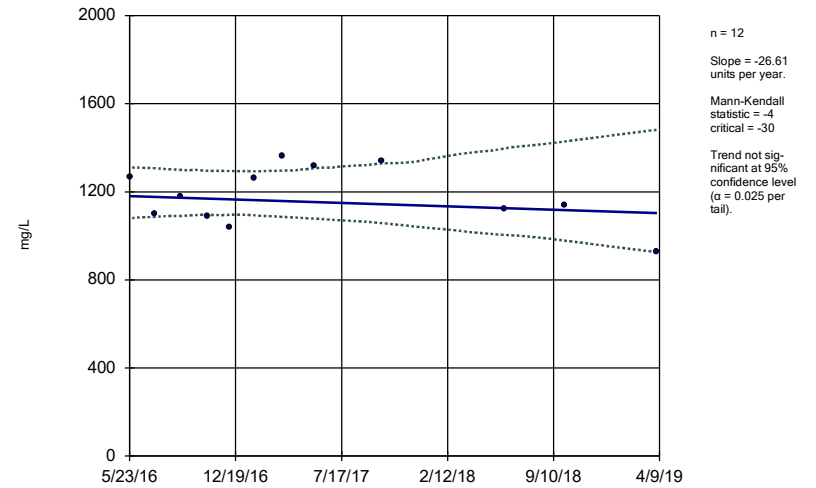
Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWC-14



Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

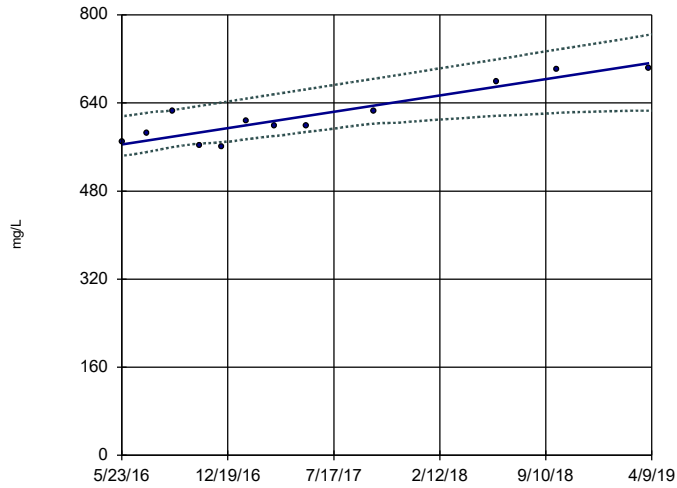
Sen's Slope and 95% Confidence Band
HGWC-15



Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-16

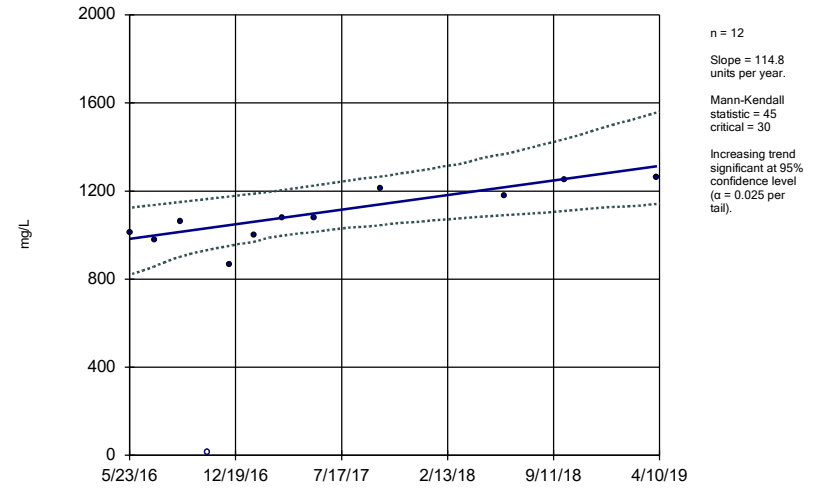


Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Hollow symbols indicate censored values.

Sen's Slope and 95% Confidence Band

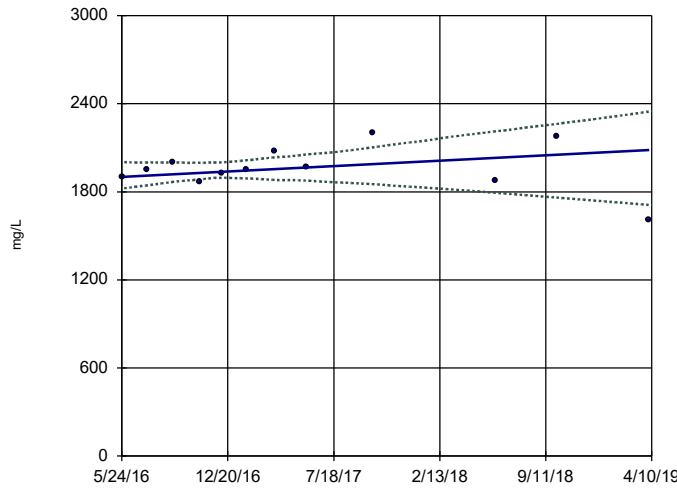
HGWC-17



Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWC-18



Constituent: Total Dissolved Solids Analysis Run 7/24/2019 10:30 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Assessment Monitoring Program
Statistical Analysis Package
Plant Hammond Ash Pond 2 (AP-2)
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-2 Printed 7/22/2019, 2:50 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	60	93.33	n/a	0.04607	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	78	82.05	n/a	0.0183	NP Inter(NDs)
Barium (mg/L)	n/a	0.212	n/a	n/a	n/a	78	0	n/a	0.0183	NP Inter(normal...
Beryllium (mg/L)	n/a	0.003	n/a	n/a	n/a	66	86.36	n/a	0.03387	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.001	n/a	n/a	n/a	78	92.31	n/a	0.0183	NP Inter(NDs)
Chromium (mg/L)	n/a	0.019	n/a	n/a	n/a	66	90.91	n/a	0.03387	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.0293	n/a	n/a	n/a	78	70.51	n/a	0.0183	NP Inter(NDs)
Fluoride (mg/L)	n/a	0.36	n/a	n/a	n/a	84	27.38	n/a	0.01345	NP Inter(normal...
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	66	87.88	n/a	0.03387	NP Inter(NDs)
Lithium (mg/L)	n/a	0.05	n/a	n/a	n/a	78	32.05	n/a	0.0183	NP Inter(normal...
Mercury (mg/L)	n/a	0.0005	n/a	n/a	n/a	60	86.67	n/a	0.04607	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	66	96.97	n/a	0.03387	NP Inter(NDs)
Selenium (mg/L)	n/a	0.01	n/a	n/a	n/a	78	98.72	n/a	0.0183	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	78	98.72	n/a	0.0183	NP Inter(NDs)
Total Radium (pCi/L)	n/a	2.42	n/a	n/a	n/a	78	0	n/a	0.0183	NP Inter(normal...

Table B-2
EPD Based Groundwater Protection Standards
Plant Hammond - Ash Pond 2
Floyd County, Georgia

Constituent	CAS	Units	EPA MCL	Statistically Derived Upper Tolerance Limits for Background	GWPS ¹
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	0.212	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	0.019	0.1
Cobalt ²	7440-48-4	mg/L	N/A	0.0293	0.0293
Fluoride	16984-48-8	mg/L	4	0.36	4
Lead ²	7439-92-1	mg/L	N/A	0.005	0.005
Lithium ²	7439-93-2	mg/L	N/A	0.05	0.05
Mercury	7439-97-6	mg/L	0.002	0.0005	0.002
Molybdenum ²	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	2.42	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

¹GWPS selected as the greater value between the EPA MCL and the background Upper Tolerance Limit.

²Constituent without established EPA MCL.

Confidence Interval - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:55 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt (mg/L)	HGWC-15	0.05419	0.03729	0.0293	Yes	13	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-18	0.2017	0.1689	0.0293	Yes	13	0	No	0.01	Param.

Confidence Interval - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:55 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-14	0.0089	0.0029	0.01	No	13	15.38	No	0.01	NP (normality)
Arsenic (mg/L)	HGWC-15	0.05	0.0008	0.01	No	13	84.62	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-16	0.05	0.0005	0.01	No	13	84.62	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-17	0.05	0.00097	0.01	No	13	76.92	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-18	0.007322	0.004191	0.01	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-14	0.0244	0.019	2	No	13	7.692	No	0.01	NP (normality)
Barium (mg/L)	HGWC-15	0.03266	0.02314	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-16	0.1122	0.0949	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-17	0.02629	0.02254	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-18	0.0349	0.028	2	No	13	7.692	No	0.01	NP (normality)
Beryllium (mg/L)	HGWC-14	0.0004844	0.0002996	0.004	No	11	18.18	ln(x)	0.01	Param.
Beryllium (mg/L)	HGWC-15	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-16	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-17	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-18	0.003553	0.002444	0.004	No	11	9.091	No	0.01	Param.
Cadmium (mg/L)	HGWC-14	0.0005	0.000079	0.005	No	13	23.08	No	0.01	NP (normality)
Cadmium (mg/L)	HGWC-15	0.0027	0.001671	0.005	No	13	0	No	0.01	Param.
Cadmium (mg/L)	HGWC-16	0.0005	0.0005	0.005	No	13	100	No	0.01	NP (NDs)
Cadmium (mg/L)	HGWC-17	0.0005	0.00007	0.005	No	13	92.31	No	0.01	NP (NDs)
Cadmium (mg/L)	HGWC-18	0.00253	0.001886	0.005	No	13	7.692	x^2	0.01	Param.
Chromium (mg/L)	HGWC-14	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-15	0.005	0.0005	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-16	0.005	0.0021	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-17	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-18	0.005	0.0005	0.1	No	11	90.91	No	0.006	NP (NDs)
Cobalt (mg/L)	HGWC-14	0.02817	0.02128	0.0293	No	13	7.692	x^2	0.01	Param.
Cobalt (mg/L)	HGWC-15	0.05419	0.03729	0.0293	Yes	13	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-16	0.005	0.00028	0.0293	No	13	92.31	No	0.01	NP (NDs)
Cobalt (mg/L)	HGWC-17	0.01667	0.01495	0.0293	No	13	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-18	0.2017	0.1689	0.0293	Yes	13	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-14	0.3591	0.1181	4	No	14	14.29	No	0.01	Param.
Fluoride (mg/L)	HGWC-15	0.2536	0.09359	4	No	14	35.71	sqrt(x)	0.01	Param.
Fluoride (mg/L)	HGWC-16	0.3166	0.1228	4	No	14	42.86	No	0.01	Param.
Fluoride (mg/L)	HGWC-17	0.3197	0.05704	4	No	14	35.71	sqrt(x)	0.01	Param.
Fluoride (mg/L)	HGWC-18	0.7051	0.3978	4	No	14	7.143	No	0.01	Param.
Lead (mg/L)	HGWC-14	0.002009	0.001431	0.005	No	11	9.091	No	0.01	Param.
Lead (mg/L)	HGWC-15	0.0025	0.000072	0.005	No	11	72.73	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-16	0.0025	0.0001	0.005	No	11	63.64	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-17	0.0025	0.000076	0.005	No	11	81.82	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-18	0.00181	0.001161	0.005	No	11	9.091	No	0.01	Param.
Lithium (mg/L)	HGWC-14	0.025	0.025	0.05	No	13	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-15	0.025	0.0013	0.05	No	13	46.15	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-16	0.0041	0.0026	0.05	No	13	7.692	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-17	0.025	0.0011	0.05	No	13	76.92	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-18	0.01534	0.0122	0.05	No	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-14	0.005	0.005	0.01	No	11	100	No	0.006	NP (NDs)
Molybdenum (mg/L)	HGWC-15	0.005	0.0007	0.01	No	11	90.91	No	0.006	NP (NDs)
Molybdenum (mg/L)	HGWC-16	0.005	0.005	0.01	No	11	100	No	0.006	NP (NDs)
Molybdenum (mg/L)	HGWC-17	0.005	0.005	0.01	No	11	100	No	0.006	NP (NDs)
Molybdenum (mg/L)	HGWC-18	0.005	0.005	0.01	No	11	100	No	0.006	NP (NDs)

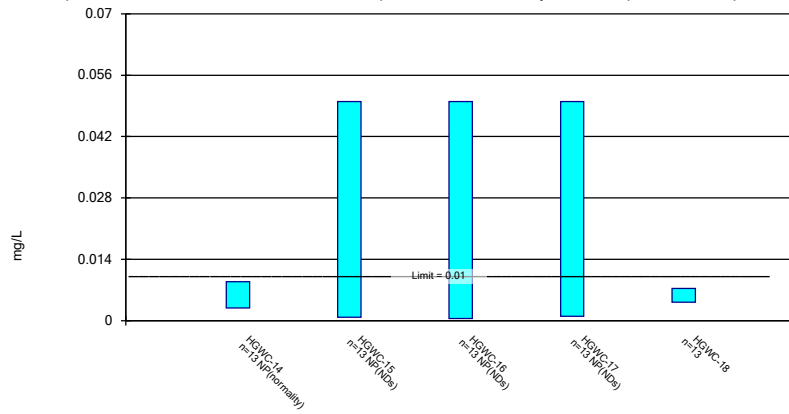
Confidence Interval - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:55 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>
Selenium (mg/L)	HGWC-14	0.01594	0.007526	0.05	No	13	0	No	0.01	Param.
Selenium (mg/L)	HGWC-15	0.005	0.0012	0.05	No	13	69.23	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-16	0.005	0.000089	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-17	0.005	0.0014	0.05	No	13	76.92	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-18	0.03616	0.01644	0.05	No	13	7.692	No	0.01	Param.
Thallium (mg/L)	HGWC-14	0.0003012	0.0002864	0.002	No	12	0	No	0.01	Param.
Thallium (mg/L)	HGWC-15	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-16	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-17	0.0005	0.0001	0.002	No	13	69.23	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-18	0.0005	0.00016	0.002	No	13	53.85	No	0.01	NP (NDs)
Total Radium (pCi/L)	HGWC-14	1.709	1.131	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-15	0.8442	0.3627	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-16	1.094	0.4942	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-17	1.032	0.6486	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-18	2.289	1.702	5	No	13	0	No	0.01	Param.

Parametric and Non-Parametric (NP) Confidence Interval

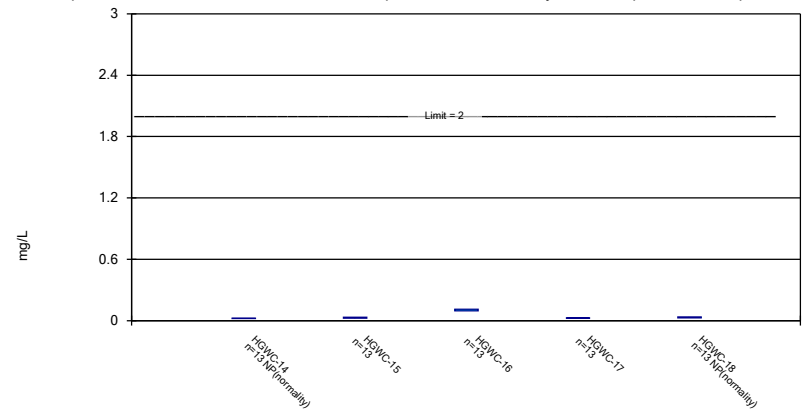
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Arsenic Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Parametric and Non-Parametric (NP) Confidence Interval

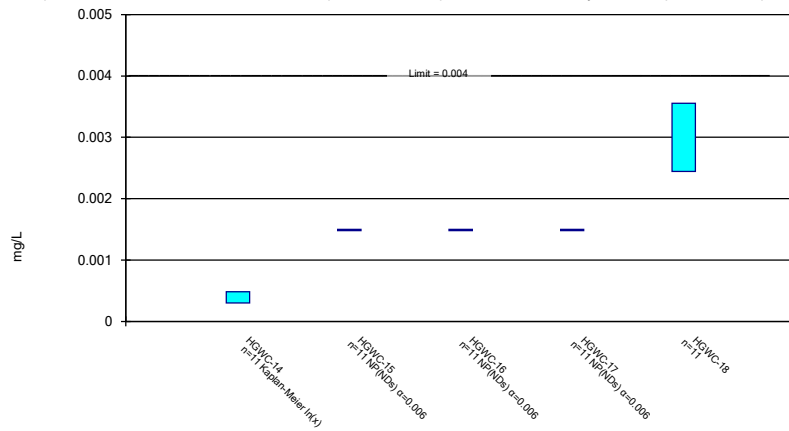
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Barium Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Parametric and Non-Parametric (NP) Confidence Interval

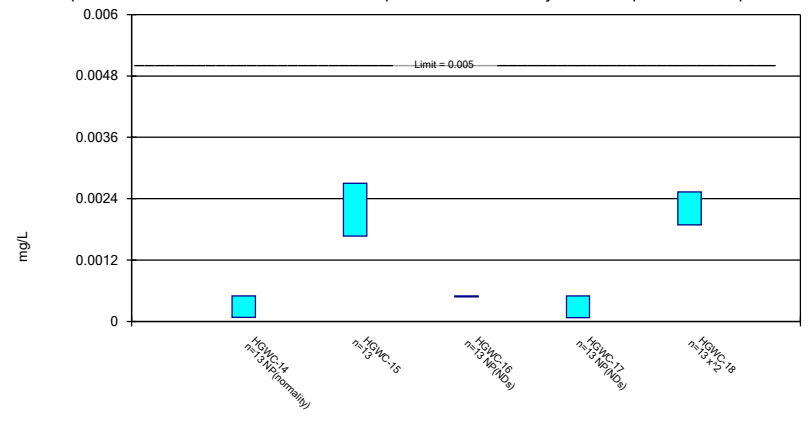
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Beryllium Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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: Cadmium Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Confidence Interval

Constituent: Arsenic (mg/L) Analysis Run 7/22/2019 2:55 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.00268 (J)	<0.1	<0.1	<0.1	
5/24/2016					0.00294 (J)
7/12/2016	0.0059	<0.1	<0.1	<0.1	0.0074
9/1/2016	0.0056	<0.1	<0.1	<0.1	0.0073
10/24/2016	0.0058	<0.1			
10/25/2016			<0.1	<0.1	0.006
12/7/2016	<0.1	<0.1	<0.1	<0.1	
12/8/2016					0.007
1/26/2017	0.0089	<0.1	<0.1	<0.1	0.0068
3/22/2017			0.0005 (J)	0.0007 (J)	
3/23/2017	0.0069	0.0008 (J)			0.0082
5/24/2017	0.0048 (J)	<0.1	<0.1		
5/25/2017				0.0007 (J)	0.006
4/3/2018		<0.1	<0.1	<0.1	0.0062
4/4/2018	0.0052				
6/5/2018					0.008
6/6/2018	0.0059	<0.1	<0.1	0.00097 (J)	
10/3/2018	0.0032 (J)	<0.1	<0.1	<0.1	0.0039 (J)
3/14/2019	0.0029 (J)	<0.1			0.0036 (J)
3/15/2019			<0.1	<0.1	
4/4/2019		0.00017 (J)	0.0001 (J)		
4/5/2019	<0.1			<0.1	0.0015 (J)
Mean	0.01214	0.04238	0.04235	0.03864	0.005757
Std. Dev.	0.01689	0.0186	0.01866	0.02158	0.002105
Upper Lim.	0.0089	0.05	0.05	0.05	0.007322
Lower Lim.	0.0029	0.0008	0.0005	0.00097	0.004191

Confidence Interval

Constituent: Barium (mg/L) Analysis Run 7/22/2019 2:55 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.2	0.0315 (J)	0.0841	0.0222 (J)	
5/24/2016					<0.2
7/12/2016	0.0214	0.0372	0.0886	0.0221	0.0346
9/1/2016	0.0208	0.0364	0.0934	0.0227	0.0336
10/24/2016	0.0208	0.0326			
10/25/2016			0.0991	0.0225	0.0349
12/7/2016	0.022	0.0301	0.101	0.0227	
12/8/2016					0.0339
1/26/2017	0.0238	0.0287	0.105	0.0229	0.0293
3/22/2017			0.11	0.0248	
3/23/2017	0.0244	0.0329			0.0313
5/24/2017	0.0228	0.0283	0.106		
5/25/2017				0.0255	0.0336
4/3/2018		0.019	0.099	0.025	0.028
4/4/2018	0.021				
6/5/2018					0.03
6/6/2018	0.022	0.022	0.11	0.028	
10/3/2018	0.02	0.025	0.11	0.028	0.032
3/14/2019	0.019	0.021			0.029
3/15/2019			0.13	0.029	
4/4/2019		0.018	0.11		
4/5/2019	0.016			0.022	0.021
Mean	0.02723	0.0279	0.1036	0.02442	0.03625
Std. Dev.	0.02197	0.006406	0.01164	0.002522	0.01952
Upper Lim.	0.0244	0.03266	0.1122	0.02629	0.0349
Lower Lim.	0.019	0.02314	0.0949	0.02254	0.028

Confidence Interval

Constituent: Beryllium (mg/L) Analysis Run 7/22/2019 2:56 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.003	<0.003	<0.003	<0.003	
5/24/2016					0.00278 (J)
7/12/2016	0.0005 (J)	<0.003	<0.003	<0.003	0.0032
9/1/2016	0.0005 (J)	<0.003	<0.003	<0.003	0.0034
10/24/2016	0.0005 (J)	<0.003			
10/25/2016			<0.003	<0.003	0.0034
12/7/2016	0.0006 (J)	<0.003	<0.003	<0.003	
12/8/2016					0.0033
1/26/2017	0.0005 (J)	<0.003	<0.003	<0.003	0.0034
3/22/2017			<0.003	<0.003	
3/23/2017	0.0006 (J)	<0.003			0.0036
5/24/2017	0.0005 (J)	<0.003	<0.003		
5/25/2017				<0.003	0.0036
4/3/2018		<0.003	<0.003	<0.003	<0.003
4/4/2018	<0.003				
3/14/2019	0.00043 (J)	<0.003			0.0026 (J)
3/15/2019			<0.003	<0.003	
4/4/2019		<0.003	<0.003		
4/5/2019	0.00027 (J)			<0.003	0.0022 (J)
Mean	0.0006727	0.0015	0.0015	0.0015	0.002998
Std. Dev.	0.0004183	0	0	0	0.0006655
Upper Lim.	0.0004844	0.0015	0.0015	0.0015	0.003553
Lower Lim.	0.0002996	0.0015	0.0015	0.0015	0.002444

Confidence Interval

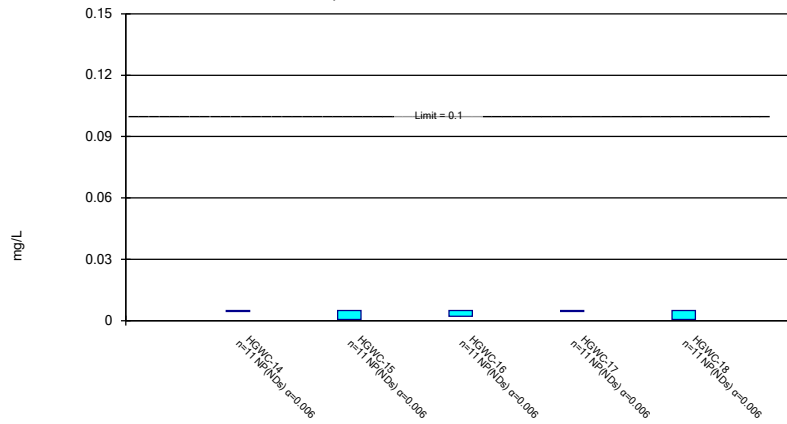
Constituent: Cadmium (mg/L) Analysis Run 7/22/2019 2:56 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.000139 (J)	0.00271 (J)	<0.001	<0.001	
5/24/2016					<0.001
7/12/2016	<0.001	0.0019	<0.001	<0.001	0.0022
9/1/2016	0.0001 (J)	0.0017	<0.001	<0.001	0.0024
10/24/2016	0.0002 (J)	0.0018			
10/25/2016			<0.001	<0.001	0.0022
12/7/2016	0.0001 (J)	0.0018	<0.001	<0.001	
12/8/2016					0.0024
1/26/2017	0.0001 (J)	0.0013	<0.001	<0.001	0.0025
3/22/2017			<0.001	7E-05 (J)	
3/23/2017	0.0002 (J)	0.002			0.0025
5/24/2017	0.0001 (J)	0.0041	<0.001		
5/25/2017				<0.001	0.0027
4/3/2018		0.0022	<0.001	<0.001	0.0022
4/4/2018	<0.001				
6/5/2018					0.0022
6/6/2018	0.00012 (J)	0.0021	<0.001	<0.001	
10/3/2018	0.0001 (J)	0.0026	<0.001	<0.001	0.0027
3/14/2019	<0.001	0.0024			0.0019
3/15/2019			<0.001	<0.001	
4/4/2019		0.0018	<0.001		
4/5/2019	7.9E-05 (J)			<0.001	0.0017
Mean	0.0002106	0.002185	0.0005	0.0004669	0.002162
Std. Dev.	0.0001691	0.0006921	0	0.0001193	0.0005752
Upper Lim.	0.0005	0.0027	0.0005	0.0005	0.00253
Lower Lim.	7.9E-05	0.001671	0.0005	7E-05	0.001886

Non-Parametric Confidence Interval

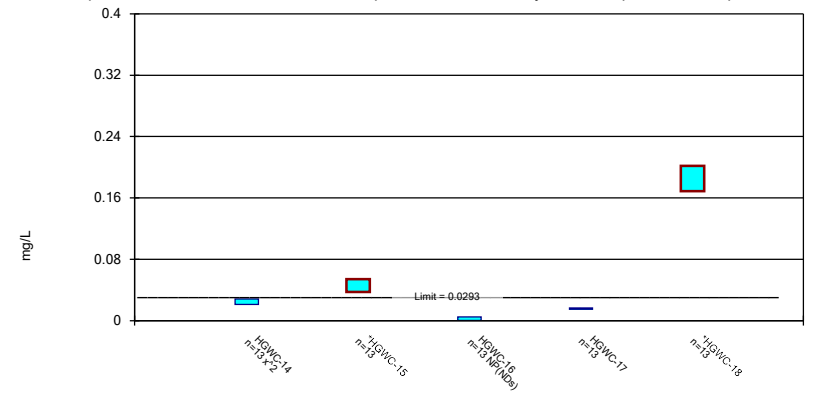
Compliance Limit is not exceeded.



Constituent: Chromium Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Parametric and Non-Parametric (NP) Confidence Interval

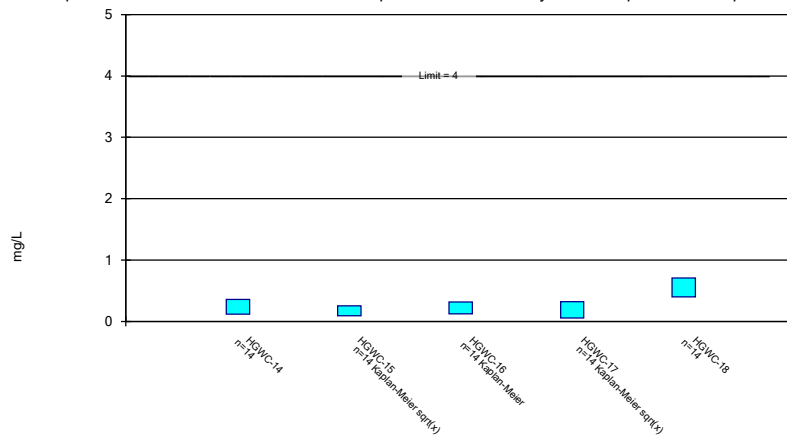
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cobalt Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Parametric Confidence Interval

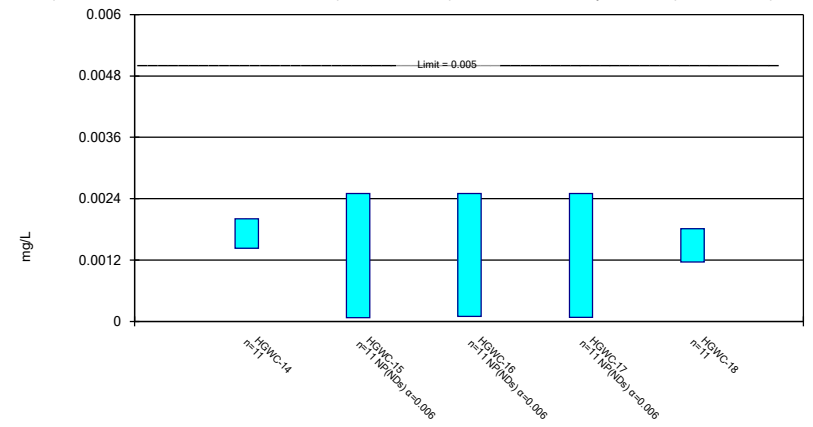
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Fluoride Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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: Lead Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Confidence Interval

Constituent: Chromium (mg/L) Analysis Run 7/22/2019 2:56 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.01	<0.01	<0.01	<0.01	
5/24/2016					<0.01
7/12/2016	<0.01	<0.01	<0.01	<0.01	<0.01
9/1/2016	<0.01	<0.01	<0.01	<0.01	<0.01
10/24/2016	<0.01	<0.01			
10/25/2016			<0.01	<0.01	<0.01
12/7/2016	<0.01	<0.01	<0.01	<0.01	
12/8/2016					<0.01
1/26/2017	<0.01	<0.01	<0.01	<0.01	<0.01
3/22/2017			0.0021 (J)	<0.01	
3/23/2017	<0.01	0.0005 (J)			0.0005 (J)
5/24/2017	<0.01	<0.01	<0.01		
5/25/2017				<0.01	<0.01
4/3/2018		<0.01	<0.01	<0.01	<0.01
4/4/2018	<0.01				
3/14/2019	<0.01	<0.01			<0.01
3/15/2019			<0.01	<0.01	
4/4/2019		<0.01	<0.01		
4/5/2019	<0.01			<0.01	<0.01
Mean	0.005	0.004591	0.004736	0.005	0.004591
Std. Dev.	0	0.001357	0.0008744	0	0.001357
Upper Lim.	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.005	0.0005	0.0021	0.005	0.0005

Confidence Interval

Constituent: Cobalt (mg/L) Analysis Run 7/22/2019 2:56 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.01	0.0419 (J)	<0.01	0.0167	
5/24/2016					0.17 (J)
7/12/2016	0.0232	0.0393	<0.01	0.0148	0.168
9/1/2016	0.0248	0.045	<0.01	0.0151	0.18
10/24/2016	0.0253	0.0557			
10/25/2016			<0.01	0.0141	0.188
12/7/2016	0.0269	0.0536	<0.01	0.0141	
12/8/2016					0.206
1/26/2017	0.0294	0.055	<0.01	0.0154	0.195
3/22/2017			<0.01	0.0169	
3/23/2017	0.0311	0.0715			0.223
5/24/2017	0.0279	0.0446	<0.01		
5/25/2017				0.0154	0.209
4/3/2018		0.032	<0.01	0.016	0.19
4/4/2018	0.025				
6/5/2018					0.19
6/6/2018	0.027	0.032	<0.01	0.018	
10/3/2018	0.023	0.051	<0.01	0.016	0.19
3/14/2019	0.025	0.038			0.16
3/15/2019			<0.01	0.017	
4/4/2019		0.035	0.00028 (J)		
4/5/2019	0.021			0.016	0.14
Mean	0.0242	0.04574	0.004637	0.01581	0.1853
Std. Dev.	0.006375	0.01136	0.001309	0.001155	0.02205
Upper Lim.	0.02817	0.05419	0.005	0.01667	0.2017
Lower Lim.	0.02128	0.03729	0.00028	0.01495	0.1689

Confidence Interval

Constituent: Fluoride (mg/L) Analysis Run 7/22/2019 2:56 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.3	<0.3	0.038 (J)	<0.3	
5/24/2016					<0.3
7/12/2016	0.2 (J)	0.09 (J)	0.26 (J)	0.09 (J)	0.54
9/1/2016	0.08 (J)	0.22 (J)	0.42	0.03 (J)	0.49
10/24/2016	0.04 (J)	0.07 (J)			
10/25/2016			0.25 (J)	0.07 (J)	0.58
12/7/2016	0.11 (J)	0.23 (J)	0.23 (J)	0.54	
12/8/2016					0.63
1/26/2017	0.13 (J)	<0.3	0.02 (J)	<0.3	0.71
3/22/2017			0.3	0.07 (J)	
3/23/2017	0.28 (J)	0.12 (J)			0.57
5/24/2017	0.32	0.31	0.46		
5/25/2017				0.42	0.54
10/4/2017	0.52	0.6	<0.3	0.93	0.95
4/3/2018		<0.3	<0.3	<0.3	0.33
4/4/2018	<0.3				
6/5/2018					0.66
6/6/2018	0.25 (J)	0.17 (J)	<0.3	0.23 (J)	
10/3/2018	0.21 (J)	<0.3	<0.3	<0.3	0.32
3/14/2019	0.24 (J)	<0.3			0.88
3/15/2019			<0.3	<0.3	
4/4/2019		0.066 (J)	<0.3		
4/5/2019	0.66			0.16 (J)	0.37
Mean	0.2386	0.1876	0.2056	0.235	0.5514
Std. Dev.	0.1701	0.1353	0.1259	0.2433	0.2169
Upper Lim.	0.3591	0.2536	0.3166	0.3197	0.7051
Lower Lim.	0.1181	0.09359	0.1228	0.05704	0.3978

Confidence Interval

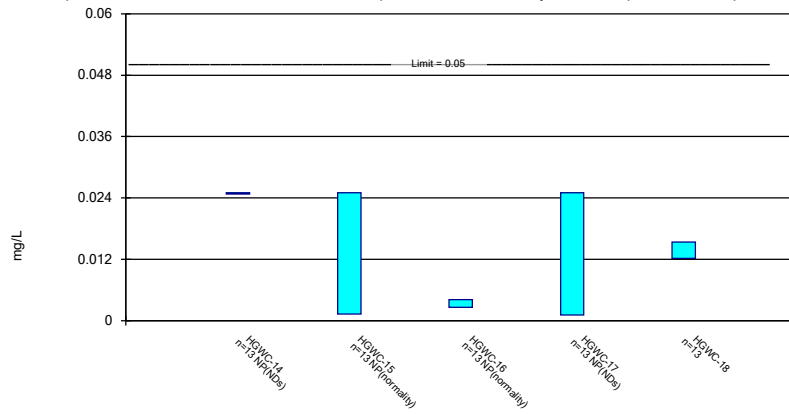
Constituent: Lead (mg/L) Analysis Run 7/22/2019 2:56 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.00182 (J)	<0.005	<0.005	<0.005	
5/24/2016					0.00154 (J)
7/12/2016	0.0015 (J)	<0.005	<0.005	<0.005	0.0012 (J)
9/1/2016	0.0016 (J)	<0.005	<0.005	<0.005	0.0014 (J)
10/24/2016	0.0016 (J)	<0.005			
10/25/2016			<0.005	<0.005	0.0015 (J)
12/7/2016	0.0018 (J)	<0.005	<0.005	<0.005	
12/8/2016					0.0017 (J)
1/26/2017	0.002 (J)	<0.005	0.0001 (J)	<0.005	0.0013 (J)
3/22/2017			0.0002 (J)	0.0001 (J)	
3/23/2017	0.0019 (J)	0.001 (J)			0.001 (J)
5/24/2017	0.0016 (J)	0.0001 (J)	0.0001 (J)		
5/25/2017				<0.005	0.0012 (J)
4/3/2018		<0.005	<0.005	<0.005	<0.005
4/4/2018	<0.005				
3/14/2019	0.0014 (J)	<0.005			0.0015 (J)
3/15/2019			<0.005	<0.005	
4/4/2019		7.2E-05 (J)	0.00016 (J)		
4/5/2019	0.0012 (J)			7.6E-05 (J)	0.0015 (J)
Mean	0.00172	0.001925	0.001642	0.002061	0.001485
Std. Dev.	0.0003464	0.001013	0.001191	0.0009757	0.0003898
Upper Lim.	0.002009	0.0025	0.0025	0.0025	0.00181
Lower Lim.	0.001431	7.2E-05	0.0001	7.6E-05	0.001161

Parametric and Non-Parametric (NP) Confidence Interval

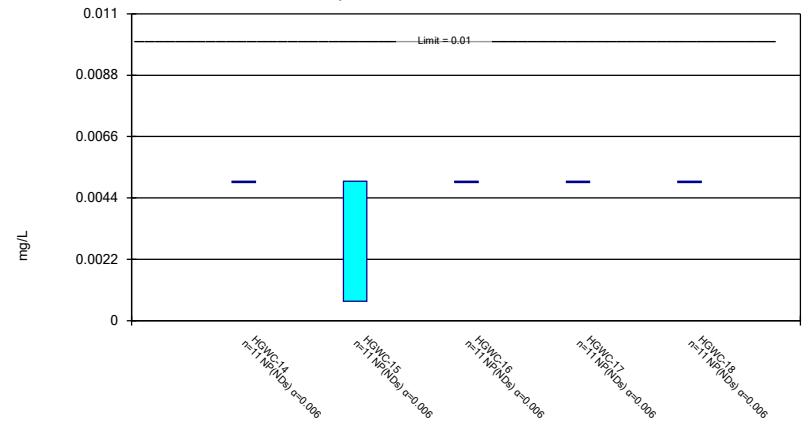
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Lithium Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Non-Parametric Confidence Interval

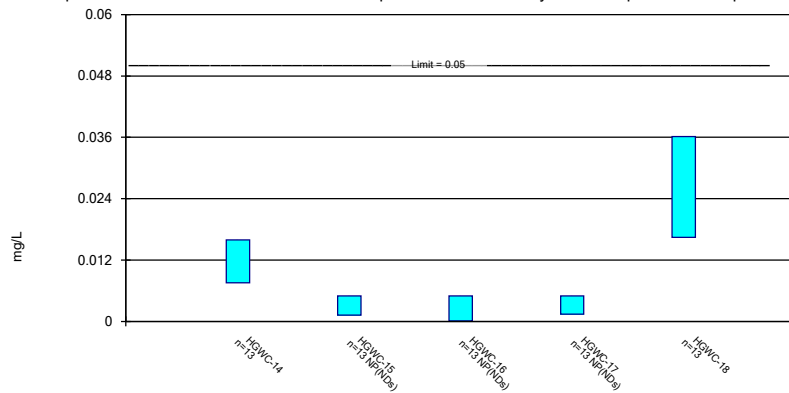
Compliance Limit is not exceeded.



Constituent: Molybdenum Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Parametric and Non-Parametric (NP) Confidence Interval

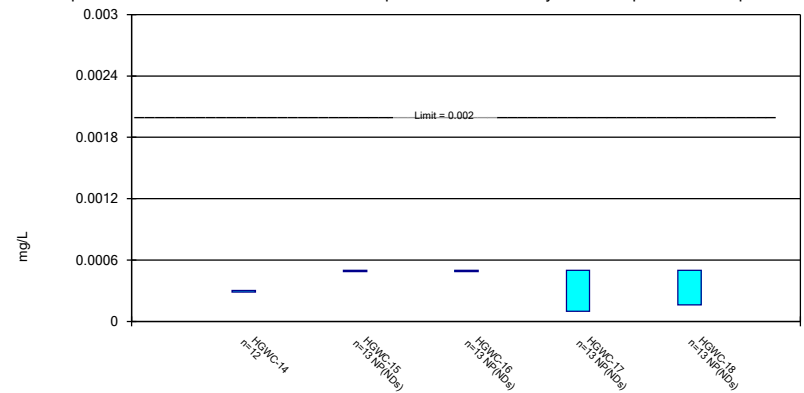
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Selenium Analysis Run 7/22/2019 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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 2:54 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Confidence Interval

Constituent: Lithium (mg/L) Analysis Run 7/22/2019 2:56 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.05	<0.05	<0.05	<0.05	
5/24/2016					0.0142 (J)
7/12/2016	<0.05	<0.05	0.0037 (J)	<0.05	0.0141 (J)
9/1/2016	<0.05	0.0021 (J)	0.0033 (J)	<0.05	0.0158 (J)
10/24/2016	<0.05	<0.05			
10/25/2016			0.0029 (J)	<0.05	0.016 (J)
12/7/2016	<0.05	<0.05	0.0029 (J)	<0.05	
12/8/2016					0.0144 (J)
1/26/2017	<0.05	<0.05	0.0028 (J)	<0.05	0.0136 (J)
3/22/2017			0.0025 (J)	<0.05	
3/23/2017	<0.05	0.0016 (J)			0.0151 (J)
5/24/2017	<0.05	0.0029 (J)	0.0029 (J)		
5/25/2017				0.0011 (J)	0.0154 (J)
4/3/2018		0.0026 (J)	0.0028 (J)	<0.05	0.013 (J)
4/4/2018	<0.05				
6/5/2018					0.013 (J)
6/6/2018	<0.05	0.0013 (J)	0.0031 (J)	<0.05	
10/3/2018	<0.05	0.0017 (J)	0.0026 (J)	<0.05	0.015 (J)
3/14/2019	<0.05	<0.05			0.011 (J)
3/15/2019			0.0041 (J)	0.0011 (J)	
4/4/2019		0.0009 (J)	0.0032 (J)		
4/5/2019	<0.05			0.00074 (J)	0.0084 (J)
Mean	0.025	0.01255	0.004754	0.01946	0.01377
Std. Dev.	0	0.01201	0.006099	0.01053	0.00211
Upper Lim.	0.025	0.025	0.0041	0.025	0.01534
Lower Lim.	0.025	0.0013	0.0026	0.0011	0.0122

Confidence Interval

Constituent: Molybdenum (mg/L) Analysis Run 7/22/2019 2:56 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.01	<0.01	<0.01	<0.01	
5/24/2016					<0.01
7/12/2016	<0.01	0.0007 (J)	<0.01	<0.01	<0.01
9/1/2016	<0.01	<0.01	<0.01	<0.01	<0.01
10/24/2016	<0.01	<0.01			
10/25/2016			<0.01	<0.01	<0.01
12/7/2016	<0.01	<0.01	<0.01	<0.01	
12/8/2016					<0.01
1/26/2017	<0.01	<0.01	<0.01	<0.01	<0.01
3/22/2017			<0.01	<0.01	
3/23/2017	<0.01	<0.01			<0.01
5/24/2017	<0.01	<0.01	<0.01		
5/25/2017				<0.01	<0.01
4/3/2018		<0.01	<0.01	<0.01	<0.01
4/4/2018	<0.01				
3/14/2019	<0.01	<0.01			<0.01
3/15/2019			<0.01	<0.01	
4/4/2019		<0.01	<0.01		
4/5/2019	<0.01			<0.01	<0.01
Mean	0.005	0.004609	0.005	0.005	0.005
Std. Dev.	0	0.001296	0	0	0
Upper Lim.	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.005	0.0007	0.005	0.005	0.005

Confidence Interval

Constituent: Selenium (mg/L) Analysis Run 7/22/2019 2:56 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.017	<0.01	<0.01	<0.01	
5/24/2016					<0.01
7/12/2016	0.0146	<0.01	<0.01	<0.01	0.036
9/1/2016	0.0137	<0.01	<0.01	0.0014 (J)	0.0347
10/24/2016	0.0135	0.0012 (J)			
10/25/2016			<0.01	<0.01	0.0282
12/7/2016	0.01 (J)	0.0041 (J)	<0.01	0.0023 (J)	
12/8/2016					0.0373
1/26/2017	0.0214	<0.01	<0.01	<0.01	0.0385
3/22/2017			<0.01	<0.01	
3/23/2017	0.0167	0.0016 (J)			0.0414
5/24/2017	0.0083 (J)	<0.01	<0.01		
5/25/2017				<0.01	0.019
4/3/2018		<0.01	<0.01	<0.01	0.029
4/4/2018	0.012				
6/5/2018					0.038
6/6/2018	0.014	<0.01	<0.01	<0.01	
10/3/2018	0.0056 (J)	<0.01	<0.01	<0.01	0.017
3/14/2019	0.0048 (J)	<0.01			0.016
3/15/2019			<0.01	<0.01	
4/4/2019		0.00021 (J)	8.9E-05 (J)		
4/5/2019	0.00091 (J)			9.3E-05 (J)	0.0018 (J)
Mean	0.01173	0.004008	0.004622	0.004138	0.0263
Std. Dev.	0.005656	0.001755	0.001362	0.0017	0.01326
Upper Lim.	0.01594	0.005	0.005	0.005	0.03616
Lower Lim.	0.007526	0.0012	8.9E-05	0.0014	0.01644

Confidence Interval

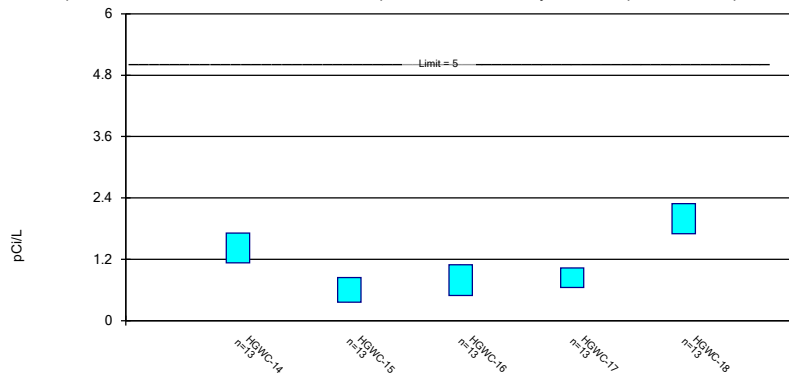
Constituent: Thallium (mg/L) Analysis Run 7/22/2019 2:56 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.000306 (J)	<0.001	<0.001	<0.001	
5/24/2016					<0.001
7/12/2016	0.0003 (J)	<0.001	<0.001	0.0001 (J)	0.0002 (J)
9/1/2016	0.0003 (J)	<0.001	<0.001	<0.001	<0.001
10/24/2016	0.0004 (o)	<0.001			
10/25/2016			<0.001	<0.001	<0.001
12/7/2016	0.0003 (J)	<0.001	<0.001	<0.001	
12/8/2016					<0.001
1/26/2017	0.0003 (J)	<0.001	<0.001	<0.001	<0.001
3/22/2017			<0.001	0.0001 (J)	
3/23/2017	0.0003 (J)	<0.001			0.0002 (J)
5/24/2017	0.0003 (J)	<0.001	<0.001		
5/25/2017				0.0001 (J)	0.0002 (J)
4/3/2018		<0.001	<0.001	<0.001	0.00014 (J)
4/4/2018	0.00028 (J)				
6/5/2018					0.00016 (J)
6/6/2018	0.00029 (J)	<0.001	<0.001	<0.001	
10/3/2018	0.00029 (J)	<0.001	<0.001	<0.001	<0.001
3/14/2019	0.00028 (J)	<0.001			<0.001
3/15/2019			<0.001	<0.001	
4/4/2019		<0.001	<0.001		
4/5/2019	0.00028 (J)			0.00013 (J)	0.00014 (J)
Mean	0.0002938	0.0005	0.0005	0.0003792	0.0003492
Std. Dev.	9.437E-06	0	0	0.0001887	0.0001706
Upper Lim.	0.0003012	0.0005	0.0005	0.0005	0.0005
Lower Lim.	0.0002864	0.0005	0.0005	0.0001	0.00016

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 2:54 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Confidence Interval

Constituent: Total Radium (pCi/L) Analysis Run 7/22/2019 2:56 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.568 (U)	0.171 (U)		0.618 (U)	
5/24/2016					1.82
7/1/2016			0 (U)		
7/12/2016	1.31	0.611 (U)	0.182 (U)	0.867	1.76
9/1/2016	1.64	0.766 (U)	1.23	0.857 (U)	1.51
10/24/2016	1.88	0.969			
10/25/2016			1.05 (U)	1.11 (U)	2.69
12/7/2016	1.35	0.302 (U)	1.11 (U)	0.964 (U)	
12/8/2016					2.21
1/26/2017	2.1	0.626 (U)	1.29 (U)	0.612 (U)	2.26
3/22/2017			0.453 (U)	0.437 (U)	
3/23/2017	1.17	0.662 (U)			1.81
5/24/2017	1 (U)	0.202 (U)	1.05 (U)		
5/25/2017				1.21 (U)	1.63
4/3/2018		0.384 (U)	0.783 (U)	0.409 (U)	2.53
4/4/2018	1.72				
6/5/2018					1.91
6/6/2018	1.31 (U)	1.32 (U)	0.595 (U)	0.772 (U)	
10/3/2018	1.48	0.858 (U)	1.03 (U)	1.08 (U)	2.22
3/14/2019	1.5	0.462 (U)			1.37 (U)
3/15/2019			0.591 (U)	0.917 (U)	
4/4/2019		0.512 (U)	0.96 (U)		
4/5/2019	1.43 (U)			1.07 (U)	2.22
Mean	1.42	0.6035	0.7942	0.8402	1.995
Std. Dev.	0.3891	0.3238	0.4034	0.2577	0.3951
Upper Lim.	1.709	0.8442	1.094	1.032	2.289
Lower Lim.	1.131	0.3627	0.4942	0.6486	1.702

USEPA Based Groundwater Protection Standards Statistical Analysis Package

AM 01

Tolerance Limit

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 3:16 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	60	93.33	n/a	0.04607	NP Inter(NDs)
Arsenic (mg/L)	n/a	0.005	n/a	n/a	n/a	78	82.05	n/a	0.0183	NP Inter(NDs)
Barium (mg/L)	n/a	0.212	n/a	n/a	n/a	78	0	n/a	0.0183	NP Inter(normal...
Beryllium (mg/L)	n/a	0.003	n/a	n/a	n/a	66	86.36	n/a	0.03387	NP Inter(NDs)
Cadmium (mg/L)	n/a	0.001	n/a	n/a	n/a	78	92.31	n/a	0.0183	NP Inter(NDs)
Chromium (mg/L)	n/a	0.019	n/a	n/a	n/a	66	90.91	n/a	0.03387	NP Inter(NDs)
Cobalt (mg/L)	n/a	0.0293	n/a	n/a	n/a	78	70.51	n/a	0.0183	NP Inter(NDs)
Fluoride (mg/L)	n/a	0.36	n/a	n/a	n/a	84	27.38	n/a	0.01345	NP Inter(normal...
Lead (mg/L)	n/a	0.005	n/a	n/a	n/a	66	87.88	n/a	0.03387	NP Inter(NDs)
Lithium (mg/L)	n/a	0.05	n/a	n/a	n/a	78	32.05	n/a	0.0183	NP Inter(normal...
Mercury (mg/L)	n/a	0.0005	n/a	n/a	n/a	60	86.67	n/a	0.04607	NP Inter(NDs)
Molybdenum (mg/L)	n/a	0.01	n/a	n/a	n/a	66	96.97	n/a	0.03387	NP Inter(NDs)
Selenium (mg/L)	n/a	0.01	n/a	n/a	n/a	78	98.72	n/a	0.0183	NP Inter(NDs)
Thallium (mg/L)	n/a	0.001	n/a	n/a	n/a	78	98.72	n/a	0.0183	NP Inter(NDs)
Total Radium (pCi/L)	n/a	2.42	n/a	n/a	n/a	78	0	n/a	0.0183	NP Inter(normal...

Table B-2
USEPA Based Groundwater Protection Standards
Plant Hammond - Ash Pond 2
Floyd County, Georgia

Constituent	CAS	Units	EPA MCL	Statistically Derived Upper Tolerance Limits for Background	GWPS ¹
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	0.212	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	0.019	0.1
Cobalt ²	7440-48-4	mg/L	0.006	0.0293	0.0293
Fluoride	16984-48-8	mg/L	4	0.36	4
Lead ³	7439-92-1	mg/L	0.015	0.005	0.015
Lithium ²	7439-93-2	mg/L	0.04	0.025	0.04
Mercury	7439-97-6	mg/L	0.002	0.0005	0.002
Molybdenum ²	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	2.42	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

¹GWPS selected as the greater value between the EPA MCL and the background Upper Tolerance Limit.

²Regional Screening Level applied for constituent per CCR Rule Amendment, July 30, 2018.

³Currently, 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-2 Printed 7/22/2019, 3:24 AM

<u>Constituent</u>	<u>Well</u>	<u>Upper Lim.</u>	<u>Lower Lim.</u>	<u>Compliance</u>	<u>Sig.</u>	<u>N</u>	<u>%NDs</u>	<u>Transform</u>	<u>Alpha</u>	<u>Method</u>
Cobalt (mg/L)	HGWC-15	0.05419	0.03729	0.0293	Yes	13	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-18	0.2017	0.1689	0.0293	Yes	13	0	No	0.01	Param.

Confidence Interval - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 3:24 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-14	0.0089	0.0029	0.01	No	13	15.38	No	0.01	NP (normality)
Arsenic (mg/L)	HGWC-15	0.05	0.0008	0.01	No	13	84.62	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-16	0.05	0.0005	0.01	No	13	84.62	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-17	0.05	0.00097	0.01	No	13	76.92	No	0.01	NP (NDs)
Arsenic (mg/L)	HGWC-18	0.007322	0.004191	0.01	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-14	0.0244	0.019	2	No	13	7.692	No	0.01	NP (normality)
Barium (mg/L)	HGWC-15	0.03266	0.02314	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-16	0.1122	0.0949	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-17	0.02629	0.02254	2	No	13	0	No	0.01	Param.
Barium (mg/L)	HGWC-18	0.0349	0.028	2	No	13	7.692	No	0.01	NP (normality)
Beryllium (mg/L)	HGWC-14	0.0004844	0.0002996	0.004	No	11	18.18	ln(x)	0.01	Param.
Beryllium (mg/L)	HGWC-15	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-16	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-17	0.0015	0.0015	0.004	No	11	100	No	0.006	NP (NDs)
Beryllium (mg/L)	HGWC-18	0.003553	0.002444	0.004	No	11	9.091	No	0.01	Param.
Cadmium (mg/L)	HGWC-14	0.0005	0.000079	0.005	No	13	23.08	No	0.01	NP (normality)
Cadmium (mg/L)	HGWC-15	0.0027	0.001671	0.005	No	13	0	No	0.01	Param.
Cadmium (mg/L)	HGWC-16	0.0005	0.0005	0.005	No	13	100	No	0.01	NP (NDs)
Cadmium (mg/L)	HGWC-17	0.0005	0.00007	0.005	No	13	92.31	No	0.01	NP (NDs)
Cadmium (mg/L)	HGWC-18	0.00253	0.001886	0.005	No	13	7.692	x^2	0.01	Param.
Chromium (mg/L)	HGWC-14	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-15	0.005	0.0005	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-16	0.005	0.0021	0.1	No	11	90.91	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-17	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Chromium (mg/L)	HGWC-18	0.005	0.0005	0.1	No	11	90.91	No	0.006	NP (NDs)
Cobalt (mg/L)	HGWC-14	0.02817	0.02128	0.0293	No	13	7.692	x^2	0.01	Param.
Cobalt (mg/L)	HGWC-15	0.05419	0.03729	0.0293	Yes	13	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-16	0.005	0.00028	0.0293	No	13	92.31	No	0.01	NP (NDs)
Cobalt (mg/L)	HGWC-17	0.01667	0.01495	0.0293	No	13	0	No	0.01	Param.
Cobalt (mg/L)	HGWC-18	0.2017	0.1689	0.0293	Yes	13	0	No	0.01	Param.
Fluoride (mg/L)	HGWC-14	0.3591	0.1181	4	No	14	14.29	No	0.01	Param.
Fluoride (mg/L)	HGWC-15	0.2536	0.09359	4	No	14	35.71	sqrt(x)	0.01	Param.
Fluoride (mg/L)	HGWC-16	0.3166	0.1228	4	No	14	42.86	No	0.01	Param.
Fluoride (mg/L)	HGWC-17	0.3197	0.05704	4	No	14	35.71	sqrt(x)	0.01	Param.
Fluoride (mg/L)	HGWC-18	0.7051	0.3978	4	No	14	7.143	No	0.01	Param.
Lead (mg/L)	HGWC-14	0.002009	0.001431	0.015	No	11	9.091	No	0.01	Param.
Lead (mg/L)	HGWC-15	0.0025	0.000072	0.015	No	11	72.73	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-16	0.0025	0.0001	0.015	No	11	63.64	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-17	0.0025	0.000076	0.015	No	11	81.82	No	0.006	NP (NDs)
Lead (mg/L)	HGWC-18	0.00181	0.001161	0.015	No	11	9.091	No	0.01	Param.
Lithium (mg/L)	HGWC-14	0.0125	0.0125	0.04	No	13	100	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-15	0.0125	0.0013	0.04	No	13	46.15	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-16	0.0041	0.0026	0.04	No	13	7.692	No	0.01	NP (normality)
Lithium (mg/L)	HGWC-17	0.0125	0.0011	0.04	No	13	76.92	No	0.01	NP (NDs)
Lithium (mg/L)	HGWC-18	0.01534	0.0122	0.04	No	13	0	No	0.01	Param.
Molybdenum (mg/L)	HGWC-14	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Molybdenum (mg/L)	HGWC-15	0.005	0.0007	0.1	No	11	90.91	No	0.006	NP (NDs)
Molybdenum (mg/L)	HGWC-16	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Molybdenum (mg/L)	HGWC-17	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)
Molybdenum (mg/L)	HGWC-18	0.005	0.005	0.1	No	11	100	No	0.006	NP (NDs)

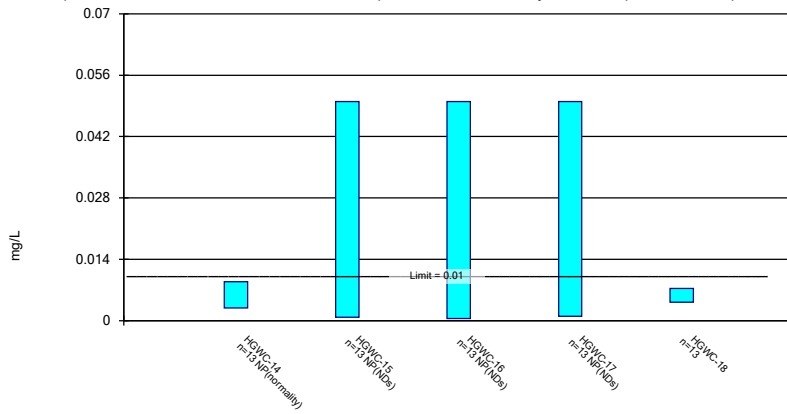
Confidence Interval - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 3:24 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>
Selenium (mg/L)	HGWC-14	0.01594	0.007526	0.05	No	13	0	No	0.01	Param.
Selenium (mg/L)	HGWC-15	0.005	0.0012	0.05	No	13	69.23	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-16	0.005	0.000089	0.05	No	13	92.31	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-17	0.005	0.0014	0.05	No	13	76.92	No	0.01	NP (NDs)
Selenium (mg/L)	HGWC-18	0.03616	0.01644	0.05	No	13	7.692	No	0.01	Param.
Thallium (mg/L)	HGWC-14	0.0003012	0.0002864	0.002	No	12	0	No	0.01	Param.
Thallium (mg/L)	HGWC-15	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-16	0.0005	0.0005	0.002	No	13	100	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-17	0.0005	0.0001	0.002	No	13	69.23	No	0.01	NP (NDs)
Thallium (mg/L)	HGWC-18	0.0005	0.00016	0.002	No	13	53.85	No	0.01	NP (NDs)
Total Radium (pCi/L)	HGWC-14	1.709	1.131	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-15	0.8442	0.3627	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-16	1.094	0.4942	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-17	1.032	0.6486	5	No	13	0	No	0.01	Param.
Total Radium (pCi/L)	HGWC-18	2.289	1.702	5	No	13	0	No	0.01	Param.

Parametric and Non-Parametric (NP) Confidence Interval

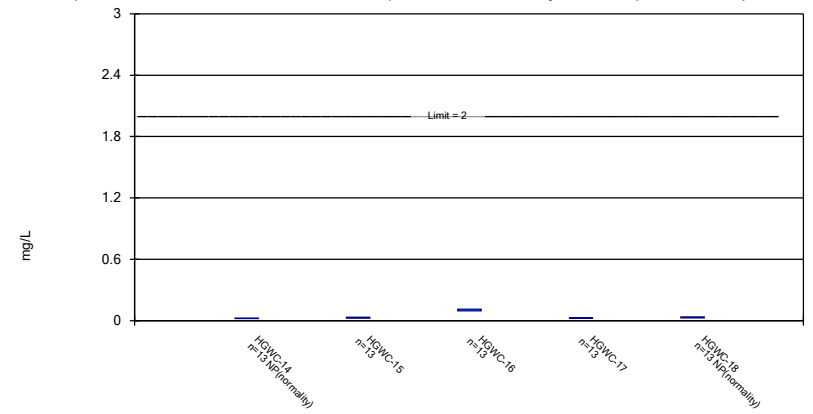
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Arsenic Analysis Run 7/22/2019 3:22 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Parametric and Non-Parametric (NP) Confidence Interval

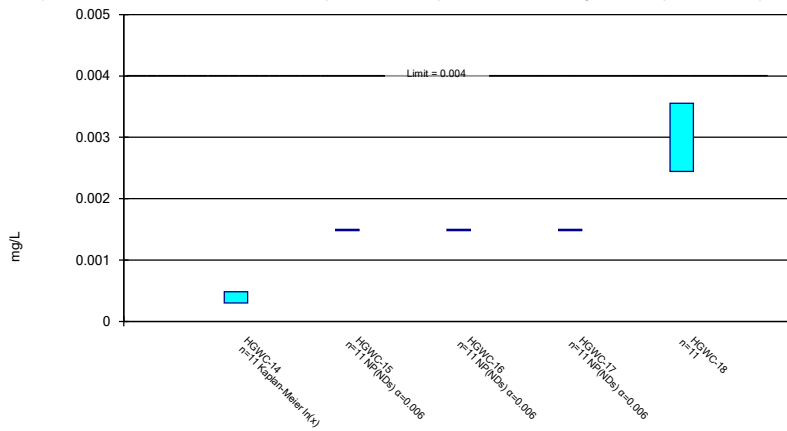
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Barium Analysis Run 7/22/2019 3:22 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Parametric and Non-Parametric (NP) Confidence Interval

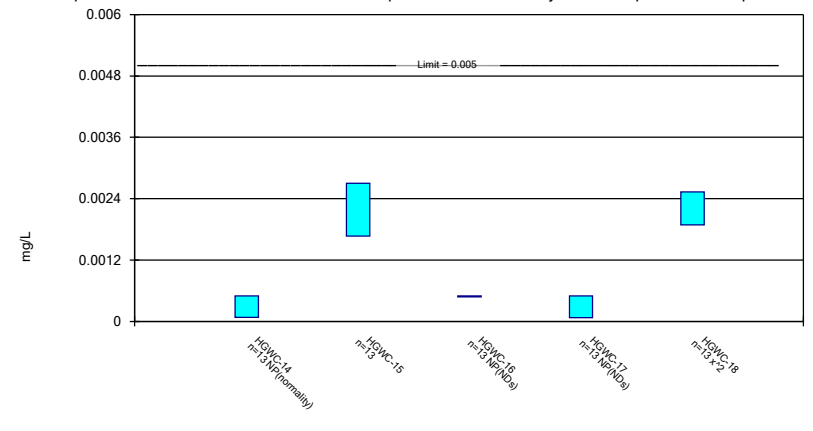
Compliance Limit is not exceeded. Per-well alpha = 0.01 except as noted. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Beryllium Analysis Run 7/22/2019 3:22 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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: Cadmium Analysis Run 7/22/2019 3:23 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Confidence Interval

Constituent: Arsenic (mg/L) Analysis Run 7/22/2019 3:24 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.00268 (J)	<0.1	<0.1	<0.1	
5/24/2016					0.00294 (J)
7/12/2016	0.0059	<0.1	<0.1	<0.1	0.0074
9/1/2016	0.0056	<0.1	<0.1	<0.1	0.0073
10/24/2016	0.0058	<0.1			
10/25/2016			<0.1	<0.1	0.006
12/7/2016	<0.1	<0.1	<0.1	<0.1	
12/8/2016					0.007
1/26/2017	0.0089	<0.1	<0.1	<0.1	0.0068
3/22/2017			0.0005 (J)	0.0007 (J)	
3/23/2017	0.0069	0.0008 (J)			0.0082
5/24/2017	0.0048 (J)	<0.1	<0.1		
5/25/2017				0.0007 (J)	0.006
4/3/2018		<0.1	<0.1	<0.1	0.0062
4/4/2018	0.0052				
6/5/2018					0.008
6/6/2018	0.0059	<0.1	<0.1	0.00097 (J)	
10/3/2018	0.0032 (J)	<0.1	<0.1	<0.1	0.0039 (J)
3/14/2019	0.0029 (J)	<0.1			0.0036 (J)
3/15/2019			<0.1	<0.1	
4/4/2019		0.00017 (J)	0.0001 (J)		
4/5/2019	<0.1			<0.1	0.0015 (J)
Mean	0.01214	0.04238	0.04235	0.03864	0.005757
Std. Dev.	0.01689	0.0186	0.01866	0.02158	0.002105
Upper Lim.	0.0089	0.05	0.05	0.05	0.007322
Lower Lim.	0.0029	0.0008	0.0005	0.00097	0.004191

Confidence Interval

Constituent: Barium (mg/L) Analysis Run 7/22/2019 3:24 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.2	0.0315 (J)	0.0841	0.0222 (J)	
5/24/2016					<0.2
7/12/2016	0.0214	0.0372	0.0886	0.0221	0.0346
9/1/2016	0.0208	0.0364	0.0934	0.0227	0.0336
10/24/2016	0.0208	0.0326			
10/25/2016			0.0991	0.0225	0.0349
12/7/2016	0.022	0.0301	0.101	0.0227	
12/8/2016					0.0339
1/26/2017	0.0238	0.0287	0.105	0.0229	0.0293
3/22/2017			0.11	0.0248	
3/23/2017	0.0244	0.0329			0.0313
5/24/2017	0.0228	0.0283	0.106		
5/25/2017				0.0255	0.0336
4/3/2018		0.019	0.099	0.025	0.028
4/4/2018	0.021				
6/5/2018					0.03
6/6/2018	0.022	0.022	0.11	0.028	
10/3/2018	0.02	0.025	0.11	0.028	0.032
3/14/2019	0.019	0.021			0.029
3/15/2019			0.13	0.029	
4/4/2019		0.018	0.11		
4/5/2019	0.016			0.022	0.021
Mean	0.02723	0.0279	0.1036	0.02442	0.03625
Std. Dev.	0.02197	0.006406	0.01164	0.002522	0.01952
Upper Lim.	0.0244	0.03266	0.1122	0.02629	0.0349
Lower Lim.	0.019	0.02314	0.0949	0.02254	0.028

Confidence Interval

Constituent: Beryllium (mg/L) Analysis Run 7/22/2019 3:24 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.003	<0.003	<0.003	<0.003	
5/24/2016					0.00278 (J)
7/12/2016	0.0005 (J)	<0.003	<0.003	<0.003	0.0032
9/1/2016	0.0005 (J)	<0.003	<0.003	<0.003	0.0034
10/24/2016	0.0005 (J)	<0.003			
10/25/2016			<0.003	<0.003	0.0034
12/7/2016	0.0006 (J)	<0.003	<0.003	<0.003	
12/8/2016					0.0033
1/26/2017	0.0005 (J)	<0.003	<0.003	<0.003	0.0034
3/22/2017			<0.003	<0.003	
3/23/2017	0.0006 (J)	<0.003			0.0036
5/24/2017	0.0005 (J)	<0.003	<0.003		
5/25/2017				<0.003	0.0036
4/3/2018		<0.003	<0.003	<0.003	<0.003
4/4/2018	<0.003				
3/14/2019	0.00043 (J)	<0.003			0.0026 (J)
3/15/2019			<0.003	<0.003	
4/4/2019		<0.003	<0.003		
4/5/2019	0.00027 (J)			<0.003	0.0022 (J)
Mean	0.0006727	0.0015	0.0015	0.0015	0.002998
Std. Dev.	0.0004183	0	0	0	0.0006655
Upper Lim.	0.0004844	0.0015	0.0015	0.0015	0.003553
Lower Lim.	0.0002996	0.0015	0.0015	0.0015	0.002444

Confidence Interval

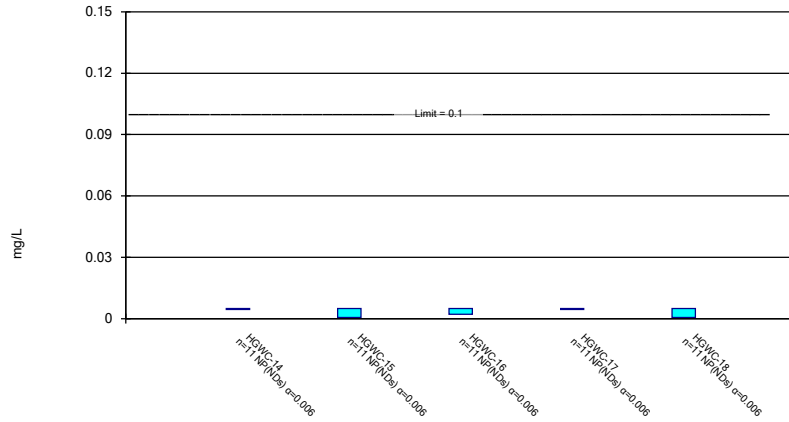
Constituent: Cadmium (mg/L) Analysis Run 7/22/2019 3:24 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.000139 (J)	0.00271 (J)	<0.001	<0.001	
5/24/2016					<0.001
7/12/2016	<0.001	0.0019	<0.001	<0.001	0.0022
9/1/2016	0.0001 (J)	0.0017	<0.001	<0.001	0.0024
10/24/2016	0.0002 (J)	0.0018			
10/25/2016			<0.001	<0.001	0.0022
12/7/2016	0.0001 (J)	0.0018	<0.001	<0.001	
12/8/2016					0.0024
1/26/2017	0.0001 (J)	0.0013	<0.001	<0.001	0.0025
3/22/2017			<0.001	7E-05 (J)	
3/23/2017	0.0002 (J)	0.002			0.0025
5/24/2017	0.0001 (J)	0.0041	<0.001		
5/25/2017				<0.001	0.0027
4/3/2018		0.0022	<0.001	<0.001	0.0022
4/4/2018	<0.001				
6/5/2018					0.0022
6/6/2018	0.00012 (J)	0.0021	<0.001	<0.001	
10/3/2018	0.0001 (J)	0.0026	<0.001	<0.001	0.0027
3/14/2019	<0.001	0.0024			0.0019
3/15/2019			<0.001	<0.001	
4/4/2019		0.0018	<0.001		
4/5/2019	7.9E-05 (J)			<0.001	0.0017
Mean	0.0002106	0.002185	0.0005	0.0004669	0.002162
Std. Dev.	0.0001691	0.0006921	0	0.0001193	0.0005752
Upper Lim.	0.0005	0.0027	0.0005	0.0005	0.00253
Lower Lim.	7.9E-05	0.001671	0.0005	7E-05	0.001886

Non-Parametric Confidence Interval

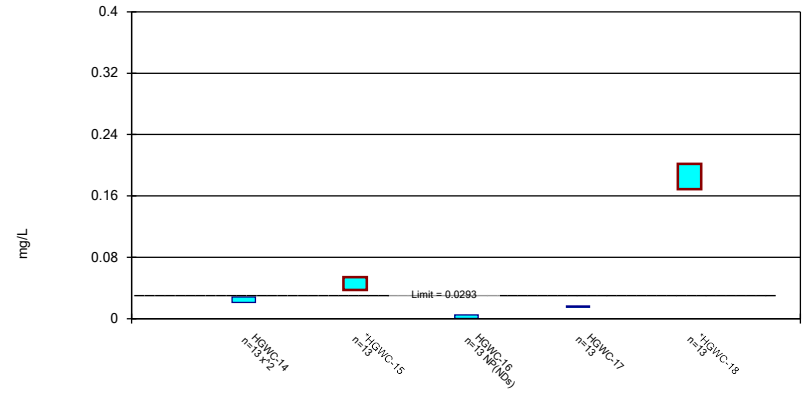
Compliance Limit is not exceeded.



Constituent: Chromium Analysis Run 7/22/2019 3:23 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Parametric and Non-Parametric (NP) Confidence Interval

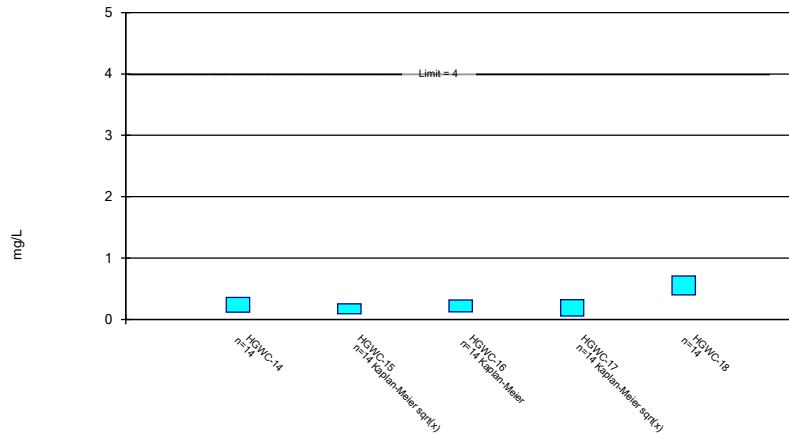
Compliance limit is exceeded.* Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Cobalt Analysis Run 7/22/2019 3:23 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Parametric Confidence Interval

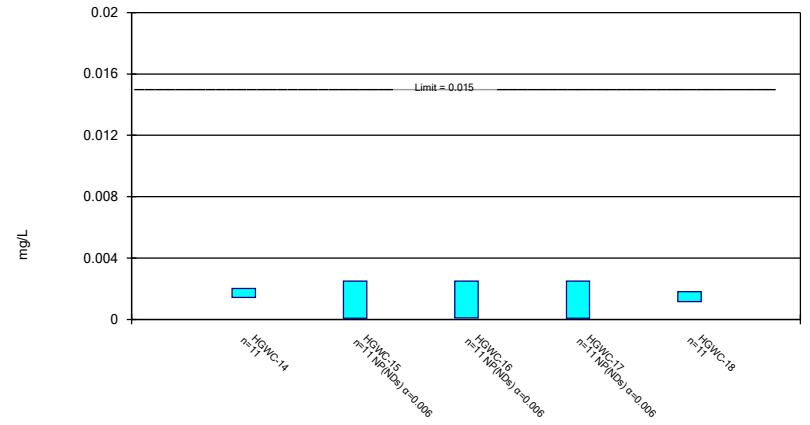
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Fluoride Analysis Run 7/22/2019 3:23 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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: Lead Analysis Run 7/22/2019 3:23 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Confidence Interval

Constituent: Chromium (mg/L) Analysis Run 7/22/2019 3:24 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.01	<0.01	<0.01	<0.01	
5/24/2016					<0.01
7/12/2016	<0.01	<0.01	<0.01	<0.01	<0.01
9/1/2016	<0.01	<0.01	<0.01	<0.01	<0.01
10/24/2016	<0.01	<0.01			
10/25/2016			<0.01	<0.01	<0.01
12/7/2016	<0.01	<0.01	<0.01	<0.01	
12/8/2016					<0.01
1/26/2017	<0.01	<0.01	<0.01	<0.01	<0.01
3/22/2017			0.0021 (J)	<0.01	
3/23/2017	<0.01	0.0005 (J)			0.0005 (J)
5/24/2017	<0.01	<0.01	<0.01		
5/25/2017				<0.01	<0.01
4/3/2018		<0.01	<0.01	<0.01	<0.01
4/4/2018	<0.01				
3/14/2019	<0.01	<0.01			<0.01
3/15/2019			<0.01	<0.01	
4/4/2019		<0.01	<0.01		
4/5/2019	<0.01			<0.01	<0.01
Mean	0.005	0.004591	0.004736	0.005	0.004591
Std. Dev.	0	0.001357	0.0008744	0	0.001357
Upper Lim.	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.005	0.0005	0.0021	0.005	0.0005

Confidence Interval

Constituent: Cobalt (mg/L) Analysis Run 7/22/2019 3:24 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.01	0.0419 (J)	<0.01	0.0167	
5/24/2016					0.17 (J)
7/12/2016	0.0232	0.0393	<0.01	0.0148	0.168
9/1/2016	0.0248	0.045	<0.01	0.0151	0.18
10/24/2016	0.0253	0.0557			
10/25/2016			<0.01	0.0141	0.188
12/7/2016	0.0269	0.0536	<0.01	0.0141	
12/8/2016					0.206
1/26/2017	0.0294	0.055	<0.01	0.0154	0.195
3/22/2017			<0.01	0.0169	
3/23/2017	0.0311	0.0715			0.223
5/24/2017	0.0279	0.0446	<0.01		
5/25/2017				0.0154	0.209
4/3/2018		0.032	<0.01	0.016	0.19
4/4/2018	0.025				
6/5/2018					0.19
6/6/2018	0.027	0.032	<0.01	0.018	
10/3/2018	0.023	0.051	<0.01	0.016	0.19
3/14/2019	0.025	0.038			0.16
3/15/2019			<0.01	0.017	
4/4/2019		0.035	0.00028 (J)		
4/5/2019	0.021			0.016	0.14
Mean	0.0242	0.04574	0.004637	0.01581	0.1853
Std. Dev.	0.006375	0.01136	0.001309	0.001155	0.02205
Upper Lim.	0.02817	0.05419	0.005	0.01667	0.2017
Lower Lim.	0.02128	0.03729	0.00028	0.01495	0.1689

Confidence Interval

Constituent: Fluoride (mg/L) Analysis Run 7/22/2019 3:24 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.3	<0.3	0.038 (J)	<0.3	
5/24/2016					<0.3
7/12/2016	0.2 (J)	0.09 (J)	0.26 (J)	0.09 (J)	0.54
9/1/2016	0.08 (J)	0.22 (J)	0.42	0.03 (J)	0.49
10/24/2016	0.04 (J)	0.07 (J)			
10/25/2016			0.25 (J)	0.07 (J)	0.58
12/7/2016	0.11 (J)	0.23 (J)	0.23 (J)	0.54	
12/8/2016					0.63
1/26/2017	0.13 (J)	<0.3	0.02 (J)	<0.3	0.71
3/22/2017			0.3	0.07 (J)	
3/23/2017	0.28 (J)	0.12 (J)			0.57
5/24/2017	0.32	0.31	0.46		
5/25/2017				0.42	0.54
10/4/2017	0.52	0.6	<0.3	0.93	0.95
4/3/2018		<0.3	<0.3	<0.3	0.33
4/4/2018	<0.3				
6/5/2018					0.66
6/6/2018	0.25 (J)	0.17 (J)	<0.3	0.23 (J)	
10/3/2018	0.21 (J)	<0.3	<0.3	<0.3	0.32
3/14/2019	0.24 (J)	<0.3			0.88
3/15/2019			<0.3	<0.3	
4/4/2019		0.066 (J)	<0.3		
4/5/2019	0.66			0.16 (J)	0.37
Mean	0.2386	0.1876	0.2056	0.235	0.5514
Std. Dev.	0.1701	0.1353	0.1259	0.2433	0.2169
Upper Lim.	0.3591	0.2536	0.3166	0.3197	0.7051
Lower Lim.	0.1181	0.09359	0.1228	0.05704	0.3978

Confidence Interval

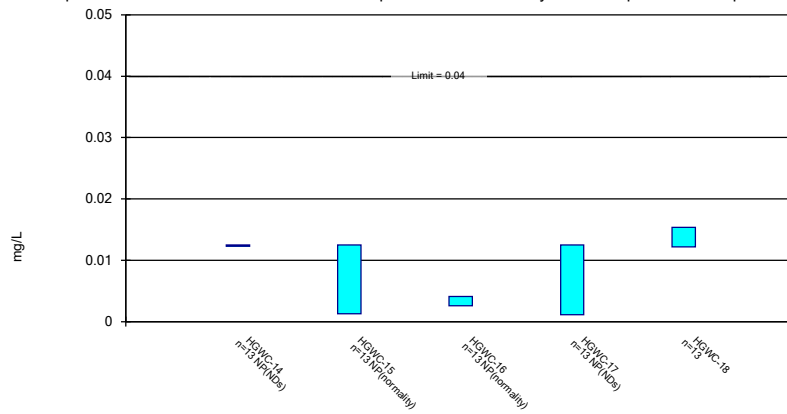
Constituent: Lead (mg/L) Analysis Run 7/22/2019 3:24 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.00182 (J)	<0.005	<0.005	<0.005	
5/24/2016					0.00154 (J)
7/12/2016	0.0015 (J)	<0.005	<0.005	<0.005	0.0012 (J)
9/1/2016	0.0016 (J)	<0.005	<0.005	<0.005	0.0014 (J)
10/24/2016	0.0016 (J)	<0.005			
10/25/2016			<0.005	<0.005	0.0015 (J)
12/7/2016	0.0018 (J)	<0.005	<0.005	<0.005	
12/8/2016					0.0017 (J)
1/26/2017	0.002 (J)	<0.005	0.0001 (J)	<0.005	0.0013 (J)
3/22/2017			0.0002 (J)	0.0001 (J)	
3/23/2017	0.0019 (J)	0.001 (J)			0.001 (J)
5/24/2017	0.0016 (J)	0.0001 (J)	0.0001 (J)		
5/25/2017				<0.005	0.0012 (J)
4/3/2018		<0.005	<0.005	<0.005	<0.005
4/4/2018	<0.005				
3/14/2019	0.0014 (J)	<0.005			0.0015 (J)
3/15/2019			<0.005	<0.005	
4/4/2019		7.2E-05 (J)	0.00016 (J)		
4/5/2019	0.0012 (J)			7.6E-05 (J)	0.0015 (J)
Mean	0.00172	0.001925	0.001642	0.002061	0.001485
Std. Dev.	0.0003464	0.001013	0.001191	0.0009757	0.0003898
Upper Lim.	0.002009	0.0025	0.0025	0.0025	0.00181
Lower Lim.	0.001431	7.2E-05	0.0001	7.6E-05	0.001161

Parametric and Non-Parametric (NP) Confidence Interval

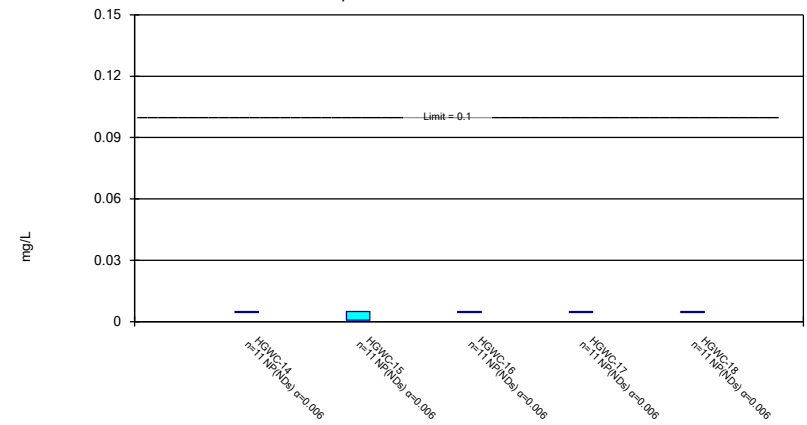
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Lithium Analysis Run 7/22/2019 3:23 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Non-Parametric Confidence Interval

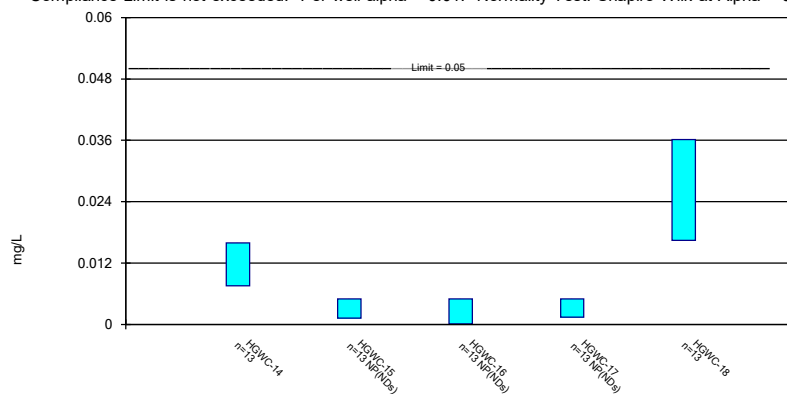
Compliance Limit is not exceeded.



Constituent: Molybdenum Analysis Run 7/22/2019 3:23 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Parametric and Non-Parametric (NP) Confidence Interval

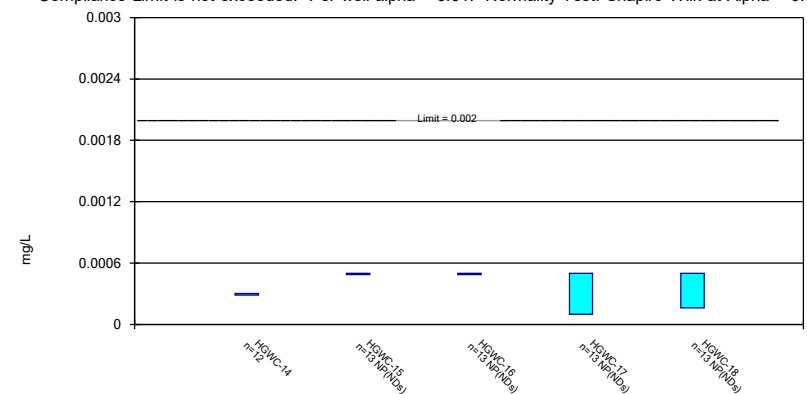
Compliance Limit is not exceeded. Per-well alpha = 0.01. Normality Test: Shapiro Wilk at Alpha = 0.01.



Constituent: Selenium Analysis Run 7/22/2019 3:23 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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 3:23 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Confidence Interval

Constituent: Lithium (mg/L) Analysis Run 7/22/2019 3:24 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.025	<0.025	<0.025	<0.025	
5/24/2016					0.0142 (J)
7/12/2016	<0.025	<0.025	0.0037 (J)	<0.025	0.0141 (J)
9/1/2016	<0.025	0.0021 (J)	0.0033 (J)	<0.025	0.0158 (J)
10/24/2016	<0.025	<0.025			
10/25/2016			0.0029 (J)	<0.025	0.016 (J)
12/7/2016	<0.025	<0.025	0.0029 (J)	<0.025	
12/8/2016					0.0144 (J)
1/26/2017	<0.025	<0.025	0.0028 (J)	<0.025	0.0136 (J)
3/22/2017			0.0025 (J)	<0.025	
3/23/2017	<0.025	0.0016 (J)			0.0151 (J)
5/24/2017	<0.025	0.0029 (J)	0.0029 (J)		
5/25/2017				0.0011 (J)	0.0154 (J)
4/3/2018		0.0026 (J)	0.0028 (J)	<0.025	0.013 (J)
4/4/2018	<0.025				
6/5/2018					0.013 (J)
6/6/2018	<0.025	0.0013 (J)	0.0031 (J)	<0.025	
10/3/2018	<0.025	0.0017 (J)	0.0026 (J)	<0.025	0.015 (J)
3/14/2019	<0.025	<0.025			0.011 (J)
3/15/2019			0.0041 (J)	0.0011 (J)	
4/4/2019		0.0009 (J)	0.0032 (J)		
4/5/2019	<0.025			0.00074 (J)	0.0084 (J)
Mean	0.0125	0.006777	0.003792	0.009842	0.01377
Std. Dev.	0	0.005538	0.002653	0.005053	0.00211
Upper Lim.	0.0125	0.0125	0.0041	0.0125	0.01534
Lower Lim.	0.0125	0.0013	0.0026	0.0011	0.0122

Confidence Interval

Constituent: Molybdenum (mg/L) Analysis Run 7/22/2019 3:24 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	<0.01	<0.01	<0.01	<0.01	
5/24/2016					<0.01
7/12/2016	<0.01	0.0007 (J)	<0.01	<0.01	<0.01
9/1/2016	<0.01	<0.01	<0.01	<0.01	<0.01
10/24/2016	<0.01	<0.01			
10/25/2016			<0.01	<0.01	<0.01
12/7/2016	<0.01	<0.01	<0.01	<0.01	
12/8/2016					<0.01
1/26/2017	<0.01	<0.01	<0.01	<0.01	<0.01
3/22/2017			<0.01	<0.01	
3/23/2017	<0.01	<0.01			<0.01
5/24/2017	<0.01	<0.01	<0.01		
5/25/2017				<0.01	<0.01
4/3/2018		<0.01	<0.01	<0.01	<0.01
4/4/2018	<0.01				
3/14/2019	<0.01	<0.01			<0.01
3/15/2019			<0.01	<0.01	
4/4/2019		<0.01	<0.01		
4/5/2019	<0.01			<0.01	<0.01
Mean	0.005	0.004609	0.005	0.005	0.005
Std. Dev.	0	0.001296	0	0	0
Upper Lim.	0.005	0.005	0.005	0.005	0.005
Lower Lim.	0.005	0.0007	0.005	0.005	0.005

Confidence Interval

Constituent: Selenium (mg/L) Analysis Run 7/22/2019 3:24 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.017	<0.01	<0.01	<0.01	
5/24/2016					<0.01
7/12/2016	0.0146	<0.01	<0.01	<0.01	0.036
9/1/2016	0.0137	<0.01	<0.01	0.0014 (J)	0.0347
10/24/2016	0.0135	0.0012 (J)			
10/25/2016			<0.01	<0.01	0.0282
12/7/2016	0.01 (J)	0.0041 (J)	<0.01	0.0023 (J)	
12/8/2016					0.0373
1/26/2017	0.0214	<0.01	<0.01	<0.01	0.0385
3/22/2017			<0.01	<0.01	
3/23/2017	0.0167	0.0016 (J)			0.0414
5/24/2017	0.0083 (J)	<0.01	<0.01		
5/25/2017				<0.01	0.019
4/3/2018		<0.01	<0.01	<0.01	0.029
4/4/2018	0.012				
6/5/2018					0.038
6/6/2018	0.014	<0.01	<0.01	<0.01	
10/3/2018	0.0056 (J)	<0.01	<0.01	<0.01	0.017
3/14/2019	0.0048 (J)	<0.01			0.016
3/15/2019			<0.01	<0.01	
4/4/2019		0.00021 (J)	8.9E-05 (J)		
4/5/2019	0.00091 (J)			9.3E-05 (J)	0.0018 (J)
Mean	0.01173	0.004008	0.004622	0.004138	0.0263
Std. Dev.	0.005656	0.001755	0.001362	0.0017	0.01326
Upper Lim.	0.01594	0.005	0.005	0.005	0.03616
Lower Lim.	0.007526	0.0012	8.9E-05	0.0014	0.01644

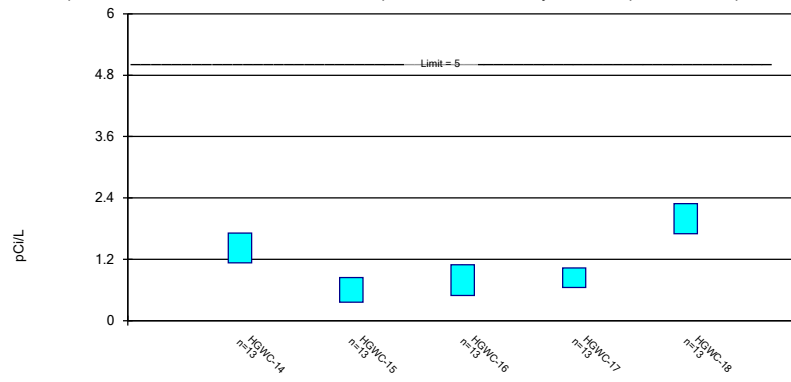
Confidence Interval

Constituent: Thallium (mg/L) Analysis Run 7/22/2019 3:24 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.000306 (J)	<0.001	<0.001	<0.001	
5/24/2016					<0.001
7/12/2016	0.0003 (J)	<0.001	<0.001	0.0001 (J)	0.0002 (J)
9/1/2016	0.0003 (J)	<0.001	<0.001	<0.001	<0.001
10/24/2016	0.0004 (o)	<0.001			
10/25/2016			<0.001	<0.001	<0.001
12/7/2016	0.0003 (J)	<0.001	<0.001	<0.001	
12/8/2016					<0.001
1/26/2017	0.0003 (J)	<0.001	<0.001	<0.001	<0.001
3/22/2017			<0.001	0.0001 (J)	
3/23/2017	0.0003 (J)	<0.001			0.0002 (J)
5/24/2017	0.0003 (J)	<0.001	<0.001		
5/25/2017				0.0001 (J)	0.0002 (J)
4/3/2018		<0.001	<0.001	<0.001	0.00014 (J)
4/4/2018	0.00028 (J)				
6/5/2018					0.00016 (J)
6/6/2018	0.00029 (J)	<0.001	<0.001	<0.001	
10/3/2018	0.00029 (J)	<0.001	<0.001	<0.001	<0.001
3/14/2019	0.00028 (J)	<0.001			<0.001
3/15/2019			<0.001	<0.001	
4/4/2019		<0.001	<0.001		
4/5/2019	0.00028 (J)			0.00013 (J)	0.00014 (J)
Mean	0.0002938	0.0005	0.0005	0.0003792	0.0003492
Std. Dev.	9.437E-06	0	0	0.0001887	0.0001706
Upper Lim.	0.0003012	0.0005	0.0005	0.0005	0.0005
Lower Lim.	0.0002864	0.0005	0.0005	0.0001	0.00016

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 3:23 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Confidence Interval

Constituent: Total Radium (pCi/L) Analysis Run 7/22/2019 3:24 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

	HGWC-14	HGWC-15	HGWC-16	HGWC-17	HGWC-18
5/23/2016	0.568 (U)	0.171 (U)		0.618 (U)	
5/24/2016					1.82
7/1/2016			0 (U)		
7/12/2016	1.31	0.611 (U)	0.182 (U)	0.867	1.76
9/1/2016	1.64	0.766 (U)	1.23	0.857 (U)	1.51
10/24/2016	1.88	0.969			
10/25/2016			1.05 (U)	1.11 (U)	2.69
12/7/2016	1.35	0.302 (U)	1.11 (U)	0.964 (U)	
12/8/2016					2.21
1/26/2017	2.1	0.626 (U)	1.29 (U)	0.612 (U)	2.26
3/22/2017			0.453 (U)	0.437 (U)	
3/23/2017	1.17	0.662 (U)			1.81
5/24/2017	1 (U)	0.202 (U)	1.05 (U)		
5/25/2017				1.21 (U)	1.63
4/3/2018		0.384 (U)	0.783 (U)	0.409 (U)	2.53
4/4/2018	1.72				
6/5/2018					1.91
6/6/2018	1.31 (U)	1.32 (U)	0.595 (U)	0.772 (U)	
10/3/2018	1.48	0.858 (U)	1.03 (U)	1.08 (U)	2.22
3/14/2019	1.5	0.462 (U)			1.37 (U)
3/15/2019			0.591 (U)	0.917 (U)	
4/4/2019		0.512 (U)	0.96 (U)		
4/5/2019	1.43 (U)			1.07 (U)	2.22
Mean	1.42	0.6035	0.7942	0.8402	1.995
Std. Dev.	0.3891	0.3238	0.4034	0.2577	0.3951
Upper Lim.	1.709	0.8442	1.094	1.032	2.289
Lower Lim.	1.131	0.3627	0.4942	0.6486	1.702

Outlier Analysis - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 1:50 AM

<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
Boron (mg/L)	HGWA-6 (bg)	Yes	0.1	1/24/2017	NP	NaN	12	0.02476	0.02446	ln(x)	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
Lithium (mg/L)	HGWA-5 (bg)	Yes	0.05	5/19/2016	NP	NaN	13	0.006785	0.01299	ln(x)	ShapiroWilk
Lithium (mg/L)	HGWA-6 (bg)	Yes	0.05	5/20/2016	NP	NaN	13	0.0136	0.01096	ln(x)	ShapiroWilk

Outlier Analysis - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 1:50 AM

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	10 0.00284	0.000506	unknown	ShapiroWilk
Antimony (mg/L)	HGWA-2 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	10 0.003	0	unknown	ShapiroWilk
Antimony (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	10 0.00273	0.0008538	unknown	ShapiroWilk
Antimony (mg/L)	HGWA-4 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	10 0.003	0	unknown	ShapiroWilk
Antimony (mg/L)	HGWA-5 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	10 0.00293	0.0002214	unknown	ShapiroWilk
Antimony (mg/L)	HGWA-6 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	10 0.0028	0.0006325	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
Arsenic (mg/L)	HGWA-4 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13 0.005	0	unknown	ShapiroWilk
Arsenic (mg/L)	HGWA-5 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13 0.004665	0.001209	unknown	ShapiroWilk
Arsenic (mg/L)	HGWA-6 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13 0.005	0	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
Barium (mg/L)	HGWA-4 (bg)	No	n/a	n/a	NP	NaN	13 0.02619	0.005707	x^3	ShapiroWilk
Barium (mg/L)	HGWA-5 (bg)	No	n/a	n/a	NP	NaN	13 0.0488	0.00498	x^3	ShapiroWilk
Barium (mg/L)	HGWA-6 (bg)	No	n/a	n/a	NP	NaN	13 0.1777	0.02465	x^2	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
Beryllium (mg/L)	HGWA-4 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	11 0.002732	0.0008895	unknown	ShapiroWilk
Beryllium (mg/L)	HGWA-5 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	11 0.003	0	unknown	ShapiroWilk
Beryllium (mg/L)	HGWA-6 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	11 0.003	0	unknown	ShapiroWilk
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
Boron (mg/L)	HGWA-3 (bg)	No	n/a	n/a	NP (nrm)	NaN	12 0.01623	0.01605	unknown	ShapiroWilk
Boron (mg/L)	HGWA-4 (bg)	No	n/a	n/a	NP	NaN	12 0.01654	0.01111	ln(x)	ShapiroWilk
Boron (mg/L)	HGWA-5 (bg)	No	n/a	n/a	NP	NaN	12 0.009792	0.005245	ln(x)	ShapiroWilk
Boron (mg/L)	HGWA-6 (bg)	Yes	0.1	1/24/2017	NP	NaN	12 0.02476	0.02446	ln(x)	ShapiroWilk
Cadmium (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13 0.001	0	unknown	ShapiroWilk
Cadmium (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP (nrm)	NaN	13 0.0005915	0.0004596	unknown	ShapiroWilk
Cadmium (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13 0.001	0	unknown	ShapiroWilk
Cadmium (mg/L)	HGWA-4 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13 0.001	0	unknown	ShapiroWilk
Cadmium (mg/L)	HGWA-5 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13 0.001	0	unknown	ShapiroWilk
Cadmium (mg/L)	HGWA-6 (bg)	n/a	n/a	n/a	NP (nrm)	NaN	13 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
Calcium (mg/L)	HGWA-4 (bg)	No	n/a	n/a	NP	NaN	12 59.28	24.14	sqrt(x)	ShapiroWilk
Calcium (mg/L)	HGWA-5 (bg)	No	n/a	n/a	NP	NaN	12 28.38	3.937	ln(x)	ShapiroWilk
Calcium (mg/L)	HGWA-6 (bg)	No	n/a	n/a	NP	NaN	12 51.83	2.827	ln(x)	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
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
Chloride (mg/L)	HGWA-4 (bg)	No	n/a	n/a	NP	NaN	12 4.547	0.3115	x^5	ShapiroWilk
Chloride (mg/L)	HGWA-5 (bg)	No	n/a	n/a	NP	NaN	12 1.873	0.2663	ln(x)	ShapiroWilk
Chloride (mg/L)	HGWA-6 (bg)	No	n/a	n/a	NP	NaN	12 1.571	0.2734	sqrt(x)	ShapiroWilk
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

Outlier Analysis - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 1:50 AM

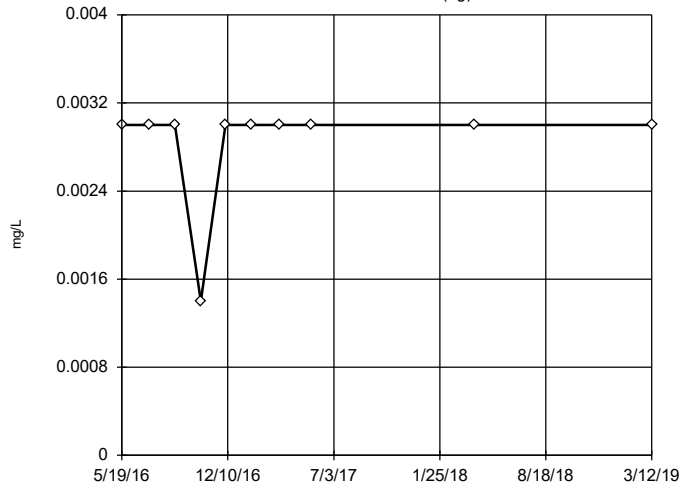
Constituent Name	Well	Outlier Found	Outlier Value(s)	Date(s)	Method	Alpha N	Mean	Standard Deviation	Distribution	Normality Test
Chromium (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.009155	0.002804	unknown	ShapiroWilk
Chromium (mg/L)	HGWA-4 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.009945	0.004161	unknown	ShapiroWilk
Chromium (mg/L)	HGWA-5 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.01	0	unknown	ShapiroWilk
Chromium (mg/L)	HGWA-6 (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 13	0.009262	0.002663	unknown	ShapiroWilk
Cobalt (mg/L)	HGWA-2 (bg)	No	n/a	n/a	NP	NaN 13	0.02312	0.004182	x^2	ShapiroWilk
Cobalt (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.01	0	unknown	ShapiroWilk
Cobalt (mg/L)	HGWA-4 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.01	0	unknown	ShapiroWilk
Cobalt (mg/L)	HGWA-5 (bg)	No	n/a	n/a	NP (nrm)	NaN 13	0.003661	0.004402	unknown	ShapiroWilk
Cobalt (mg/L)	HGWA-6 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	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
Fluoride (mg/L)	HGWA-4 (bg)	No	n/a	n/a	NP (nrm)	NaN 14	0.162	0.1259	unknown	ShapiroWilk
Fluoride (mg/L)	HGWA-5 (bg)	No	n/a	n/a	NP (nrm)	NaN 14	0.1101	0.08315	unknown	ShapiroWilk
Fluoride (mg/L)	HGWA-6 (bg)	No	n/a	n/a	NP (nrm)	NaN 14	0.1131	0.1051	unknown	ShapiroWilk
Lead (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.005	0	unknown	ShapiroWilk
Lead (mg/L)	HGWA-2 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.004105	0.001992	unknown	ShapiroWilk
Lead (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.004109	0.001982	unknown	ShapiroWilk
Lead (mg/L)	HGWA-4 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.004564	0.001447	unknown	ShapiroWilk
Lead (mg/L)	HGWA-5 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.004117	0.001964	unknown	ShapiroWilk
Lead (mg/L)	HGWA-6 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.004573	0.001417	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
Lithium (mg/L)	HGWA-3 (bg)	Yes	0.05	5/19/2016	NP	NaN 13	0.006608	0.01304	ln(x)	ShapiroWilk
Lithium (mg/L)	HGWA-4 (bg)	No	n/a	n/a	NP (nrm)	NaN 13	0.02807	0.02467	unknown	ShapiroWilk
Lithium (mg/L)	HGWA-5 (bg)	Yes	0.05	5/19/2016	NP	NaN 13	0.006785	0.01299	ln(x)	ShapiroWilk
Lithium (mg/L)	HGWA-6 (bg)	Yes	0.05	5/20/2016	NP	NaN 13	0.0136	0.01096	ln(x)	ShapiroWilk
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
Mercury (mg/L)	HGWA-4 (bg)	No	n/a	n/a	NP (nrm)	NaN 10	0.000291	0.0002227	unknown	ShapiroWilk
Mercury (mg/L)	HGWA-5 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 10	0.0005	0	unknown	ShapiroWilk
Mercury (mg/L)	HGWA-6 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 10	0.0004544	0.0001442	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-1 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-2 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-4 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-5 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.01	0	unknown	ShapiroWilk
Molybdenum (mg/L)	HGWA-6 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 11	0.008273	0.003845	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
pH (s.u.)	HGWA-4 (bg)	No	n/a	n/a	NP	NaN 14	6.504	0.4129	sqrt(x)	ShapiroWilk
pH (s.u.)	HGWA-5 (bg)	No	n/a	n/a	NP	NaN 14	6.501	0.09335	x^6	ShapiroWilk
pH (s.u.)	HGWA-6 (bg)	No	n/a	n/a	NP	NaN 14	7.483	0.09988	ln(x)	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
Selenium (mg/L)	HGWA-3 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.01	0	unknown	ShapiroWilk
Selenium (mg/L)	HGWA-4 (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-2 Printed 7/22/2019, 1:50 AM

<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 N</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Distribution</u>	<u>Normality Test</u>
Selenium (mg/L)	HGWA-5 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.009315	0.002468	unknown	ShapiroWilk
Selenium (mg/L)	HGWA-6 (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
Sulfate (mg/L)	HGWA-4 (bg)	No	n/a	n/a	NP	NaN 12	4.693	3.987	ln(x)	ShapiroWilk
Sulfate (mg/L)	HGWA-5 (bg)	No	n/a	n/a	NP	NaN 12	22.17	2.367	ln(x)	ShapiroWilk
Sulfate (mg/L)	HGWA-6 (bg)	No	n/a	n/a	NP	NaN 12	36.53	1.466	x^5	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
Thallium (mg/L)	HGWA-4 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.001	0	unknown	ShapiroWilk
Thallium (mg/L)	HGWA-5 (bg)	n/a	n/a	n/a	NP (nrm)	NaN 13	0.001	0	unknown	ShapiroWilk
Thallium (mg/L)	HGWA-6 (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 Dissolved Solids (mg/L)	HGWA-4 (bg)	No	n/a	n/a	NP	NaN 12	216.7	83.46	ln(x)	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWA-5 (bg)	No	n/a	n/a	NP	NaN 12	142.1	18.75	x^5	ShapiroWilk
Total Dissolved Solids (mg/L)	HGWA-6 (bg)	No	n/a	n/a	NP	NaN 12	234.1	13.55	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
Total Radium (pCi/L)	HGWA-4 (bg)	No	n/a	n/a	NP	NaN 13	0.7381	0.5696	x^(1/3)	ShapiroWilk
Total Radium (pCi/L)	HGWA-5 (bg)	No	n/a	n/a	NP	NaN 13	0.8209	0.6435	sqrt(x)	ShapiroWilk
Total Radium (pCi/L)	HGWA-6 (bg)	No	n/a	n/a	NP	NaN 13	0.6368	0.2694	normal	ShapiroWilk

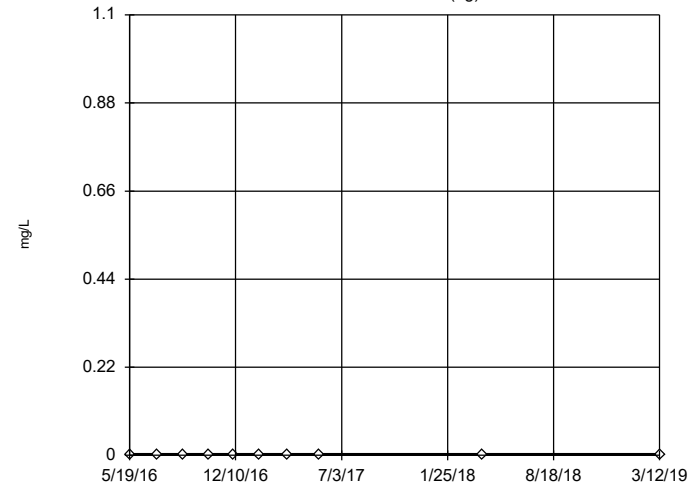
Tukey's Outlier Screening HGWA-1 (bg)



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 x⁴ 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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

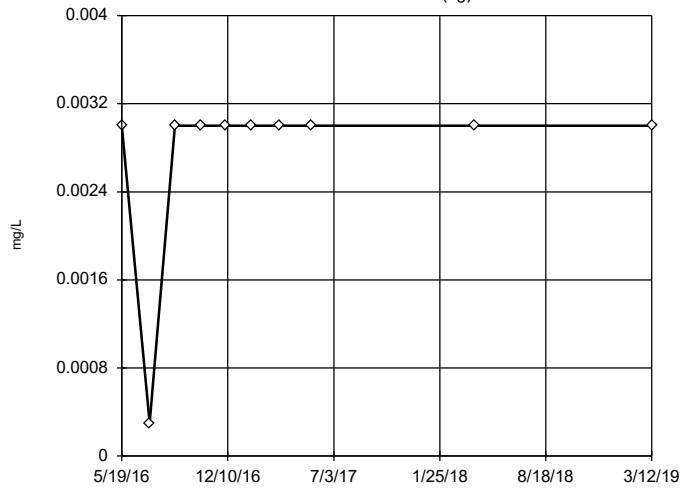
Tukey's Outlier Screening HGWA-2 (bg)



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 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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

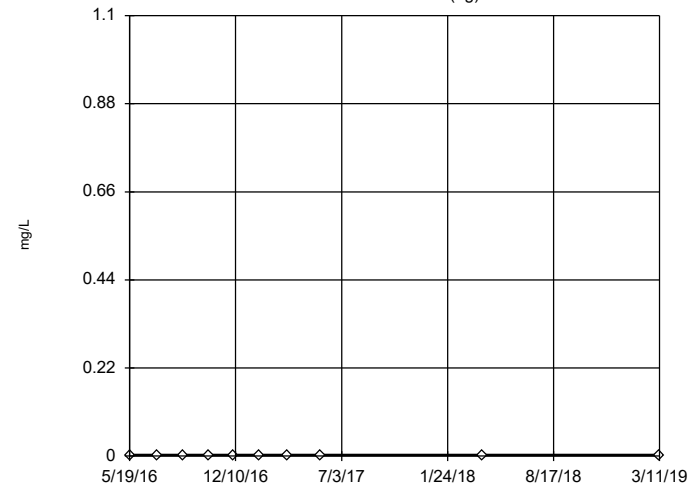
Tukey's Outlier Screening HGWA-3 (bg)



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: Antimony Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

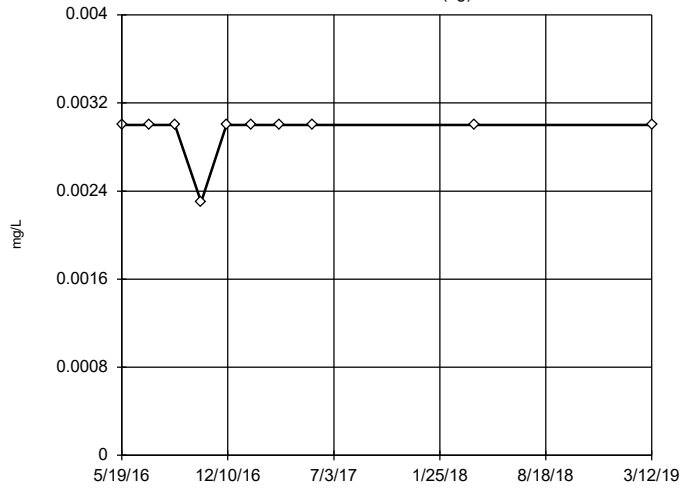
Tukey's Outlier Screening HGWA-4 (bg)



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: Antimony Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

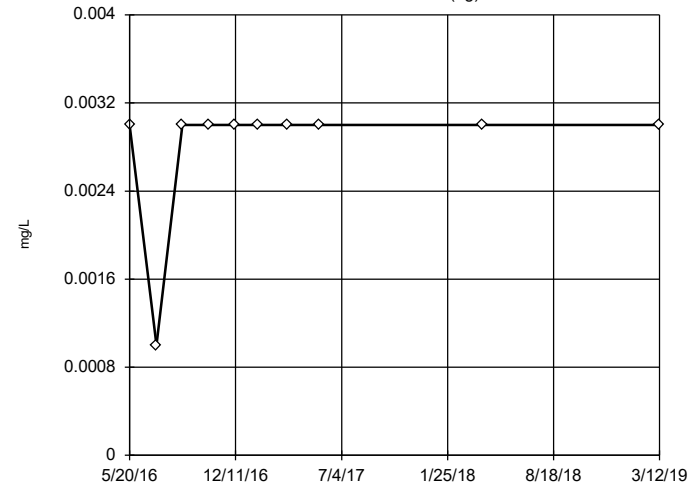
Tukey's Outlier Screening HGWA-5 (bg)



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: Antimony Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

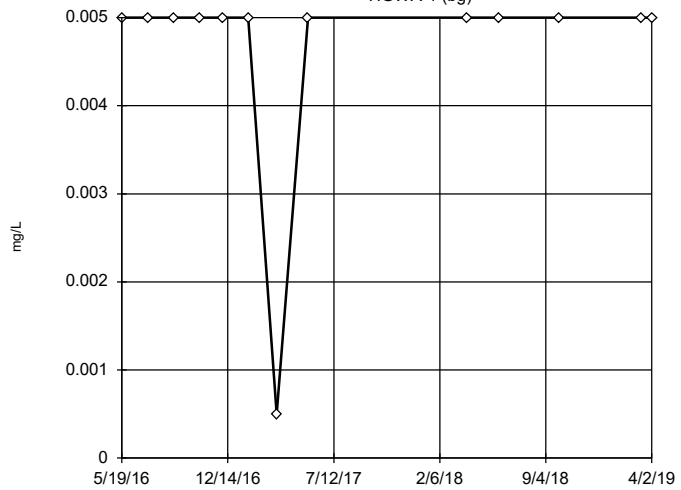
Tukey's Outlier Screening HGWA-6 (bg)



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 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: Antimony Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

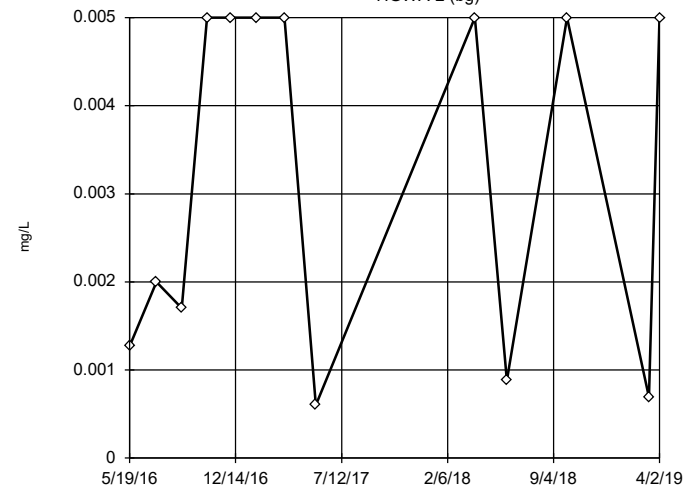
Tukey's Outlier Screening HGWA-1 (bg)



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.

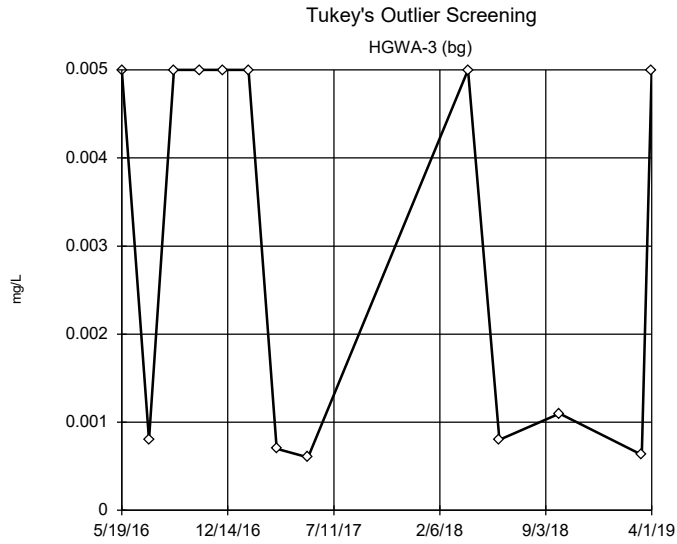
Constituent: Arsenic Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening HGWA-2 (bg)



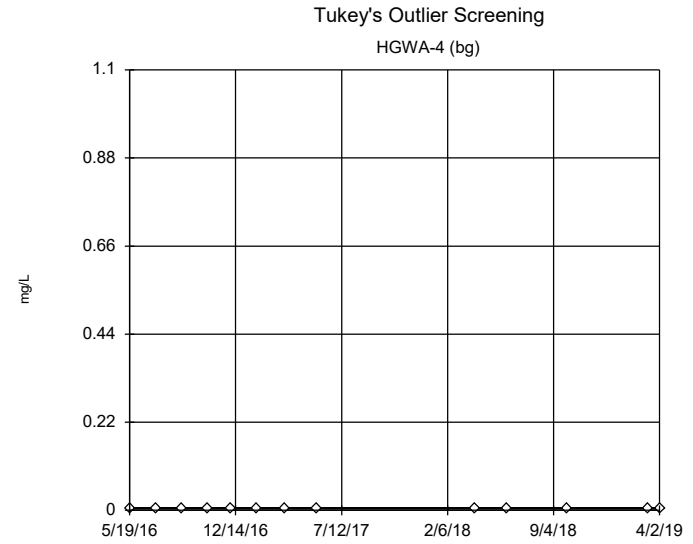
n = 13
 No outliers found.
 Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 0.529, low cutoff = 0.00009992, based on IQR multiplier of 3.

Constituent: Arsenic Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



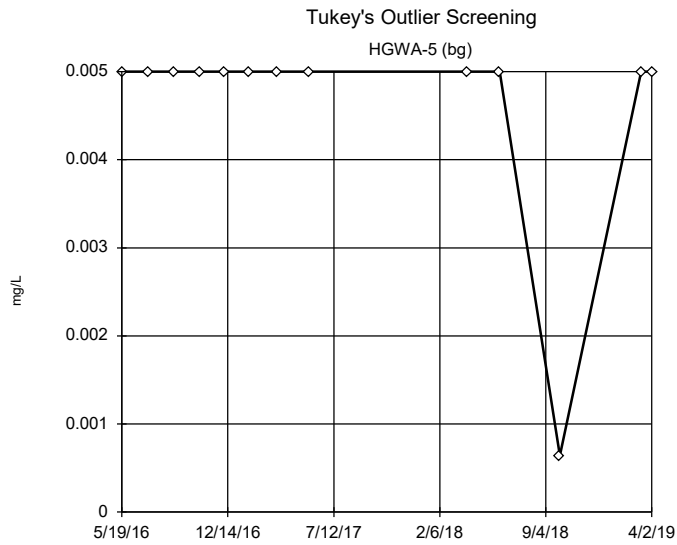
n = 13
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 1.491, low cutoff = 0.000002509, based on IQR multiplier of 3.

Constituent: Arsenic Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



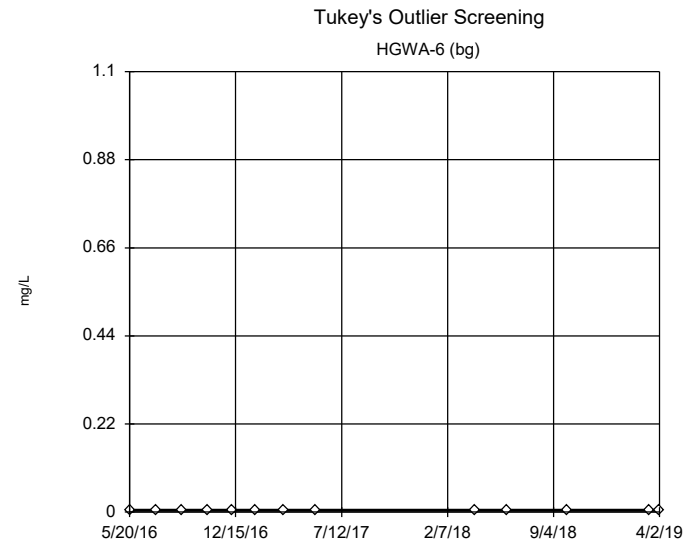
n = 13
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.
 Data were square root transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Arsenic Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



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 transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because the lower and upper quartiles are equal.

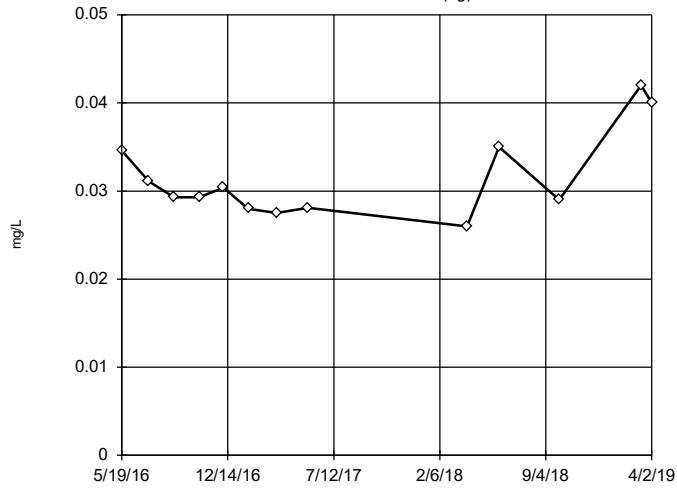
Constituent: Arsenic Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



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: Arsenic Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

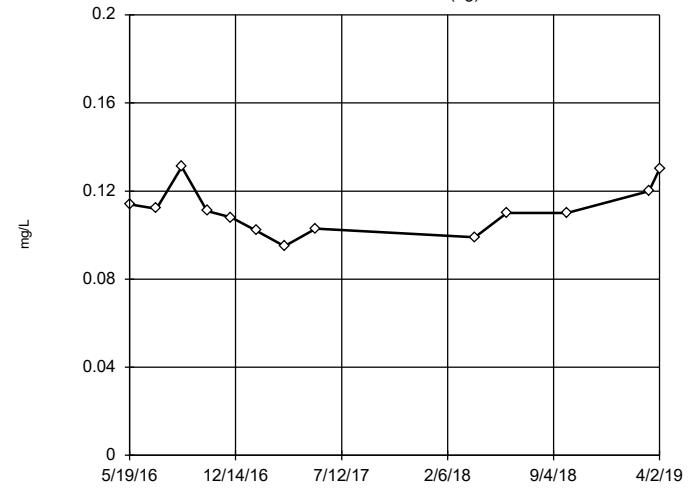
Tukey's Outlier Screening
HGWA-1 (bg)



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 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

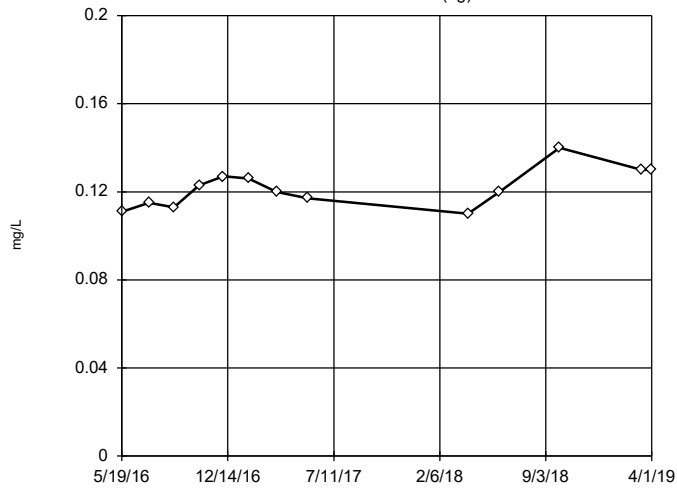
Tukey's Outlier Screening
HGWA-2 (bg)



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 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

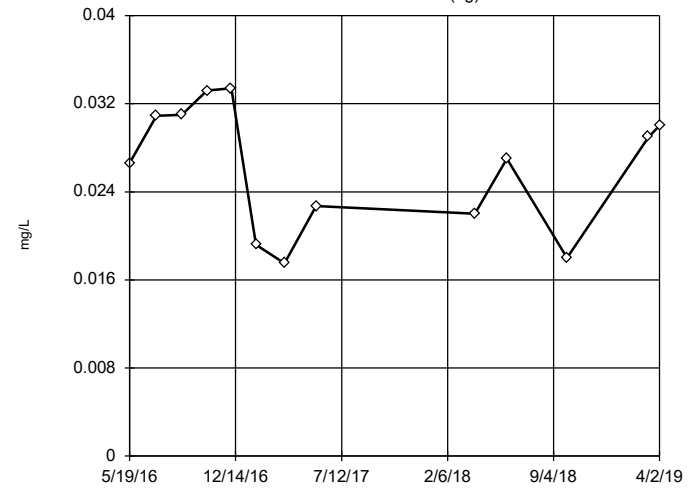
Tukey's Outlier Screening
HGWA-3 (bg)



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 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

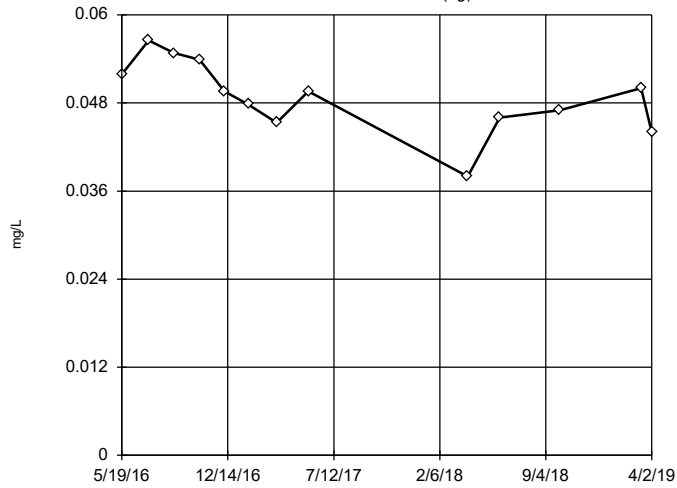
Tukey's Outlier Screening
HGWA-4 (bg)



n = 13
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 = 0.04514, low cutoff = -0.03768, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

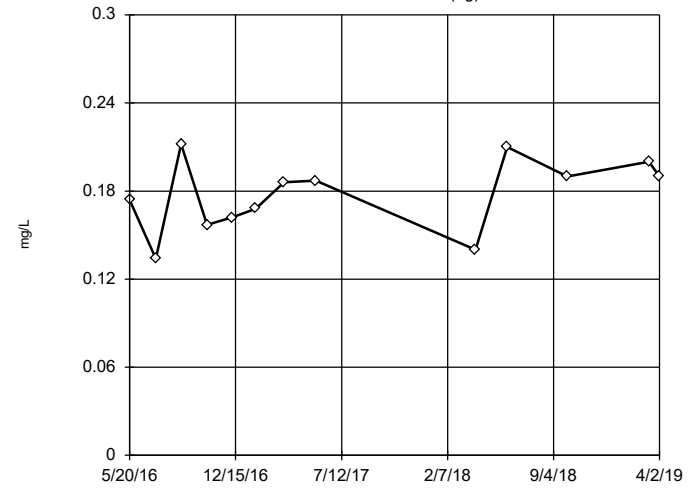
Tukey's Outlier Screening
HGWA-5 (bg)



n = 13
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 = 0.06748, low cutoff = -0.04, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

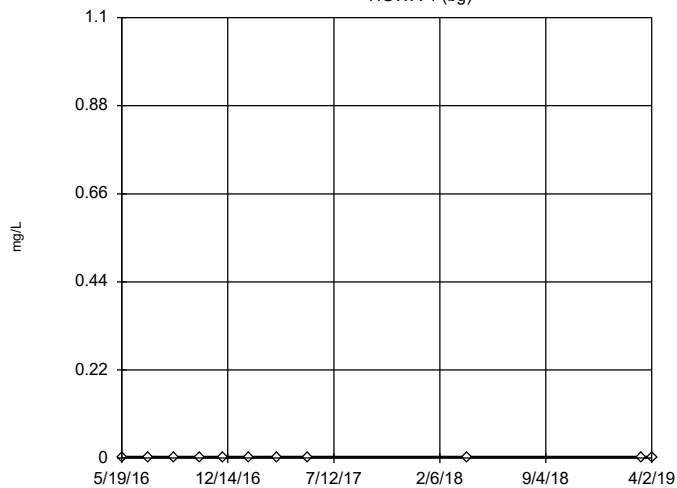
Tukey's Outlier Screening
HGWA-6 (bg)



n = 13
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 = 0.2754, low cutoff = -0.1112, based on IQR multiplier of 3.

Constituent: Barium Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

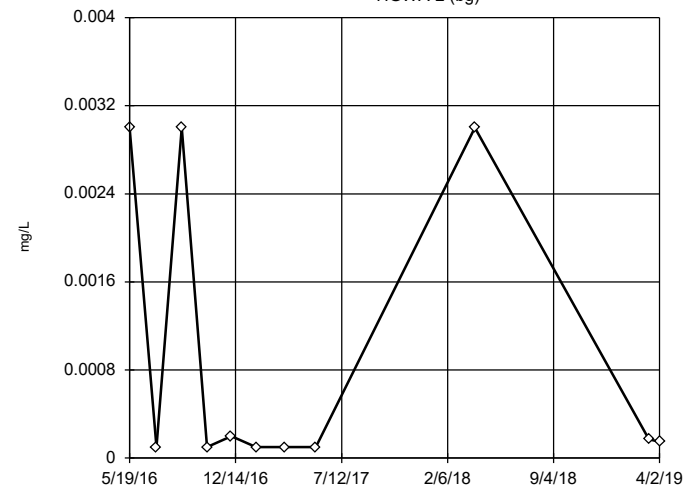
Tukey's Outlier Screening
HGWA-1 (bg)



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 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

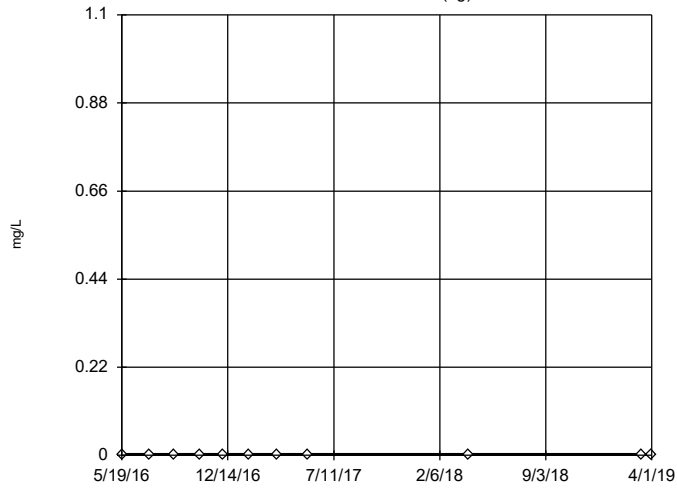
Tukey's Outlier Screening
HGWA-2 (bg)



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 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

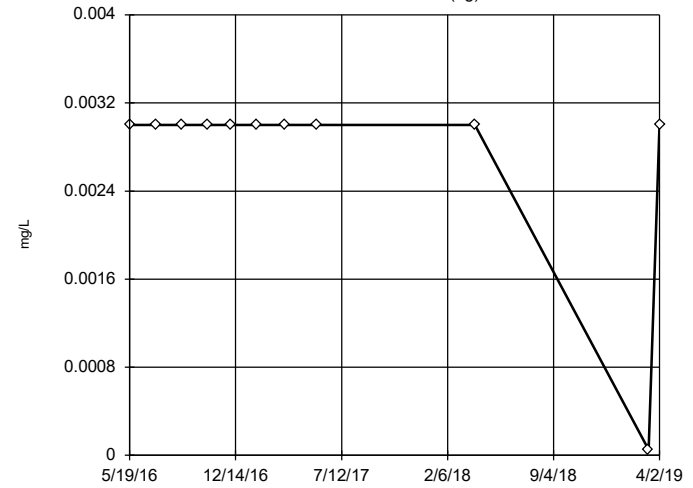
Tukey's Outlier Screening
HGWA-3 (bg)



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 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

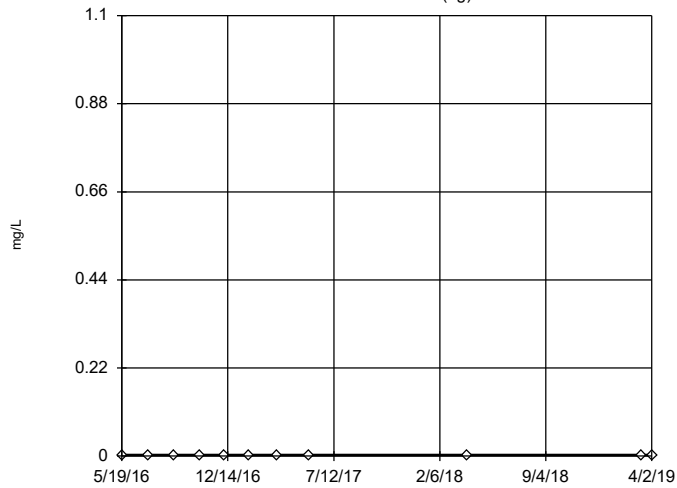
Tukey's Outlier Screening
HGWA-4 (bg)



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: Beryllium Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

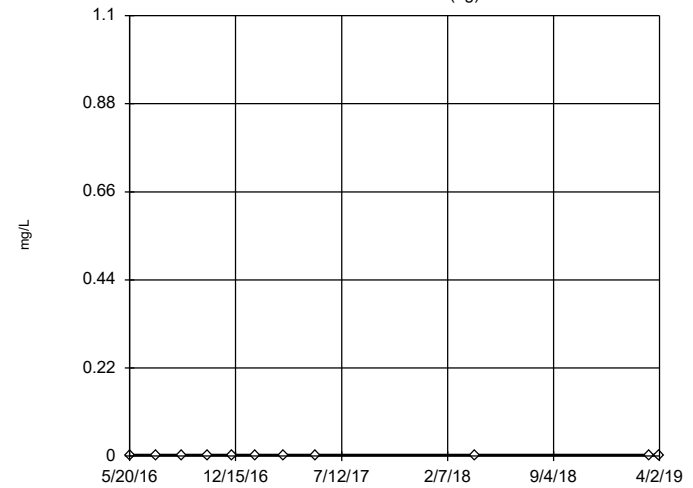
Tukey's Outlier Screening
HGWA-5 (bg)



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 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

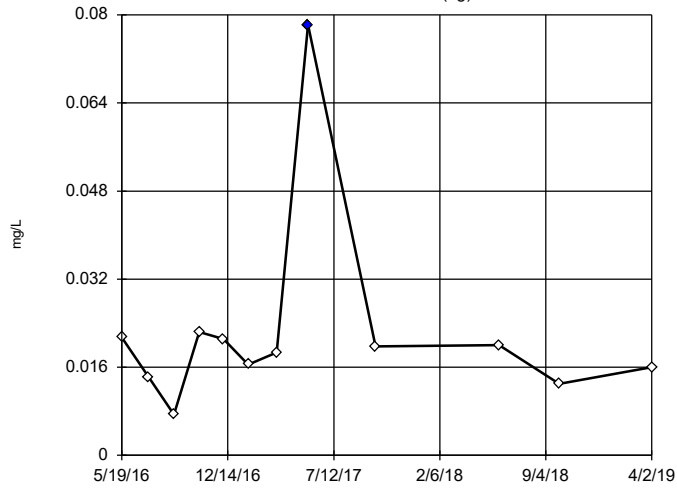
Tukey's Outlier Screening
HGWA-6 (bg)



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 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

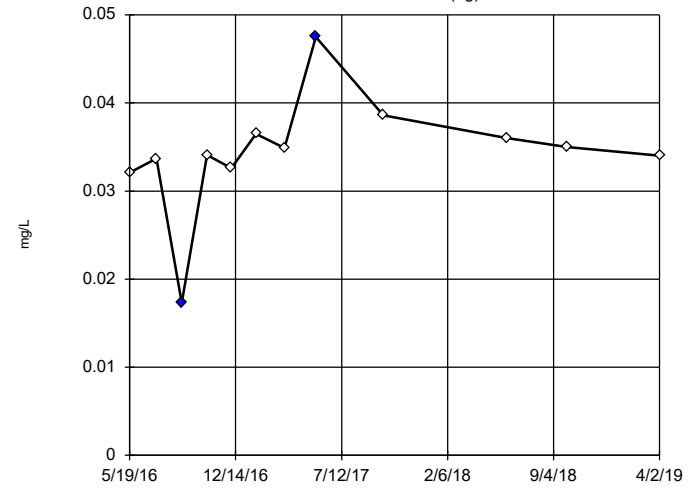
Tukey's Outlier Screening HGWA-1 (bg)



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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

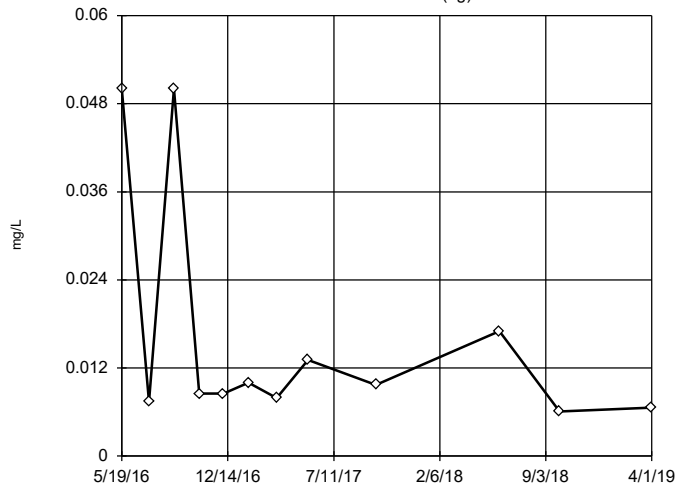
Tukey's Outlier Screening HGWA-2 (bg)



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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

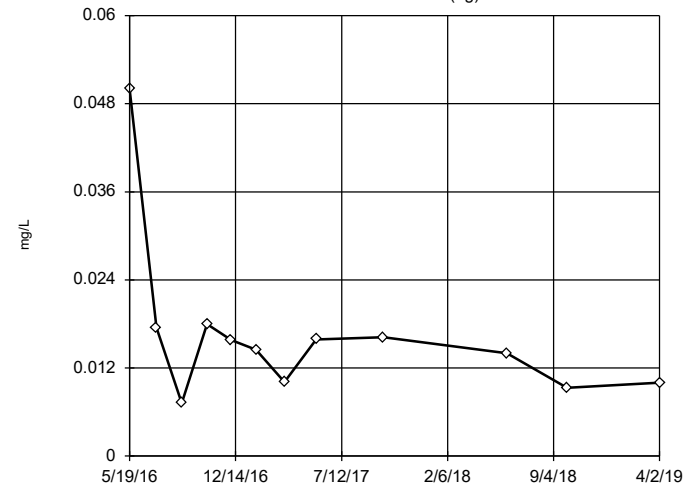
Tukey's Outlier Screening HGWA-3 (bg)



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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

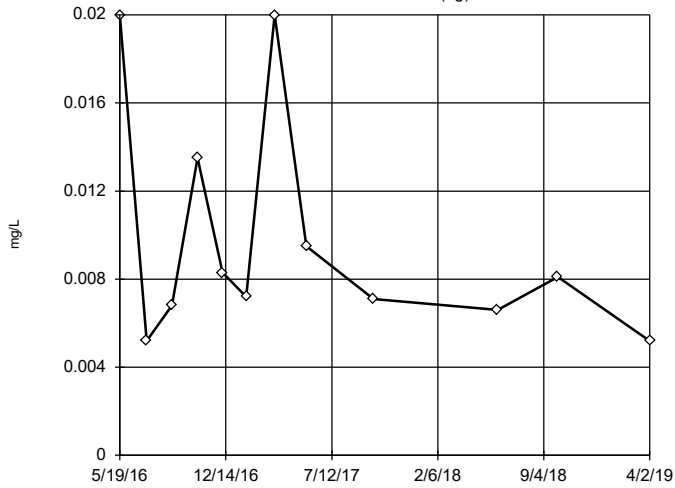
Tukey's Outlier Screening HGWA-4 (bg)



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 = 0.07918, low cutoff = 0.002137, based on IQR multiplier of 3.

Constituent: Boron Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

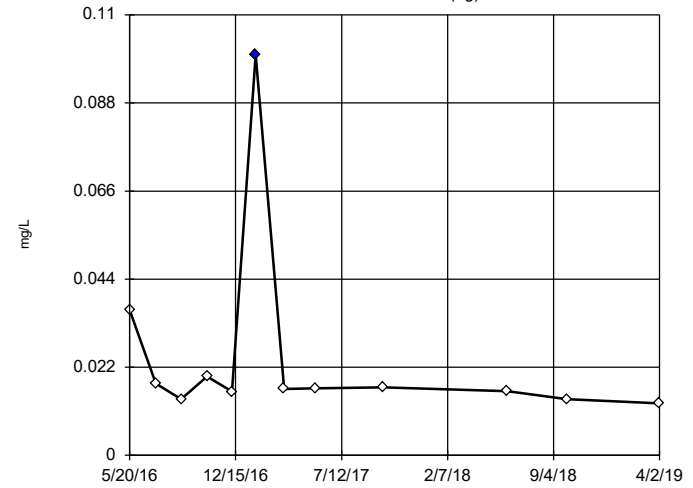
Tukey's Outlier Screening HGWA-5 (bg)



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 = 0.05471,
low cutoff = 0.001387,
based on IQR multiplier of 3.

Constituent: Boron Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

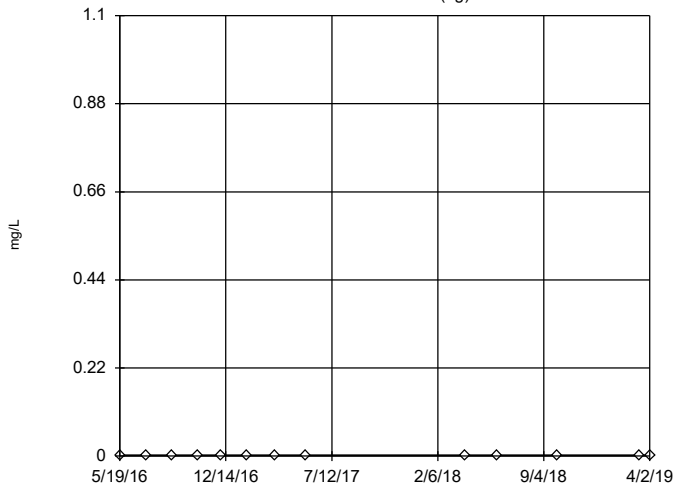
Tukey's Outlier Screening HGWA-6 (bg)



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 = 0.03744,
low cutoff = 0.007483,
based on IQR multiplier of 3.

Constituent: Boron Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

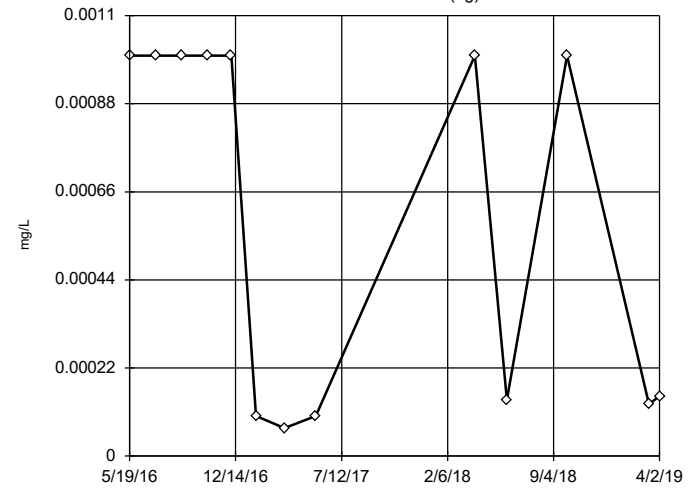
Tukey's Outlier Screening HGWA-1 (bg)



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: Cadmium Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

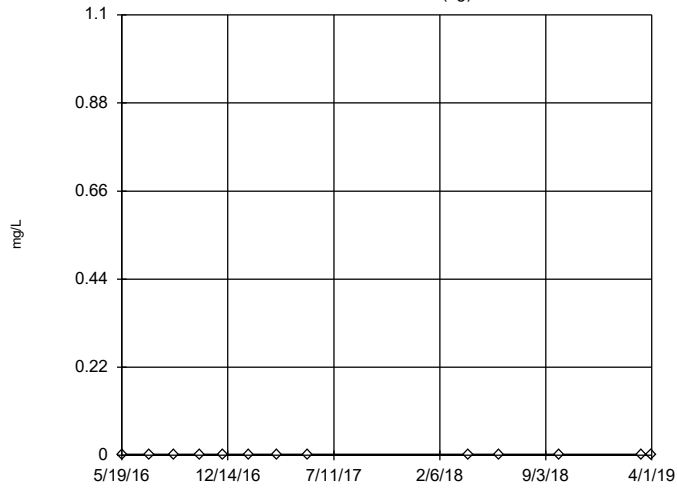
Tukey's Outlier Screening HGWA-2 (bg)



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 = 0.6747,
low cutoff = 1.7e-7,
based on IQR multiplier of 3.

Constituent: Cadmium Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

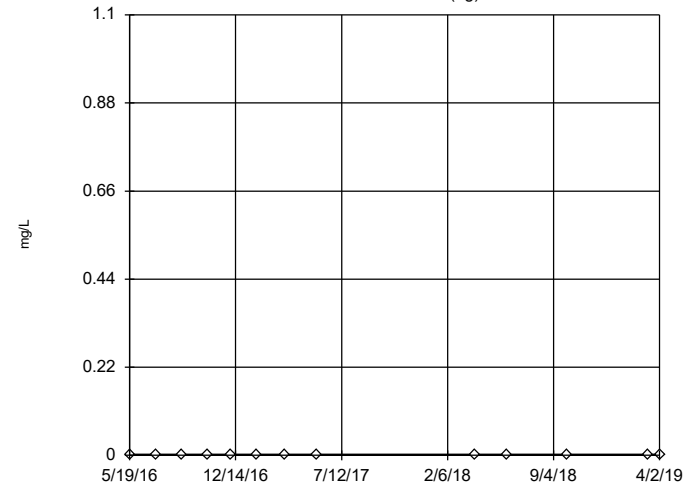
Tukey's Outlier Screening HGWA-3 (bg)



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: Cadmium Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

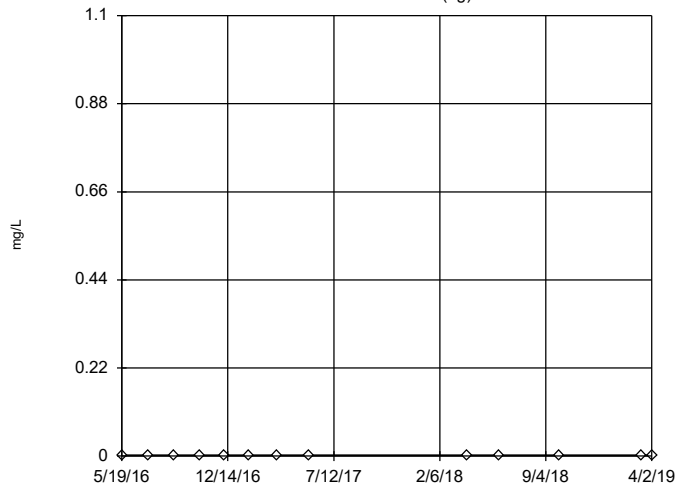
Tukey's Outlier Screening HGWA-4 (bg)



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: Cadmium Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

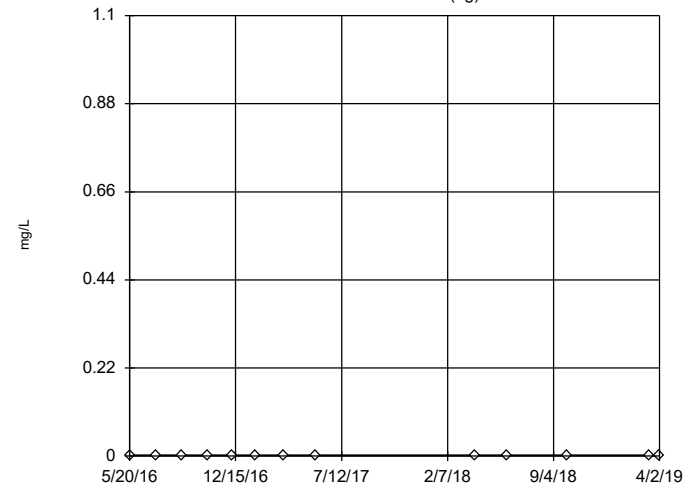
Tukey's Outlier Screening HGWA-5 (bg)



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: Cadmium Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

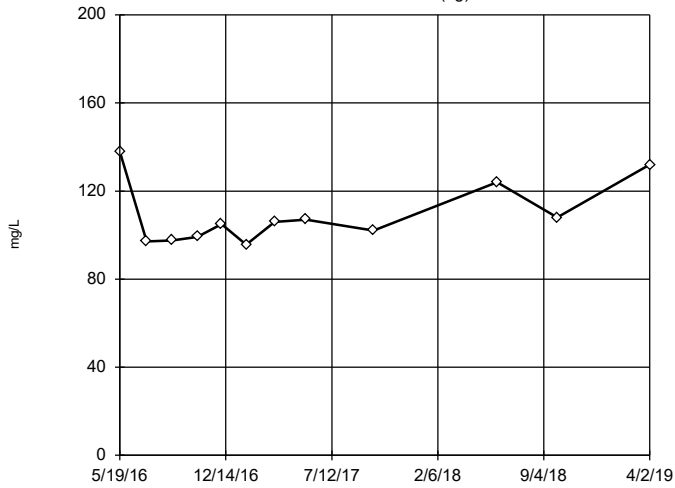
Tukey's Outlier Screening HGWA-6 (bg)



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: Cadmium Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

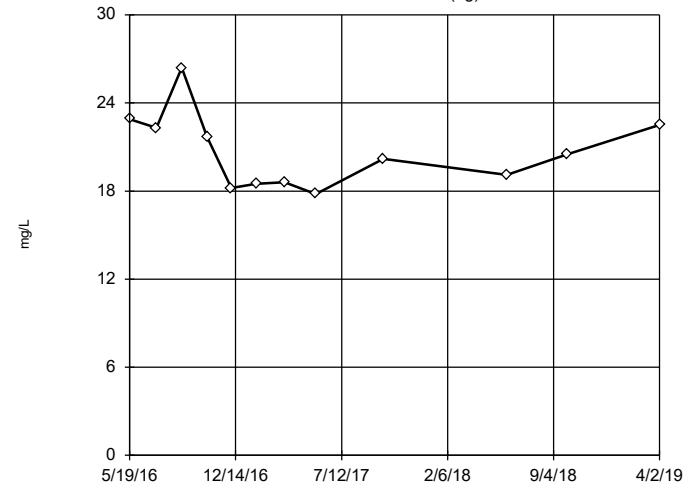
Tukey's Outlier Screening HGWA-1 (bg)



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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

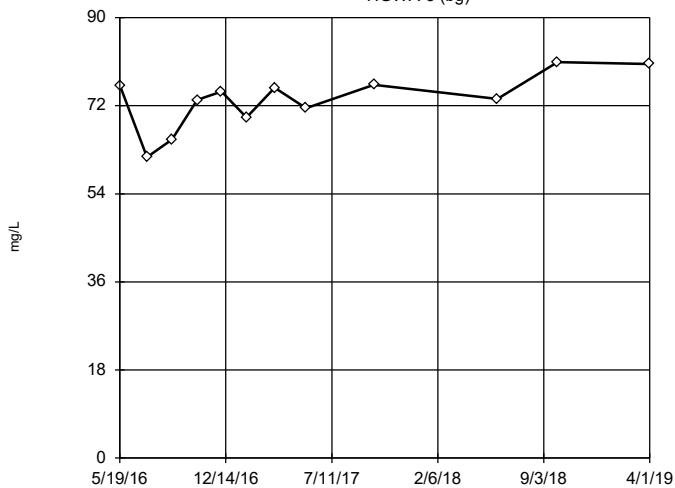
Tukey's Outlier Screening HGWA-2 (bg)



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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

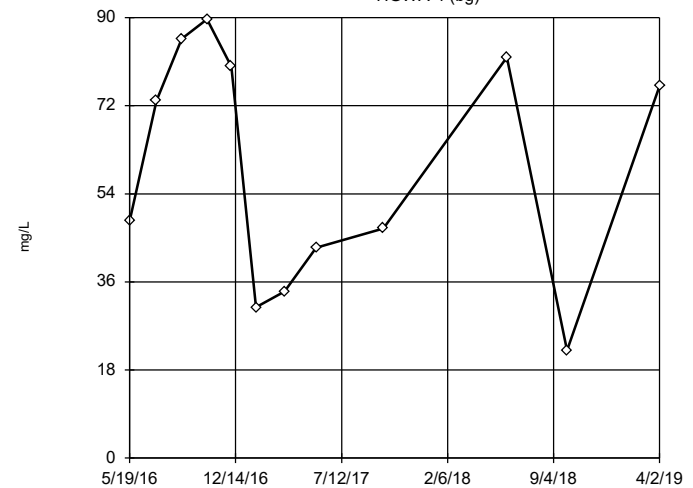
Tukey's Outlier Screening HGWA-3 (bg)



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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

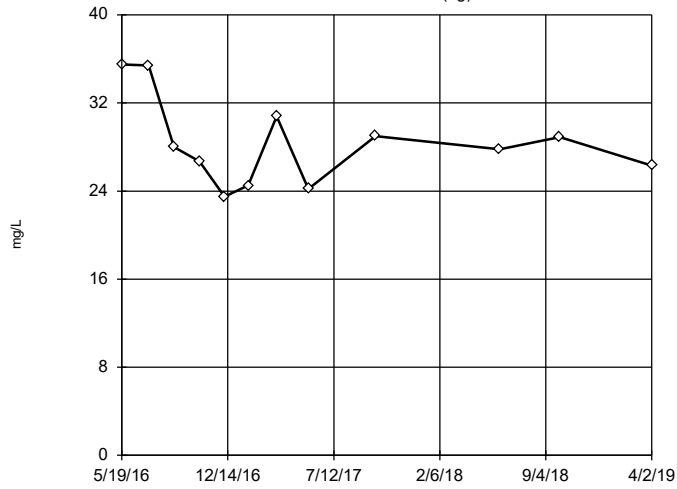
Tukey's Outlier Screening HGWA-4 (bg)



n = 12
 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 = 303, low cutoff = -4.904, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

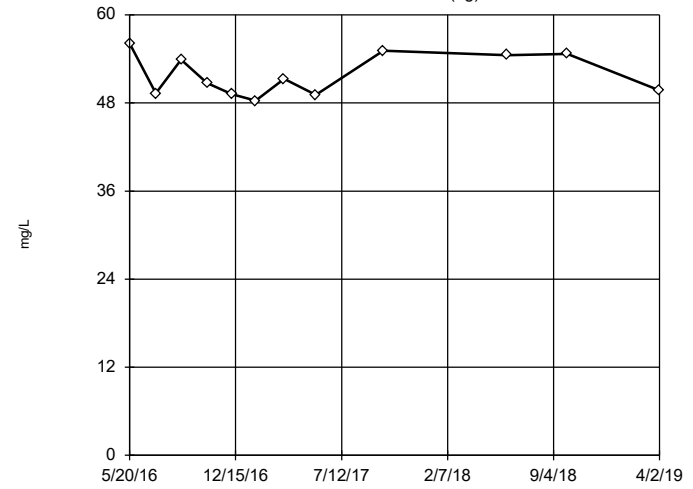
Tukey's Outlier Screening
HGWA-5 (bg)



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 = 48.78, low cutoff = 15.55, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

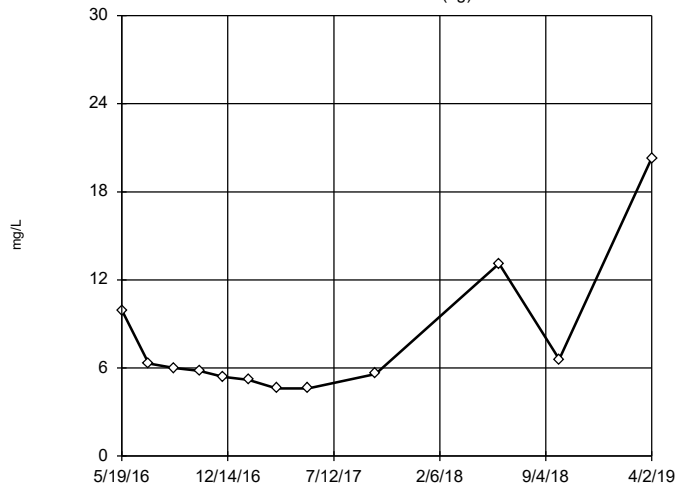
Tukey's Outlier Screening
HGWA-6 (bg)



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 = 74.4, low cutoff = 36.15, based on IQR multiplier of 3.

Constituent: Calcium Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

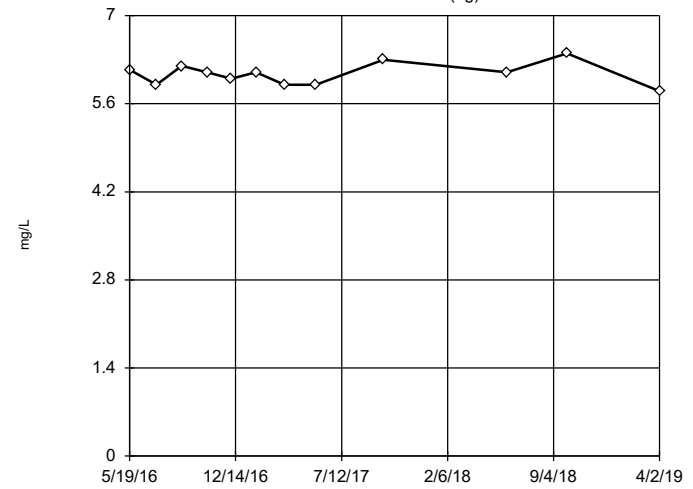
Tukey's Outlier Screening
HGWA-1 (bg)



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 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

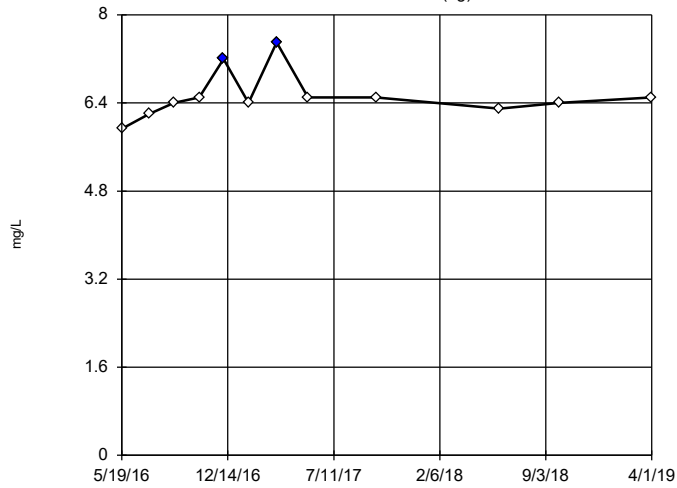
Tukey's Outlier Screening
HGWA-2 (bg)



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 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

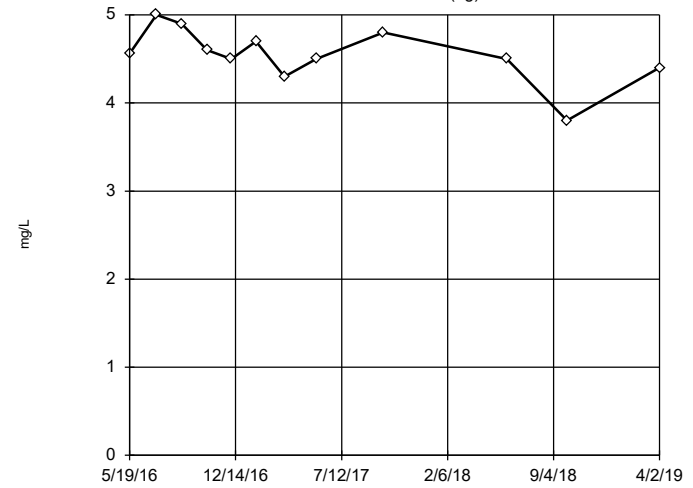
Tukey's Outlier Screening HGWA-3 (bg)



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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

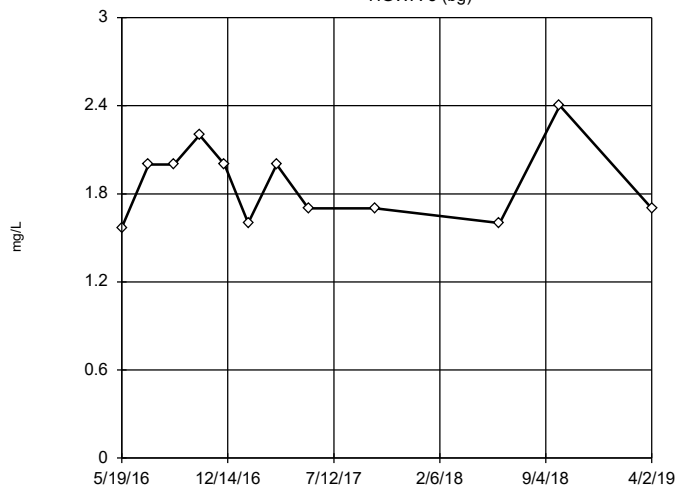
Tukey's Outlier Screening HGWA-4 (bg)



n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were x⁵ transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 5.364, low cutoff = -3.071, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

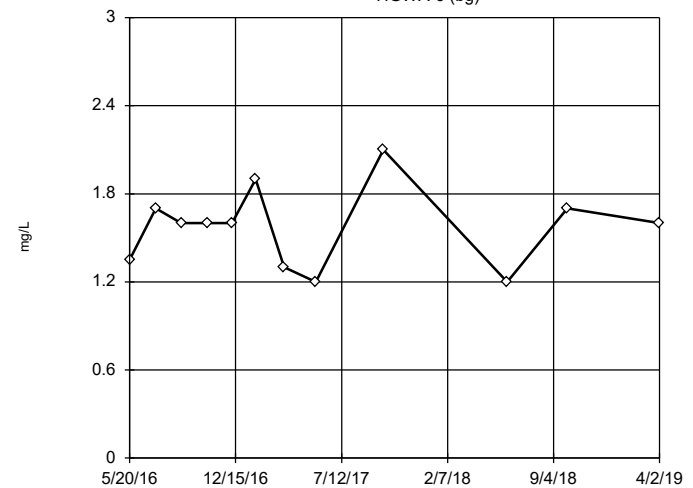
Tukey's Outlier Screening HGWA-5 (bg)



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 = 3.567, low cutoff = 0.9248, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening HGWA-6 (bg)

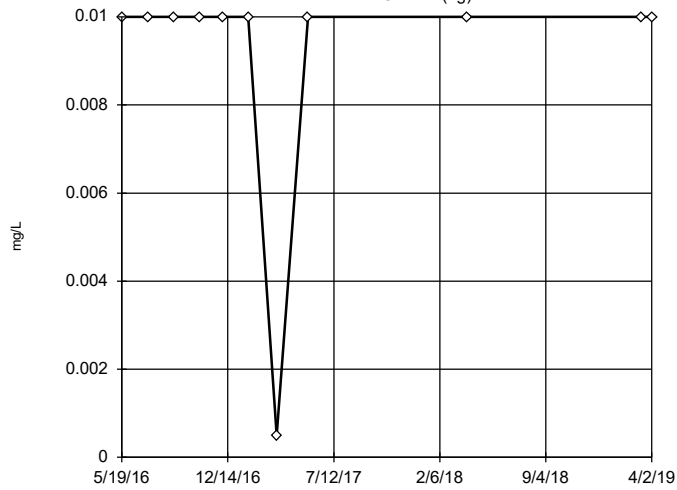


n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were square root transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 3.106, low cutoff = 0.4797, based on IQR multiplier of 3.

Constituent: Chloride Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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 x⁶ transformed to achieve best W statistic (graph shown in original units).

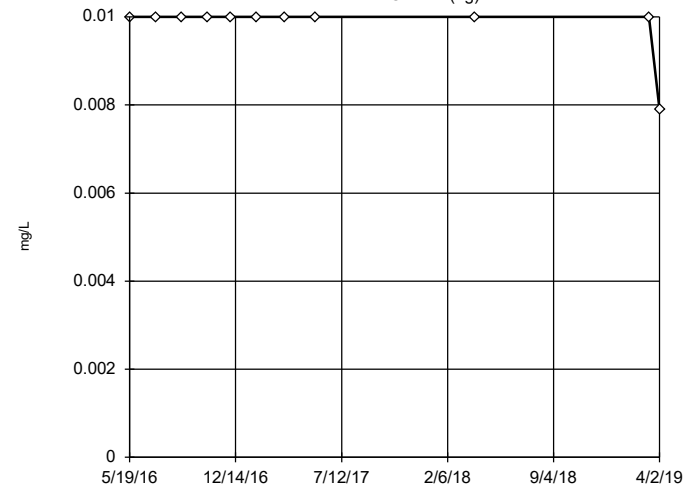
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Chromium Analysis Run 7/22/2019 1:47 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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).

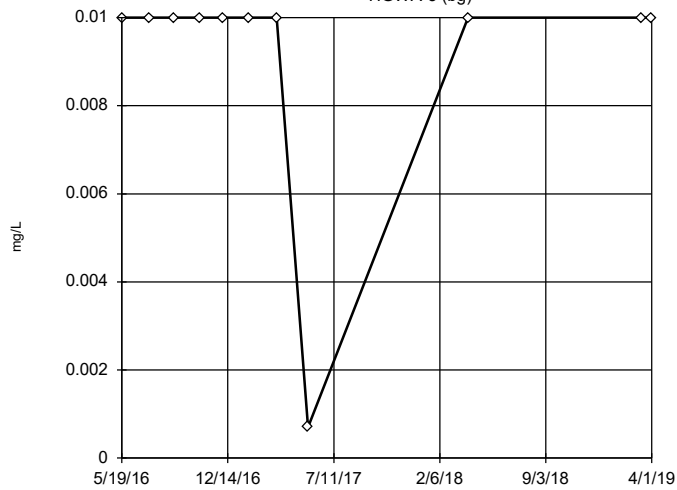
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Chromium Analysis Run 7/22/2019 1:47 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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).

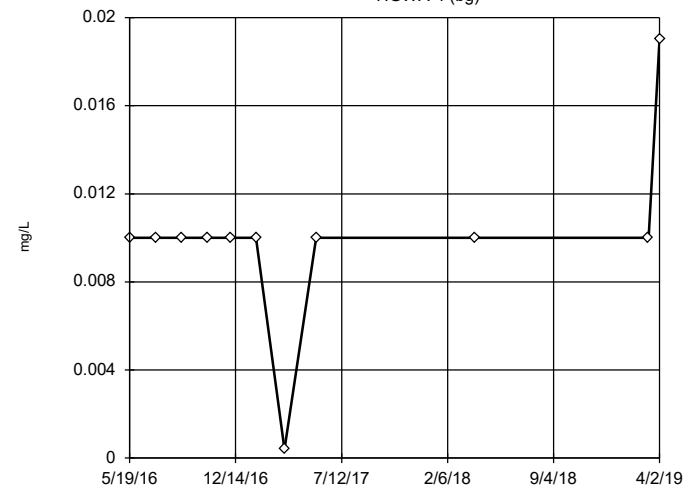
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Chromium Analysis Run 7/22/2019 1:47 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening

HGWA-4 (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.

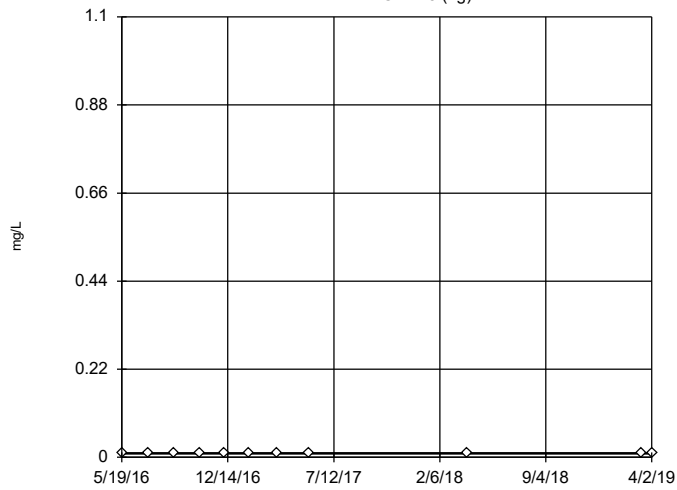
Ladder of Powers transformations did not improve normality; analysis run on raw data.

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Chromium Analysis Run 7/22/2019 1:47 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

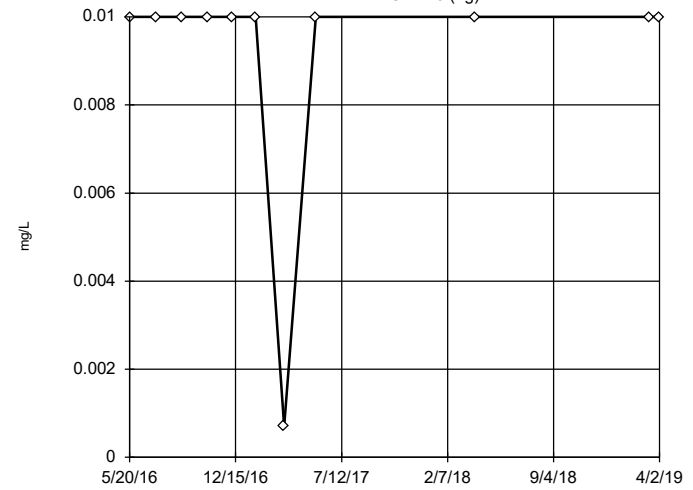
Tukey's Outlier Screening HGWA-5 (bg)



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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

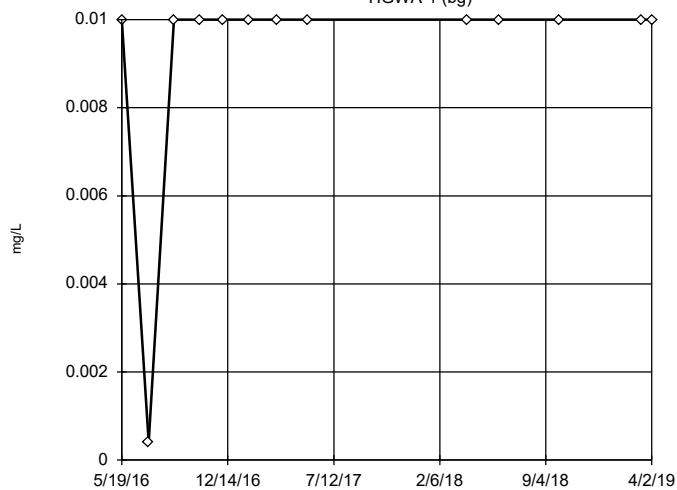
Tukey's Outlier Screening HGWA-6 (bg)



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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

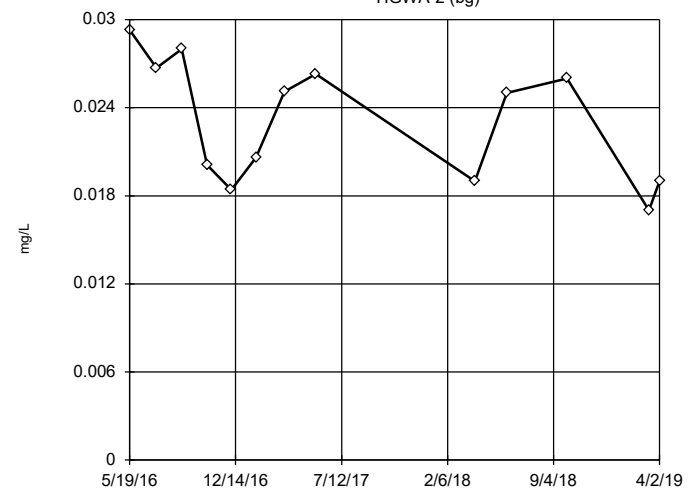
Tukey's Outlier Screening HGWA-1 (bg)



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 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 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

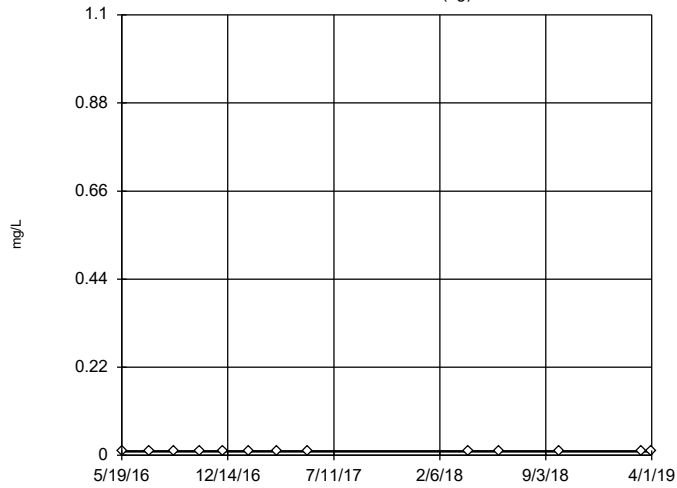
Tukey's Outlier Screening HGWA-2 (bg)



n = 13
 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 = 0.04155, low cutoff = -0.02575, based on IQR multiplier of 3.

Constituent: Cobalt Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

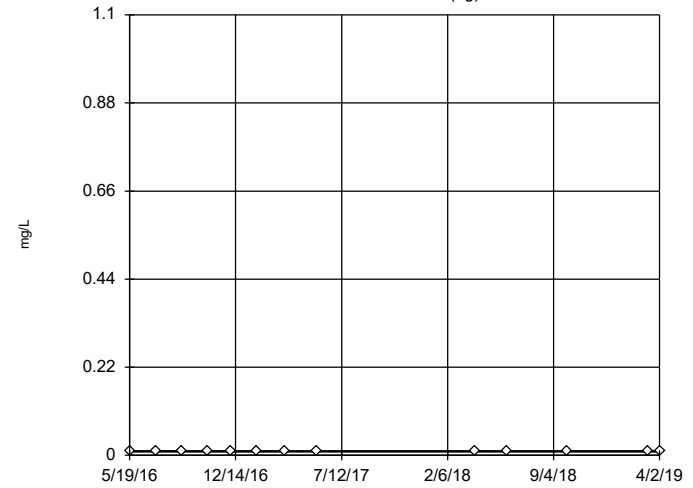
Tukey's Outlier Screening
HGWA-3 (bg)



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: Cobalt Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

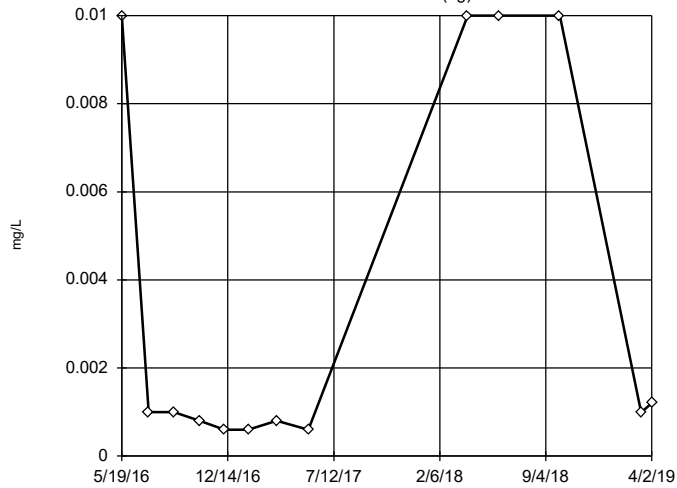
Tukey's Outlier Screening
HGWA-4 (bg)



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: Cobalt Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

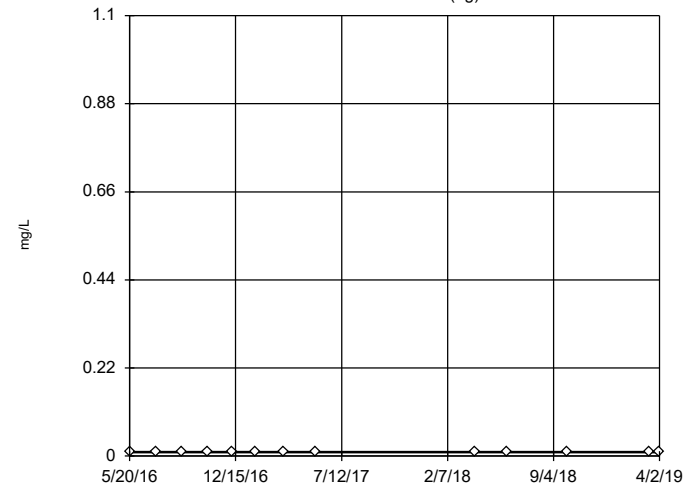
Tukey's Outlier Screening
HGWA-5 (bg)



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 = 30.07, low cutoff = 2.3e-7, based on IQR multiplier of 3.

Constituent: Cobalt Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening
HGWA-6 (bg)

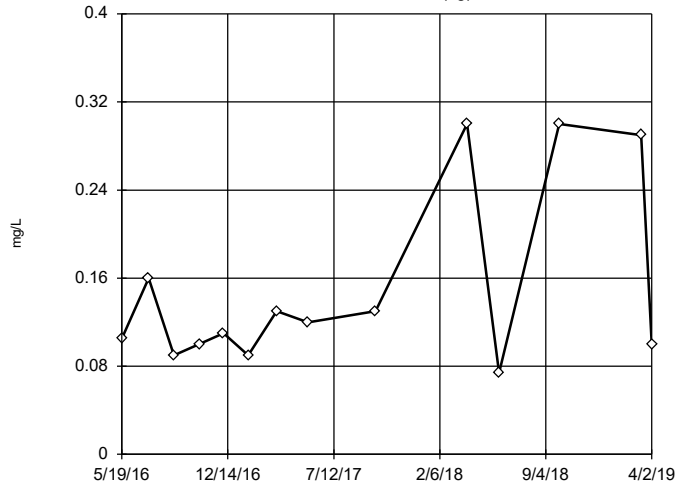


n = 13
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.
Data were square root transformed to achieve best W statistic (graph shown in original units).
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Cobalt Analysis Run 7/22/2019 1:47 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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.

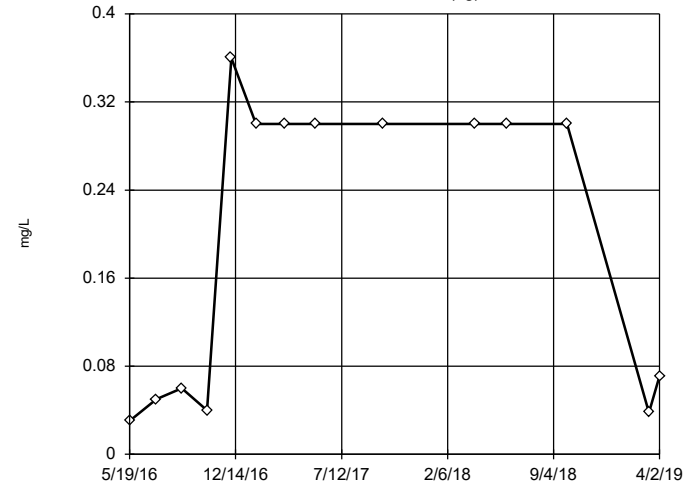
Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 2.522, low cutoff = 0.008104, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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.

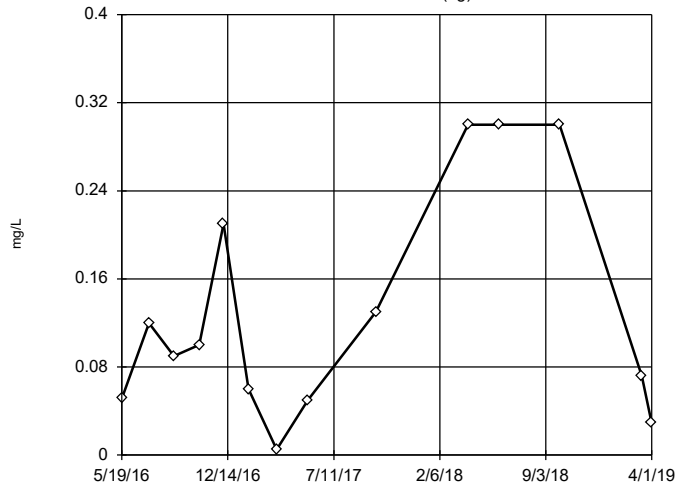
Data were x^4 transformed to achieve best W statistic (graph shown in original units).

High cutoff = 0.4242, low cutoff = -0.3948, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening

HGWA-3 (bg)



n = 14

No outliers found. Tukey's method selected by user.

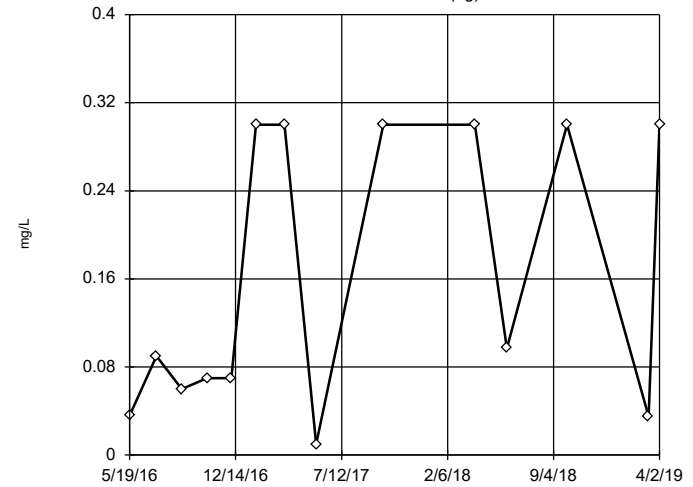
Data were cube root transformed to achieve best W statistic (graph shown in original units).

High cutoff = 2.849, low cutoff = -0.07188, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening

HGWA-4 (bg)



n = 14

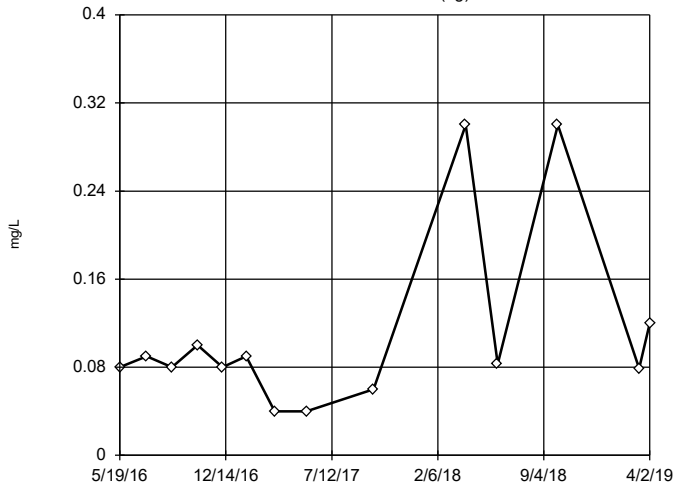
No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.

Data were natural log transformed to achieve best W statistic (graph shown in original units).

High cutoff = 80.69, low cutoff = 0.0001728, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

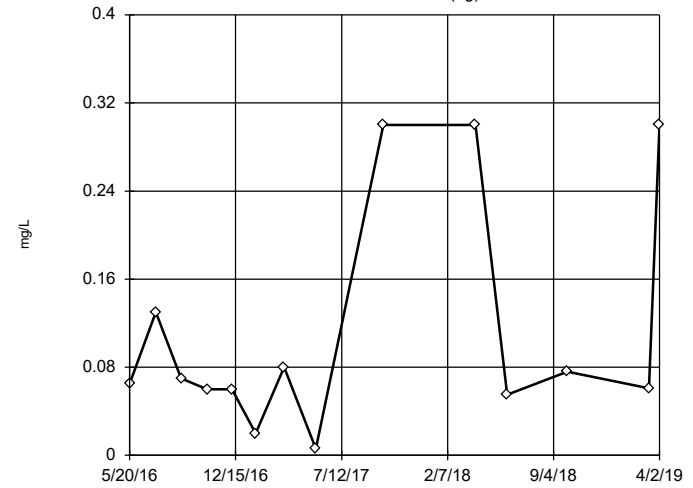
Tukey's Outlier Screening HGWA-5 (bg)



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 = 0.4413, low cutoff = 0.01709, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

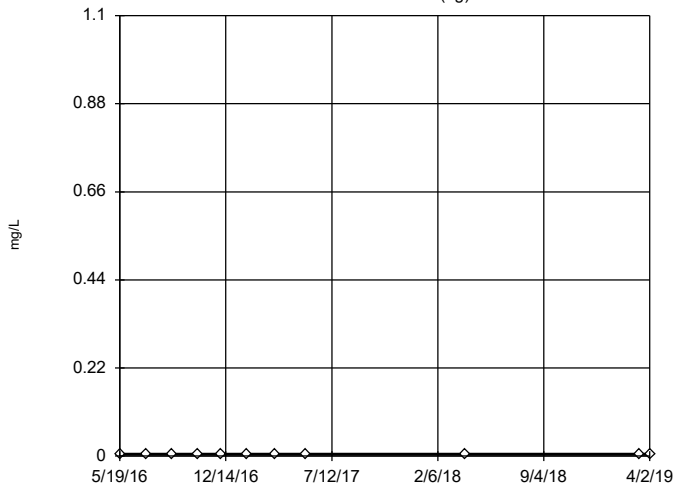
Tukey's Outlier Screening HGWA-6 (bg)



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 cube root transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 1.704, low cutoff = -0.01071, based on IQR multiplier of 3.

Constituent: Fluoride Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

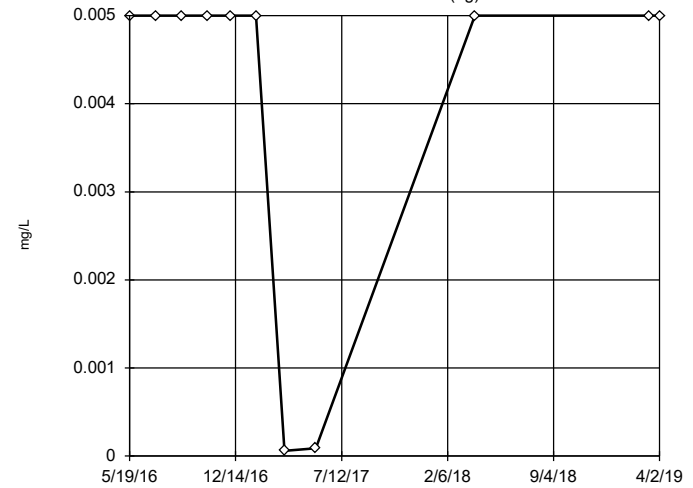
Tukey's Outlier Screening HGWA-1 (bg)



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: Lead Analysis Run 7/22/2019 1:47 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening HGWA-2 (bg)

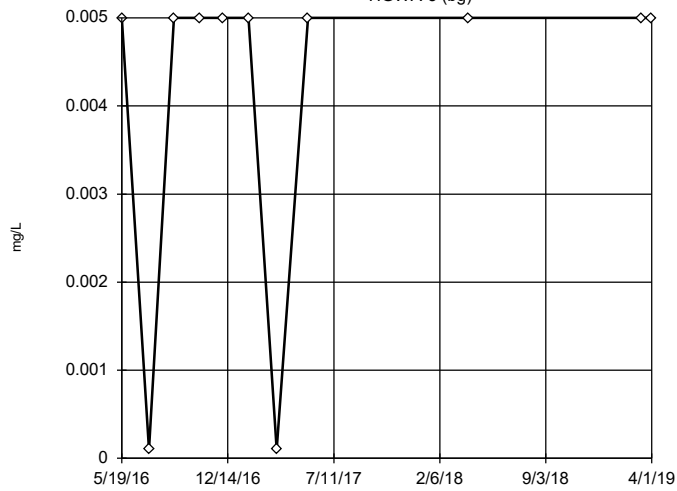


n = 11
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lead Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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 x^{0.5} transformed to achieve best W statistic (graph shown in original units).

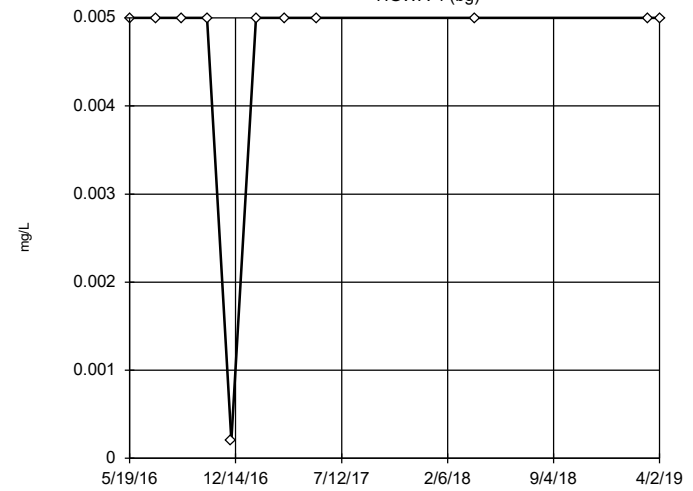
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lead Analysis Run 7/22/2019 1:48 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening

HGWA-4 (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).

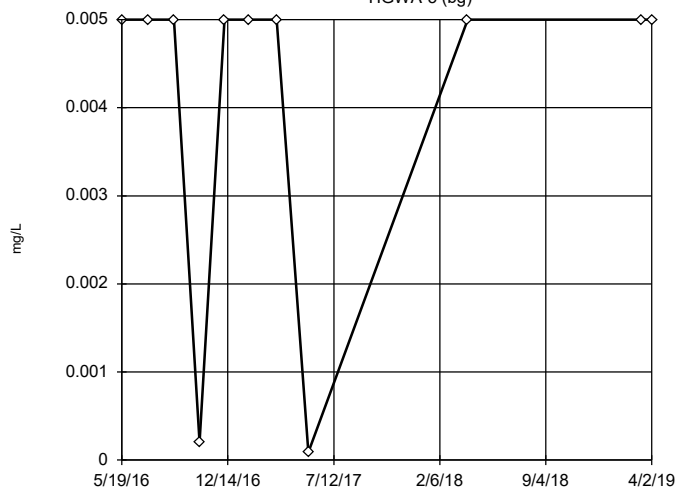
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lead Analysis Run 7/22/2019 1:48 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening

HGWA-5 (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).

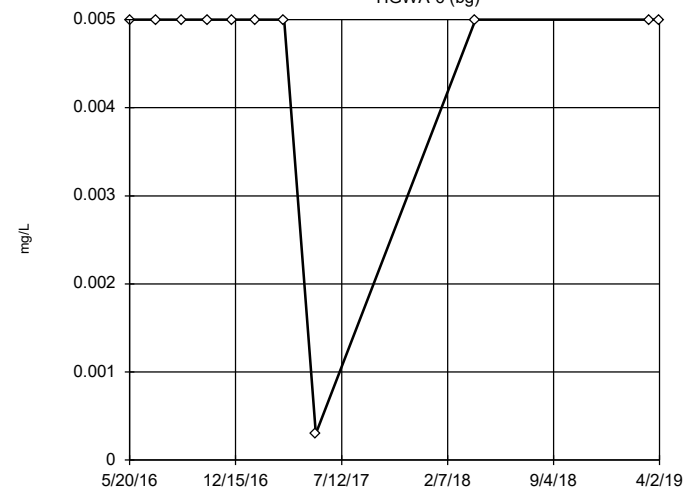
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lead Analysis Run 7/22/2019 1:48 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening

HGWA-6 (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.

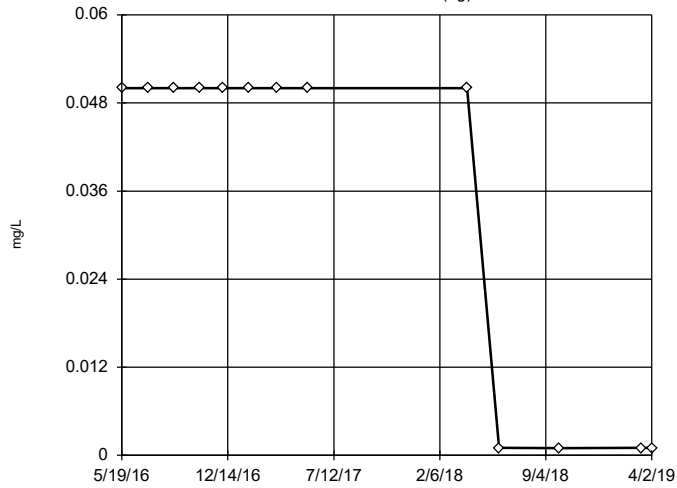
Data were cube root transformed to achieve best W statistic (graph shown in original units).

The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Lead Analysis Run 7/22/2019 1:48 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

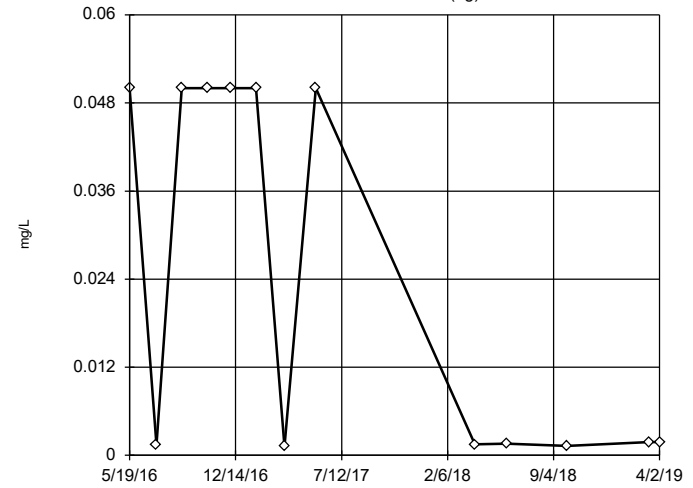
Tukey's Outlier Screening
HGWA-1 (bg)



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 7/22/2019 1:48 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

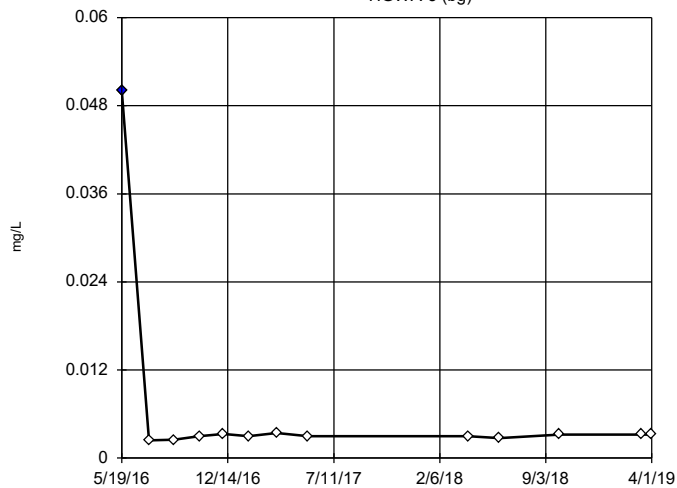
Tukey's Outlier Screening
HGWA-2 (bg)



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 7/22/2019 1:48 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

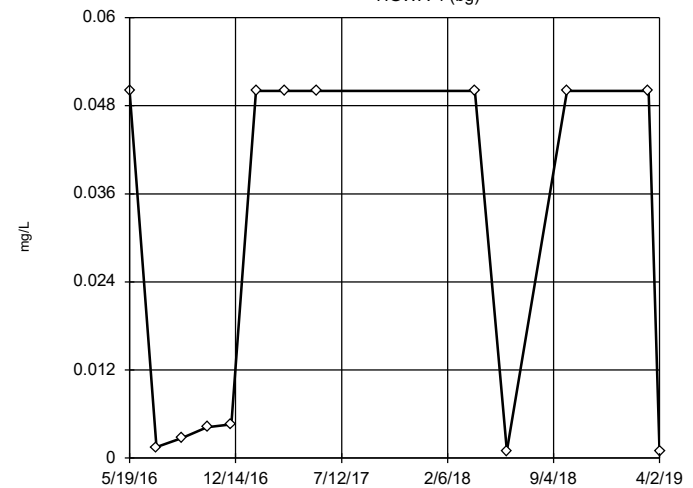
Tukey's Outlier Screening
HGWA-3 (bg)



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 7/22/2019 1:48 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

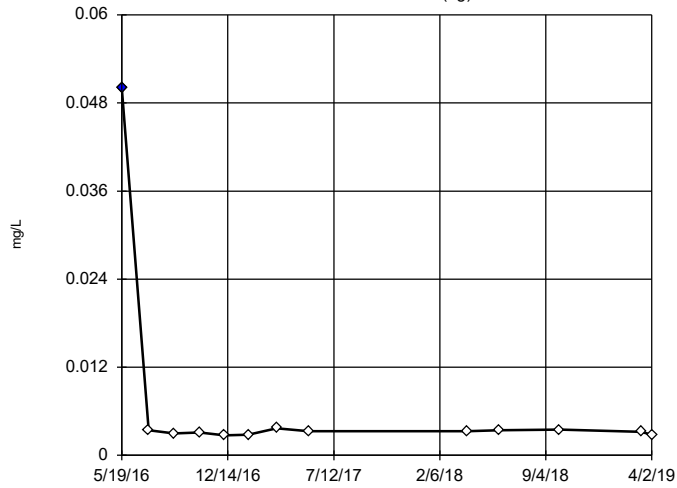
Tukey's Outlier Screening
HGWA-4 (bg)



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 = 766.8, low cutoff = 1.3e-7, based on IQR multiplier of 3.

Constituent: Lithium Analysis Run 7/22/2019 1:48 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

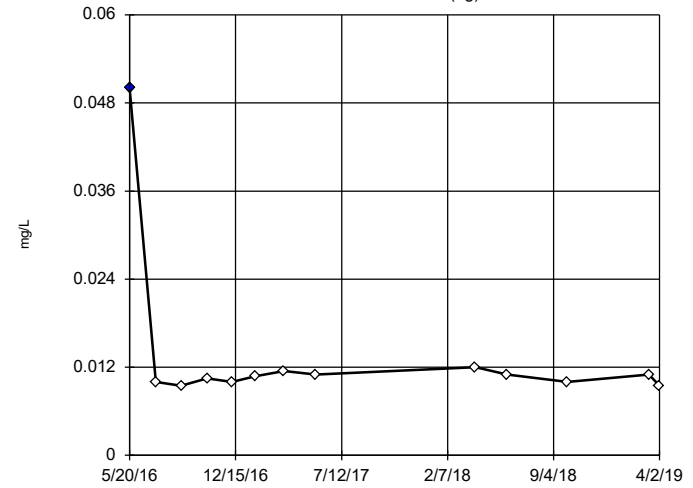
Tukey's Outlier Screening HGWA-5 (bg)



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 = 0.005817, low cutoff = 0.001719, based on IQR multiplier of 3.

Constituent: Lithium Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

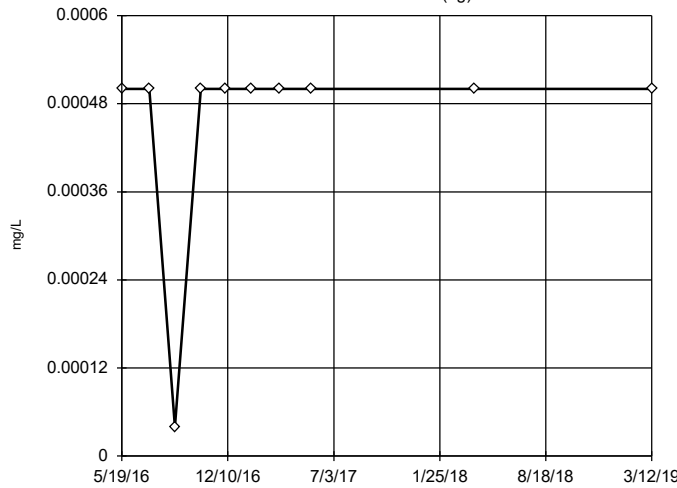
Tukey's Outlier Screening HGWA-6 (bg)



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 = 0.016, low cutoff = 0.007029, based on IQR multiplier of 3.

Constituent: Lithium Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

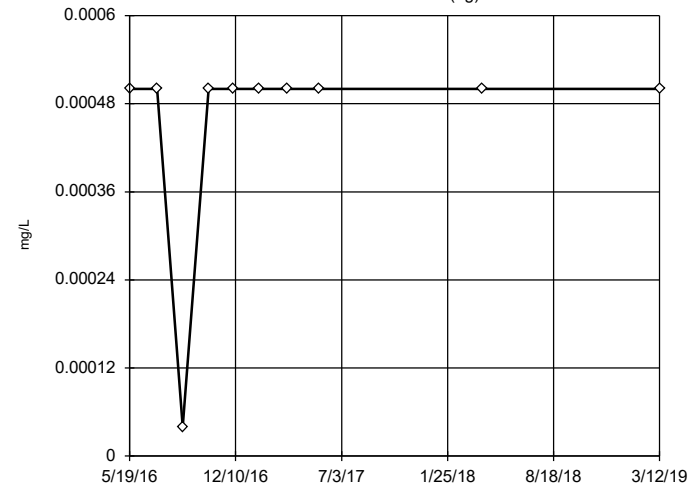
Tukey's Outlier Screening HGWA-1 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

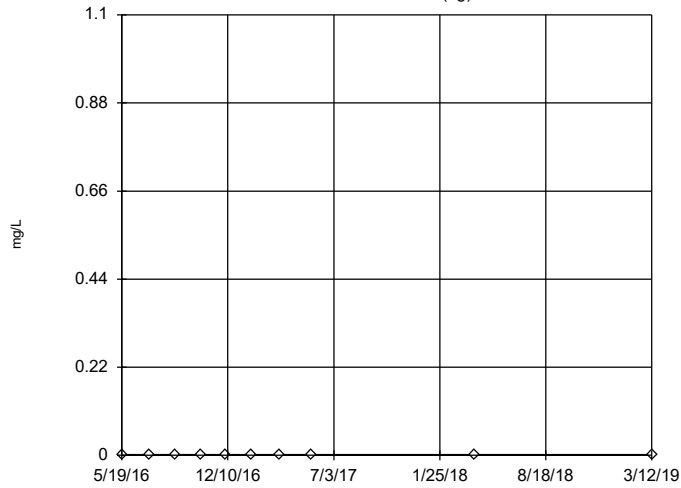
Tukey's Outlier Screening HGWA-2 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

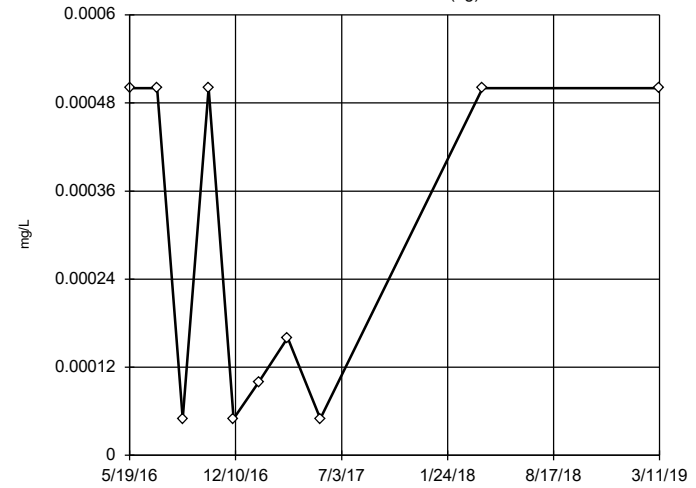
Tukey's Outlier Screening HGWA-3 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

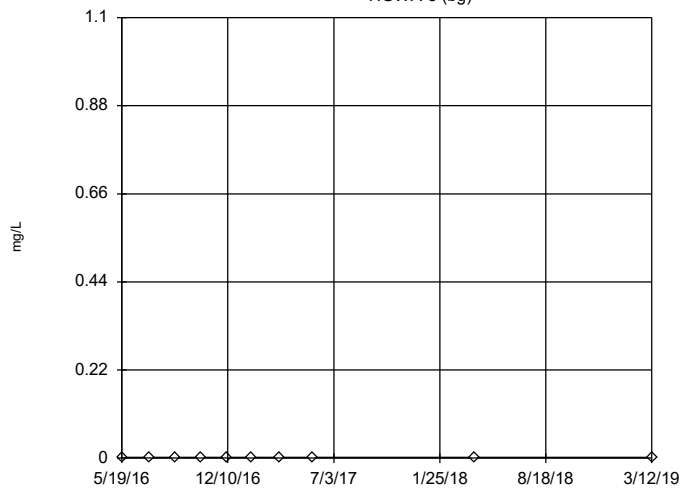
Tukey's Outlier Screening HGWA-4 (bg)



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 = 0.5, low cutoff = 5.0e-8, based on IQR multiplier of 3.

Constituent: Mercury Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

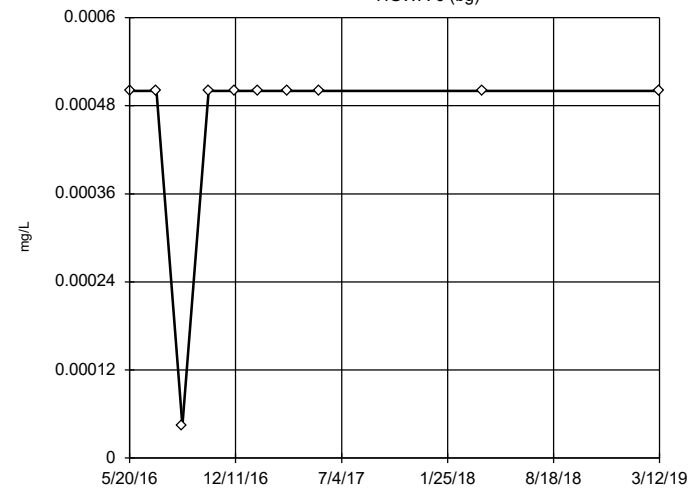
Tukey's Outlier Screening HGWA-5 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

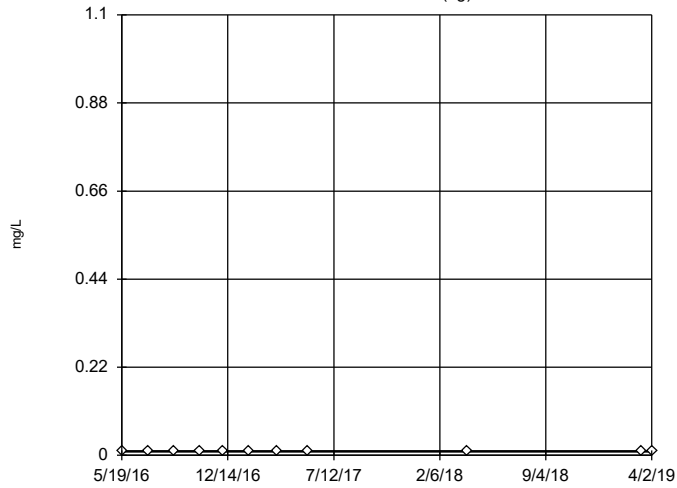
Tukey's Outlier Screening HGWA-6 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

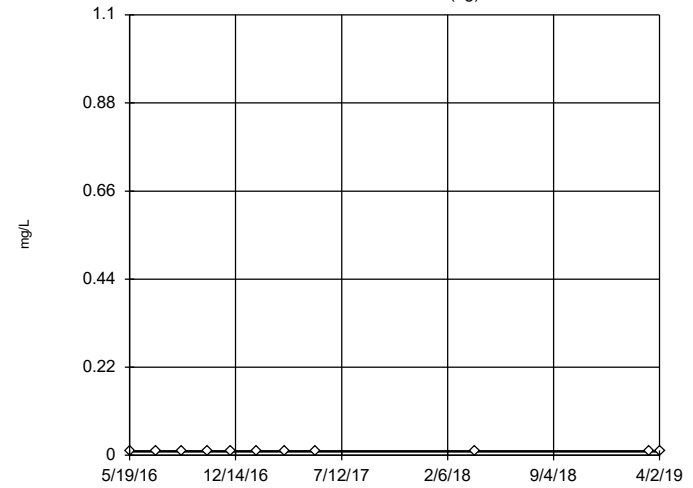
Tukey's Outlier Screening HGWA-1 (bg)



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: Molybdenum Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

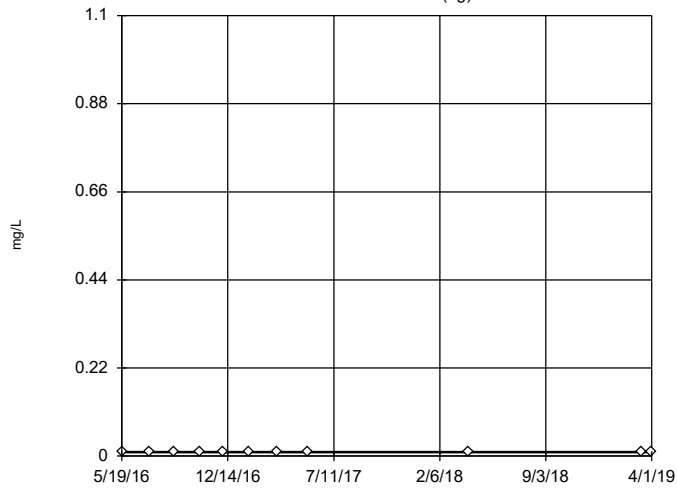
Tukey's Outlier Screening HGWA-2 (bg)



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: Molybdenum Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

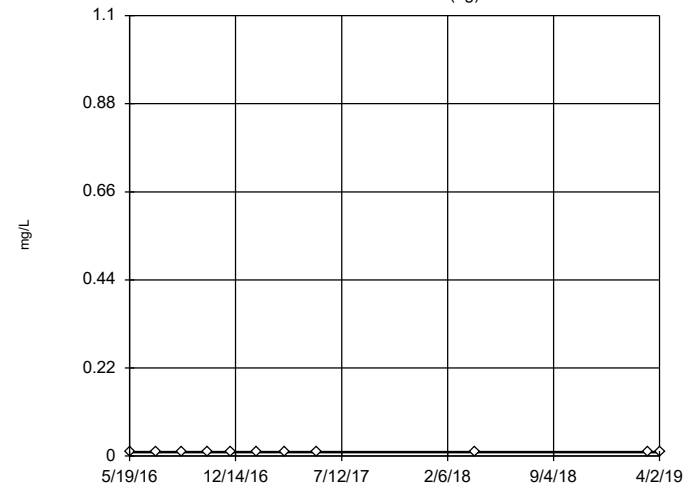
Tukey's Outlier Screening HGWA-3 (bg)



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: Molybdenum Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

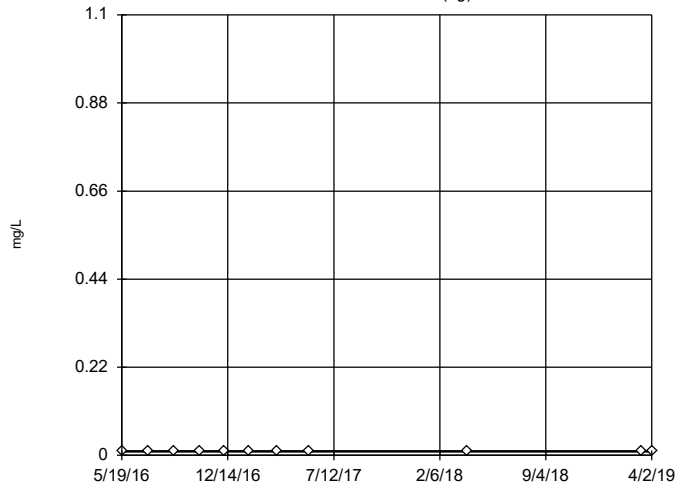
Tukey's Outlier Screening HGWA-4 (bg)



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: Molybdenum Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

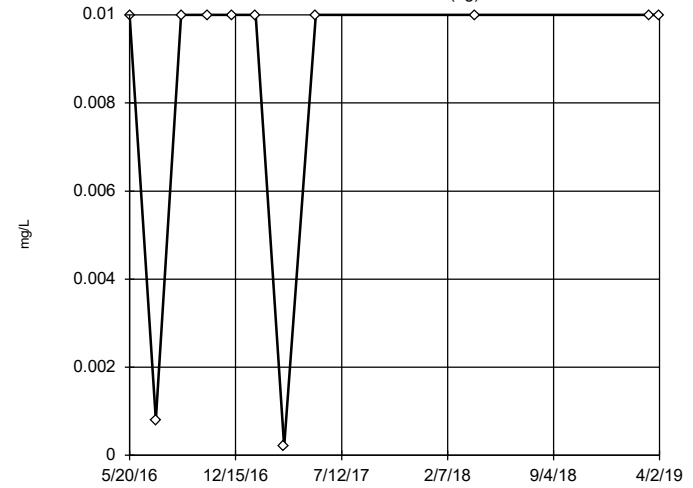
Tukey's Outlier Screening HGWA-5 (bg)



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: Molybdenum Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

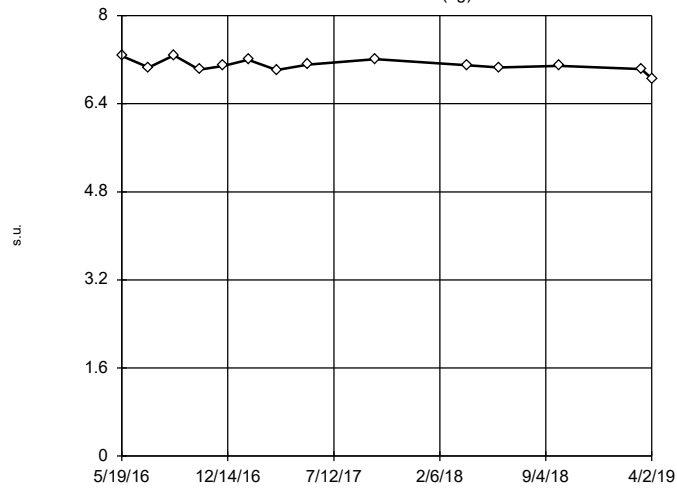
Tukey's Outlier Screening HGWA-6 (bg)



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: Molybdenum Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

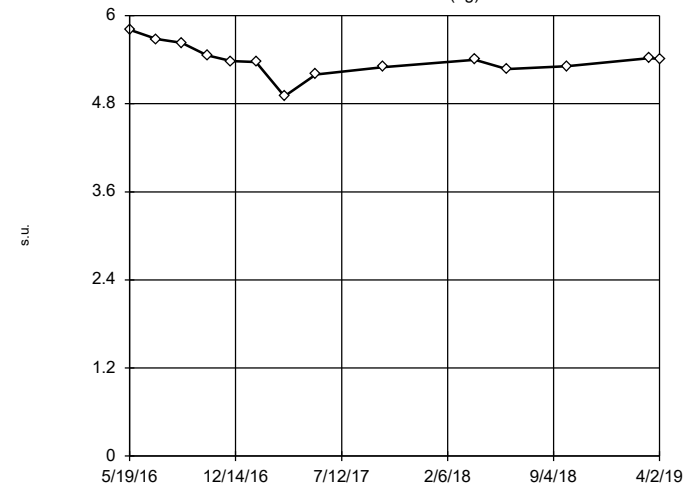
Tukey's Outlier Screening HGWA-1 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

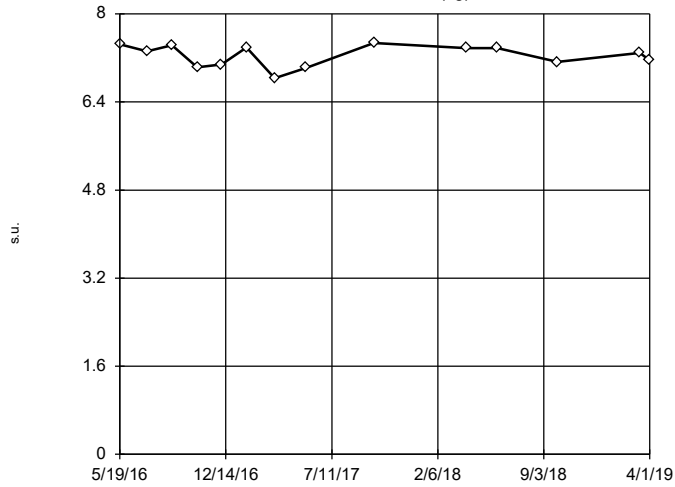
Tukey's Outlier Screening HGWA-2 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

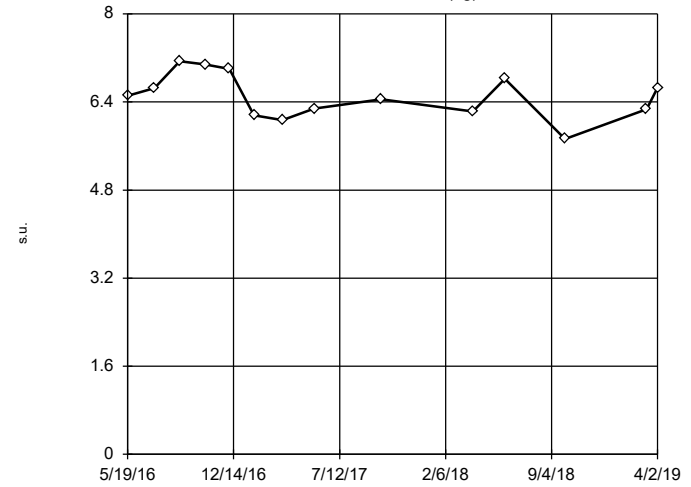
Tukey's Outlier Screening HGWA-3 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

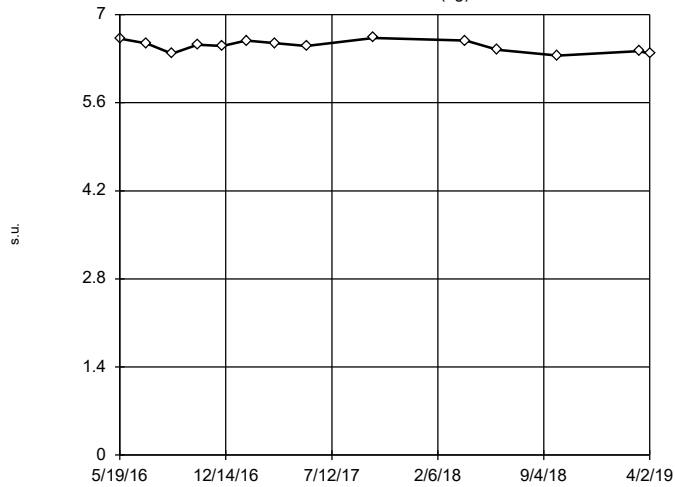
Tukey's Outlier Screening HGWA-4 (bg)



n = 14
 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 = 9.288, low cutoff = 4.285, based on IQR multiplier of 3.

Constituent: pH Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

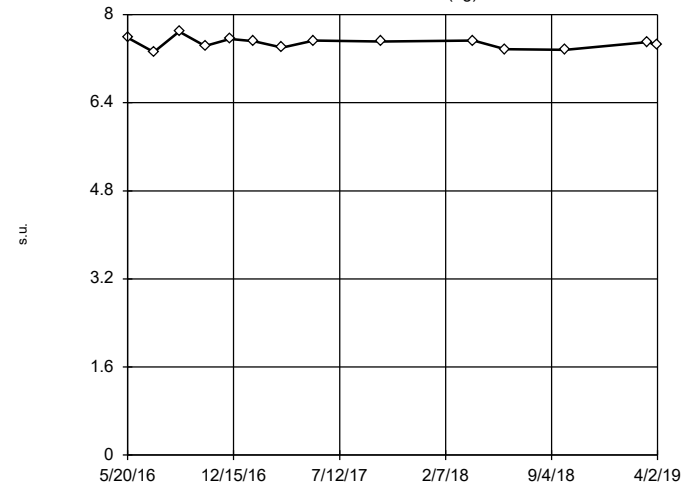
Tukey's Outlier Screening HGWA-5 (bg)



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 = 7.037, low cutoff = 5.549, based on IQR multiplier of 3.

Constituent: pH Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

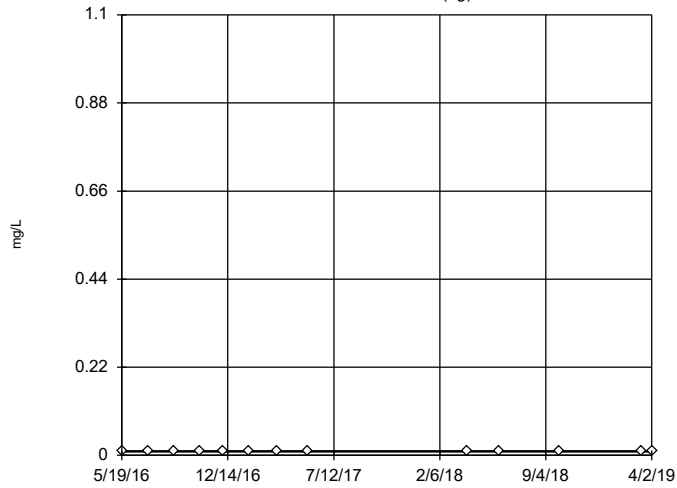
Tukey's Outlier Screening HGWA-6 (bg)



n = 14
 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 = 8.046, low cutoff = 6.925, based on IQR multiplier of 3.

Constituent: pH Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

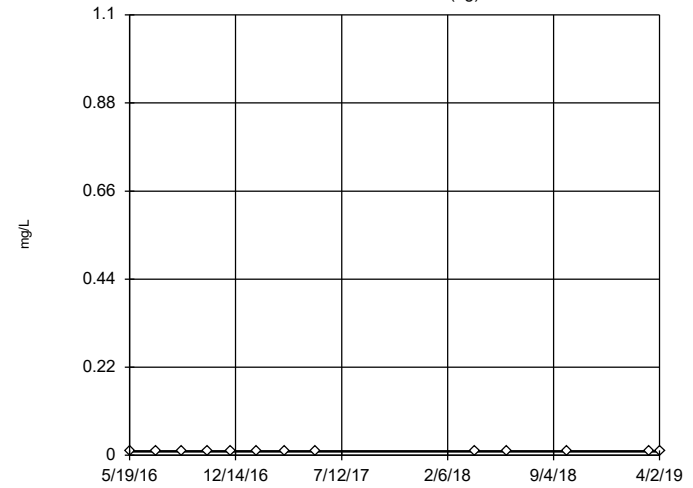
Tukey's Outlier Screening HGWA-1 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

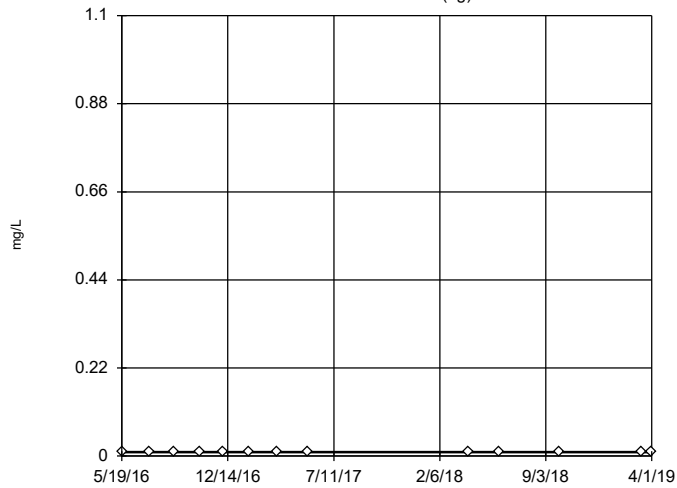
Tukey's Outlier Screening HGWA-2 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

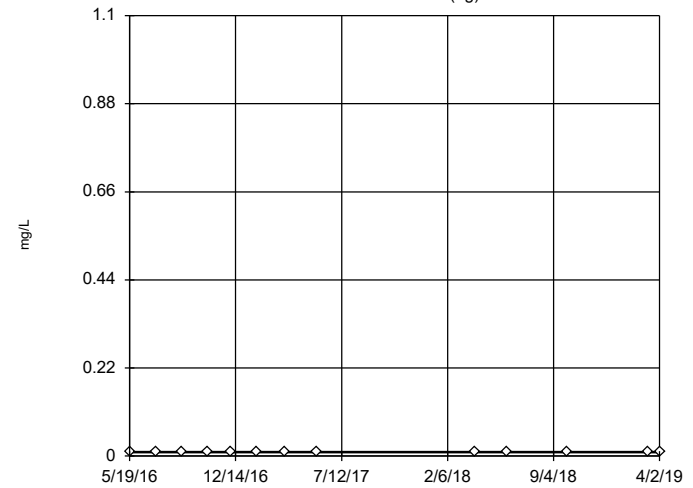
Tukey's Outlier Screening HGWA-3 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening HGWA-4 (bg)

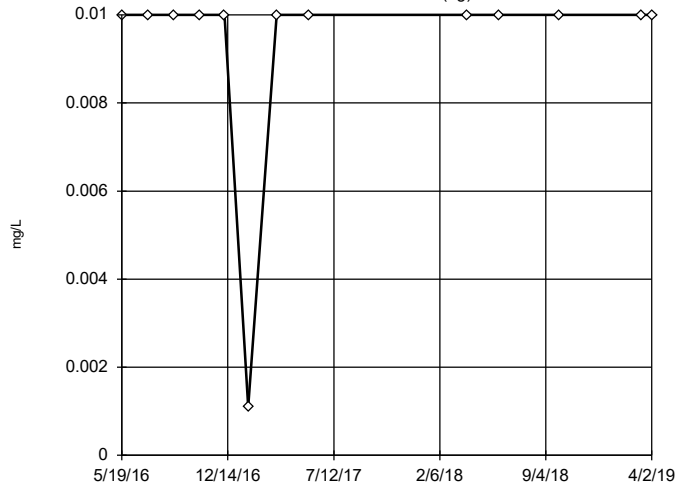


n = 13
 No outliers found. Tukey's method used in lieu of parametric test because the Shapiro Wilk normality test failed at the 0.05 alpha level.
 Data were square root transformed to achieve best W statistic (graph shown in original units).
 The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Selenium Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening

HGWA-5 (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).

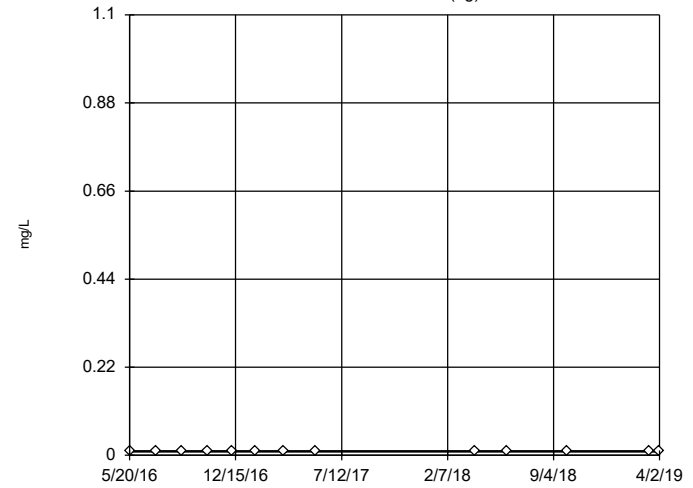
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Selenium Analysis Run 7/22/2019 1:48 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening

HGWA-6 (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).

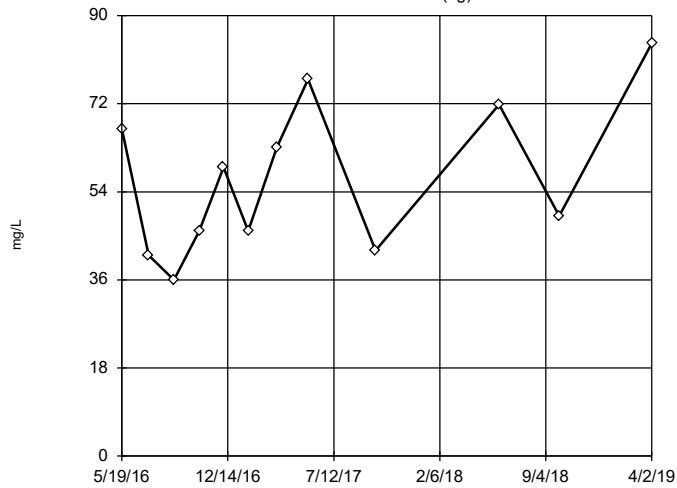
The results were invalidated, because the lower and upper quartiles are equal.

Constituent: Selenium Analysis Run 7/22/2019 1:48 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

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).

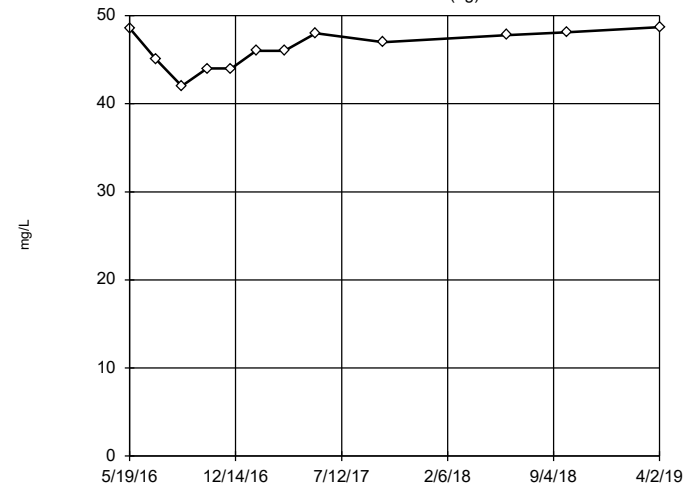
High cutoff = 271.7, low cutoff = 11.21, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 7/22/2019 1:48 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening

HGWA-2 (bg)



n = 12

No outliers found. Tukey's method selected by user.

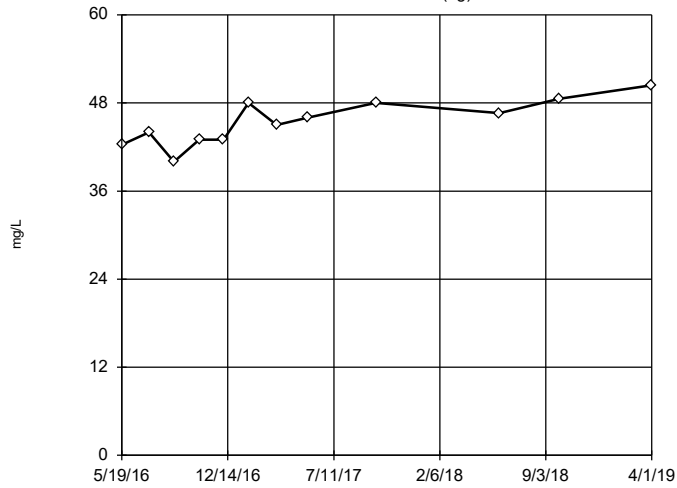
Data were x^6 transformed to achieve best W statistic (graph shown in original units).

High cutoff = 54.39, low cutoff = -42.39, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 7/22/2019 1:48 AM

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

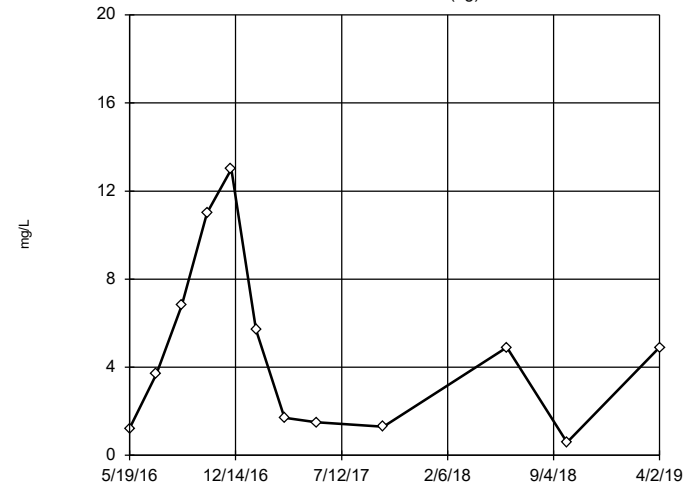
Tukey's Outlier Screening HGWA-3 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

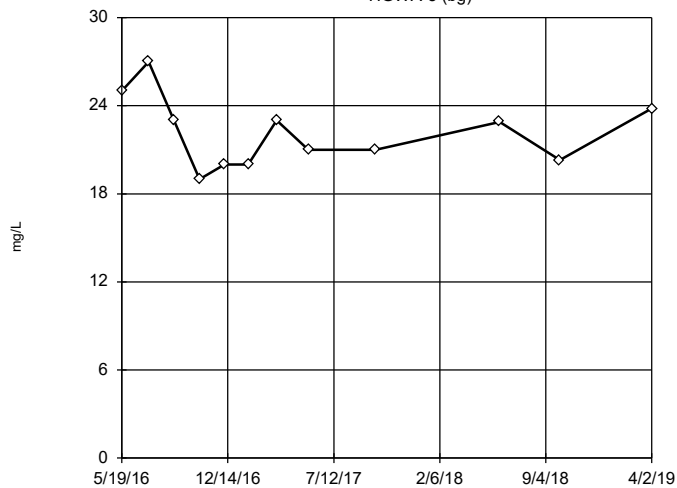
Tukey's Outlier Screening HGWA-4 (bg)



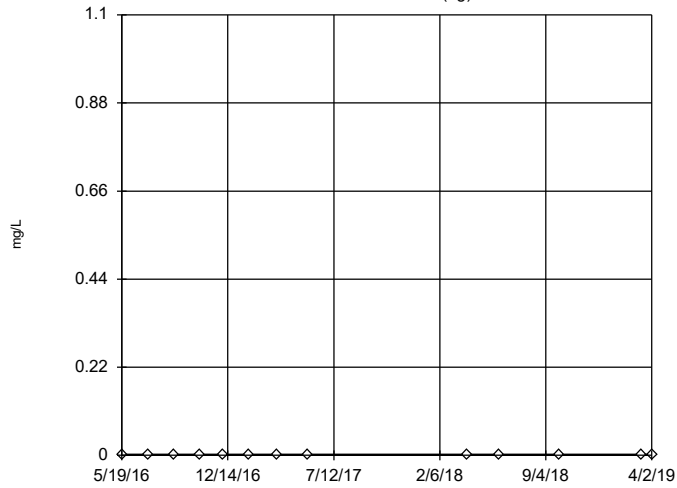
n = 12
 No outliers found.
 Tukey's method selected by user.
 Data were natural log transformed to achieve best W statistic (graph shown in original units).
 High cutoff = 551.7, low cutoff = 0.01576, based on IQR multiplier of 3.

Constituent: Sulfate Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening HGWA-5 (bg)



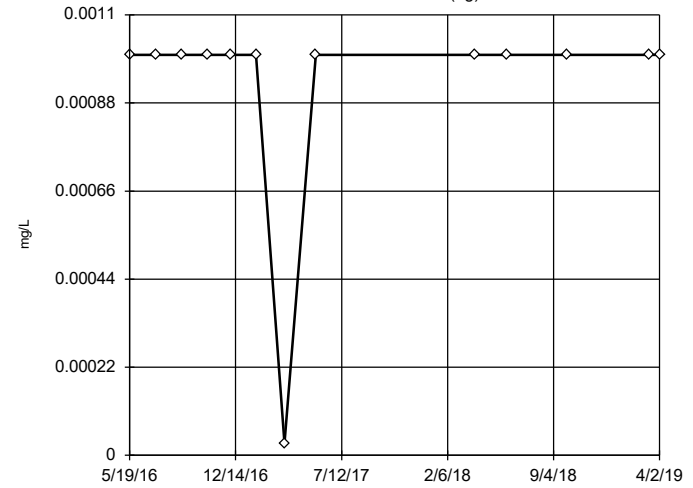
Tukey's Outlier Screening HGWA-1 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

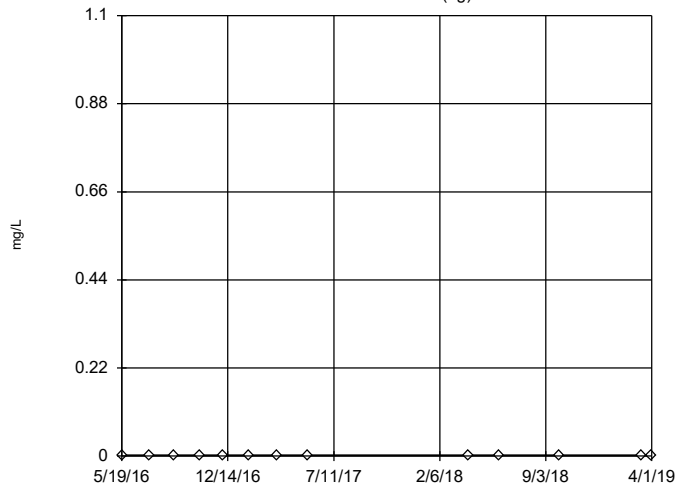
Tukey's Outlier Screening HGWA-2 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

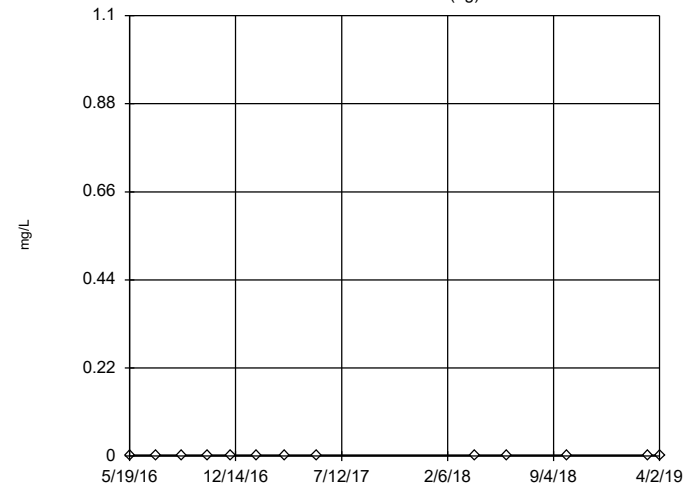
Tukey's Outlier Screening HGWA-3 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

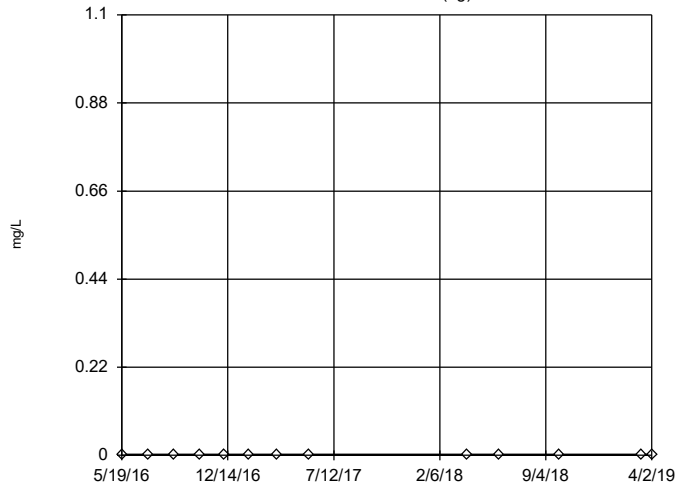
Tukey's Outlier Screening HGWA-4 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

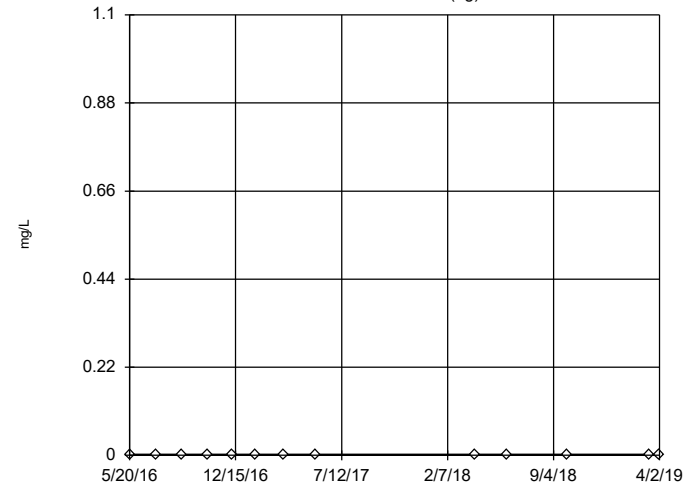
Tukey's Outlier Screening HGWA-5 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

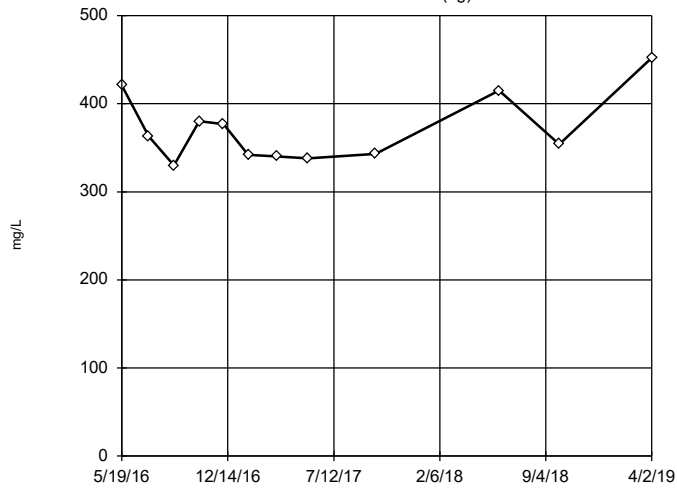
Tukey's Outlier Screening HGWA-6 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

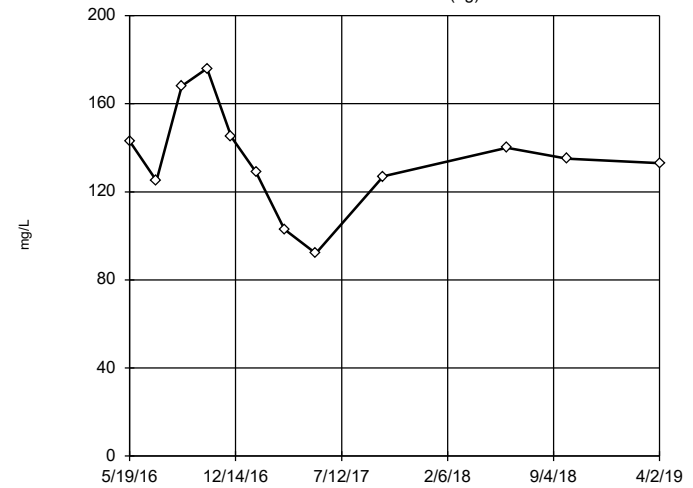
Tukey's Outlier Screening HGWA-1 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

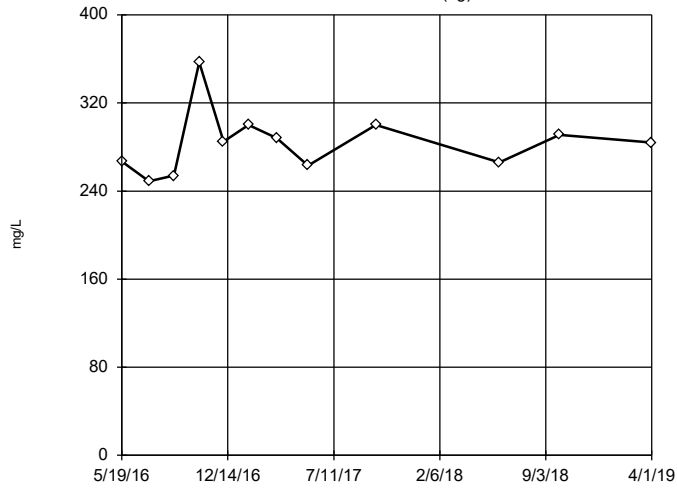
Tukey's Outlier Screening HGWA-2 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

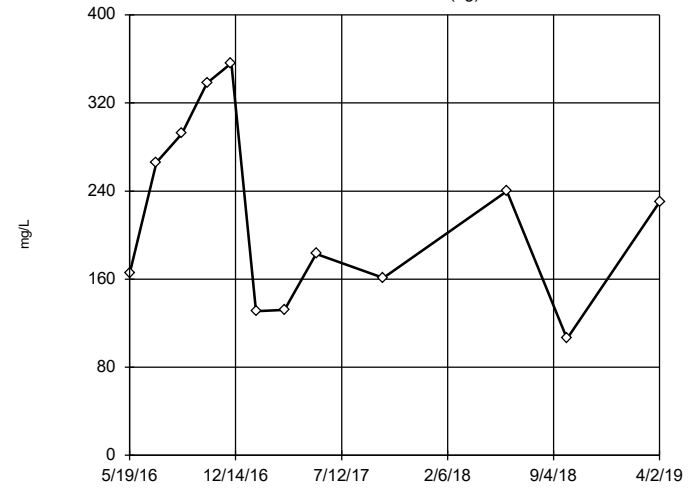
Tukey's Outlier Screening
HGWA-3 (bg)



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 7/22/2019 1:48 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

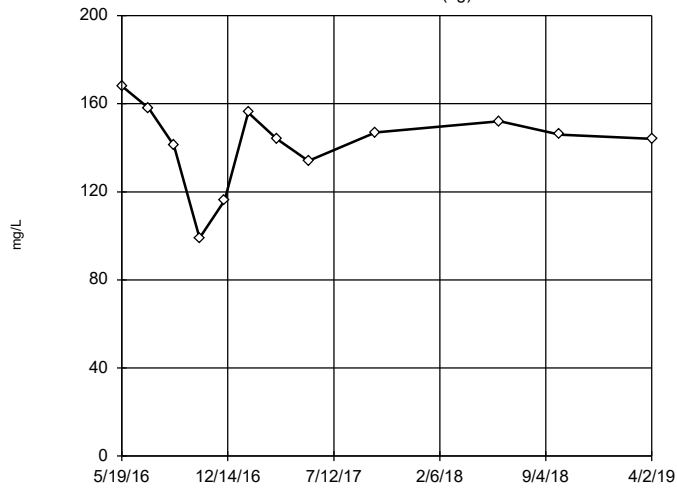
Tukey's Outlier Screening
HGWA-4 (bg)



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 = 1947, low cutoff = 20.86, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids Analysis Run 7/22/2019 1:48 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

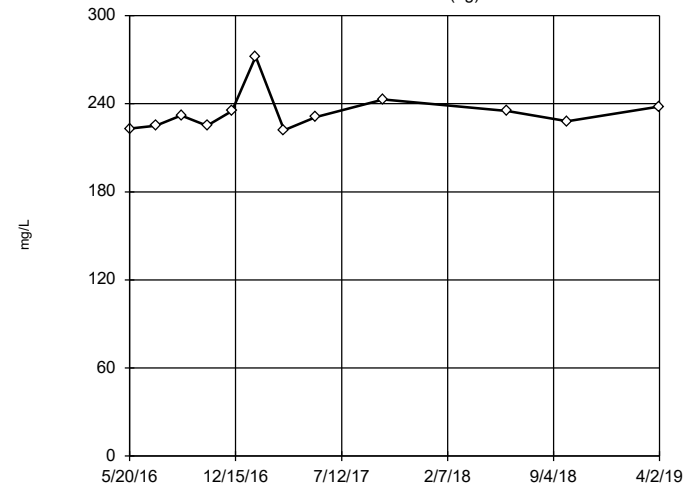
Tukey's Outlier Screening
HGWA-5 (bg)



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 = 181.8, low cutoff = -144.2, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids Analysis Run 7/22/2019 1:48 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

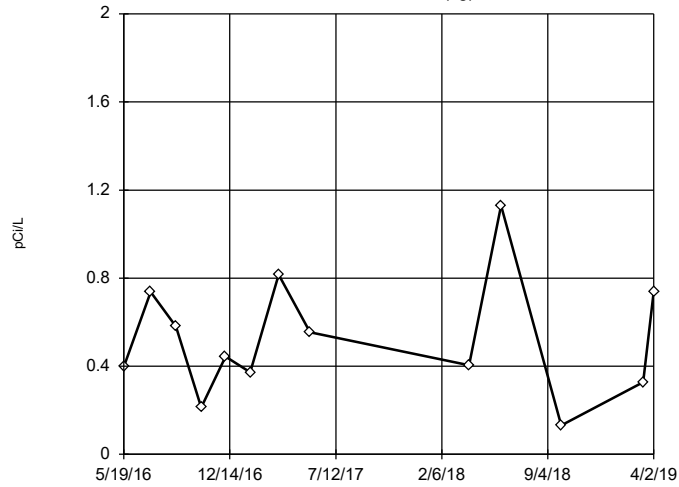
Tukey's Outlier Screening
HGWA-6 (bg)



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 = 274.6, low cutoff = 193.8, based on IQR multiplier of 3.

Constituent: Total Dissolved Solids Analysis Run 7/22/2019 1:48 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

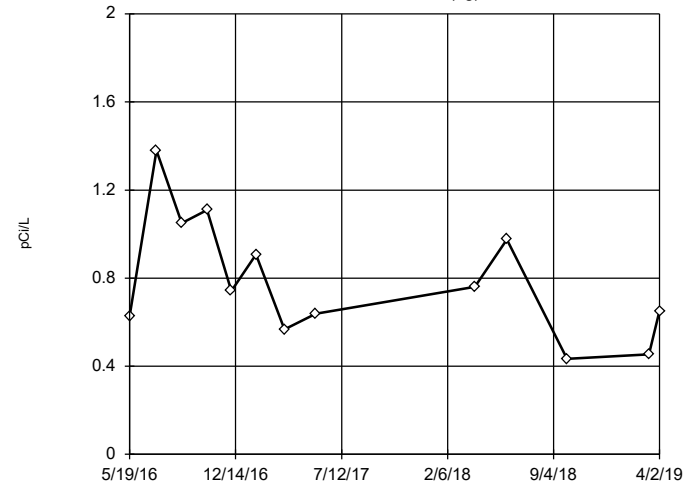
Tukey's Outlier Screening HGWA-1 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

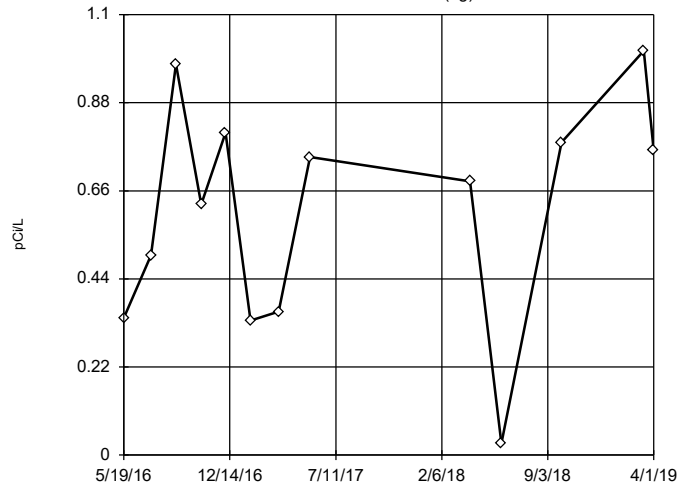
Tukey's Outlier Screening HGWA-2 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

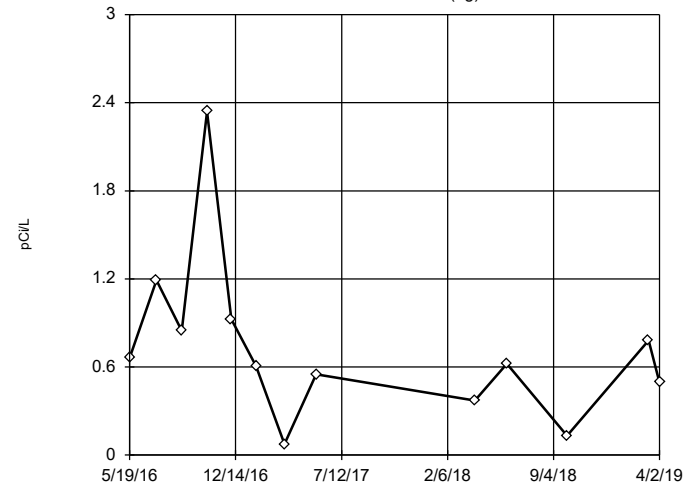
Tukey's Outlier Screening HGWA-3 (bg)



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 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

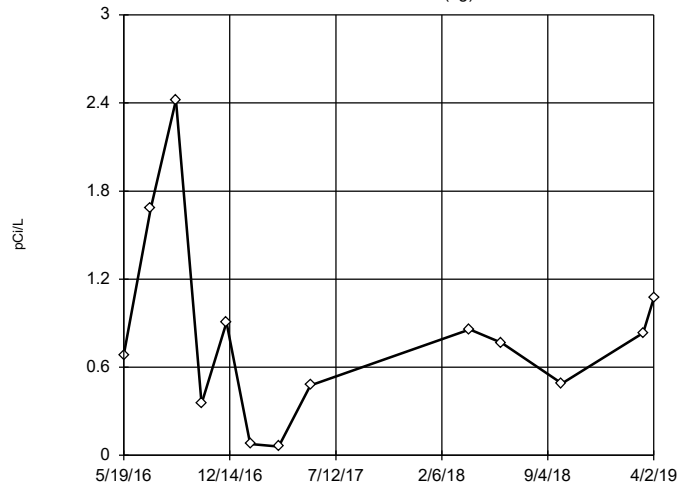
Tukey's Outlier Screening HGWA-4 (bg)



n = 13
 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 = 3.925, low cutoff = 0.002593, based on IQR multiplier of 3.

Constituent: Total Radium Analysis Run 7/22/2019 1:48 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening HGWA-5 (bg)



n = 13

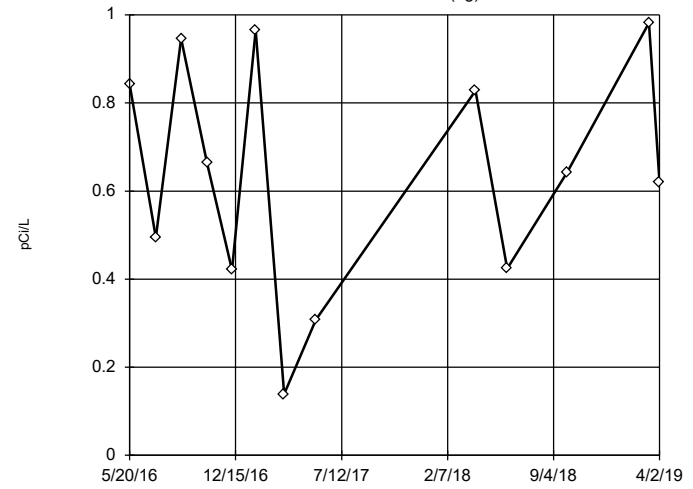
No outliers found.
Tukey's method selected by user.

Data were square root transformed to achieve best W statistic (graph shown in original units).

High cutoff = 4.189, low cutoff = -0.1701, based on IQR multiplier of 3.

Constituent: Total Radium Analysis Run 7/22/2019 1:48 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Tukey's Outlier Screening HGWA-6 (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 = 2.311, low cutoff = -0.9935, based on IQR multiplier of 3.

Constituent: Total Radium Analysis Run 7/22/2019 1:48 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Trend Test - Significant Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:06 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>
Barium (mg/L)	HGWA-5 (bg)	-0.003634	-41	-34	Yes	13	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)	HGWA-4 (bg)	-0.1811	-31	-30	Yes	12	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
Sulfate (mg/L)	HGWA-6 (bg)	1.632	39	30	Yes	12	0	n/a	n/a	0.05	NP

Trend Test - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:06 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>
Antimony (mg/L)	HGWA-1 (bg)	0	3	23	No	10	90	n/a	n/a	0.05	NP
Antimony (mg/L)	HGWA-2 (bg)	0	0	23	No	10	100	n/a	n/a	0.05	NP
Antimony (mg/L)	HGWA-3 (bg)	0	7	23	No	10	90	n/a	n/a	0.05	NP
Antimony (mg/L)	HGWA-4 (bg)	0	0	23	No	10	100	n/a	n/a	0.05	NP
Antimony (mg/L)	HGWA-5 (bg)	0	3	23	No	10	90	n/a	n/a	0.05	NP
Antimony (mg/L)	HGWA-6 (bg)	0	7	23	No	10	90	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
Arsenic (mg/L)	HGWA-4 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Arsenic (mg/L)	HGWA-5 (bg)	0	-8	-34	No	13	92.31	n/a	n/a	0.05	NP
Arsenic (mg/L)	HGWA-6 (bg)	0	0	34	No	13	100	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
Barium (mg/L)	HGWA-4 (bg)	-0.0007518	-8	-34	No	13	0	n/a	n/a	0.05	NP
Barium (mg/L)	HGWA-5 (bg)	-0.003634	-41	-34	Yes	13	0	n/a	n/a	0.05	NP
Barium (mg/L)	HGWA-6 (bg)	0.01296	29	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
Beryllium (mg/L)	HGWA-4 (bg)	0	-8	-27	No	11	90.91	n/a	n/a	0.05	NP
Beryllium (mg/L)	HGWA-5 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Beryllium (mg/L)	HGWA-6 (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
Boron (mg/L)	HGWA-4 (bg)	-0.003129	-28	-30	No	12	8.333	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-5 (bg)	-0.0009715	-16	-30	No	12	16.67	n/a	n/a	0.05	NP
Boron (mg/L)	HGWA-6 (bg)	-0.001836	-27	-30	No	12	8.333	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-1 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-2 (bg)	0	-18	-34	No	13	53.85	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-3 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-4 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-5 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Cadmium (mg/L)	HGWA-6 (bg)	0	0	34	No	13	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
Calcium (mg/L)	HGWA-3 (bg)	3.671	32	30	Yes	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-4 (bg)	-5.012	-10	-30	No	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-5 (bg)	-1.812	-18	-30	No	12	0	n/a	n/a	0.05	NP
Calcium (mg/L)	HGWA-6 (bg)	-0.03657	0	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)	HGWA-4 (bg)	-0.1811	-31	-30	Yes	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-5 (bg)	0	-2	-30	No	12	0	n/a	n/a	0.05	NP
Chloride (mg/L)	HGWA-6 (bg)	0	-2	-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

Trend Test - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:06 AM

Constituent	Well	Slope	Calc.	Critical	Sig.	N	%NDs	Normality	Xform	Alpha	Method
Chromium (mg/L)	HGWA-3 (bg)	0	-4	-27	No	11	90.91	n/a	n/a	0.05	NP
Chromium (mg/L)	HGWA-4 (bg)	0	7	27	No	11	81.82	n/a	n/a	0.05	NP
Chromium (mg/L)	HGWA-5 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Chromium (mg/L)	HGWA-6 (bg)	0	-2	-27	No	11	90.91	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-1 (bg)	0	10	34	No	13	92.31	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-2 (bg)	-0.001697	-31	-34	No	13	0	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-3 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-4 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-5 (bg)	0	5	34	No	13	30.77	n/a	n/a	0.05	NP
Cobalt (mg/L)	HGWA-6 (bg)	0	0	34	No	13	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
Fluoride (mg/L)	HGWA-4 (bg)	0.021	25	37	No	14	42.86	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-5 (bg)	0.002013	11	37	No	14	14.29	n/a	n/a	0.05	NP
Fluoride (mg/L)	HGWA-6 (bg)	0.00287	9	37	No	14	21.43	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-1 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-2 (bg)	0	-5	-27	No	11	81.82	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-3 (bg)	0	6	27	No	11	81.82	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-4 (bg)	0	2	27	No	11	90.91	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-5 (bg)	0	-1	-27	No	11	81.82	n/a	n/a	0.05	NP
Lead (mg/L)	HGWA-6 (bg)	0	-4	-27	No	11	90.91	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
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
Lithium (mg/L)	HGWA-4 (bg)	0	9	34	No	13	53.85	n/a	n/a	0.05	NP
Lithium (mg/L)	HGWA-5 (bg)	-0.0000664	-7	-34	No	13	7.692	n/a	n/a	0.05	NP
Lithium (mg/L)	HGWA-6 (bg)	0	1	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
Mercury (mg/L)	HGWA-4 (bg)	0	0	23	No	10	50	n/a	n/a	0.05	NP
Mercury (mg/L)	HGWA-5 (bg)	0	0	23	No	10	100	n/a	n/a	0.05	NP
Mercury (mg/L)	HGWA-6 (bg)	0	5	23	No	10	90	n/a	n/a	0.05	NP
Molybdenum (mg/L)	HGWA-1 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Molybdenum (mg/L)	HGWA-2 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Molybdenum (mg/L)	HGWA-3 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Molybdenum (mg/L)	HGWA-4 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Molybdenum (mg/L)	HGWA-5 (bg)	0	0	27	No	11	100	n/a	n/a	0.05	NP
Molybdenum (mg/L)	HGWA-6 (bg)	0	5	27	No	11	81.82	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
pH (s.u.)	HGWA-4 (bg)	-0.1713	-23	-37	No	14	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-5 (bg)	-0.05259	-30	-37	No	14	0	n/a	n/a	0.05	NP
pH (s.u.)	HGWA-6 (bg)	-0.03192	-26	-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
Selenium (mg/L)	HGWA-3 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Selenium (mg/L)	HGWA-4 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP

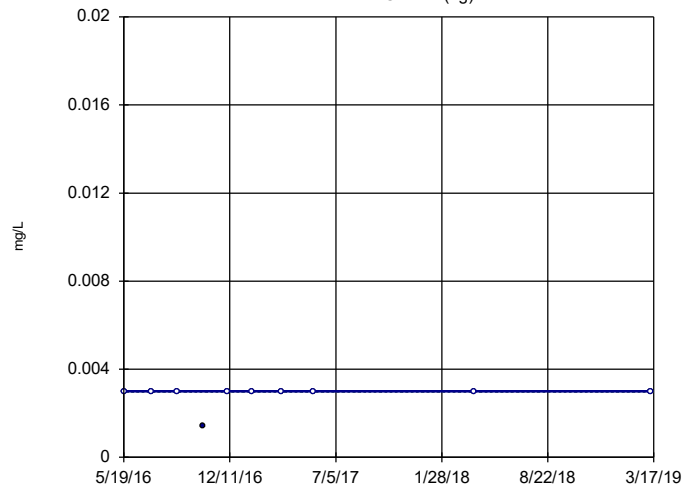
Trend Test - All Results

Plant Hammond Client: Georgia Power Company Data: Hammond AP-2 Printed 7/22/2019, 2:06 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>
Selenium (mg/L)	HGWA-5 (bg)	0	2	34	No	13	92.31	n/a	n/a	0.05	NP
Selenium (mg/L)	HGWA-6 (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
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)	HGWA-4 (bg)	-0.7193	-13	-30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-5 (bg)	-0.06972	-5	-30	No	12	0	n/a	n/a	0.05	NP
Sulfate (mg/L)	HGWA-6 (bg)	1.632	39	30	Yes	12	0	n/a	n/a	0.05	NP
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
Thallium (mg/L)	HGWA-4 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Thallium (mg/L)	HGWA-5 (bg)	0	0	34	No	13	100	n/a	n/a	0.05	NP
Thallium (mg/L)	HGWA-6 (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 Dissolved Solids (mg/L)	HGWA-4 (bg)	-20.46	-12	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-5 (bg)	-3.047	-7	-30	No	12	0	n/a	n/a	0.05	NP
Total Dissolved Solids (mg/L)	HGWA-6 (bg)	4.34	22	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
Total Radium (pCi/L)	HGWA-4 (bg)	-0.1923	-30	-34	No	13	0	n/a	n/a	0.05	NP
Total Radium (pCi/L)	HGWA-5 (bg)	-0.008895	0	34	No	13	0	n/a	n/a	0.05	NP
Total Radium (pCi/L)	HGWA-6 (bg)	-0.009391	-2	-34	No	13	0	n/a	n/a	0.05	NP

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

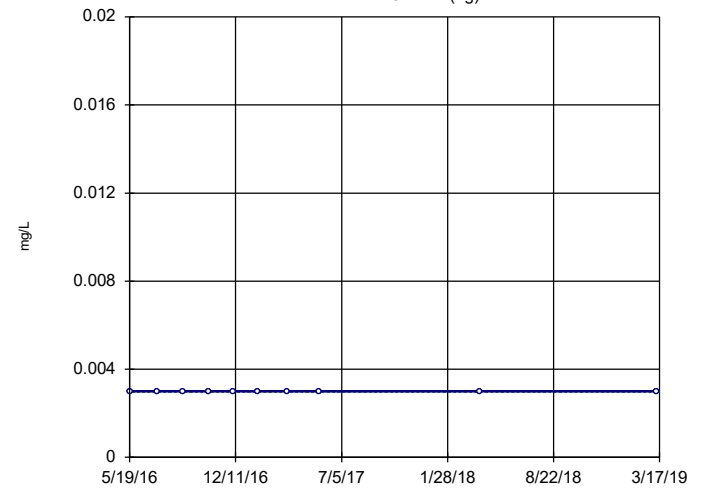


n = 10
Slope = 0
units per year.
Mann-Kendall
statistic = 3
critical = 23
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Antimony Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

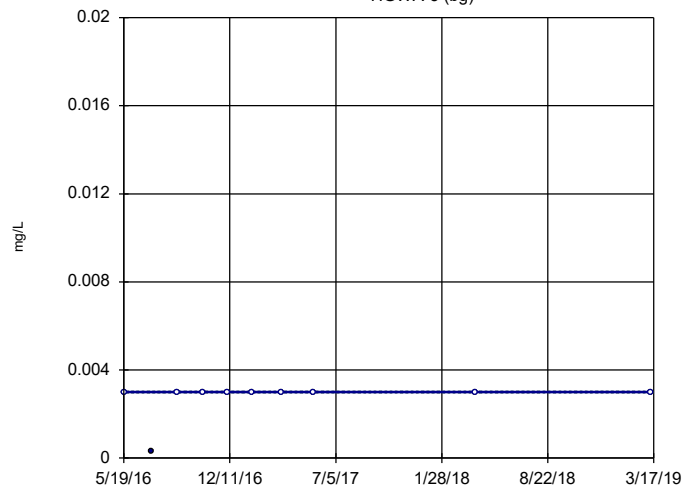


n = 10
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 23
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Antimony Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

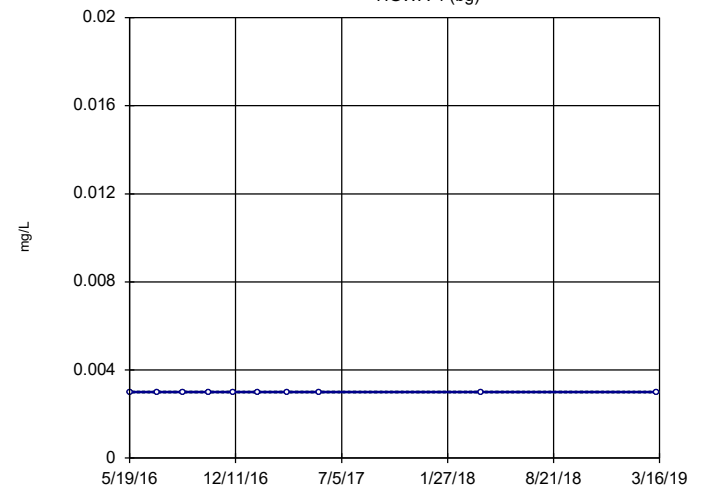


n = 10
Slope = 0
units per year.
Mann-Kendall
statistic = 7
critical = 23
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Antimony Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

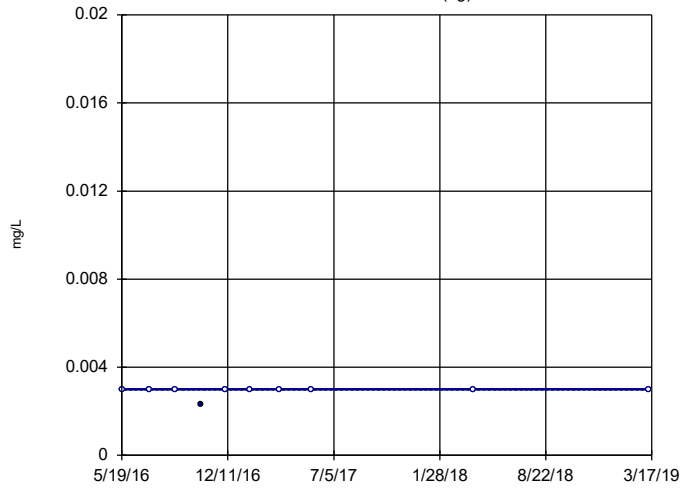
HGWA-4 (bg)



n = 10
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 23
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Antimony Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

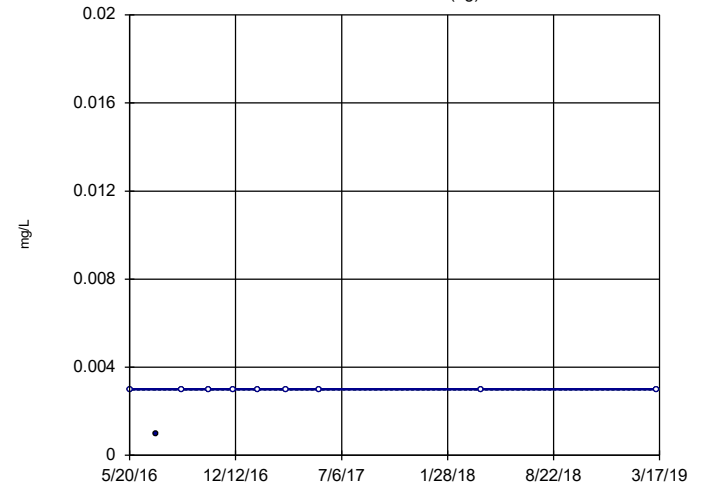
Sen's Slope and 95% Confidence Band
 HGWA-5 (bg)



n = 10
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = 3
 critical = 23
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Antimony Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

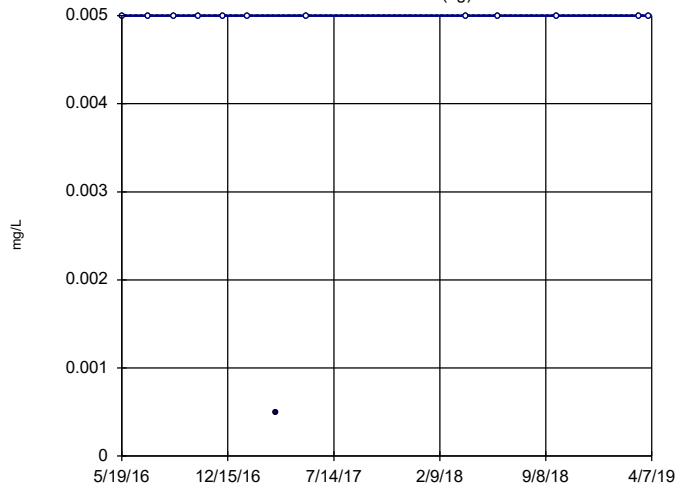
Sen's Slope and 95% Confidence Band
 HGWA-6 (bg)



n = 10
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = 7
 critical = 23
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Antimony Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

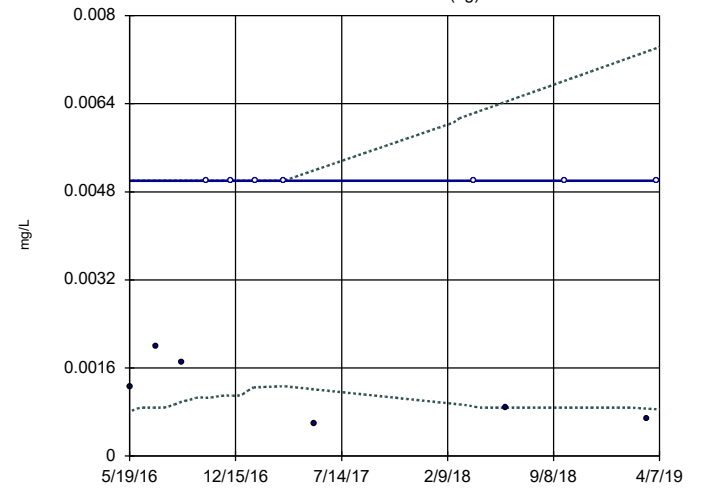
Sen's Slope and 95% Confidence Band
 HGWA-1 (bg)



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: Arsenic Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
 HGWA-2 (bg)

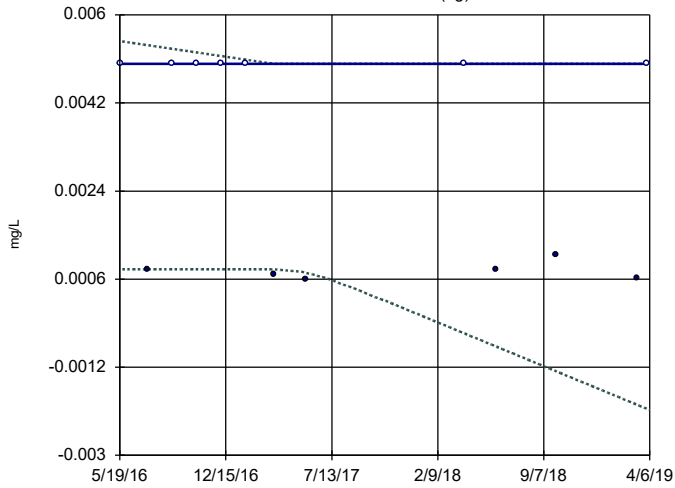


n = 13
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = 5
 critical = 34
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Arsenic Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

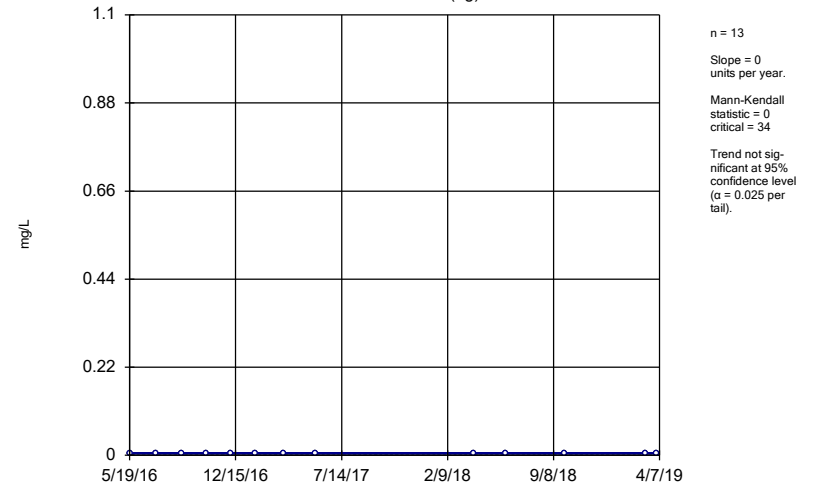
HGWA-3 (bg)



Constituent: Arsenic Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

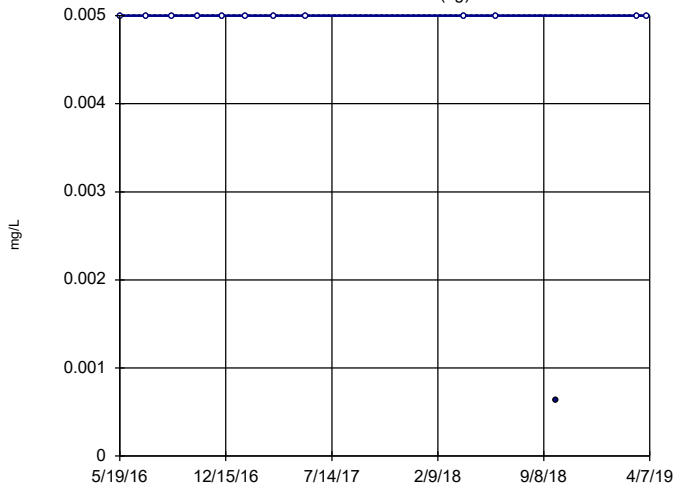
HGWA-4 (bg)



Constituent: Arsenic Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

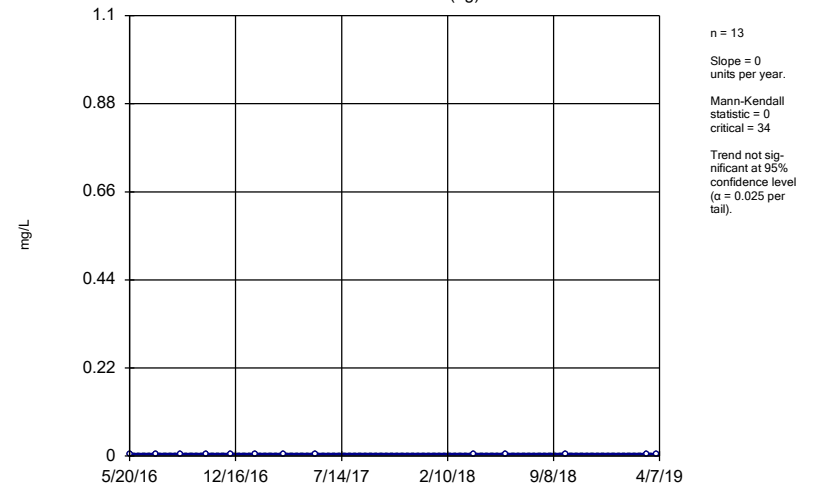
HGWA-5 (bg)



Constituent: Arsenic Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

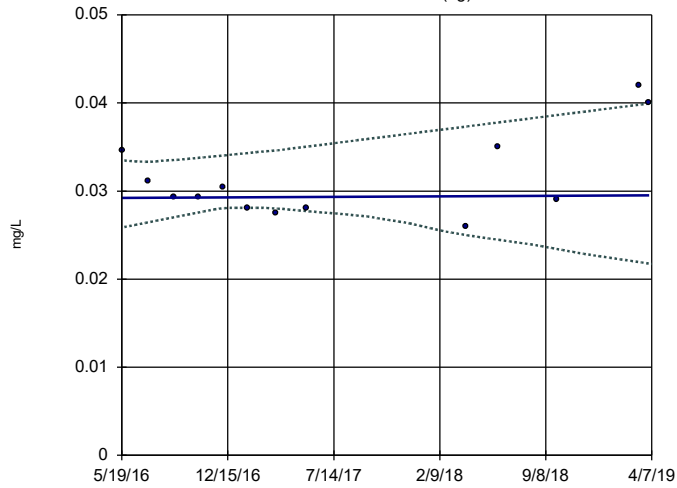
HGWA-6 (bg)



Constituent: Arsenic Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

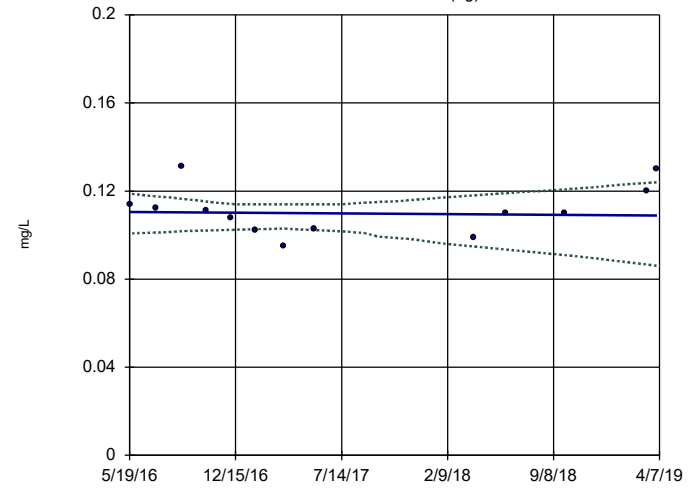


n = 13
 Slope = 0.00009786
 units per year.
 Mann-Kendall
 statistic = 1
 critical = 34
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Barium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

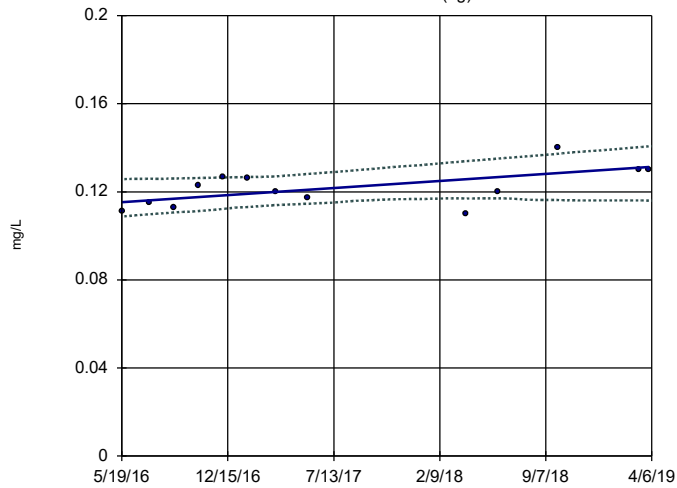


n = 13
 Slope = -0.0005641
 units per year.
 Mann-Kendall
 statistic = -5
 critical = -34
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Barium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

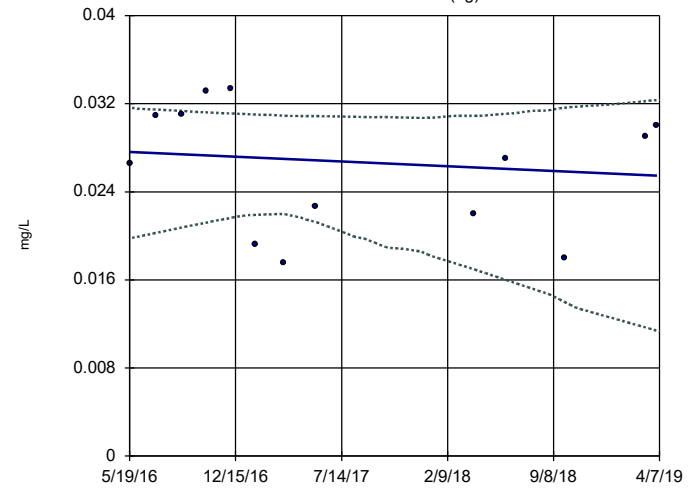


n = 13
 Slope = 0.00557
 units per year.
 Mann-Kendall
 statistic = 32
 critical = 34
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Barium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

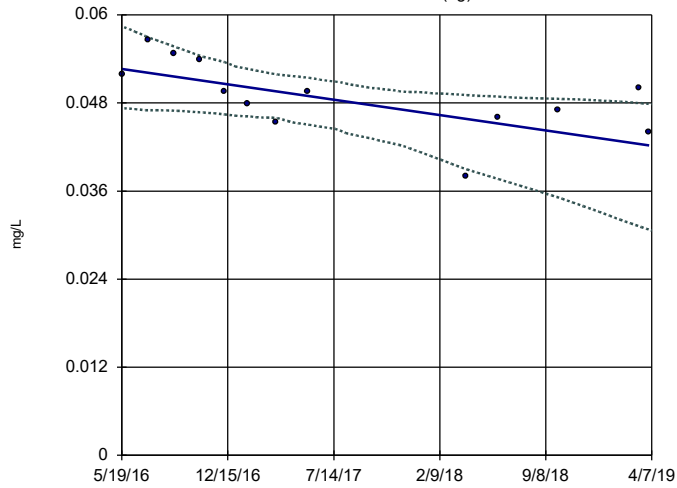


n = 13
 Slope = -0.0007518
 units per year.
 Mann-Kendall
 statistic = -8
 critical = -34
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Barium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

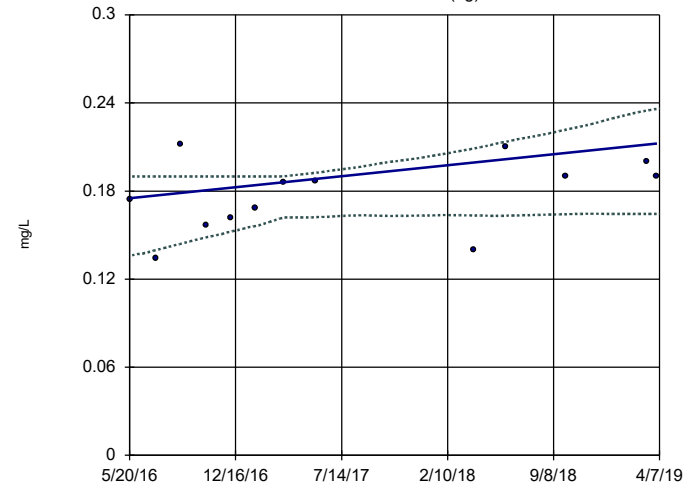


n = 13
 Slope = -0.003634
 units per year.
 Mann-Kendall
 statistic = -41
 critical = -34
 Decreasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Barium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-6 (bg)

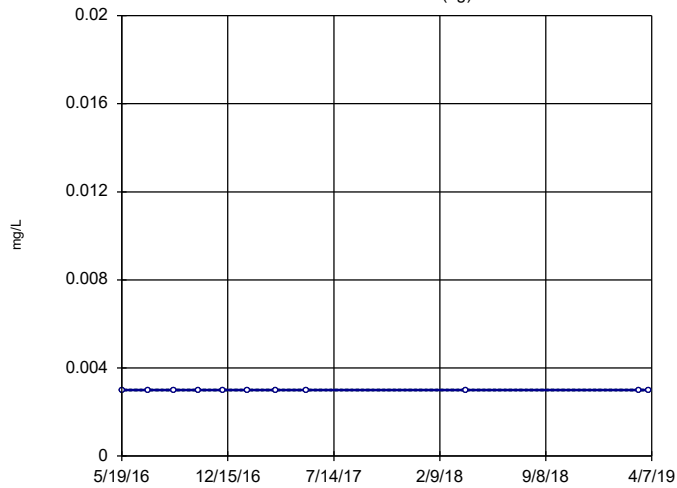


n = 13
 Slope = 0.01296
 units per year.
 Mann-Kendall
 statistic = 29
 critical = 34
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Barium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

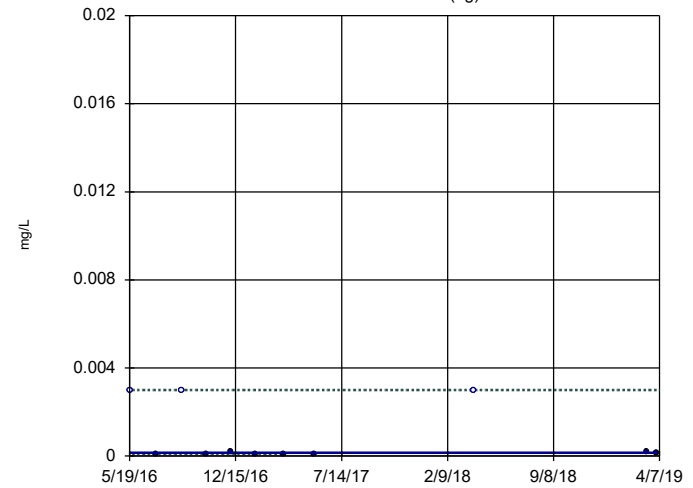


n = 11
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = 0
 critical = 27
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Beryllium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

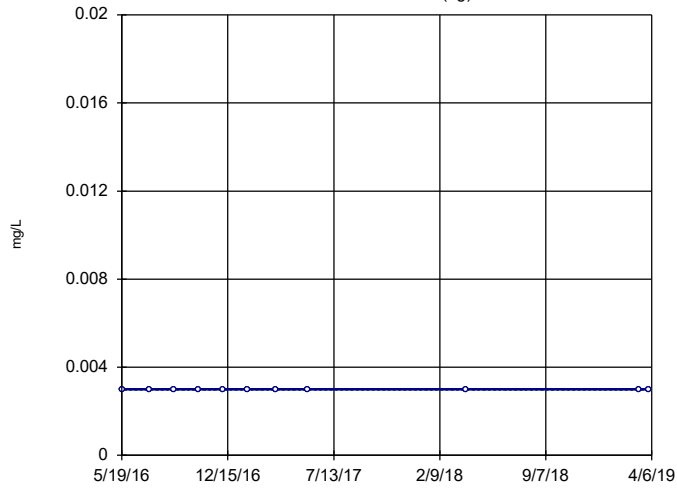


n = 11
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = -4
 critical = -27
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Beryllium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

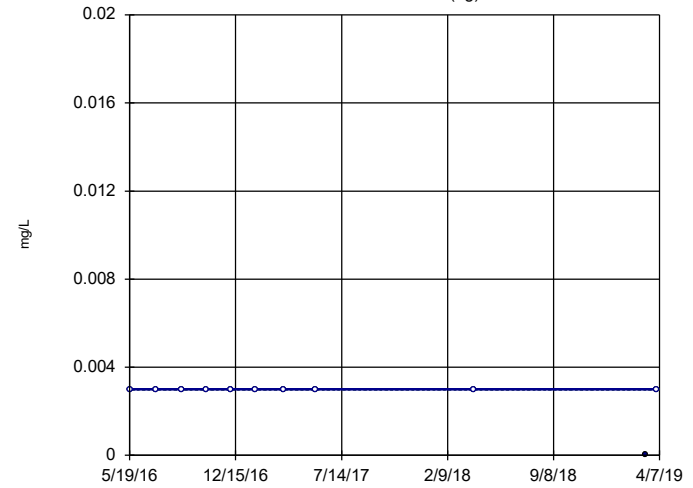


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Beryllium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

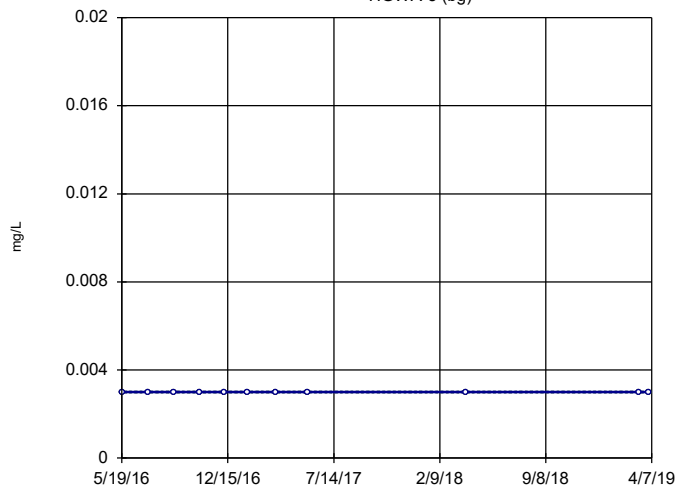


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = -8
critical = -27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Beryllium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

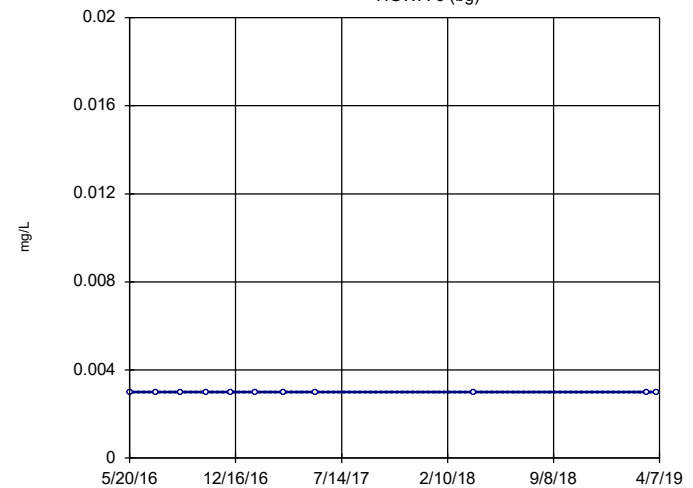


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Beryllium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-6 (bg)

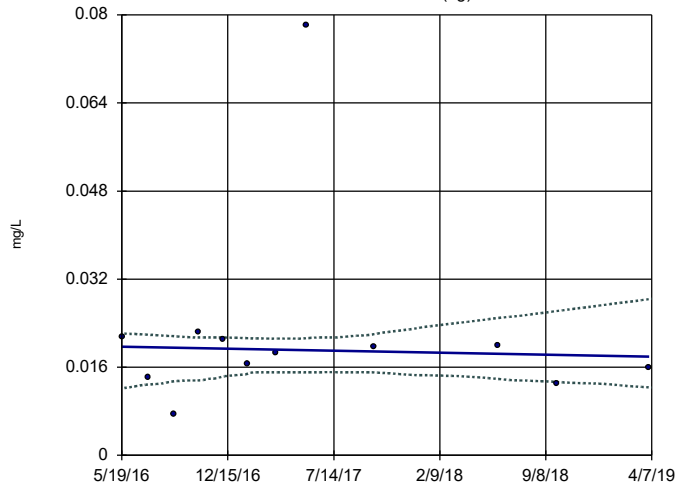


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Beryllium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

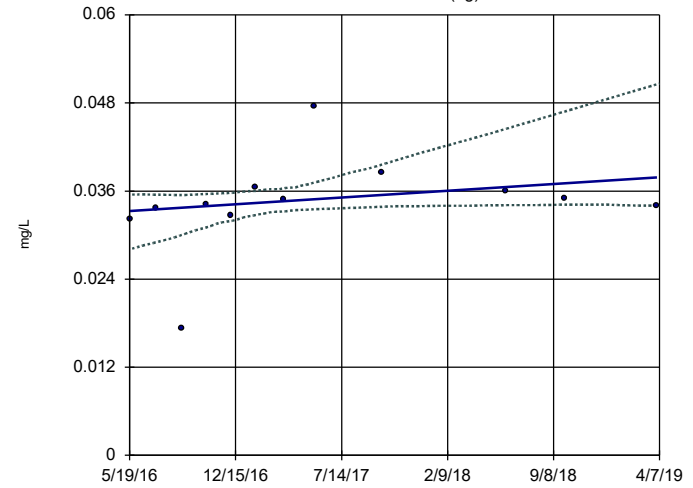


n = 12
 Slope = -0.0006149
 units per year.
 Mann-Kendall
 statistic = -6
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Boron Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

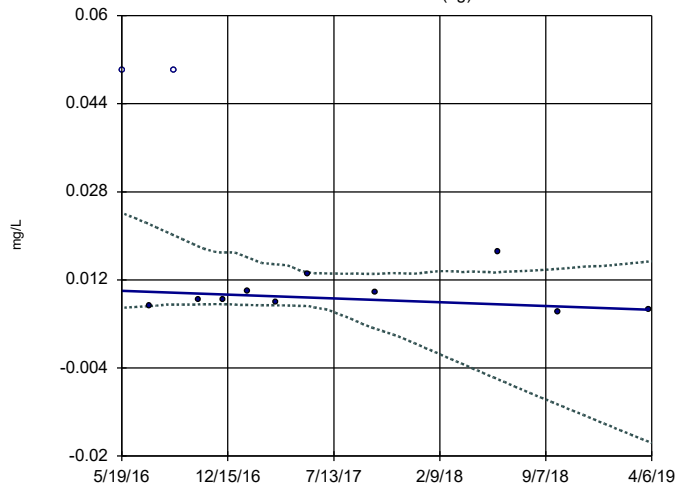


n = 12
 Slope = 0.001596
 units per year.
 Mann-Kendall
 statistic = 26
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Boron Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

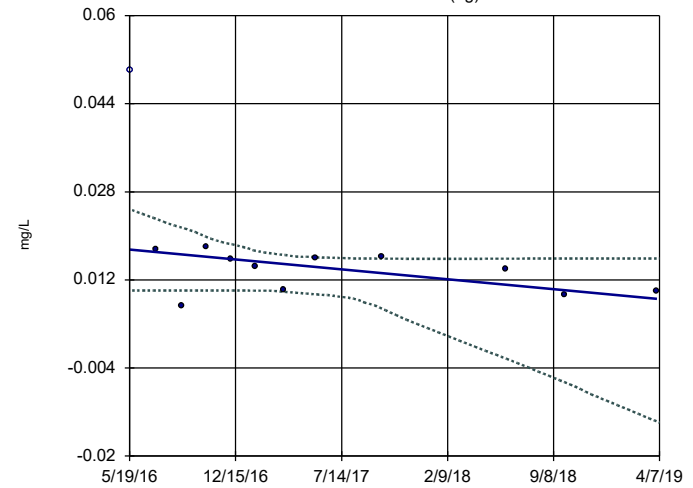


n = 12
 Slope = -0.001203
 units per year.
 Mann-Kendall
 statistic = -16
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Boron Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

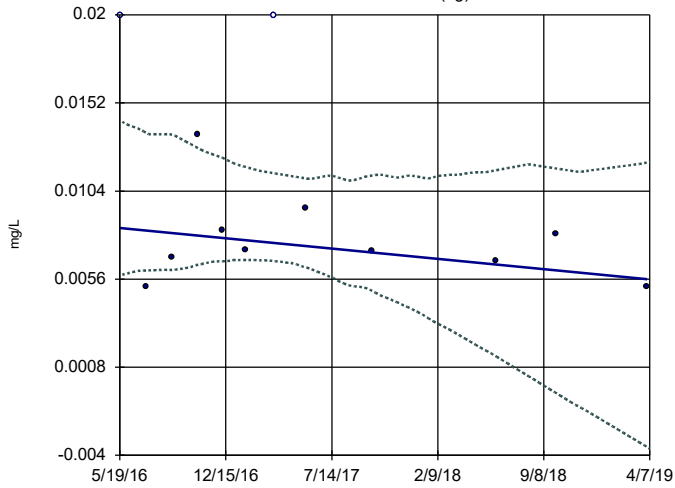


n = 12
 Slope = -0.003129
 units per year.
 Mann-Kendall
 statistic = -28
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Boron Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

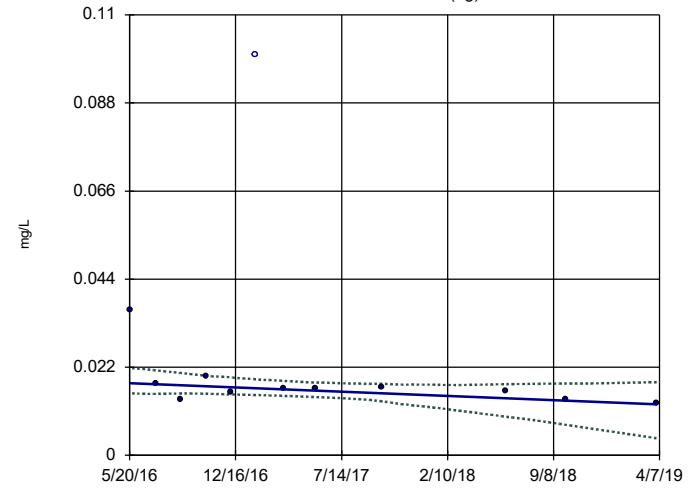


n = 12
Slope = -0.0009715
units per year.
Mann-Kendall
statistic = -16
critical = -30
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Boron Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-6 (bg)

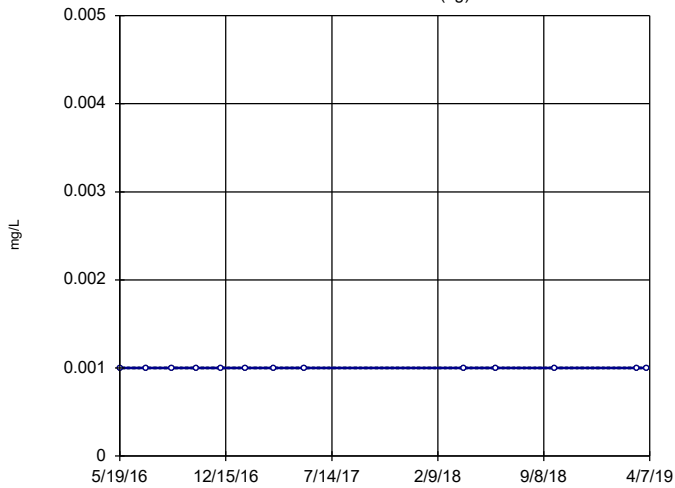


n = 12
Slope = -0.001836
units per year.
Mann-Kendall
statistic = -27
critical = -30
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Boron Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

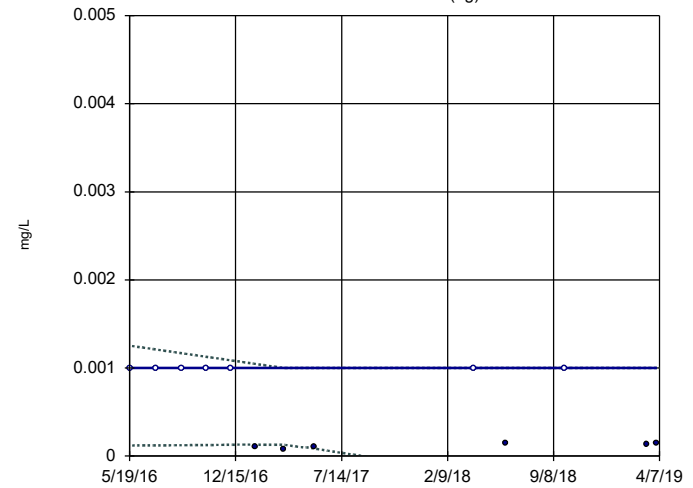


n = 13
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 34
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Cadmium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

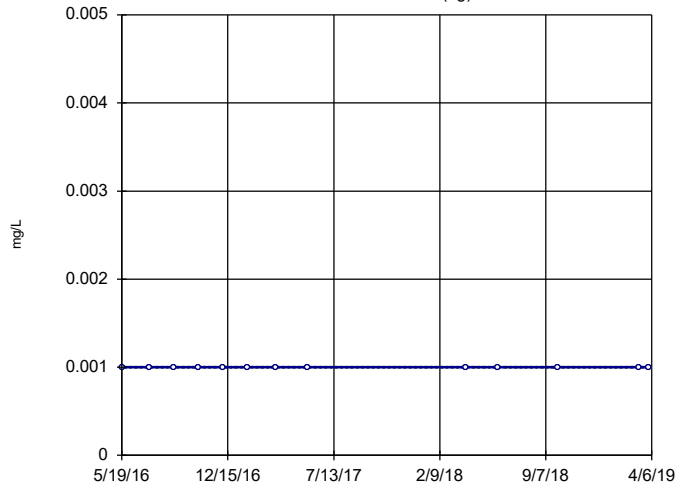


n = 13
Slope = 0
units per year.
Mann-Kendall
statistic = -18
critical = -34
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Cadmium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

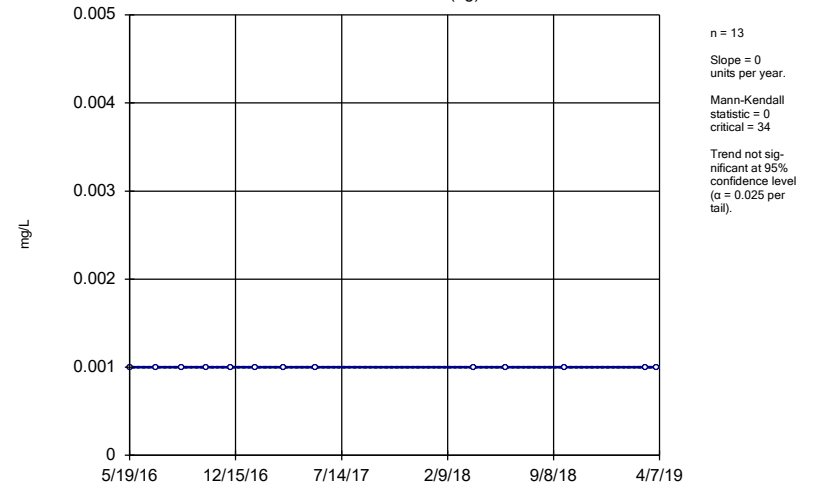
HGWA-3 (bg)



Constituent: Cadmium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

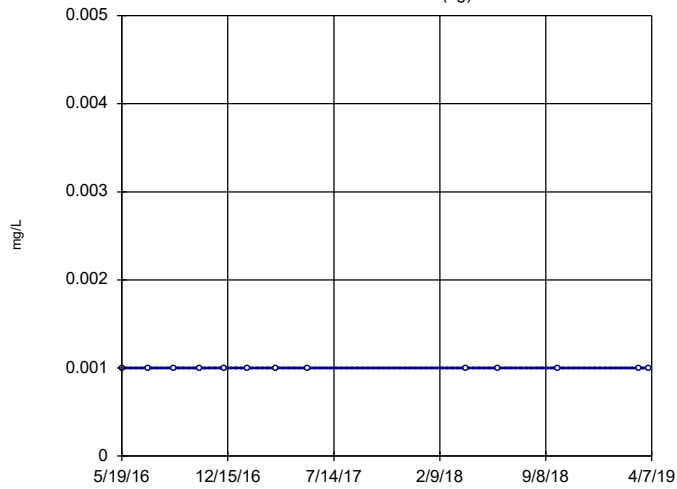
HGWA-4 (bg)



Constituent: Cadmium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

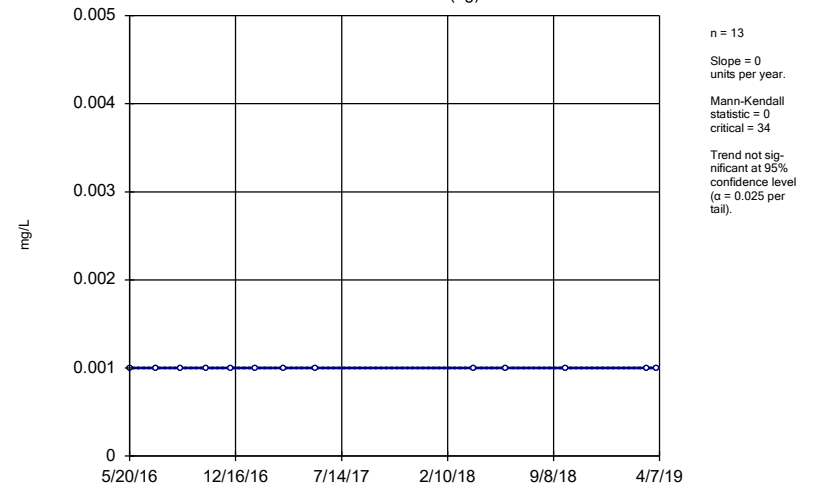
HGWA-5 (bg)



Constituent: Cadmium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

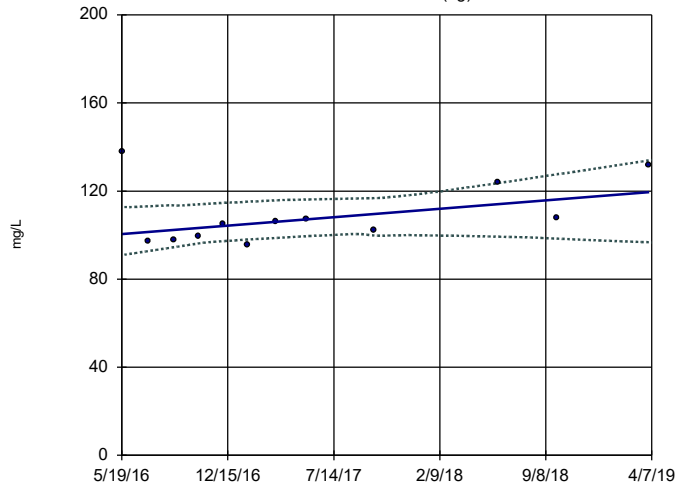
HGWA-6 (bg)



Constituent: Cadmium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

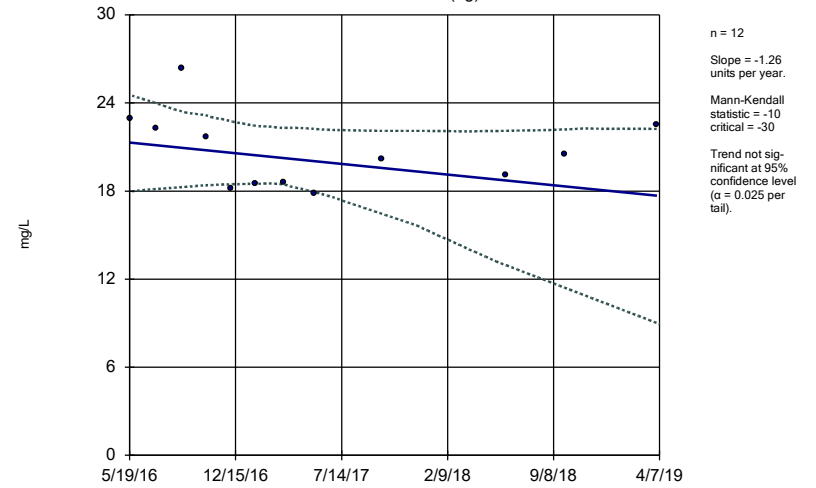
HGWA-1 (bg)



Constituent: Calcium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

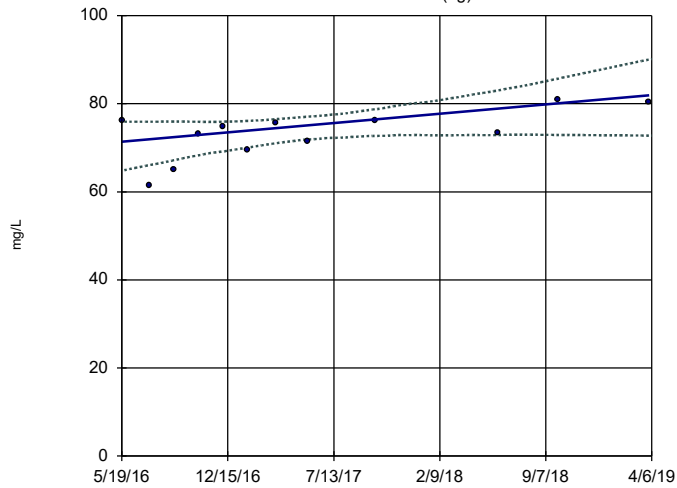
HGWA-2 (bg)



Constituent: Calcium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

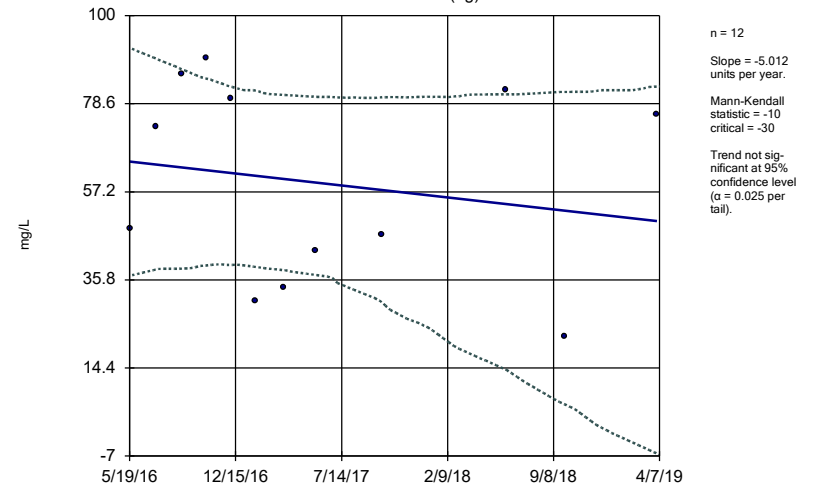
HGWA-3 (bg)



Constituent: Calcium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

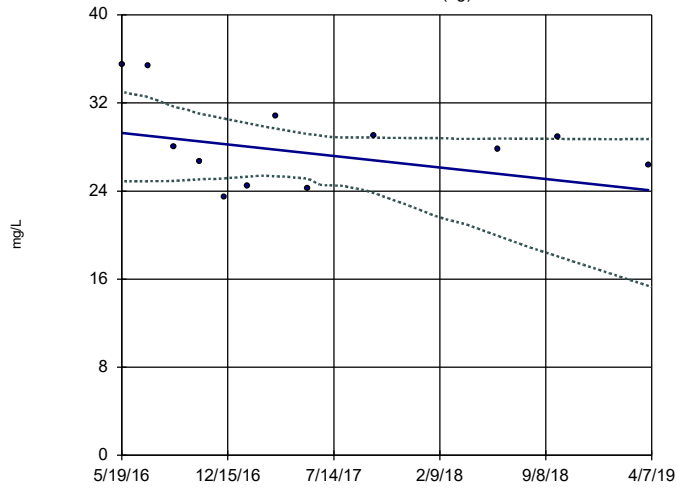
HGWA-4 (bg)



Constituent: Calcium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

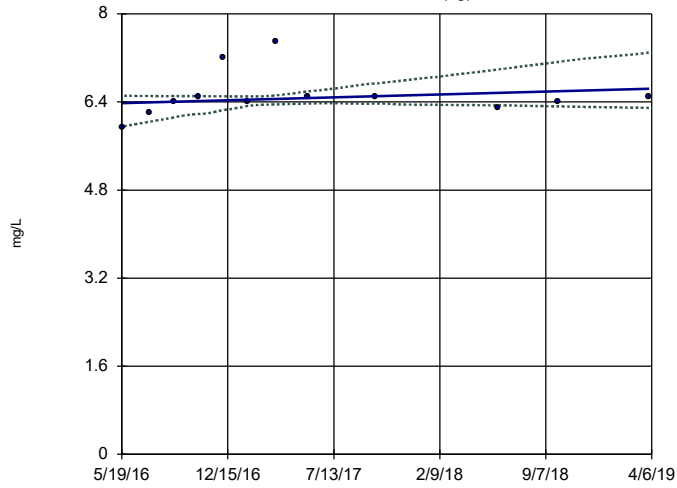
Sen's Slope and 95% Confidence Band

HGWA-5 (bg)



Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

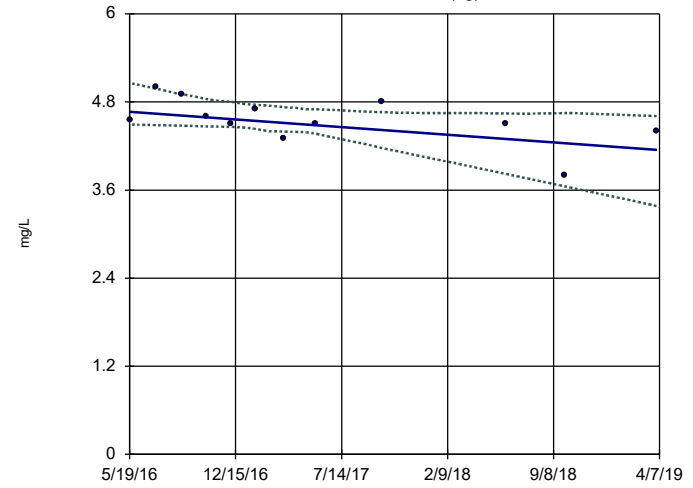


n = 12
 Slope = 0.09075
 units per year.
 Mann-Kendall
 statistic = 17
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Chloride Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

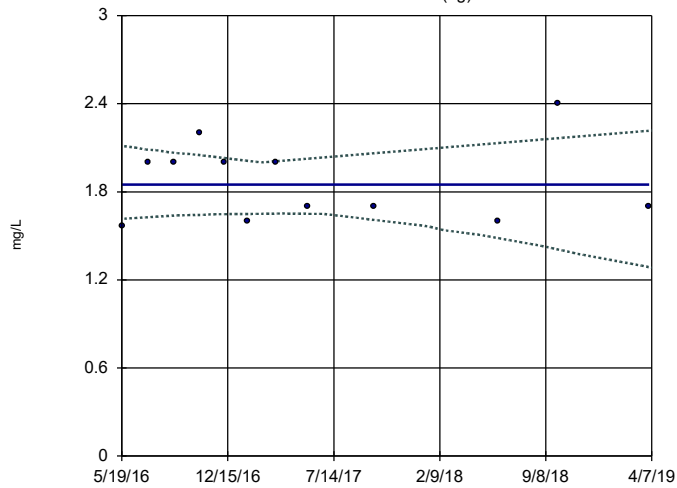


n = 12
 Slope = -0.1811
 units per year.
 Mann-Kendall
 statistic = -31
 critical = -30
 Decreasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Chloride Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

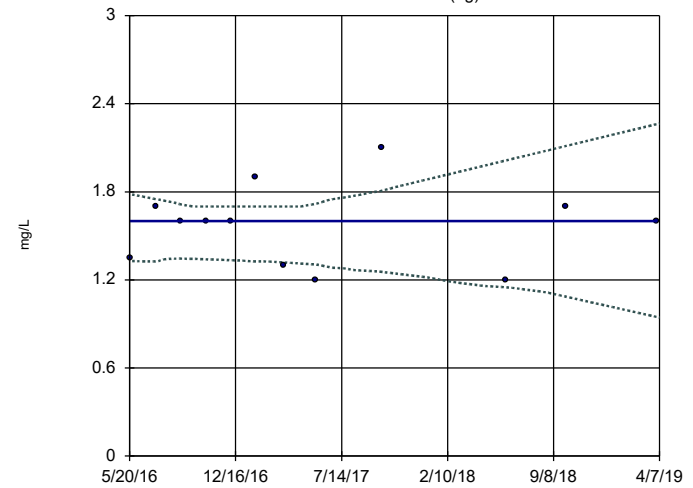


n = 12
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = -2
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Chloride Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

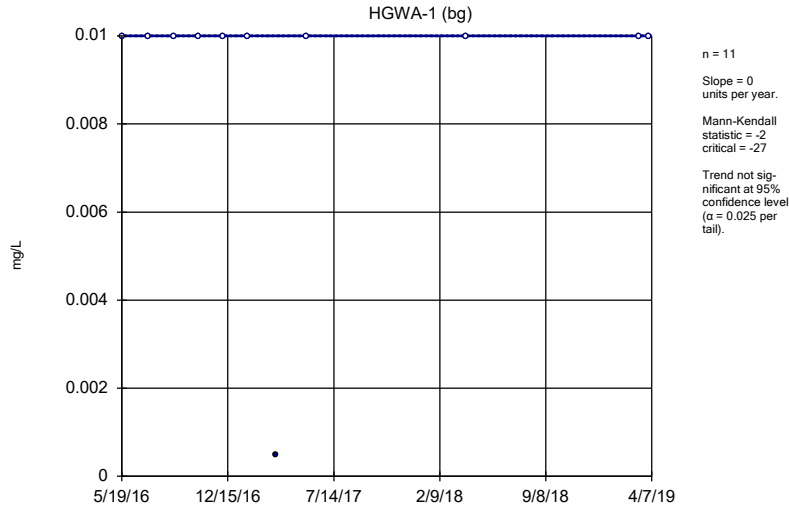
HGWA-6 (bg)



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).

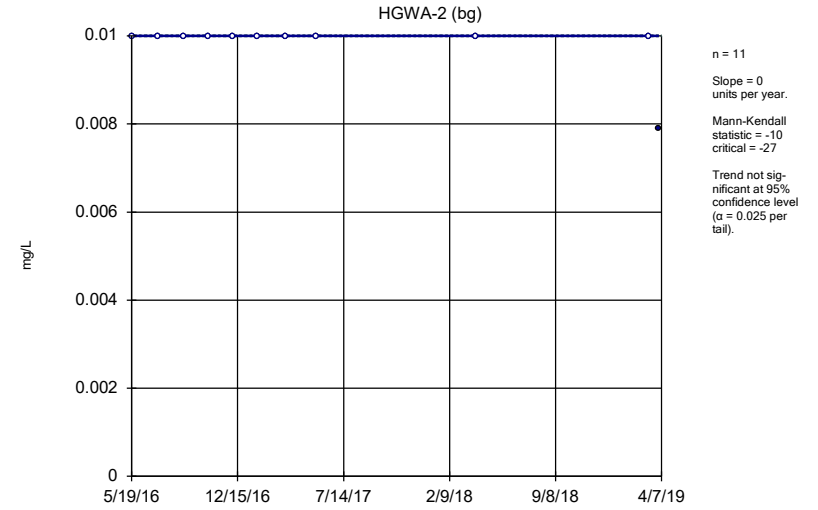
Constituent: Chloride Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band



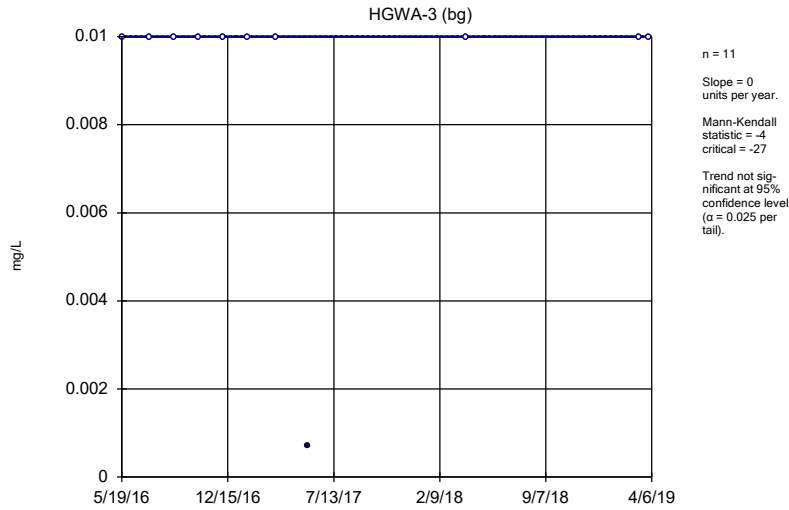
Constituent: Chromium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band



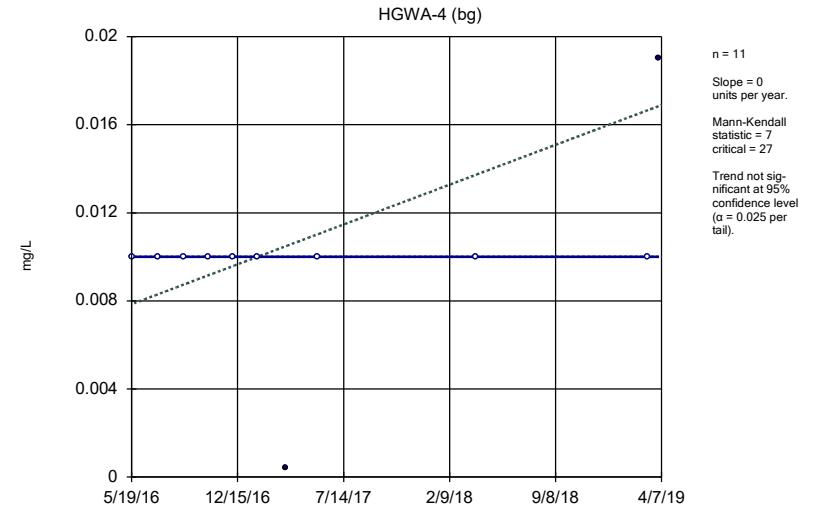
Constituent: Chromium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band



Constituent: Chromium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

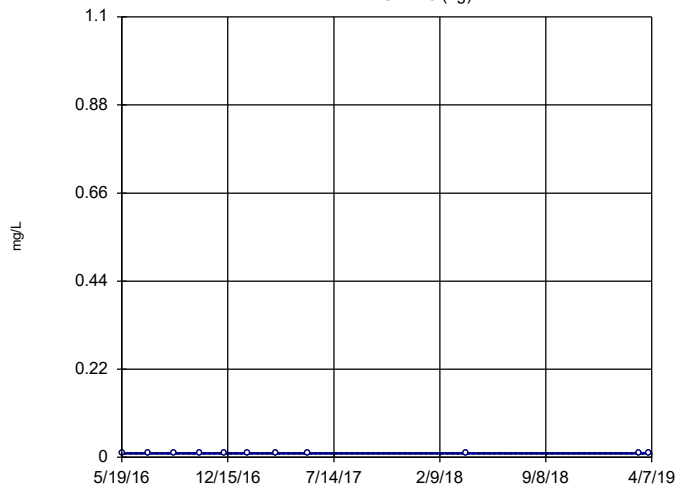
Sen's Slope and 95% Confidence Band



Constituent: Chromium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

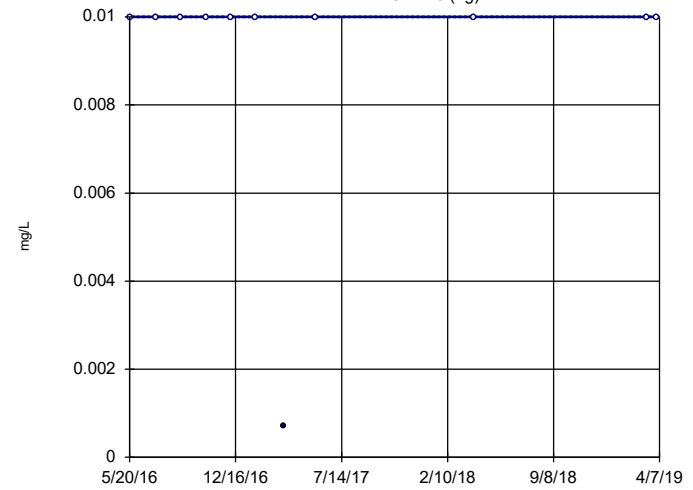


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Chromium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-6 (bg)

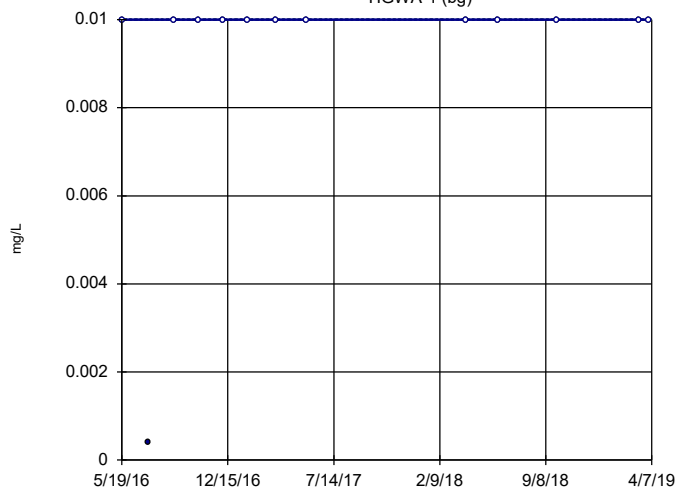


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = -2
critical = -27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Chromium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

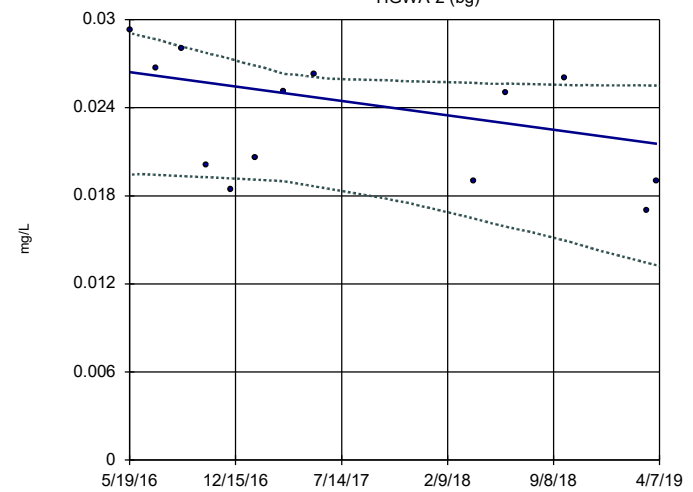


n = 13
Slope = 0
units per year.
Mann-Kendall
statistic = 10
critical = 34
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Cobalt Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

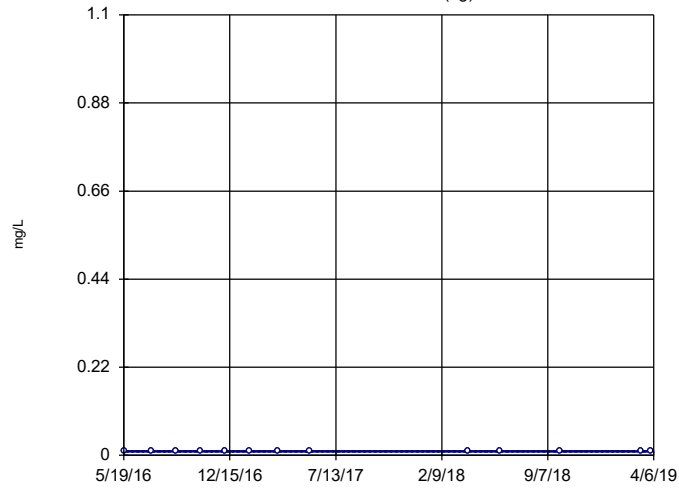


n = 13
Slope = -0.001697
units per year.
Mann-Kendall
statistic = -31
critical = -34
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Cobalt Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

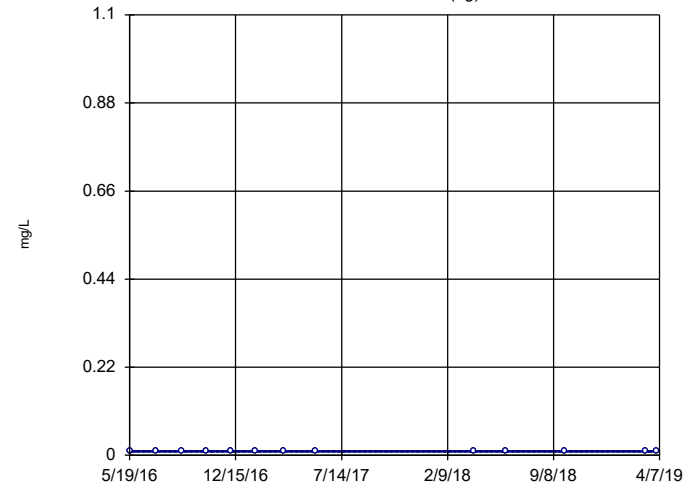
HGWA-3 (bg)



Constituent: Cobalt Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

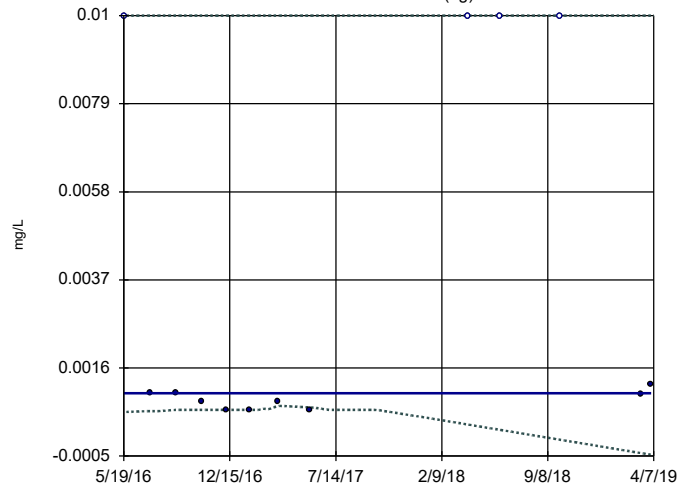
HGWA-4 (bg)



Constituent: Cobalt Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

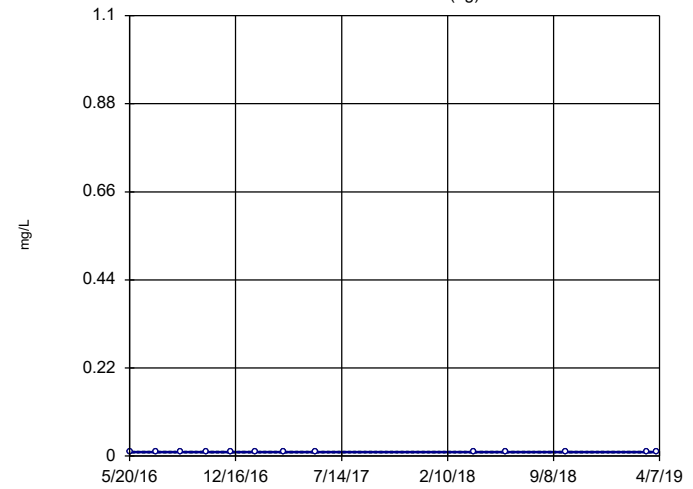
HGWA-5 (bg)



Constituent: Cobalt Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

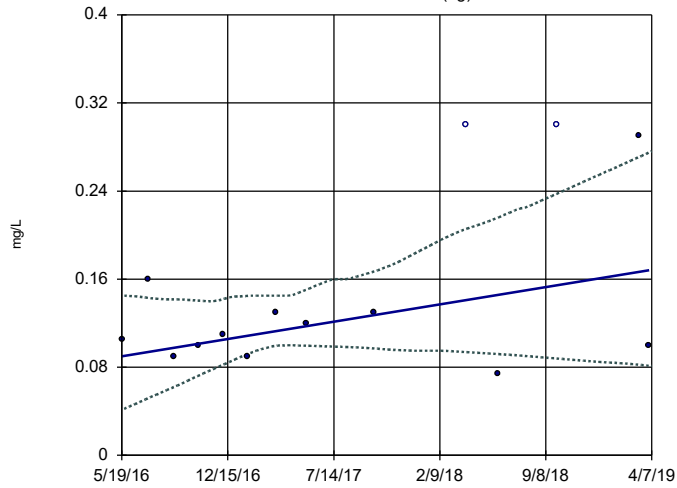
HGWA-6 (bg)



Constituent: Cobalt Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

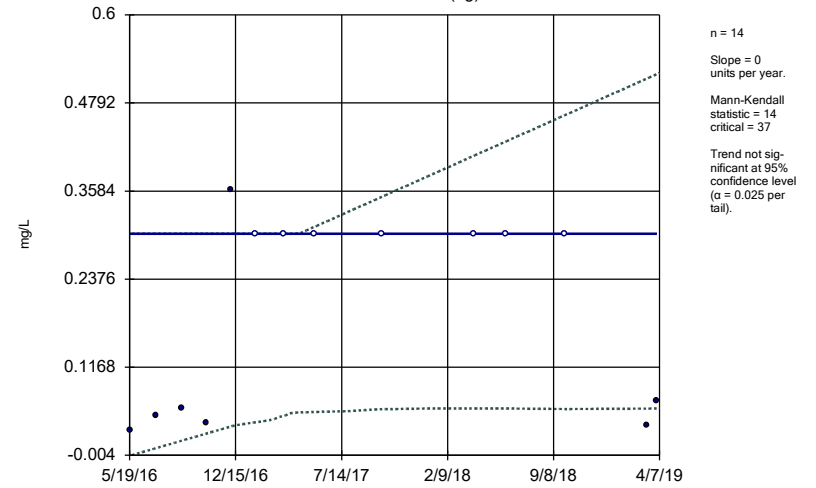
HGWA-1 (bg)



Constituent: Fluoride Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

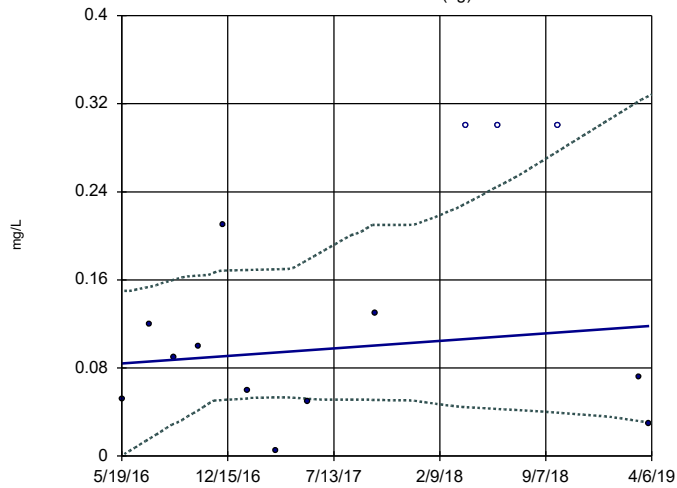
HGWA-2 (bg)



Constituent: Fluoride Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

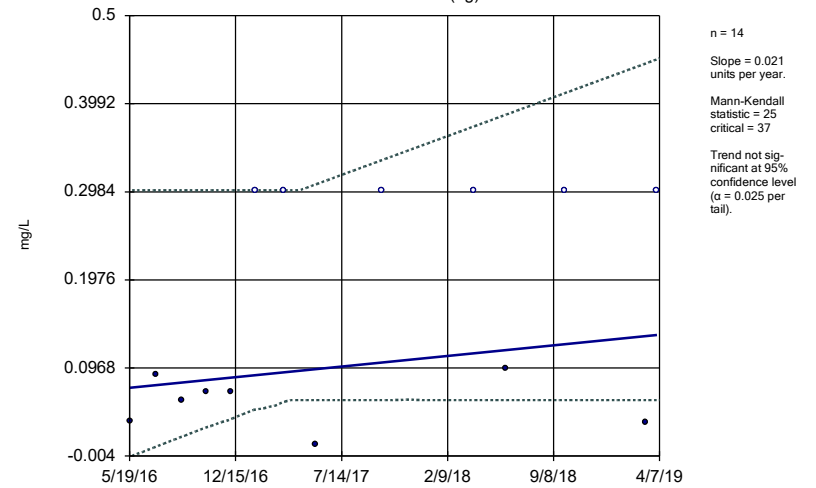
HGWA-3 (bg)



Constituent: Fluoride Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

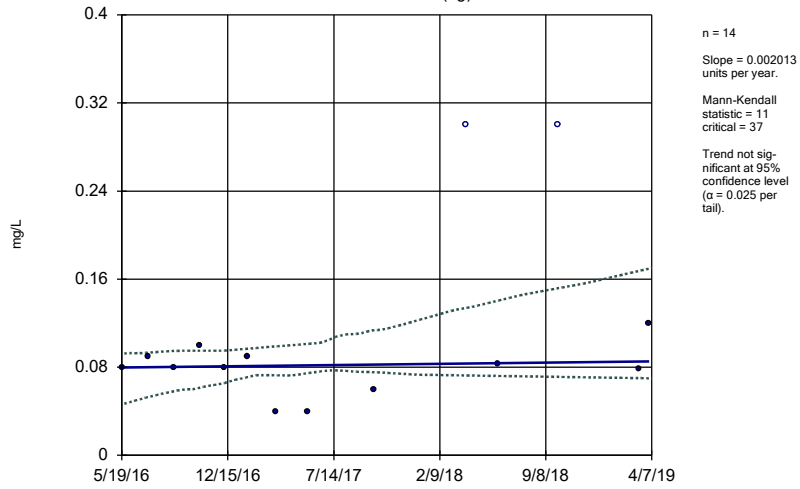
Sen's Slope and 95% Confidence Band

HGWA-4 (bg)



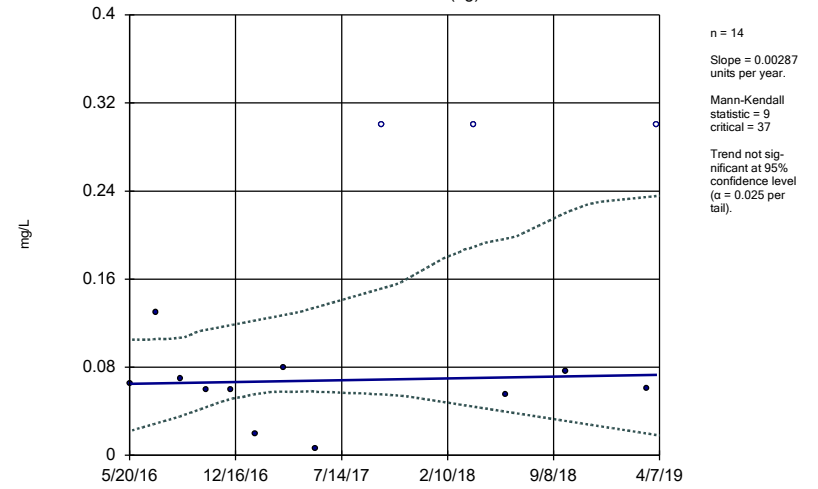
Constituent: Fluoride Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-5 (bg)



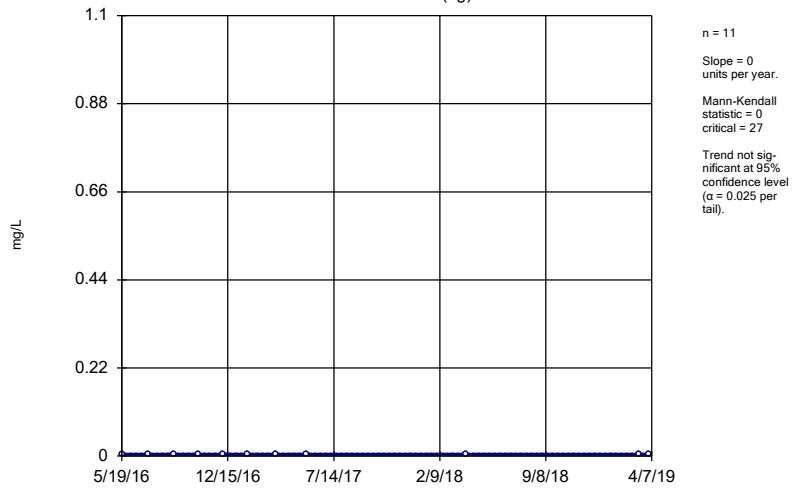
Constituent: Fluoride Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-6 (bg)



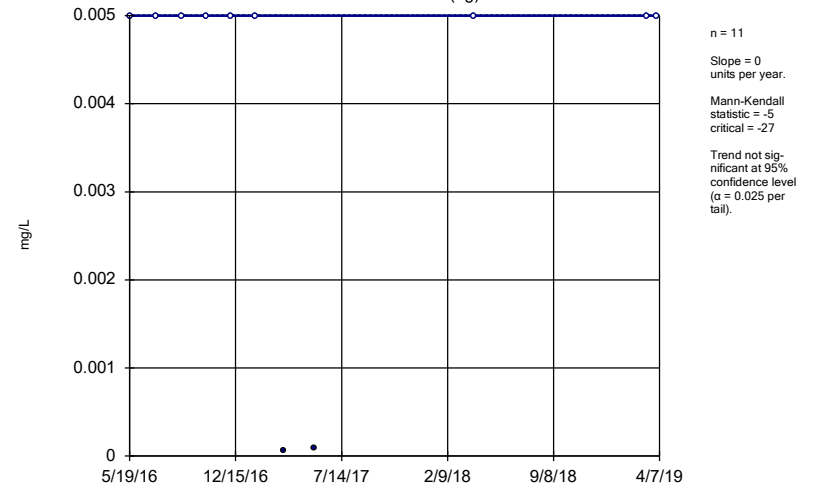
Constituent: Fluoride Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-1 (bg)



Constituent: Lead Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

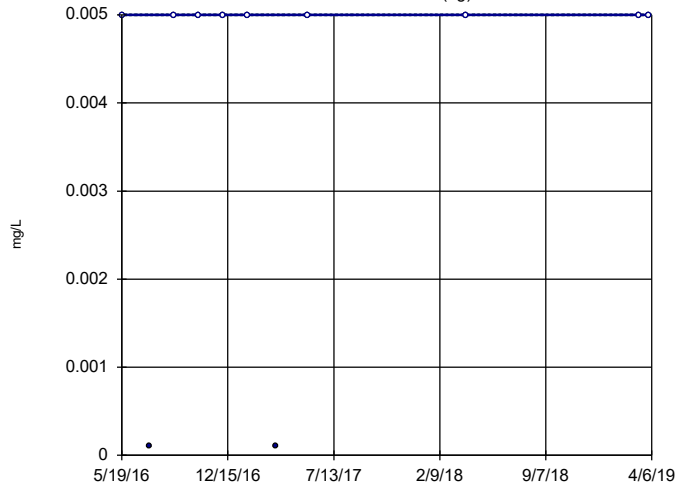
Sen's Slope and 95% Confidence Band
HGWA-2 (bg)



Constituent: Lead Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

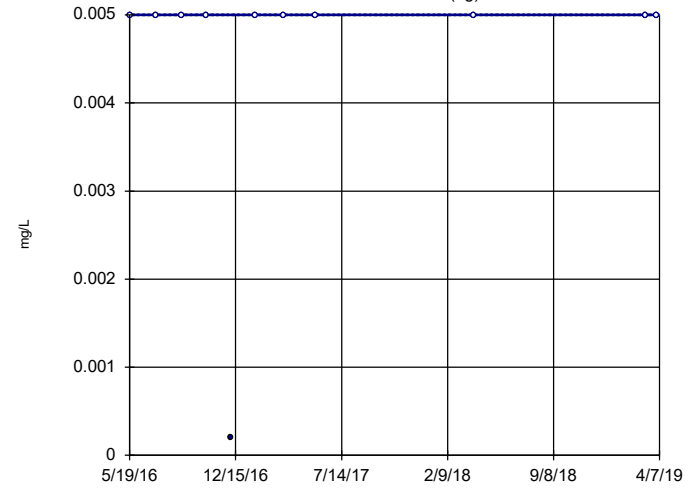


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 6
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Lead Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

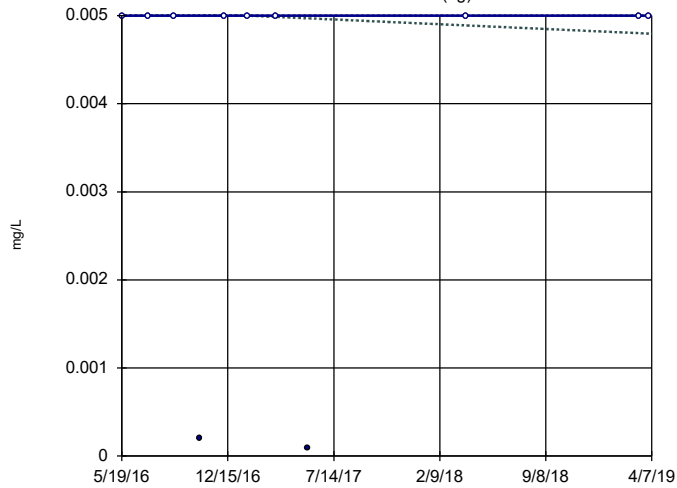


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 2
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Lead Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

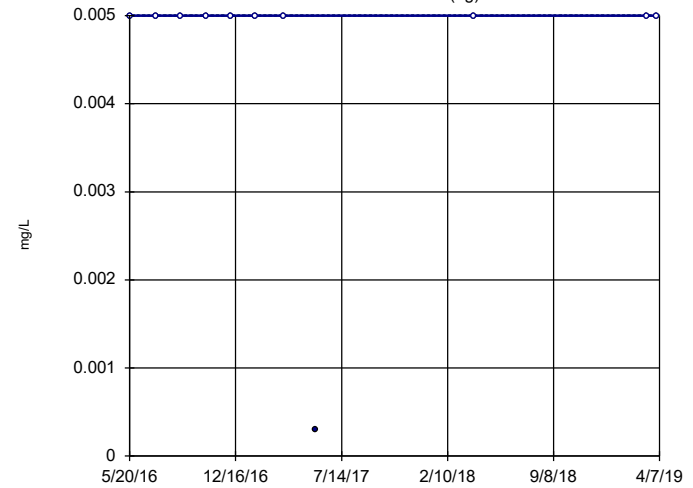


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = -1
critical = -27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Lead Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-6 (bg)

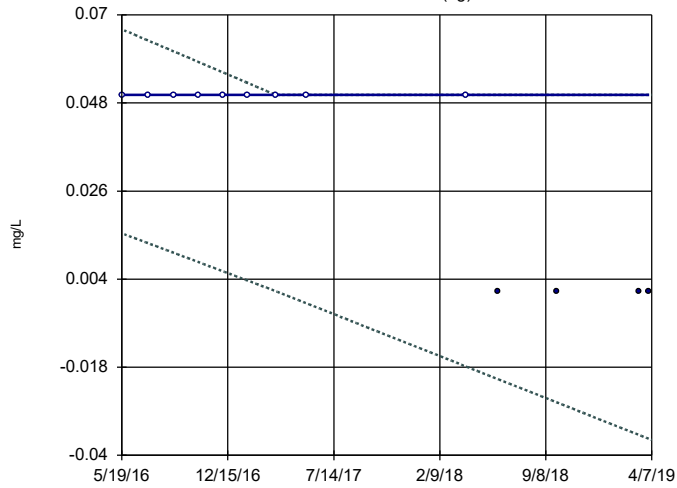


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = -4
critical = -27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Lead Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

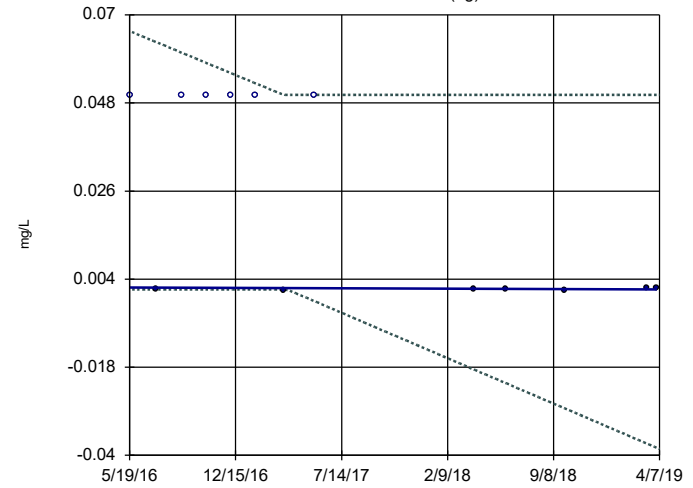


n = 13
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = -35
 critical = -34
 Decreasing trend
 significant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Lithium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

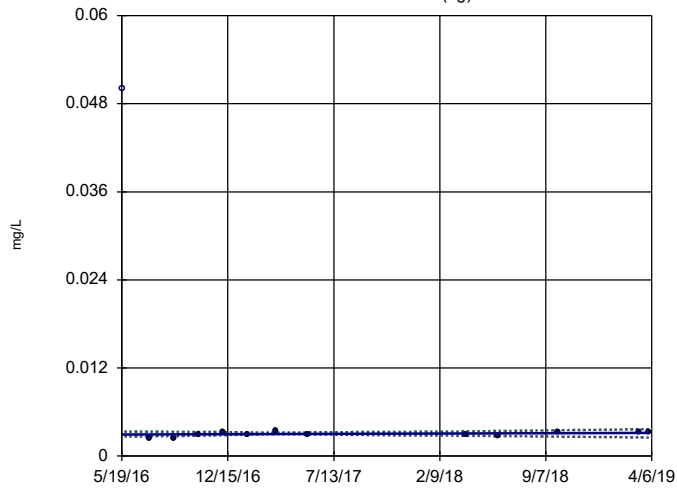


n = 13
 Slope = -0.0001667
 units per year.
 Mann-Kendall
 statistic = -18
 critical = -34
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Lithium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

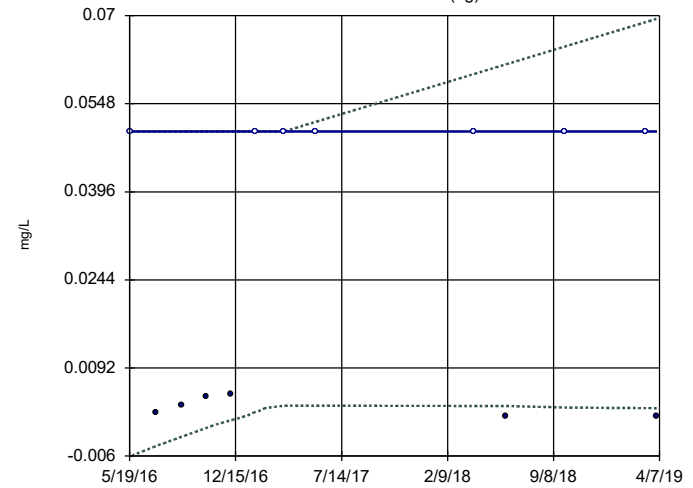


n = 13
 Slope = 0.00008259
 units per year.
 Mann-Kendall
 statistic = 11
 critical = 34
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Lithium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

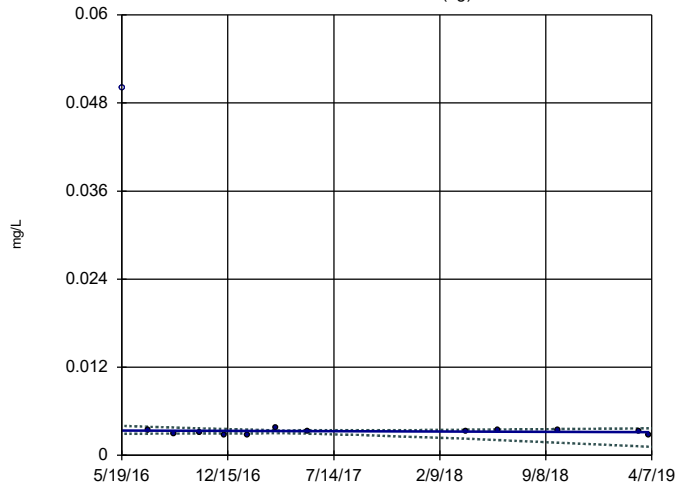


n = 13
 Slope = 0
 units per year.
 Mann-Kendall
 statistic = 9
 critical = 34
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Lithium Analysis Run 7/22/2019 2:04 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

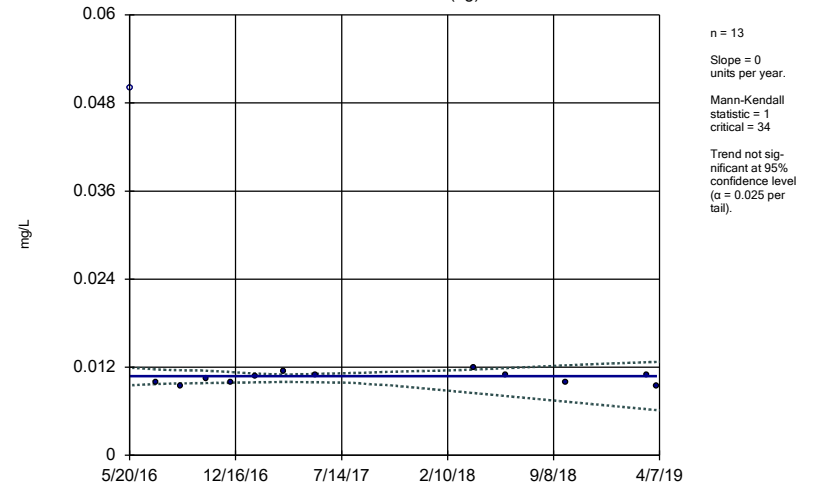
HGWA-5 (bg)



Constituent: Lithium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

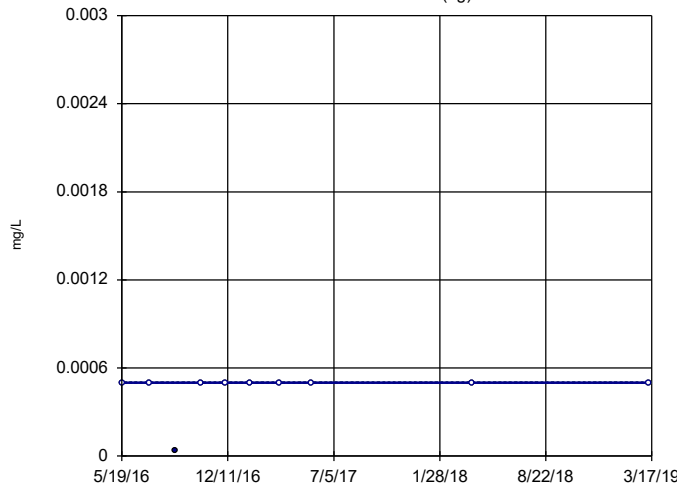
HGWA-6 (bg)



Constituent: Lithium Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

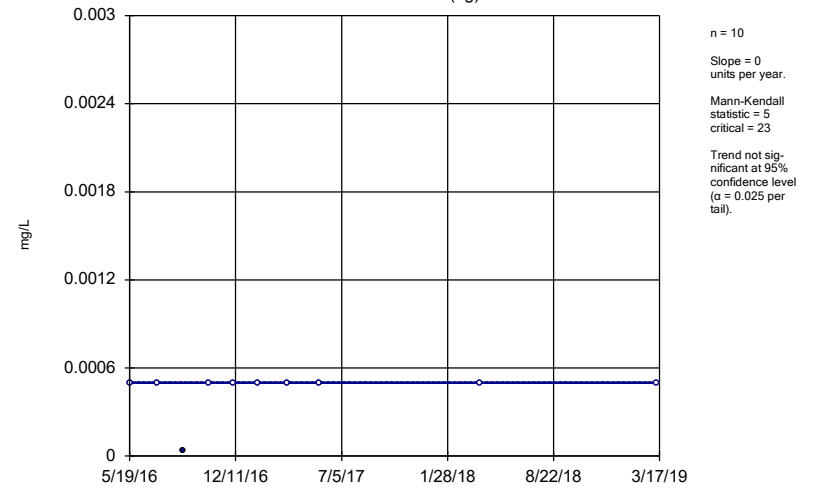
HGWA-1 (bg)



Constituent: Mercury Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

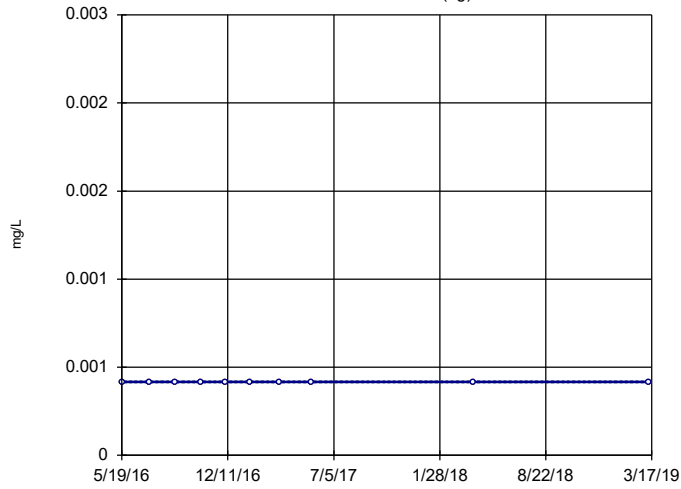
Sen's Slope and 95% Confidence Band

HGWA-2 (bg)



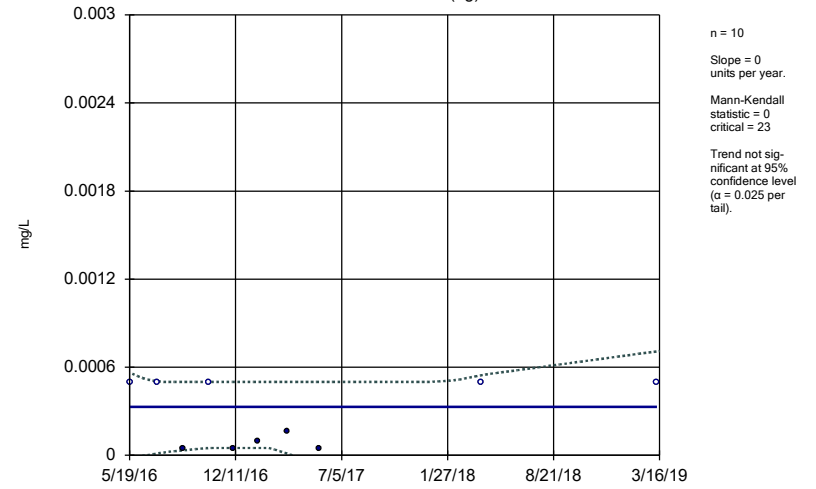
Constituent: Mercury Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band HGWA-3 (bg)



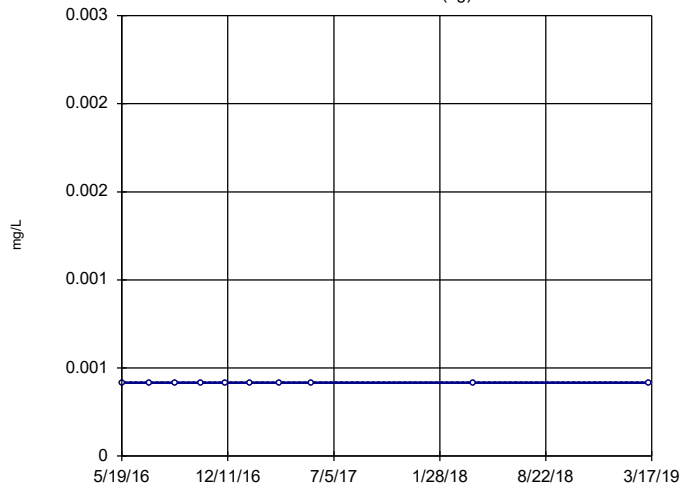
Constituent: Mercury Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band HGWA-4 (bg)



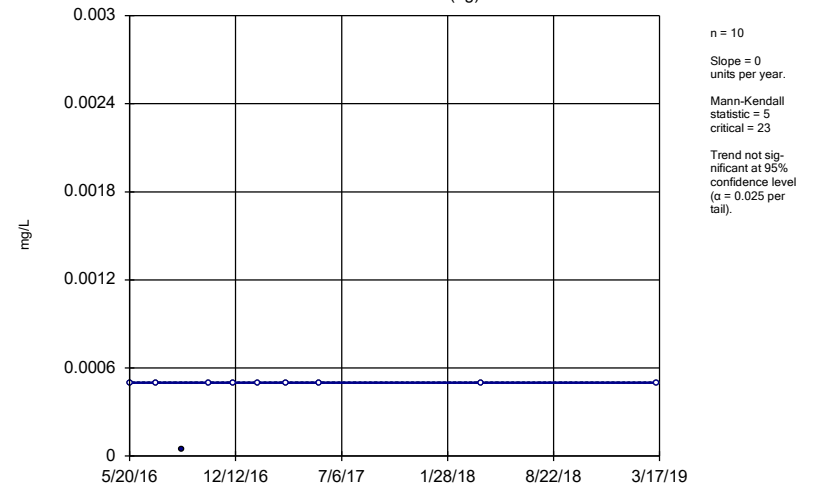
Constituent: Mercury Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band HGWA-5 (bg)



Constituent: Mercury Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

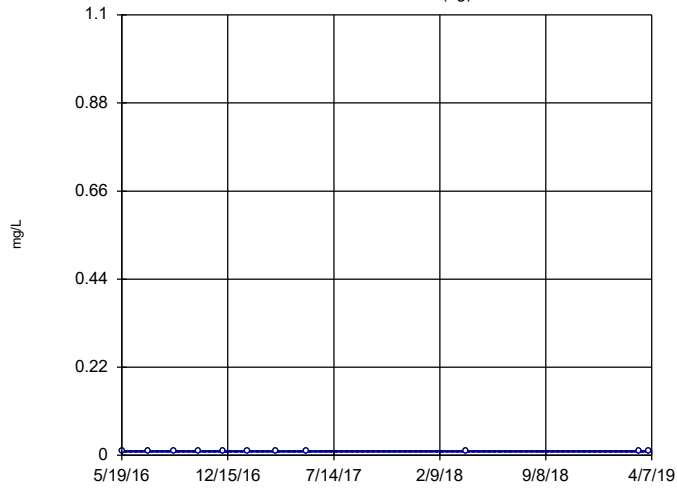
Sen's Slope and 95% Confidence Band HGWA-6 (bg)



Constituent: Mercury Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

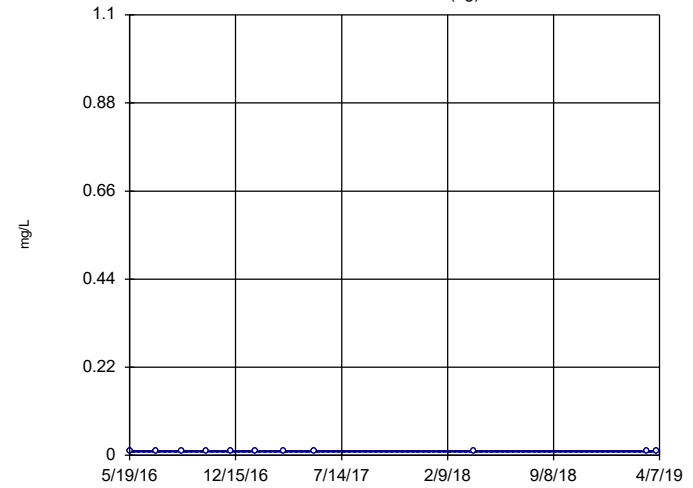


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Molybdenum Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

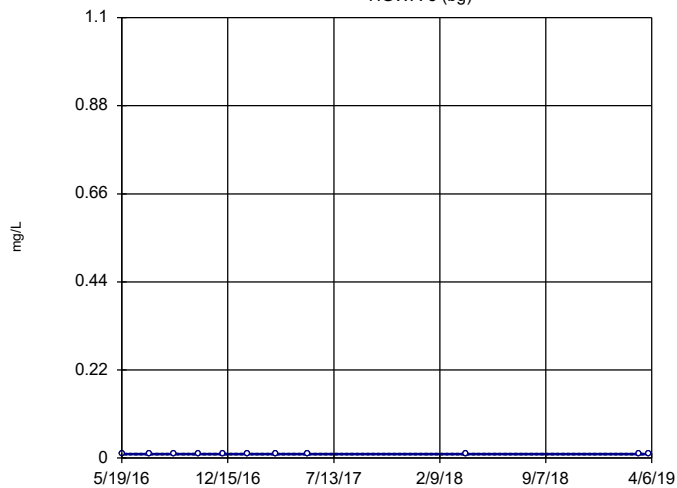


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Molybdenum Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

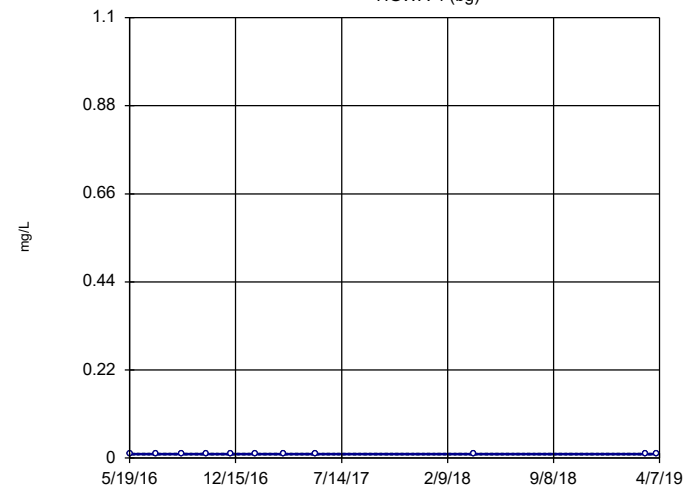


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Molybdenum Analysis Run 7/22/2019 2:04 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

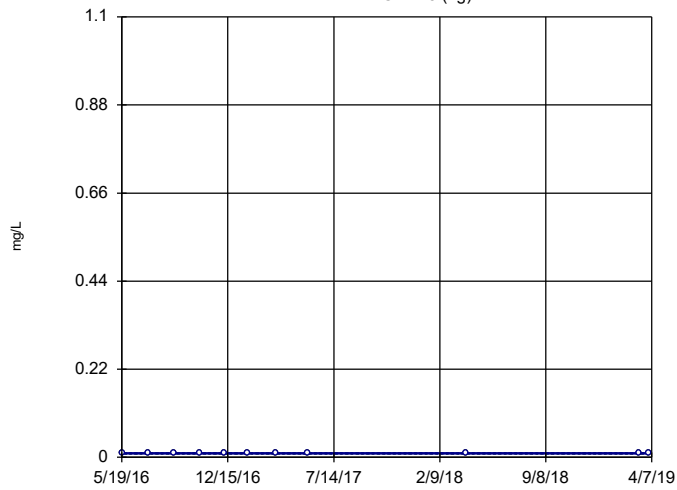


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Molybdenum Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

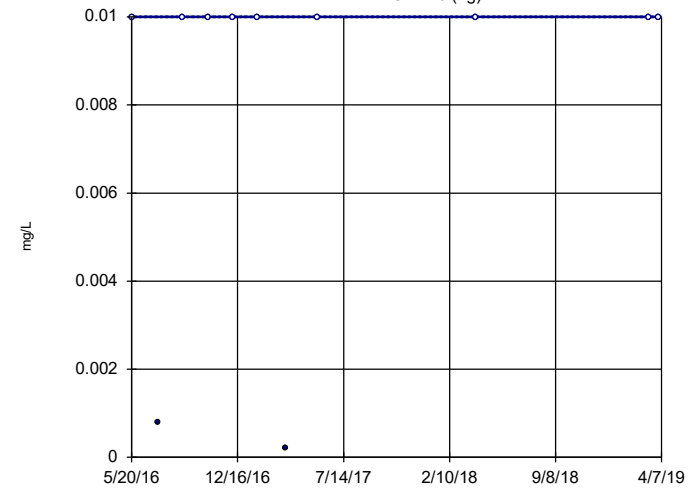


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Molybdenum Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-6 (bg)

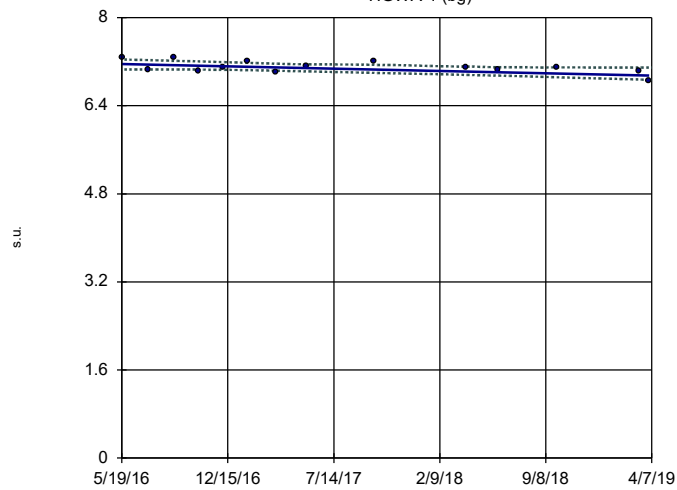


n = 11
Slope = 0
units per year.
Mann-Kendall
statistic = 5
critical = 27
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Molybdenum Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

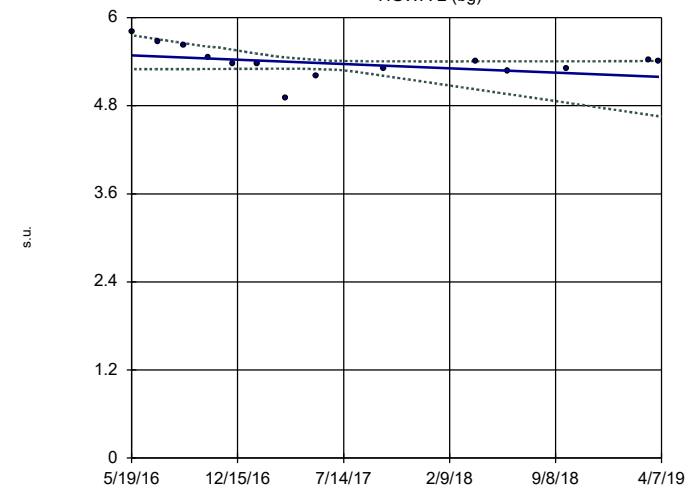


n = 14
Slope = -0.07213
units per year.
Mann-Kendall
statistic = -31
critical = -37
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: pH Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

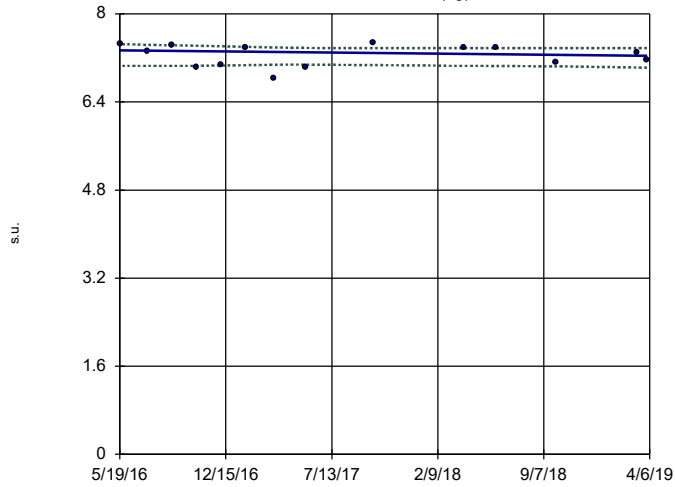


n = 14
Slope = -0.1014
units per year.
Mann-Kendall
statistic = -31
critical = -37
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: pH Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

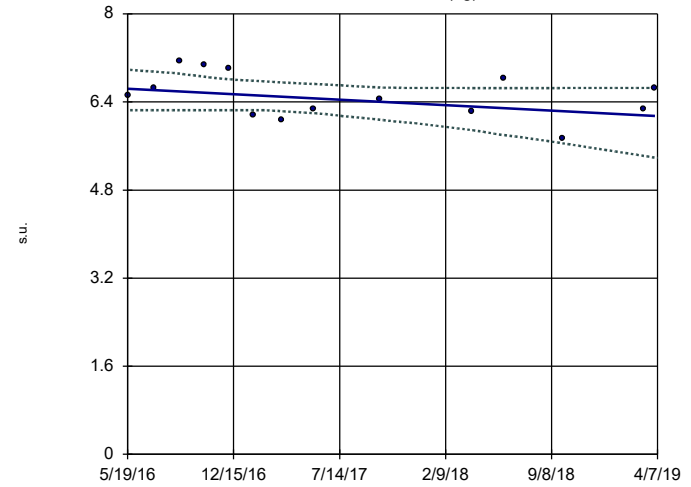


n = 14
 Slope = -0.03425
 units per year.
 Mann-Kendall
 statistic = -14
 critical = -37
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: pH Analysis Run 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

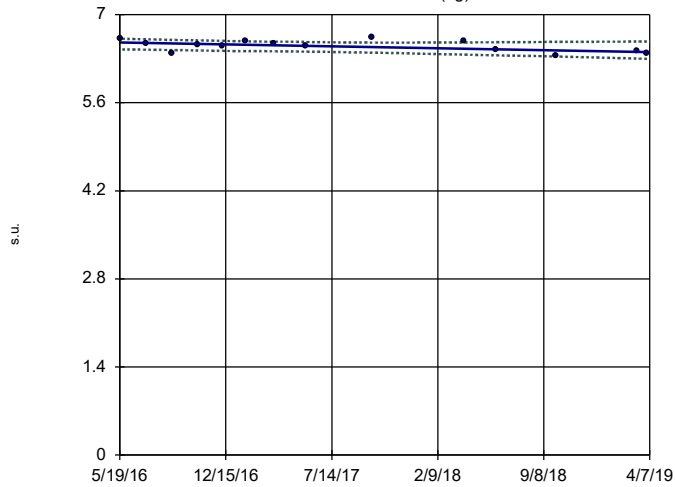


n = 14
 Slope = -0.1713
 units per year.
 Mann-Kendall
 statistic = -23
 critical = -37
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: pH Analysis Run 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

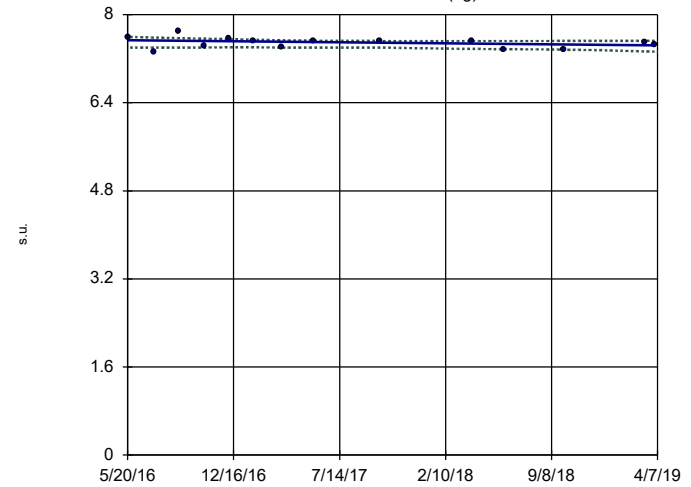


n = 14
 Slope = -0.05259
 units per year.
 Mann-Kendall
 statistic = -30
 critical = -37
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: pH Analysis Run 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-6 (bg)

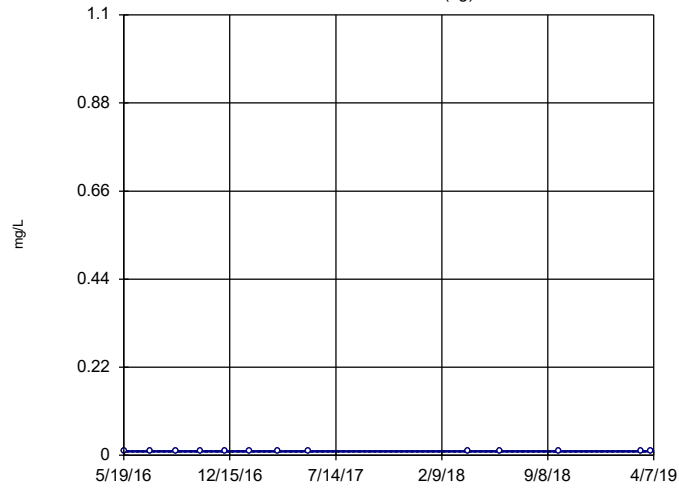


n = 14
 Slope = -0.03192
 units per year.
 Mann-Kendall
 statistic = -26
 critical = -37
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: pH Analysis Run 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

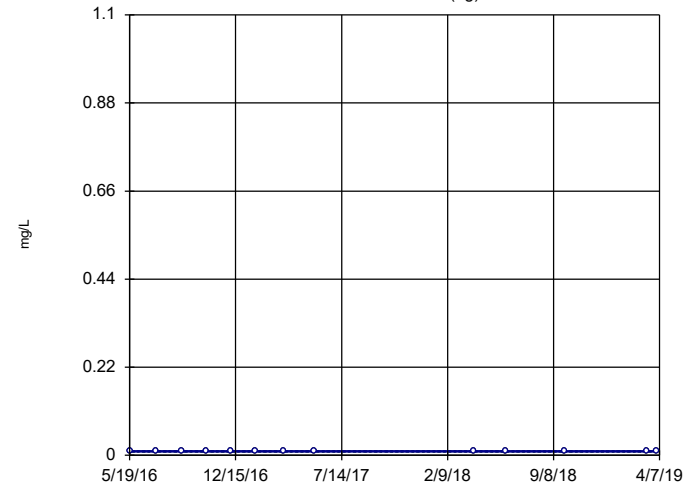
HGWA-1 (bg)



Constituent: Selenium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

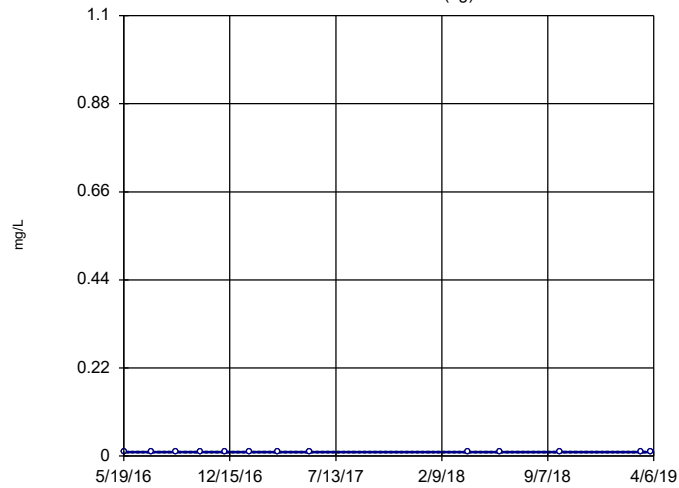
HGWA-2 (bg)



Constituent: Selenium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

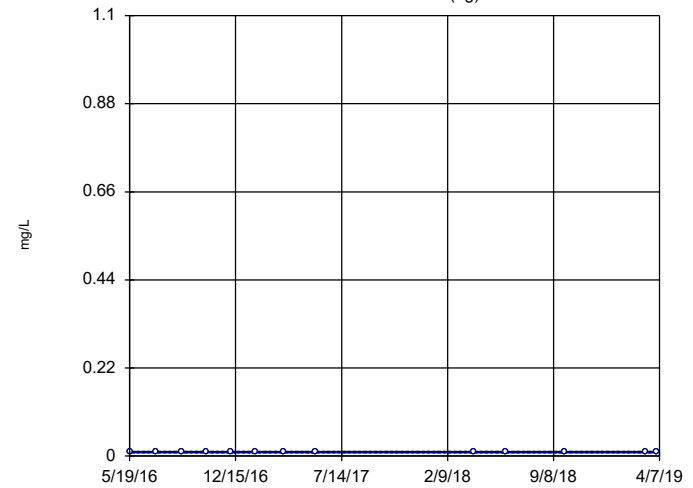
HGWA-3 (bg)



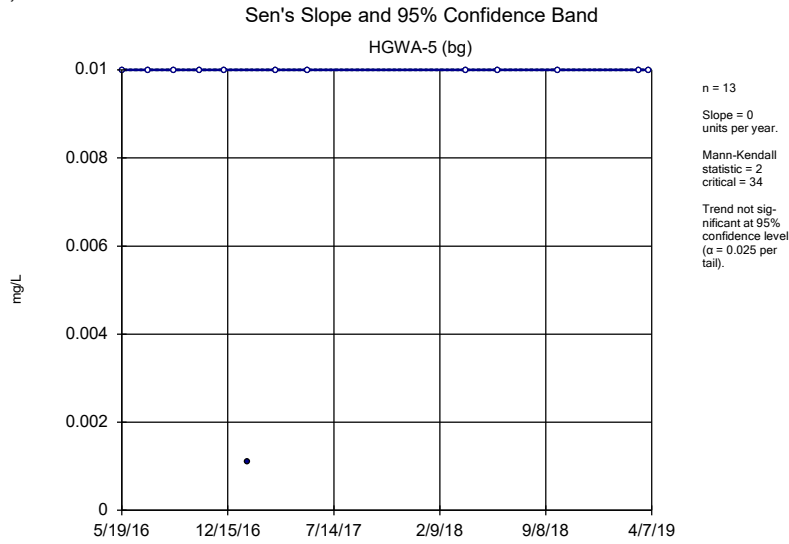
Constituent: Selenium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

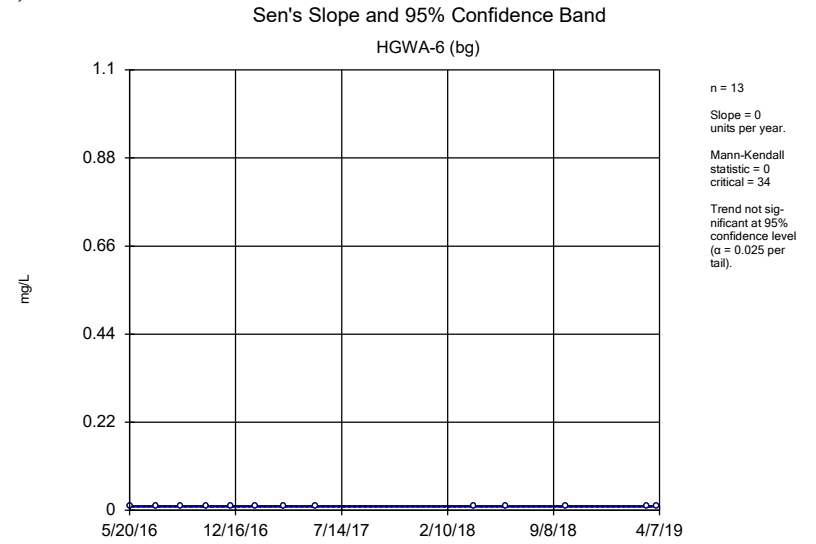
HGWA-4 (bg)



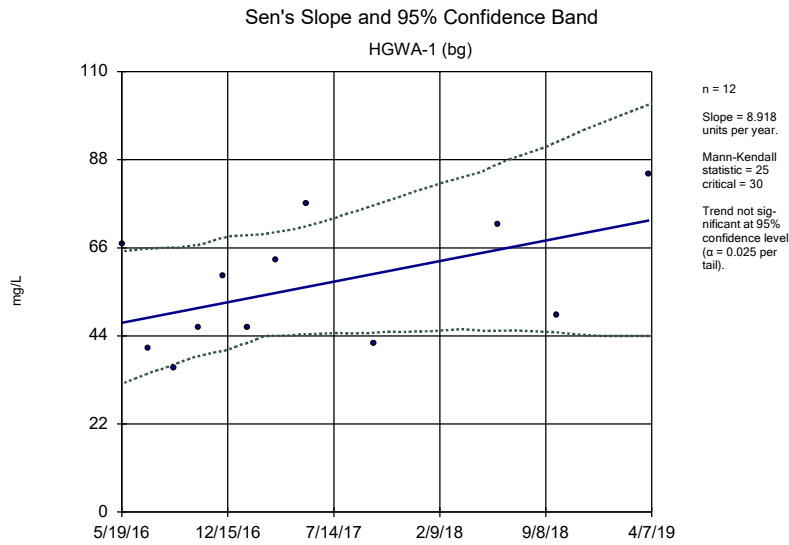
Constituent: Selenium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



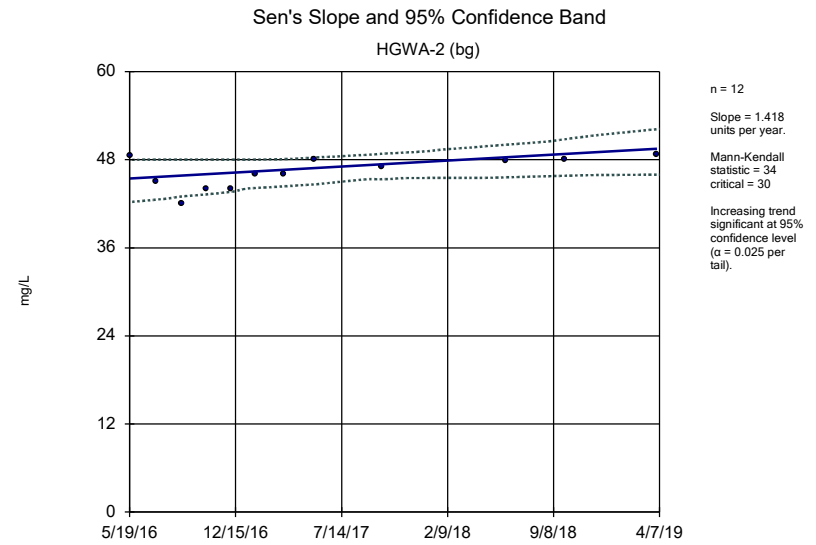
Constituent: Selenium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



Constituent: Selenium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

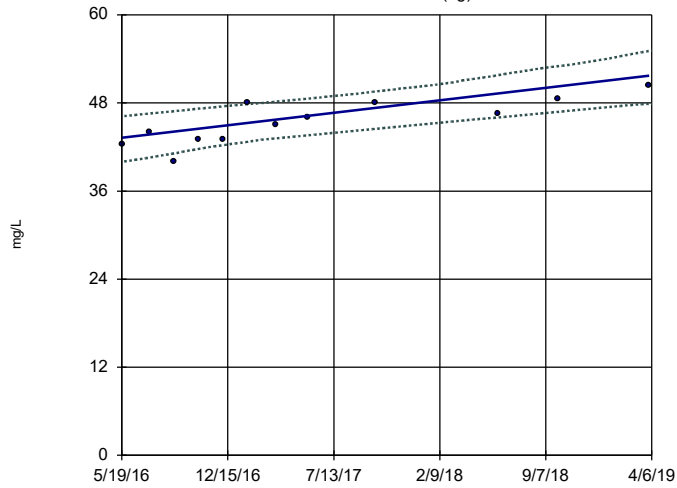


Constituent: Sulfate Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2



Constituent: Sulfate Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

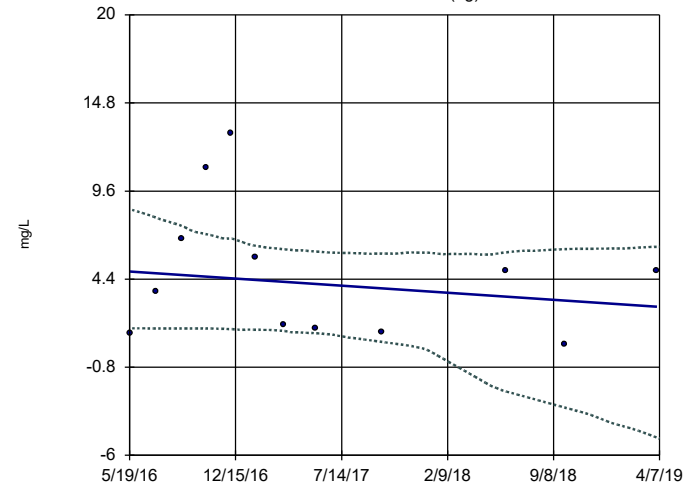
Sen's Slope and 95% Confidence Band
HGWA-3 (bg)



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 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

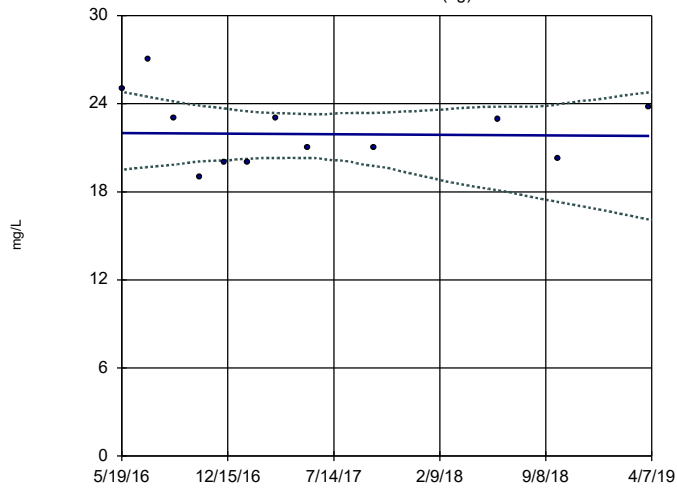
Sen's Slope and 95% Confidence Band
HGWA-4 (bg)



n = 12
Slope = -0.7193
units per year.
Mann-Kendall
statistic = -13
critical = -30
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Sulfate Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

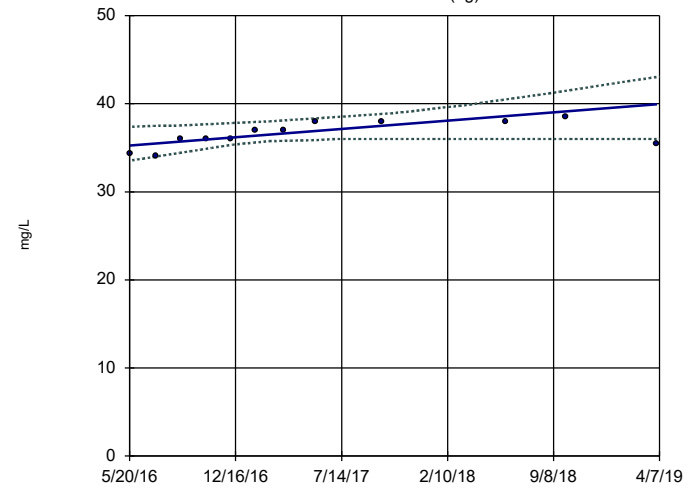
Sen's Slope and 95% Confidence Band
HGWA-5 (bg)



n = 12
Slope = -0.06972
units per year.
Mann-Kendall
statistic = -5
critical = -30
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Sulfate Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-6 (bg)

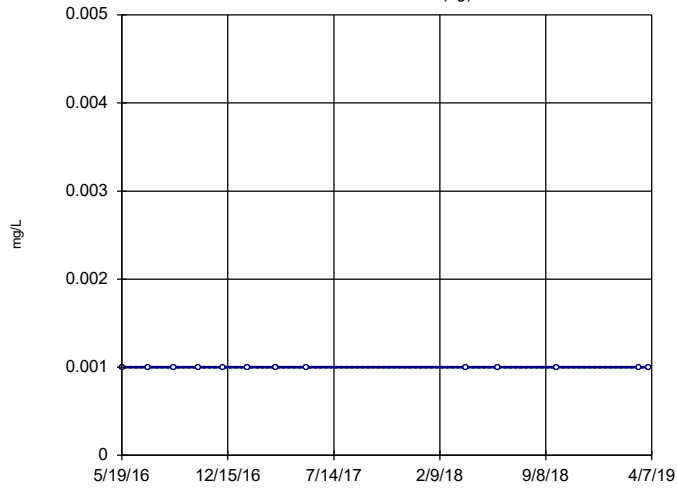


n = 12
Slope = 1.632
units per year.
Mann-Kendall
statistic = 39
critical = 30
Increasing trend
significant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Sulfate Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-1 (bg)

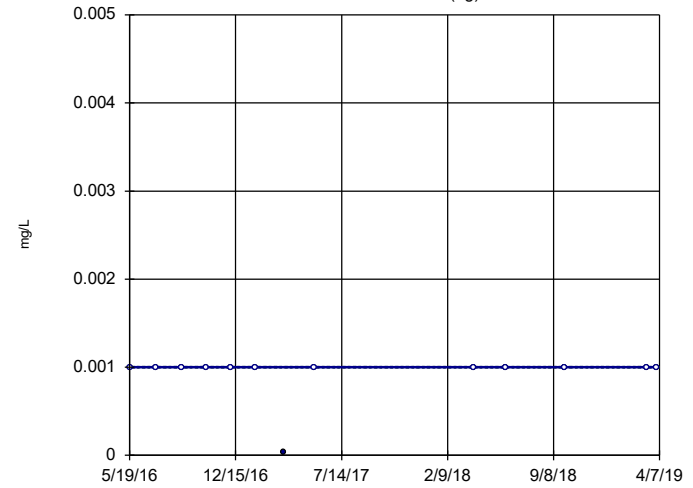


n = 13
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 34
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Thallium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-2 (bg)

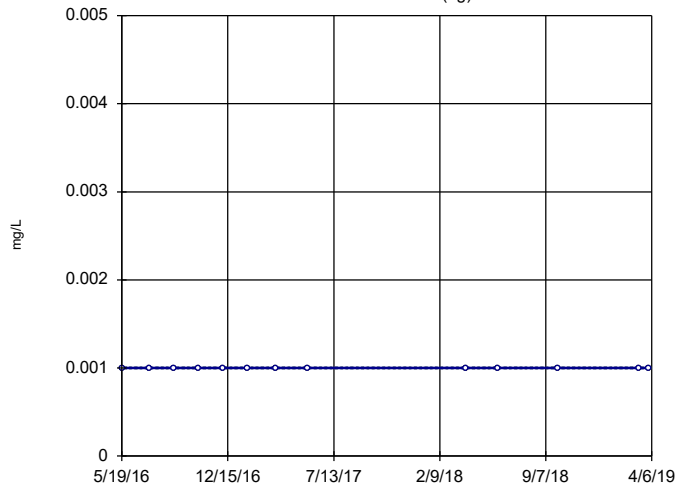


n = 13
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 34
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Thallium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

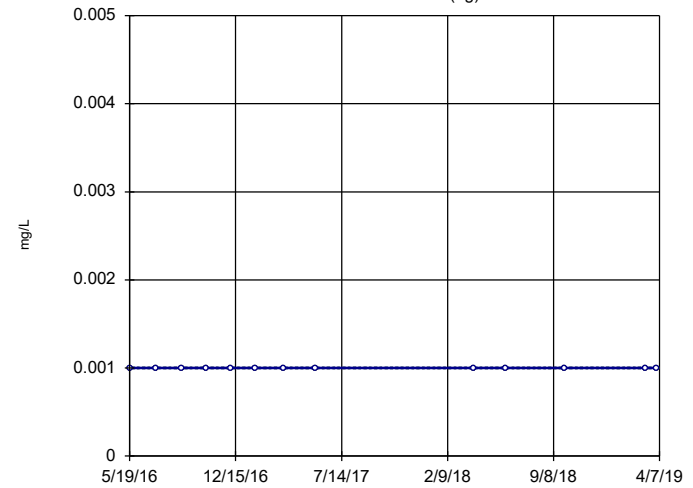


n = 13
Slope = 0
units per year.
Mann-Kendall
statistic = 0
critical = 34
Trend not sig-
nificant at 95%
confidence level
($\alpha = 0.025$ per
tail).

Constituent: Thallium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

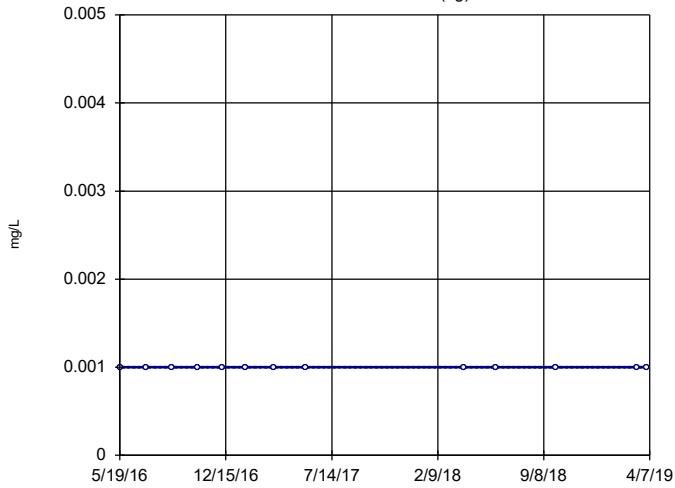
HGWA-4 (bg)



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).

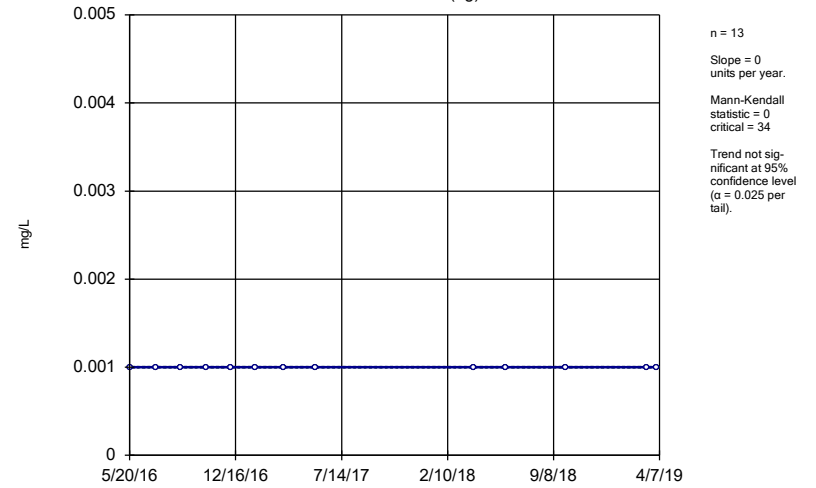
Constituent: Thallium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-5 (bg)



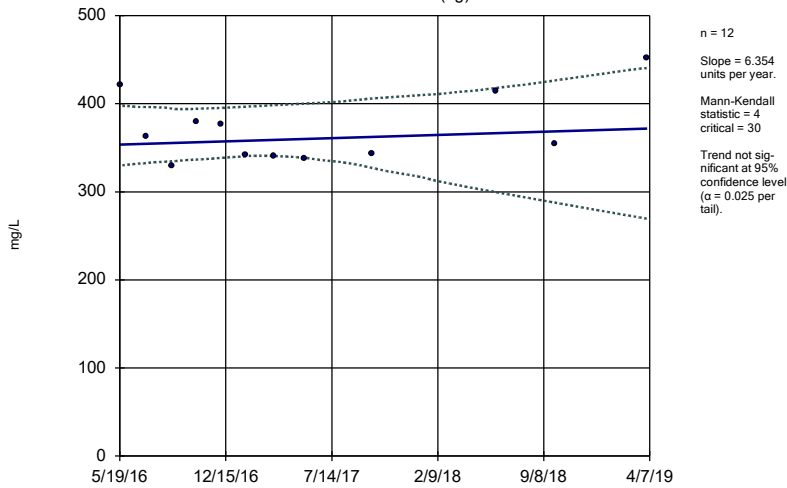
Constituent: Thallium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-6 (bg)



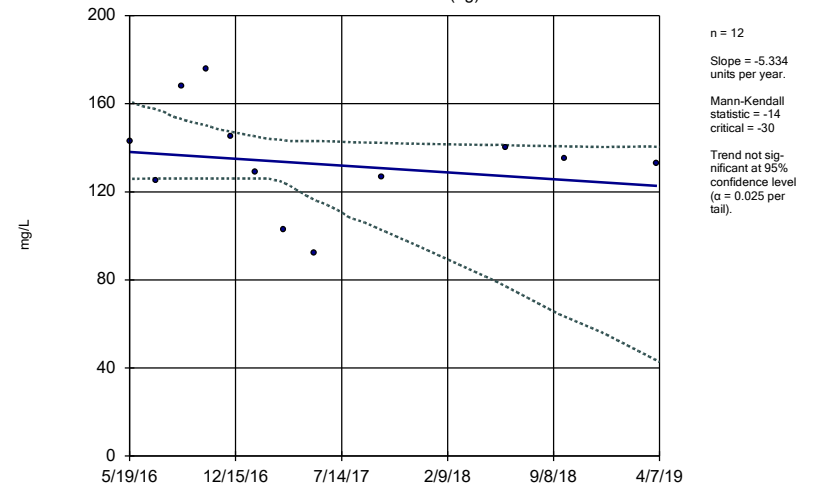
Constituent: Thallium Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band
HGWA-1 (bg)



Constituent: Total Dissolved Solids Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

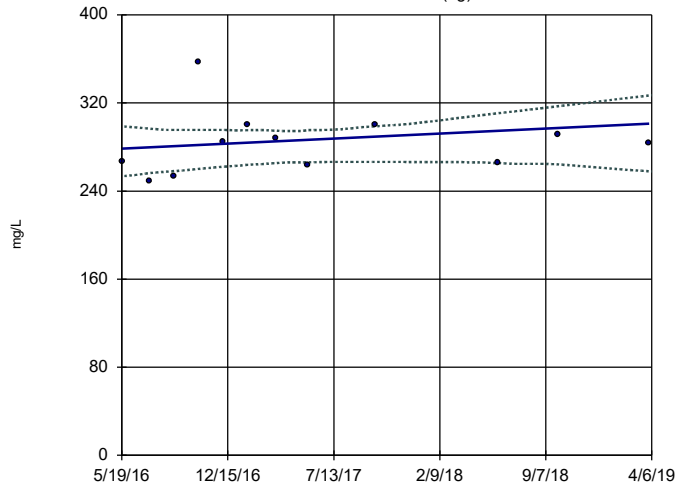
Sen's Slope and 95% Confidence Band
HGWA-2 (bg)



Constituent: Total Dissolved Solids Analysis Run 7/22/2019 2:05 AM
Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-3 (bg)

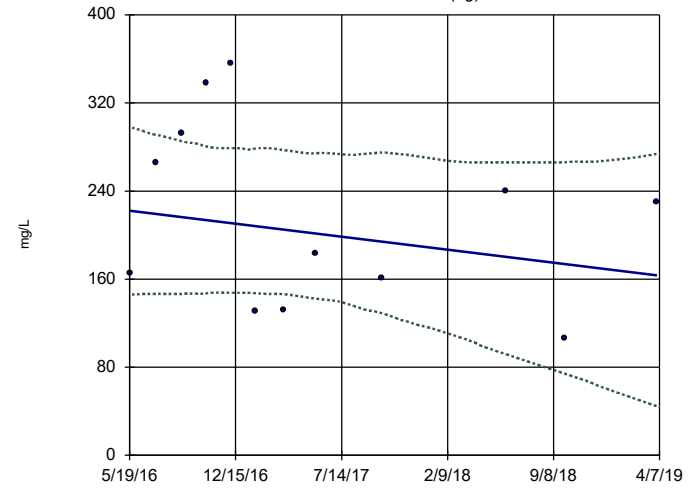


n = 12
 Slope = 7.889
 units per year.
 Mann-Kendall
 statistic = 11
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-4 (bg)

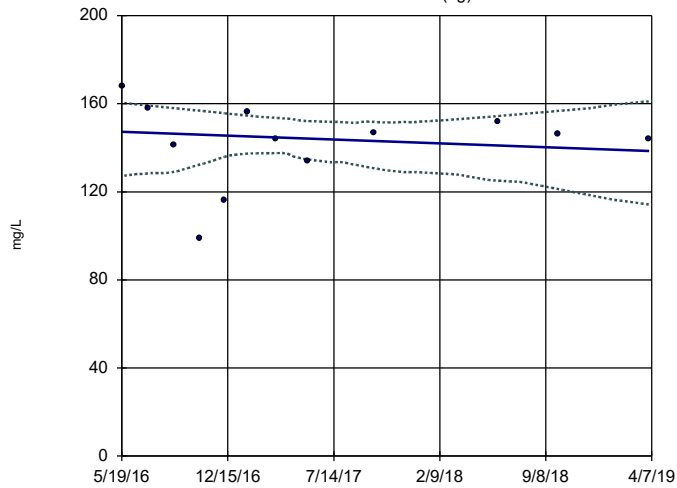


n = 12
 Slope = -20.46
 units per year.
 Mann-Kendall
 statistic = -12
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

HGWA-5 (bg)

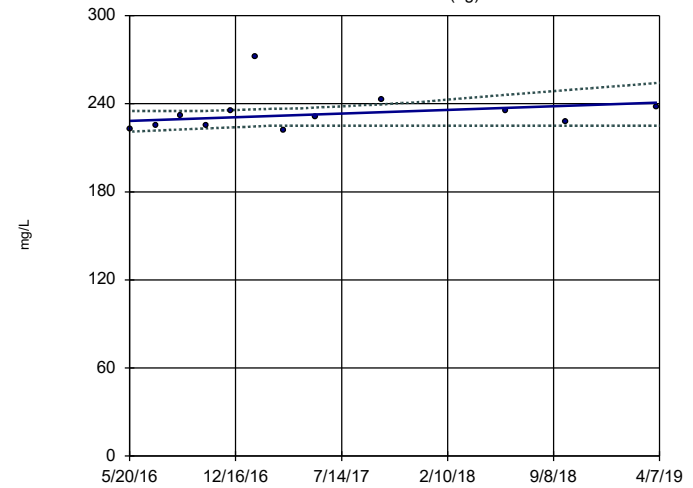


n = 12
 Slope = -3.047
 units per year.
 Mann-Kendall
 statistic = -7
 critical = -30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band

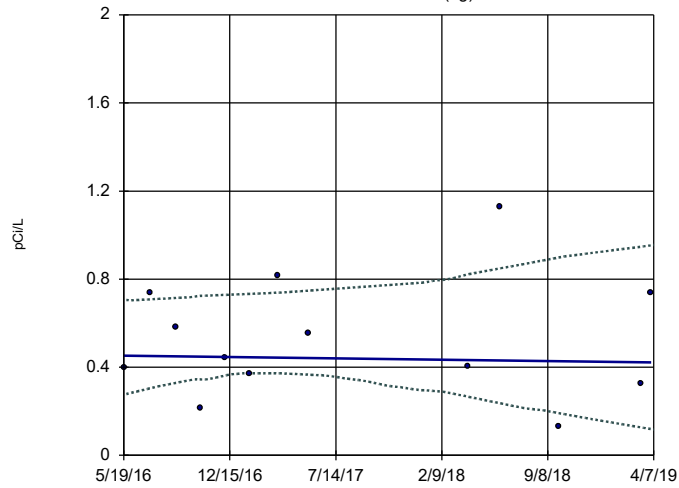
HGWA-6 (bg)



n = 12
 Slope = 4.34
 units per year.
 Mann-Kendall
 statistic = 22
 critical = 30
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Total Dissolved Solids Analysis Run 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

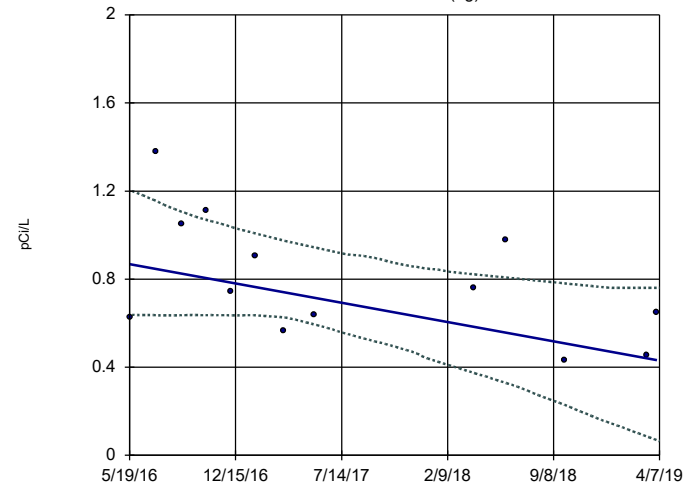
Sen's Slope and 95% Confidence Band HGWA-1 (bg)



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 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

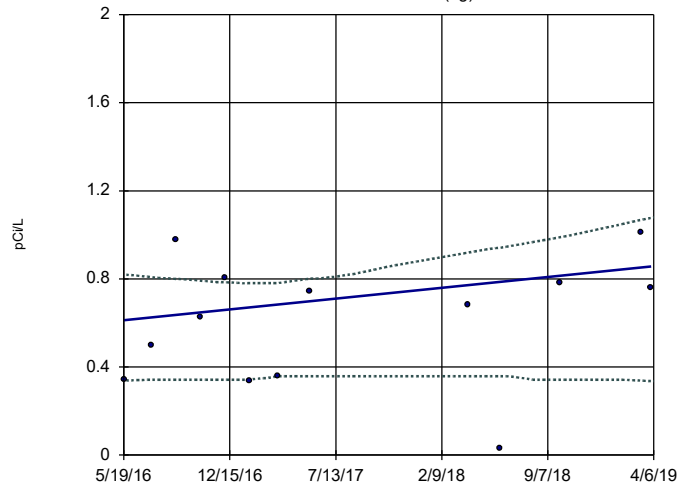
Sen's Slope and 95% Confidence Band HGWA-2 (bg)



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 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

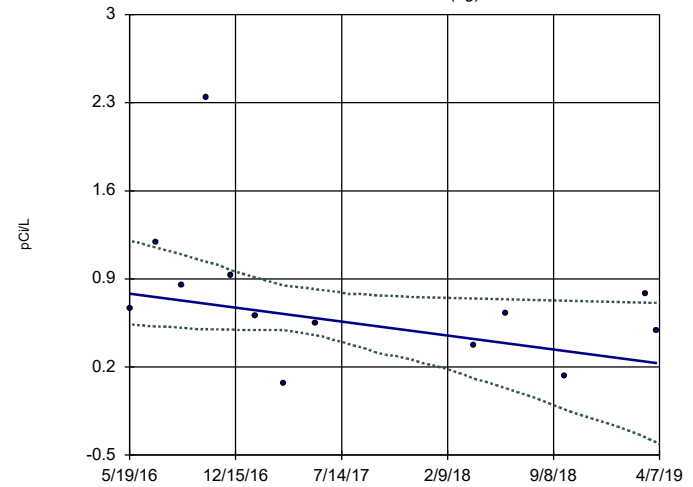
Sen's Slope and 95% Confidence Band HGWA-3 (bg)



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 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

Sen's Slope and 95% Confidence Band HGWA-4 (bg)



n = 13
 Slope = -0.1923
 units per year.
 Mann-Kendall
 statistic = -30
 critical = -34
 Trend not sig-
 nificant at 95%
 confidence level
 ($\alpha = 0.025$ per
 tail).

Constituent: Total Radium Analysis Run 7/22/2019 2:05 AM
 Plant Hammond Client: Georgia Power Company Data: Hammond AP-2

